AN EVALUATION OF THE EFFECTIVENESS OF THE NURSE-INITIATED-AND-MANAGED ANTIRETROVIRAL TREATMENT (NIMART) PROGRAMME, WATERBERG DISTRICT, LIMPOPO PROVINCE

by

Mbedzi Melton Mashudu

Student Number: 11531063

A mini-dissertation submitted in partial fulfillment of the requirements for the degree:

Master of Public Health (MPH)

Department of Public Health

School of Health Sciences

University of Venda

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Supervisor

Prof HA Akinsola

Co-Supervisor

Ms JT Mabunda

27 July 2015

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DECLARATION

I, **Mbedzi Melton Mashudu**, declare that "**An Evaluation of the Effectiveness of the Nurse-Initiated-and-Managed Antiretroviral Treatment (NIMART) Programme, Waterberg District, Limpopo Province**" is my original work and that all the sources that I have used or cited have been duly indicated and acknowledged by means of complete references, and that this work has not been submitted previously for a degree at any other higher education institution.

Mbedzi Melton Mashudu : .....
Student Number: 11531063

Date Signed : 07/08/2015

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DEDICATION

This study is dedicated to the Department of Health Management for the effectiveness of universal access to antiretroviral treatment and to all those who are suffering from HIV/AIDS and have no access to antiretroviral therapy.

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ACKNOWLEDGEMENTS

- I would like to extend my sincere gratitude to my supervisor, Professor H.A. Akinsola and co-supervisor Ms J.T. Mabunda for imparting the seeds of knowledge to me.

- I would like to express my sincere thanks to my family members and friends for their support and respective contributions during the period of this study.

- I would also like to acknowledge my colleagues, Mrs A. Mudau, S. Nedzingahe and Mr N. Rasalanavho, for their encouragement and unconditional support throughout the study.

- Thanks to my friends, Mr L. Mugwedi and N. Rasalanavho, for their unconditional support and words of encouragement.

- I am humbled and most grateful to the participants of this study who took their time to complete the questionnaire.

- I further acknowledge the support from the personnel assistant of the Waterberg district manager, Mr D.R. Nkgodi

- Special recognition goes to Mr. M. Moyo for his expertise with data entry and statistical analysis of this study.

- Thanks to my field worker, Mr A. Mutengwe, for his dedication and hard work throughout the data collection.

- Thanks to the Department of Health Management, Limpopo Province and Waterberg District, for granting permission to conduct the study. May God abundantly bless you.

- Professor D.C Hiss, Department of Medical Biosciences, University of the Western Cape, is acknowledged for his technical expertise and guidance with the translation and the editing of the research documents.

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ABSTRACT

Nurse-initiated and management of patients on antiretroviral therapy (NIMART) was implemented as a mechanism to increase the intake of antiretroviral therapy (ART) in South Africa. The aim of this study was to evaluate the effectiveness of the NIMART programme implemented in the Waterberg District, Limpopo Province. The study adopted a descriptive cross-sectional method using a quantitative research approach. The study was conducted in the Waterberg District, which is one of the five Districts in the Limpopo Province. All the primary health care (PHC) facilities and all NIMART professional nurses in the Waterberg District were involved in this study. Data were collected using two types of instruments—a questionnaire and a data collection sheet. Data were entered into Microsoft Excel™ and then analyzed using the Statistical Package for Social Sciences (SPSS), version 22, 2014. Data were presented descriptively in tables and charts. The study revealed that it took on average 1.1 hour to initiate clients on antiretrovirals (ARVs). The majority of professional nurses who are NIMART trained complained of workload due to administrative duties inherent in the NIMART programme. Most PHC facilities had insufficient consultation rooms which impacted negatively on the implementation of the programme. The number of clients initiated on ARVs in the hospital dropped drastically from 4597 in 2011 to 900 in 2013. This was due to the fact that PHC facilities started to initiate ARVs as from 2010. The number of patients who defaulted ARVs decreased drastically between 2011 and 2013. The number of deaths of patients on ARVs increased from 2010 to 2012 due to the large number of clients initiated on ARVs, and also dropped sharply in 2013, perhaps due to the good experience of the nurses. PHC facilities are not doing well regarding initiation of children on ARVs. All Waterberg District mobile clinics were not offering ARVs services, which implies that there are still clients who do not have access to ARV services. The study concluded that although the NIMART programme is effective, it is encountering numerous challenges, including human resources, managerial support, health systems issues and clinical mentoring. Increased responsibilities associated with NIMART implementation increases the workload in PHC facilities.

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LIST OF ABBREVIATIONS

ANC	Antenatal Care
AIDS	Acquired Immunodeficiency Syndrome
ART	Antiretroviral Therapy
ARV	Antiretroviral Drugs
AZT	Zidovudine
CD4	Cluster of Differentiation 4 T-Lymphocytes
CDC	Centers for Disease Control and Prevention
DHIS	District Health Information System
EC	Eastern Cape
FPD	Foundation for Professional Development
FS	Free State
GP	Gauteng Province
HAART	Highly Active Antiretroviral Therapy
HCW	Health Care Workers
HIV	Human Immunodeficiency Virus
HST	Health Systems Trust
KZN	KwaZulu-Natal Province
LP	Limpopo Province
MP	Mpumalanga Province
MPH	Master of Public Health
NC	Northern Cape Province
NDoH	The National Department of Health
NW(P)	North West Province
NIMART	Nurse Initiated Management of Antiretroviral Therapy

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NGO	Non-Governmental Organization
PALSA PLUS	Practical Approach to Lung Health and HIV/AIDS (South Africa)
PCR	Polymerase Chain Reaction
PEPFAR	President's Emergency Plan for AIDS Relief
PHC	Primary Health Care
SA	South Africa
SPSS	Statistical Package for Social Science
STATSSA	Statistics South Africa
STRETCH	Streamlining Tasks and Roles to Expand Treatment and Care for HIV
USA	United States of America
USAID	United States Agency for International Development
WC	Western Cape Province
WHO	World Health Organization

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CHAPTER 1

INTRODUCTION TO THE STUDY

1.1 Background to the Study

According to Patel, Larson, Mbengashe, O'Bra, Brown, Golman and Klausner (2012), South Africa has the highest rate of human immunodeficiency virus (HIV) infection in the world, with an estimated 5.7 million persons infected with HIV in 2010. Furthermore, the number of infected children under the age of 15 years is estimated to be 340,000. The South African Government's recent health policy is set to expand access to human immunodeficiency virus and acquired immunodeficiency syndrome (HIV/AIDS) care rapidly (Colvin, Fairral, Lewin, Georgeu, Zwarenstein, Bachmann, Uebel and Bateman, 2010). This is aimed at ensuring that all the health institutions in the country are ready to receive and assist patients who are in need of HIV/AIDS services. Nurse initiation is essential if the antiretroviral therapy (ART) programme is going to expand. South Africa does not have enough doctors to be the sole providers to initiate people into ART (Colvin *et al.,* 2010).

The South African Government's recent health policy on ARV access implemented plan involves task shifting in the public health system. The task shifting involves nurse-initiated ART at primary health care facilities. As a result, the burden faced by doctors in monitoring ARVs, conducting adherence counselling and dispensing ARVs will be reduced. This policy enabled nurses to take a lead in initiating ARVs and monitoring side effects (Uebel, Guise, Georgeu, Colvin and Lewin, 2013).

The National Department of Health (NDoH) has approved three intuitions—the University of Stellenbosch, University of Cape Town and the Foundation for Professional Development (FPD) to offer training on nurse-initiated-and-managed antiretroviral treatment (NIMART).

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The Director General of the National Department of Health authorized professional nurses to initiate children, adults and pregnant women on ARVs. National ARV guidelines have been released to assist in guiding professional nurses on how to initiate ARVs (Georgeu, Colvin, Lewin, Fairral, Bachmann, Uebel, Zwarenstein, Draper and Bateman, 2012). All primary health care (PHC) facilities were assessed for their readiness to implement ARV services before accreditation. PHC facilities that failed to meet the criteria were given a second chance to improve on the gaps identified (Fairall, Bachmann, Lombard, Timmerman, Uebel, Zwarenstein, Boille, Georgeu, Colvin, Lewin, FarisCornick, Draper, Tshabalala, Kotze, Vuuren, Steyn, Chapman and Bateman, 2012).

The South African Government announced that HIV-positive patients now qualify for an earlier treatment at a CD4 count of 350 and no longer 200 as from 2010 (Colvin *et al.*, 2010). According to Emdin and Millson (2012), the demand for administering and monitoring treatment is likely to increase at PHC facilities because government has also strengthened commitment to reach and treat all South Africans who are in need of ART. Consequently, this is likely to further scale up the demand for nurses capable of initiating and monitoring the NIMART programme (Emdin and Millson, 2012).

In the first six years of the ART programme, approximately 900,000 people started with the treatment. In the next 2 - 3 years, government proposed to initiate the treatment for another 1.2 million people. There are simply not enough doctors in the public sector to introduce and follow up on this number of patients. The major load from this increase will therefore have to be shared with nurses (Hontelez, Newell, Bland, Munnelly, Lessells and Barnighausen, 2012). To have nurses initiating and maintaining ART is a logical strategy to meet the need of increased access. NIMART improves access to ARV services and is cost-effective. Management of HIV-positive patients by doctors and nurses achieves similar outcomes of viral suppression, ART adherence, toxicity and death (Nyasulu, Muchiri, Mazwi and Ratshefola, 2013).

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On World AIDS Day, 1st of December 2009, President Jacob Zuma announced that any citizen would be able to access counselling, testing and treatment at any health centre. This meant increasing the number of sites providing ART from 496 to 4333. The FPD developed a 5-day NIMART training course. It includes a revision of basic HIV and opportunistic infections in adults and children (Colvin *et al.,* 2010). At the end of March 2011, 1736 nurses had attended NIMART courses facilitated by FPD. The Acting Director-General of Health, Dr K. Chetty, authorized professional nurses who had the necessary training and supervision to initiate HIV-infected patients on ART from the 1st of April 2010 (Colvin *et al.,* 2010).

1.2 Problem Statement

PHC facilities in the Waterberg District have a shortage of professional nurses. This has a negative impact on the implementation of the NIMART programme. According to staff establishment, Waterberg District PHC facilities need to have 590 professional nurses, but they only have 383. The number of ART-eligible patients per NIMART professional nurse is 27 per month, which makes it difficult to initiate all eligible patients. Currently, ART initiation per month per NIMART professional nurse is 3 patients (Waterberg District DHIS, 2013). This shows that the NIMART programme has no professional nurses that are specifically assigned to it. Furthermore, PHC facilities do not have enough consultation rooms, for example, currently there are 183 consultation rooms with 383 professional nurses and each and every professional nurse must have a consultation room. Waterberg District has one NIMART programme manager responsible for all health care facilities and, as a result, there is insufficient managerial support. Therefore, the PHC facilities and NIMART professional nurses do not get evaluated on time to see if they are facing some challenges (Waterberg District Human Resource and Asset Management, 2013).

1.3 Significance of the Study

The evaluation results of this study may help as guidelines to policy formation which can be used within the Department of Health (DoH). The study results can also contribute to the

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existing body of knowledge on the NIMART programme. The evaluation results can be used to make recommendations that can be utilized to improve the effectiveness of the NIMART programme. The DoH in Waterberg would be able to identify the gaps in the NIMART programme. The study will also encourage stakeholders to take action based on evaluation outcomes to increase the impact of the NIMART programme.

1.4 Research Questions

This study sought to answer the following questions:

1. What are the barriers in implementing NIMART programme in the Waterberg District?
2. What are the outcomes of the NIMART programme in the Waterberg District?
3. Is there a support for the NIMART programme by managerial personnel in the Waterberg District?

1.5 Aim of the Study

The aim of the study was to evaluate the effectiveness of nurse-initiated-and-managed antiretroviral treatment (NIMART) programme implemented in the Waterberg District, Limpopo Province.

1.6 Objectives of Study

The objectives of the study were to:

1. Determine the barriers against the NIMART programme in the Waterberg District.
2. Analyze the outcomes of the NIMART programme in the Waterberg District.
3. Evaluate the support from managerial personnel to the NIMART programme in the Waterberg District.

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1.7 Definitions

Effectiveness Is defined as the degree to which objectives are achieved and the extent to which targeted problems are solved (Keane, 2005). In this study, *effectiveness* is the degree to which the NIMART programme achieves its objectives and the extent to which targeted problems are solved.

Evaluation Is defined as assessing the strengths and weaknesses of a programme, policies, personnel, product and organizations to improve effectivenesss of the programme (Keane, 2005). In this study, *evaluation* is assessing the strength and weakness of the NIMART programme, policies, personnel, product and organizations to improve effectiveness of the programme.

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CHAPTER 2

LITERATURE REVIEW

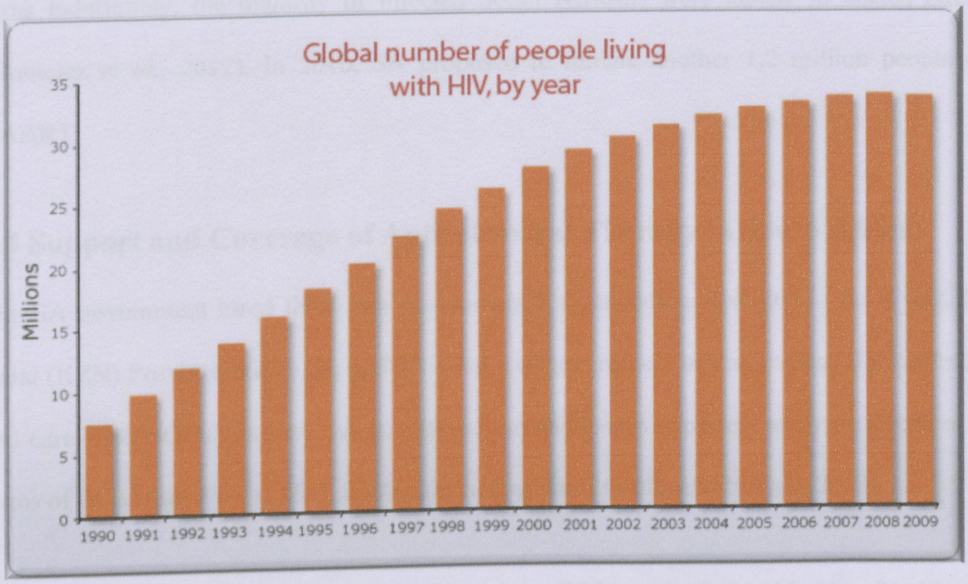
2.1 Introduction

A literature review is composed of data-based literature and conceptual literature. A data based literature review is a theoretical appraisal while a conceptual-based literature review covers aspecs of the empirical literature. The conceptual literature reviewed analysis and theory that have been already done on the NIMART programme. The data-based literature reviewed the data, research and scientific analysis on what have already been done on the NIMART programme.

2.2 Overview of HIV/AIDS

HIV was discovered in 1981 in Los Angeles, in the United States of America (USA). In 1982, Lus Montagner from France discovered that a virus was the underlying cause for the disease. The *Policy on Comprehensive Management and Treatment of HIV/AIDS* was introduced in the year 2004 to mitigate the impact of the HIV/AIDS epidemic (Rajap, Variena and Sargent, 2011). According to Webster, Sibanyoni, Malekutu, Mate Venter, Barker and Moleko (2013), South Africa is at the centre of the HIV/AIDS crisis, with largest number of people infected in the nation (Webster et al. 2013). Post 2011, 2.5 million people have been infected with HIV. The *Constitution of South Africa* (Act 61 of 2004) states that all citizens have the right to access health care services (Rajap *et al.,* 2011). Since the beginning of the HIV epidemic, almost 70 million people have been infected with the HIV virus globally and about 35 million have died of AIDS. According to WHO (2011), globally, 34 million people were living with HIV/AIDS at the end of 2009 (Figure 2.1). The total deaths due to HIV/AIDS were estimated to be 1.7 million in South Africa (WHO, 2011).

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Source: WHO (2011)

Figure 2.1: Global numbers of people living with HIV

The HIV/AIDS pandemic in Africa has far-reaching implications for governance and policy-makers. It is killing millions of individuals and is thus causing serious economic contractions. Decreased adult life expectancy has important adverse effects upon savings, capital accumulation, skills acquisition, and institutional functioning. Meanwhile, expanded HIV/AIDS programming is likely to become a major feature in some African countries (Hontelez *et al.*, 2012).

2.3 Antiretroviral Therapy

Antiretroviral drugs (ARVs) were first implemented in 1981 in Los Angeles, USA. In South Africa (SA) it was implemented in 1988. The first drug to be used was zidovudine (AZT). Hontelez et al. (2012) noted that combination drug therapy has had a remarkable impact in reducing AIDS-related morbidity and mortality. SA has over a million patients initiated on highly active antiretroviral therapy (HAART) between the year 2004 and the end of 2009. The report further stated that SA also started more patients on HAART than other countries of the world. Despite the existence of ARVs proven to prolong life and suppress the AIDS

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virus indefinitely, the majority of infected South Africans were unable to access ARVs (Hontelez *et al.,* 2012). In 2010, SA proposed to initiate another 1.2 million people on HAART.

2.4 Support and Coverage of Antiretroviral Therapy in South Africa

The SA government hired three non-governmental organizations (NGOs) in the KwaZulu-Natal (KZN) Province due to the ineffectiveness of government to respond on HIV treatment and care. The NGOs' interest was to explore the challenges experienced by government in terms of delivering ARVs (Michel, Matlakala, English, Lessells and Newell, 2013).

The Foundation for Professional Development (FPD), together with the President's Emergency Plan for AIDS Relief (PEPFAR) and The United States Agency for International Development (USAID) established a *National HIV Health Care* hotline for health care workers (HCW) (Chisholm, Cohen, Blockman, Kinkel, Swart and Kredo, 2011). The National HIV HCW hotline was established in 2008 to support the safe and effective roll-out of ART in SA. The hotline operates weekdays only from 08:30 to 16:30. The call volume increased to 300 per month—the most frequent users being doctors (69%), pharmacists (14%) and then nurses (11%). The percentages reflect the fact that doctors remain predominantly in decision-making around HIV and care (Swart, Chisholm, Cohen, Blockman, Kredo, Fourie and MacMohon, 2010).

In October 2010, an ARV data monitoring system was established in SA. The monitoring system is indispensable for assisting in capturing and tracking patient information at health facilities. The system does not use a network to operate and it was a modified version of a register used in the Western Cape. The DoH's plan was to have an electronic register to all facilities at the end of March 2012 (Pillay, White and Mccormick, 2012).

Clinical mentoring by health care workers with skills in HIV management has been identified as one of challenges of scaling-up ART in Africa, particularly in settings where specialized

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health care workers are limited (Cohen, Lynch, Bygrave, Eggers, Vlahakis, Hilderbrand, Knight, Pillay, Saranchuk, Goemaere, Makakole and Ford, 2009; Jones, Stander, Van zyl and Cameron, 2012). Streamlining Tasks and Roles to Expand Treatment and Care for HIV (STRETCH) is the strategic used to expand the roles of health care personel. STRETCH was conducted in the Free State Province to address some of the gaps in NIMART (Colvin *et al.,* 2010). Many reports that are available with positive results on the NIMART programme although they are not totally reliable. These reports include both outcomes and improved access to ART. However, the NIMART programme benefited from the substantial NGOs' support. A key for building and sustaining that confidence was based on ongoing clinical support from a wide range of sources including doctors, district ARV co-ordinators, STRETCH trainers and experienced fellow nurses (Colvin *et al.,* 2010).

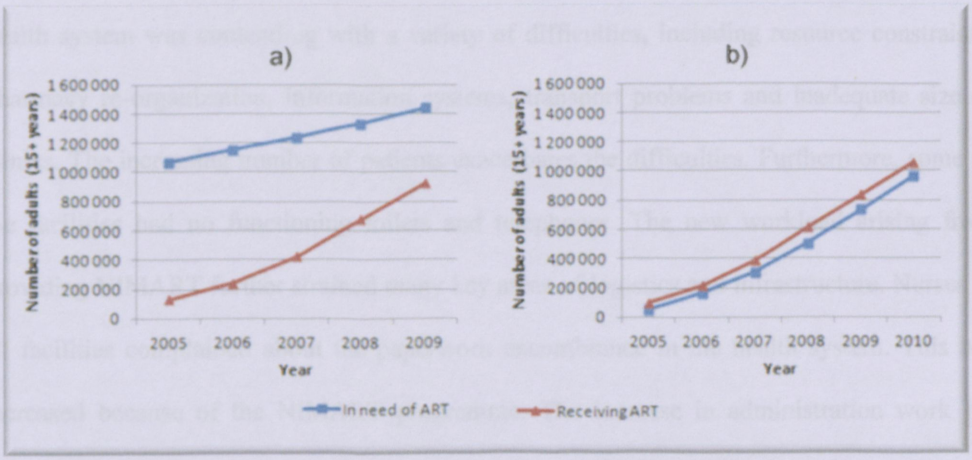
Active local management support for implementation also varied, and many participants reported that the trial coordinator often had to step in to address gaps in logistical and management support to sites. This ongoing support should ideally have been provided by the local STRETCH 'support teams' composed of the local area and site managers, ART and pharmacy coordinators, and physicians and nurses. Some of the teams, have struggled with leadership and logistical challenges and did not function effectively (George, Quinian, Reardon and Auguilera, 2012).

Despite unprecedented scale-up on ART and advanced treatment, the majority of people around the world in need of antiretrovirals are not receiving it. Most people are failing to have access to ARVs, even in the location where there was access to treatment due to multiple barriers (Doshi, Rio and Marconi, 2011). HIV/AIDS information on service provision and need are limited in SA, especially in municipality areas. The Foundation for professional development (FPD) has conducted an annual survey among organizations providing HIV/AIDS in the City of Tshwane Metropolitan Municipality (HST, 2010). In 2005, almost one million persons were in need of ART, but only 100,000 managed to receive

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ART. The situation was almost the same as from 2005 to 2009. In 2010, the gap between persons in need of and persons receiving ART improved (Figure 2.2).



Source: According to (a) 2010 and (b) 2011 Statistics South Africa (STATSSA) Mid-year population estimates (2.5) Gerrtsen, Mitchell, Johnson and Delva (2012).

Figure 2.2: Estimated number of adults aged ≥15 years in need of ART and receiving ART

2.5 Implementation of NIMART Programme

The task shifting, which is NIMART, started to be emphasized since 2006 to increase access to ART. The delegation of clinical tasks from doctors to other health care workers was evidence of its effectiveness to increase access to ART (Colvin *et al.,* 2010). Before 2010, no PHC facilities were initiating ARVs because no professional nurses were trained to initiate ARVs. SA forms part of the countries that have implemented the NIMART programme as a strategy to scale-up intake of ARVs. SA implemented the NIMART programme in 2010. Professional nurses trained on initiation of ART as from 2010. In 2010, a systematic review of task shifting in care of patients with HIV infection showed that it was effective and could provide high-quality care. The evidence of NIMART in SA is limited. There are key barriers and enablers for implementing the NIMART programme on a large scale (Fairall *et al.,* 2002).

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2.6 Challenges with the Implementation of NIMART

2.6.1 Logistic and Infrastructural Challenges

The STRETCH intervention took place against the background of the health system. The health system was contending with a variety of difficulties, including resource constraints, pharmacy re-organization, information systems, transport problems and inadequate size of clinics. The increasing number of patients exacerbates the difficulties. Furthermore, some of the facilities had no functioning toilets and telephones. The new workload arising from providing NIMART further strained many key areas of logistics and infrastructure. Nurses in all facilities complained about the paperwork encumbrance in the health system. This has increased because of the NIMART programme. The increase in administration work for NIMART was related to the increased numbers of ART patients. This burden was compounded by weak and fragmented information systems that were insufficiently staffed and resourced (George *et al.,* 2012).

The overall shortage of all PHC staff was seen as a critical issue in every site. This included shortages of non-physicians and physicians, as well as of pharmacists, managers, social workers, data clerks, lay counsellors and administrative support. STRETCH increased nurse workloads through shifts of physician tasks to nurses, and also increased workloads on other team members through improvised shifting of duties, as a result of this broader lack of capacity. For example, data capturers performed basic nursing duties (like weighing patients) when nurses were very busy or nurses dispensed when pharmacists were not available (Fairall *et al.,* 2012).

The legal framework in terms of nurses prescribing ARVs has been debated at the national level for several years. However, the discussion has focused on the understanding of legal and regulatory frameworks that govern nurses' prescription. The legal difficulties were resolved by the Minister by simply authorizing nurses to prescribe ARVs in line with the Medicines Control Act (Act 101 of 1965)(Colvin *et al.,* 2010). Daviaud and Chopra (2007)

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noted that resources (e.g., NIMART nurses, adequate infrastructure) are not available for the rapid national scale-up required to meet the ambitious targets set by government. According to Mngqundaniso and Peltzer (2008), traditional healers play an important role in sexually transmitted infections (STIs) and HIV prevention, care and treatment—especially in rural settings or low-income earning groups in SA.

2.6.2 Human Resource and Capacity Challenges

According to the WHO, the world requires more than 4 million doctors and nurses than is currently available (USAID, 2011). Foster and Mclntyre (2012) have identified a shortage of human resources for health as one of the primary constraints to scale-up the provision of ART. The shortage of health workers influences universal coverage of quality HIV services, especially in those countries with the epidemic (Sherr, Pfeiffer, Mussa, Vio, Gimbel, Micek and Gloyd, 2009). Proper allocation of health care workers to HIV care and other health services is very important—looking into how they will utilize their time and skills most efficiently (Orner *et al.,* 2011).

Considering human resource requirements is of value when developing national strategic targets for HIV/AIDS. Human resources can become the stumbling blocks to rapid scale-up of HIV/AIDS prevention and treatment (Humphreys, Wright, Walley, Mamvura, Bailey, Ntshalintshali, West and Philip, 2010). Taking into account human resources in strategic planning can help policy-makers to identify alterations of staff structures by shifting non-specialized tasks to other personnel if there is limited specialized staff and to identify other underutilized qualified personnel. This can help to improve performance in terms of time allocated to reach target.

The determination on human resource requirements depends on existing structures that may not be optimal for productivity and quality of care (Mail, 2011). Hence, the strategy that can be used to overcome the gap of required human resources can be met by increasing the

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number of hours spent by health care providers in the primary health centres. An additional effective way that might work to overcome human resource shortages is scheduled services. Task shifting was introduced in Uganda through both experimental and informal mechanisms. Task shifting was introduced where nurses started to initiate ARVs instead of doctors alone (Dohrn, Nzamaand and Murrman, 2009).

As Uganda prepares for the next round of strategic planning in HIV/AIDS, the *Capacity Module* will be applied to be able to reach new targets. Since the *Capacity Model* is linked with the *Goal Model*, this can provide Uganda with necessary information about human resource requirements and budget allocation decisions. Models can provide useful lenses to view the feasibility of national plans to scale up HIV/AIDS programmes. Resource allocations affect the number of people reached. The prevalence of HIV can be useful to determine the number of health personnel needed to reach clients (USAID, 2010).

Scaling up ART requires a large number of well-trained health care workers. Several needs assessment initiatives have shown limited capacity to scale up services using doctors, increasing demand and shortage of trained medical staff and limited finance. To address these concerns, decentralizing care to smaller health care facilities along with task shifting care from doctors to nurses was adopted. Although task shifting is a potential solution to expand ART access, it places pressure on the PHC system (Brennan, Long, Maskew, Sanne, Jaffray, Macphall and Fox, 2013).

Even in a middle-income countries like SA, the health system is struggling to retain sufficient numbers of skilled health workers in the public sector. Poor monitoring and management of skill combinations exacerbate the problem (Daviaud and Chopra, 2007). According to Orner and Palmar (2011), shortage of human capacity is a broader problem that includes distribution and production of the wrong skills in the nursing care sector. SA has 384 nurses and midwifes per 100,000 as shown in Table 2.1 (HST, 2010).

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Table 2.1: Cross-country comparison of nurses per 100,000 population

Country	Nurses and Midwives
Lesotho	60
Brazil	290
Mexico	400
Greece	350
South Africa	384
United States of America	950
Australia	1090

Source: HST (2010)

According to Davies, Homfray and Venables (2013), NIMART nurses and facility and district managers expressed frustration and disappointment because extra human resources, perceived as essential, had not been forthcoming. Reporting widespread professional nurse shortages, nurses described struggling to cope with the workload as a result of their additional NIMART responsibilities.

Table 2.2: Number of professional nurses per 100 000 population in South Africa

Provinces	Professional Nurses	
	2006	2008
Gauteng	565	529
Western Cape	543	512
Kwazulu-Natal	456	492
Free State	387	410
Northern Cape	370	339
Mpumalanga	286	290
Eastern Cape	336	328
North West		403
Limpopo Province	303	365
South Africa	414	436

Source: HST (2010)

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Limpopo Province has 365 professional nurses per 100,000 population which makes it to be the fourth province with most shortage of professional nurses as shown in Table 2.2. Limpopo Province was rated as the third province with the most vacant posts in SA as shown in Table 2.3 (HST, 2010). The percentage of vacant posts in Limpopo Province increases each and every year, it was 15% in 2006, 20% in 2007—and 43% in 2008.

Table 2.3: Percentage of vacant posts for professional nurses in the public health sector

Year	GP	WC	KZN	FS	NC	MP	EC	NW	LP	SA
2006	26.0	22.0	42.5	31.4	33.2	40.0	34.0	22.8	15.0	31.5
2007	39.9	23.8	42.1	35.7	35.9	40.2	38.8	42.2	20.0	36.5
2008	34.4	31.0	39.6	51.6	25.3	29.8	53.6	13.2	43.7	40.3

EC, Eastern Cape; FS, Free State; GP, Gauteng Province; KZN, Kwazulu-Natal; LP, Limpopo Province; MP, Mpumalanga; NC, Northern Cape; NW, North West; WC, Western Cape; SA, South Africa. Source: HST (2010)

2.7 Current Evidence Around NIMART

Task-shifting is widely promoted as the solution to expand ART access. However, the evidence for non-physicians providing ART in SA is limited. A few studies have compared the performance of non-physicians with physicians (Fairall *et al.,* 2002). Non-physicians had constraints in implementing the NIMART programme in the PHC facilities even though they had gone through intensive training and had support from the President's Emergency Plan for AIDS Relief (PEPFAR) from overseas donors. Furthermore, in these studies, non-physician care is restricted to the monitoring of patients that are already on the treatment, with initiation usually being performed by the study physicians. Under these conditions, all studies reported equivalent ART outcomes, including viral load suppression, mortality and retention in care (Colvin *et al.,* 2010).

The STRETCH intervention included several forms of clinical support to ensure quality care and to develop nurses' clinical self-confidence. Physicians were supposed to provide support

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to nurses at clinic level by accepting telephone queries, providing feedback on referred cases, and visiting nurses on-site to discuss such cases. Nurses were also expected to support and share skills with each other as HIV care shifted from a specialist to a generalist service (Georgeu *et al.,* 2012). It was also intended that STRETCH trainers would build clinical knowledge and confidence through ongoing training and support for nurses, both telephonic and in person. The local STRETCH support teams were supposed to complement this direct clinical support with assistance in addressing management and logistic challenges. The STRETCH trial coordinator was available to facilitate and encourage the relationships in this decentralised support system and to provide additional logistical and clinical advice where necessary (Hontelez *et al.,* 2012). The onus remains on policy-makers to test whether the NIMART programme will provide the solution of expanding access to ART and if it will be effective and sustainable (Colvin *et al.,* 2010).

2.8 Programme Evaluation

Evaluation of a programme is essential for assessing and documenting programme implementation, outcomes, efficiency and cost-effectiveness of activities, and taking action based on evaluation outcomes to increase the impact of the programme. Many programmes that work well in some settings fail in others because of the socio-economic, demographic, interpersonal, and inter-organizational settings in which the programme are implemented. An accountability demand from policymakers and other stakeholders has increased (Workneh, Scherzerab, Kirkab, Heather, Draper, Anabwaniab, Wanlessb, Jibrilc, Gaetsewea, Thutoa and Michael, 2013).

The environment changes in which the public health programme is implemented demand strong programme evaluation more than ever before. For a programme to be effective, attention to documenting and measuring the implementation of the programme and its success in achieving intended outcomes are critical success indicators. Programme evaluation also shows how faithfully the programme adheres to the implementation of protocols and

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guidelines. Programme evaluation can determine whether activities are implemented as planned and identify programme strengths, weaknesses, and areas for improvement. Effective evaluation of the programme is an established tool that uses systematic research methods drawn from many different disciplines to assess how well a programme is achieving its objectives. If programme evaluation is properly carried out, it allows departments to develop evidence to determine its success.

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CHAPTER 3

RESEARCH METHODOLOGY

3.1 Study Design

This study was conducted using a descriptive cross-sectional quantitative research approach. Non experimental research method used in survey approach to investigate the research problem. The study chooses the quantitative research method to quantify the effectiveness of the NIMART programme.

3.2 Study Setting

The study was conducted in the Waterberg District (Figure 3.1), which is one of the five districts in the Limpopo Province. The district occupies 1200 km^2 which makes it the largest district in the Province. It is located in the western part of the Limpopo Province and it shares a border with Botswana.

The district is made up of 6 local municipalities (Bela-Bela, Lephalale, Modimolle, Mogalakwena, Mokgopong and Thabazimbi) which consist of urban, semi-urban and rural areas. However, it has the smallest population (679,336, as compared to the other districts) with an unemployment rate of 28%.

Furthermore, it also has the highest HIV prevalence. The district has 8 hospitals and 93 PHC facilities (two community health centers, 59 fixed clinics and 34 mobile clinics). Before 2010, ARV initiations were done by Gateway clinics attached to the 8 hospitals. The district has approximately 59 PHC facilities accredited to implement the NIMART programme (Table 3.1). It further has 324 NIMART trained professional nurses (Table 3.2). Waterberg District was chosen because it has implemented the NIMART programme.

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Source: Waterberg Health District Office, Limpopo, 2013.

Figure 3.1: Map of Waterberg District

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Table 3.1: The number of primary health care facilities in the Waterberg District

Waterberg District Municipalities	Local Areas	Total Clinics	Community Health Care Centres	Total Clinics Accredited	Community Health Care Centre Accredited	Total Number of Facilities Accredited
BelaBela	BelaBela	4	0	4	0	4
Mokgalakwena	Bakenburg	6	0	6	0	6
	Mahlelereng	6	0	6	0	6
	Mapela	10	0	10	0	10
	Rebone	7	1	7	0	7
Mokgopong	Mokgopong	4	1	4	1	5
Modimolle	Modimolle	5	0	5	0	5
Thabazimbi	1	6	0	6	0	6
	2	4	0	4	0	4
Lephalale	Lephalale	4	0	3	0	3
	Phalala	3	0	3	0	3
Total		**59**	**2**	**58**	**1**	**59**

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Table 3.2: Number of NIMART-trained professionals in all PHC facilities in the Waterberg District

Waterberg District Municipalities	Local Area	Total Number of All Professional Nurses	Total Number of Non-NIMART-Trained Professional Nurses	Total Number of NIMART-Trained Professional Nurses
BelaBela	BelaBela	27	04	23
Mokgalakwena	Bakenburg	34	02	32
	Mahlelereng	43	09	34
	Mapela	51	04	47
	Rebone	44	08	36
Mokgopong	Mokgopong	43	07	36
Modimolle	Modimolle	36	09	27
Thabazimbi	Northam	32	06	26
	Thabazimbi	22	03	19
Lephalale	Lephalale	21	03	18
	Phalala	30	04	26
Total		**383**	**59**	**324**

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3.3 Study Population

The target population of this study included all the 324 NIMART-trained professional nurses and all the 59 PHC facilities accredited to initiate ART at the Waterberg District.

3.4 Sampling

All 324 NIMART-trained professional nurses in the Waterberg District were purposively recruited to participate in the study.

3.5 Measuring Instrument

The study used the questionnaire and statistics collection sheet (Appendix 6). The questionnaire consisted of 64 questions and the data collection tool of 22 questions. The questionnaire was divided into 3 sections: Section A—barriers in the implementation of NIMART programme: Section B—support from managerial personnel to the outcome of NIAMRT programme and Section C—demographic profile of the participants. Open-ended and closed-ended questions were adopted and an option to include another answer was provided and it was required to specify. The questionnaire was in English. A health statistics collection sheet was used to collect data concering the outcome of the programme implementation from DHIS of the Waterberg District (Appendix 7).

3.6 Pretesting of the Instrument

A pre-test of the questionnaire was conducted to ensure the precision of the questionnaire.The pre-test questionnaires were administered to 10% of the study population which did not form part of the main study. Participants' feedback was used to improve the instrument. A clearly worded and structured questionnaire was used.

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3.7 Reliabilty and Validity of the Research Instrument

Reliability was done using a test-retest method and the same questions were asked to all participants with the alterative answers. For this study, content validity was applied. The data collection tool in this research was submitted to experts, i.e., those whose work involves the implementation of the NIMART programme. The experts included professional nurses, programme officers, programme managers and coordinators. The experts assisted with relevance of the questions in the instrument and their feedback was used to make alterations to the questionnaire.

3.8 Data Collection

Data were collected using two collection tools, which are data collection questionnaire and health statistics collection tool. The self-administered questionnaire was distributed to the study participants. The participants were informed about the study and trained on the instrument before the main study was conducted. The participants were assisted where necessary. The questionnaires were completed during lunch time.

3.9 Data Analysis

Data were entered into Microsoft Excel and then analyzed using the SPSS Version 22 (2014). Data were analysed using descriptive and inferential statistics. Descriptive statistics employed measures of frequency distributions (mean). A biostatistician helped with the data analysis. Tables and charts were used to summarize the results.

3.10 Ethical Considerations

3.10.1 Approval to Conduct the Study

Approval to conduct the study was obtained from the University Higher Degrees Committee, University of Venda. Ethical Clearance was obtained from the University of Venda Research Ethics Committee (Appendices 3 and 4).

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3.10.2 Permission to conduct the study

Permission to conduct the study was obtained from the Limpopo Province Department of Health (Appendices 1 and 2)

3.10.3 Informed Consent

The selected NIMART-trained nurses were informed that participation in the study was voluntary and the research process was explained to them by the researcher. The researcher also explained that the selected candidates are free to either complete or not complete the questionnaires. A consent form was made available to those who agreed for their signatures (Appendix 5).

3.10.4 Confidentiality

Confidentiality was maintained throughout the whole research process. The participants were assured that no one would have access to their information, except the researcher and the supervisors of the project. The participants were informed not to write their names.

3.10.5 Anonymity

Anonymity was maintained as the participants were asked not to provide their names.

3.11 Limitations of the Study

The study was conducted in the Waterberg District PHC facilities that were initiating ARVs. The results of this study cannot be generalized to other districts in Limpopo Province, but they can form a basis for comparison with similar studies conducted in other districts elsewhere in the province and greater SA.

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CHAPTER 4

DATA ANALYSIS, PRESENTATION AND INTERPRETATION

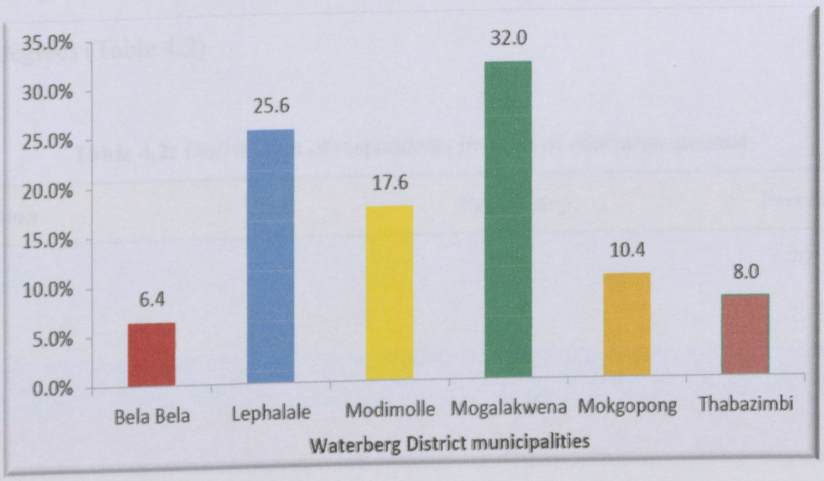
4.1 Introduction

The purpose of this chapter is to present the results of the study. The results are presented in two parts—the first part encompasses sections A to C and is based on the questionnaire; and the second part covers secondary statistical data (2010-2013) on NIMART programme in the Waterberg District. The responded were 250; some of them were not available during the research period.

4.2 Results Based on the Questionnaire

4.2.1 Section A: Demographic Data

The results show that most of the respondents were from Mogalakwena (32%) followed by Lephalale (25.6%) (Figure 4.1).



(n=250)

Figure 4.1: Distribution of the respondents

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Table 4.1 shows the distribution of age and gender of the respondents. Eighty-five percent of the respondents were females while 14% were males. Over 26% of them (males and females) were above 50 years of age.

Table 4.1: Distribution of respondents by age and gender

Age (Years)	Gender				Total (n=250)	
	Male		Female			
	Number	%	Number	%	Number	%
25-30	44	17.6	2	0.8	46	18.4
31-35	26	10.4	10	4	36	14.4
36-40	34	13.6	2	0.8	36	14.4
41-45	26	10.4	4	1.6	30	12
46-50	26	10.4	10	4	36	14.4
51-55	26	10.4	4	1.6	30	12
56-60	26	10.4	2	0.8	28	11.2
61 and above	6	2.4	2	0.8	8	3.2
Total (n=250)	**214**	**85.6**	**36**	**14.4**	**250**	**100**

The majority of the respondents 198 (79%) had diploma certificates while 2 (1%) had Masters degrees (Table 4.2)

Table 4.2: Distribution of respondents by level of education attained

Qualification	Frequency	Percent
Diploma	198	79
Degree	42	17
Honours	8	3
Masters	2	1
Total (n=250)	**250**	**100**

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Table 4.3 shows the distributions of respondents according to religion, marital status and type of family. The results show that all the respondents were Christians. The results further show that of the respondents, 44% were single, 42% married, 8% divorced, 6% widowed. Forty eight percent of the respondents were from a single-parent family while 52% had both parents in their housesholds.

Table 4.3: Distribution of respondents by religion, marital status and family type

Characteristic	Frequency	Percentage
Religion		
Christian	250	100
Marital Status		
Single	110	44
Married	105	42
Divorced	20	8
Widowed	15	6
Type of Family		
Single parents	120	48
Both parents	130	52
(n=250)		

The results in the Table 4.4 show that 68 (27%) of participants indicated that their PHC facilities were located in semi-urban areas while the majority (182; 73%) indicated that their PHC facilities were located in rural areas. Of the respondents, 23 (95.2%) were working in clinics and 12 (4.8%) were employed in health care centres. Over 47% of the PHC facilities operate between 8 and 12 hours daily.

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Table 4.4: Distribution of respondents according to location and operating hours of PHC facilities

Characteristics	Frequency (n=250)	Percentage
Location		
Semi-urban	68	27
Rural	182	73
Type of facilities where they work		
Clinic	238	95
Health care center	12	4.8
Operating hours		
8	60	24.0
12	58	23.2
24 stand-by	80	32.0
24 night duty	52	20.8
Operate on daily basis		
Yes	216	86
No	34	13.6

4.2.2 Section B: Possible Barriers to ARV Initiation at Primary Health Care Facilities in the Waterberg District

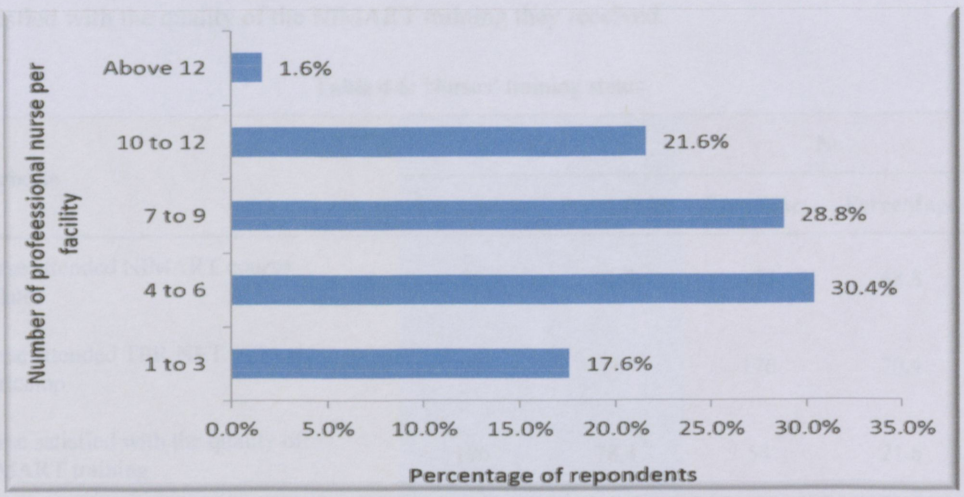
Table 4.5 shows that over 60% of the respondents had more than 5 years of experience as professional nurses and 52 % of them had less than 2 years of experience in the NIMART programme.

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Table 4.5: Respondents' experiences as a professional nurse in the NIMART programme

Characteristic	Frequency (n=250)	Percentage
Experience as a professional nurse (years)		
1 to 5	98	39.2
6 to 10	54	21.6
11 to 15	38	15.2
16 t0 20	28	11.2
21 to 25	20	8.0
above 25	12	4.8
Experience in NIMART programme (Years)		
Less than 1	45	18.0
1	85	34.0
2	68	27.2
3	30	12.0
4	22	8.8

Figure 4.2 shows that 48% of the facilities have 6 professional nurses and less than 22.2% have more than 10 nurses.



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Figure 4.2: The number of professional nurses per facility

The number of consultations varied from 0-5, while most of PHC facilities have 2 consultation rooms (39%) (Figure 4.3).

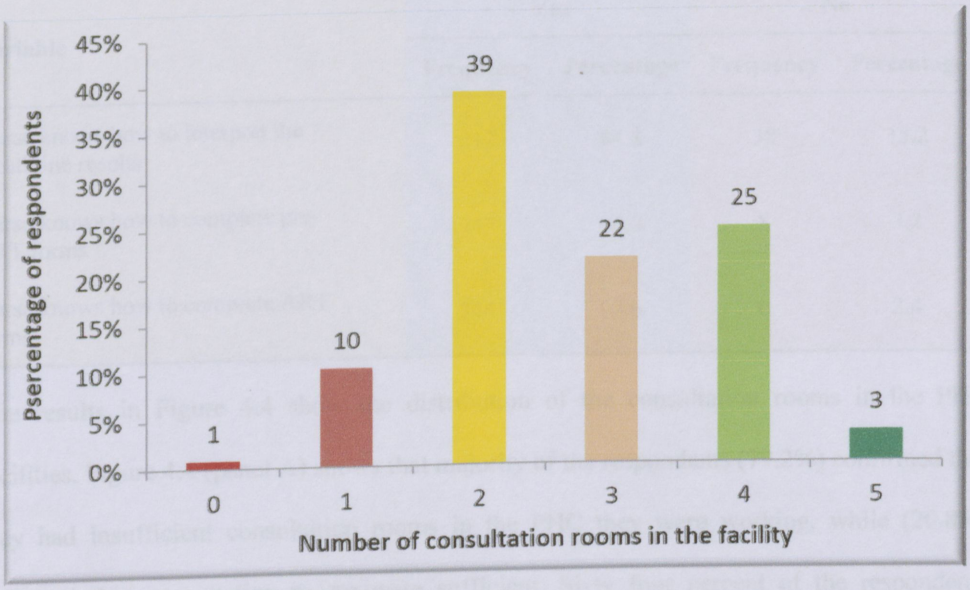


Figure 4.3: The number of consultation rooms in the PHC facilities

Table 4.6 shows the number of professional nurse who attended NIMART course updates. The result shows that 68.8% attended NIMART course updates, while 31.2% did not. The results further indicate that the majority of the respondents (70.4%) did not attend TER.NET software training, while only (29.6%) attended. Most of the respondents (78.4%) were satisfied with the quality of the NIMART training they received.

Table 4.6: Nurses' training status

Variable	Yes		No	
	Frequency	Percentage	Frequency	Percentage
Nurse attended NIMART course update?	75	31.2	175	68.8
Nurse attended TER.NET software workshop	74	29.6	176	70.4
Nurse satisfied with the quality of NIMART training	196	78.4	54	21.6

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As shown on Table 4.7, 97.6% of the respondents said they were able to complete pre-ART forms. Table 4.7 shows the distribution of the nurse according to the knowledge they have in interpreting creatinine results, completing pre-ART and ART forms.

Table 4.7: Nurses' knowledge status

Variable	Yes		No	
	Frequency	Percentage	Frequency	Percentage
Nurse knows how to interpret the creatinine results	212	84.8	38	15.2
Nurse knows how to complete pre-ART forms	242	96.8	8	3.2
Nurse knows how to complete ART forms	244	97.6	6	2.4

The results in Figure 4.4 show the distribution of the consultation rooms in the PHC facilities. Figure 4.4 (panel A) shows that majority of the respondents (79.2%) confirmed that they had insufficient consultation rooms in the PHC they were working, while (20.8%) indicated that consultation rooms were sufficient. Sixty four percent of the respondents indicated that PHC facilities do not have separate consultation rooms while 36% indicated that they had separate consultation rooms (Figure 4.4, panel B).

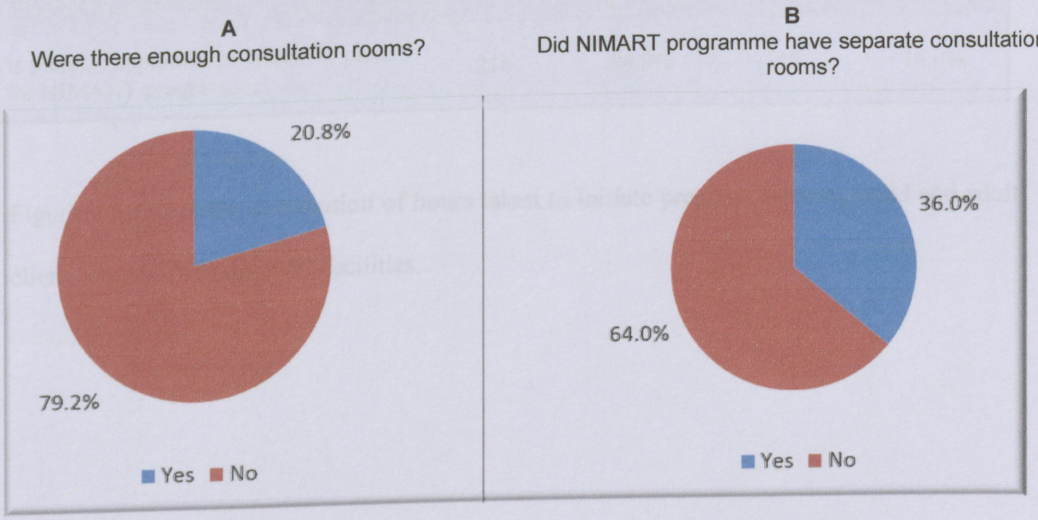


Figure 4.4: Consultation rooms in the primary health care facilities

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Table 4.8 summarizes the questions on whether there were facilities with mechanisms in place for effective running of the NIMART programme. Most of the facilities have a tracing mechanism in place (84%) while 16% have none. With regard to defaulter mechanisms in place, 8% of the respondents indicated *Yes* and 16% *No*.

Table 4.8 also shows that 96% of the respondents indicated that their facilities have a telephone to follow up on clients. Furthermore, 81.6% of the respondents indicated *Yes* to having a referral system in place and 84% have indicated *Yes* to an appointment system that is in place for the NIMART programme while 16% indicated to the contrary.

Table 4.8: Mechanisms and facilities to ensure a good quality NIMART programme

Variable	Yes		No	
	Frequency	Percentage	Frequency	Percentage
Is there a defaulter tracing mechanism in place?	20	8.0%	230	16.0%
Is there a telephone to make follow up on clients?	240	96.0%	10	4.0%
Is there a referral system in place for NIMART programme?	204	81.6%	46	18.4%
Is there an appointment system in place for NIMART programme	210	84.0%	40	16.0%

Figure 4.5 shows the distribution of hours taken to initiate pregnant woman, child and adult clients on ARVs in the PHC facilities.

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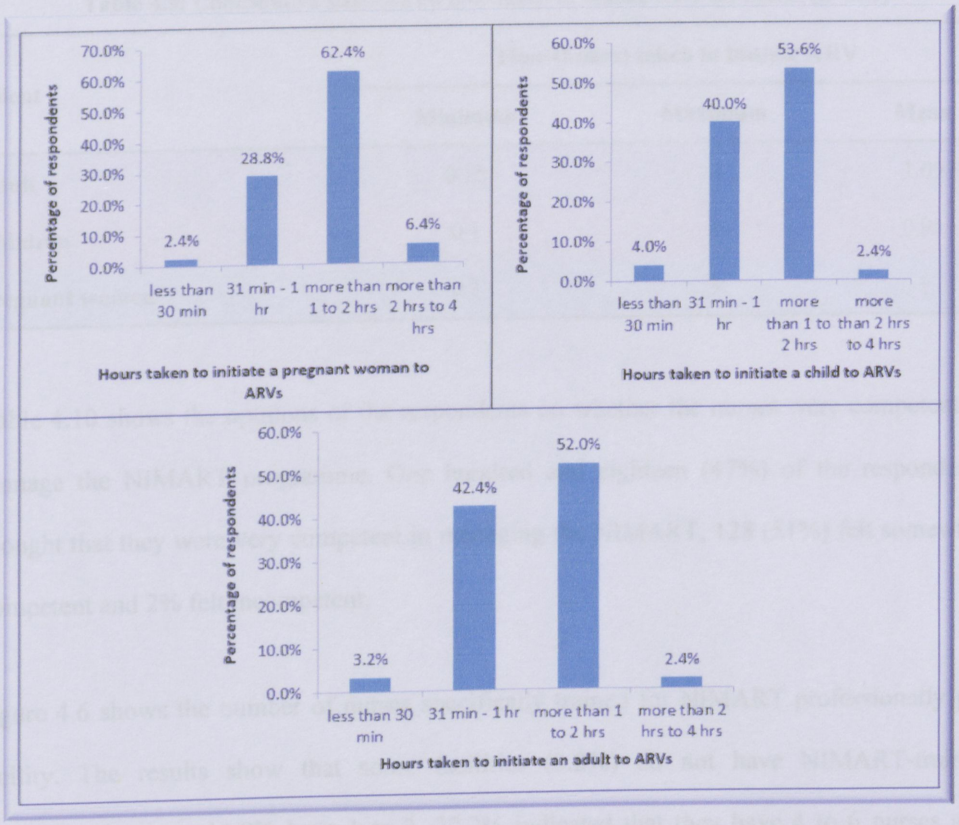


Figure 4.5: Distribution of time taken to initiate clients on ARVs

From Figure 4.5, it is clear that 3.2% of the respondents take less than 30 minutes to initiate pregnant women to ARVs, 28.8% take 30 minutes to one hour, while the majority (62.4%) take one to two hours and 6.4% take up to four hours to initiate pregnant women to ARVs.

Table 4.9 shows that the minimum hours taken to initiate clients to ARVs ranges between 6 minutes and 18 minutes while the while the mean time is about 1 hour for each client's category.

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Table 4.9: Comparative statistics on time taken to initiate ART on clients (n=250)

Client	Time (hours) taken to initiate ARV		
	Minimum	Maximum	Mean
Adult	0.25	3	1.09
Children	0.1	3	0.95
Pregnant women	0.3	3	1

Table 4.10 shows the opinions of the respondents on whether the nurses were competent to manage the NIMART programme. One hundred and eighteen (47%) of the respondents thought that they were very competent in managing the NIMART, 128 (51%) felt somewhat competent and 2% felt incompetent.

Figure 4.6 shows the number of nurses specifically trained for NIMART professionally per facility. The results show that some facilities (3.2%) do not have NIMART-trained professional nurses, 16.8% have 1 to 3, 27.2% indicated that they have 4 to 6 nurses and 48.8% indicated that they have 7 to 9 nurses. A small percentage (4.9%) said they have 10 and more NIMART-trained professional nurses. About half of the respondents (48%) have indicated that they have 7-9 nurses specifically trained for NIMART.

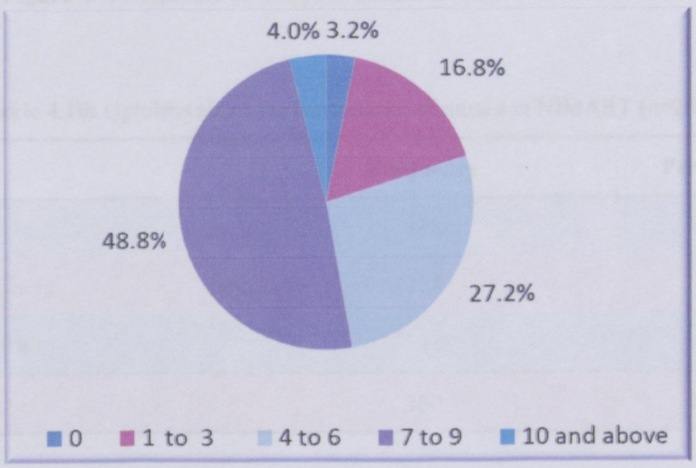


Figure 4.6: Number of NIMART professionally trained nurses per facility

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As shown in Figure 4.7, several factors were cited as barriers to initiation of ARVs in the various facilities. Amongst others the major barriers cited were heavy workload, long time durations for release of laboratory results, non-availability of ARVs and staff shortages.

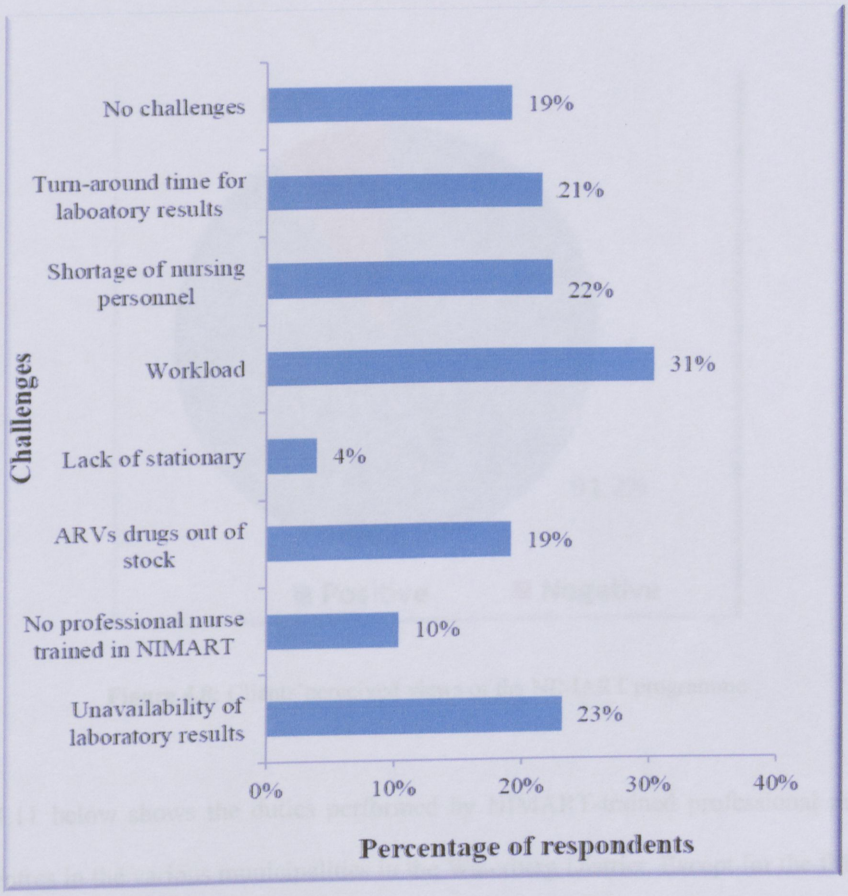


Figure 4.7: Responses on delays in initiation of ARV in PHC facilities

Table 4.10: Opinions about the competence of nurses in NIMART (n=250)

Opinion	Frequency	Percentage
Very competent	118	47%
Somewhat competent	128	51%
Not competent at all	4	2%
Total	**250**	**100%**

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Figure 4.8 shows the perceived views of clients on the NIMART programme. The result show that the majority of the respondents (91.2%) indicated that clients view NIMART programme as a positive development.

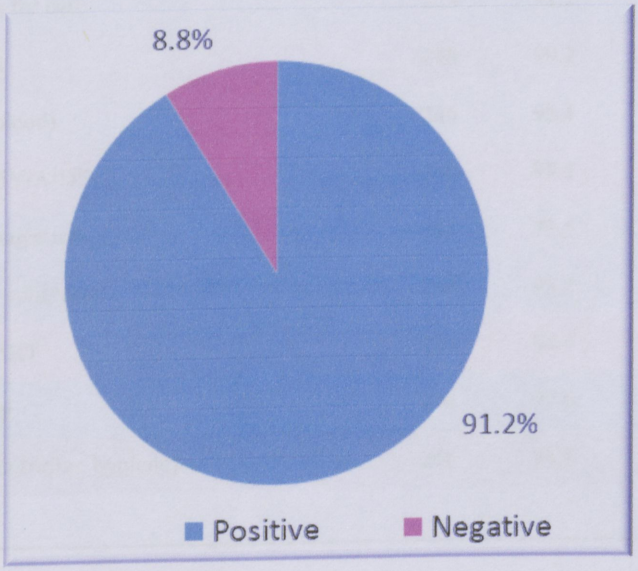


Figure 4.8: Clients' perceived views of the NIMART programme

Table 4.11 below shows the duties performed by NIMART-trained professional nurses in PHC centres in the various municipalities in the Waterberg District. Except for the filling and management where only about 74% said *Yes*, over 90% said *Yes* for all the common types of duties.

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Table 4.11: Duties performed by NIMART-trained professional nurses

Variable Description	Yes		No	
	Number	%	Number	%
Patient's registration and open file	234	93.6	16	6.4
Prioritizing patients for care	228	91.2	22	8.8
Patients assessment	248	99.2	2	0.8
Taking specimen (blood)	246	98.4	4	1.6
Health education HIV/AIDS	248	99.2	2	0.8
Filing and data management	184	73.6	66	26.4
Follow up for ART adherence	238	95.2	12	4.8
Order and receive ART	236	94.4	14	5.6
Treatment follow-up	244	97.6	6	2.4
Health education (nutrition, hygiene)	246	98.4	4	1.6

(n=250)

4.2.3 Section C: Managerial Support to NIMART Programme

This subsection deals with the support that managers provide to the NIMART programme. Over 90% of the health facilities have trained managers (Table 4.12), 73.6% of the respondents indicated that the programme received support and 92% of the facilities have relevant policies and guidelines. However, only 26.4% of the respondents said they are usually being observed by their supervisors when initiating ARVs.

Table 4.12: Respondents' views on provision of support by managers

Variable	Yes		No		Don't Know	
	Frequency	%	Frequency	%	Frequency	%
Does the NIMART programme receive support?	184	73.6	56	22.4	10	4.0
Does the facility have ARV policies and guidelines?	230	92.0	14	5.6	06	2.4
Did you once observe while initiating ARV?	66	26.4	168	67.2	16	6.4
Does the PHC facilities have NIMART trained managers?	234	93.6	16	6.4	Not Applicable	

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Table 4.13 shows the number of visits from 2010-2013 per district by assistant managers. The result shows that Bela Bela has the lowest visits (5) by assistant manager as compared to Mogalakwena with 42 visits in three years time.

Table 4.13: Cros-tabulation of districts and number of visits by assistant manager from 2010-2013

District	Number of visits by assistant manager				
	2010	2011	2012	2013	Total
Bela Bela	2	2	1	0	5
Lephalale	5	6	10	1	22
Modimolle	5	13	8	1	27
Mogalakwena	7	18	15	2	42
Mokgopong	4	6	4	0	14
Thabazimbi	3	5	2	0	10

As shown in Figure 4.9, 48% of the facilities have been visited by assistant managers supervising NIMART since its inception in 2010, while 6.4% of the respondents were not sure.

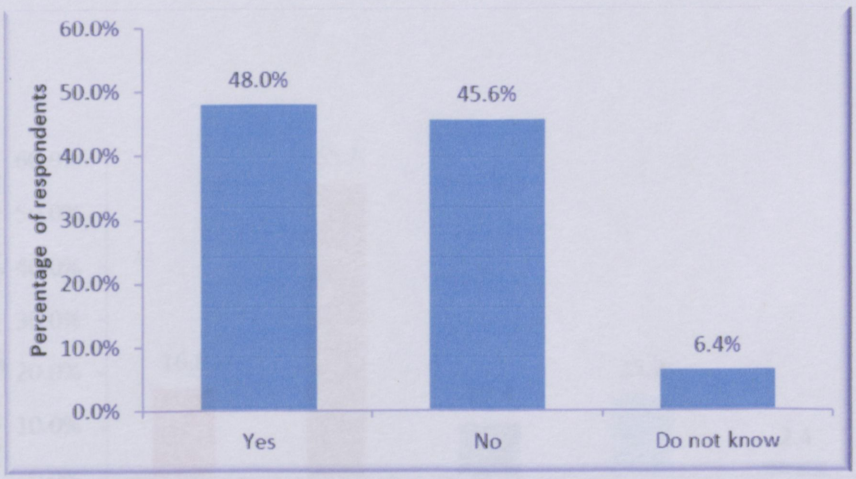


Figure 4.9: Respondents' views on assistant managers' visits to NIMART facilities

The results show that 60% of the respondents indicated that their provincial NIMART manager did not supervise the NIMART programme at all.

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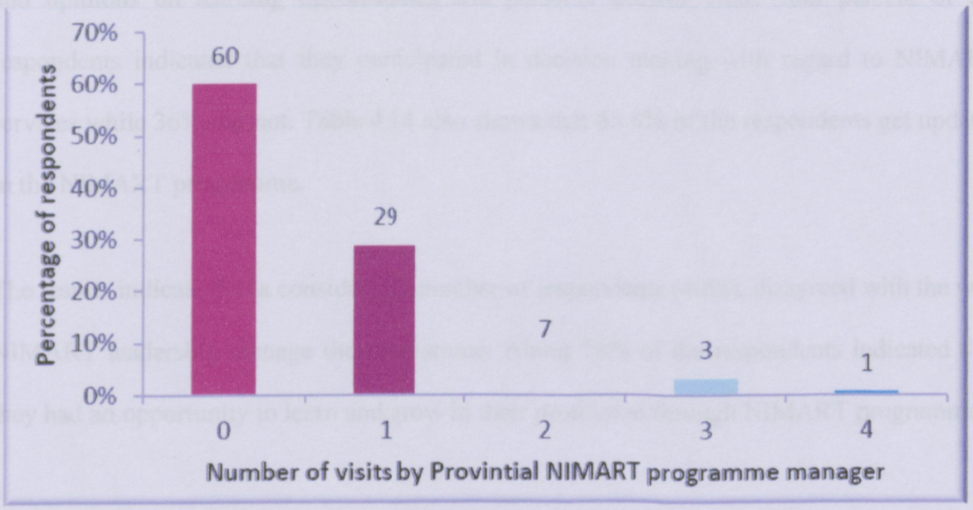


Figure 4.10: Frequency of supervision by provincial NIMART manager from 2010 to 2013

Figure 4.11 shows that 16.8% of the respondents indicated that their facilities were not working together with NGOs in the NIMART programme and 55.2% worked with a single NGO.

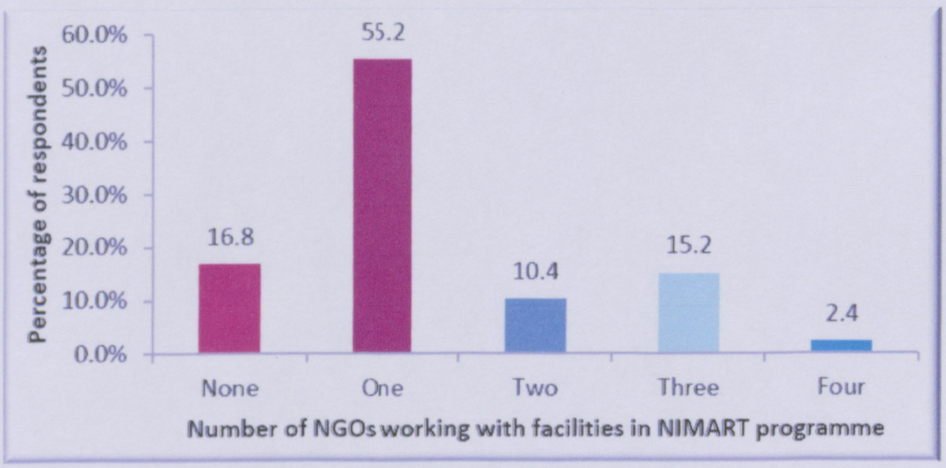


Figure 4.11: Number of NGOs working with facilities in NIMART programme

Table 4.14 summarizes nurses' participation in decisions about services, their opinions on updates on the NIMART programme, their disagreement with NIMART management style

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and opinions on learning opportunities and personal growth. Sixty four percent of the respondents indicated that they participated in decision making with regard to NIMART services while 36% did not. Table 4.14 also shows that 65.6% of the respondents get updates in the NIMART programme.

The results indicate that a considerable number of respondents (40%), disagreed with the way NIMART leadership manage the programme. About 76% of the respondents indicated that they had an opportunity to learn and grow in their profession through NIMART programme.

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Table 4.14: Distribution of nurses' views on NIMART programme

Variable	Strongly Disagree		Disagree		Not Sure		Agree		Strongly Agree	
	Number	%	Number	%	Number	%	Number	%	Number	%
I participated in decisions about how services would be provided (NIMART)	28	11.2	62	24.8	24	9.6	102	40.8	34	13.6
I received updates on the NIMART programme	28	11.2	48	19.2	10	4.0	100	40.0	64	25.6
I can openly disagree with NIMART leadership	34	13.6	66	26.4	64	25.6	56	22.4	30	12.0
I have enough opportunities to learn and grow in the programme	5	2.0	8	3.2	47	18.8	125	50	65	26.0

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4.3 Secondary Statistical Data on the NIMART Programme (2010-2013)

Results from municipalities and district offices are presented and analyzed in this section. Figure 4.12 depicts the number of HIV-positive patients from 2012-2013 in the various municipalities.

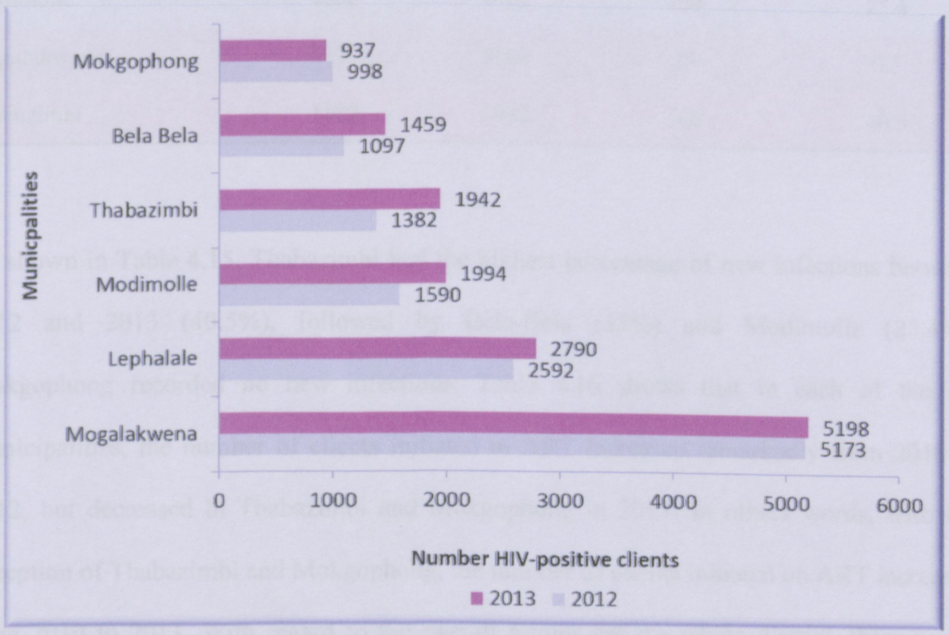


Figure 4.12: Number of HIV-positive clients in Waterberg District municipalities in 2012 and 2013

The results show that in 2012 and 2013, Mokgophong had the lowest number of HIV clients (998 and 937, respectively), while Mogalakwena has the highest number of HIV-positive clients in the same years (5173 and 5198, respectively). A comparison was made on the number of HIV-positive clients in 2012 and 2013. Table 4.15 shows the comparison of the number of HIV-positive in 2012 and 213, in order to obtain the number of new infections for 2013. The percentage of new infections computed also show a similar new trend.

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Table 4.15: Comparison of HIV clients by Municipalities for 2012-2013

Municipalities	2012	2013	New Infections	Percentage
Bela Bela	1097	1459	362	33.0
Lephalale	2592	2790	198	7.6
Mokgophong	998	937	0	0.0
Modimolle	1590	1994	404	25.4
Mogalakwena	5173	5198	25	0.5
Thabazimbi	1382	1942	560	40.5

As shown in Table 4.15, Thabazimbi had the highest percentage of new infections between 2012 and 2013 (40.5%), followed by Bela-Bela (33%) and Modimolle (25.4%). Mokgophong recorded no new infections. Table 4.16 shows that in each of the six municipalities, the number of clients initiated to ART increased remarkadly from 2010 to 2012, but decreased in Thabazimbi and Mokgophong in 2013. In others words, with the exception of Thabazimbi and Mokgophong, the number of clients initiated on ART increased from 2010 to 2013. With regard to the overall figures for the whole district, there was a steady increased in the number of HIV-positive clients initiated on ART from 2010 to 2013.

Table 4.16: Number of HIV-positive clients initiated on ART between 2010-2013

Municipality	Year			
	2010	2011	2012	2013
Thabazimbi	307	771	1493	1471
Mogalakwena	2259	3006	3234	3397
Modimolle	209	616	1082	1127
Mukgophong	258	358	419	405
Lephalale	723	1171	1638	2256
Bela Bela	787	726	775	885
Total: District	**4543**	**6648**	**8641**	**9541**

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Table 4.17 shows the number PCR-positive children initiated on ART from 2010 to 2013. The results show that Mogalakwena and Mokgophong had the highest numbers of PCR-positive children initiated on ART in 2010, 36 children each, Modimolle had the least number (2 children). The results demonstrate that in 2011 there were increases in the number of PCR-positive children initiated to ART in Thabazimbi, Modimolle and Bela Bela municipalities, while there were decreases of 6 children each for Mogalakwena and Mokgophong municipalities. There was no change for Lephalale.

Table 4.17: Number of PCR-positive children initiated on ART between 2010 and 2013

Municipalities	Year			
	2010	2011	2012	2013
Thabazimbi	4	6	4	3
Mogalakwena	36	30	34	26
Modimolle	2	4	7	17
Mukgophong	36	30	34	26
Lephalale	13	11	18	25
Bela Bela	11	6	1	1
Total: District	**102**	**87**	**98**	**98**

The number of PCR-positive children initiated on ART increased for Mogalakwena and Mokgophong, from 30 to 34, Lephalale, 11 to 18, and decreased for the other three municipalities in 2011 and 2012. In 2013, Modimolle and Lephalale recorded the highest increases in the numbers of PCR-positive children initiated on ART, Mokgophong and Mogalakwena numbers contracted from 34 to 26 children. Different municipalities show fluctuations in the numbers of PCR-positive children initiated on ART in hospitals.

Table 4.18 shows the number of patients who defaulted ARVs from municipalities. The results show that Mogalakwena had the highest number of patients who defaulted on ART of

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587, Lephalale is the second with 279 patients, Bela Bela with 137, Thabazimbi with 110, while Modimolle was the least with 39 in 2010.

Table 4.18: Patients who defaulted on ARVs between 2010 and 2013

Municipalities	Year			
	2010	2011	2012	2013
Thabazimbi	110	91	221	109
Mogalakwena	587	600	415	195
Modimolle	39	75	147	71
Mokgophong	99	135	280	25
Lephalale	279	380	20	162
Bela Bela	137	110	81	31
Total: District	**1251**	**1391**	**1164**	**593**

The results show that defaulting on ART was a common practice among patients in the three municipalities with high numbers of defaulting patients. Mogalakwena and Lephalale had high increases in the numbers of patients who defaulted ART in 2011 like the previous year (2010). For 2012, only Thabazimbi had an increase in the number of patients who defaulted on ART (91-221), while Mogalakwena remained the municipality with the highest number of defaulters on ART (415).

The results for 2013 (Table 4.18) depict a marked drop in the number of patients who defaulted on ART in all municipalities in the Waterberg District. However, Mogalakwena still tops the list of defaulters with 195 patients, Lephalale with 162 patients and Thabazimbi with 109 patients and Bela Bela with 31 patients. Overall, there were fluctuations in the trend in defaulting on ART in the district from 2010 to 2013.

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Table 4.19 show a rise in the number of deaths of clients from 2011-2014 while on ART in all the municipalities. A number of clients who were on ART died between 2010 and 2013. The results show that all the municipalities lost patients who were on ART through deaths. Mogalakwena recorded 31 deaths, Bela Bela recorded 30 deaths, Lephalale recorded 13, Mokgophong, 10, Thabazimbi, 5 and Modimolle recorded the least number of deaths, in 2010.

Table 4.19: The number of deaths of ART clients in all the municipalities between 2010 and 2013

Municipality	Year			
	2010	2011	2012	2013
Thabazimbi	5	8	14	1
Mogalakwena	31	50	55	8
Modimolle	2	11	10	6
Mukgophong	10	5	3	2
Lephalale	13	21	12	7
Bela Bela	30	18	16	6
Total: District	**91**	**113**	**112**	**30**

The results also show a rise in the number of deaths of clients in 2011 while on ART in all the municipalities. Mogalakwena and lephalale had the largest numbers of deaths, 50 and 21, respectively, while figures recorded for Mokgophong were still the least with 5 deaths in 2011. Results for 2012 show a mixed change in the number of deaths in the municipalities. Mogalakwena and Thabazimbi had an increase in the number of deaths of clients who were on ART. In the other four districts, the number of deaths of patients who were on ART reduced. Bela Bela and Lephalale experienced a drastic reduction in the number of deaths of patients on ART. The number of deaths of patients in Mogalakwena reduced from 41 to 16, and Lephalale reduced from 21 to 16.

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In 2013, all municipalities recorded reduced numbers of deaths for patients who were on ART. In Mogalakwena, the number of deaths dropped from 55 to 9, Bela Bela, 16 to 6, Lephalale, 14 to 7, Thabazimbi. 15 to 1, Modimolle 10 to 6 and Mokgophong 3 to 2.

Figure 4.13 shows the distribution of clients initiated on ARVs at the PHC facilities and hospital between 2010 and 2013. The total number of clients initiated on ART increased gradually from 457 in 2010 to 9541 in 2013 at the PHC facilities. On the other hand, clients initiated on ARVs at the hospital decreased from 2011 to 2013.

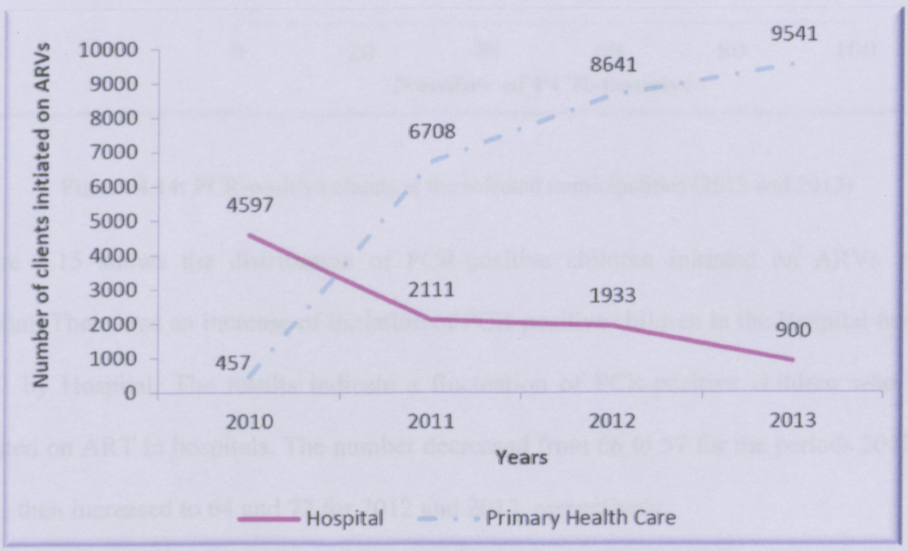


Figure 4.13: Adult HIV clients initiated on ART between 2010 and 2013

For PCR, data for 2010 and 2011 were missing from the Waterberg District offices, only data for 2012 and 2013 were available. In 2012, 96 PCR were positive while in 2013 there were 150, an increase of 54 (56.3%) infections (Figure 4.14). The results show that for both years, Mogalakwena had the highest number of PCR-positive 49 and 86 respectively, followed by Lephalale and Modimolle. Bela Bela and Mokgophong had smallest number of PCR-positive. There was a decrease in the number of PCR-positive for Bela Bela and Mokgophong.

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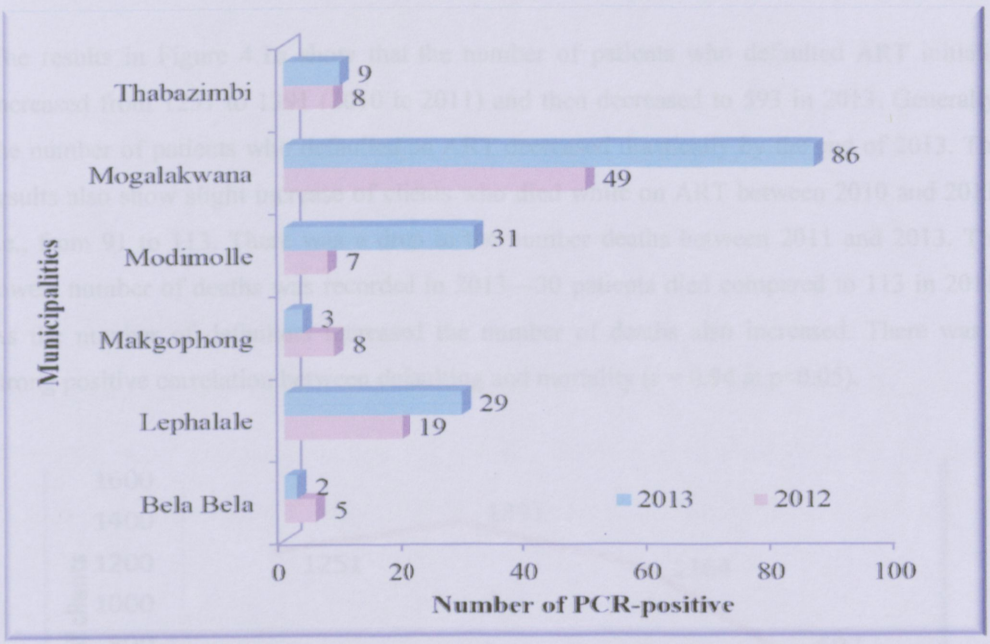


Figure 4.14: PCR-positive clients at the selected municipalities (2012 and 2013)

Figure 4.15 shows the distribution of PCR-positive children initiated on ARVs at the hospital. There was an increase of initiation of PCR-positive children in the Hospital from 64 to 72 by Hospital. The results indicate a fluctuation of PCR-positive children who were initiated on ART in hospitals. The number decreased from 66 to 57 for the periods 2010 and 2011, then increased to 64 and 72 for 2012 and 2013, respectively.

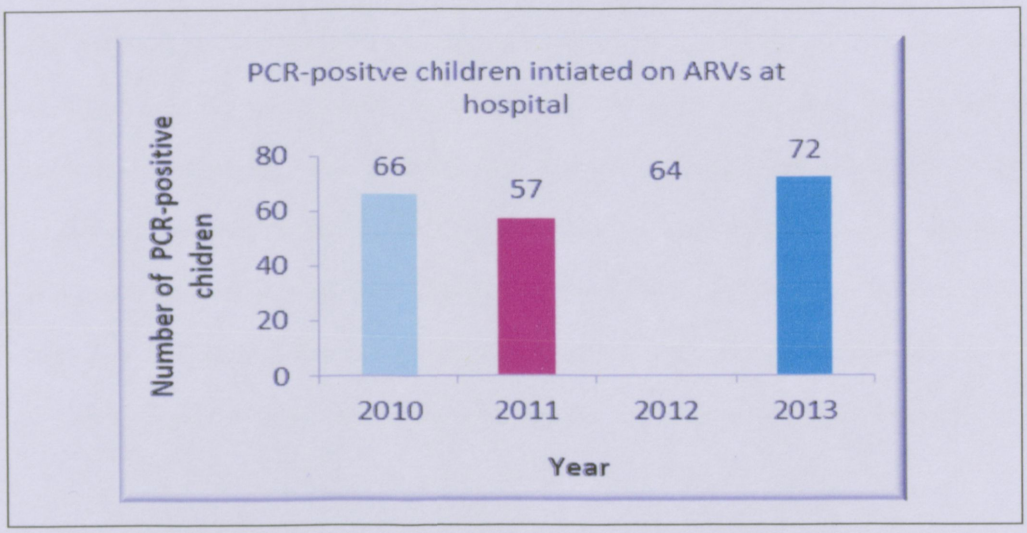


Figure 4.15: PCR-positive clients initiated on ARVs at the hospital

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The results in Figure 4.16 show that the number of patients who defaulted ART initially increased from 1251 to 1391 (2010 to 2011) and then decreased to 593 in 2013. Generally, the number of patients who defaulted on ART decreased drastically by the end of 2013. The results also show slight increase of clients who died while on ART between 2010 and 2011, i.e., from 91 to 113. There was a drop in the number deaths between 2011 and 2013. The lowest number of deaths was recorded in 2013—30 patients died compared to 113 in 2011. As the number of defaulters increased the number of deaths also increased. There was a strong positive correlation between defaulting and mortality ($r = 0.94$ at $p<0.05$).

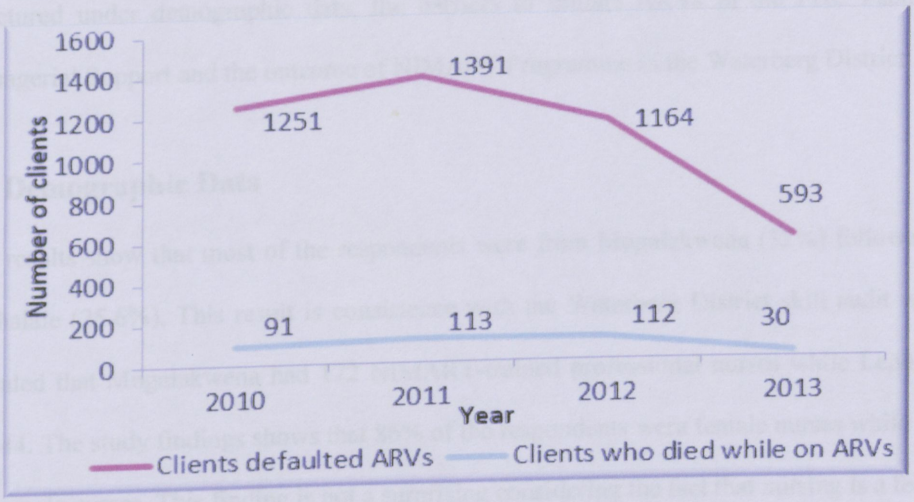


Figure 4.16: ART defaulting clients and those who died while on ART

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CHAPTER 5

DISCUSSION OF THE FINDINGS

5.1 Introduction

The purpose of this chapter is to discuss the findings of the study. The discussion is structured under demographic data, the barriers to Initiate ARVs in the PHC Facilities, Managerial Support and the outcome of NIMART Programme in the Waterberg District.

5.2 Demographic Data

The results show that most of the respondents were from Mogalakwena (32%) followed by Lephalale (25.6%). This result is consistence with the Waterberg District skill audit which revealed that Mogalakwena had 172 NIMART-trained professional nurses while Lephalale had 44. The study findings shows that 86% of the respondents were female nurses while 14% were male nurses. This finding is not a surprising considering the fact that nursing is a female dominated profession. The results show that 44% of the respondents were single.

The results show that majority of the respondents (198, 79%) have diploma certificate while, 42 (17%) held degree certificate, while 10 (4%) held higher certificates. The educational level of the respondents was generally low considering the fact that only about 3% had honours degree and 1% had master's degree. This low level of educational attainment is likely to have negative influence on the NIMART programme. According to Johnson (1988), there is a significant difference in communication skills, knowledge, problem solving and professional role between employees with degrees as compared to those with diplomas.

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The study findings show that PHC facilities have fewer professional nurses. This implies that the initiation of ARVs at the PHC facilities might not be done in the required period. According to Joubert (2009), the four SA provinces that experience the greatest shortages are Mpumalanga, Limpopo, Northern Cape and Eastern Cape. This study shows that 39.2% of the respondents have experience between 1 and 5 years. This implies that a large proportion of respondents have a good number of years of experience which is very important for the outcome for the programme. The majority of the respondents were knowledgeable in NIMART and their experiences played an important role in the initiation of ARVs in the PHC facilities. Any delays in initiation of ARVs might therefore not be attributed to lack of experience, but to other factors.

The majority of primary health facilities (86.4%) operate during the day and over the night through standby only. This suggests that health facilities were not accessible and could translate to delay initiation to ARVs of individual clients who visited the clinics during the night. The study findings show that 238 respondents (95.2%) indicated that they were working in the clinics and 12 (4.8%) in the health care center. The majority of PHC facilities in the Waterberg District are clinics and were located in rural areas. In rural areas there are always challenges of transport for the clients to make follow-ups before initiation to ARVs. Therefore, the location of the PHC facilities was a barrier to ARV initiation.

Compounding this were the beliefs of the clients in which these facilities were located. Clients in rural areas tend to believe more in traditional healers than western medicine. According to Mngqundaniso and Peltzer (2008), traditional healers play an important role in the prevention of sexually transmitted infections (STIs), including HIV, and provided care and treatment especially in rural setups or low-income earning groups in SA. This notion was emphasized by the DoH (2004), namely, that the continuum of care developed for the HIV/AIDS care and treatment programme should involve traditional health practitioners as an essential and irreplaceable component of the comprehensive care provided.

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5.3 Barriers to Initiate ARVs in the PHC Facilities

A multiplicity of factors lead to delays in the initiation of ARVs in the PHC facilities in the Waterberg District.

- Workload had a slightly higher impact than other factors. Most of the respondents complained about workload due to the NIMART programme with its excessive paperwork and administrative obligations. PHC facilities face challenges with workload and capacity constraints, and logistical and infrastructural challenges (George *et al.,* 2012). According to Davies, Homfray and Venables (2013), NIMART nurses and facility and district managers expressed frustration and disappointment because extra human resources, perceived as essential, had not been forthcoming. Reporting widespread professional nurse shortages, nurses described struggling to cope with the workload as a result of their additional NIMART responsibilities.

- The majority of the PHC facilities offer integrated HIV services. According to Warren, Ndwiga, Abuya, Kivunaga, Kikuvi, and Oteba (2012), integration of HIV services was found to be a feasible and effective method in capacity building among HIV service providers and those rendering family planning and postnatal care.

- It took, on average, 1.1 hours to initiate a pregnant woman to ARVs. This result is consistent with that reported by Davies, Homfray and Venables (2013) who found that it took about an hour to initiate ARVs to the clients. On average, there was little difference in the time taken to initiate any type of client (pregnant woman, child and adult) to ARVs.

- Most of the PHC facilities had more than one consultation room. However, 79% of the respondents indicated that there were insufficient consultation rooms for use in the initiation of ARVs. Insufficient consultation facilities might be a barrier to

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implementing the NIMART programme on a large scale. Professional nurses comments for not initiating ARVs included lack of consultation rooms (Cameron, Gerber, Mbatha, Mutyabule and Swart, 2012).

- Updates courses were reported to be insufficient. Attendance of NIMART update courses (68%) is likely to be an influential barrier for nurses to learn new developments of the NIMART programme. Currently, the DoH has not yet developed the NIMART course update. Non-attendance of TER.NET software workshop by nurses is a major barrier in the management of ART data as the software is used in the data capturing process and compilation of month-end reports. The professional nurse cannot effectively monitor data capturers, implying that inaccurate data could be captured and collated, resulting in poor and inaccurate reports. NIMART updates were also found to be insufient. Only few of the professional reported having received update training which has a negative influence on the programme.

- The majority (96.8%) of the respondents were proficient in filling out pre-ART forms—therefore delays in ARV initiation might not be dependent on the ability of nurses to complete pre-ART forms.

- Defaulter tracing mechanisms were not in place in the PHC facilities. The results shows that 593 clients defaulted treatment at the end of 2013. The majority of the facilities (96%) had telephones for follow-up of clients. The majority (84%) of the facilities had referral systems for NIMART clients, implying that all complicated cases could be referred for further management which is very important to reduce the HIV/AIDS mortality rate, which is borne out by this study in that only 30 clients died while on ART.

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- The number of professional nurses per facility was generally low making it impossible for PHC facilities to operate for 24 hours. This implies that the number of professional nurses per facility was a barrier to initiation of ARVs in the Waterberg District. According to HST (2010), Limpopo Province has 365 professional nurses per 100,000 population, making it the fourth province with the highest shortage of professional nurses. It was also found that the number of NIMART-trained nurses in each facility was generally low, 3 to 5 NIMART nurses in each facility. According to Fairall *et al.,* (2012), shortage of professional nurses was seen as a critical issue in all PHC facilities. SA is a middle-income country whose health system is struggling to retain sufficient numbers of skilled health workers in the public sector thereby experiencing acute shortages of PHC workers (Daviaud & Chopra, 2008. This leaves the PHC facilities understaffed and this has a negative effect on the initiation of clients to ARVs. According to Fairallet *et al.* (2012), PHC facilities is facing shortages of staff which should be seen as critical issue in all sites. According to WHO (2011), globally, more than 4 million nurses are required than are currently available.

- Operating hours in primary health care were reported to be insufficient, due to the shortage of nursing staff in the province, the majority of health facilities (86.4%) were almost always open every day, but did not offer sufficient services to the clients. Therefore, this meant that PHC facilities were accessible yet failed to initiate all ARVs eligible clients.

- The shortage of nurse also leads to nurses to perform all tasks in the NIMART programme. This is further compounded poor distribution of duties in the PHC in the district. Duplication of duties in PHC facilities causes delays in ARV initiations. STRETCH was proposed due to increased workload where data capturers performed basic nursing duties, e.g., weighing patients.

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- According to the participants patients gave positive views regarding the NIMART programme. Magoro, Hoque and van der Heever (2012) indocated that satisfied patients are more likely to comply with the stringent requirements of taking ART, including taking it for the rest of their lives, not missing scheduled ART appointments, adhering to the treatment, and leading a healthy life style. This, in turn, will be associated with good treatment outcomes. Therefore, in this case clients' satisfaction in the NIMART programme had a positive outcome of the NIMART programme. According to Colvin *et al.* (2010), many reports show that NIMART bring many positive results.

5.4 Managerial Support for the NIMART Programme

The managerial support was found to be lacking in most PHC facilities. Although the majority of the NIMART-trained professional nurses received support, a considerable number was not supported. It was reported that not all assistant managers who visited the PHC facilities supervised the NIMART programme. With regards to provincial managers, it was reoorted that they rarely support the programme.

Only a small percentage of NIMART-trained professionals were observed by managers while initiating ARVs. According to Cohen *et al.* (2009) and Jones *et al.* (2012), mentorship by skilled staff in HIV management is one of the challenges in the NIMART programme. However, all PHC facilities had NGOs assigned to support programme. According to Michel *et al.* (2013), the SA government hired three NGOs due to ineffectiveness of government to respond on HIV treatment and care. Colvin *et al.* (2010) also found that NIMART benefited from the substantial NGO support.

Other problems identified included the fact that the extent to which nurses participated in decision making with regard to the NIMART programme was limited. This is confirmed by

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study conducted by Swart *et al.* (2010) where doctors remained predominantly taking charge in decision-making around HIV and care issues.

5.5 Outcomes of the NIMART Programme in the Waterberg District

The implementation of programme showed improvement on the management of HIV in the District. Many HIV clients received their ARVs from primary health care facilities which also decrease deflauter rate and mortality rates. The number of deaths of patients on ARVs increased from 2010 to 2012, and then dropped sharply in 2013. The number of deaths of patients on ART increased from 2010 to 2012, and subsequently dropped sharply in 2013. The number of clients initiated on ART from hospital also decreased drastically from 4597 in 2010, to 900 in 2013.

The improvement was also observed in PCR screeing for children. However, the hospitals still play an important role in initiation.

Dispite the improvement in the NIMART programme, the mobile clinics are still not offering ARVs services which may still affect the programme. Patients residing in areas where there are no fixed clinics are still expected to consult far.

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CHAPTER 6

SUMMARY, CONCLUSIONS AND RECOMMENDATIONS

6.1 Summary

The study shows that most of the respondents were from Mogalakwena, followed by Lephalale. It was found that as the number of years of experience increases, the number of respondents also decreased. Respondents were knowledgeable in NIMART and had considerable experience. The number of professional nurses per facility was low. The majority of PHC facilities (86.4%) operated during the day and over the night through standby every day. The majority of the PHC facilities were located in rural areas.

The majority of the nurses (90% to 99%) performed all tasks required in the NIMART programme. The majority of the PHC facilities offer integrated HIV service. A considerable number of respondents (35.2%) was not interested in the NIMART programme. Nurses' lack of interest in NIMART programme was a barrier in the initiation of ARVs. It took, on average, 1.1 hours to initiate a pregnant woman to ARVs. PHC facilities had more than one consultation room. However, 79% of the respondents indicated that there were insufficient consultation rooms for use in the initiation of ARV. The NIMART programme does not have course updates which is likely to be an influential barrier to nurses wanting to learn new developments of the NIMART programme. Professional nurses were not sufficiently trained in monitoring and supervising data capturing with the TER.Net software.

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All professional nurses have knowledge on interpreting creatinine results, filling pre-ART forms. Most of PHC facilities did not have mechanisms in place to trace defaulters. The majority of the PHC facilities (96%) had telephones for follow-up of clients. The majority (84%) of the facilities had referral systems for NIMART clients. Failure to resolve challenges in NIMART initiation by some managers is a barrier to the effective NIMART programme in the Waterberg District.

The number of professional nurses per facility was generally low making it impossible for PHC facilities to operate at full capacity for 24 hours. It was found that the number of nurses in each facility was generally low, 3 to 5 NIMART nurses in each facility. Patients'views on the NIMART programme was a positive development. The majority of PHC facilities had NIMART-trained operational managers. NIMART-trained professional nurse were not observed while initiating ARVs.

PHC facilities had ARV policies. Assistant, district and provincial managers do rarely supervise the NIMART programme. PHC facilities assigned NGOs to support NIMART programmes. Professional nurses are not involved in decision making with regard to the NIMART programme. NIMART-trained professional nurse got updates on NIMART programme. NIMART professional nurses could openly disagree with the NIMART management. NIMART programme provided nurses with an opportunity to learn and grow within the nursing profession.

The number of clients initiated on ART at hospital dropped drastically from 4597 in 2011 to 900 in 2013. The number of clients initiated on ARVs at the PHC facilities increased gradually in all municipalities. Mogwalakwena recorded the initial high

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increase, but this increase was surpassed by Thabazimbi and Lephalale. This was due to the fact that PHC facilities started to initiate ARVs as from 2010. The number of patients who defaulted on ART decreased drastically between 2011 and 2013. Initiation of children who were PCR-positive on ART has been effectively done in all municipalities as indicated by the responses made to the programme. However, the hospitals played an important role in initiation.

Municipalities experienced a number of patients who defaulted on ART from 2010 to 2013. The number of deaths of patients on ARVs increased from 2010 to 2012, and then dropped sharply in 2013. PHC facilities are not doing well in initiation children to ART. PHC facilities did not initiate PCR-positive children to ART. Only hospitals did this. ART is not offered in all Waterberg District mobile clinics.

6.2 Conclusions

Although the NIMART programme is effective, the programme is encountering numerous challenges, including human resources, managerial support, health systems issues and clinical mentoring. Increased responsibilities associated with NIMART implementation increases the workload in PHC facilities. PHC facilities reduced the burden of workload from the hospital and doctors in initiation of ARVs. The hospital would have initiated 34,885 clients, but due to the NIMART programme, the hospital initiated only 9541, while PHC initiated 25,347. PHC facilities managed to initiate 9% of total number of clients on ARVs in 2010, 76% in 2011 and 81% in 2013 in the Waterberg District

Although the implementation of NIMART is complex, when NIMART is implemented well, access to ARVs is increased and patients become interested in the

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programme. Support, evaluation and monitoring interventions which address the NIMART challenges faced by nurses providing NIMART need to be implemented. Attempts should be made to strengthen positive aspects of NIMART implementation.

The number of clients who died while on ARVs declined from 1164 in 2012 to 593 in 2013—this shows the effectiveness of NIMART programme in reducing mortality and defaulter rate. The number of clients who defaulted declined from 112 in 2012 to 30 in 2013. Other achievements by the programme included empowerement of staff.

However, the study failed to determine the number of clients eligible and initiated for ARVs as the statictis did not include clients with CD counts less than 350.

Although the NIMART programme shows positive effect HIV management, there are still some logistic issues that need attention to strengthen the programme.

6.3 Recommendations

In order to render the NIMART programme to be more effective, the following recommendations are made:

- Assistant, district and provincial managers should provide support for the NIMART programme including providing the strategic leadership.
- Regular workshops to be conducted for staff responsible for NIMART programme.
- There is a need for the Limpopo Province DoH to develop strategies to recruit more professional nurse to PHC facilities.

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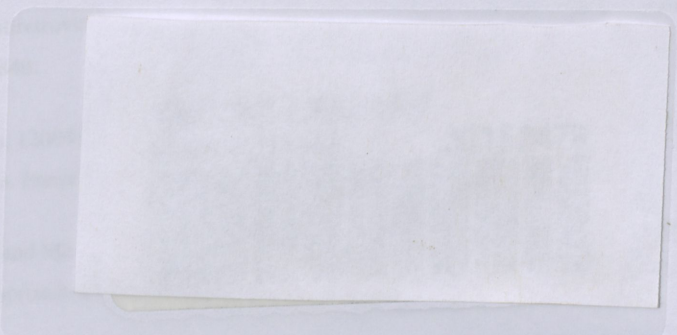
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- The Waterberg District should develop an intervention plan for reorganizing operational hours.

- Limitations of using paper records should be recognized and data management processes should be migrated to electronic register systems. The DoH should devise strategies on reducing the paper work at PHC facilities.

- At least two to three professional nurses in each PHC facility must be trained on the TER.NET software.

- The DoH should capacitate and strengthen child ARV initiation at PHC facilities through mentorship programmes.



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APPENDIX 1

REQUEST FOR PERMISSION TO CONDUCT THE STUDY

Mr. Mbedzi M M
P.O box 488
Tshifudi
0979
06/08/2014

Limpopo Province
Department of Health
Private Bag x9302
Polokwane
0700

THE HEAD OF DEPARTMENT

REQUEST FOR PERMISSION TO CONDUCT RESEACH

I am a Masters of Public Health student at the University of Venda, School of Health Sciences. I am requesting the Department of Health to grant me permission to conduct my study at the Waterberg District. The study will involve interviewing all NIMART trained professional nurses and obtaining information from the Waterberg District Information System of the Waterberg District (DHIS). A copy of my proposal and Ethical clearance certification from the University of Venda are attached in order to provide details of the study.

Research details:

Research Topic : An Evaluation of The Effectiveness of Nurse Initiated And Managed Antiretroviral Treatment (NIMART) Programme, Waterberg District, Limpopo Province.

Purpose of the study: To evaluate the effectiveness of nurse initiated and managed antiretroviral treatment (NIMART) programme, implemented in the Waterberg District.

Institution : University of Venda
Research : Mbedzi Mashudu Melton
Study duration : October to December 2014
Working place : Anglo American, Thabazimbi, Kumba Mine
Occupation : Wellness Coordinator

I hope my application will be taken into consideration.

06/08/2014

Yours faithfully
Mbedzi M M

Contact number: 072 234 6448
email address: mbedzy@vodamail.co.za

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APPENDIX 2

PERMISSION TO CONDUCT THE STUDY

LIMPOPO
PROVINCIAL GOVERNMENT
REPUBLIC OF SOUTH AFRICA

DEPARTMENT OF HEALTH

Enquiries: Latif Shamila

Ref:4/2/2

Mbedzi MM
University of Venda
Private Bag X5050
Thohoyandou
0950

Greetings,

An evaluation of the effectiveness of Nurse Initiated and Managed Antiretroviral Treatment (NIMART) programme, Waterberg District , Limpopo Province.

The above matter refers.

1. Permission to conduct the above mentioned study is hereby granted.
2. 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.
   - The above approval is valid for a 3 year period.
   - If the proposal has been amended, a new approval should be sought from the Department of Health.

Your cooperation will be highly appreciated.

Head of Department

12/01/2014
Date

18 College Street, Polokwane, 0700, Private Bag x9302, POLOKWANE, 0700
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APPENDIX 3

APPLICATION FOR ETHICAL CLEARENCE

Mr. Mbedzi M M
P.O box 488
Tshifudi
0979
02/09/2013

University of Venda
Private Bag x5050
Thohoyandou
0950

Ethical clearance committee
University of Venda

APPLICATION FOR ETHICAL CLEARENCE

I, MbedziMashudu Melton, hereby request the University of Venda Ethical Clearance Committee to approve and authorise my research proposal.

RESEARCH DETAILS:

Research Topic: An Evaluation Of The Effectiveness Of Nurse Initiated And Managed Antiretroviral Treatment (NIMART) Program, Waterberg District, Limpopo Province.

Department: Public Health
School: Health Sciences
Researcher: Mbedzi Mashudu Melton
Research Supervisor: Prof. H.A Akinsola
Co-supervisor: Ms. J.T Mabunda

Study duration: 2013 and 2015

I hope my application will be taken into consideration.

02/09/2013

Yours faithfully

Mbedzi M M

Contact number: 072 234 6448
email address: mbedzy@vodamail.co.za

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APPENDIX 4

ETHICAL CLEARENCE CERTIFICATE

RESEARCH AND INNOVATION
OFFICE OF THE DIRECTOR

NAME OF RESEARCHER/INVESTIGATOR:
Mr MM Mbedzi

Student No:
11531063

PROJECT TITLE: **An evaluation of the effectiveness of Nurse Initiated and Managed Antiretroviral Treatment (NIMART) programme, Waterberg District, Limpopo Province.**

PROJECT NO: SHS/14/PH/08/2807

SUPERVISORS/ CO-RESEARCHERS/ CO-INVESTIGATORS

NAME	INSTITUTION & DEPARTMENT	ROLE
Prof A Olukoga	University of Venda	Supervisor
Ms JT Mabunda	University of Venda	Co-supervisor
Mr MM Mbedzi	University of Venda	Investigator - Student

ISSUED BY:
UNIVERSITY OF VENDA, RESEARCH ETHICS COMMITTEE

Date Considered: July 2014
Decision by Ethical Clearance Committee Granted
Signature of Chairperson of the Committee: .....
Name of the Chairperson of the Committee: Prof. G.E. Ekosse

University of Venda
PRIVATE BAG X5050, THOHOYANDOU, 0950, LIMPOPO PROVINCE, SOUTH AFRICA
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APPENDIX 5

INFORMED CONSENT FORM

I, Mbedzi Mashudu Melton, a post-graduate student at the University of Venda, am currently doing Masters in Public Health, under the school of Health Sciences, in the Department of Public Health.

I am conducting a research, evaluating the NIMART programme implemented nationally in the Department of Health Care facilities. However, the research will focus on Waterberg District.

I would like you to participate in the study. I assure you that all the information you provide will remain confidential. Your participation in this study is voluntary and your decision to take part in it will have no negative impact on your employment and you are free to withdraw at any time. Your valuable information will assist in improving the programme. Be honest when responding to the questions.

The University will not answer any question related to the study.

Researcher's contact number: 072 234 6448
Co-supervisor's contact number: 015 962 8000
Supervisor's contact number: 015 962 8000

I have read the consent form of this questionnaire thoroughly; therefore I agree to participate in the study.

....
Name of volunteer **Signature**

....
Place **Date**

....
Witness **Date**

Statement by the Researcher

1. I provided verbal and written information regarding this study.
2. I agree to answer any future questions concerning the study as best as I am able.
3. I will adhere to the approved protocol.

....
Name of Researcher **Signature**
(Mbedzi Mashudu Melton)

.....
Date

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APPENDIX 6

QUESTIONNAIRE

Facility Name: .....

Purpose of the study: .....

- Thank you for taking the time to complete this questionnaire today.
  - There is no need to record your names, your participation is anonymous.
  - There is no right or wrong answer, the study wants to evaluate NIMART programme and your insight about it, positive and negative.
- This questionnaire will last for approximately 50 minutes. The purpose of this questionnaire is to evaluate the effectiveness of NIMART programme, including what has worked and where the opportunities for improvement exist.
- The findings will help to inform how best to implement human resource policies and processes that support the effective and consistent way of programme implementation.
- **Specifically, the objectives are the following:**
  - To *(From question 2-16, Mark with an (X) in an appropriate* box) evaluate the outcome of nurse-initiated-and-managed antiretroviral treatment (NIMART) programme in the Waterberg District.
  - To analyze the barriers in the initiation of antiretroviral treatment in Waterberg District.
  - To evaluate the support from managerial personnel on nurse-initiated-and-managed antiretroviral treatment (NIMART) programme in Waterberg District.
- **Here are a few details about this questionnaire:**
  - There is no need to record your names, your participation is anonymous.
  - There is no right or wrong answer, the study wants to evaluate NIMART programme and your insight about it, positive and negative.
  - This questionnaire will last for approximately 50 minutes.
- I am aware that if I feel that I am no longer interested during the process of answering, I will withdraw from participating.

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SECTION A

POSSIBLE BARRIERS IN THE INITIATION OF ARVS AT PRIMARY HEALTH CARE FACILITIES IN THE WATERBERG DISTRICT

1. How many consultation rooms do you have? *Please specify:* .....

(From question 2-16, Mark with an 'X' in an appropriate box)

No.	Variable	Yes	No	Don't Know
2.	Does the facility have enough consultation rooms?			
3.	Does the NIMART programme have separate consultation rooms?			
4.	Does the facility initiate patients on ART on daily basis?			
5.	Did you once attend NIMART course update?		N/A	N/A
6.	Did you attend TER.NET? Software workshop?		N/A	N/A
7.	Are you satisfied with the quality of the NIMART training?			
8.	Do you know how to interpret creatinine results?			
9.	Do you have knowledge on how to complete ART forms?			
10.	Do you have knowledge on how to complete pre-ART forms?			
11.	Is there a mechanism of defaulter tracing in place?			
12.	Is there a telephone to follow-up clients?			
13.	Is there a referral system and is it in place, patients to home-based care?			
14.	Is there an appointment system in place for NIMART clients?			
15.	Does the facility sometimes encounter a delay on initiating patients on ART?			
16.	When there are challenges with initiation of ARVs does the manager address it immediately?			
17.	How many NIMART trained professional nurse do you have? *Please specify:*.....			

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18. Delay in initiation of ARVs in your facility is due to: .....

(Mark with an 'X' in an appropriate box, you can tick more than one answer)

i.	Laboratory result not available	1.	
ii.	No professional nurse trained NIMART	2.	
iii.	ARV drugs out of stock	3.	
iv.	Lack of stationery (files and forms)	4.	
v.	Work load	5.	
vi.	Shortage of nursing personnel	6.	
vii.	Turnaround time for laboratory results	7.	
viii.	No NIMART trained professional nurse	8.	

19. In your opinion, how competent are nurses in NIMART?

(Mark with an 'X' in an appropriate box, you can tick only one answer)

a.	Very competent, expertly	
b.	Somewhat competent	
c.	Not competent at all	
d.	Other, *Specify*	

20. What have you heard patients say about the NIMART programme?

(Mark with an 'X' in an appropriate box, you can tick only one answer)

a.	Positive	
b.	Negative	

(From question 21-30, Mark with an 'X' in an appropriate box)

No.	Variable	Yes	No	Don't Know
21.	Patient's registration and open file			
22.	Prioritizing patients for care			
23.	Patients assessment			
24.	Taking specimens (blood)			N/A

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No.	Variable	Yes	No	Don't Know
25.	Health education HIV/AIDS			
26.	Filling and data management			N/A
27.	Followed up for ART adherence			
28.	Ordered and received ART			N/A
29.	Treatment follow-up			
30.	Health education (nutrition, hygiene, prevention)			

31. What is the HIV service type?

(Mark with an 'X' in an appropriate box, you can tick only one answer)

a. Vertical (provide only HIV services) ☐

b. Integrated (render all services) ☐

32. What is the staff type in the facility (in NIMART programme)?

(Mark with an 'X' in an appropriate box, you can tick only one answer)

a. All dedicated ☐

b. All integrated ☐

c. Mixed (some dedicated some integrated) ☐

33. How long it can take to initiate pregnant woman on ART? *Please specify* .....

34. How long it can take to initiate children on ART? *Please specify* .....

35. How long it can take to initiate adult patient on ART? *Please specify* .....

SECTION B

SUPPORT FROM MANAGERIAL PERSONNEL TO NIMART PROGRAMME

(From question 36-41, Mark with an 'X' in an appropriate box)

No.	Variable	Yes	No	Don't Know
36.	Does the facility have an operational manager trained on NIMART?			

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37.	Does the facility once visited by assistant manager, supervising the NIMART programme?			
38.	Does the assistant manager supervise the NIMART programme?			
39.	How many supervision visits from the District NIMART programme manager per year?			
40.	Does the NIMART managers ever observe you initiating ARVs?			
41.	Does the facility have all policies and guidelines on current ART regimens?			

42. If yes to question number 41, how many times? *Please specify* .....

43. How many supervision visits from the Provincial NIMART programme manager per year?
Please specify .....

44. How many assigned NGOs are working together with the facility in the NIMART programme?
Please specify .....

How many people are assigned to the district to support ART? (answer questions 45-47 in the space provided)

No.	Cadre	Number of planned positions	Number of filled positions	Number of staff providing HIV/AIDS services *Full-time* all days of the week	No of staff providing HIV/AIDS services *Part-time* some days of the week
45.	Professional nurses				
46.	Enrolled nurse				
47.	Nursing assistant				

From the following statements, 48 to 51, you will need to tick in the appropriate box.

No.	Variable	Strongly Disagree	Disagree	Not Sure	Agree	Strongly Agree
48.	I participated in decisions about how services will be provided (NIMART)					
49.	I receive updates on the NIMART programme.					
50.	I can openly disagree with NIMART leadership.					
51.	I have enough opportunities to learn and grow in the programme.					

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SECTION C

DEMOGRAPHIC DATA

52. Gender *(Mark with an 'X' in an appropriate box)*

1	2
Male	Female

53. Age (in years). *Please specify* .....

54. Religion *(Mark with an 'X' in an appropriate box)*

1	2	3
Christianity	Islam	Other

55. Highest level of education achieved *(Mark with an 'X' in an appropriate box)*

1	2	3	4	5
Diploma	Degree	Honours	Masters	PhD

56. Marital status *(Mark with an 'X' in an appropriate box)*

1	2	3	4
Single	Married	Divorced	Widow

57. Family type *(Mark with an 'X' in an appropriate box)*

1	2
Single parents	Both parents

58. Years of experience as a professional nurse. *Please specify* .....

59. Years of experienced in NIMART. *Please specify* .....

60. Primary health care facility is situated in: *(Mark with an 'X' in an appropriate box)*

1	2
Semi-urban	Rural area

61. Primary health care facility is situated in: *(Mark with an 'X' in an appropriate box)*

1	2
Health care centre	Clinic

62. How many professional nurses are in the facility? *Please specify* .....

63. Does the facility operate everyday?
(Mark with an 'X' in an appropriate box)

1	2
Yes	No

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64. How many hours do facilities operate?

(Mark with an 'X' in an appropriate box, you can tick more than one answer)

i.	8 hours	1.	
ii.	12 hours	2.	
iii.	24 hours on standby	3.	
iv.	24 hours on night duty	4.	

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APPENDIX 7

WATERBERG DISTRICT DHIS DATA COLLECTION TOOL

THE OUTCOME AND EFFECTIVENESS OF NIMAART PROGRAMME

Municipality: .....

	2010		2011		2012		2013	
1. Number of HIV-positive clients	1		2		3		4	

	2010		2011		2012		2013	
2. Number of HIV-positive patients with CD4 count less than 350.	1		2		3		4	

	2010		2011		2012		2013	
3. Number of HIV-positive patients initiated on ART.	1		2		3		4	

	2010		2011		2012		2013	
4. Number of HIV patients transferred to hospital for initiation.	1		2		3		4	

	2010		2011		2012		2013	
5. Number of PCR-positive.	1		2		3		4	

	2010		2011		2012		2013	
6. Number of PCR-positive children initiated on ART at primary health care facilities.	1		2		3		4	

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	2010		2011		2012		2013	
7. Number of PCR-positive children initiated on ART at hospital.	1		2		3		4	

	2010		2011		2012		2013	
8. Number of PCR-positive children transferred to hospital for initiation for ART initiation.	1		2		3		4	

	2010		2011		2012		2013	
9. Number of patients who defaulted ART.	1		2		3		4	

	2010		2011		2012		2013	
10. Number of patients who died while on ART.	1		2		3		4	

	2010		2011		2012		2013	
11. Total amount used for NIMART training.	1		2		3		4	

	2010		2011		2012		2013	
12. Total amount used for electronically data management software.	1		2		3		4	

	2010		2011		2012		2013	
13. Waterberg District ARV cost.	1		2		3		4	

	2010		2011		2012		2013	
14. Total amount used to pay data capture that supported and capture NIMART data.	1		2		3		4	

	2010		2011		2012		2013	
15. Number of clients initiated on ART at hospitals.	1		2		3		4	

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	2010		2011		2012		2013	
16. Number of HIV-positive clients initiated on ART at hospitals in Waterberg district.	1		2		3		4	

	2010		2011		2012		2013	
17. Creatinine blood collected.	1		2		3		4	

	2010		2011		2012		2013	
18. Blood collected for CD4 count.	1		2		3		4	

	2010		2011		2012		2013	
19. Blood collected for FBC.	1		2		3		4	

	2010		2011		2012		2013	
20. Blood collected for viral load.	1		2		3		4	

	2010		2011		2012		2013	
21. Blood collected for cholestrone.	1		2		3		4	

	Yes	No
22. Does the local area mobile clinic offer ART services?	1	2

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APPENDIX 8

CONFIRMATION BY LANGUAGE EDITOR

UNIVERSITY of the WESTERN CAPE

FACULTY OF NATURAL SCIENCES

DEPARTMENT OF MEDICAL BIOSCIENCES

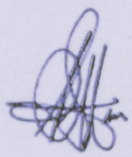
Donavon C. Hiss | University of the Western Cape | Private Bag X17 | Bellville 7535 | South Africa
Tel: 021 959 2334 | Cell: 072 200 1086 | Fax: 021 959 3215 | E-mail: dhiss@uwc.ac.za or hiss@gmx.us

23 April 2015

To Whom it May Concern

This serves to confirm that I have edited the language, spelling, grammar and style of the MPH thesis by **Mbedzi Melton Mashudu**, titled: "**An Evaluation of the Effectiveness of the Nurse-Initiated-and-Managed Antiretroviral Treatment (NIMART) Programme, Waterberg District, Limpopo Province.**" The manuscript was also professionally typeset by me.

Sincerely Yours



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

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