DEFAULTING RATE OF MDR-TB PATIENTS IN THE MDR UNIT OF LIMPOPO PROVINCE

by

Lucky Thembha Chauke

Submitted in fulfillment of the requirements

for the degree of

MASTERS IN NURSING SCIENCE

In the school of

HEALTH SCIENCES

At the

UNIVERSITY OF VENDA

SUPERVISOR: PROF. ML NETSHIKWETA

CO-SUPERVISOR: PROF.VO NETSHANDAMA

August 2014

© University of Venda

UNIVERSITY OF VENDA
LIBRARY

DECLARATION

I, **Lucky Thembha Chauke**, declare that "**Defaulting Rate of MDR-TB Patients in the MDR Unit of Limpopo Province**" is my original work and that all the sources that I have used or quoted have been indicated and acknowledged by means of complete references, and that this work has not been submitted before for any other degree at any other institution of higher education.

Lucky Thembha Chauke : .....
Student Number: 11533360

Date Signed : 25 August 2015

© University of Venda

DEDICATION

I dedicate this study to:

- The glory and honour of God, my Creator and Redeemer.
- My parents, Mr HD and Mrs M Chauke.
- My late brothers, Mzamani Morris and Hitekani Goodwill Chauke, may their souls rest in peace.
- My wife, Lindelani Nemabaka and our two children, Akani and Vunene Chauke.
- My remaining siblings, Engelinah, Vincent and Reginald.

© University of Venda

University of Venda
Creating Future Leaders

ACKNOWLEDGEMENTS

- I would like to express my sincere gratitude to the following people for their valuable contribution in this study:

- Prof ML Netshikweta, for her continuous support and guidance throughout the study, she has worked tirelessly with me to ensure that this study becomes a success.

- Prof VO Netshandama, for laying a foundation of the study with me and seeing it through to the end, for her dedication and support throughout the study.

- The provincial Department of Health and Social Development for granting me the permission to conduct the study in the government institution.

- The University of Venda Research Division and Library for financial support and assistance in the library, respectively.

- My family and friends for their continuous support and encouragement.

- Professor DC Hiss, Department of Medical Biosciences, University of the Western Cape, for providing editorial assistance.

© University of Venda

University of Venda
Creating Future Leaders

ABSTRACT

Context: Tuberculosis was declared a global emergency in 1993 by the World Health Organization. TB is amongst the top ten causes of global mortlity. The purpose of this study was to explore factors that influence the defaulting rate of MDR-TB patients in the MDR unit in the Limpopo Province, South Africa. A contextual, explorative, and descriptive research design, using qualitative methodology, was adopted in the study.

Methods: Permission to conduct the study at the MDR unit was granted by the Limpopo Provincial Department of Health. Further permission was sort and granted by the MDR unit management. Participants meeting the inclusion criteria into the study were selected and the study and consent form was explained before interviews conducted. Individual interviews were conducted using a semi-structured interview guide to collect data among tuberculosis (TB) patients hospitalized in the MDR unit of Limpopo Province, South Africa. Tesch's (1994) open-coding method of data analyses was adopted in analyzing the qualitative data.

Results: The findings of this study revealed that there were patient factors, cultural beliefs, health care system factors and health care practitioner related factors that contributed to patients defaulting their TB treatment. Almost 15 participants reported that their period of stay in MDR unit was prolonged and that they were not thoroughly counselled or informed about their treatment during their hospital stay.

Recommendation: Further research is required on various topical aspects of TB, HIV/AIDS and sexually transmitted infections (STIs) prevention and control in such institutions.

Key concepts: adherence, defaulter, patient, treatment, drug-resistant tuberculosis, MDR unit

© University of Venda

University of Venda
Creating Future Leaders

LIST OF ACRONYMS

AFB	Acid Fast Bacilli
AIDS	Acquired Immunodeficiency Syndrome
ART	Antiretroviral Therapy
BCG	Bacillus Calmette-Guérin
CEO	Chief Executive Officer
DoH	Department of Health
DOTS	Directly Observed Therapy Short Course
DST	Drug Sensitivity Test
DRS	Drug Resistance Surveillance
EPI	Expanded Programme on Immunization
HAART	Highly Active Antiretroviral Therapy
HIV	Human Immunodeficiency Virus
IUATLD	International Union Against Tuberculosis and Lung Disease
MDR-TB	Multidrug-resistant Tuberculosis
MRC	Medical Research Council
NGO	Non Governmental Organisation(s)
NPO	Non Profit Organisation(s)
NTCP	National Tuberculosis Control Programme
PHC	Primary Health Care
SANTA	South African National Tuberculosis Association
STI	Sexually Transmitted Infection(s)
TB	Tuberculosis
TST	Tuberculin Skin Test
WHO	World Health Organization
XDR-TB	Extreme Drug-Resistant Tuberculosis
UNICEF	United Nations Children's Fund
USA	United States of America
VCT	Voluntary Counselling and Testing

© University of Venda

University of Venda
Creating Future Leaders

CONTENTS

DECLARATION ii
DEDICATION iii
ACKNOWLEDGEMENTS iv
ABSTRACT v
LIST OF ACRONYMS vi
CONTENTS vii
LIST OF FIGURES xi
LIST OF TABLES xi
CHAPTER 1 1
ORIENTATION OF THE STUDY *1*
1.1 Introduction 1
1.2 Background and Rationale 1
1.3 Problem Statement 6
1.4 Research Questions 7
1.5 Purpose of the Study 7
1.6 Research Objectives 7
1.7 Significance of the Study 8
1.8 Definitions of Concepts of the Study 8
1.8.1 Adherence 8
1.8.2 Defaulter 9
1.8.3 Patient 9
1.8.4 Treatment 9
1.8.5 Drug-Resistant Tuberculosis 9
1.8.6 MDR Hospital (Unit) 9
1.9 Assumptions of the Study 10
1.9.1 Meta-Theoretical Assumptions 10
1.9.2 Theoretical Assumptions 10
1.9.3 Methodological Assumptions 11
1.10 Research Design and Method 11
1.10.1 Research Design 11
1.10.2 Research Setting 11
1.10.3 Research Population 12
1.10.4 Data Collection Procedure 12
1.10.5 Data Analysis 12
1.10.6 Ethical Considerations 12
1.11 Scope and Limitations of the Study 13
1.12 Structure of the Dissertation 13
1.13 Conclusion 14

© University of Venda

University of Venda
Creating Future Leaders

CHAPTER 2 ..... **15**
LITERATURE REVIEW *15*
2.1 Introduction 15
2.2 Factors Contributing to Defaulting of TB Treatment 15
2.2.1 Poverty and Tuberculosis 18
2.2.2 Lack of Support 18
2.2.3 Alcoholism and Tuberculosis 19
2.2.4 Migration and Tuberculosis 19
2.2.5 Stigmatization of Tuberculosis 20
2.2.6 Cultural Beliefs, Attitudes and Tuberculosis 21
2.3 Strategies to Combat Tuberculosis 22
2.3.1 Bacillus Calmette-Guérin (BCG) Vaccine 22
2.3.2 Directly Observed Treatment Short Course Strategy 24
2.3.2.1 Political Commitment 24
2.3.2.2 Tuberculosis Case Detection 25
2.3.2.3 Standardized Short Course Chemotherapy 25
2.3.2.4 A System of Regular Drug Supply 25
2.3.2.5 Standardized Recording and Reporting System 26
2.3.3 Chemotherapy for Susceptible Tuberculosis 26
2.3.3.1 Case Definitions 27
2.3.3.1.1 Pulmonary Tuberculosis 27
2.3.3.1.2 Extra-Pulmonary Tuberculosis 27
2.3.3.1.3 History of Prior Tuberculosis Therapy 27
2.3.3.2 Choice of Regimens 29
2.3.3.2.1 Category I 30
2.3.3.2.2 Category II 30
2.3.3.2.3 Category III 31
2.3.3.2.4 Category IV 32
2.3.3.3 Poor Adherence to Tuberculosis Treatment 33
2.3.3.4 Treatment Compliance 33
2.3.4 The Extent of the Tuberculosis Health Problem 35
2.3.5 The Emergence of MDR-TB—Its Management and Treatment 37
2.3.6 Management of Drug-Resistant Tuberculosis 38
2.3.6.1 Standardized Treatment 38
2.3.6.2 Empirical Treatment 38
2.3.6.3 Individualized Treatment 39
2.3.7 Impact of HIV/AIDS on the Incidence of Tuberculosis in Sub-Saharan Africa 39
2.4 Health Care System, Policies and Guidelines in Relation to Tuberculosis 40
2.4.1 Health Care Facilities 40
2.4.2 Health Care Personnel and Training 42
2.4.3 Staff Shortage 43
2.4.4 Equipment, Supplies and Drug Supplies 43
2.4.5 Legal Framework and Principles Pertaining to Tuberculosis 44

UNIVERSITY OF VENDA
LIBRARY

© University of Venda

University of Venda
Creating Future Leaders

2.4.6 Morbidity Patterns....46
2.4.7 Tuberculosis and Co-Infection with HIV and AIDS....47
2.4.8 Implementation Issues in TB/HIV/AIDS Programme Collaboration and Integration....48
2.4.8.1 Malawi....49
2.4.8.2 South Africa....50
2.4.9 Diagnosing and Categorizing Tuberculosis Patients....52
2.4.9.1 Drug-Susceptible Tuberculosis....53
2.4.9.2 Drug-Resistant Tuberculosis....53
2.4.10 Registering of Tuberculosis Patients....54
2.4.11 Managing and Retrieving Tuberculosis Patients Interrupting Treatment....55
2.4.12 Health Education....55
2.4.13 Monitoring and Evaluation....56
2.4.13.1 Treatment Response....57
2.4.13.2 Home Visits....58
2.5 Conclusion....58
CHAPTER 3....59
RESEARCH DESIGN AND METHODOLOGY....59
3.1 Introduction....59
3.2 Research Strategy....59
3.3 Research Design....59
3.3.1 Qualitative Research....61
3.3.2 Exploratory Studies....61
3.3.3 Descriptive Research....61
3.3.4 Contextual Designs....62
3.4 Research Population....62
3.5 Sampling, Sample Criteria and Sampling Method....63
3.6 Data Collection....65
3.6.1 Semi-Structured Interview Method....66
3.6.2 Field Notes....67
3.6.3 The Role of the Researcher....67
3.6.4 The Use of Communication Techniques....68
3.6.4.1 Probing....68
3.6.4.2 Paraphrasing....68
3.6.4.3 Clarifying....68
3.6.4.4 Making a Minimal Response....68
3.6.4.5 Summarizing....68
3.6.5 Data Gathering....69
3.6.5.1 Data Gathering Method....69
3.6.5.2 Planning for Data Gathering....70
3.7 Data Analysis....71
3.8 Pilot Study....72
3.9 Measures to Ensure Trustworthiness....72
3.10 Ethical Considerations....73

UNIVERSITY OF VENDA
LIBRARY

© University of Venda

University of Venda
Creating Future Leaders

3.10.1 Informed Consent 73
3.10.1.1 Explanation of the Procedure 73
3.10.1.2 Description of Benefits 76
3.10.1.3 Right to Privacy 76
3.10.1.4 Right to Anonymity and Confidentiality 76
3.10.1.5 Offer to Answer Questions 77
3.10.1.6 The Right to Self-Determination and Justice 77
3.10.2 Veracity 77
3.10.3 Fidelity 77
3.10.4 Non-Coercive Disclaimer 77
3.11 Conclusion 78
CHAPTER 4 79
DATA ANALYSIS AND LITERATURE CONTROL 79
4.1 Introduction 79
4.2 Operationalization of Data Analysis and Literature Control 79
4.2.1 Semi-Structured Interviews 79
4.2.2 Literature Control 81
4.3 The Process of Data Analysis 81
4.4 Themes and Categories Identified from the Data Analysis 82
4.4.1 Theme 1: Patient Factors 82
4.4.1.1 Category 1.1: Substance Abuse Increase TB Treatment Interruption 82
4.4.1.2 Category 1.2: Poverty 85
4.4.1.3 Category 1.3: Socioeconomic Factors and Boredom 86
4.4.2 Theme 2: Cultural Beliefs 87
4.4.2.1 Category 2.1: Treatment Interruption Due to Traditional and Cultural Beliefs 87
4.4.2.2 Category 2.2: Lack of Knowledge Due to Religious Beliefs 88
4.4.3 Theme 3: Health Care System Factors 89
4.4.3.1 Category 3.1: Patients' Dietary Needs During Hospitalization 90
4.4.3.2 Category 32: Prolonged Hospitalization in MDR Unit 91
4.4.4 Theme 4: Health Care Practitioner-Related Factors 94
4.4.4.1 Category 4.1: Inadequate Health Education 94
4.4.4.2 Category 4.2: Nurses' Attitudes 95
4.5 Conclusion 97
CHAPTER 5 98
CONCLUSIONS, LIMITATIONS AND RECOMMENDATIONS 98
5.1 Introduction 98
5.2 Conclusions 98
5.2.1 Patient Factors 98
5.2.2 Cultural Beliefs 99
5.2.3 Health Care System Factors 99
5.2.4 Health Care Practitioner-Related Factors 99
5.3 Recommendations 100
5.3.1 Health Care Education 100

© University of Venda

University of Venda
Creating Future Leaders

5.3.2 Infection Control Practices 102
5.3.3 Health Care Policies and Provision of Quality TB Care 104
5.3.4 Health Care Administration 107
5.4 Perspectives for Further Research 109
5.5 Limitations of the Study 110
5.6 Conclusion 110
REFERENCES 111
ANNEXURE A 118
REQUEST TO CONDUCT RESEARCH 118
ANNEXURE B 119
PERMISSION FROM LIMPOPO PROVINCE DEPARTMENT OF HEALTH TO CONDUCT THE STUDY 119
ANNEXURE C 120
SENEX APPROVAL OF MCUR RESEARCH PROPOSAL 120
ANNEXURE D 121
ETHICS CLEARANCE CERTIFICATE 121
ANNEXURE E 122
INFORMED CONSENT 122
ANNEXURE F 123
INTERVIEW GUIDE 123
ANNEXURE G 124
CONFIRMATION BY LANGUAGE EDITOR 124

LIST OF FIGURES

Figure 4.1: Age distribution of the participants 80

LIST OF TABLES

Table 2.1: Incidence of tuberculosis treatment interruption in South Africa in 2007 17
Table 2.2: Tuberculosis cases in South Africa—1999 to 2006 29
Table 2.3: Statistics of tuberculosis cases in South African provinces 32
Table 2.4: Tuberculosis treatment outcomes in South Africa 34
Table 3.1: Summary of measures to ensure trustworthiness 74
Table 4.1: Themes and categories identified from the data analysis 83

© University of Venda

University of Venda
Creating Future Leaders

CHAPTER 1

ORIENTATION OF THE STUDY

1.1 Introduction

Tuberculosis (TB) was declared a global emergency in 1993 by the World Health Organization (WHO/V&B/99.23:5). During that year, WHO estimated that over 1.9 million deaths occurred due to TB. To date, TB continues to be a global health problem as it is accelerated by the scourge of the HIV/AIDS epidemic. In South Africa, TB is regarded as a top national priority as it is one of the most common causes of mortality. According to the Department of Health (DoH, 1997:119), TB is also among the top ten causes of global mortality and it mostly affects people in low income and underdeveloped and developing countries.

Bacillus Calmette-Guérin (BCG) is a vaccine which was incorporated into the extended infant programme on immunization schedule in 1974 to protect human beings against TB disease (WHO/V&B/99.23:5-6). Programmes such as the Directly Observed Therapy Short Course Strategy (DOTS) and the STOP-TB strategy have been introduced by the WHO to help control and combat the spread of TB disease, however, TB still increasingly emerges globally (WHO/V&B/99.23:5-6).

1.2 Background and Rationale

The global increase in TB disease has led the WHO to intervene through initiation of the Expanded Programme on Immunization (EPI) in May 1974 with the objective to vaccinate infants and children throughout the world to provide protection against TB disease. The WHO's interventions included immunization, treatment and care as well as management strategies such as DOTS. Due to an extreme emergence of TB disease, the WHO incorporated the BCG vaccine into the EPI infant vaccination schedule (WHO/V&B/99.23:5-6).

© University of Venda

University of Venda
Creating Future Leaders

BCG vaccine has been used by many countries for vaccination since then till to date, but TB disease infection still grow and infect a number of people over a short periods of time(WHO/V&B/99.23:5). To combat and eliminate the cases of TB, the WHO has recommended the adoption of a strategy called DOTS to ensure that infectious TB patients are identified and cured using the standardized drug combinations. Treatment supporters, e.g., a nurse, patient co-worker, etc., observe patients as they swallow their drugs daily (DoH, 2000:9; DoH, 2007:8).

Since the introduction of the DOTS strategy in the early 1990s, considerable progress has been made in the global TB control. By 2000, 148 countries had adopted the WHO DOTS strategy for TB control and 27% of the global TB cases were treated under DOTS strategy (WHO/CDS/TB/2002.297:3). Implementation of DOTS strategy has helped many countries to improve national TB control and make major progress in TB control. By 2004, more than 20 million patients have been treated in DOTS programmes worldwide and more than 16 million of them had been cured. The global treatment success rate among new smear-positive TB cases had reached 83% by 2003 and in 2004 the case detection rate was 53% (WHO/HTM/TB/2006.368:4).

South Africa, is exception, also adopted the DOTS strategy in combating and controlling TB as recommended by the WHO. The plan for South Africa about TB was to adopt the national advocacy and social mobilization plan for 2002 - 2005. The norms being to ensure that every South African knows about the basic facts of TB and to reach the global targets: a 70% detection rate of infectious TB cases, 85% cure rate among those detected and treatment interruption rate of less than 5% (DoH, 2000:1-3). South Africa also implements the five elements of the DOTS strategy as described by the WHO. All community DOTS supporters receive a course of training equivalent to at least one week (DoH, 2000:1-3). In South Africa, a study by Mankaleme (2004:59) in Gauteng Province examined the observation of TB patients by treatment supporters during the treatment course and the implementation of the DOTS

© University of Venda

University of Venda
Creating Future Leaders

strategy. The results of the study indicated that there were interfering factors relating to the working relationship between TB patients and the treatment supporters in implementing the DOTS programme. The study identified lack of commitment of treatment supporters in the DOTS strategy, sensitivity to gender issues, sensitivity of treatment supporters to norms and values of TB patients.

The study further indicated that the remuneration for the treatment supporters, language barriers that interfere with communication, selection criteria for treatment supporters, lack of information about DOTS programme regarding side effects and extensive training for treatment supporters should be emphasized. The findings of the study suggested that both TB patients and the treatment supporters have to follow the strategies designed in the study to promote observation of TB patients by treatment supporters (Mankalema, 2004:59). The strategies in this study include: ensuring commitment of treatment supporters for TB patients, considering gender in assigning TB patients to treatment supporters and all the others that were described in the study.

The treatment regimens each consist of an intensive and a continuation phase. During the intensive phase of treatment, there is a rapid killing of TB bacilli. The patients become practically non-infectious within 2 weeks of taking the treatment, provided there's no drug resistance. During the continuation phase of treatment, fewer drugs are necessary, but they must be taken for a longer period of time to eliminate the remaining TB bacilli. Taking TB treatment regularly prevents the development of MDR-TB (DoH, 1998:48-49, 59).

Taking TB treatment regularly prevents the development of MDR-TB. Probabilities exist that some patients find it difficult to take their TB treatment daily, maybe due to shortage of drug supply, poor support from DOT supporter, poor diet and/or TB defaulting patients, which ultimately places patients at risk of developing MDR-TB. MDR-TB (MDR-TB) is an increasing global health problem, it is largely a man-made problem, being the consequence of

© University of Venda

University of Venda
Creating Future Leaders

human error in any of the following, a physician or health care practitioner error and patient non-compliance during treatment of susceptible TB – these risk factors include previously unsuccessful TB treatment, interruption of TB treatment, inappropriate TB treatment regimen and duration, previous TB treatment in a hospital, high TB prevalence, etc. HIV is not an independent risk factor (British Medical Bulletin 2005 73-74(I):17; WHO/HTM/TB/ 2007.387:5).

Unlike drug-susceptible TB which can be treated by first-line anti-TB drugs and can be easily diagnosed by collection of sputum in patients who have a cough of more than two consecutive weeks and more. The diagnoses of MDR-TB is done by obtaining at least two and preferabvity Tests (DST) are perfomed to with the specimen that produces the best culture which makes it difficult to diagnose patients. These laboratory tests are very expensive and unfortunately MDR-TB can only be confirmed in laboratory of in vitro resistance to one or more first-line anti-TB drugs (WHO/HTM/TB/ 2006.361:17-18). MDR-TB treatment does not only cure the drug-resistant TB, but also prevents its spread and from it developing into other drug-resistant TB variants such as extreme drug-resistant tuberculosis (XDR-TB) which is more complicated than MDR-TB.

The treatment regimens in drug-susceptible TB each consists of intensive and continuation phases, where intensive phase injectable anti-TB drugs are administered and in continuation phase the patient is given oral anti-TB drugs. In MDR-TB, the recommended duration of treatment is guided by smear and culture conversion and the treatment regimen thereof is designed by the physician. The WHO minimal recommended duration is that treatment should last for at least 18 months after culture conversion extension to 24 months may be indicated in patients defined as 'chronic cases' with extensive pulmonary damage (WHO/HTM/TB/ 2006. 361:40-47).

In South Africa, there has been an extreme emergence of MDR-TB as well as in all the other

© University of Venda

University of Venda
Creating Future Leaders

countries in the past few years, which has led to the WHO launching the development of a global MDR-TB and XDR-TB response plan which was proposed for the 2007 and 2008. This global response plan was launched in 2007 to combat the MDR-TB and XDR-TB crisis, where more than 400,000 cases of MDR-TB emerge every year as a result of under investment in basic activities to control TB, poor management of anti-TB drugs and the transmission of drug-resistant strains (WHO/HTM/TB/ 2007.387:1).

The global strategic plan included different countries wherein issues and strategies in combating TB crisis were discussed for each country. For South Africa funds were raised to place national programme officers for two years in order to initiate the implementation of this strategic plan in combating TB (WHO/HTM/TB/ 2007.387:23). Since the treatment period of MDR-TB is 18-24 months, according to the WHO (WHO), the DoH in South Africa has designed policy guidelines for a thorough management of MDR-TB. The designed policy guidelines demand that there should be a specialized management team for MDR-TB, which consists of a respiratory physician or a specially MDR-TB trained medical officer supported by a dedicated MDR-TB trained nurse, a social worker, trained counsellor and an administrative assistant. The specialized management team is responsible for the patient during admission at MDR centres and after discharge to ensure that the patient is sufficiently cured from MDR-TB (DoH, 2004:12-13).

The policy guidelines also stipulate that patients with MDR-TB should be admitted at MDR-TB centres for at least the first four to six months, or preferably until they have produced two consecutive monthly culture-negative sputa. During this four to six months period there are certain patient-related issues that have been documented and reported by the Medical Research Council (MRC) policy brief, these issues can lead to patient treatment failure, patient defaulting treatment and ultimately the development of XDR-TB and death if treatment is not taken at all. The patient-related issues include patients refusing hospitalization, patients discharging themselves from hospital, and infectious patients requesting discharge from

© University of Venda

University of Venda
Creating Future Leaders

hospital (DoH, 2004:12; MRC, 2004:1-4). Drug-susceptible TB can be managed for six months at health centres, clinics, and hospitals without necessarily hospitalizing the TB positive patients unless there are other complications or if the patients are not able to take care of themselves at home. This fact has been made easier by the development of the DOTS strategy by the WHO to ensure that patients take a full course of TB treatment for high TB cure rate (DoH, 2000:9). However, under certain circumstances, reasons, and possibilities of other patients never completing the TB treatment course and some defaulting their treatment leading to MDR-TB which is more difficult and expensive to treat as it requires at least four to six months of hospitalization and expensive drugs (DoH, 2004:11-13). Defaulting of patients to the treatment was the source of concern in the current study.

1.3 Problem Statement

The researcher works with MDR-TB patients with the government's DoH MDR unit situated in Modimolle of Waterberg District in the Limpopo Province. During contact with MDR-TB patients, the researcher observed that 11 of the patients hospitalized in the MDR unit have initially defaulted their drug-susceptible TB treatment. Despite the fact that both drug-susceptible and MDR-TB drugs are readily available and free of charge in health care facilities, including the MDR unit, patients still default their treatment. Defaulting of TB treatment leads to MDR-TB and also XDR-TB which are more complicated and very expensive to treat, however, the government still provide such patients with sufficient treatment.

Ideal ways to deal with patient-related issues have not yet been established or documented in MDR institutions. Patients are still discharging themselves and defaulting from MDR-TB treatment in most MDR institutions in South Africa. Defaulting of MDR-TB treatment increases infection rate as MDR-TB is highly infectious – this stimulated curiosity and concern from the researcher in what should be done to minimize defaulting from the TB treatment protocol in MDR institutions?

© University of Venda

University of Venda
Creating Future Leaders

1.4 Research Questions

In order to describe guidelines to minimize the defaulting rate of MDR-TB during the period of hospital treatment of patients the following research questions were developed:

1. What factors contribute to patients' defaulting rate to TB treatment protocols in the Limpopo Province of South Africa?

2. What are the shortcomings of the current MDR-TB treatment plan?

3. What can be done to minimize the defaulting rate among MDR-TB patients in Limpopo Province of South Africa?

1.5 Purpose of the Study

The purpose of this study was to assess the factors that contribute to defaulting of treatment among patients with MDR-TB in the MDR unit of the Limpopo Province. It was envisage that the outcomes of this study will minimize the rate of TB defaulters because care would have been taken in understanding their reasons and experiences during the treatment plan (WHO/TB/94.177:5).

1.6 Research Objectives

To achieve the purpose in this study, the researcher set out the following objectives, i.e., to:

1. Determine the factors that contributes to patients' defaulting rate to TB treatment protocols in Limpopo Province of South Africa.

2. Assess the shortcomings of MDR-TB treatment plan.

3. Evaluate the extent of using available guidelines in the minimization of the MDR-TB patients' defaulting rate in Limpopo Province of South Africa.

UNIVERSITY OF VENDA
LIBRARY

© University of Venda

4. Draw the recommendations regarding minimization of the MDR-TB patients' defaulting rate in Limpopo Province of South Africa.

1.7 Significance of the Study

The findings and outcomes of this study should contribute towards minimizing the defaulting rate of patients suffering from MDR-TB and therefore increase the cure rate. The study described patient-related issues in the MDR treatment plan which is assisting in the planning of the provision of MDR-TB treatment regimen in MDR hospitals and the guidelines thereof. The study results also provided the body of knowledge to assist other researchers and other institutions to do further research in this area of MDR-TB. The study presented data towards further development of programmes and treatment methodologies that can be instituted by other MDR institutions in South Africa. MDR patients are in the advantage because the findings are submitted to the government for the sake of improving the care for patients hospitalized in the MDR units.

1.8 Definitions of Concepts of the Study

An operational definition, according to Burns & Grove (2009:744), is a method through which a set of characteristics essential to the connotative meaning of a concept is measured or identified. A concept is a term that abstractly describes and names of an object, a phenomenon, or an idea, thus providing it with a separate identity or meaning (Burns & Grove, 2005:731). In this study, the following concepts are relevant:

1.8.1 Adherence

Adherence is the extent to which a patient is able to align his behaviour in terms of taking medication, modifying habit, following a diet or attending clinic with medical or health services (McDonald, Gary & Haynes, 2002:2868). In this study, adherence means the extent of MDR-TB patients taking their TB treatment as prescribed until completion of treatment course.

© University of Venda

University of Venda
Creating Future Leaders

1.8.2 Defaulter

This refers to the failure of a patient to comply with or follow the treatment programme and medication regimen as prescribed (Brunner & Suddart, 2008:649). In this study, a defaulter means any MDR TB patients who did not complete their TB treatment or comply to the TB treatment prescription nd regimen.

1.8.3 Patient

A patient is someone who is suffering from disease, injury, or an abnormal state and engaged in related treatment (Stedman's Medical Dictionary, 2008:1168). In this study, a patient is someone who has been diagnosed with drug-resistant TB and has been taking treatment for at least three months.

1.8.4 Treatment

Treatment is defined as the medical or surgical management of a patient (Stedman's Medical Dictionary, 2008:1590). In this study, treatment is the anti-TB drugs administered to the patient to destroy the drug-resistant TB bacilli.

1.8.5 Drug-Resistant Tuberculosis

According to Brunner & Suddart (2008:643) TB is an infectious disease caused by *Mycobacterium tuberculosis* (*Mtb*) that primarily affects the lung parenchyma, which also may be transmitted to other parts of the body, including meninges, kidneys, bones, lymph nodes and reproductive organs. In this study, drug-resistant TB is an infectious disease which is resistant to anti-TB drug treatment.

1.8.6 MDR Hospital (Unit)

A hospital is defined as an institution providing medical and surgical treatment and nursing care for sick and injured people (Stedman's Medical Dictionary, 2008:1591). In this study, an MDR hospital or unit shall be defined as the institution where drug-resistant TB patients are

© University of Venda

University of Venda
Creating Future Leaders

hospitalized and treated.

1.9 Assumptions of the Study

The researcher acknowledges the complexity of the phenomenon of defaulting of TB treatment and its implications on TB patients. Assumptions are discussed in three dimensions, namely, meta-theoretical, theoretical, and methodological categories respectively.

1.9.1 Meta-Theoretical Assumptions

The researcher believes that patient-related challenges should be critically observed and addressed to improve compliance. The patients' social aspects play a significant role in promoting or minimizing patient compliance. Socialization is the essential need for each human being – if the period of hospitalization does not provide the patients with proper social life the patients are likely to discharge themselves in order to go back to their communities and resume their normal social lives.

1.9.2 Theoretical Assumptions

Maslow's *Hierarchy of Needs* theory concentrates on humans' basic needs and the attempt to satisfy them. According to Maslow, all living human beings, including patients with MDR-TB, have basic needs which have to be met in order to survive and to self-actualize (Sullivan & Decker, 1992:156). Maslow hypothesized five levels of needs: physiological, safety, social, esteem and self-actualization in his hierarchy of needs theory. According to Maslow's social needs pyramid, humans have a need for love, affection and sense of belonging – one's relationships with other people (Donnelly et al., 1995:308)

In this research, Maslow's social needs theory will be applied in exploring and describing the experiences of MDR-TB patients which helped to draw the recommendations regarding minimization of the MDR-TB patients' defaulting rate in Limpopo Province of South Africa. MDR-TB patients at hospital taking MDR treatment are human beings with social needs which

University of Venda
Creating Future Leaders

must be satisfied as Maslow has explained in his hierarchy of needs theory. It is essential to apply Maslow's theory in this research in order to address the MDR-TB patients' social needs and reduce their defaulting from MDR treatment.

1.9.3 Methodological Assumptions

Methodological assumptions guiding this research are based on the Botes research model (1998:15). The central theme for Botes' model is that research should be functional, namely, that nursing research should be undertaken to improve nursing practice, education and health policy. In this research, insight into the experiences of MDR-TB patients during hospitalization provides the basis for recommendations regarding minimization of the MDR-TB patients' defaulting rate in Limpopo Province of South Africa as a framework for the research to minimize defaulting rate of TB patient. In understanding the research, the researcher's assumptions will be based on Botes' research model of functional research (Botes, 1998:15).

1.10 Research Design and Method

1.10.1 Research Design

For this study, a descriptive, qualitative research design was chosen. A qualitative study explores the lived experiences of the study participants in the world they live in (Holloway & Wheeler, 2010:3). These concepts will be elucidated in Chapter 3 of this dissertation.

1.10.2 Research Setting

The study was conducted at one public health facility, namely Limpopo Province MDR unit, located in the Waterberg District of Limpopo Province. The Limpopo MDR unit is the only public institution in the province which renders prolonged patient care and treatment for patients with drug-resistant TB. However, plans to decentralize patient care and treatment for drug-resistant TB in other institutions within the province are underway.

1.10.3 Research Population

The research population of interest to the study comprised all patients diagnosed with MDR-TB hospitalized in the MDR unit of Limpopo Province. The concept of the research population is explained in Chapter 3 of this dissertation.

1.10.4 Data Collection Procedure

Semi-structured interview questions were used to identify the views of MDR-TB patients regarding factors influencing defaulting to MDR-TB treatment for patients in the MDR unit of Limpopo Province. Semi-structured interview questions were used to elicit information from the participants until the point of saturation had been reached. The study explored the views of the MDR-TB patients regarding factors influencing defaulting to MDR-TB patients. The data collection procedure will be discussed in Chapter 3 of this dissertation.

1.10.5 Data Analysis

The analysis of qualitative data begins in the field, during data collection, using the semi-structured interviews. Tesch's open-coding method of data analysis was adopted (Creswell, 1994:153). The concept of data analysis will be discussed in detail in Chapter 3 of this dissertation.

1.10.6 Ethical Considerations

The researcher ensured strict compliance with ethical standards, relevant to protecting the rights of the participants; institution where data was collected and scientific integrity were maintained throughout the study. Approval was sought and obtained from both the University of Venda Higher Degrees Committee and the Limpopo Provincial DoH. Details of these are presented in Chapter 3 of this dissertation.

University of Venda
Creating Future Leaders

1.11 Scope and Limitations of the Study

One public health facility that focused on MDR-TB patient care and treatment – centred approach to TB – participated in the study. Consequently the results of this study might not be generalized beyond this one participating site. Only the views of the MDR-TB patients were studied. Health care providers and close family members of the patients might have different views. However, due to time limitations, the views of health care providers and close family members of the patients were not obtained. The result of this study cannot be generalized to MDR-TB patients who use MDR-TB treatment that is not supplied free of charge.

1.12 Structure of the Dissertation

This dissertation is presented in five chapters, organised in the following order:

Chapter 1: **Orientation of the Study**
Covers the background information about the research problem, definitions of key concepts, statement of the research problem, aim of the study, significance of the study, research design, and method, scope of the study, and the structure of dissertation.

Chapter 2: **Literature Review**
Incorporates the history of TB and its treatment, TB vaccine, DOTS strategy, anti-TB drugs for susceptible TB, the extent of the tuberculosis problem, the emergence of MDR-TB, its management and treatment, impact of HIV/AIDS on the incidence of TB in Sub-Saharan Africa.

Chapter 3: **Research Design and Methods**
Deals with the research methodology, including sampling, population of the study, data collection approach and method, data analysis, trustworthiness of the study and adherence to ethical considerations.

UNIVERSITY OF VENDA
LIBRARY

© University of Venda

Chapter 4: **Analysis, Presentation and Description of the Research Findings**

Gives a detailed account of the data analysis techniques used and reports on the research findings in the context of the objectives and purpose of the study.

Chapter 5: **Conclusions, Recommendations and Limitations**

The final chapter places the study into its proper perspective, significance and limitations. Recommendations provided in this chapter are based on the findings of the study in relation to current guidelines that seek to minimize the defaulting rate of MDR-TB patients in the MDR unit of the Limpopo Province.

1.13 Conclusion

In this chapter, the overview of the study was discussed, and it included the problem statement, the research question, aims and objectives, theoretical assumptions, reference to research methodology and significance of the study. The next chapter will discuss the literature review based on the topic of interest and objectives of the study.

© University of Venda

University of Venda
Creating Future Leaders

CHAPTER 2

LITERATURE REVIEW

2.1 Introduction

The previous chapter presented an overview of the study; this chapter presents the literature review related to the study. According to Wiersma (1995:406), a literature review provides the researcher with background and the context of the research problem. It establishes the need for the research and provides the researcher with accurate knowledge in the area of his study.

According to Polit, Beck and Hungler (2001:464), the purpose of the literature review is to:

- Familiarize the researcher with the scope of the study field;
- Identify trends and development in the research field; and
- Examine existing research on TB as an alarming disease.

The literature review is based on *Mycobacterium tuberculosis* infection and the emerging drug-resistant TB epidemic in and outside South Africa. The focus of this literature review is on the challenges faced globally on drug-susceptible and drug-resistant TB, DOTS and DOTS-Plus strategies as a possible solution to the problem.

2.2 Factors Contributing to Defaulting of TB Treatment

In the past, a major reason for the failure to cure TB patients successfully was that many patients failed to complete their prescribed course of treatment and this resulted in transmission of the infection. Another reason is that there was no accurate follow-up or tracing of TB

© University of Venda

University of Venda
Creating Future Leaders

treatment defaultes. There are different types of the factors that contribute to the interruption of TB treatment in the institutions and health care facilities that are responsible for offering TB services. Studies on treatment interruption by TB patients in Russia, South Africa, South India, Ethiopia, Thailand and Turkey found that factors like poverty, unemployment, lack of support, alcoholism, non-prioritization of TB, migration policy and cultural beliefs contributed to TB patients not completing their treatment (Ministry of Health, 1996 - 1999:370). It has, however, been found that control of TB is both possible and affordable, even for developing countries. Each country needs to identify its problems and plan according to what suits it best and what the country can afford (Mario, Raviglione, Pixie, Shider & Kochi, 1995:1).

In the Limpopo Province, treatment defaulter rate is very high due to the fact that the province consists of more rural areas than urban settlements. Poverty, unemployment and alcoholism amongst MDR-TB patients are very common, which predisposes the province to high cases of defaulter rate, even within patients who are diagnosed with drug-resistant TB. The situation in Limpopo Province even gets worse with illegal refugees entering the country with untreated TB. This is because Limpopo Province serves as a border post[1] between South Africa and some Southern African countries which are underdeveloped and facing issues of political unrest, poverty and many burdening diseases like HIV/AIDS and drug-resistant TB.

Table 2.1 indicates the incidence of TB treatment interruption in South Africa in 2007. Interruption of TB treatment increases chances for TB patients developing MDR-TB and therefore countries should plan on the control of TB treatment interruption to prevent and combat MDR-TB. Countries that review their treatment strategies, correct the mistakes of the past, and plan TB programmes to suit their country's unique needs, succeed in controlling of TB (Hackman, 1999:1). Arnadottir (2001:563) emphasized the enormous global burden of TB.

[1]The Limpopo Province has 8 border posts linking South Africa to Botswana, Zimbabwe, and Mozambique (http://www.ldrt.gov.za/LPFDB/cross-border-border-posts.html).

© University of Venda

Table 2.1: Incidence of tuberculosis treatment interruption in South Africa in 2007

Province	Treatment Interruption Rate
Eastern Cape	6.8%
Free State	5.1%
Gauteng	6.3%
KwaZulu-Natal	9.6%
Limpopo	7.6%
Mpumalanga	8.8%
Northern Cape	10.0%
North West	10.0%
Western Cape	9.2%
RSA	**8.2%**

Source: Department of Health, 2007

Jaramillo (1999:393) found that the factors that contribute to interruption of treatment are interrelated and overlapping. These factors are:

- Poverty
- Lack of support
- Alcoholism
- Migration policy
- Stigmatization of TB
- Cultural beliefs/attitudes

University of Venda
Creating Future Leaders

2.2.1 Poverty and Tuberculosis

Poverty is the leading factor of high TB interruption rates. TB is a disease of poverty that throws communities into a vicious cycle, particularly if the patient is a breadwinner. The TB pandemic continues to be uncontrolled due to widespread poverty and very weak health systems (WHO, 2006:71). Since 1994, health care services in South Africa have been free of charge, yet TB treatment interruption or defaulter rate continues (Weyer 2007:5).

Poverty alleviation is the greatest challenge in South Africa where unemployment is increasing, and strategies and projects to reduce poverty are on the government's agenda (Sowetan, 2003a:10). In Mbekweni, Eastern Cape Province, TB patients reported that they had to travel long distances to the clinics to get their TB treatment and they could not afford the taxi fare to the clinic, so they stopped taking the TB treatment. Patients also complained that TB treatment increased their appetite, but they did not have food and they stopped taking the TB treatment (Kandel et al., 2008:47). The same problems that people of Mbekweni District face, aplpy in other Limpopo Province districts like Waterberg and Vhembe with still many rural areas where poverty is common.

Poverty and unemployment are critical problems in many countries. Unemployment increases the chances of interruption of treatment in countries where TB treatment is not free of charge. In India, TB patients who were unemployed defaulted their treatment because they could not afford transport to the clinics. It was also found that poverty plays a big role in TB defaulter rate in India, as many more TB patients were found to be seeking employment rather than TB treatment follow up (Jaggarajamma et al., 2007:131).

2.2.2 Lack of Support

During the period of TB treatment, during hospitalization and elsewhere human beings have a complex combination of needs which must be met, including the need for social support (Donnely et al., 1995:308). Lack of support increases the chance of many TB patients

defaulting their TB treatment. In Indonesia, a study confirmed that TB patients who were successfully treated for TB had strong family support both socially and financially (Karyadi et al., 2002:344). Rezaei & Feizi (2008:3) stressed that patient and peer support groups for the patients living with TB can help promote adherence to TB treatment and reduce the incidence of high defaulter rate if implemented. In Khayelitsha, Western Cape, TB patients with drug-resistant TB are encouraged to attend peer support groups which are conducted weekly at clinics. Patients are also supported at clinics through health education regarding their condition and counselling about their illness which is of importance in improving adherence to treatment and reducing defaulting treatment (Imbizo report, 2002:3).

2.2.3 Alcoholism and Tuberculosis

Alcoholism is a social problem that predisposes people to malnutrition, which increases the chances of getting TB. TB patients who have a problem with alcoholism often do not collect their treatment regularly and have a high possibility of defaulting treatment. According to Jaramillo (1996:396), malnutrition, unsafe sex, and alcoholism are the main risk factors for defaulting of treatment among people with TB. Jaramillo (1996:397) further argued that it is often also not easy to implement the DOT strategy to patients who abuse alcohol. In South Africa, in Gauteng and Mpumalanga provinces, Tshabalala (2007:59) and Selale (2011:54) discovered that alcoholism played a significant role in the number of patients who defaulted their TB treatment in both the provinces. It was further discovered that alcohol is used as a form of entertainment amongst TB patients who defaulted their treatment in Mpumalanga Province (Selale, 2011:56)

2.2.4 Migration and Tuberculosis

According to the Imbizo Report (2002:3), migration is a common cause of treatment interruption amongst TB patients in South Africa. When border control is not effective, refugees without valid permits escape and cross to other countries. Refugees from less developed countries often bring diseases of poverty – malaria, HIV and TB with them.

Refugees also carry other forms of TB strains such as MDR-TB and XDR-TB without knowing they are infected and this increases the cases of those types of TB strains. Matsha (1998:17) found that some illegal refugees in South Africa had not completed their TB treatment in their countries, did not bring transfer letters and were afraid to present themselves to health facilities until they were sick again.

In a study among Rwandan and Burundian refugees in Tanzania, Rutta et al. (2001:628) found that although TB patients died while 7.1% of the patients defaulted their treatment because of poor communication among health facilities in the camps and neighbouring countries. Internal migration also occurs in most countries (e.g., South Africa, China, Russia, and Thailand) (Tshabalala, 2007:36). Patients move from rural to urban areas, which make TB control extremely difficult. In Sebokeng, South Africa, Louw (1995:15) found that patients defaulted treatment because they have left the area temporarily. Moreover, immigrants who are put on TB treatment in South Africa, interrupt their treatment when they are deported back to their countries if they are not in possession of legal permits (WHO, 2001:114).

2.2.5 Stigmatization of Tuberculosis

The stigma related to TB is centuries old. The disease was associated with the poor, the malnourished and the disadvantaged (Dormandy, 1999:209). In the 1920s, in the USA, a doctor would rather lie about a patient's smear result than disgrace a wealthy family (Dormandy, 1999:209). In countries like South Africa and most African countries the situation was even worse due to poor economic background, which prevented the control of TB and reduction of poverty. The disease was believed to be hereditary and an indication of bad character. Furthermore, the notification of TB patients exacerbated the problems they faced instead of improving the treatment and management of the disease (Dormandy, 1999:209). In Asia, young female TB patients interrupted the treatment because they feared that they would not get a man to marry them if they were known to have TB (Khan et al., 2000:248).

© University of Venda

University of Venda
Creating Future Leaders

According to Jaramillo (1998:396), the stigma attached to TB and the social discrimination it entailed, contributed to poor compliance with TB treatment. According to Escott et al. (2001:13), mineworkers diagnosed with TB were retrenched up to the 1980s. According to Louw (1995:12), the stigma and rejection of the diagnosis are among the factors that contribute to treatment interruption. In the community at health care institutions, health care workers and the community did not discuss TB openly, which led to the patients being ashamed of TB and defaulting treatment. HIV infection has made the stigma even worse. For example, in Kwa-Hlabisa, Kwazulu-Natal Province, where it was practice to test TB patients for HIV infection, most patients lost hope and interrupted treatment because they were told there was no cure for HIV. They felt isolated and lonely, found it difficult to disclose their HIV status and did not get the support needed (Edginton, 1997a:5).

In the practical context, in Limpopo Province, patients with MDR-TB are still isolated and stigmatized by communities. TB patients including MDR-TB patients in Limpopo Province are afraid of being diagnosed with MDR-TB and XDR TB as they will be labelled with HIV/AIDS disease and will be isolated from socializing with others (Edginton, 1997b:4). Stigmatization against HIV and TB has made collaboration of HIV and TB services difficult to implement within the province. It is not easy to convince patients diagnosed with MDR-TB to opt for treatment at the MDR unit as they will also be stigmatized by health care workers.

2.2.6 Cultural Beliefs, Attitudes and Tuberculosis

In Pakistan, TB patients are not motivated enough to take treatment because they believe TB is a punishment from God (Khan et al., 2000:251). In Tintswalo, Limpopo Province, Edginton (1997b:4) reported that some patients believed that TB is a punishment for breaking sexual rules like abstinence or sleeping with a widow. Health workers find it difficult to convince patients to take their treatment as required because their beliefs made them default treatment. With poor coordination between health care practitioners and traditional practitioners on the management of TB, patients remain confused about which form of treatment to opt for in order

© University of Venda

University of Venda
Creating Future Leaders

to be cured from TB and they default their TB treatment, causing a high number of cases on drug-resistant TB. According to Risenga (2002:98), cultural beliefs and practices play a vital role in adherence of western medicine amongst black people in Limpopo Province rural areas.

2.3 Strategies to Combat Tuberculosis

2.3.1 Bacillus Calmette-Guérin (BCG) Vaccine

BCG vaccine "strain" was originally known as Bacillus Calmette-Guérin. BCG was derived from an isolate of *Mycobacterium bovis* at the Pasteur Institute in Lille (France), and it was first given to human beings by oral administration (*per os*) in 1921. The vaccine was used increasingly in Europe in the 1920s with the early evidence of its effectiveness coming from the studies of student nurses in Norway. The first formal trials of BCG were organized among North American Indians in the 1930s. By the late 1940s, BCG was given by percutaneous or intradermal routes and several studies provided evidence for the utilization of BCG in the protection against TB (WHO/V&B/99.23. 1999:5-6).

TB emerged as a major concern in the aftermath of World War II and the United Nations Children's Fund (UNICEF) stimulated and encouraged the use of BCG vaccine to protect humans against TB in many countries. Major clinical trials were set up by the British Medical Research Council and by the United States Public Health Service in the early 1950s, and it was soon noticed that their procedure had a high efficacy on protection against TB. On the basis of these results of BCG providing a high efficacy on protection against TB, the respective public agencies recommended BCG vaccine for routine use for tuberculin-negative adolescents in the United Kingdom, whereas BCG was not recommended for routine use in the USA, but restricted to certain high risk populations (WHO/CDS/TB/2002.297:9).

The majority of countries followed the lead of Europe and the WHO introduced BCG, first in campaigns targeted at all children, and then as a routine vaccination according to various schedules, e.g., birth, school entry or school leaving. However, the Netherlands and USA

© University of Venda

University of Venda
Creating Future Leaders

decided against routine BCG vaccination, and based their TB prevention strategy upon reduction of sources of infection, by case finding and treatment, and contact tracing and the use of tuberculin skin test on infected individuals and o treat as soon as the individual is identified (WHO/CDS/TB/2002.297:6).

BCG was incorporated into the EPI infant vaccination schedule in 1974. BCG use continued to increase in most countries of the world and are now given routinely (WHO/V&B/99.23. 1999:5-6). In South Africa and other countries with high prevalence of pulmonary TB, infants are immunized with BCG vaccine from birth. If there is no record that provide that BCG was given to an infant at birth, health workers must immunize children with BCG vaccine up to the age of one year. BCG is not given to children with symptomatic HIV infection as it may cause a severe form of pulmonary TB (DoH, 1998:94).

The efficacy of BCG vaccine is uncertain (DoH, 1998:94). BCG is believed to provide 40% to 100% protection against extra pulmonary TB and 80% against pulmonary TB. It is important to ensure that children are fully immunized according to the EPI as diseases like measles and whooping cough make children susceptible to TB (DoH, 1998:93). There are no medical challenges indicated from the use of BCG as a vaccine for protection against TB disease which need attention for nursing research on the vaccine itself, but there are current medical/medicine related researches which are conducted to improve the vaccine's efficacy and quality.

"BCG only at birth or first contact with health services", this is the current recommendation of the EPI and the global TB programme and is the policy in most of the world today, in particular in developing countries, including South Africa (WHO/V&B/99.23. 1999:11). With TB still increasing globally regardless of the use of the BCG vaccine to protect humans from the TB disease and killing a large number of victims, the WHO envisaged to introduce strategies which should be used globally for the purpose of combating TB, one of these global strategies recommended by the WHO is the DOTS strategy which is discussed next.

UNIVERSITY OF VENDA
LIBRARY

© University of Venda

University of Venda
Creating Future Leaders

2.3.2 Directly Observed Treatment Short Course Strategy

DOTS was recommended by the WHO in 1991 for a global adoption as a strategy to combat TB disease. The recommendation of the DOTS strategy by the WHO came as a result of TB persisting to be a growing public health problem requiring urgent attention. During the forty-fourth World Health Assembly (WHA) which was held in 1991 in Geneva, it was recognized that TB was growing as a public health problem (WHO/CDS/TB/2002.297:5).

The assembly identified the potential for a cost effective control of TB. The persistence of TB has been due chiefly to the neglect of TB control by governments, poorly managed TB control programmes, poverty, population growth and migration, and a significant rise of TB cases in HIV endemic areas. To help address the situation, a new framework for effective TB control was then developed and a global strategy called DOTS was introduced (WHO/CDS/TB/2002.297:3).

The principal of DOTS was first developed in Africa in the national TB programme in Tanzania and further expanded to other African countries. Dr Karel Styblo, scientific director of the International Union Against TB, developed these principles in Africa (Global Plan to Stop TB, 2001:37). The five elements of DOTS strategy are considered essential for global TB control and its key components include: political commitment, TB case detection, standardized short course chemotherapy, a system of regular drug supply, and a standardized recording and reporting system (WHO/CDS/TB/2002.297:3). Details of the five elements of the DOTS strategy as designed by the WHO follow:

2.3.2.1 Political Commitment

The DOTS strategy is planned to ensure that for each country there is political commitment in the fight to combat T – this means that governmental organizations and the government itself have to commit to combating TB disease. Implementation of the DOTS strategy ensures governmental and political involvement in funding for anti-TB drugs, proper facilities for TB

© University of Venda

University of Venda
Creating Future Leaders

patients, adequate health care providers to care for TB patients, and TB campaigns and community involvement. Sustained political commitment is essential to establish and maintain the other four components. It requires both long-term investment and leadership to ensure an appropriate environment for integrating the management of TB into national TB control programmes (WHO/CDS/TB/2002.297:3).

2.3.2.2 Tuberculosis Case Detection

TB case detection and finding, including accurate and timely diagnosis through sputum microscopy among persons seeking care for prolonged cough. DOTS strategy implementation ensures that accurate and timely diagnosis is the backbone of a sound national TB control programme. The strategy also ensures that TB is diagnosed correctly before it can be treated effectively (WHO/CDS/TB/2002.297:3).

2.3.2.3 Standardized Short Course Chemotherapy

An appropriate treatment strategy consists of a rational method for designing the optimal treatment regimen, a patient-centered approach for delivering the regimen for direct observation, and a plan for monitoring and managing adverse drug reactions. A standardized regimen for certain groups of patients may be more appropriate that an individualized regimen in some countries (WHO/CDS/TB/2002.297:3).

2.3.2.4 A System of Regular Drug Supply

The DOTS strategy promotes and ensures regular anti-TB drugs supply to provide for and to meet all the TB treatment regimens. Drugs are frequently changed as a result of adverse side effects, delayed laboratory or DST results and poor response to treatment. Steps to ensure uninterrupted drug supply must begin six months or more in advance of the anticipated need. Countries should use only drugs that are quality assured by a stringent drug regulatory authority recognized by the WHO (WHO/CDS/TB/2002.297:3).

© University of Venda

University of Venda
Creating Future Leaders

2.3.2.5 Standardized Recording and Reporting System

Standardized recording and reporting allows assessment of individual patients as well as overall programme performance. Recording and reporting also facilitates monitoring of treatment delivery and indicators of treatment outcomes for statistical purposes (WHO/HTM/TB/2006.361:8-10). The DoH has set training objectives that addresses the training of DOT supporters, which met the criteria of extended training programme for DOT supporters. These objectives were designed to promote proper and effective adoption of the DOTS strategy by the WHO. These objectives were set in the year 2000 to meet the norms and standards of the primary health care package in training DOT supporters and providing them with accurate information for proper and effective support of TB patients during their treatment course (DoH, 2000:2).

2.3.3 Chemotherapy for Susceptible Tuberculosis

TB has been affecting and killing millions of humans in the past century, without the availability of anti-TB drugs. During the mid-19th century, the treatment facilities used to treat TB were the sanatoriums. Sanatoriums were medical facilities for long-term illnesses. In these facilities, TB treatment was only promoted through adequate patient rest, proper nutrition, the provision of calcium supplements, and the promotion of dry climate at high altitude (WHO/TUB/91.161:4). In 1943, Dr Selmon Wasksman discovered streptomycin for use as a drug to eliminate the TB bacilli in affected human beings.

In the 1960s and 1970s, rifampicin and pyrazinamide, introduced as monotherapies or combined with streptomycin as anti-TB drugs, had a good impact in dealing with the TB disease. Since the early 1970s, the use of these drugs have helped reduced many TB cases and the number of deaths resulting from TB (WHO/TUB/91.161:4). The literature review of anti-TB drugs and TB treatment aims to give insight into the full treatment of TB and its period. The literature review will explore TB treatment and anti-TB drugs for adults and children applied in the national TB programmes as set by the WHO.

© University of Venda

University of Venda
Creating Future Leaders

2.3.3.1 Case Definitions

A case of active TB refers to symptomatic disease from *Mycobacterium tuberculosis* complex (i.e., *M. tuberculosis*, *M.bovis*, *M. africanum*). The following case definitions were developed for surveillance purposes by the WHO. TB cases are classified as either pulmonary or extra-pulmonary. Cases of pulmonary TB are further sub-divided into smear-positive and smear-negative.

2.3.3.1.1 Pulmonary Tuberculosis

- ***Smear-positive patient*** - A patient with at least two sputum specimens positive for acid fast bacilli (AFB) by microscopy or a patient with at least one sputum AFB smear positive and culture positive for *M. tuberculosis* or a patient with one sputum specimen positive for AFB and radiographic abnormalities consistent with active pulmonary TB.

- ***Smear-negative patient*** - A patient with at least two sputum specimens negative for AFB by microscopy and radiographic abnormalities consistent with active pulmonary TB (i.e., chest X-rays) and a decision by a medical practitioner to treat with a full curative course of anti-TB chemotherapy or a patient with AFB smear negative sputum which is culture positive for *M. tuberculosis*.

2.3.3.1.2 Extra-Pulmonary Tuberculosis

Such a diagnosis is for a patient with histological and clinical evidence consistent with active TB and involves a decision by a medical practitioner to treat with a full curative course of anti-TB chemotherapy or a patient with one culture specimen from extra-pulmonary site positive for *M. tuberculosis*.

2.3.3.1.3 History of Prior Tuberculosis Therapy

Patients who have taken anti-TB drugs for one month or more at any time in the past have an increased chance of having a drug-resistant TB. Therefore, all patients especially smear-

© University of Venda

University of Venda
Creating Future Leaders

positive patients should be carefully questioned about their previous anti-TB treatment before their current treatment is started (WHO/TUB/91.161:5).

Cases are, therefore, further defined by treatment history as:

***New case*:** A patient who has never taken TB drugs for more than one month.

***Relapse*:** A patient declared cured in the past that again has active TB.

Smear-positive failure case/treatment failure case: A patient who remains sputum smear-positive five months or more after the start of chemotherapy or a patient who interrupted the treatment after one to five months of chemotherapy and is subsequently found to be smear-positive (WHO/TUB/91.161:5).

Chronic case: A patient who remains AFB smear-positive after completing re-treatment regimen under supervision (WHO/TUB/91.161:5). Table 2.2 shows the burden of TB in South Africa between 1999 and 2006, it indicates the number of TB cases and the number of smear positive cases for TB.

The statistics in Table 2.2 indicate adverse increases in the number of TB cases from the year 1999 to the year 2006 in South Africa. A yearly increase of TB cases in South Africa is clearly indicated, regardless of the introduction and the use of the DOTS strategy by WHO to combat the disease. Factors leading to the increase of TB cases include, e.g., poor compliance to TB treatment, defaulting TB treatment, treatment failure, etc. If these factors are not addressed, TB cases will continue to increase and kill millions of people in South Africa each year.

Essential Drugs (First-Line Anti-TB Drugs)

Five drugs are essential for the treatment of drug-susceptible TB:

Isoniazid (H), Rifampicin (R), Pyrazinamide (Z), Streptomycin (S), Ethambutol (E)

© University of Venda

University of Venda
Creating Future Leaders

Table 2.2: Tuberculosis cases in South Africa—1999 to 2006

Year	All TB Cases	Pulmonary TB Cases	New Smear Positive Pulmonary TB Cases
1999	148,164	118,686	72,096
2000	151,239	120,075	75,967
2001	188,695	144,910	83,808
2002	224,420	182,583	98,800
2003	255,422	215,154	116,337
2004	279,260	234,213	117,971
2005	302,467	257,604	125,460
2006	342,315	287,440	131,618

Source: Department of Health, 2007:10

2.3.3.2 Choice of Regimens

Patients are categorized according to the priority for treatment. In general, newly diagnosed patients and those with smear-positive pulmonary TB and other clinically serious forms of disease should receive the highest priority. Treatment regimens are divided into the initial or intensive phase and continuation phase. Intensive phase usually consists of four drugs given daily.

During the continuation phase, usually fewer drugs are given either daily or intermittently, the sterilizing effect of the therapy eliminates remaining bacilli and prevents subsequent relapse. Abbreviations are given for the regimens, using the letters to indicate the drugs, preceded by a number to indicate the duration months of treatment. Drugs are given according to body weight of each individual (WHO/TUB/91.161. 1991:6-7).

© University of Venda

2.3.3.2.1 Category I

New cases of AFB smear-positive pulmonary TB and other newly diagnosed seriously ill patients with severe forms of TB, e.g., meningitis, disseminated TB, TB pericarditis, peritonitis, bilateral or extensive pleurisy, spinal disease with neurological complications, smear-negative pulmonary TB with extensive parenchyma involvement, intestinal, genitourinary TB, etc. Highest priority should be given for smear-positive pulmonary TB.

Recommended Regimens

Initial Intensive Phase: 2HRZS(E), i.e., isoniazid, rifampicin, pyrazinamide, and either streptomycin or ethambutol given preferably daily for two months (8 weeks). When the patient has completed the initial phase of two months and the sputum is AFB smear-negative, the continuation phase will start. If sputum is smear-positive at 2 months, the initial phase of four drugs daily is continued for another 2 to 4 weeks, then continuation phase is started regardless of sputum test results.

Continuation Phase: 4HR, i.e., isoniazid and rifampicin for four months daily or three times a week. For patients with TB meningitis, disseminated or spinal disease with neurological complication isoniazid and rifampicin should be given daily for 6 to 7 months.

2.3.3.2.2 Category II

Relapse and failure smear-positive TB patients must be suspected of having isoniazid and streptomycin resistant disease, if possible pre-treatment sputum should be obtained for culture and drug sensitivity test to isoniazid, rifampicin, ethambutol, and streptomycin. These patients are at increased risk of developing MDR-TB disease and should receive fully supervised treatment at least for the first three months.

Recommended Regimens

Initial Intensive Phase: 2HRZES/1HRZE, i.e., rifampicin combined with isoniazid,

© University of Venda

University of Venda
Creating Future Leaders

pyrazinamide, and ethambutol supplemented with streptomycin for the first 2 months (8 weeks), followed by the same drugs without streptomycin for 1 month. The initial intensive phase should be given for 3 months (12 weeks). If the sputum is AFB smear-negative at 12 weeks, the continuation phase is started. If sputum is smear-positive at 12 weeks, the 4 oral drugs are continued daily for another 4 weeks. If patient is still smear-positive at the end of the fourth month, all drugs are stopped for 2-3 days, and a sputum specimen is sent to the laboratory for culture and drug sensitivity testing. The patient should then start the continuation phase. If the pre-treatment studies showed resistance to isoniazid or rifampicin alone, the patient should start the continuation phase closely supervised, preferably at referral hospital.

Continuation Phase: 5HRE, i.e., 5 months of isoniazid, rifampicin, and ethambutol daily. If the patient remains smear-positive after the completion of the continuation phase, s/he is no longer eligible for the re-treatment regimen (WHO/TUB/91.161. 1991:6-7).

2.3.3.2.3 Category III

Pulmonary smear negative TB with limited parenchyma involvement and extra-pulmonary TB (other than the clinical forms in Category I). An important part in this category is TB in children whose pulmonary disease is almost always smear-negative. Another frequent group are young persons infected during adolescence who develop primary TB usually appearing as pleural effusion or small parenchyma lesions in the lungs. Higher priority for smear-negative patients, because a proportion of these patients will become smear-positive if not treated.

Recommended Regimens

Initial Daily Phase: 2HRZ, i.e., isoniazid, rifampicin, and pyrazinamide daily or three times weekly for two months.

Continuation Phase: 2HR, i.e., isoniazid and rifampicin daily or three times weekly for two months.

© University of Venda

2.3.3.2.4 Category IV

Management of chronic TB patients, who have a high likelihood of MDR-TB, is highly problematic. Even with optimal therapy, cure may be possible in only half of such cases. Second-line drugs are very expensive, generally have more toxicity and are significantly less effective than conventional regimens in drug-susceptible cases. Moreover, patients must be hospitalized for several months (WHO/TUB/91.161.1991:8).

Defaulting and poor compliance to TB treatment leads to the development of a resistant strain of TB, i.e., MDR-TB. Table 2.3 shows a defaulter rate of 2.3% in South Africa and also a 7.6% of patients who remain smear-positive after taking treatment, most of these cases develop a TB resistant strain (DoH, 2007:11).

Table 2.3: Statistics of tuberculosis cases in South African provinces

Province	Registered	Converted (%)	Remaining Positive (%)	Defaulted (%)
Eastern Cape	21,217	54.8	6.7	1.7
Free State	9,401	67.2	12.3	1.7
Gauteng	22,755	69.2	9.3	2.0
Kwazulu-Natal	34,928	48.4	5.3	3.4
Limpopo	7,463	54.3	6.1	1.7
Mpumalanga	7,474	44.4	6.0	2.9
North West	12,586	48.1	8.9	2.3
Northern Cape	3,792	48.3	10.2	1.0
Western Cape	17,722	68.9	8.0	2.0
South Africa	137,338	56.8	7.6	2.3

Source: Department of Health, 2007:11

© University of Venda

University of Venda
Creating Future Leaders

2.3.3.3 Poor Adherence to Tuberculosis Treatment

Poor TB treatment follow-up and adherence by patients often initiate the development of drug-resistant TB. In a study conducted in China, it was discovered that poor commitment to TB treatment by patients and lack of support by DOT supporters resulted in cases of drug-resistant TB. The study further concluded that intermittent regimens in China need to be more carefully monitored to avoid over consumption of anti-TB drugs in addition to non-adherence due to under consumption (Wang, Yang, & Liabsuetrakul, 2006:1345). Cases in South Africa are the same as in China, in Tembisa clinics, Gauteng Province, Tshabalala (2007:84) discovered factors including lack of information about TB, alcohol consumption, cigarette smoking, health personnel perceptions and attitudes towards TB patients, poor DOT strategy implementation and lack of commitment from TB patients led to patients defaulting their TB treatment which resulted in development of drug-resistant TB.

In Table 2.4, statistics from DoH on treatment outcomes of each province of South Africa in 2005 indicated high percentages of defaulting of TB treatment, although there were high percentages of cure rate and successful treatment completion rate in the statistical table, there was also an increase in the number of defaulter cases – this could be the reason for the increased number of drug-resistant TB cases in the country (DoH, 2007:12).

2.3.3.4 Treatment Compliance

MDR-TB and other forms of drug-resistant TB strains result from poor adherence to anti-TB drugs. The DOTS strategy is recommended by the WHO for use in national levels globally to combat TB by means of observing TB patients during their treatment intake of anti-TB drugs (DoH, 2000:1-3). With the emergence of drug-resistant TB, the WHO have established and expanded the DOTS strategy to DOTS-Plus strategy in order to address TB effectively. The DOTS and DOTS-Plus strategy have been established to combat issues of lack of compliance and adherence to TB treatment and to ensure that all TB cases are treated effectively and prevent mortality caused by TB disease (WHO/HTM/TB/2006.368:4).

© University of Venda

University of Venda
Creating Future Leaders

Table 2.4: Tuberculosis treatment outcomes in South Africa

Province	Registered	Cure Rate (%)	STCR* (%)	Death Rate (%)	Defaulter Rate (%)
Eastern Cape	20,551	54.7	74.7	7.0	9.0
Free State	9,731	67.5	76.9	10.1	5.9
Gauteng	23,921	66.7	71.7	9.6	6.9
Kwazulu-Natal	36,511	45.2	64.2	6.1	14.7
Limpopo	6,807	60.8	70.0	7.3	9.5
Mpumalanga	7,642	51.8	65.7	9.0	10.8
North West	13,771	57.6	70.0	7.3	9.5
Northern Cape	3,888	50.1	71.4	6.8	13.1
Western Cape	18,845	71.9	79.7	3.7	11.1
South Africa	141,667	57.7	71.1	7.2	10.4

*Successful Treatment Completion Rate

Source: Department of Health, 2007

Patient support from both the health care provider and the patient's family plays a vital role in TB treatment compliance and prevention of drug-resistant TB. In South Africa, a study conducted by the MRC and University of Cape Town (MRC, 2005:1-6) affirmed that patient support for TB patients is vital to treatment compliance. The study discovered that factors such as side effects to TB drugs, lack of information about TB and its treatment, lack of adequate support from family, community, friends and colleagues, lack of family support, including financial assistance, collecting medication for the patient and lack of emotional support appeared to be a strong influence and led to patient non-compliance to TB treatment. Holtz, Lancaster, Laserson, Wells, & Weyer (2006:649) corroborated the findings of the study conducted by the MRC and University of Cape Town, it is clear that patient support is essential for patient compliance to TB treatment as identified lack of adequate support can lead to patient defaulting their treatment as borne out by the study conducted by the MRC and the University of Cape Town and the one conducted by Holtz et al.

UNIVERSITY OF VENDA
LIBRARY

© University of Venda

In India, a study was conducted to evaluate the DOTS-Plus strategy for patients with MDR-TB. The main objective of the study was to evaluate a pilot project of the DOTS-Plus strategy using a standardized treatment regimen. The results of the study identified that the DOTS-Plus strategy were very effective for prevention of patients defaulting their TB treatment, i.e., adequate support to a TB patient during treatment is very crucial to treatment compliance. In poor resource settings a well-designed standardized treatment regimen under DOTS-Plus programme may provide reasonable results (Arora, Sarin, Singla, & Khalid, 2007:75-79).

2.3.4 The Extent of the Tuberculosis Health Problem

According to the WHO, the extent of TB globally is alarming (WHO/V&B/99.23:5). TB as a disease was historically known as an indicator of low socio-economic status, though it affects everybody today (Dormandy, 1999:209). The serious extent of the TB epidemic in the world, especially in South Africa, has alarmed health professionals for several decades. Researchers are still using their knowledge to find out the actual strategies which can be pursued to combat this problem. The higher rates of informal settlements being overcrowded in some countries also contribute to the high rates of TB. TB as a health problem has now complicated to MDR-TB (Dormandy 1999:209).

Moreover, TB disease has developed resistant strains of TB which do not respond to first-line TB drugs. Defaulting from TB and drug-resistant TB treatment put South Africa at a risk of high incidences and cases of TB. Drug-resistant TB has become a difficult disease burden to solve. A study conducted in South Africa on factors associated with defaulting from MDR-TB treatment by the MRC in 1999 in five provinces identified many problems that increase TB cases and deaths due to default of anti-TB drugs (Holtz et al., 2006:649). Another study by the MRC (2005:6) outlined some patient-related problems during hospitalization for treatment of MDR-TB, which need to be dealt with to prevent defaulting and deaths from MDR-TB treatment. The patient-related problems include patients discharging themselves from MDR hospital due to side effects and prolonged hospitalization as the major factors mentioned by

© University of Venda

University of Venda
Creating Future Leaders

patients. Side effects from anti-MDR-TB drugs should be dealt with through supportive counselling and management by nurses as well as physicians (MRC, 2005:13). Although many studies has identified problems and factors causing TB patients to default TB treatment and made recommendations to deal with those factors (Dormandy 1999:213) (Holtz et al., 2006:649), today TB is still a threat to South Africa as well as other countries on the continent, leaving South Africa ranking 4th in the world with TB burden (WHO/V&B/99.23.1999:5).

Although South Africa is known to be the country with the highest TB rates globally, TB remains a serious problem internationally. According to WHO, in Thailand TB has high incidences with a prevalence of 198 cases per 100,000 and a death rate of 20 cases per 100,000 as reported in 2006. In Britain, Portugal and France, the disease was linked to immigration from areas where TB was still at epidemic levels such as Africa and the Indian subcontinent. In India, TB was the leading cause of death, the incidence remained higher than any other country, with 1,228,827 new and relapse cases reported in 2006. China was the second leading country in the world with TB burden in 2006, it has an incidence of 99 new cases per 100,000 population (WHO.Int/country profile/2008).

TB is a leading cause of death globally, especially when there are also MDR-TB strains. In 1999, South Africa reported 129,487 new pulmonary TB cases. Of these reported cases 84,857 were sputum-positive. Recently in 2006, South Africa reported 303,114 new and relapse cases. In South Africa, TB is currently the leading cause of mortality as speeded up by HIV/AIDS, the incidence of TB still remain higher than any other African country, with 940 new cases per 100,000 population, with new cases of MDR-TB of 1.8%, leaving South Africa ranking number 4 globally with TB (WHO.Int/county profile/2008). In 2003, Limpopo Province reported 21,472 of new TB cases and 1,009 mortality cases of TB, with case facility rate of 4.9% (DoH Limpopo Province, 2003:TB Statistics).

© University of Venda

University of Venda
Creating Future Leaders

2.3.5 The Emergence of MDR-TB—Its Management and Treatment

At no time in history has TB been as widespread a concern as it is today. Despite the use of highly effective drugs to combat TB globally, disease and deaths due to *Mycobacterium tuberculosis* are increasing worldwide and are being fuelled by the widespread HIV epidemic. A most serious aspect raising more concern on the problem has been the emergence of MDR-TB, which poses a threat to both individual patients as well as to the communities (WHO/CDS/TB/2003.318:5).

MDR-TB is defined as a TB disease caused by strains of *Mycobacterium tuberculosis* that are resistant in vitro to both rifampicin and isoniazid, with or without resistance to other anti-TB drugs (WHO/CDS/TB/2003.318:5). As with other forms of drug resistance, MDR-TB is a man-made phenomenon, being largely the consequence of human error in any of the following: management of drug supply, patient management, prescription of anti-TB drugs or chemotherapy and patient adherence. Since the early 1990s, several outbreaks of MDR-TB have been reported in different countries and regions of the world, as a result of inappropriate use of anti-TB drugs. Usually, MDR-TB occurs in chronic cases after failure of re-treatment regimens and a significant proportion of TB patients with acquired resistance (DoH, 1999:4).

The DOTS strategy which has been recommended by the WHO for adoption as a strategy to combat TB globally has been more effective in decreasing TB disease in most countries that have adopted the strategy as recommended by the WHO. As there has been a significance emergence of MDR-TB worldwide, the World Health Assembly held during the year 2000 in Geneva restated two global targets for TB control which included MDR-TB: to treat successfully 85% of detected smear-positive TB cases, and to detect 70% of all such cases (WHO/CDS/TB/2003.318:5). To reach the global targets, it was widely recognized that DOTS implementation must be expanded to DOTS-plus. The term DOTS-plus has been used recently to refer to piloting of the management of drug-resistant TB within the context of basic DOTS strategy programmes (WHO/CDS/TB/2003.318:5).

© University of Venda

2.3.6 Management of Drug-Resistant Tuberculosis

Any patient who has been diagnosed with chronic TB or drug-resistant TB requiring treatment with second-line drugs is classified under diagnostic category IV according to WHO and will need specialized regimens different from those of drug-susceptible TB (WHO/TB/91.161:9; WHO/HTM/TB/2006.361:44).

Treatment strategies for drug-resistant TB are designed according to the history of the patient's treatment, according to previous TB diagnosis. It is therefore highly recommended that essential assessment be undertaken for each patient before designing a treatment strategy. Ideally, programmes should design a treatment strategy when the drug resistance surveillance data are ready (WHO/HTM/TB/2006.361:38).

The following are definitions of terms that are often used to describe the treatment strategies for drug-resistant TB.

2.3.6.1 Standardized Treatment

Regimens are designed on the basis of representative drug-resistant surveillance data of specific treatment categories. The standard treatment regimen for MDR-TB patients in South Africa consists of a four month intensive phase with five drugs (kanamycin, ethionamide, pyrazinamide, ofloxacin, and cycloserine or ethambutol), followed by a 12 - 18 months continuation phase with three drugs (ethionamide, ofloxacin, and cycloserine or ethambutol). The continuation phase period may be shortened provided that 12 months of treatment has been given after sputum conversion by three consecutive monthly negative cultures (DoH, 1999:14).

2.3.6.2 Empirical Treatment

Each regimen is individually designed on the basis of the previous history of anti-TB treatment and with the help of representative DRS survey data (WHO/HTM/TB/2006.261:39).

© University of Venda

University of Venda
Creating Future Leaders

2.3.6.3 Individualized Treatment

Each regimen is designed on the basis of previous history of anti-TB treatment and individual DST results. This implies that treatment must be delayed until susceptibility results are available, or that patients are started on the standardized regimen if the sputum smear is still positive after re-treatment course while awaiting drug susceptibility results. Individualized treatment for drug-resistant TB is usually 18 months depending on the patient's response to treatment (WHO/HTM/TB/2006.361:39).

2.3.7 Impact of HIV/AIDS on the Incidence of Tuberculosis in Sub-Saharan Africa

Studies indicated that HIV and TB were increasing widely. In Sub-Saharan Africa, HIV and TB are among the leading cause of morbidity and mortality. HIV complicates TB infection and is associated with a more rapid clinical decline. Infection with HIV increases the risk of reactivating latent TB. TB can also affect HIV infection and is the most common opportunistic infection in HIV-positive individuals (Anthony & Nicola, 2001:1519). In the Sub-Saharan Africa and Africa, TB control is generally based on the WHO promoted DOTS strategy programme. Studies revealed that HIV has a challenge on the use of DOTS programme to combat TB in the Sub-Saharan Africa, as TB patients who were HIV-negative responded better to treatment when under the DOTS strategy than HIV-positive patients (Idemyor, 2007:1415 - 1418).

Resent research studies identified recurrent cases of TB and poor adherence to anti-TB treatment with the combined use of anti-TB drugs and antiretroviral therapy (ART). In many countries with adequate resources, highly active antiretroviral therapy (HAART) is started early in TB infected individuals with advanced HIV disease (Idemyor, 2007:1415 -1418). In Sub-Saharan Africa, the question of when to start ART is still unresolved, however Bandri and colleagues (cited in Anthony & Nocola, 2001:1521) in their South African study reported that ART reduces the risk of TB in individuals with HIV. If ART is started early enough, it should

© University of Venda

University of Venda
Creating Future Leaders

reduce mortality and recurrent rates of TB. Studies further indicated that the combined use of anti-TB drugs and ART initiated at the same time places patients at greater risk as they are both have unpleasant adverse effects (Anthony & Nicola, 2001:1522). The emergence of MDR-TB gives more problems as MDR-TB is now being transmitted among the HIV-1-positive population in the Sub-Saharan Africa. According to Weyer (2007:67), South Africa faces one of the most devastating TB epidemics in the world with more than 400,000 cases per annum, compounded by a large burden of some 10,000 incident cases of MDR-TB. Weyer (2007:69) further stressed that public health concerns have been amplified by the emergence of XDR-TB in South Africa.

2.4 Health Care System, Policies and Guidelines in Relation to Tuberculosis

2.4.1 Health Care Facilities

In South Africa, the quality of health care has changed greatly since the inception of the new democratic era. National and provincial departments, districts, health authorities and municipalities work together to deliver quality, adequate and comprehensive health care services to all South African communities. The DoH is responsible for defining the type of available health care services, and organizing such services, operating schedules and procedures for access to the service (ANC, 1994:44). In South Africa, health care services are rendered in different types of facilities that are classified according to services rendered and hours of operation. National, provincial and local governments manage the facilities, as in Limpopo Province and the Waterberg area (DoH 1999:14).

There are a number of classified health care facilities which are used to render health care services. Facilities are classified as follows (DoH, 1999:13):

Community health centres provide the full core service package of preventive, promotive, curative and rehabilitative services, including primary health care (PHC) services.

© University of Venda

University of Venda
Creating Future Leaders

Fixed clinics provide essential services as first health care contact.

Satellite clinics usually provide the full range of core services provided by "mother" clinics and only operate on certain days of the week.

Mobile clinics provide outreach services and consist of light duty vehicle or buses and provide health care services to communities where there is no fixed facility.

Specialized TB or chest disease clinics treat severe cases of complicated TB, including MDR-TB and XDR-TB.

In South Africa, public health functions are decentralized from national and provincial to district levels. The WHO (2003:9) stated that decentralization enhances community participation and reduces the administrative costs. TB control depends not only on diagnostic and treatment services, but also on the community's active participation. TB services integrated with PHC, results in an increase in the overall number of health care workers mandated for TB control. The integration of TB care with PHC provides further motivation for programmes to move from hospitalizing patients during the intensive phase of TB treatment to a system of ambulatory DOTS strategy (WHO 2003:12).

South Africa, ranking number 4 globally with the highest rates of TB cases and the performance of the national TB control programme has been disappointing (WHO. Int/country profile/2008). In the Eastern Cape, TB care has been integrated into PHC services for years and with the introduction of the community DOTS by the community health workers in Lusikisiki at Qaukeni District, cure rate has increased to 87% in 2007. Although health care services in Qaukeni District are offered in poor infrastructure and poor sanitation buildings, TB care has improved with the integration into PHC services and the DOTS strategy (Imbizo report, 2002:4).

© University of Venda

University of Venda
Creating Future Leaders

In Limpopo Province, TB care has also been integrated into PHC services. Limpopo Province has also adopted the WHO recommended DOTS strategy for TB care. As MDR-TB is highly infectious and its treatment depends on second-line anti-TB drugs, the national DoH has recommended for each province to establish its specialized referral facility for the management of MDR-TB (DoH, 1999:9). In Limpopo Province all patients with MDR-TB are managed at one specialized facility situated in the Waterberg District. The specialized facility is used as a referral institution for all patients with MDR-TB in Limpopo Province (DoH, 1999:17).

2.4.2 Health Care Personnel and Training

Health care personnel are the most important component in the management of TB. Dedication to the national TB control programme and a positive attitude towards drug-susceptible TB patients and MDR-TB patients contribute to the decrease and effective management of MDR-TB (DoH, 1999:5). The WHO (2006:105) emphasized that training must be offered to all health care personnel involved in the management of MDR-TB, i.e., they should receive special training courses to ensure professional competency in the management of MDR-TB (WHO 2006:105).

In South Africa, health personnel training and regular in-service training in TB management is conducted. TB as a communicable disease was included in the curriculum for doctors and nurses. Other categories of health personnel like health promoters, DOTS supporters and volunteers like traditional healers were also trained by organisations like the South African National Tuberculosis Association (SANTA) (Tshabalala 2007:18). In Limpopo Province, Luhalima (2008:34) found that professional nurses in the Vhembe District were not trained or updated about the current policies that are used in the management of TB, and Edginton (1997b:14) reported that TB treatment outcomes improved significantly at Tintswalo after training clinic staff in TB management.

© University of Venda

University of Venda
Creating Future Leaders

2.4.3 Staff Shortage

According to the WHO (2006:105), human resources policy for MDR-TB must state that sufficient and competent staff capacity exists to detect and diagnose patients, administer treatment, maintain recording and reporting, provide health education to patients in all communities and monitor adverse drug effects. In New Zealand, Dormandy (1999:71) found that TB treatment interruption which resulted in drug-resistant TB was caused by an inability to trace treatment defaulters because of staff shortages, which increased workload to available staff leading to burnout among staff personnel.

In India, Pandit & Chaudhary (2006:242) discovered that compliance to TB treatment on DOTS strategy was poor, this came as a result of shortage of staff to educate patients about DOTS strategy and adherence to TB treatment. In South Africa, in a study conducted in the Tembisa area of Gauteng Province on treatment interruption, Tshabalala (2007:84) observed that shortage of staff contributed to poor health education to patients which resulted in defaulting on TB treatment.

2.4.4 Equipment, Supplies and Drug Supplies

It is important that the National TB Programme adopts the DOTS strategy and it is also vital that TB patients are treated in the programme. Government commitment, one of the key elements of the DOTS strategy to a National TB Programme ensures that equipment is available from the prevention of TB, diagnosis to the outcome of treatment (WHO 2006b:13). The following equipment should be available:

Literature in the form of posters and pamphlets, to raise TB, MDR-TB and XDR-TB awareness;

Accredited laboratory services;

Stationery, including suspect registers, TB registers notification books and patients' records files; and

© University of Venda

University of Venda
Creating Future Leaders

Computers for patient information storage and cars which can be used for tracing of patients who defaulted on their treatment.

The DOTS strategy dictates the necessity of the above supplies and equipment (DoH 2007:21). Effective management of TB drugs is important to prevent drug supply interruption, mismanagement and availability of poor quality drugs, which may have serious consequences such as increased morbidity, defaulter rates and development of resistance. To ensure a standardized and technically appropriate high quality drug supply, anti-TB drug tendering and procurement must be centralized (DoH 2007:22). The WHO (2006b:11) emphasized the need to ensure global standardized drug regimens and drug combinations.

2.4.5 Legal Framework and Principles Pertaining to Tuberculosis

TB was declared a notifiable disease during the 1880s in the United Kingdom and the USA because it was communicable. A communicable disease refers to one resulting from an infection due to pathogenic agents or toxins generated by infection, following direct or indirect transmission of the agents from the source to the host (Dormandy, 1999:209).

The following legislation regulates TB management in South Africa:

- Health Professions Act, 56 of 1974, as amended
- Pharmacy Act, 50 of 1974, as amended
- Nursing Act, 50 of 1978, as amended
- Medicines and Related Substances Control Act, 101 of 1965, as amended
- Information Act, 2 of 2000, as amended
- National Health Act, 61 of 2003

© University of Venda

- Patients' Rights Charter

In terms of the national patients' rights charter (DoH, 1999:2), all patients including patients with TB and MDR-TB have the right to:

- Healthy and safe environment
- Participation in decision making
- Access to health care
- Choice of health services
- Knowledge of one's health insurance scheme
- Be treated by a named health care provider
- Confidentiality and privacy
- Informed consent
- Refusal of treatment
- Be referred for a second opinion
- Continuity of care
- Complain about health services

The Batho Pele's principles safeguard:

- Consultation

© University of Venda

- Service standards
- Access
- Courtesy
- Information
- Openness and transparency
- Redress
- Value for money

The National Tuberculosis Control Programme is responsible for the effective management and control of TB. TB services are part of the PHC services in South Africa, as it is in all countries in the world as recommended by WHO (2008:23), where TB patients are identified and treated. In South Africa, TB services are integrated into the PHC services and its control and management is included in the standard treatment guidelines and essential drug list for South Africa (DoH, 2000:7).

2.4.6 Morbidity Patterns

TB is a global health concern and phenomenon, declared by the WHO (1999:5) to be a global emergency. TB is among the top ten causes of global morbidity and mortality (DoH, 1997:119). The disease is estimated to cause about 8.8 million cases and about 1.5 million deaths each year, more than half of which are in Asia (WHO, 2008:36). TB alone is responsible for close to 2 million deaths per year worldwide. Most of the TB burden occurs among the low income countries of the world, particularly those in South-East Asia and Sub-Saharan Africa (DoH, 2003:2-3). In 2008, in Asia, China had the highest incidence of TB in the world. It had

© University of Venda

University of Venda
Creating Future Leaders

a case detection rate of 79% and an infection rate of 201 per 100,000 of the total population (WHO 2008:97). South Africa has one of the highest recorded incidence rates of TB in the world. The national DoH reported smear-positive rates of 163 per 100,000 of the total population (DoH, 2000:9). Demographic factors also played a major role in the global re-emergence of TB. In 1998, WHO (2008:49) pointed out that many adults and adolescents were infected with TB bacilli during childhood, so there is a pool of infected population that would develop active TB, thus increasing the global TB incidence to around 100,000 cases every year in the twenty first century.

2.4.7 Tuberculosis and Co-Infection with HIV and AIDS

TB and HIV disease are the two leading causes of infectious disease associated morbidity and mortality worldwide. Therefore, the researcher sought to illustrate the relationship between HIV/AIDS and MDR-TB. TB and HIV disease have been closely entwined since the early years of the HIV/AIDS pandemic. The two conditions overlap in their epidemiologic characteristics and are both clothed in stigma. HIV/AIDS is a disease that affects the human's immune system, destroying and reducing the number of human CD4 cells used by the human body to fight against infectious diseases like TB.

Persons infected with HIV are at a high risk of becoming infected by opportunistic infections, e.g. pneumonia, hepatitis, oral candidiasis, pulmonary TB (Foundation for Professional Development, 2008:34-36). TB is the most common and primary cause of death in people living with HIV/AIDS and is one of the most commonly found opportunistic infection in HIV-infected people. In his study, Idemyor (2007:1418) researched the relationship between TB and HIV co-infection and described HIV infection as an impediment to TB control. Idemyor (2007:1418) further identified challenges faced on initiating HAART regimen and anti-TB drugs which continue to pose therapeutic challenge in terms of adverse effects, drug-drug interactions and immune reconstitution inflammatory syndromes to patients affected by both HIV and TB. His study further explored issues on adherence to both HAART regimen and

LIBRARY

© University of Venda

University of Venda
Creating Future Leaders

anti-TB drugs, which indicated that HIV- and TB-infected patients are likely to develop drug resistance as a result of defaulting their treatment due to the long duration of both regimens.

The facts stated and identified by Idemyor (2007:1418) on the link between HIV and MDR-TB were supported by the study conducted in South Africa by Wells, Cegielski, Nelson, Laserson, Holtz, Finlay, Castro, & Weyer (2007:86) who were alarmed by the global emergence of MDR-TB and they endeavoured to prove that this emergence was HIV-infection-related. Wells et al. (2007:86) identified that MDR-TB outbreaks have primarily affected HIV affected persons. It also identified challenges faced in initiating both HIV and TB treatment, wherein there was a high indication of malabsorbtion of anti-TB drugs due to HIV infection and acquired rifampicin resistance. HIV-infected patients with MDR-TB have unacceptably high mortality rates which necessitate both ART and anti-TB treatments.

2.4.8 Implementation Issues in TB/HIV/AIDS Programme Collaboration and Integration

Case studies were conducted in Malawi and South Africa to investigate the interactions between TB and HIV infection influence on the design and implementation of programmes which can assist in addressing the needs of patients living with or at risk of having both diseases. Friedland, Harries & Coetzee (2007:114) conducted the study cases which looked at collaboration between TB and HIV programmes and integration of services at local and national levels in South Africa and Malawi. Their study described three strategies which offer varying degrees of collaboration and integration, one at national level in Malawi and two at local sites in South Africa, namely, Khayelitsha and Kwazulu-Natal.

© University of Venda

2.4.8.1 Malawi

Malawi is small country in southern Africa, with an estimated population of almost 12 million. It faces challenges of severe HIV/AIDS and TB epidemics. It is estimated that there are 900,000 adults and children living with HIV/AIDS, and as many as 170,000 people in need of ART. TB case notifications were increased between 1985 and 2000 as TB was fuelled by HIV-infection. The health services in Malawi are controlled and administered by the ministry of health which is responsible for national policies, strategies, and implementation of TB and AIDS control.

Malawi has 44 hospitals that are TB registration and treatment centres issuing standardized TB treatment. Patients who are TB diagnosed remain in hospital for 2 weeks of DOTS and they receive education about the importance of good drug adherence, after which they go home to finish the remainder of initial phase and continuation phase which is collected every month at hospital or health centres, and they finish the treatment course under supervision of a community nurse or guardian at home (Friedland et al., 2007:115).

Malawi has an established national TB control programme which implement the WHO recommended TB control strategy DOTS, despite the implementation of DOTS strategy to control TB, case notification and case fatality rates have risen, prompting the ministry of health and the national TB control programme to develop a 3 year (2003 - 2006) TB/HIV plan (Friedland et al., 2007:115).

Some of the objectives for the TB/HIV/AIDS plan include:

- Improving collaboration between HIV/AIDS and TB programmes;
- Expanding HIV voluntary counselling and testing services for the public and patient with TB;

© University of Venda

University of Venda
Creating Future Leaders

- Providing cotrimoxazole preventive therapy to HIVinfected patients with TB; and
- Providing ART to patients with AIDS, including those with HIV-associated TB.

The problem faced by Malawi in the past was that the registration and treatment of patients with TB was performed in TB offices, and HIV testing performed at the HIV voluntary counselling and testing (VCT) units based in the hospital. HIV-infected patients with TB are then sent to the ART clinic for staging. To prevent drug-drug interactions between rifampicin and nevirapine and the development of immune reconstitution syndrome, ART is deferred for 2 months until the continuation phase of TB treatment (Friedland et al., 2007:117). The real concern Malawi was directed to the separation of TB and HIV services, which presented a problem to HIV patients infected with TB to adhere to their treatment for both HIV/AIDS and TB as they were collected and issued at different points.

The ministry of health established a 5-year plan (2006 - 2010) to address the problem of integration of TB and HIV programmes in Malawi. The plan aims at initiating ART in 45,000 new patients every year, by 2010 to reach a target of 245,000 patients with ART ever initiated, to integrate treatment delivery from a single office instead of two offices, and reaching rural populations will be challenging to TB/HIV integration and require well-planned operational research (Friedland et al., 2007:118).

2.4.8.2 South Africa

South Africa has the highest burden of both HIV disease and TB in the world. Ranking ninth among 22 countries with a high TB burden, South Africa accounts for 80% of all the cases worldwide (Friedland et al., 2007:118). For many decades, TB has been endemic, and its transmission has been fuelled by poverty, overcrowding, poor living conditions, migration and, more recently, HIV infection (Morolong, 2004:37). Within South Africa, the Western Cape Province has the highest rate (988/100,000 population), and the Kwazulu-Natal province, with

© University of Venda

University of Venda
Creating Future Leaders

a notification rate of 723/100,000 population, has the largest number of newly diagnosed cases. South Africa has a strong national TB control programme at national and provincial levels – this is because of the comprehensive strategic TB plan which was drawn up in 2001 with strong investment, including support and training, and the implementation of the DOTS strategy, but regardless of the comprehensive plan drawn in 2001, by 2003 the cure rate of smear-positive cases was still low (Friedland et al., 2007:118).

Both the provinces with high TB burden, i.e., Khayelitsha in Western Cape Province and Kwazulu-Natal were experiencing the same problem on rendering HIV and TB services at separate service points which created difficulties for HIV-infected patients with TB. With thorough and well-planned research, both provinces designed a stepwise integration of TB/HIV programmes which commenced in 2003 through pilot projects.

The following steps were taken to integrate TB and HIV services only in the Western Cape and Kwazulu-Natal provinces:

- Integration of both staff members providing TB and HIV services;
- VCT was reinforced in the TB service;
- Cotrimoxazole prophylaxis provided to TB and HIV co-infected patients;
- Sufficient staff training provided and standardized guidelines developed;
- TB and HIV clinic buildings emerged and integration of TB/HIV services accelerated;
- TB and HIV records were integrated;
- All patients were seen at one service point by the same clinician; and
- Monitoring systems and adherence procedures were coordinated (Friedland et al., 2007:119 -120).

© University of Venda

In conclusion, in their case studies Friedland and colleagues discovered that national integration of HIV/TB programme collaboration can be successful, but programmatic, medical, staffing, resource, and scale-up challenges remain. They also identified that increased collaboration between national TB and HIV programmes is necessary to reduce the rising tide of morbidity and mortality due to TB and HIV infections which require careful attention and operational research studies (Friedland et al., 2007:121).

2.4.9 Diagnosing and Categorizing Tuberculosis Patients

The WHO has a set of guidelines which are recommended globally for diagnosing and categorizing TB patients. South Africa follows the WHO guidelines for diagnosing and treating TB patients. For drug-susceptible TB suspects, at least two sputum specimens should be collected. For drug-resistant TB suspects, bacteriological examinations include sputum smear microscopy (i.e., two sputum specimens), culture and a DST (WHO, 2006:19).

The first specimen for sputum smear microscopy is collected on the spot at the first interview with the patient and the second is collected early in the morning the following day. The patient's personal particulars, together with the date and time of dispatch of the specimens to the laboratory, are entered in a TB suspect's register, which must be kept by all clinics and hospitals. To prevent and decrease the spread of TB, results should be made available within 48 hours and treatment initiated as soon as positive results are reported.

There are three main categories of drug-susceptible TB patients, and the fourth category covers for all MDR-TB patients (DoH, 2000a:28). The categories determine the treatment prescribed (WHO, 2006:20):

- ***Category I:*** A patient who has never had treatment for TB or who has taken treatment for less than four weeks.

- ***Category II:*** A patient who was previously treated for TB.

© University of Venda

University of Venda
Creating Future Leaders

- ***Category III:*** A TB patient who is eight years old or younger.

- ***New Category IV:*** Patients who have never received anti-TB treatment or who have received TB treatment for less than one month, important: patients who had DST at the start of Category I and are then switched to Category IV because of resistance.

- ***Category IV:*** Patients previously treated with first-line drugs only, for one month or more.

- ***Category IV:*** Patients previously treated with second-line drugs for one month or more, with or without first-line drugs.

- ***Transfer in: Category IV*** patients who have been transferred from another register for treatment of drug-resistant TB to continue Category IV treatment.

In South Africa, drugs recommended by the WHO are prescribed according to the patient's regimen, category, age and weight. There are three regimens for drug-susceptible TB (DoH, 2000:28), and three regimens for MDR-TB (WHO, 2006:38-39), which include the combination of anti-TB drugs classified as follows:

2.4.9.1 Drug-Susceptible Tuberculosis

- ***Regimen I*** is for new patients.

- ***Regimen II*** is for re-treatment adult patients.

- ***Regimen III*** is for children under eight years old (DoH, 2000:28).

2.4.9.2 Drug-Resistant Tuberculosis

- ***Standardized treatment*** is designed on the basis of representative Drug Resistance Surveillance (DRS) data of specific treatment category.

© University of Venda

- ***Empirical treatment*** is designed on the basis of previous history of anti-TB treatment, with the help of representative DRS data.

- ***Individualized treatment*** is designed on the basis of previous history of anti-TB treatment and individual DST results (DoH, 2000:29).

2.4.10 Registering of Tuberculosis Patients

The WHO (2006:20) recommends that every country should have documentation or a register for TB patients. All clinics and hospitals that register patients with confirmed diagnosis of TB must enter the data in the TB register. The person responsible for TB services in that clinic or hospital transfers the information from the TB patient's file to the TB register. The National TB Control Programme requires the TB register (DoH, 2001:21). The data stored in the register facilitates monitoring the progress of the patient from the time the patient is registered to the end of the treatment, which is called the outcome.

According to the register, TB patients have one of the following outcomes (DoH, 2000:20; WHO, 2006:21):

- ***Cured***. Patient was TB smear positive at the beginning of treatment and has proof of a TB smear negative result at the end of treatment.
- ***Treatment completed.*** Patient has completed treatment, but without proof of a TB negative smear at the end of treatment.
- ***Treatment failure.*** Patient remains or becomes smear positive again at five months or later during treatment.
- ***Died***. Patient died (for any reason) during the course of the TB treatment.
- ***Treatment interrupted.*** Patient's treatment was interrupted for two months or more.
- ***Transferred out.*** Patient has been transferred to another district and the treatment outcome is not known.

© University of Venda

University of Venda
Creating Future Leaders

2.4.11 Managing and Retrieving Tuberculosis Patients Interrupting Treatment

Defaulting of treatment is one of the leading causes of drug-resistant TB. TB patients who interrupt treatment spread the disease, may develop MDR-TB or may even die unnecessarily from a curable disease. In 1991, WHO (2002:3) on its fourty-fourth World Health Assembly (WHA), introduced a global strategy called DOTS to help combat and reduce TB disease. It is easier to notice that a patient is defaulting treatment if the patient is on DOTS; this is because the DOTS strategy ensures that infectious TB patients are identified and cured using standardized drug combinations (DoH, 2000:9). The implementation of DOTS ensures that every TB patient has a treatment supporter who ensures that they swallow their medication daily. The DOTS strategy also covers MDR-TB patients through its expansion to DOTS-Plus strategy (WHO, 2002:4).

The DOTS supporter, if in the community, notifies the health personnel immediately the patient misses a dose of treatment, patients on clinic DOTS can also be identified easily if they must miss their treatment. Patients should be traced before they miss more than ten doses because after missing ten doses they are registered as re-treatment patients when they are recovered. It is necessary to retrieve patients who default TB treatment as they may develop MDR-TB (DoH, 2000:27). TB treatment lasts from six to eight months, which is a relatively long period. Patients who fail to come for treatment are supposed to be followed-up as soon as it comes to the health worker's attention that treatment has been defaulted. Patient follow-up is difficult in areas like informal settlements, where there are no streets and addresses (Matsha, 1998:17).

2.4.12 Health Education

The South African Patients' Rights Charter (DoH, 1999:2) includes the right to access to health care – this right covers the patients' rights to health information which includes the availability of health services and how best to use such services and such information shall be in a language understood by all the patients. Based on the diagnosis made by a health practitioner on a

© University of Venda

specific health problem, it is necessary to give health education to patients about their health problem and its treatment. Health personnel give health education on TB and its treatment to patients and their families to strengthen prevention of TB and improve compliance with the treatment. Health education is further given to communities through the radio, TV and newspapers. However, not everybody can read or has access to the media. TB and MDR-TB campaigns are also strategies used to educate communities. In Khayelitsha, patient education and counselling to diagnose drug-resistant patients and their families helped improve the treatment outcome for drug-resistant TB (Khayelitsha DR-TB Report, 2009:8). The Khayelitsha's strategy of health education was achieved through health lessons to all newly diagnosed patients with drug-resistant TB before initiating treatment.

In a study conducted at Mbekweni Health Centre in the Eastern Cape Province, Kandel et al. (2008:47) found that poor education to TB patients about TB disease and its treatment at the health centre was the major reason for high incidences of treatment interruption, which has consequences of patient developing drug-resistant TB. In India, a study conducted by Pandit & Chondhary (2004:241) revealed that compliance to DOTS strategy was significantly high among those who had good knowledge about various aspects of TB disease.

2.4.13 Monitoring and Evaluation

The DOTS strategy provides indicators for monitoring health systems performance in general. DOTS strategy is an effective tool for patient monitoring, drug planning and national trend observation. The national TB control programme (DoH, 2001:12) recommends the following:

- TB indicators should be included among the care indicators for monitoring health system performance;
- Adoption of the national standardized TB case recording and reporting forms;
- Inclusion of TB control indicators in the integrated supervisory activities; and
- Monitoring and supervision which is specific to TB programmes.

© University of Venda

University of Venda
Creating Future Leaders

In the Eastern Cape in 1998, dedicated TB district coordinators were also involved in other activities which made it difficult to adequately support TB activities in districts. There was less time to check TB registers, complete quarterly reports, encourage tracing of defaulters and evaluate outcomes. Furthermore, 41 % of patients were lost during transfer from the hospital to clinics (Matsha 1997 - 1998:15). In Gauteng Province, during supervisory and support visits by TB coordinators the staff reported that the register was complicated and time consuming and that rotation of movement of staff prevented staff from coming to grips with the implementation of DOTS (Matsha 1997 -1998:18).

The purpose of monitoring and evaluation is to recognize success and solve problems. The process should be ongoing whereby deviations from the expected are corrected as soon as supervisors observe them. All hospitals and clinics are expected to report on the progress of TB management on a quarterly basis. Each facility is requested to strive towards meeting the TB management objectives and indicators mentioned above. The reports are compiled per district and then forwarded to provincial level. The reports are further consolidated and forwarded to national authorities until they reach the WHO (1998:175). It is very important that the deviation from the expected is investigated thoroughly to find out its cause in order to solve the problem. Poorly performing districts are encouraged to learn from best performing districts.

2.4.13.1 Treatment Response

In order to monitor sputum conversion and treatment outcome it is recommended that all patients who are initially sputum smear-positive have repeat sputum smears performed at the end of the second month of treatment. To verify success, additional sputum smears should be taken at month 4 and at the end of therapy for the 6-month regimens, and at month 5 and at the end of therapy for the 8-month regimen. Sputum cultures should be obtained at the start of treatment and at the end of month 2, and at the completion of the therapy. For programmes able to perform drug sensitivity studies, sensitivity tests for the primary drugs (isoniazid,

© University of Venda

University of Venda
Creating Future Leaders

rifampicin, ethambutol, and streptomycin) should be performed for new patients still positive at the end of the intensive phase of treatment and for re-treatment patients on entry to modify accordingly the course of the continuation phase of therapy and to diagnose early MDR-TB (WHO/TUB/91.161:9).

2.4.13.2 Home Visits

TB treatment lasts for six to eight months, which is a relatively long period of time. Patients who fail to come for treatment are supposed to be followed-up as soon as it comes to the health care worker's attention that treatment has been defaulted. Patient follow-up is difficult in areas like informal settlements, where there are no streets and addresses (Matsha, 1998:17).

2.5 Conclusion

This chapter encompassed the literature review on the health care system in South Africa in relation to TB and MDR-TB, TB control and management and factors contributing to defaulting of TB treatment. Although the literature review indicated improvement in health care systems and good TB control programmes in most countries, factors like poverty, unemployment, wars, and HIV/AIDS undermine the control of TB as well as MDR-TB. Thus, the main objective is keyed at addressing some of the factors that contribute to defaulting of treatment in the MDR unit of the Limpopo Province. Chapter 3 covers the research design and methodology.

© University of Venda

University of Venda
Creating Future Leaders

CHAPTER 3

RESEARCH DESIGN AND METHODOLOGY

3.1 Introduction

The previous chapter presented the literature review of this study. The fundamental aim of this study was to assess the factors contributing to the defaulting rate of MDR treatment among patients with MDR-TB in the MDR unit of Limpopo Province. It was envisaged that the outcomes of this study will minimize the defaulting rate of TB patients because of the understanding gained about their reasons and experiences during the treatment plan. The purpose of this chapter was to describe the research design and methodology, including the population, sampling, data collection and analysis processes used to collect data.

3.2 Research Strategy

The strategy for this study was exploratory. According to Burns and Grove (2009:19), an exploratory study is done when little is known about a phenomenon. An exploratory strategy is aimed at gathering new data or facts and also increases the knowledge in the field (Burns & Grove, 2009:357). The research design of an exploratory study tends to be open and flexible and was applicable to the study as there was little known about the guidelines to minimize the defaulting rate of MDR-TB patients in MDR unit of Limpopo Province.

3.3 Research Design

A research design is a plan for conducting research that maximizes control over factors that could hinder validity of the eventual results (Mouton, 1996:107, Burns & Grove, 2001:261).

© University of Venda

University of Venda
Creating Future Leaders

Burns and Grove (2009:243) indicated that the research design represents the major methodological thrust of the study. The purpose of the research design is to plan the study, to achieve greater control and to improve validity in examining the research problem. The research design must therefore be appropriate for the purpose of the study, feasible given realistic constraints and effective in reducing threats to validity. For this study, a qualitative phenomenological design was chosen. A qualitative study explores the lived experiences of the study participants in the world they live in (Holloway & Wheeler, 2010:3).

A number of different approaches exist within the wider framework of this type of research and many share the same aim: to understand, describe and interpret a social phenomenon as perceived by an individual, group, or culture (Holloway & Wheeler, 2010:3; Mouton, 1996:107). Qualitative research methods of gathering data are ways of gaining insights through discovering meanings Burns and Grove (2009:52) and also helps to obtain in-depth information on sensitive issues which otherwise might not be revealed in quantitative studies.

Qualitative research identifies the essence of human experiences concerning a phenomenon as described by the participants in the study (LoBiondo-Wood & Haber, 2006:569). Lived experience of the world of everyday life is the central focus of a qualitative study, giving meaning to each individual's perception of a particular phenomenon and is influenced by everything internal and external to the individual (Speziale & Carpenter, 2003:53). The method also identifies the way of thinking or perceiving a situation, event or phenomenon.

According to Creswell (2003:181), the researcher seeks to build rapport and credibility with the participants in the study. Qualitative research takes place in a natural setting; the researcher meets the participants in their natural setting such as homes, schools or offices to conduct the study. In this study, the MDR unit of Limpopo Province was considered the natural setting as the drug-resistant TB patients on treatment stayed there during their hospitalization.

UNIVERSITY OF VENDA
LIBRARY

© University of Venda

University of Venda
Creating Future Leaders

3.3.1 Qualitative Research

A qualitative approach to the research was adopted which included individual interviews to obtain data on the experiences of MDR-TB patients during the period of hospitalization at the MDR hospital. Qualitative research, the approach adopted in this study, is concerned with the meaning of phenomena and experiences, which are readily observable. Qualitative research attempts to understand people in terms of their understanding of the world, taking an insider's perspective where the researcher enters the world of the research participants in order to gain a greater understanding of this world (Mouton, 1996:130). According to Burns and Grove (1993:28), qualitative research assumes that subjectivity is essential in understanding human experiences. The researcher used this approach to understand the experiences of MDR-TB patients during their period of hospitalization at the MDR unit.

3.3.2 Exploratory Studies

Exploratory studies are concerned with the exploration of a relatively unknown research area, the aim is to gain new insight into the phenomena (Mouton & Marais, 1990:430). An exploratory approach was used in this study to explore the factors influencing defaulting of TB treatment by MDR-TB patients during hospitalization at the MDR unit and to explore the shortcomings of their MDR-TB treatment regimens.

3.3.3 Descriptive Research

A descriptive research design was used in this study. Descriptive research attempts to provide a truthful account of the phenomena and experiences in the world around us; it describes how things actually are (Mouton, 1996:102). In addition, recommendations were drawn regarding minimization of the MDR-TB patients' defaulting rate in the MDR unit in the Limpopo Province of South Africa to improve patient-related problems during hospitalization.

Polit and Beck (2004:528) defined descriptive research studies as having as their main objective the accurate portrayal of the characteristics of persons, situations or groups. Thus,

© University of Venda

University of Venda
Creating Future Leaders

descriptive research summarizes the status of some phenomena of interest as they exist, without introducing changes. Descriptive research designs, when compared to the formal measurement models used for quantitative studies, appear to lack rigour and objectivity. However, it would be erroneous to conclude that clinical research can "do without" the flexible methods provided by qualitative research approach (Stommel & Wills, 2004:291). In this study, the descriptive design provided a platform for the participants to present their views regarding MDR-TB treatment to the point of saturation, i.e., when they had nothing further to add to the research questions.

3.3.4 Contextual Designs

The study was contextual in nature. A contextual design is one in which the phenomena of interest are studied in terms of its immediate context (Mouton & Marais, 1990:49). While LoBiondo-Wood and Haber (2006:561) see a contextual study as one with a specific location and the study findings are only valid within this situation. The human experience does not occur in a vacuum; therefore, it is important to provide a detailed description and analysis of the social context of the research participants. The context of the study was the MDR unit of the Limpopo Province based in the Waterberg District municipality of the province, i.e., an institution that hospitalizes all the drug-resistant TB patients of the entire Limpopo Province which comprises of five districts, namely, Capricorn, Mopani, Sekhukhune, Vhembe and Waterberg. The socio-cultural groups consist of black, coloured, Indian, and white.

3.4 Research Population

A population is a well-defined set that has certain specified properties (LiBiondo-Wood & Haber, 2006:242). In research, a population refers to an aggregate of units to which results of any study are applied, or the aggregate of all units about which information is required the limits within which the research findings are applicable. A population is defined as a complete set of objects or persons characterized by designated criteria, which the researcher intends studying. It is often impossible for the researcher to study the whole population due to cost and

© University of Venda

University of Venda
Creating Future Leaders

time constraints and, as a result, only a portion or sample of the population is subject to research (Brink, 2006:45).

For the purpose of this study, the target population were drug-resistant TB patients hospitalized in the MDR unit of Limpopo Province and thus met the criteria to participate in the study.

The inclusion criteria were drug-resistant TB patients on treatment who were hospitalized in Limpopo MDR unit and were:

- 18 years and above;
- Willing to participate;
- Have been on treatment for at least 4 months.

The sample size was determined by saturation of data (Lincoln & Guba, 1985:317). A qualitative researcher continues to gather and analyze data until they reach a point of data saturation. Saturation of data occurred when the researched no longer distinguished new information (Brink, 2006:40).

3.5 Sampling, Sample Criteria and Sampling Method

The sampling method was purposive sampling which involves the conscious selection by the researcher of certain subjects, elements, events or incidence to include in the study (Burns & Grove, 2009:350). Sampling refers to the researcher's process of selecting the sample from the population in order to obtain information regarding a phenomenon in a way that represents the population of interest (Brink, 2006:32). Burns and Grove (2011:293) defined sampling as a process that involves selecting a group of people, events, behaviours, or other elements with which to conduct a study.

In this study, a non-probability, purposive and open sampling method was adopted. Open sampling is the selection of participants on site, in this case at an MDR unit (Polit & Hungler,

© University of Venda

University of Venda
Creating Future Leaders

1991:642). Open sampling is similar to convenient sampling. The researcher selects the participants who are readily available. This is used mainly for pilot purposes to select a larger sampling frame. Purposive sampling is a method where a predetermined criterion for recruitment of participants into the study is decided on before the recruitment of participants (Burns & Grove, 2011:313).

Mouton and Babbie (2001:277) described purposive sampling as a method in which the researcher seeks to maximize the range of specific information that can be obtained from and about a particular context by purposely selecting locations and participants that differ from one another. Polit and Hungler (2001:136) corroborates that in purposive sampling the researcher looks for individuals, groups and settings where specific processes being studied are most likely to occur.

Burns and Grove (2011:294) define sample criteria as a process of listing characteristics essential for membership in the target population. The criteria are developed from the research problem, the purpose of the study, the conceptual and operational definitions of the study variables and the design. This is a list of essential characteristics that qualified the participants for selection in the study (Burns & Grove, 1993:246).

The sample was selected from the population which met the following criteria:

- Registered MDR-TB patients on MDR-TB treatment regimen at the MDR hospital;
- Hospitalized at MDR unit for at least four months;
- Both males and females were included. According to the South African Constitution an adult is a person who has reached age 18 and upwards, therefore in this research participants included in this study were from age of 18 years upwards so that they themselves can explain their concerns.

© University of Venda

University of Venda
Creating Future Leaders

The following local languages were used during the interviews depending on the language preferred by the participants: Sepedi, Tshivenda, Xitsonga and English.

Katz (2006:38) referred to the place where a study is conducted, how sites are selected and why sites met the criteria of the research as a study site. Limpopo Province consists of five autonomous health districts, where in Waterberg District has an MDR unit or institution responsible for care and management of drug-resistant TB patients for the entire province. The MDR unit in Waterberg District serves as the only specialist institution for drug-resistant TB cases in the Limpopo Province. In this study, the MDR unit will be used as the study site as it met the criterion for inclusion in the study as it is the only institution that manages drug-resistant TB patients through hospitalization for care and treatment.

3.6 Data Collection

MDR-TB patients who met the sampling criteria were interviewed individually using semi-structured interviews in a comfortable environments (Streubert & Carpenter, 1999:23). Data collection is a series of interrelated activities aimed at gathering the information to answer emerging research questions (Creswell, 1994:110). The researcher also utilized intuition and bracketing in order to avoid bias in this research.

Data were collected by means of semi-structured interviews, field notes and the role of the researcher. To avoid possible problems that might occur during the process in this research, a pilot study was carried out with MDR-TB patients who met the criteria. The researcher encouraged the participants to speak in their language of choice in order to present the true reflections of the data without distorting the information. Translations were done in Sepedi, Tshivenda, Xitsonga and English and presented to participants in order to confirm that the information still carried the presented data during the initial interviews for their confirmation. Bracketing, intuiting and reflexivity were continuously reviewed to prevent bias of the researcher (Polit & Hungler, 1995:636; Wilson, 1993:179).

UNIVERSITY OF VENDA
LIBRARY

© University of Venda

University of Venda
Creating Future Leaders

3.6.1 Semi-Structured Interview Method

In this study, the semi-structured interview method was adopted. For the semi-structured interview, guidelines were prepared to focus the interview on specific questions, but the discussions were conducted freely and flexible around the main themes under discussion. During semi-structured interviews, attention was given to the factors and experiences contributing to patients defaulting on TB treatment.

The researcher interviewed the participants using an interview guideline and a tape recorder. Consent was obtained from the participants (Annexure E). During the interviews the participants were asked to motivate and explain their personal feelings, perceptions, problems, attitudes and experiences whilst on the MDR-TB treatment protocol. During the interviews questions were phrased and probed to give clarity in certain instances that were ambiguous.

The interviews were conducted in a quiet room, with two chairs and a table. The room was away from noise to create a good atmosphere for the interview. The atmosphere was relaxed so as to allow free expression of feelings. Therefore, data were collected in a private room where there was no distraction, but a comfortable atmosphere where the physical setting tends itself to audiotaping of the interview (Creswell, 1994:124). Each interview lasted approximately 45 to 60 minutes.

Bracketing is the process of identifying and setting aside any preconceived beliefs and opinions one might have about a phenomenon under investigation. It involves laying aside what is known; the researcher laid aside information known related to MDR-TB (Brink, 1996:120). Intuiting occurs when the researcher tries to develop an awareness of the lived experiences without forcing prior expectations or knowledge in the process. The researcher reviewed the collected data repeatedly until there was common understanding (Brink, 1996:120). In the case of reflective remarks, the researcher reflected any thoughts, feelings, ideas, or insights he wished to make. The researcher explored personal feelings and experiences that may influence

© University of Venda

University of Venda
Creating Future Leaders

the study and he integrated this understanding into the study (Burns & Grove, 1993:567).

3.6.2 Field Notes

The researcher observed non-verbal communication gestures and facial expressions from the participants and at the same time observed their attitudes which enabled the researcher to eventually compile notes about MDR-TB patients. He also noted portraits of patients, which involved describing physical appearance, dress, mannerisms, style of talking, any facet of appearance or behaviour which sets an individual apart from the group and when the speaker's voice is soft (Mayan, 2001:13). Field notes were taken by the researcher regarding the observations made during the interview process and his interpretations of the observations. The researcher followed critical points when writing the field notes to minimize loss of data: not talking about the observation before it is recorded, finding a quiet place to write, setting aside adequate time to complete the notes, sequencing the events in the order they occurred, and letting the events and conversation flow from mind to paper. Forgotten impressions were later added to the notes (Polit & Hungler, 1995:642; Richardson & Koller, 1996:57). A tape recorder was also used to record information for narrative information which was transcribed verbatim.

3.6.3 The Role of the Researcher

The researcher directed the interaction and inquiry in a much unstructured manner (Denzin & Lincoln, 1994:364-365). The researcher was flexible, empathic, objective, and a good listener, ensuring no domination during the interview. The researcher remained open to the perceptions of the participants rather than attaching his own meaning to the experiences of the participants (Burns & Grove, 1993:94).

© University of Venda

3.6.4 The Use of Communication Techniques

The following non-directive communication techniques were used by the researcher to help the MDR-TB patients to articulate their experiences and views freely.

3.6.4.1 Probing

Probing is an open-ended attempt to obtain more information about something (Polit & Hungler, 1995:290). It is used in the case of vague answers to get further particulars and more information, for instance: "tell me more" or "let's talk about that."

3.6.4.2 Paraphrasing

Paraphrasing is a verbal statement that is interchangeable with the patient's statement (Polit & Hungler, 1995:290). It is used, for example, where the participants would say, "I had a bad night", the researcher paraphrased it and say "You did not sleep well last night."

3.6.4.3 Clarifying

Clarifying is an attempt to focus on or understand the basic nature of the participant's statement, for instance: "Could you go over that again please."

3.6.4.4 Making a Minimal Response

Minimal responses are the verbal counterparts of occasional head nodding used during an interview (Polit & Hungler, 1995:290). The researcher used verbal cues such as "mm … mm," "yes," "I see," to encourage participants to verbalize their experiences.

3.6.4.5 Summarizing

The researcher tied together several views and feelings that had been communicated. Major cognitive and effective themes were brought together (Polit & Hungler, 1995:290).

© University of Venda

3.6.5 Data Gathering

Data gathering is discussed in terms of the data gathering method, instrument, pilot study and the planning of data gathering.

3.6.5.1 Data Gathering Method

Due to the qualitative nature of the data needed, data gathering in this study was self-report, using a semi-structured in-depth interview technique. An interview is a person-to-person verbal discussion between the researcher and the participant (Creswell, 2009:192). An in-depth interview usually features an audiotape which enables verbatim transcription of data and use of an interview guide (Speciale & Carpenter, 2003:28). In-depth interviews can last between one to two hours. Participants are also given the opportunity to discuss issues with the intention of eliciting their views and opinions.

The interview technique was used due to the sensitive nature of the study and participants were interviewed individually, as personal questions are often responded better on a one-to-one basis. Furthermore, an interview allowed both verbal and non-verbal interaction between the researcher and the participant, which enables the researcher to obtain details that might not normally be revealed about a phenomenon and allows for detailed responses.

Speziale and Carpenter (2003:28-29) emphasized the unique advantages of the interview technique as:

- The availability of personal and in-depth data on the topic;
- Obtaining information from participants who are unable to read or write;
- Ease of clarifying information; and
- Using interpersonal skills to ensure adequate co-operation.

© University of Venda

However, the main disadvantages of conducting an interview are that its validity depends on the interviewer's skills and generalizability to a population is not possible, given the small sample size. Measures were taken to prevent the disadvantages from affecting data quality. First, the researcher conducted the interviews as health professionals are adequately trained to conduct the interviews; second, the principle of data saturation was used to determine the sample size, and third, as the study was contextual in nature, generalizability was never intended.

3.6.5.2 Planning for Data Gathering

Planning for the data gathering included:

- Approval was obtained from the University of Venda Research Ethics Committee, Limpopo DoH, and Limpopo MDR unit in Modimolle (Annexures A-C).

- Before the commencement of the interview, the participant's rights were explained and informed consent was obtained (Annexure E).

- The interview was conducted in a private room at the MDR unit during data collection visits, to ensure privacy.

- An audiotape recorder was used during the interview, with the permission of the participant, to record data.

- Provision was made for taking field notes during and immediately after the interview should the participant refuse a tape recorder.

- The information obtained was verified with the participant at the end of the interview before transcribing the recording.

© University of Venda

University of Venda
Creating Future Leaders

3.7 Data Analysis

Data analysis can be defined as the systemic organization and synthesis of research data (Burns & Grove, 2005:43). Qualitative data were gathered and analyzed. Speziale & Carpenter (2007:88) identified a hermeneutic interpretative approach of analyzing the data in qualitative research that comprises a three-step processes, but Tesch's method of data analyses was adopted (Creswell, 1994:153).

In this study, a qualitative in-depth interview data was analyzed as follows—the researcher (Creswell, 1994:153-156; Krefting, 1991:14):

- Read through all of the transcripts carefully in order to get a sense of the entire transcripts. As he read through the transcripts, he jotted down ideas as they came to mind.
- Picked one interview read it again and underlined themes.
- Followed the same procedure for all interviews and then made a list of all themes and clustered similar themes together, and arranged the themes into major, unique and leftover themes.
- Found the most descriptive wording for the themes and arranged them into categories.
- Grouped themes that related to each other together and drawed lines between categories to show relationships.
- Assembled in one place data material that belonged to each category.
- Recorded the existing data.
- Reached consensus with an independent coder on analyzed data.

© University of Venda

University of Venda
Creating Future Leaders

3.8 Pilot Study

Depending on the total number of MDR-TB patients recruited for a larger study, a smaller group, about 10% of the larger group, will be identified for the pilot project. The pilot group may end up participating in the larger group depending on the kind of data generated and outcomes of the pilot process (Polit & Hungler, 1995:302). In qualitative studies, data generated during a pilot process may provide a unique case that excludes it in the main study and may deny the opportunity to describe unique cases or scenarios that emerged during the study.

Thus, each participant provides a unique view needed for development of a programme as opposed to quantitative drive to provide evidence for geralizability (van Teijlingen & Hundley, 2001:298; Pandit, 1996:4). In this case, the purpose of piloting is to decide on gaps and areas that need further data collection. The researcher thus has to establish that there will be no danger for data contamination by using techniques such as bracketing. In this study, three participants who met the inclusion criteria of the study were initially interviewed to identify gaps in the study questionnaire. Following the interviews of the three participants that formed the pilot study, gaps were identified in the questionnaire and additional questions emerged which formed part of the main research study.

3.9 Measures to Ensure Trustworthiness

In this study, trustworthiness applied in all the study phases so that the study outcomes represent the accurate experiences of all participants. Lincoln & Guba's model (Morse & Field, 1996:118) of trustworthiness was used. The four criteria for trustworthiness are:

- Credibility (truth value);
- Transferability (applicability);
- Dependability (consistency); and
- Conformability (neutrality)

© University of Venda

University of Venda
Creating Future Leaders

Trustworthiness was established according to the strategies advocated by Lincoln and Guba (1985:317). Trustworthiness is a method of establishing rigour in qualitative research without sacrificing relevance. The strategies used to ensure the trustworthiness of the data are presented in Table 3.1

3.10 Ethical Considerations

In this study ethical considerations were the core principle because credibility and trustworthiness has to be ensured. The approval to conduct the study was secured by a written permission from the University of Venda Higher Degrees Committee and the Limpopo Provincial DoH Ethical Clearance Committee (Annexures A-D). The ethical considerations were in accordance with ethical standards and principles of DENOSA (1996:5), Burns and Grove (2001:421); Polit and Hungler (1995:119-125), as described below. All explanations were done at the level of the participant's understanding. Then an informed consent was given by the participants, only if they are above 18 years of age. The consent form was in a written form (Annexure E).

3.10.1 Informed Consent

The following specific information was disclosed to each patient before s/he could agree to participate in this study (Burns & Grove 2001:421). Participants were informed about the rationale behind their selection, namely, that they were registered MDR-TB relevant patients at the MDR unit. Therefore, they were relevant members to participate in the study since they were hospitalized at the MDR unit.

3.10.1.1 Explanation of the Procedure

The researcher explained to the participants the setting, data collection method, the fact that data will later be analyzed and used to suggest and establish strategies that can be used to improve MDR-TB treatment regimens (Burns &Grove, 2001:421).

© University of Venda

Table 3.1: Summary of measures to ensure trustworthiness

Strategy	Criteria	Application
Credibility	**Prolonged and Varied Engagement with the Field** Truth value is obtained from the discovery of human experiences as they are lived and perceived by participants and is termed "credibility" (Krefting, 1991:217).	• A trusting and friendly relationship was built to gain the trust and confidence of the participant with the interview being conducted in the room. • Time was spent with the participant to create a relaxed environment before the commencement of the interview. • Prolonged engagement with the patients and clear description of the findings enhanced credibility. In this study, the researcher engaged with the research, established valid and meaningful relationship with the participants; remained open to the deeper meaning that unfolded during the research.
	Reflexivity	• More than enough data was gathered to support the findings from the study. • Sample size was determined by saturation of data.
	Peer Examination	• Ethics Committee of University of Venda • Colloquium before peers. • The researcher also interacted with experienced research colleagues in the workplace who could provide guidance for the research design, data collection, and data analysis for review and consensus on how to proceed.
	Authority of the Researcher	• The researcher has a degree in nursing and nine years' experience in comprehensive nursing and management. • Furthermore the researcher is a psychiatric nurse and is actively involved in voluntary testing and counseling programme (Lincoln & Guba, 1985:318; Netshandama, 2004:65).

Continued/...

© University of Venda

Table 3.1: Summary of measures to ensure trustworthiness (continued)

Strategy	Criteria	Application
Transferability	**Nominated Sample** Guba (in Krefting, 1991:217) states that transferability would be a more appropriate perspective as the criterion against which the applicability of qualitative data is assessed.	• Purposive sampling using specific inclusion and exclusion criteria. • It can be further achieved through transferability, which explains the probability that the research findings have meaning to other similar situations (Krefting, 1991:45). • To meet the criteria for transferability, the researcher report of this study provided in-depth discussions of the nature of the participants, their reported experiences/data obtained, and the researcher's observations during the study, methods of data analysis and interpretation of the research findings. The researcher presented a dense description of the methodology and the results to enhance transferability to other settings (Krefting, 1991:217).
	Dense Description	• Detailed proposal
Dependability	**Conformability Audit** Conformability involves freedom from biases, motivation and perspectives in the procedures and results. It is further defined through conformability, which is the criterion for neutrality. In this study participants enjoyed the same status of participation in the research (Lincoln & Guba, 1985: 317). To ensure conformability in this study, triangulation of methods of data collection, audit and consensus were used.	• Data analysis protocol developed according to Lincoln & Guba (1985:317) and Speziale and Carpenter (2007:49). • Consistency assesses whether the findings would be consistent if the inquiry were replicated with the same subjects in a similar context (Krefting, 1991:45) consistency is described in terms of dependability due to the uniqueness of human nature. • Dependability refers to variability that can be ascribed to identify sources. Dependability was enhanced by applying the following activities: ➢ The researcher's role and participant's role were described. ➢ Themes were reached after thorough data analysis and consensus with research participants.

© University of Venda

University of Venda

Participants were informed that there are no risks as well as discomforts during the process of data collection. Asking them to discuss or revisit their past experiences opened old wounds of sadness and depression, therefore the researcher, as a psychiatric nurse, was familiar with depressed behaviours and its management.

3.10.1.2 Description of Benefits

There were no financial rewards as well as other rewards for participating in the study. The benefit was that they would state their opinion, experience and attitude regarding the topic.

3.10.1.3 Right to Privacy

In this study, all participants were granted the right as an individual to determine the time, extent and general circumstances under which the information will be shared with or withheld from others. Private information of patients would not be shared without the individual's knowledge or against his/her will. The researcher ensured that patients did not lose their dignity, friendship, embarrassment or shame. Any technical equipment like an audiotape or a research assistant that was used was explained to the participants. The participants were shown how to operate the audiotape in case the information s/he wanted to give should not to be recorded s/he could stop it (Burns & Groove, 1993:99; Polit & Hungler, 1995:125).

3.10.1.4 Right to Anonymity and Confidentiality

Based on the principle of privacy, the research participants had the right to anonymity and the right to assume that the data will be kept confidential. Complete anonymity exists when the participant's identity cannot be linked, even by the researcher, with his/her individual responses. Confidentiality is related to the researcher's management of private information shared by the participant. The researcher refrained from sharing the information without the authorization of the participant. No one had access to raw data of the study without authorization (Burns & Groove, 1993:99). The participants were told that field raw data were limited to the supervisors only to decrease the threat to loss of confidentiality. No names of

© University of Venda

University of Venda
Creating Future Leaders

participants would be mentioned during publication of any information obtained from the study. (Burns & Grove 2001:421). Ages and gender were mentioned during reporting.

3.10.1.5 Offer to Answer Questions

The researcher offered to answer any questions that were raised by the participants and provided participants with information on whom to contact for answers to pertinent questions about the research, participants' rights and further information (Burns & Grove, 2001:421).

3.10.1.6 The Right to Self-Determination and Justice

The researcher informed the participants about their right to withdraw from the study at any time without penalty or loss of benefits. Voluntary consent refers to participants' deciding to take part in a study of their own volition without coercion or any undue influence. The researcher obtained voluntary consent after the participants had received the essential information about this study. A written consent was obtained from all participants (Burns & Grove, 2001:421).

3.10.2 Veracity

The researcher refrained from raising false hopes from the participants about the potential effects of the research outcome (Burns & Grove, 2001:421).

3.10.3 Fidelity

The researcher remained faithful to commitments such as keeping time, maintaining confidentiality, and demonstrating empathy (Burns & Grove, 2001:421).

3.10.4 Non-Coercive Disclaimer

Participation in the study was voluntary and participants could withdraw without any penalty (Burns & Grove, 2001:421).

© University of Venda

University of Venda
Creating Future Leaders

3.11 Conclusion

This chapter described the details of the methodology that was followed in this study, including the research method, research design, population, sampling, inclusion criteria, study sites, data collection, data analysis, ethical considerations and measures to ensure trustworthiness. The discussions of the research findings and the literature control will be explained in the next chapter.

© University of Venda

University of Venda
Creating Future Leaders

CHAPTER 4

DATA ANALYSIS AND LITERATURE CONTROL

4.1 Introduction

The previous chapter provided a full description of the research design and method. In this chapter, the discussion is around the results from the phenomenological, in-depth, semi-structured interviews. The results presented are emergent themes and sub-themes identified during the data analysis. The discussion is based on the purpose of the study, which is to assess the factors contributing to defaulting of treatment among patients with MDR-TB in the MDR unit of the Limpopo Province. In this study, a literature control was done with discussion of themes. The aim of the literature control was to support the data collected during semi-structured interviews.

4.2 Operationalization of Data Analysis and Literature Control

The operationalization of data analysis and literature control follows.

4.2.1 Semi-Structured Interviews

Semi-structured individual interviews were conducted. Semi-structured interviews are used to gain a detailed picture of the participants' beliefs or accounts of a particular topic and this type of interview is particularly useful when there is an issue which is controversial or personal and allows more flexibility to the researcher (de Vos et al., 2002:302). The interviews lasted between 20 and 45 minutes and confidentiality and trustworthiness were maintained. Data saturation was achieved. In qualitative research data saturation is the point at which the data becomes repetitive and no new information is being added (Macnee, 2004:113).

© University of Venda

The following inclusion criteria were met by all the participants of the study:

- Registered MDR-TB patients on MDR-TB treatment regimen at MDR hospital;
- All participants were hospitalized at MDR unit for at least 3 months and upwards;
- Both males and females were included;
- All participants included in the study were between 18 to 65 years of age and they were able to express themselves and explain their concerns; and

The MDR unit was used as a study site; it is the only referral MDR institution in the Limpopo Province that hospitalizes patients for care and treatment of drug-resistant TB.

The age distribution of the participants that contributed to guidelines to minimize the defaulting rate of MDR-TB patients in MDR unit of Limpopo Province are summarized in Figure 4.1.

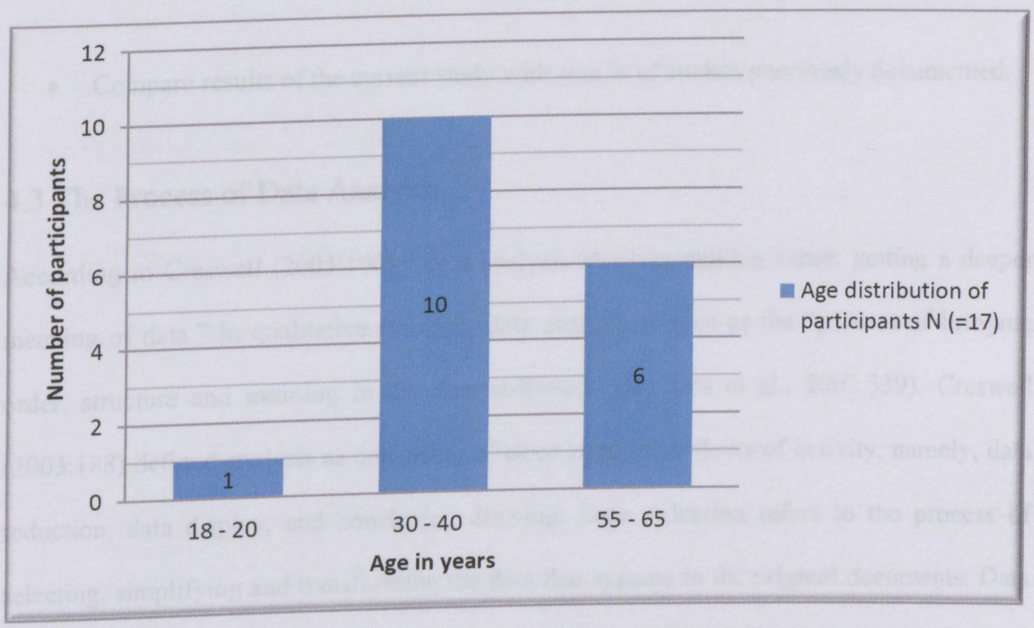


Figure 4.1: Age distribution of the participants

© University of Venda

In this study, the participants responded spontaneously which proved that the research questions were clear and that the participants were able to understand them. Saturation of data was attained at the point at which some of the factors were repeated in the semi-structured interviews and no new factors emerged. The researcher applied communication and interpersonal skills, such as probing, clarification, listening and reflection, in order to obtain sufficient data from the participants.

4.2.2 Literature Control

The broad aim of the literature control shows what is already known about the topic and also to avoid duplicating other people's work (Holloway & Wheeler, 2002:30). A literature control provides a platform for comparison of results or themes identified and themes identified in previous research. The researcher conducted a literature control in order to:

- Outline what is already known about the topic;
- Verify themes previously documented; and
- Compare results of the current study with results of studies previously documented.

4.3 The Process of Data Analysis

According to Creswell (2003:190), "data analysis involves making sense, getting a deeper meaning of data." In qualitative research, data analysis is seen as the "process of bringing order, structure and meaning in the data collected" (De Vos et al., 2002:339). Creswell (2003:188) defined analysis as consisting of three concurrent flows of activity, namely, data reduction, data display, and conclusion drawing. Data reduction refers to the process of selecting, simplifying and transforming the data that appears in the original documents. Data display comprises the second major activity. As with data reduction, the creation and use of displays are not separate from the analysis; rather, they form part of it. Conclusion drawing and verification comprise the third activity in the data analysis process. The researcher read

© University of Venda

University of Venda
Creating Future Leaders

through the verbatim transcripts and started underlining words and phrases contained in the participants' responses to the research questions. The main themes for the study were identified and sub-themes developed within the framework of these main themes as the analysis proceeded.

4.4 Themes and Categories Identified from the Data Analysis

Analysis of data revealed four central themes and several categories emerging from the central themes (Table 4.1).

4.4.1 Theme 1: Patient Factors

In this study, it was found that there are patient-related factors that contribute to the prevalence of TB as well as treatment defaulting rate amongst MDR-TB patients at Limpopo MDR unit. In this study substance abuse included alcohol, cigarettes and marijuana which were found to be the most leading factor causing defaulting of TB treatment amongst TB patients, thus effective TB prevention and control is possible within a substance abuse free community. In a study in Gauteng Province, Tshabalala (2007:59) affirms that all TB patients who were counseled and stopped taking alcohol while taking TB treatment completed their TB treatment with no complications.

4.4.1.1 Category 1.1: Substance Abuse Increase TB Treatment Interruption

The majority of the participants in this study stayed in communities where smoking cigarettes and alcohol drinking is very high, this exposes them to high chances of smoking cigarettes and marijuana and alcohol drinking while on treatment, however only six participants used alcohol and cigarettes while on treatment, four participants took alcohol only and two drink alcohol and smoke marijuana whilst on TB treatment. Out of the six participants five did not comply with their TB treatment.

© University of Venda

Table 4.1: Themes and categories identified from the data analysis

Themes	Categories	
1. Patient factors	1.1	Substance abuse increases TB treatment interruption
	1.2	Poverty
	1.3	Socio-economic factors and boredom
2. Cultural beliefs	2.1	Treatment interruption due to traditional and cultural beliefs
	2.2	Lack of knowledge due to religious beliefs
3. Health care system factors	3.1	Patients' dietary needs during hospitalization
	3.2	Prolonged hospitalization in MDR unit
4. Heath care practitioner-related factors	4.1	Inadequate health education
	4.2	Nurses' attitudes

© University of Venda

University of Venda
Creating Future Leaders

University of Venda
Creating Future Leaders

One participant responded as follows during the interview session:

> *"I was very stressed during the time I found out I had TB, and I was losing weight, when I went to the clinic they asked me to stop smoking and started me on TB treatment, but I continued drinking and smoking and I skipped taking my medicines".*

Substance abuse is very high amongst males in Limpopo Province (Department of Social Development, 2013:49), most communities around the province use alcohol and smoking of cigarettes with marijuana as a form of entertainment and dealing with stress. In Khayelitsha, Western Cape, Snyman et al. (2014) discovered that 21 out of 55 patients who were diagnosed with drug-resistant TB defaulted on their TB treatment due to substance abuse. It was discovered that patients who were newly diagnosed with drug-resistant TB also abused substances such as alcohol and marijuana (Snyman et al., 2014:07). According to Louw (1995:15), alcoholism contributes to TB treatment interruption amongst many patients in South Africa.

In most cases, unemployment, boredom and lack of entertainment contribute to alcoholism amongst most people. In Barcelona, Naing et al. (2001:379) found high rates of treatment interruption among homeless alcoholics. Participants also indicated that instead of being indoors and feeling sick, it was an option for them to go out and enjoy drinking alcohol with their friends as soon as they were feeling better.

An example of such a response in this study is cited below:

> *I was feeling better two weeks after taking TB medicines, so instead of sleeping on my bed and feeling sorry for myself, I decided to go drinking with my friends at the nearest tavern.*

The WHO (2008a:48) confirmed that substance abuse plays a role in most global TB defaulter cases reported.

© University of Venda

University of Venda
Creating Future Leaders

4.4.1.2 Category 1.2: Poverty

Poverty plays a role in patients defaulting treatment, especially if treatment is supposed to be taken with or after meals. TB infection causes patients to lose weight and have no strength to carry out day-to-day activities. According to a study in Pakistan, defaulter rate of TB treatment was higher amongst men than women, because women were restricted from moving about, while men are compelled to move away from their homes seeking for work, which resulted in more males defaulting their TB treatment (Khan et al., 2000:252). A study by Tshabalala (2000:53) in South Africa affirmed that poverty played a role in patients defaulting their TB treatment at Tembisa clinics. It was discovered that clients who were not employed and did not have sufficient food who collected treatment at Tembisa clinics were mostly diagnosed with drug-resistant TB.

In this study, participants confirmed that unemployment, poverty and insufficient food played a role in their defaulting of TB treatment:

> *When I started taking TB treatment I was unemployed and did not have enough food at home, which made it difficult to drink my TB treatment because after taking the tablets I will feel hungry.*

> *I stopped taking my TB treatment because I had to leave home to start a new job in a mine in Burgersfort, when I arrive at the mine the clinic was too far and I did not have money to travel and collect my TB treatment.*

According to Louw (1995:14), the high rate of unemployment reflected the relationship of TB with lower socio-economic conditions and may indicate that unemployed patients tend to interrupt treatment more often. According to Jaramillo (1999:400), nutrition plays a vital role in the control of TB at individual and population level. Tshabalala (2007:58) found that feeling dizzy and nauseous after taking TB tablets on an empty stomach was one of the reasons given for abandoning TB treatment. In Kwazulu-Natal, Van der Walt et al. (1997:05) found that one of the factors that contributed to interruption of TB treatment was hunger.

© University of Venda

University of Venda
Creating Future Leaders

4.4.1.3 Category 1.3: Socioeconomic Factors and Boredom

The MDR unit in Limpopo Province is situated in Modimolle town of the Waterberg District serving five districts of the province; namely; Capricorn, Mopane, Sekhukhune, Vhembe and Waterberg, which has travelling implications of roughly close to 400 kilometers maximum for people from other districts to reach the MDR unit.

In this study, most participants stated that they hardly received visits from their families due to the implication of travelling costs from respective communities to the MDR unit. The observation made by the researcher during the interview was that participants experienced boredom, loneliness and felt neglected by their families due to travelling distance to the MDR unit.

The following response typifies this notion:

> *I haven't had visitors from home for some months now, and even when they visit they cannot all come as the distance from home to here is too far, sometimes only two people or one person can come to visit me once in a while, but only when they have money to travel.*

According to the research study that was conducted in Cuba by Shirley (2007:39), inaccessible health services, including distance travelled to the health facilities by patients and their family members, contributed to patients defaulting on TB treatment due to lack of social support from significant others. Chani (2010:67) confirmed Shirley's findings by noting that the distance travelled and costs of travelling between patients' homes and the health care facilities contributed to many patients not returning for their monthly checkups and TB treatment, which had implications for TB treatment compliance amongst patients. To support the point in this study that patients felt isolated and bored due to the distance between their homes and the hospital making it difficult for their significant others to visit them, studies in the Philippines (Nichter, 1994:615) and Vietnam (Johansson et al., 1996:170, Long et al., 2001:35) indicated that compliant behaviour is associated with social support from the family or persons of the

© University of Venda

University of Venda
Creating Future Leaders

TB patients. The majority of the participants in this study indicated that they stayed far away from the MDR unit. Furthermore, participants in this study were disillusioned and felt hopeless because their prognosis meant many years of treatment, with limited visits from their families due to distance travelled to the MDR unit and the financial constraints.

The DoH (2007b:62) stressed the importance of adherence to anti-TB drugs from MDR-TB patients and warned of the implications if taken incorrectly or irregularly, that is, the patient will not be cured and the disease will be prolonged and difficult to treat in future as it is expensive to treat XDR-TB. The importance of social support and psychosocial treatment in improving the outcomes of treatment for TB was emphasized by Liefooghe (2000:49). According to Love (2002:12), patients who live with supportive family members are more likely to complete treatment. This study also showed the need for a constructive family environment, which may increase the support and guidance available to MDR-TB patients.

4.4.2 Theme 2: Cultural Beliefs

Cultural diversity is a phenomenon in which people of different cultures share basic concepts, but from different perspectives and options which often result in behaviours that may be considered irrational, conflicting and contradictory (Lewis, 1996:2). In this study, it was observed that participants often placed strong focus on their cultural roots and this affected their understanding of TB, its transmission, and the benefits of a planned treatment schedule. This will be discussed and elaborated further in the subsections that follow.

4.4.2.1 Category 2.1: Treatment Interruption Due to Traditional and Cultural Beliefs

In this study, participants confirmed that they lacked information on the importance and significance of completing TB treatment until it is completely cured, thus leading to poor compliance to TB treatment and the development of drug-resistant TB. Most participants believed that they might have contracted MDR-TB from prolonged mixed use of both anti-TB

© University of Venda

University of Venda
Creating Future Leaders

drugs and traditional herbs. Some participants elaborated that they interrupted TB treatment and started taking herbal preparations they got from the traditional healer.

One of the participants (see response below) stated that despite of her knowledge and level of education, she held firm cultural and traditional beliefs about traditional and herbal healing of diseases, including TB, which made her develop attitudes towards TB. The results of this study indicate that beliefs, culture and attitudes have a great impact on the participants' view points and behaviour. Culture also encompasses all spheres of human life, including religious beliefs. According to Risenga (2002:96), every ethnic group, tribe or nation has a belief system which determines and shapes the lives and everyday activities of its members.

The following response from the participant illustrates these traditional and cultural beliefs in the context of TB:

> *I delayed TB treatment because I believed in traditional herbs for healing of disease, when I went to the clinic to collect TB treatment; I decided to use both the clinic treatment for TB and herbal mixtures to cure TB.*

In her study, Risenga (2002:96) confirmed that culture and traditional beliefs plays a vital role in the way patients view their treatment. In Risenga's (2002:96) study of the Shangaan ethnic group, participants understood hypertension very well in their own language and others believed in the traditional healing of hypertension. To support the statements above, a study conducted in Mpumalanga Province in the Ehlanzeni District on factors contributing to the increased number of TB cases, it was discovered that participants ignored TB treatment due to lack of information and traditional beliefs (Selala, 2011:32).

4.4.2.2 Category 2.2: Lack of Knowledge Due to Religious Beliefs

The participants in this study had various religious affiliations, thus religion had been implicated in the participants' understanding of how they were affected by MDR-TB. Since religion is regarded as an integral part of culture, illnesses such as TB and HIV/AIDS are

© University of Venda

University of Venda
Creating Future Leaders

frequently seen as a curse from God for sins committed by sufferers while witchcraft is sometimes blamed for the scourge. The six ZCC participants in this study defaulted on TB treatment during fasting and praying, in addition others amongst the six stopped treatment because they believed in spiritual healing espoused by their church elders. Religion is a cultural aspect that is firmly based on the values and beliefs of people.

The following responses from the participants during interviews exemplify this:

> *When I was diagnosed with TB at the clinic, I told the church and the pastors suggested I should go to Moria for praying and fasting for God's healing, that is when I default my TB medicines and nurses at the clinic told me I will take treatment for eight months instead of six months.*

> *During the term of taking my TB treatment, I stopped taking the medicines for a while because the church people were coming to my house for praying and fasting for healing of my TB sickness from God. I believe that God could heal the TB sickness without taking TB medicines.*

Deeply-rooted cultural beliefs can override and shape people's behaviours beside their level of education. Selala (2011:34) contended that patients should be educated about the signs and symptoms of TB, the importance of completing TB treatment and that taking food prior to treatment may be useful in preventing gastrointestinal disturbances. In this study, the researcher supports the aforementioned principle and the need to educate patients thoroughly about TB disease, the implications of defaulting TB treatment and the need for a healthy diet in promoting health.

4.4.3 Theme 3: Health Care System Factors

South Africa is a developing country with limited resources; infrastructure within the health sector remains a major challenge in most provinces within the country. Although since 1994 there has been an emergence of reconstruction and development projects (RDP), infrastructure still remains a challenge, especially in rural communities. During the emergence of MDR-TB,

© University of Venda

University of Venda
Creating Future Leaders

the DoH dedicated one specialized medical unit for the management of drug-resistant TB. One unit has also been placed in Limpopo Province where this research study was conducted, however, it is still fraught with challenges such as poor infrastructure, travelling distance and dietary needs for patients hospitalized within the facility. The following are the categories identified from this theme:

4.4.3.1 Category 3.1: Patients' Dietary Needs During Hospitalization

In this study, participants' dietary needs during their term of hospitalization seem to be slightly neglected. Some participants complained that they received the same food type on a daily basis and they find the food to be less nutritive, while others felt that the hospital or MDR unit does not have sufficient food to satisfy their dietary needs. The results in this study further indicated that there was indeed a slight neglect of the participants' dietary needs as the researcher was given permission to visit the food storage center and the kitchen where food is prepared. Based on the researcher's observation following participants' complaints, it was proved that indeed participants received the same type of food on a daily basis.

Two participants responded:

> *My main challenge is the food we receive here is this unit, they seem to prepare the same type of food for us every day, from breakfast, lunch and dinner and sometimes the food is not well prepared; at time when they serve us I lose appetite.*

> *Eh! We are tired of receiving the same food everyday while we still have to take tablets and injections, the hospital people need to be told that they must exchange food, we can't eat rice and pap every day, sometimes they need to cook something different for us.*

According to a study conducted in India, lack of food was cited to be a significant factor affecting compliance to TB treatment (Pandit et al., 2006:242). It was discovered that most patients found it hard to swallow TB tablets without food and that contributed to a high number

© University of Venda

University of Venda
Creating Future Leaders

of patients discontinuing TB treatment. A study in Namibia corroborated the findings of the study conducted in India - TB patients in Namibia in one district cited lack of food as a reason for discontinuing TB treatment. Both of these studies outlined the importance of proper nutrition for TB patients. This study further delineates the importance of providing MDR-TB patients with sufficient, nutritive and appetizing food to avoid and prevent patients from defaulting on their MDR-TB treatment.

4.4.3.2 Category 32: Prolonged Hospitalization in MDR Unit

The Limpopo Province MDR unit is a specialized MDR-TB unit that renders treatment for patients diagnosed with MDR-TB and XDR-TB. The MDR unit in Limpopo Province is situated in the Waterberg District in Modimolle town which is not central to most patients in other districts of the province. This makes it difficult and costly for many families to visit patients in the MDR unit; with limited transport services between Waterberg and surrounding districts as well as poverty, for other families it is almost impossible to frequently visit their relatives in the MDR unit.

Treatment for both MDR-TB and XDR-TB in the MDR unit varies between maximum periods of 12 – 24 months of hospitalization (DOH, 1999:14). The drugs used in the MDR unit are injectable drugs ranging between 2 – 3 injections per day of different drugs. In addition to the period of hospitalization, the continuation phase of treatment may be shortened provided that 12 months of treatment has been given after sputum conversion by three consecutive monthly negative-culture results (DOH, 1999:14-15).

During the period of hospitalization in the MDR unit, patients are completely isolated from their normal day-to-day activities and social lives, such as going to work, attending family functions, exercising, playing sports and being with their families. Patients who are less infectious and who are showing response to MDR-TB treatment are allowed a short visit to their homes, provided a visit permission letter is issued by the managing medical practitioner.

© University of Venda

University of Venda
Creating Future Leaders

The following responses from the participants during interviews exemplify this:

> *The main challenge of being hospitalized here is that you don't get to see what is going on in your own house, even if there are challenges to be addressed when my family members come here to visit me they don't talk about them. You will just tell that the things are not going well at home and that worries me a lot. If they could reduce our admission here to at least a year it will be better.*

> *You know to be honest doctor, the last time I went home it was three months back, and when I got home I was very worried that many things were not going on well, and that other people have died and were buried while I was still away, and my family is from Bolobedu, most of the time it is difficult for them to travel here to come and see me, it will be better if they allow me enough time to visit them.*

Unfortunately treatment of TB is long-term with an inherent risk of patients failing to adhere to treatment, especially if the administration of the drug is not supervised. Treatment of drug-susceptible TB takes as long as six to nine months to ensure cure while using high potency combination therapy. Insufficient infrastructure to effectively treat and control the spread of TB, especially in resource poor countries, has resulted in MDR-TB that is resistant to both isoniazid and rifampicin, two of the most efficacious anti-TB drugs available.

The emergence of MDR-TB is reversing the gains made in the management of TB with MDR-TB patients being hospitalized for long durations, as the two most effective drugs are technically unavailable for these patients. Instead only expensive drugs that are toxic to the patient and less active against TB bacilli are used. Hospitalization of suspected MDR-TB patients ensures confirmatory tests are done, the patients are treated and rendered non-infectious, and the risk of disability and death due to the disease and drug toxicity minimized. A patient-centered approach to the management of MDR-TB patients dictates that the hospitalization is kept as short as possible, according to patients' response to therapy.

UNIVERSITY OF VENDA
LIBRARY

© University of Venda

University of Venda
Creating Future Leaders

Njaramba (2005:56) asserted that the period of hospitalization for MDR-TB had an impact on the socio-economic status of patients hospitalized at Sizwe Tropical Diseases Hospital in KwaZulu-Natal. In the study, Njaramba identified that patients frequently needed time off from the hospital to solve socio-economic problems and visit traditional healers. Njaramba further discussed that the duration of hospitalization impacts on costs of health care delivery for MDR-TB patients. In addition to Njaramba's findings, it was discovered that the duration of hospitalization of MDR-TB patients is an indicator worth reviewing as the lengthy hospital stays negatively affects the socio-economic status of the hospitalized patients.

In a study conducted in the State of Florida, USA, 39 of MDR-TB patients admitted in A.G. Holley State TB Hospital had a median duration of hospitalization of 270 days (range 5 to 1,601 days) and the results of the study showed that due to quality infrastructure of the hospital and TB treatment, patients were cured from MDR-TB.

A South African study conducted in Gauteng Province by Moloi (2003:76) further supported the State of Florida study - it was recommended in Moloi's study that if particular attention is paid to ensure that quality basic facilities are made available at the appropriate level of care and nurses follow guidelines of management of patients with TB, defaulting of TB treatment and more deaths and resulting from TB could be prevented.

The components of specialized centres, MDR unit for the management of MDR-TB include expert TB/chest physicians, adequate infrastructure and necessary infection control procedures. The centre should have reliable laboratory support and drug supplies. In 2000, MDR-TB treatment was implemented as part of the National Tuberculosis Control Programme (NTCP) in South Africa with the starting of one MDR-TB center per province (DOH, 2011:21).

© University of Venda

University of Venda
Creating Future Leaders

4.4.4 Theme 4: Health Care Practitioner-Related Factors

In this study, it was found that health care practitioners and nursing care related factors contributed to the defaulting rate of MDR-TB patients in the Limpopo MDR unit. Health care practitioner attitude and mismanagement of patients due to lack of knowledge can contribute to an increasing number of defaulters as some participants indicated that other nursing staff within the MDR unit had negative attitudes towards them which made the participants feel uncomfortable during the hospitalization within the unit. Thus, effective MDR-TB prevention, control and management are possible within a positive attitude environment with sufficient health care providers that have enough knowledge and capacity to manage the drug-resistant TB disease.

4.4.4.1 Category 4.1: Inadequate Health Education

The majority of participants in this study confirmed that they did not receive adequate health education about their treatment for TB from health care providers. It was clear in this study that many of the participants were mismanaged in the facilities during their drug-susceptible TB illness which resulted in the transmission of drug-resistant TB.

Two participants responded as follows during interview sessions:

> *I started my treatment in 2007, and I took my treatment for TB for six months, after six months the nurses at the clinic said the treatment did not work and I should take for six months again. No one explained to me what made the medicines not to work and later I was transferred here at MDR unit because my medicine failed again.*

> *When I arrived here at MDR unit, the nurses just told me that I will take my medicines while staying here, no one explained to me for how long and what kind of treatment I will be taking; I just realized when they started injecting me and heard other patients saying that they have been hospitalized for over a year.*

© University of Venda

University of Venda
Creating Future Leaders

Health care providers at hospital level are an essential link between the programme and the patients. They are responsible for providing treatment and maintaining registers. From a drug-resistant TB point of view, informed and motivated frontline health care workers may contribute to positive treatment outcomes. Conversely, de-motivated and ill-informed health care workers may contribute to interruptions of patients' treatment and the resulting transmission of drug-resistant TB in affected communities.

According to a study conducted by Stein (2000:15), non-compliance to TB treatment may result from differing interests or expectations of the patient and health care providers. Arjun (2011:111) affirmed that capacitating enrolled nurses and other health care providers with sufficient information and knowledge through basic MDR-TB workshops can positively contribute to the eradication of drug-resistant TB and promote positive treatment outcomes for affected patients.

Patient education during hospital admission is crucial. It is very important for the patients to understand their treatment, the side effects of the treatment and the duration of the treatment for them to comply with their treatment. Chani (2010:66) listed multiple factors that could contribute to the defaulting of TB treatment, including factors related to health care. Chani (2010:67) argues that health care practitioners have a responsibility to ensure that patients comply with TB treatment through patient education. Similar to Chani's study, a study conducted in Kwazulu-Natal, Njaramba (2005:53) discovered that participants defaulted on their treatment due to side effects of the anti-TB drugs which were not explained by health care providers during treatment initiation.

4.4.4.2 Category 4.2: Nurses' Attitudes

According to Radley (1994:55), attitude is a judgment that individuals make about things they hold in mind, as objects of thought. It is operationalized as a person's evaluation of the target behaviour. Attitudes form an important part of both everyday lives and our socialization

© University of Venda

University of Venda
Creating Future Leaders

process. According to Badenhorst et al. (1997:104), there is a tendency to hold TB patients primarily responsible for completion of treatment, but occasionally it is the unhelpful attitudes of health workers that contribute to unsuccessful treatment. In Pakistan 6 out of 36 participants who defaulted TB treatment complained of the unsympathetic attitude of the health personnel (Khan et al., 2000:251).

This study revealed some important dysfunctional aspects of attitudes of health care workers. Misperceptions or dissatisfaction with nurse-patient relationship may also be a cause of non-compliance. Indeed, the health care provider-patient relationship has for a long time been regarded as an important variable in compliance (Khan et al., 2000:251). Generally, the findings of this study revealed some negative nurse attitudes towards participants.

The above is borne out by the following response:

> *At times I feel like not taking my medicine and leave this place and go home because of the way other nurses treat me. Other nurses look at me with hatred and I don't know what I did to them. Sometimes when they give us medicine their attitude is very bad, they treat me like I am nothing or I am some kind of a disease, but people are different I understand.*

In a study conducted in New Zealand, Miller (2007:69) indicated that nurses' perceptions and attitudes towards TB patients played a vital role in 90% of patients who completed their TB treatment. It was observed that a display of a caring attitude by nurses towards patients create an environment where patients understood the importance of taking their treatment regularly and completing their therapy. Miller (2007:70) reported that nurses educated patients about taking TB treatment and the side effects of the treatment were explained to patients before initiating treatment. Nurses also conducted group support sessions for all patients to promote experience sharing amongst patients.

In 2011, Arjun (2011:90) conducted a study in Kwazulu-Natal - in an MDR unit similar to the Limpopo MDR unit in this study - on the experiences of enrolled nurses caring for MDR-TB

© University of Venda

University of Venda
Creating Future Leaders

patients. The findings from the study indicated that although the enrolled nurses had limited knowledge of MDR-TB, had fears of contracting the disease and had less knowledge about the disease treatment, their positive attitudes towards patients promoted treatment completion amongst MDR-TB patients they cared for. It was observed that the enrolled nurses cared for the patients and that there was a good nurse-patients relationship.

A similar case of good nurse-patient relationship to ensure that patients complete their TB treatment will be that of a DOTS supporter and a TB patient. DOTS strategy was developed to ensure that patients are supported by a significant someone to complete their TB treatment. A study conducted by Mabunda & Bradley (2011:07) in Mopani District of Limpopo Province asserted that the Mopani District cure rate increased because of the positive attitudes the DOTS supporters had towards TB patients. Unfortunately, in an MDR unit there are no DOTS supporters for MDR-TB patients and the nurses resumed the responsibility and role of supporting the patients to complete their treatment. In this study, participants felt that nurses had negative attitudes towards them which made them feel less supported by the nurses.

4.5 Conclusion

This chapter discussed the results of the study in relation to the literature control. Four themes emerged from the data, namely, patient factors, cultural beliefs, health care system factors and health care practitioner-related factors. In the next chapter, the conclusions, limitations and recommendations of the study will be discussed.

UNIVERSITY OF VENDA
LIBRARY

© University of Venda

University of Venda
Creating Future Leaders

CHAPTER 5

CONCLUSIONS, LIMITATIONS AND RECOMMENDATIONS

5.1 Introduction

The data analysis and research findings of the study were discussed in the previous chapter. The purpose of this study was to assess the factors contributing to defaulting of treatment among patients with MDR-TB in the MDR unit of Limpopo Province. It was envisaged that the outcomes of this study will minimize the rate of TB defaulters because an awareness gained of the participants' reasons for defaulting on their anti-MDR treatment plan and experiences during their hospitalization. The conclusions presented are based on the research findings discussed in Chapter 4 and were placed into perspective with factors that led to the defaulting among MDR-TB patients for translational relevance to the recommendations of the study.

5.2 Conclusions

The increasing incidence and prevalence of MDR-TB pose a threat to public health due to the high treatment failure rate among patients with MDR-TB. This study focuses on factors on the defaulting rate of MDR-TB patients in the MDR unit of the Limpopo Province. The factors are grounded in the results of the study and the shortcomings of the MDR-TB treatment plan. The factors will be presented in view of the identified themes of the study with the aim to improve the current situation in the MDR unit of the Limpopo Province. A relevant literature control was done to verify the results of the study.

5.2.1 Patient Factors

The results of the study linked to patient-related factors revealed that at least 7 participants interviewed had problems with substance abuse during their TB treatment.

© University of Venda

University of Venda
Creating Future Leaders

It was revealed that alcohol, cigarette smoking and marijuana/dagga are forms of substances that some participants in this study use in Limpopo Province. The study reveals that patients used these substances to overcome boredom and loneliness.

5.2.2 Cultural Beliefs

Individuals commit to engaging in behaviour from which they anticipate deriving personal and valued benefits. In the study, cultural, traditional and religious beliefs affected participants' working knowledge of TB and its treatment. The results of the study related to cultural beliefs revealed that patients interrupted their TB treatment due to cultural beliefs, including a belief in traditional medicine rather than western medicine, belief in healing through Christianity and prayer, and belief that illness or TB infection was brought on by witchcraft.

5.2.3 Health Care System Factors

The results of this study revealed that few health care system-related factors contributed to TB patients defaulting on their TB treatment and non-compliance. In this study, 80% of the patients complained of boredom - 50% of the participants suggested that the MDR unit should have entertainment facilities such as television sets with DSTv components to reduce the boredom, and 30% of the participants complained of repeated diet schedules on a daily basis and their prolonged stay in the MDR unit.

5.2.4 Health Care Practitioner-Related Factors

Based on the results of this study, health care practitioners play a role in assisting patients complete their treatment; however, negative attitudes, mistreating of patients, and lack of counselling skills and thorough knowledge of the management of drug-resistant TB may adversely affect patients' treatment outcome. In this study, nurse attitudes affected the treatment outcomes of the participants. According to participants, nurses in the MDR unit had negative attitude towards them, which made patients feel less supported by the nurses.

© University of Venda

University of Venda
Creating Future Leaders

5.3 Recommendations

Based on the findings of the study, the researcher composed the following recommendations for guidelines to minimize the defaulting rate of MDR-TB patients in MDR unit of Limpopo Province.

5.3.1 Health Care Education

Health promotion is one of the cornerstones of education for communities, for example, being able to recognize the signs and symptoms of TB, and seeking health care and further investigations early may impact on TB prevention. Furthermore, teaching clients about the signs and symptoms of drug-resistant TB as well as the risks it has on the people staying with a person having resistant TB might help eradicate resistant TB infections.

It is imperative for TB clients to be educated about the adverse effects of not complying with TB treatment; clients should be educated about the side effects of TB treatment, the importance of complying with TB treatment and the signs symptoms of resistant TB. Behaviour interventions such as health education can bring about a reduction in high risk behaviour (Matebesi & Timmerman, 2001:14). Orem's theory of self-care advocates the maintenance of continuous education and elevation of human functioning (George, 1995:101, cited in Selale, 2011:54). The researcher drew on Orem's theory of self-care. The DoH should be the main driver of health promotion strategies. Chinn and Peggy, (2005:44) stressed that health promotion targeting TB patients, health workers and communities at large may lead to better infection control strategies and practices to stem the scourge of TB. Matebesi and Timmerman, (2001:14) further stressed that health education amongst TB patients can reduce non-compliance of clients to TB treatment and also reduce resistant TB infections.

It is imperative that the DoH engage traditional healers and empower them with knowledge through workshops so that they can become part of HIV/AIDS, STI and TB promotion initiatives. Traditional healers should encourage TB patients that consult them to seek medical

© University of Venda

LIBRARY

University of Venda
Creating Future Leaders

advice early and complete full treatment regimen so that they can be cured and prevent resistant TB. Education should be offered to the communities (for example via civic organizations, radio, churches, ward councillor, etc.) in the form of awareness campaigns on the signs and symptoms of TB, its prevention and importance of complying with treatment as well as avoiding alcohol and smoking during treatment to prevent defaulting of TB treatment and associated development of drug-resistant strains of TB. It is also recommended that current education programmes concerning TB should be revised by the South African Tuberculosis Control Programme to overcome the most important barriers to treatment compliance.

The WHO (2007c:20) advocates that health care workers should be trained to offer routine, provider-initiated diagnostic HIV testing in STI clinics, in the context of prevention-of-mother-to-child transmission during pregnancy. Correspondingly, health care workers should acquire skills to provide the same type of routine management services to TB clients and those co-infected with HIV and receiving ART. It is further recommended, that health care workers should involve immediate families of clients affected with TB to assist in carrying for the patients and reduce resistant TB through compliance with TB treatment.

- Nurses and social workers as well as designated lay counsellors should work together counselling all newly diagnosed TB patients prior to commencing TB treatment. Counselling of clients should include an HIV test and should be based on the importance of completing TB treatment and the effects of substance abuse for the duration of TB treatment.

- Family members of patients and their significance others should be involved in assisting the patients to abstain from alcohol and other abusive substances during the course of TB treatment, this involves nurses and DOTS supporters working together in supporting the patients.

© University of Venda

University of Venda
Creating Future Leaders

- It is recommended that support groups for all newly diagnosed TB patients who are known to abuse substances be formed in health care facilities. According to the study conducted in Free State, support groups for HIV and TB increased treatment success rate in PHC facilities (Matebesi & Timmerman, 2001:16).

- It is recommended that the DoH's TB division should identify and establish a relationship with traditional healers and community leaders; and religious affiliations to educate patients about TB and the importance of completing and complying with TB treatment course.

- The DoH should establish a referral system with traditional healers, to enable referral of all TB patients from traditional healers to the nearest PHC facility.

- The DoH should create radio and media slots that advertise TB services in PHC facilities as well as promote the importance of completing TB treatment.

5.3.2 Infection Control Practices

Orem's theory advocates therapeutic self-care as an appropriate TB prevention strategy (George, 1995:100). All patients who have not been cured during the initial 6 months TB treatment plan should be thoroughly followed up at PHC facilities and hospitals to diagnose drug-resistant TB early. Patients who are diagnosed with resistant TB should be initiated on MDR-TB treatment as soon as possible; all family members of the patient diagnosed with drug-resistant TB should also be screened to avoid spread of resistant TB.

Newly diagnosed drug-resistant TB patients should not be admitted in the same wards/unit with the patients that have been long on MDR-TB treatment, this will help reduce re-infection and relapse from drug-resistant TB treatment. The MDR unit should adhere to MDR-TB policies; MDR-TB and XDR-TB patients should be admitted separately to avoid and reduce cross-infection. All health care providers working in MDR-TB units should wear specialized

© University of Venda

University of Venda
Creating Future Leaders

protective masks when caring for drug-resistant TB patients. All patients should be instructed to cover their mouths and nose when coughing or sneezing in a well-ventilated area.

Sputum collection should always be done in an open well-ventilated area. Health care providers must facilitate the rapid diagnostic screening of drug-resistant TB patients and ensure that patients continue with their treatment as well as ensure discharge of patients who met the discharge criteria. It is once more recommended in this study that all drug-resistant TB patients should be thoroughly counselled and screened for HIV and all HIV-positive clients should be screened for TB as a co-infection control plan.

The implementation and quality of TB prevention and control plans should be monitored and evaluated on a regular basis, correcting any inappropriate practices or failure to adhere to institutional or national policies (DoH, 2007c:10). Individuals who are in denial about their TB or HIV-positive status should be encouraged to attend HIV counseling and testing and support services. Health care workers should practice good personal hygiene such as washing their hands before and after seeing patients, especially in MDR units where there is high infection risks for resistant TB. Prisoners with TB should be isolated from other prisoners to prevent the spread of the disease in overcrowded, poor ventilated jails. TB services should be made available in mines and poor ventilated workplaces where resistant TB can easily spread. Thus, health care providers should work in close collaboration with prison officials and mines to stem the tide of TB transmission.

Nursing practice becomes more effective when those who excel in caring for the sick are recognized. It is recommended that health workers nursing drug-resistant TB patients who are highly infectious should be given awards to recognize them besides performance management bonuses to promote continuous excellence performance to the carers and boost the morale of the staff.

© University of Venda

University of Venda
Creating Future Leaders

5.3.3 Health Care Policies and Provision of Quality TB Care

Lewis et al. (2004:605) cautioned that patients on anti-retroviral drugs for HIV/AIDS should not take rifampicin, as it can impair the effectiveness of the drugs. Such patients are given another tuberculostatic with minimal drug interaction or antagonism. Nurses should emphasize adherence to prescribed medication regimes for TB in order to decrease the opportunities for transmission of the disease and the progression to MDR-TB (Wong, 2003:1105; Allender & Spradley, 2005:211). The report and action plan for implementing collaborative TB and HIV activities should start at global, regional and national levels and prioritize the epidemiological implications at the country level (WHO, 2006b:20).

The Foundation for Professional Development (2007:40) promotes the idea that healthcare staff should be re-orientated towards education and training for integrated TB, HIV/AIDS and STI updated protocols. Such procedures should include TB screening and detection as a joint effort with community-based workers, DOTS, volunteers and family members. In this study, one participant denied being HIV-postive and TB-positive due to the stigma attached to the two conditions. Two participants elaborated that the lack of support from family members caused severe stress which resulted in them neglecting their status and delaying medical consultation.

Research conducted by Maselesele (2009:29) on TB in the South African healthcare sector revealed that adherence to TB treatment is a major arbiter of successful outcome and also reduces the potential for acquired MDR-TB, the main rationale for the DOTS strategy. Before any TB medication regime is initiated, the patients must be tested for HIV/AIDS for purposes of exclusion, as these patients can often end up with MDR-TB (Kozier, Berman & Snyder, 2004:88). Nurses must therefore understand the barriers to treatment adherence and reduce or eliminate these barriers. Polit, Beck and Hunger (2001:122) recommended a patient-centred approach, which includes facilitating access to treatment, deciding with the patient the most convenient time and place for DOTS which is more effective than the defaulter tracing method.

© University of Venda

University of Venda
Creating Future Leaders

Finally, TB prophylaxis is an effective preventative measure for those who are in close contact with TB patients.

Patients in this study indicated that they lacked information and understanding of TB, despite their various educational standards. This knowledge gap should be bridged in communities through proper implementation of health promotion strategies that will reduce TB transmission. The process should include patients and the community in TB advocacy campaigns. The community should be made aware of the various aspects of TB, including infection, signs and symptoms, prevention and control. Patients should understand that it is important for them to know their HIV status, so that they might be eligible for isoniazid preventive therapy, and that they have the right to rapid TB diagnosis and treatment through the implementation of the DOTS strategy (WHO, 2006b:12).

Patients should understand that TB can be spread by coughing and that health care settings and community services require persons to cover their mouths when coughing, and that health care workers should wear masks as part of a safer environment. Caring for TB patients in a well-ventilated room should be encouraged. Health care workers should not stigmatize patients with a low socio-economic status. Election campaigns should include themes that are in line with "The Stop TB Strategy" (WHO, 2006c:3). Undiagnosed, untreated and potentially contagious TB patients should be encouraged to utilize the services offered in health care settings. The study by Maselesele (2009:28) provided yet another endorsement of the effectiveness of DOTS as a TB intervention and MDR-TB DOTS management strategy of TB. Diagnosis and treatment monitoring will result in the best adherence indicators, including smear conversion from positive to negative, improvement in symptoms and overall clinical improvement.

The safe collection of sputum should be part of good TB infection control. The promotion of proper cough etiquette and cough hygiene in the form of posters in the clinic waiting areas should be encouraged by health care workers (WHO, 2006a:20). The community should be

© University of Venda

informed through health promotion of the importance of suspected TB cases if they know the signs and symptoms of the disease. Awareness campaigns should be extended to communities as a continuum of care for patients who are diagnosed in hospital. Health promotion should as well include the provision of preventative strategies to children of all ages. Smear-positive TB patients should be given isoniazid 5 mg/kg daily for 6 months (DoH, 2009b:33). Health care workers should receive continuous medical education on collaboration efforts that include TB, HIV/AIDS and STI. As a primary TB prevention strategy, enhanced hygiene standards in all environments should be advocated.

- It is recommended that the government should relaunch the DOTS strategy and implement integration of DOTS strategy into both TB and HIV services to ensure that patients comply with the TB and ART.

- The DoH should initiate supervision of MDR unit services by the provincial TB directorate focal official.

- Family members should be allowed adequate time for visitation of their patient relatives, to allow patients to socialize with their significant others.

Patients who are less infectious and more compliant with TB treatment should be allowed visitation period to their homes whilst they are still on MDR-TB treatment, doctors managing the patients should approve visitation period with referral letter to the nearest clinic as well as treatment for the period of home visit. However, care should be taken to ensure that patients who are allowed home visitation period have a clinic near their home and a DOTS supporter who will supervise their compliance.

- It is recommended that patients should be thoroughly counselled prior to admission at an MDR unit, and emphasis on the period of stay should be made to ensure that patients understand the reasons their prolonged stay at the MDR unit.

© University of Venda

- The MDR unit should review their patients' dietary needs on a weekly basis, consultation with a dietician should be done and patients' concerns should be taken into serious consideration.

5.3.4 Health Care Administration

Planning and monitoring of implementation strategies for TB prevention should be prioritized as a core administrative function in health care facilities. Since health care workers are at increased risk for infection with TB and drug-resistant TB, health care administrators and managers should motivate for improved self-care support systems (DoH, 2007:6). Patients with MDR-TB should be motivated to complete treatment and not default as the development of XDR TB may have serious administrative and financial implications for health care facilities and government. The recent emergence of XDR-TB in South Africa has highlighted the need for more effective infection control measures in health care settings (DoH, 2007:5), and is consistent with the national strategic plan (NSP) 2012 – 2016; one of the goals is to reduce the number of new TB infections and deaths from TB by 50% (NSP, 2012:12). Administratively, each health care facility should have a trained infection control representative (Churchill, 2007:22).

It is recommended that all health care facilities, including MDR units, should consistently implement TB national policies and guidelines to advance TB eradication. Hospitals and national health laboratory services should apply specialized standard safety procedures as a move towards better infection control. Health administration and education systems have an important role in promoting good health practices. The maintenance of patient confidentiality amongst health care personnel and building of trust relationships between patients and health care workers should boost the rendering of value added health care services and client utilization and satisfaction.

The multidimensional roles of nurses in health care facilities should be utilized to ensure and

© University of Venda

University of Venda
Creating Future Leaders

improve quality patient care. In a study conducted by Liefooghe (2000:49), it was discovered that compliance to TB treatment was associated with social support from the family or other persons closer to the patient. Liefooghe (2000:49) further emphasized the importance of social support and psychosocial treatment in improving the outcomes of treatment for TB. In this study, it is recommended that nurses should render quality health care services which should include psychosocial support of patients in MDR units since patients hospitalized in the units spend most of the time away from their families and friends. Supervision of infection control practices and surveillance of TB infections amongst health care workers are important benchmarks for evaluation of the implementation of prevention strategies to reach national strategic objective plan of zero new HIV and TB infections (NSP, 2012:21). The use of DOTS (tracers) is recommended to reduce the number of TB defaulters that complicate MDR-TB and XDR-TB and add to the overall costs of therapy. The accompaniment of discharged patients to their own homes provides another approach to trace defaulters in order to ensure the continuity of care that will decrease retreatment TB and MDR-TB.

This study supports the notion of allocating DOTS supporters to TB patients so that they can complete TB treatment. As a final point, the integration of services for HIV/AIDS, STI and TB should be prioritized to minimize the challenges facing the government in health facilities (Motsoaledi, 2009:35).

- It is recommended that all MDR unit health care practitioners should be thoroughly trained on the management of MDR-TB and updated courses should be done at least once a year.

- Nurses in MDR units should be trained on counselling skills; this will enable to conduct counselling sessions with clients on a regular basis.

© University of Venda

University of Venda
Creating Future Leaders

- It is recommended that health care education sessions should be done daily in the MDR unit, the importance of completion of TB treatment should be a daily health care education to MDR-TB patients.

- Patients' concerns and complaints should be taken into serious consideration, there should be a complaint and suggestion box in the MDR unit which must be reviewed on a monthly basis and all complaints must be addressed accordingly.

- Behaviour modifications should be encouraged in the MDR unit amongst patients and nurses; negative attitudes by nurses towards patients should be discouraged. Nurses should render a holistic care and approach towards patients.

5.4 Perspectives for Further Research

According to a study conducted by Tshabalala (2007:84), lack of information about TB to communities contributed to TB treatment interruption. A study conducted by Chani (2010:88) supported the above statement. TB treatment literacy contributed to patients defaulting on TB treatment. In both research studies, it was recommended that thorough health education to TB patients should be practiced.

The above studies and current findings presented in this dissertaion could be used as reference points for further research on TB, and more specifically from a nursing research perspective. The results reported in this study were further communicated to TB programme managers so that the recommendations can be taken into consideration when planning and implementing strategies to reduce defaulter rate in the MDR unit of the Limpopo Province. TB is easily transmitted in high transmission areas like mines, prisons because of overcrowding, poor ventilation and limited access to health care services. This study recommends further research into various topical aspects of TB, HIV/AIDS and STI prevention and control in such institutions. Research on TB and HIV aspects is also of high importance since most clients

© University of Venda

University of Venda
Creating Future Leaders

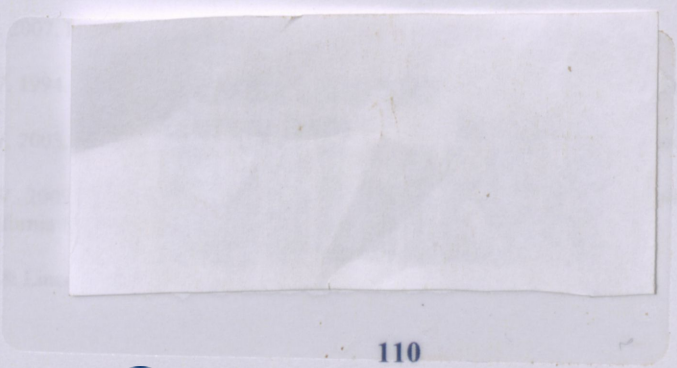
who are HIV positive are affected by TB as an opportunistic infection.

5.5 Limitations of the Study

The high infectious rate of resistant TB (both MDR and XDR) during the study in the MDR unit contributed to limit of the study as the researcher was expected to wear a mask during all interviews to prevent infection from resistant TB. The researcher also faced financial constraints as the research project was not properly funded.

5.6 Conclusion

This study was qualitative, descriptive and contextual. The objectives of the study were met in that factors that contribute to defaulting of MDR-TB treatment were explored and guidelines to minimize the defaulting rate of MDR-TB patients in the MDR unit of the Limpopo Province had been identified and classified into themes and categories. Guidelines and the recommendations to address the risk factors were established and presented in this report.



© University of Venda

University of Venda
Creating Future Leaders

REFERENCES

African National Congress. 1994. The reconstruction and development programme. Johannesburg: Umanyano.

Allender, J.A & Spradley, B.W. 2005. Community Health Nursing. Philadelphia: Wolters.

Anthony, D.H & Nicola, J.H. 2001. Deaths from tuberculosis in Sub-Saharan African countries with a high prevalence of HIV. *The Lancet*. 357:1519 – 1523

Arjun, S.D. 2011. The experiences of enrolled nurses caring for multidrug-resistant tuberculosis patients in Kwazulu Natal. Unpublished masters dissertation. Pretoria: Univeristy of South Africa

Arnadottir, T. 2001. Trends and the twenty first century. Scandinavian. *Journal of Infectious Diseases* 33(8):563-567

Arora, V.K., Sarin, R, Singla, R, & Khalid, U.K. 2007. DOTS-Plus for patients with multidrug-resistant tuberculosis in India. *Indian Journal of Chest and Allied Sciences*. 49:75 – 79

Badenhorst, W.T, Ward, C, & Edginton, M.E. 1997. Tuberculosis of Chris Hani Baragwanath Hospital: patients'knowledge, attitudes and referral outcome. *The South African Journal of Epidemiology and Infection* 12(4):104-107

Botes, A.C. 1998. A research model for nursing. Johannesburg: Rand Afrikaans University

Brunner, L.S & Suddart, D.S. 2008. Textbook of medical-surgical nursing. 11th edition. Philadelphia: Lippincott

Burns, N & Grove, S.K. 1993. The practice of nursing research. New York: Saunders

Burns, N & Grove, S.K. 2001. The practice of nursing research-conduct, critique and utilisation. 4th edition. Pennsylvania: Saunders

Burns, N & Grove, S.K. 2005. The practice of nursing research conduct, critique, and utilization. 5th edition. USA: Elsevier Saunders.

Burns, N & Grove, S.K. 2009. The practice of nursing research. Philadelphia:Saunders

Burns, N & Grove, S.K. 2011. The practice of nursing research: conduct, critique and utilization. Philadelphia:Saunders

Brink, H. 2006. Fundamentals of Research Methodology for Health Care Professionals. 2nd edition. Cape Town: Juta and Co (Pty) Ltd.

British Medical Bulletin. 2005. 73-74(I). London

Chani,.K. 2010. Factors affecting compliance to tuberculosis treatment in Adara Kavango region Namibia. MPH: UNISA: Pretoria.

Chinn, R.N & Peggy, L. 2005. Theory and Nursing - A Systematic Approach. USA: Mosby Publishers.

Churchill, W. 2007. Important Safety Information. New York.

Creswell, J.W. 1994. Research design: Qualitative and Quantitative Approaches. London: Sage

Creswell, J.W. 2003. Research design: qualitative, quantitative, and mixed method. Thousand Oakes: Sage.

Creswell, J.W. 2009. Research design in qualitative, quantitative and mixed methods approaches. 3rd edition. Calfornia:Sage

Denzin, N.Y & Lincoln, Y.S. 1994. Handbook of qualitative research. London: sage

UNIVERSITY OF VENDA
LIBRARY

© University of Venda

University of Venda
Creating Future Leaders

DENOSA.1996. Ethical standards for nurse researcher. Pretoria: Denosa

Department of Health. 1997. White paper for the transformation of the health system in South Africa. Pretoria: Government gazette

Department of Health. 1999a. Tuberculosis statistics. Limpopo Province: Facts & statistics printers

Department of Health. 1999b. The management of MDR tuberculosis in South Africa. Pretoria: Government printers

Department of Health. 1998. Tuberculosis: a training manual for health workers. Pretoria: National Tuberculosis Training Committee

Department of Health. 2000a. Tuberculosis: The South African Tuberculosis control program: Practical guidelines. Pretoria: Government printers

Department of Health. 2000b. Primary health care package: norms and statements. Pretoria: Government printers

Department of Health. 2004. Tuberculosis: Policy guidelines for the management of Multidrug-resistant Tuberculosis. Pretoria: Government printers

Department of Health. 2007a. Tuberculosis strategic plan for 2007 - 2011. Pretoria: Government printers

Department of Health. 2007b. Government TB statistics. Facts & statistics. Pretoria: Government printers

Department of Health. 2007c. Tuberculosis: A training for manual for health care practitioners. Pretoria: National Tuberculosis Training Committee

Department of Health. 2007d. National TB Infection Control Guidelines. Geneva: Switzerland.

Department of Health. 2007e. RSA Tuberculosis Strategic Plan. Republic of South Africa: Government Printers.

Department of Social Development. 2013. Substance use, misuse and abuse amongst youth in Limpopo Province. Limpopo provincial government: Government printers

De Vos, A.S, Strydom, H, Fouche, C.B & Delport, C.S.L. 2002. Research at Grass Roots. *For the social sciences and human services profession*, 2nd edition. Pretoria: Van Schaik.

DOH Limpopo Province. 2003. Tuberculosis statistics. http://www.doh.org/. Polokwane: government printers

Donnelly, J.H, Gibson, J.L & Ivancevich, J.M. 1995. Fundamentals of management. 9th edition. USA.

Dormandy. T. 1999. The white death: a history of tuberculosis. *Nature* 198:209-210

Edginton, M.E. 1997a. Tuberculosis: our problem. Health systems trust update 23:1 – 23

Edginton, M.E. 1997b. Improving tuberculosis outcomes in a rural district. *Health Systems Trust Update* 23:1-23

Escott, S, Nsutebu, E, Walley, J & Khan, A. 2001. Management of TB in countries with high HIV prevalence. *Africa Health* 22(3):12 - 15

Foundation for Professional Development. 2007. The Integrated Management of Tuberculosis, HIV/AIDS and STI in the Primary Health Care Setting for Nurses. Lynnwood Ridge: LFP.

Foundation for Professional Development. 2008. Tuberculosis and HIV management for professional nurses. Lynnwood Ridge: LFP

Friedland, G, Harries, A & Coetzee, D. 2007. Implementation issues in tuberculosis/HIV program collaboration and integration: 3 case studies. *The Journal of Infectious Diseases* 196: 114 - 23

George, B.J. 1995. Nursing Theories. USA: Library of Congress Publications.

Global Plan to Stop TB 2001. When worlds collide. The power and potential of DOTS. 37p. WHO. Geneva

© University of Venda

University of Venda
Creating Future Leaders

Hackman, R.N. 1999. Tuberculosis control in middle income countries. TB news

Holloway, I & Wheeler, S. 2002. Qualitative Research For Nurses: Oxford: Blackwell Science Ltd.

Holloway, I & Wheeler, S. 2010. Qualitative research in nursing and health care. 3rd edition. Oxford: Blackwell Science Ltd

Holtz, T.H, Lancaster, J, Laserson, K.F,Wells, K & Weyer, K. 2006. Risk factors associated with default from multidrug-resistant tuberculosis treatment in South Africa. *International Journal of Tuberculosis & Lung Disease*: 10(6): 649 - 655

Idemyor, V. 2007. HIV and tuberculosis co infection inextricably linked liaison. *Journal of the National Medication Association*. 99 (12): 1414 – 1419

Imbizo report. 2002. Lend a handbook, speak out. Government communications and information:Pretoria

Jaggarajamma, K, Sudha, G, Chadrasekaran, V, Nirupa, C, Thomas, A, Santha, T, Muniyandi, M & Narayanan, PR. 2007. Reasons for non-compliance among patients treated under revised national tuberculosis control programme in South India. *Indian Journal of Tuberculosis*, 54: 130-135

Jaramillo, E. 1998. Encompassing treatment with prevention: the path for a lasting control of tuberculosis. *Social Science and Medicine* 49(3): 393-404

Johansson E, Diwan V.K, Huong N.D & Ahlberg B.M. 1996. Staff and patient attitudes to tuberculosis and compliance with treatment: an exploratory study in a district in Vietnam. *Tubercle and Lung Disease* 77: 178-183

Kandel, T.R, Mfenyana, K, Chandia, J & Yogeswaran, P. 2008. The prevalence of and reasons for interruption of anti-tuberculosis treatment by patients at Mbekweni Health Centre in the King Sabata Dalindyebo District in the Eastern Cape province. *South African Journal of Family Medicine Practice* 50(6): 47

Katz, M.H. 2006. Study Design and Statistical Analysis. 1st edition. UK: University Press, Cambridge.

Karyadi, E, West, C.E, Nelwal, R.H.H, Dolmas, W.M.V, Van der Meer, J.W.M & Schultink, J.W. 2002. Social aspects of patients with pulmonary tuberculosis in Indonesia. *Journal of Tuberculosis*l. 3 (2):340-367

Khan, A, Walley, J, Newell, J & Imdad, M. 2000. Tuberculosis in Parkistan: socioeconomic constraints and opportunities in treatment. *Social Science and Medicine* 50: 247-254

Kozier, B, Berman, A & Snyder, S. 2004. Fundamentals of Nursing. Menlow-Park, Califonia. Alexander. CV Mosby.

Krefting, R. 1991. Rigor in qualitative research: the assessment of trust worthiness. *The American Journal of Occupational Therapy* 45(3): 2-19

Lewis, R.L. 1996. When Cultures Collide: Managing Successfully Across Cultures. London: Nicholas Brealey Publishing.

Lewis, S.M, Heitkemper, M & Dirksen, S.R. 2004. Medical-Surgical Nursing. St. Louis: CV Mosby.

Liefooghe, R. 2000. The human dimension in TB control: myth or reality. In Meulemans H (ed.). 2000. Tuberculosis in Pakistan: The forgotten plague. Leuven: Acco: 41-56.

Lincoln, Y.S & Guba, E.G. 1985. Naturalistic inquiry. London: Sage

Lobiondo-Wood, G & Haber, J. 2006. Nursing research methods and critical appraisal for evidence-based practice. 5th ed. St Louis: Mosby

Louw, M.C. 1995. TB treatment adherence. Unpublished masters dissertation. Johannesburg: Univeristy of Witwatersrand

Love, R.C. 2002. Strategies for increasing treatment compliance: the role of long-acting antipsychotics. *Am J Health-Syst Pharm* 59: 10-15

© University of Venda

University of Venda
Creating Future Leaders

Luhalima, T.R. 2008. An evaluation of the implementation of tuberculosis policies at a regional hospital in the Limpopo Province. *Journal Curationis*: DENOSA 31(4):31-8

Macnee, C.L. 2004. Understanding Nursing Research, Reading and Using research in Practice. Lippincott: Williams & Wilkins

Mankaleme, PM. 2004. Observation of tuberculosis patients by treatment supporters. MA(Cur): RAU. Johannesburg. Unpublished masters dissertation

Matebesi, Z & Timmerman, C. 2001. The TB patient: qualitative evidence of perceived factors affecting treatment compliance. University of Free State: Bloemfontein.

Matsha, N. 1998. *Strides and struggles in TB control. Annual Report*. Cape and Transvaal printers

Maselesele, M.D. 2009. TB Germs in the South African Health Care Industry. Vol 30 (3) Pretoria: Denosa

Mayan, M.J. 2001. An introduction to qualitative methods: A training module for students and professionals.

Mario, C, Raviglione, M.D, Pixie, E, Shider, J.R & Kochi, A. 1995. Global epidemiology of tuberculosis. *Special Communication* 273(3): 220-226

Mcdonald, H.P, Gary, A.X & Haynes, R.B. 2002. Intervention to enhance patient adherence to medication prescriptions. *Journal of American Medical Association*. 288(22): 2868-2879

Miller, J,A. 2007. The perceptions and beliefs of health care workers about clients with tuberculosis. MPH: University of Auckland: New Zealand

Ministry of Health. 1996 – 1999. Annual report. Kota Bharu general hospital, Keletan. Malaysia: Ministry of Health

Moloi, T,S. 2003. Factors affecting the provision of TB care and treatment at Primary health care clinics in QwaQwa region of the Free State Province. Unpublished Masters Dissertation. Pretoria:University of Pretoria

Morolong, K,A. 2004. HIV/AIDS knowledge, attitudes, beliefs and practices among students at the Lerotholi polytechnic in Maseru. Unpublished Masters dissertation. University of Free State: Bloemfontein

Morse, J,M, & Field, P,A. 1996. Nursing research, the application of qualitative approaches. 2nd edition. Stanley Thornes.

Motsoaledi, A. 2009. TB/HIV/AIDS and STI. *Nursing Update* 33(9): 35.

Mouton, J. 1996. Understanding social research. Pretoria: J.L. van Schaick.

Mouton, J & Babbie, E. 2001. The Practice of Social Research. Cape Town: Wadsworth Publishing Company.

Mouton, J & Marais, J.C. 1990. Basic concepts in the social science. Pretoria: Human-science Research Council

MRC. 2004. Policy Brief: The South African Medical Research Council. MRC: Pretoria

MRC. 2005. HIV/AIDS and drug-resistant tuberculosis fact sheet. MRC: Cape Town Multidrug-resistant tuberculosis fact sheet. 2008. Polokwane: Government printer.

Naing, N.M, D'Este, C, Isa, A.R, Saller, R, Bakar, N & Mahmod, M.R. 2001. Factors contributing to poor compliance with anti-TB treatment among tuberculosis patients. *Southern Asian Journal for Tropical Medical Public Health* 32(2):368-383

National Strategic Plan: Plan and Objectives. 2012 – 2016. South Africa: Pretoria.

Netshandama, V.O. 2004. A model for partnership between the nursing education institution and the community. Unpublished doctoral thesis. Johannesburg: Rand Afrikaans University.

Njaramba, P.J. 2005. Managing multidrug-resistant tuberculosis in hospitalized patients at Sizwe tropical diseases hospital: a five year review of treatment outcomes. Unpublished masters dissertation. Johannesburg: University of Witwatersrand

UNIVERSITY OF VENDA
LIBRARY

© University of Venda

Nichter, M. 1994. Illness semantics and international health: The weak lung/TB complex in Phillipines. *Social Science & Medicine* 38: 649-663

Pandit, N.R. 1996. The creation of theory: A recent application of grounded theory method, *The Qualitative Report*, 2(4): 4-8

Pandit, N & Chaudhary, S.K. 2006. A study of treatment compliance in directly observed therapy for tuberculosis. *India Journal of Community Medicine* 31(4): 241-243

Polit, D.F & Hungler, B.P. 1991. Nursing Research Principles and Methods: Lippincott Company Philadelphia

Polit, D.F & Hungler, B.P. 1995. Research in Nursing: Principles & Methods. Philadelphia: Lippincott

Polit, DF & Hunger, PB. 2001. Nursing Research Principles and Methods. USA: Lippincott Company.

Polit, D.F, Beck, C.T & Hungler, B.P. 2001. Essentials of Nursing Research Methods, Appraisal, and Utilization. 5th edition. Philadelphia: Lippincott

Polit, D.F & Beck, CT. 2004. Nursing Research, Principles and Methods. 7th edition. Philadelphia: Lippincott

Radley, A. 1994. Making sense of illness: the psychology of health and disease. London:Sage

Rezaei, M.B & Feizi, M.A. 2008. Factors responsible for compliance of medical treatment among complaint and non-complaint tuberculosis patients in Urmia. Iran: Shariaty Ave

Richardson, S.A & Koller, H. 1996. Twenty-two years causes and consequences of mental retardation. Havard University: Press Cambridge.

Risenga, P.R. 2002. Cultural care beliefs, values, and attitudes of shangaans in relation to hypertension. MA (Cur). UNISA: Pretoria.

Rutta, E, Kipingili, R., Lukunge, H, Assefa, S, Matsilela, E & Rwechungura, S. 2001. Treatment outcome amongst Rwandan and Burundian refugees with sputum smear-positive in Ngara, Tanzania. *International Journal for Tuberculosis and Lung Diseases* 5(7): 628-632

Selale, M.E. 2011. Factors that contribute to the increase in the number of tuberculosis patients in the Ehlanzeni district, Mpumalanga Province. MCur: University of Limpopo: Turfloop.

Shirley, K.C. 2007. Strategies for Preventing TB. Vol 39, No 3. Pretoria: Denosa.

Snyman, T, Vellema, J, and Bowley, D. 2014.Substance abuse and major trauma.South African journal of surgery. 42(1). 7-10

Sowetan. 2003(a). Little hope of ending poverty. 13 June 2003:19

Speziale, H.J & Carpenter, D.R. 2003. Qualitative research in nursing: Advancing the humanistic imperative. 3rd edition. Lippincott: New York.

Speziale,HJ & Carpenter,DR. 2007. Qualitative research in nursing. New York: Lippincott.

Steadman's Medical Dictionary. 2008. for the health professions and nursing. 6th edition ed. Philadelphia: Lippincott Williams & Wilkins

Stein, R.W. 2000. Non-compliance in the treatment of chronic disease. www.pages.prodigy.net/ bobstein/legalnurse/non-compliance.htm

Stommel, M & Wills, C. 2004. Clinical research: Concepts and principles for advanced practice nurses. Lippincot Williams & Wilkins. Sage

Streubert H.J & Carpenter, D.R. 1999. Qualitative research in nursing: advancing the humanistic imperative. Philadelphia: Lippincott

© University of Venda

University of Venda
Creating Future Leaders

Sullivan, E.J & Decker, P.J. 1992. Effective management in nursing. 3rd edition. The Benjamin publishing company. California.

Tshabalala, D.L. 2007. Tuberculosis treatment interruption. Master of Arts in Health studies. UNISA: Pretoria

Van der Walt, H, Wilkinson, D, Wilkinson, N, Nthuli, N & Coleman, R (1997): Tuberculosis: Our Problem. *Nursing Update* 23: 1-24

Van Teijlingen, E.R & Hundley, V. 2001. The importance of pilot studies: the example of the Scottish British Births Survey. *Journal of Advanced Nursing*, 34(298): 295-304

Wang, Y.Y, Yang, H.T & Liabsuetrakul, T. 2006. Under - over consumption of intermittent TB treatment among rural TB patients in South-West China. *International Journal of Tuberculosis & Lung Disease*: 11(12): 1345-1351

Wells, C.D, Cegielski, J.P, Nelson, L.J, Laserson, K.F, Holtz, T.H, Finlay, A., Casto, K.G & Weyer, K. 2007. HIV infection and Multidrug-resistant tuberculosis - the perfect storm. *Journal of Infectious Diseases* 196: 86 – 107

Weyer, K. 2007. Transmission of Extensively Drug-resistant TB in South Africa and implications for infection control in health care setting. Los Angeles CA. Abstract 8

WHO/HTM/2006:361. Guidelines for the programmatic management of drug-resistant tuberculosis. WHO 2006: Geneva

WHO/HTM/2007:387. The global MDR-TB & XDR-TB response plan 2007-2008. WHO 2007: Geneva

WHO/CDS/TB/2002.297. An expanded DOTS framework for effective tuberculosis control. WHO 2002: Geneva

WHO/TUB/91.161. 1991.Guidelines for tuberculosis treatment in adults and children in national tuberculosis programmes. WHO 1991: 20 Ave Appia. Geneva

WHO/CDS/TB/2003.318. Expanding DOTS in the context of a changing health system. WHO 2003: Geneva

WHO/HTM/TB/2006.368. Global tuberculosis control –a short update to the 2009 report. WHO 2006:Geneva

WHO/TB/94.177. Tuberculosis - a global emergence. WHO.1994: Geneva

WHO/DATAQUERY/2008. Online global tuberculosis data. http://www.who.org/

WHO/V&B/99.23. Issues relating the use of BCG in immunisation programmes. WHO 1999: Geneva

Wiersma,W. 1995. Research methods in education:an introduction. Allyn and Bacon publishing company

Wilson, H.S. 1993. Research in nursing. 4th edition. Redwood city, California: Addison - Wesley publishing company

Wong, D.L. 2003. Nursing Care of Infants and Children. St. Loius: CV Mosby

World Health Organization. 2001. Global plan to stop TB. WHO: Geneva

WHO/CDS/TB/2002.297. An expanded DOTS framework for effective tuberculosis control. World Health Organisation 2002: Geneva

WHO/CDS/TB/2003.318. Expanding DOTS in the context of a changing health system. World Health Organisation 2003: Geneva

World Health Organization. 2006b. National Training for Managers at Subnational Levels. Geneva; Switzerland

World Health Organization. 2006c. The South African National Tuberculosis Association. Geneva: Switzerland

World Health Organization. 2007c. Training of managers collaborative TB and HIV/AIDS. Geneva: Switzerland.

© University of Venda

University of Venda
Creating Future Leaders

WHO. 2008. International country profiles. WHO: Geneva

World Health Organization. 2008a. Promoting the Implementation of Collaborative TB/HIV Activities through Public-Private Mixed Partnerships. Geneva: Switzerland.

© University of Venda

University of Venda
Creating Future Leaders

ANNEXURE A

REQUEST TO CONDUCT RESEARCH

P.O Box 1510
Malamulele
0982

23 May 2011

Research Committee
Department of Health and Social Development
Limpopo Province
Private Bag X 9302
Polokwane
0700

PERMISSION TO COLLECT DATA

I am currently registered in Magister Curations (Nursing Masters Degree) programme at the University of Venda. Part of the requirements for the programme is a dissertation of a limited scope. I am thus requesting to collect data in Waterberg District at MDU unit of Limpopo Province. The topic of the research is: **Defaulting Rate of MDR-TB Patients in the MDR Unit of the Limpopo Province.**

.....

Yours Sincerely
Mr LT Chauke

© University of Venda

University of Venda
Creating Future Leaders

ANNEXURE B

PERMISSION FROM LIMPOPO PROVINCE DEPARTMENT OF HEALTH TO CONDUCT THE STUDY

LIMPOPO
PROVINCIAL GOVERNMENT
REPUBLIC OF SOUTH AFRICA

DEPARTMENT OF HEALTH

Enquiries: Selamolela Donald

Ref: 4/2/2

23 September 2011

Chauke LT

University of Venda

Thohoyandou

0950

Greetings,

Re: Permission to conduct the study titled: Guideline to minimize defaulting rate of MDR-TB in the Limpopo MDR Unit at Waterberg District in Limpopo

1. The above matter refers.
2. Permission to conduct the above mentoned study is hereby granted.
3. Kindly be informed that:-
   - Further arrangement should be made with the targeted institutions.
   - In the course of your study there should be no action that disrupts the services.
   - After completion of the study, a copy should be submitted to the Department to serve as a resource.
   - The researcher should be prepared to assist in the interpretation and implementation of the study recommendation where possible.

Your cooperation will be highly appreciated.

Head of Department

Department of Health

Limpopo Province

© University of Venda

University of Venda
Creating Future Leaders

ANNEXURE C

SENEX APPROVAL OF MCUR RESEARCH PROPOSAL

UNIVERSITY OF VENDA

OFFICE OF THE UNIVERSITY REGISTRAR

TO : MS. M.M. MABIDI

SCHOOL OF HEALTH SCIENCES

FROM: MR. J.M. FOURIE

HEAD: COMMITTEE ADMINISTRATION

DATE : 03 FEBRUARY 2012

DECISIONS TAKEN BY SENEX OF 17 AUGUST 2009

Application for approval of Mcur research proposal: **L.T. Chauke** (11533360)

At its meeting of 17 August 2009, Senex approved the Masters research proposal.

Topic: "*Guidelines to Minimize Defaulting Rate of Multi Drug Resistant Tuberculosis Patients in the Limpopo Multi Drug Resistant Unit at Waterberg District of Limpopo Province.*"

Supervisor: Prof. V.O. Netshandama (University of Venda)

Co-supervisor: Prof. M.L. Netshikweta (University of Venda)

Mr. J.M. Fourie
Head: Committee Administration

© University of Venda

University of Venda
Creating Future Leaders

ANNEXURE D

ETHICS CLEARANCE CERTIFICATE

RESEARCH AND INNOVATION
OFFICE OF THE DIRECTOR

NAME OF RESEARCHER/INVESTIGATOR:
Chauke L.T

PROJECT TITLE: Guidelines to minimize defaulting rate of MDR-TB patients in the Limpopo MDR Unit at Waterberg District of Limpopo Province

PROJECT NO: SHS/10/PDC/005

SUPERVISORS/ CO-RESEARCHERS/ CO-INVESTIGATORS

NAME	INSTITUTION & DEPARTMENT	ROLE
Prof. V.O Netshandama	University of Venda: Advanced Nursing Science	Supervisor
Prof. M.I Netshikweta	University of Venda: Advanced Nursing Science	Co-Supervisor

ISSUED BY:

UNIVERSITY OF VENDA, HEALTH, SAFETY AND RESEARCH ETHICS COMMITTEE

Date Considered: 28 May 2010
Decision by Ethical Clearance Committee Granted
Signature of Chairperson of the Committee: .....
Name of the Chairperson of the Committee: Prof. P.E. Lukhele-Olorunju

UNIVERSITY OF VENDA
PRIVATE BAG X5050, THOHOYANDOU, 0950, LIMPOPO PROVINCE, SOUTH AFRICA
TELEPHONE (015) 962 8504/8484/8313 FAX (015) 962 8439

"A quality driven financially sustainable, rural-based Comprehensive University"

© University of Venda

University of Venda
Creating Future Leaders

ANNEXURE E

INFORMED CONSENT

Statement by the Researcher

In 1991, the WHO (WHO) declared tuberculosis as a global crisis. The purpose of this study is to explore the experiences of MDR-TB patients regarding MDR-TB treatment plan during the hospitalization period of MDR tuberculosis patients, to determine the shortcomings of MDR treatment plan, to describe guidelines that can be followed in dealing with patient-related issues during hospitalization of MDR-TB patients and for the Researcher to obtain a Magister Curationis Degree.

Participation in this study is therefore voluntary and participants can withdraw from it without providing any reasons.

Statement by the participant

I have heard about the proposed study and had an opportunity to ask questions. I was given adequate time to think about participating. I have not been pressurized to participate in any way. I understand that participation in this study is completely voluntary and that I may withdraw from it at any time without supplying reasons. I am aware that the results of this study will be used for planning purposes to improve health care services. I agree to this provided my privacy is guaranteed

I hereby give consent to participate in this study.

Signature of participant: ..... Date: .....

© University of Venda

University of Venda
Creating Future Leaders

ANNEXURE F

INTERVIEW GUIDE

Demographic Questions

1. How old are you?
2. Are you married?
3. Where do you live?
4. Were you employed before admission at MDR unit?
5. What religion are you?
6. Did you have any support from your family while taking TB treatment?
7. If yes to the question above, what kind of support?

Social & Behavioural Patterns Questions

8. Do you smoke or did you smoke cigarettes during TB treatment?
9. Do you drink alcohol?
10. Did you drink alcohol during TB treatment?
11. Did you consult traditional healer or Christian healer during TB treatment?
12. Did you have enough food while taking TB treatment?

TB Treatment Questions

13. How long did you take TB treatment before admission at MDR unit?
14. Did you ever experience side effects while taking TB treatment?
15. How often in a day did you take TB treatment?
16. Did you ever stop taking TB treatment for 5 days or more?
17. If yes to the question above, what were you reasons for stopping taking TB treatment?
18. How long did it take before you resume taking your TB treatment?
19. Did you have a DOT supporter while taking your TB treatment?
20. How was the attitude of the DOT supporter and the support you received?
21. Did you understand TB and the treatment while taking treatment?

Health Care Service and MDR Unit Related Questions

22. How long have you been admitted at MDR unit?
23. Do you get enough support from nurses and doctors and other staff in the MDR unit?
24. What is your experience with MDR unit admission?
25. How is the attitude of the MDR unit staff?
26. Do you still receive support from your family while in MDR unit?
27. Do you smoke cigarette or use any form of drugs while taking treatment in MDR unit?
28. What can you tell other TB patients about drug-resistant TB?
29. What measure do you think should be put in place by government and health professionals in the prevention of drug-resistant TB?

© University of Venda

University of Venda
Creating Future Leaders

ANNEXURE G

CONFIRMATION BY LANGUAGE EDITOR

UNIVERSITY of the WESTERN CAPE

FACULTY OF NATURAL SCIENCES

DEPARTMENT OF MEDICAL BIOSCIENCES

Donavon C. Hiss | University of the Western Cape | Private Bag X17 | Bellville 7535 | South Africa
Tel: 021 959 2334 | Cell: 072 200 1086 | Fax: 021 959 3215 | E-mail: dhiss@uwc.ac.za or hiss@gmx.us

25 August 2015

To Whom it May Concern

This serves to confirm that I have edited the language, spelling, grammar and style of the Masters of Nursing Science by **Lucky Thembha Chauke**, titled: "**Defaulting Rate of MDR-TB Patients in the MDR Unit of Limpopo Province**." The manuscript was also professionally typeset by me.

Sincerely Yours

Dip. Freelance Journalism, Dip. Creative Writing, MSc (Medicine), PhD

© University of Venda