The knowledge of pregnant women about polymerase chain reaction HIV testing of infants in the Molemole Municipality of the Capricorn District, Limpopo province

by

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DECLARATION

I declare that the mini-dissertation hereby submitted to the University of Limpopo for the degree of Master of Curationis (M.CUR). It has not previously been submitted by me for a degree at this or any University that it is my own work in design and in execution, and all material contained has been duly acknowledged.

S.R. Ramoraswi: _____

Date signed: _____

DEDICATION

This dissertation is dedicated to the parents, Nkhumele and Makgato Ramoraswi. I would like to pay tribute to my husband, Christopher Kwena Kanama, my daughter, Onthatile Noko Kanama, my only sister, Cate Ramoraswi, my younger brother's Malope and Mapoma Ramoraswi, my supervisor, colleagues, pregnant women, lay counsellors, and nurse counsellors at the Primary Health Care clinics of the Molemole Municipality.

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ABSTRACT

All pregnant women who seek antenatal health care at the public clinics are offered HIV counselling and testing. Those who agree to test and who test positive, often fail to bring their infants for polymerase chain reaction (PCR) HIV testing after delivery, despite the fact that they have been advised to do so during delivery. There are very few studies which have assessed the women's knowledge with regard to the PCR HIV testing of infants.

In this study; a qualitative, exploratory, and descriptive methodology was applied to explore and describe the knowledge of pregnant women with regard to PCR HIV testing of infants in the Molemole Municipality of the Limpopo Province, Capricorn District. Purposive sampling was used and semi-structured interviews were conducted until saturation of data was reached. Qualitative data analysis design of Marshall and Rossman was used. The study indicated that the participants had knowledge with regard to the PCR HIV testing of infants. The nurse and lay counsellors knew about the different modes of prevention of mother-to-child transmission (PMTCT) and they used every contact opportunity with pregnant women to share its benefits. Mother to mother support groups for HIV positive pregnant and lactating women should be established for continuous support and counselling with the purpose of achieving an HIV-free generation.

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LIST OF ABBREVIATIONS

AFFAS	Acceptable, feasible, affordable, sustainable and safe
AIDS	Acquired Immunodeficiency Syndrome
ANC	Antenatal Care
ART	Antiretroviral Treatment
ARV(s)	Antiretroviral medication
AZT	Zidovudine
FPD	Foundation for Professional Development
HAART	Highly Active Antiretroviral Therapy
HIV	Human Immunodeficiency Virus
IEC	Information, education and communication
MTCT	Mother-to-child Transmission
NCPP	Northern Cape HIV Preventive Partnership
NVP	Nevirapine
PCR	Polymerise Chain Reaction
PHC	Primary Health Care
PMTCT	Prevention of Mother-to-Child Transmission
SA	South Africa
UNAIDS	United Nations Programmes on Acquires Immunodeficiency Syndrome
VCT	Voluntary Counselling and Testing

DEFINITION OF CONCEPTS

Polymerase Chain Reaction (PCR)

Polymerase Chain Reaction is a technique for selectively replicating a particular DNA in vitro for the reproduction of a large amount of a particular DNA sequence (Henderson, 2000).

In this study, PCR stands for a laboratory test which is used to detect HIV antigen by using a dried bloodspot specimen of an infant.

HIV testing

Is the detection of the antibody or antigens of the Human immunodeficiency virus (Mifflin, 2005).

In this study the HIV testing will refer to the detection of HIV antigen in the infants' bloods.

Knowledge

It is everything that a person knows (Oxford Dictionary, 2006).

For the purposes of this study, knowledge refers to the information and understanding of PCR HIV testing by the pregnant women who consult for antenatal care at Molemole Municipality clinics.

Infant

A baby or a very young child who is six weeks to two years old (Hornby, 2010).

In this study, an infant refers to a baby from the age of six weeks to 18months who has been born to an HIV infected mother because the first HIV test in infants is conducted at six weeks and if negative the test will be confirmed again at 18 months of age.

Pregnant women

A female who is carrying a developing offspring in the body (Mifflin, 2005).

In this study a pregnant women are all female who have tested for HIV and are coming for follow up visits at the clinics of the Molemole Municipality.

Counsellor

A person who assists people with exploring feelings and emotions that are often related to their experiences and who allows them to reflect on what is happening, to them and to consider alternative ways of doing things (Reed, 2009).

In this study, a counsellor means a midwife who has received HIV Voluntary counselling and testing, and PMTCT training.

CHAPTER 1
OVERVIEW OF THE STUDY

1.1 INTRODUCTION AND BACKGROUND

The Human Immunodeficiency Virus (HIV) and Acquired Immunodeficiency Syndrome (AIDS) epidemic has become a serious health and developmental problem around the world. At the end of 2006, the United Nations programme on AIDS has estimated the number of HIV infections worldwide to be about 40 million. Almost 25 million people of the 40 million who are living with HIV reside in Sub-Saharan Africa United Nations programme on AIDS (UNAIDS, 2007).

In terms of numbers, South Africa has one of the largest HIV epidemic rates in the world. The prevalence rate of HIV amongst women who were attending public antenatal clinics was more than one third (35%) higher in 2005 than it had been in 1999 (Limpopo Department of Health & Social Development, 2006). According to the national antenatal HIV survey, the HIV prevalence amongst the pregnant women attending public sector clinics in Limpopo Province is estimated to be 24.2%, while 20.7% are in Capricorn District, one of the 5 districts of the Limpopo Province (Limpopo Department of Health & Social Development, 2006).

The figures below indicate the number of children directly affected by HIV and AIDS (UNICEF, 2012 & Northern Cape HIV Preventive Partnership, 2012).

- An estimated 3.4 million (3.0–3.8 million) children under 15 were living with the HIV in 2010, while 390000 were newly infected, mainly through mother-to-child transmission of HIV in the world.
- Children account for 10 per cent of all HIV infections, 14 per cent of new infections and 14 per cent of all HIV-related deaths.
- In 2009, approximately 55 000 new born babies were infected with HIV in South Africa.

In 2011, the figure dropped to 28 000, and this was due to the fact that more mothers accessed PMTCT. The diagnosis of HIV in infants is done by using the PCR process which can detect HIV antigens in an infant (Alcorn, 2008). The PCR infant HIV testing was adopted at public clinics and hospitals in South Africa (SA) in 2002. Testing for HIV in infants has become possible even in the remote areas of the

Capricorn District in the Limpopo Province. PCR HIV diagnosis in infants is done by collecting blood spots on filter paper and sending these specimens to a central laboratory. Samples are transported to Pretoria for analysis, which is 290km from Polokwane (Alcorn, 2008). Limited laboratory capacity indicates that in some provinces of SA it could take up to four weeks to receive the PCR HIV test results (Global HIV/AIDS News Analysis, 2008).

Routine PCR HIV testing of infants indicates that it is important for mothers to disclose their HIV status to the health care providers during postnatal visits (Yoger, 2006). Recognition of HIV infected women permits the identification of HIV exposed infants at a child health clinic if the maternal HIV status is recorded on the Road to Health Chart of the infant. Pregnant women who test HIV-positive at the clinics during antenatal visits are expected to bring their infants for PCR HIV testing at six weeks. The low rates of HIV serostatus disclosure that are reported among women at antenatal and postnatal settings have several implications for PMTCT programmes, since the optimal uptake and adherence are difficult when the mother's HIV status is unknown (Medley, Garcia-Maremo, McGill's & Maman, 2004).

According to the Integrated Primary Health Care Monthly Statistics, 17 pregnant women had tested HIV-positive in 2007 but no PCR HIV tests were recorded at any of the clinics in the Molemole Municipality. It was further stated that in 2008, for every 25 pregnant women who had tested HIV-positive at one of the clinics in the Molemole Municipality, only 10 PCR HIV tests were conducted for infants at six weeks.

The high loss to follow-up rate in Limpopo Province implies that the majority of infants born to HIV-positive women will have their HIV infection status determined for the first time when they present with AIDS and, therefore, are not receiving routine medical care that is recommended for HIV infected children, such as prophylactic co-trimoxazole (Doherty, Chopra, Nsibande, & Mngoma, 2009).

The infants do not access other interventions that might benefit their health, such as nutritional support. Earlier infant testing with a more reliable test (such as a PCR), in conjunction with other forms of community-based support, may improve postnatal follow-up. More importantly, it may allow health care personnel to reaffirm with

mothers the relative risks and the benefits of different infant feeding practices on the health of their child (Doherty, McCoy, & Donohoue, 2005).

Voluntary counselling and testing (VCT) is provided to every pregnant woman at all public clinics. The aim of VCT is to enable HIV-positive mothers to decide how to reduce the chances of infecting their infants and to examine options for meeting future care and support needs (Doherty et al., 2005). Counsellors provide pregnant women with information about the PCR HIV testing of infants during counselling. The information that is provided during counselling seems complicated for women as a result they feel helpless. At some sites lack of privacy, and long waiting queues that require clients to return on another day for counselling further discourage women from being counselled (Rutenberg, Siwale, Kankasa, Nduati, Mbori, Oyiele, Kalibala, & Geibel, 2003).

Women who receive an HIV-positive test results are helped by the counsellor to examine and absorb the wider implications of the results including the social and economic aspects of their lives, and a discussion of PMTCT options. During subsequent antenatal clinic (ANC) visits, PCR HIV testing of infants is reinforced. HIV-positive women are encouraged to bring their infants for PCR HIV testing during the stipulated time frames as indicated by the midwives (Doherty et al., 2009).

Areas of weakness that have been identified in PMTCT include inadequate exposure to training amongst clinical staff, inadequate infrastructure in terms of counselling rooms, infrequent supervision by district supervisors, and a lack of infant PCR testing. These weaknesses are due to the complex interaction between clients and health system factors. Client factors include a lack of information, and a fear of disclosing their HIV-status; whilst health system factors include a lack of ownership of the PMTCT programme amongst nurses, unclear roles and responsibilities, a lack of knowledge about the protocol, poor recording systems, and improper continuity of care (Doherty et al., 2009).

VCT- and PMTCT-trained midwives are required if PMTCT is to serve as a vehicle for improving broader maternal and child health services, including PCR testing, and as an entry point to comprehensive HIV/AIDS treatment and care (Peltzer,

Phaswana-Mafaya, Ladzani, David, Dana, Mlambo, Phaweni, Dana & Ndabula, 2000).

Midwives are often trained in counselling, but they have many competing demands on their available time. The assistance of lay counsellors either paid or on a voluntary basis, can augment the counselling capacity. It was implemented successfully at several settings. Training for a few weeks, followed by continuous supervision, has resulted in reliable counselling services that are accepted by clinic staff and clients (Bassett, 2002). The manuals for training counsellors that are used in the Capricorn District do not explain in detail what the purpose of PCR HIV testing is (Foundation for Professional Development (FPD) 2005 & 2006).

With this background, the researcher is interested in studying the pregnant women's knowledge about the PCR HIV testing of infants.

1.2 PROBLEM STATEMENT

All pregnant women who seek antenatal health care at the public clinics are offered Voluntary Counselling and Testing. Women who agree to test and test HIV positive often fail to bring their infants for PCR HIV testing six weeks after birth, despite the fact that they have been advised to do so during delivery (Keith, 2007). According to the clinic statistics at Molemole Municipality, there are a high number of women who have tested HIV-positive but very few infants born by these mothers are brought for PCR HIV testing (Integrated Primary Health Care Monthly Statistics, 2007).

Table 0.1: The 2009 annul statistics of HIV testing amongst pregnant women and PCR HIV testing amongst infants in the Molemole Municipality.

Clinics Names	Pregnant women who received VCT	Pregnant women who tested positive	Number of infants tested for PCR HIV
Eisleben	106	22	17
Ramokgopa	426	58	79
Makgato	375	48	50
Matoks	480	67	37
Dendron	476	105	51
Mogodi	355	85	28
Totals	2593	385	262

Source: (District Health Information System on PMTCT 2009)

The table above indicates that PCR HIV testing rate in the Molemole Municipality is 68% which is below the target of 100%. There are still 32% of HIV exposed infants who have not been tested for HIV at the age of six weeks. The Ramokgopa and Makgato Clinics have a high number of PCR HIV tests for infants conducted due to visitors and other community members who are attended ANC at other clinics.

Despite the fact that PCR has been introduced in the year 2000, there are very few studies that assess the women's knowledge with regard to the PCR HIV testing of infants (Hutchinson, Jemmott, Wood, Hewitt, Kawha, Waldron & Bonaparte, 2007).

1.3 RESEARCH QUESTIONS

The following questions have guided the study:

- What is the level of pregnant women's knowledge with regard to the PCR HIV testing of infants in the Molemole Municipality of the Capricorn District?

- Which information do the nurse counsellors and lay counsellors provide to the pregnant women with regard to PCR HIV testing in the Molemole Municipality of the Capricorn District?

1.4 AIM OF THE STUDY

The aim of the study is to:

- Determine the level of knowledge that pregnant women have about infants' PCR HIV testing in the Molemole Municipality of the Capricorn District.

1.5 OBJECTIVES OF THE STUDY

The objectives of the study are to:

- Explore the knowledge of pregnant women and the information that is given to the pregnant women by nurse and lay counsellors with regard to the PCR HIV testing of infants in the Molemole Municipality of the Capricorn District.
- Describe the knowledge of pregnant women and the information that is given to pregnant women by the nurse and lay counsellors with regard to the PCR HIV testing of infants in the Molemole Municipality of the Capricorn District.
- Make recommendations about the pregnant women's knowledge with regard to the PCR HIV testing of infants in the Molemole Municipality of the Capricorn District

1.6 METHODOLOGICAL APPROACH

The qualitative, descriptive and exploratory research approach is used in this research study (Brink, 2006). A qualitative research method was used for the purpose of determining the level of pregnant women's knowledge with regard to PCR HIV testing and identifying the information that is given to the pregnant women by the counsellors with regard to PCR HIV testing.

The population consists of all the pregnant women who have received HIV counselling during pregnancy, lay counsellors, and the nurse counsellors of all the clinics in the Molemole Municipality of the Capricorn District. Semi-structured interviews were conducted by using an interview guide to collect data from the

pregnant women and the nurse counsellors were selected using purposive sampling. The research methodology gets discussed in detail in Chapter 2 of this study.

1.7 CONCLUSION

This chapter presents a brief overview of the research study. The introduction and background, problem statement, the aim, the objectives, methodology, the significance of the study were discussed.

CHAPTER 2
RESEARCH METHOD AND DESIGN

2.1 INTRODUCTION

This chapter outlines the research approach, the research design, research setting, population and sampling, data collection and analysis, means to ensure trustworthiness, and ethical considerations.

2.2 RESEARCH APPROACH

A qualitative, descriptive, explorative, contextual research approach was used for obtaining quality data with regard to the pregnant woman's knowledge about the PCR HIV testing of infants. Qualitative research is a form of social enquiry that focuses on the way people interpret and make sense of their lived experiences (Holloway & Wheeler, 2002).

According to Cormack (2000), a qualitative research approach is a type of scientific research in general terms that consists of an investigation that is:

- Using human speech or writing as data, rather than numerical data;
- Seeking to uncover the understanding and motives that lead to certain action; and
- Systematically using predefined set of procedures to answer the research questions.

The ability of qualitative research (Hansen, 2006):

- allows a researcher to explore issues from the perceptive of the individual directly involved; and
- Permits the evaluator to study selected issues in depth and in detail.

In order to achieve the qualitative part of the study, the researcher has used a semi-structured interview guide and has given each participant a chance to describe what they know with regard to the PCR HIV testing of infants. Field notes and a voice recorder have been used to collect quality data.

2.3 RESEARCH DESIGN

An exploratory, descriptive, contextual research design has been used in this study. The design is the plan that guides how the research answers the research questions and includes the comprehensive research approach that is followed, sampling methods, data collection methods, ethical considerations, and data analysis (Moule & Goodman, 2009). Research design means the organisation of elements into a proposed structure with the purpose of addressing research questions. The design that gets chosen enables the researcher to collect evidence which is needed to answer the research questions and to minimise errors (Moule & Goodman, 2009).

2.3.1 Exploratory research design

The exploratory research design study is designed to increase the knowledge of a field of study (Burns & Grove, 2009). An exploratory research design enables the researcher to assemble a broader range of data with a richness of detail. Such data assists the researcher to explore the knowledge of pregnant women with regard to PCR HIV testing in the Molelome Municipality of the Limpopo Province. The researcher has started by asking a central question to all participants: “Describe what you understand about PCR HIV testing in infants?”It has been followed by probing in order to explore more evidence with regard to the PCR HIV testing of infants.

An exploratory design is conducted about a research problem when there are few or no earlier studies to refer to. The focus is on gaining an insight and understanding for later investigation or it gets undertaken when problems are in a preliminary stage of investigation. Exploratory research generally utilises small sample sizes and, therefore, findings are typically not generalised the population in general (University of Southern California, 2012). The researcher conducts this study because little is known about the pregnant women’s knowledge with regard to the PCR HIV testing of infants. In this study, the researcher is gaining insight into the problem that is being studied by asking questions relevant to the study and by using a scheduled interview guide.

In this study, the researcher is able to explore the subject being studied by paraphrasing, encouraging, and reflecting with the purpose of obtaining more in-depth data.

2.3.2 Descriptive research design

The descriptive research involves gathering data that describe events and then the data collected get organised, tabulated, depicted, and described (Moule & Goodman, 2009). The researcher organises the collected data in a meaningful way by using themes and sub-themes with the purpose of describing pregnant women's knowledge with regard to the PCR HIV testing of infants. A qualitative descriptive research design assists the researcher to obtain complete and accurate information (Denzin & Lincoln, 2000). The researcher records all the interview sessions and field notes are written, and the researcher paraphrases to ensure that the data is correctly and accurately recorded.

A descriptive research design seeks to see the researcher entering the field with an open mind and leaving preconceived ideas behind (Moule & Goodman, 2009). The descriptive design assists the researcher to gain insight in relation to the investigation, for example progressing from the known to the unknown. In order to achieve the descriptive part of the study, the researcher asks a central question: "Describe what you understand about PCR HIV testing in infants" which gets followed by probing questions that are based on the schedule guide and areas which need to be clarified about the participants' responses to the central question. The schedule guide (Annexure A) has assisted the researcher to address all the aspects that needed to be described by the participants during the interview session until data saturation was reached (Hansen, 2006).

The descriptive research design has been developed to gain more information about the characteristics of a particular field of study and is providing a picture of the situation as if it happens naturally (Burns & Grove, 2009). This design is selected because it enables the researcher to identify the information that is supplied to the pregnant women by the counsellors and to determine the pregnant women's knowledge with regard to the PCR HIV testing of infants (Morse & Field, 1995). In order to achieve the descriptive part of the study, the pregnant women who attended

antenatal visits are given an opportunity to describe their own knowledge with regard to the PCR HIV testing of infants. It was done during semi-structured interview sessions with the assistance of a schedule guide until data saturation is reached (De Vos, Strydom, Fouché, Delport, 2006).

2.4 STUDY SITE

The Capricorn District is one of the five districts that constitute the Limpopo Province of South Africa. The Molemole Municipality is located in the North Eastern part of the Capricorn District, 60km north of Polokwane, the capital city of the Limpopo Province. Molemole is one of five municipalities in the Capricorn District. The municipality is characterised by farming, small scale mining, low cost housing, and informal settlements. Close to 80% of the population in the province are staying in the rural areas. The estimated population of the Molemole Municipality is 118852 people while the ratio of men to women is 1:36 (Molemole Municipality Integrated Development Plan, 2007-2010). There are six functional primary health care clinics that render comprehensive primary health care services, including the PMTCT of HIV and AIDS.

2.5 RESEARCH SETTING

For the purpose of the study, three clinics of the Molemole Municipality were selected from the six fixed clinics. The three clinics are selected based on the high number of pregnant woman testing for HIV at the clinics (±400 women annually).

The researcher decided to collect data from individual participants. The researcher has collected data at Matoks, Ramokgopa and Dendron clinic. The selection of an appropriate site for interviews is important because it can influence the results. In this study, the researcher decided to conduct the interviews of the pregnant woman and the lay and nurse counsellors at their specific clinics.

Population

Norwood (2010) defines a population as the total number of cases that meet a designated set of criteria in study. The Molemole Municipality has a total number of six PHC clinics, namely Eisleben, Makgato, Mohodi, Dendron, Ramokgopa, and

Matoks. In this study, the population are all clinics in the Molemole Municipality, all pregnant women who test for HIV, consulting for antenatal follow-up visits at these clinics, and all lay counsellors and nurse counsellors.

2.5.1 Sampling

Sampling refers to the process of selecting a part of the population to represent the entire population (Polit & Hungler, 2001). According to Newman (2000) purposive sampling identifies particular type of the cases for in-depth interview, and thus is smaller than a generalised population, but more suitable to the selection of special cases that are particularly enlightening. Purposive sampling is the selection of specific cases that the researcher chooses for the purpose of the study (Holloway & Wheeler, 2002). After the health facilities were selected the sampling process for participants started. The sampling method that was used was a purposive sampling. The rationale of using purposive study was that the researcher wanted participants who had knowledge about PCR HIV testing in infants.

Sampling of the pregnant women, nurse counsellors and lay counsellors

Non-probability purposive sampling was used to select the participants in this study. The researcher checked the antenatal cards to be able to choose the pregnant women who had received voluntary counselling and testing. The nurse and lay counsellors who had received VCT and PMTCT training and who were providing counselling were selected to participate in the study. Saturation was reached with the interview of 12 pregnant women, 6 nurse counsellors and 3 lay counsellors.

2.6 DATA COLLECTION

The researcher used a semi-structured interview guide to collect data in order to gain a detailed picture of participants' knowledge with regard to the problem studied (De Vos, et al., 2006). The researcher ensured that all equipment was readily available, for example the voice recorder with extra batteries, pens, and writing pad. The data are collected individually from participants during semi-structured interviews.

The researcher collected the data personally in order to ensure trustworthiness. The interviews were recorded by means of a voice recorder and field notes were written

to prevent loss of data. The researcher ensured that the interviews remained consistent by asking one broad question: “Describe what you understand about PCR HIV testing in infants?”

2.6.1 Interview

An interview is any data collection strategy in which a data collector verbally presents items to the participants and elicits verbal responses (Norwood, 2010). The purpose of using interviews in qualitative research stems from the researcher’s particular interest in eliciting the views of participants and it tends to avoid the execution of a controlling style by using semi-structured interviews (Hansen, 2006). During the interview, the researcher used probing in order to elicit more information from the participants and demonstrated to the participants that she was interested in their knowledge about the PCR HIV testing of infants.

Semi-structure interviews

A semi-structured interview is a flexible interview during which the interviewer does not follow a formalised list of questions (Doyle, 2012). By using a semi-structured interview guide, participants are all asked the same questions, but there is flexibility in phrasing and arranging the questions. All the participants are asked the same questions but in different words without changing the meaning. The semi-structured interview guide provides the researcher with the opportunity to change the structure but not the meaning of the questions. This approach acknowledged that not every word has the same meaning to participants and not every participant uses the same vocabulary. It enhanced trustworthiness because participants were helped to understand the question and the interviewer asked for clarification and probed for further responses when necessary (Parahoo, 1997).

The questions in the interview guide are open-ended to keep the conversation as natural and free-flowing as possible (Norwood, 2010). The researcher allowed all the participants to relax during the interview to make it a natural conversation and probing gets use when necessary for clarification purposes. It ensures that the researcher collects similar types of data from all participants while managing time effectively (Holloway & Wheeler, 2002). The researcher ensures that the interviews

remain consistent by asking one broad question: “Describe what you understand about PCR HIV testing in infants?”

2.6.2 Recording methods

Qualitative interviews use recording devices to capture data in a purposeful manner (Hansen, 2006). The methods for data collection were explained to the participants and permission was granted to use a voice recorder and field notes during the interview.

Field notes

Field notes are also helpful for recording interesting things that the participants are saying to the researcher before and after the interviews and for clarifying and interpreting the transcripts of the voice recordings. The field notes get labelled according to the names of the clinics but no participants’ names are used. Since the researcher needs to understand the knowledge of the pregnant women with regard to PCR HIV testing, the researcher has applied four categories of field notes (De Vos, Strydom & Delport, 2005):

Personal notes: The researcher read the notes and reflected her own ideas and feelings.

Observational notes: These note were researcher’s observations during the interview and while interacting with the participants.

Methodological notes: These notes are researcher’s instructions, reminders, and critical data which were captured during data collection.

Theoretical notes: These notes are the researcher’s interpretation. The notes enabled the researcher to extract meaning from the observational notes.

Voice recorder: The researcher used a voice recorder during data collection and permission was sort with the participants before it could be switched on to reduce fear. A consulting room away from noise and disturbance was used to enhances not only the quality of the voice recordings but also the interviews itself, since participants felt free to talk without interruptions.

2.6.3 Communication strategies during the interview

Paraphrasing

It is a verbal response or attempt by the researcher to rephrase what the participants has said in a different way, but same meaning for allowing the participants to confirm what they have meant (De Vos, et al., 2006). In this study, the researcher expressed the participants' responses in different words but with the same meaning. It encouraged the participants to supply more information.

Probing for responses

According to Newman (2000), probing is a neutral request to clarify ambiguous, incomplete, finish or unfinished, and complete or incomplete questions. In this study, the aforementioned type of probing questions was asked the aim of allowing the participants to supply more information about PCR HIV testing in infants.

Minimal verbal responding

It is a verbal response that accompanies occasional nodding, which assures the participants that the researcher is still listening (De Vos, Strydom, Fouché, & Delport, 2002). In this study, the researcher nodded while using, for example "mmm", "continue", "ok" in response to what the participants was saying to allow free expression and to encourage the participants to talk.

Reflecting

It happens when the researcher reflects on something the participants have already said in order for the participants to supply more information about the particular point of view (De Vos et al., 2006). In this study, the researcher took the participants back to earlier stages of the interview to offer them the opportunity to expand on a point of view mentioned in order to confirm what they have said.

Using silence

Silence allows the participants to do the talking while the researcher is listening and observing (Babbie & Mouton, 2009). In this study, the researcher kept quiet and observed what was happening to allow the participants to think and continue

describing their knowledge with regard to the PCR HIV testing of infants without interruption.

2.7 DATA ANALYSIS

According to De Vos et al., (2005), qualitative data analysis is a search for general statements about relationships amongst categories of data. During data analysis, the researcher has developed themes and sub-themes which are interrelated to each other.

The qualitative data analysis method of Marshall & Rossman (De Vos et al., 2005) issued.

Managing or organising the data

The researcher listened to the voice recordings and transcribed them verbatim. The field notes were typed and saved. The researcher has made backup copies of all data and kept it in a secure place.

Reading and writing memos

After organising and converting the data, the analysis continues by making sense of the data collected. The notes are read and re-read and quotations are made. Coloured pens have been used to write memos.

Generating themes and sub-themes

The researcher identified similarities of participant's responses in the field notes and the voice recordings. While the themes are emerged, the researcher searched for those themes that had internal consistency, yet distinct meaning from one another. The sub-themes are grouped and the supporting statements are indicated with different coloured pens.

Coding the data

A particular coding scheme was applied diligently and thoroughly while using codes. Numbers are used for coding.

Testing the emergent understanding

The researcher developed meaning and understanding of the themes and explored them by asking how they are related to the topic and how they are supported by sub-themes.

Searching for alternative explanations

The alterative meaning of the emerging sub-themes is explained and the reasons are given why they are the most plausible of all.

Representing, visualising (writing reports)

The researcher presented the data by packaging of what is found in the text. The researcher summarised and reflected the complexity of the data. These results are presented Chapter 3 Table 3.1.

2.8 MEANS TO ENSURE TRUSTWORTHINESS

Qualitative research is concerned with the accuracy and truthfulness of scientific findings. To ensure that the findings are worth paying attention to or worth taking into account, the following criteria of trustworthiness are adhered to throughout the study: credibility, transferability, dependability, and confirmability (Brink, 2006).

2.8.1.1 Credibility

Credibility is the aspect of research that is achieved when confidence in the truth of data and interpretation is attained (Polit & Beck, 2008). Credibility is ensured by prolonged engagement, triangulation of data collection methods, and acknowledgement of the sources that are used.

Prolonged engagement

The researcher is a registered nurse who works at one of the PHC clinics and has undergone PMTCT and VCT training. The researcher conducted the study at three clinics to ensure prolonged engagement with all the participants at these three clinics. The researcher collected the data over a period of three months at all the clinics sampled for the study.

Triangulation

In this study, data were collected by means of voice recordings and field notes were written during the interviews. A literature control was conducted and gets reported in Chapter 3. An independent coder also coded the data separately to further ensure trustworthiness.

Examine the phenomenon under different circumstances

Data were collected at the different PHC clinics Ramokgopa, Matoks, and Dendron.

Paraphrasing

It is a verbal response or attempt by the researcher to rephrase what the participants has said in a different way, but meaning the same thing to allow the participant to confirm what they meant (De Vos et al., 2006). In this study, the researcher paraphrased to improve meaning and to ensure that the data collected were correct. It prompts the participants to supply more information.

Sources

All sources used are acknowledged.

2.8.1.2 Transferability

Transferability is the extent to which findings from the data collected can be transferred to other settings and groups (De Vos et al., 2005). Sufficient descriptive data are provided for the reader to understand the phenomena to the extent that she/he needs to be able to transfer the results to other settings. The voice recordings and field notes were used to triangulate the data (De Vos et al., 2005).

Sampling

Purposive sampling was used to select the participants.

Dense description

An adequate and clear data base allows the transferability of a consistent judgement to be made by other interested parties on the grounds of the data analysis provided.

2.8.1.3 Dependability

Dependability refers to the stability of data over time and similar contexts (Brink, 2006). The researcher had prolonged engagement in the study field. Data were collected over a period of three months in order to increase the accuracy, and consequently the dependability, of the research data. The researcher depended on the supervisor who is an expert in the field of research for guidance. The researcher and the independent coder reached consensus about the extracted themes and sub-themes.

Dependability audit

- Intense guidance by research supervisors was provided in all the chapters of the study;
- Dense description of the methodology is discussed in Chapter 2;
- Experts in the field are consulted for translation and interpretation of data; and
- A literature control is conducted.

2.8.1.4 Confirmability

Confirmability is the degree to which the findings of the study are the product of the inquiry and not the biases of the researcher (Babbie & Mouton, 2001).

- The independent coder and the supervisor listen to the voice recording and read the verbatim transcripts; and
- A literature control is conducted.

2.9 ETHICAL CONSIDERATIONS

Legal rights and ethical aspect were considered during data collection. The principles that protect participants during research from harm or risk were applied. The professional and legal rules which are laid down in the code of conduct and research guidelines were followed (Burn & Groove, 2009).

The ethical aspects which are covered in this study are: permission to conduct the research, informed consent, confidentiality/ privacy, anonymity, and freedom.

Permission to conduct the research

Ethical clearance was been obtained from the University of Limpopo, Medunsa Research and Ethics Committee and permission to conduct the study was granted by the Limpopo Department of Health and Social Development.

Informed consent

For the participants to take part in the study, their written consent was obtained. Clear language that the participants understood was used to explain the purpose and procedure of the study to ensure that the participants made an informed decision whether to participate or not. The consent form and interview guide were translated to Sepedi by the translation studies lecturer at the University of Limpopo Turf loop Campus. The participants were informed that they had a right to participate or refuse without penalties. The researcher ensured that all the participants are eligible to give consent. All the participants signed a written consent form.

Confidentiality/privacy and anonymity

The worth and dignity of the participants were maintained. The invasion of privacy was prevented by ensuring that no information was shared without the participants' knowledge or against their will, because the invasion of an individual's privacy could cause loss of dignity, or feelings of anxiety, guilt, embarrassment, and shame. The instruments and methods that were used during the interviews were explained to the participants. In this situation, all data collection methods are scrutinised to protect the participants' privacy.

Freedom of choice

The participants were informed that they could terminate their participation in the research study at any time and were not forced to answer questions which violated their rights.

2.10 SIGNIFICANCE OF THE STUDY

The study could motivate and support pregnant women to make use of the services for the PCR HIV testing of infants. The results could also assist the lay counsellors and the nurse counsellors to intensify the health education needs with regard to the PCR HIV testing of infants at the clinics of the Molemole Municipality. The recommendation of the study could assist the government with conducting more VCT and PMTCT workshops that will empower all the health care providers to acquire more skills in pre- and post-counselling. The study developed recommendations with regard to the knowledge of pregnant women about the PCR HIV testing of infants.

2.11 CONCLUSION

In this chapter, the qualitative research approach, study design, research settings, data analysis, means to ensure trustworthiness, and ethical considerations were discussed.

CHAPTER 3
RESULTS AND LITERATURE CONTROL

3.1 INTRODUCTION

The research methodology, measures to ensure trustworthiness, and ethical considerations are discussed in Chapter 2. The findings of the study and the literature control are presented in Chapter 3. Data have been collected from 12 pregnant women, 6 nurse counsellors, and 3 lay counsellors at three clinics of the Molemole Municipality until data saturation is reached. Data are analysed by using the method of Marshall and Rossman (De Vos et al., 2005). The central storyline is presented in Table 3.1, followed by the presentation of the themes and sub-themes that have emerged in Table 3.2.

Table 3.1: Central storyline, reflecting shared analogous knowledge related to the PCR HIV testing of infants

Central storyline: Participants shared analogous knowledge related to the PCR HIV testing of infants who were born from HIV-positive mothers in the Molemole Municipality of the Capricorn District, Limpopo Province. PCR HIV testing was known to participants for this study because the information was given to them by nurses during the health education sessions during the antenatal care visits of pregnant women: *"I heard about PCR HIV testing in infants during my first booking at the clinic by nurses"*. On the other hand, some of the participants had knowledge of the test but they did not know what the test was called:*"I know that infants are tested but I don't know the name of the test"*. The participants further indicated that knowledge about a positive HIV test for pregnant woman was of utmost importance because the women would-be assisted not to pass the HIV to the infant since precautions would be taken during delivery of the infant. Furthermore, the women would be assisted to bring their children after six weeks to take the PCR HIV test and for subsequent assistance. It was evident that participants viewed taking a PCR HIV test as important because it would improve the quality of life of infants whilst the choice for the correct feeding methods for the infant is determined.

Table 3.2: A summary of the themes and sub-themes that reflects the knowledge about the PCR HIV testing of infants

Themes	Sub-themes
1 Pregnant women's shared analogous knowledge related to the PCR HIV testing of infants born from HIV-positive mothers.	1.1 Knowledge about the PCR HIV test in relation to the lack of knowledge about the name of the test. 1.2 Importance of the PCR HIV testing of infants. 1.3 Knowledge about the age at which an infant should be taking the PCR HIV test.
2 Knowledge about the importance of pregnant women's HIV-positive test results in relation to an infant taking the PCR HIV test.	2.1 The importance of taking an HIV test during pregnancy is a determinant for an infant taking the PCR HIV test. 2.2 Knowledge about Nevirapine (NVP) initiation after delivery in relation to PMTCT.
3 Choice of correct feeding method.	3.1 An HIV-positive test of mothers lead to the correct choice of feeding method that will support PMTCT. 3.2 Provision of guidance by nurses in relation to the correct choice of feeding method after delivery of an infant by an HIV-positive mother. 3.3 The correct choice of feeding method is viewed as a strategy to prevent the HIV transmission risk.

	3.4 Feeding choices and an informed decision by the mother of the child who has tested positive after taking theca HIV test.
4 Determinants of initiating Anti-Retroviral Treatment.	4.1 Initiation of Antiretroviral Treatment (ART) for infants that is determined by a positive PCR HIV test. 4.2 Knowledge about the ARVs that are taken by HIV-positive mothers during pregnancy.
5 Opinions of the participants with regard to the acceptance of the PCR HIV test.	5.1 Increased acceptance of the PCR HIV test is related to health education, support, and empowerment of women. 5.2 Poor recording leads to inconsistent statistics of deliveries in relation to infants taking the PCR HIV test.

3.2 THEME 1: PREGNANT WOMEN'S SHARED ANALOGOUS KNOWLEDGE RELATED TO THE PCR HIV TESTING OF INFANTS BORN FROM HIV POSITIVE MOTHERS

The study findings in relation to this theme reflected the same knowledge which pregnant women shared about PCR HIV testing. Three sub-themes emerged from this theme, namely knowledge related to the PCR HIV test versus the lack of knowledge about the name of the test, importance of the PCR HIV testing of infants, and knowledge about the age at which an infant should be taking the PCR HIV test.

3.2.1 Sub-theme 1.1: Knowledge about the PCR HIV test in relation to the lack of knowledge about the name of the test

It emerged that some of the participants knew the name of the PCR HIV testing of infants whereas some of them did not know the name of the test. It is reflected in the following statements:

"*I know that infants who are born by HIV- positive mothers are tested at the clinic at six weeks to see if the tablets which were given to the mother during pregnancy have worked, if positive the baby will be given attention immediately*."

"*I don't I have much information about HIV testing in infants and I don't even know when and how the test is done*."

"*The test is done at six weeks and eighteen months if tested negative but I don't know the name of the test*."

A study that was conducted in Cape Town, South Africa about the knowledge and perceptions of pregnant women of rapid HIV testing concluded that most women who were attending antenatal clinics would choose to test for HIV due to the level of knowledge they had. The levels of knowledge about rapid HIV testing led to the possibilities of accepting the test. Furthermore, it was stated that the more knowledge or positive perceptions the pregnant women had about rapid HIV testing, the higher the chances were that they would be taking the test (Olugbenga-Bello, Oladele, Ademi & Ajala, 2012).

The level of knowledge of MTCT and knowledge of rapid HIV testing were found to be significant predictors of a willingness to test for HIV among antenatal clients in Uganda. The pregnant women had knowledge with regard to rapid HIV testing (Olugbenga-Bello et al., 2012). In this study, the pregnant women had knowledge about PMTCT of HIV and AIDS. The study further revealed that these pregnant women accepted HIV testing during pregnancy because they wanted to protect their infants.

3.2.2 Sub-theme 1.2: Importance of the PCR HIV testing of infants

The study findings pointed out that the importance of the PCR HIV testing of infants assisted the mother to know the HIV status of the child and, subsequently, she would be able to care for the child as expected. It was reflected in the following responses from the participants:

The pregnant women explained:

"*The PCR HIV testing in infants is important because you can know your child's status earlier*."

"*The PCR HIV testing in infants is important because if you know your infants status you will be able to care for her or him*."

"*It is important to do PCR HIV testing in infants because if your child is infected with HIV she/he can get treatment*."

The PCR HIV testing of infants ensures early diagnosis of HIV with the aim of improving the quality survival and quality of life of HIV exposed infants (National Health Laboratory Service, 2011). PCR HIV testing is essential to prevent rapid HIV progression and death (Nuttall, 2012). Since HIV disease progression in children is rapid, its impact on childhood morbidity and mortality will only be decreased once HIV infected children are diagnosed early and antiretroviral therapy (ART) is initiated at infancy (Feucht, Forsyth & Kruger, 2012).

3.2.3 Sub-theme 1.3: Knowledge about the age at which an infant should be taking the PCR HIV test

It was revealed by the study results that the pregnant women knew when the PCR HIV testing of infants needed to be conducted. The participants highlighted that the test was conducted at 6 weeks and at 18 months as confirmed in the following direct quotations:

"*If I remember well they said the child will be tested at six weeks when brought to the clinic for the first immunisation*."

"*I know that infants who are born by HIV positive mothers are tested at the clinic at six weeks to see if the tablets the mother was taking during pregnancy have worked*."

"*The test is done at six weeks and eighteen months if the infant has tested negative before*".

A PCR test is done for HIV exposed babies whose mothers return for the 6-week postnatal consultation. The PCR results are supplied one week later when the mother returns for a follow-up appointment. The health provider immediately informs the mothers of HIV-positive babies in order for them to be enrolled for ARV treatment (Geddes, Knight, Reid, Giddy, Esterhuizen & Roberts, 2008). All HIV exposed infants who test negative at six weeks should have an HIV antibody test at 18 months of age (Clayden, 2010).

Furthermore, the South African Prevention of Mother-to-Child Transmission (PMTCT) Guidelines 2010, recommend that all HIV-exposed infants need to undergo a PCR HIV test at 6weeks of age and 6 weeks after cessation of breastfeeding (Galye & Rivka, 2011 & Peltzer & Mlambo, 2010).

3.3 THEME 2: KNOWLEDGE ABOUT THE IMPORTANCE OF PREGNANT WOMEN'S HIV-POSITIVE TEST RESULTS IN RELATION TO AN INFANT TAKING THE PCR HIV TEST

It is important for pregnant women to be tested for HIV in order for her status to be known, since conducting the PCR HIV test for infants depends on the HIV status of the mother. The following sub-themes emerged from this theme: The importance of taking an HIV test during pregnancy is a determinant for an infant taking the PCR HIV test, and knowledge about Nevirapine (NVP) initiation after delivery in relation to PMTCT.

3.3.1 Sub-theme 2.1: The importance of taking an HIV test during pregnancy is a determinant for an infant taking the PCR HIV test

The lay counsellor and the nurse counsellor have knowledge about the importance of pregnant women taking the HIV test during ANC, since it determines whether the

mother needs to bring the infant for taking a PCR HIV test as reflected by the following statements:

The nurse counsellor: "*The importance of HIV testing during pregnancy is to identify HIV exposed infants and to determine infants who need PCR HIV testing*".

The lay counsellor: "*The importance of HIV testing during pregnancy is to prevent MTCT and identification of infants who have to be done PCR at six weeks*".

The PMTCT programme would identify all HIV exposed infants by identifying all HIV infected women that results in the PCR HIV testing of infants at six weeks of age (Nuttal, 2012). Screening for HIV early during pregnancy, preferably at the first obstetrical visit, benefits both the mother and the infant. Women who know their HIV status start treatment early and maintain it throughout their pregnancy to protect their own health and rarely pass HIV to their infants (Centre Disease Control and Prevention, 2011).

The decision to conduct the HIV test is based on many factors, including perceived benefits such as the avaliability of ARVs for the mother and the baby. The avalibility of ARVs in industrialised contries has greatly increased the motivation of people to be tested for HIV (Addo, 2005).

Each encounter with a woman at maternal and child health services is an opportunity for the woman to benefit from knowing her HIV status and to prevent further transmission (Chersich, Luchter & Temmerman, 2007).

3.3.2 Sub-theme 2.2: Knowledge about Nevirapine (NVP) initiation after delivery in relation to PMTCT

The study results pointed out that lay counsellors and the nurse counsellors had knowledge with regard to NVP initiation to PMTCT of HIV as reflected by the following verbatim statements:

The nurse counsellor: "*Immediately after delivery the HIV exposed infants are given NVP and it will be given daily according the baby's weight*".

The lay counsellor: "*The infants who are born from HIV-positive mothers are given NVP immediately after delivery*".

The infants who are born to HIV positive mothers should receive NVP until six weeks of age. If the mother intends to breastfeed the baby, the baby will be exposed to the virus in the breast milk. However, if the mother is on lifelong ART, then the NVP can be stopped after six weeks. If the mother is not on lifelong ART, the baby should continue to receive NVP for as long as he/she is being breastfed (Bamford, 2011). There is a high use of NVP which suggests the need for more awareness campaigns to the public (Igumbor, Pengpid, & Obi, 2006).

3.4 THEME 3: CHOICE OF CORRECT FEEDING METHOD

The study revealed that there were feeding options for women who had tested HIV-positive**.** Four sub-themes emerged from this theme: An HIV-positive test of mothers lead to the correct choice of feeding method that will support PMTCT, provision of guidance by nurses in relation to the correct choice of feeding method after delivery of an infant by an HIV-positive mother, the correct choice of feeding method is viewed as a strategy to prevent the HIV transmission risk, and feeding choices and an informed decision by the mother of the child who has tested positive after taking the PCR HIV test.

3.4.1 Sub-theme 3.1: An HIV-positive test of mothers lead to the correct choice of feeding method that will support PMTCT

The responses below highlight how an infant born from an HIV-positive mother should be fed in order to prevent MTCT of the HIV:

Pregnant women confirmed this principle by saying: "*I just know that choosing one method of feeding helps to prevent the infant from getting HIV*".

A nurse counsellor outlined: "*Exclusive breast and bottle-feeding is when the mother gives her child the bottle or breast only for six month, this helps to PMTCT of HIV*".

Another counsellor indicated: "*The infants who test negative at six weeks and are on formula–feeding will be tested again at eighteen months because formula feeding does not does have the risk of MTCT*".

Feeding choices play a major role in PMTCT, since 5 – 20% of HIV transmission could occur by means of breastfeeding because it exposes the infant to the HIV of the infected mother. Knowing the HIV status of the mother will enable the reduction of the MTCT risk of HIV (Clayden, 2010). Most of the respondents in this study indicated that feeding choices were discussed during antenatal visits and they understood clearly what these choices meant.

For a mother living with HIV, choosing the best feed option for her baby is a difficult and complex decision. Breastfeeding increases the chances of the mother transmitting the HIV to her baby. On the other hand, breast milk protects children from diseases and is more nutritious than any commercial infant formula. The best feeding option for an HIV-positive mother depends on her circumstances, her health, the health services she has to access, and the counselling and support she is likely to receive (Gorton, 2010).

Once the mother has decided about feeding, it is important to continue counselling her during follow-up consultations. It is necessary to ensure that she maintains her choice of feeding and discusses difficulties that may arise (Bandezi, Carroll, Conradie, Ghoodie, Lusa, Van Der Merwe, 2010).

Breastfeeding carries significant health benefits for infants and young children and is an essential child survival intervention. Without preventive interventions, about 10 – 20 per cent of infants who are born to infected mothers will contract the virus through breast milk. It is believed that mixed feeding in the first six months carries a greater risk of transmission because the other liquids and foods that are given to the baby intermittently with breast milk can damage the already delicate and permeable gut wall of the small infant and allow the virus to be transmitted more easily. Mixed feeding also poses the same risks of contamination and diarrhoea as artificial feeding, diminishing the chances of survival (WHO, 2012).

3.4.2 Sub-theme 3.2: Provision of guidance by nurses in relation to the correct choice of feeding method after delivery of an infant by an HIV-positive mother

The pregnant women receive information about feeding methods during ANC, and it assists the pregnant women to choose the correct method of feeding. Verbatim statements of the respondents supported this perception:

"*The infant is to be given the bottle or breast only for six months. The HIV-positive mother should avoid mix feeding because it increases the risk of HIV transmission to the infant*."

"*We advise the pregnant women to choose the best feeding method according to their individual circumstances*."

Health care personnel, lay counsellors and community caregivers should receive standardised training in infant feeding. Trained health care personnel should provide high quality, unambiguous and unbiased information about the risk of HIV transmission by means of breastfeeding (Department of Health, 2007). Counselling about infant feeding needs to commence after the first post-test counselling session during pregnancy. Infant feeding must be discussed during every antenatal visit and mixed feeding must be discouraged, since it increases the risk of childhood infections (Department of Health, 2010).

3.4.3 Sub-theme 3.3: The correct choice of feeding method is viewed as a strategy to prevent the HIV transmission risk

The above sub-category is supported by the following verbatim statements by a lay counsellor: "*Even if the mother is HIV-positive the infant can remain negative through exclusive breastfeeding or exclusive formula feeding*".

The counsellor added: "*The feeding option will determine the risk of HIV transmission and that's it why we encourage women to opt for one method of feeding*".

A nurse counsellor indicated: "*Mixed feeding increases the risk of HIV transmission, mother who chooses one the method of feeding to protect the baby from getting HIV through feeding*".

The study indicated that the correct feeding method could prevent the risk of PMTCT to HIV in infants. The nurse and lay counsellors explained all the risks of incorrect feeding methods to the pregnant women during ANC and encouraged the use of one method of feeding.

If there are no interventions, about 5−20% of infants who are born to HIV-positive mothers become infected through breastfeeding. There is evidence that exclusive breastfeeding in the first months of life is safer than mixed feeding. When mothers are on ART, transmission during pregnancy and breastfeeding is likely to be reduced (Department of Health & UNICEF, 2007).

Early diagnosis also assists with decision-making about breastfeeding. An HIV-positive mother with an HIV-uninfected baby can be counselled and supported to stop breastfeeding if replacement feeding is acceptable, feasible, affordable, sustainable, and safe (AFASS). If the baby is HIV infected, the mother can be counselled and supported to continue breastfeeding. Finally, early diagnosis of HIV in infants assists families with life planning (WHO, 2007).

3.4.4 Sub-theme 3.4: Feeding choices and an informed decision by the mother of the child who has tested positive after taking the PCR HIV test

The study revealed that after the pregnant women had received necessary information about feeding methods, they were the ones who finally made a choice of feeding based on the information given. The following verbatim quotations support this sub-theme:

A nurse counsellor: "*We inform them that they can opt for exclusive or breast-feeding or bottle- feeding including dangers of mix feeding, and if they breastfeed the child is still exposed to HIV*."

The counsellor added: "*The mother is informed about bottle-feeding and breastfeeding so that the women can choose to give her baby the breast or bottle only*".

The lay counsellor: "*I think they understand about PCR HIV testing in infants because if they choose a feeding method they stick to it*".

Feeding choices are discussed during antenatal visits. The benefits and dangers of each method are outlined in detail to ensure that the pregnant women are able to make an informed decision. Pregnant women have to decide which method will suit them by taking all their circumstances into account. The health workers educate them to make an informed decision. HIV-positive women should receive individual unbiased counselling about infant feeding options to enable them to make informed choices about the infant feeding option that is most suitable for their circumstances (Department of Health & UNIFEC, 2007).

3.5 THEME 4: DETERMINANTS OF INITIATING ANTI-RETROVIRAL TREATMENT

This theme revealed the anti-retroviral treatment determinants and sub-themes which emerged from the above theme were: Initiation of Antiretroviral Treatment (ART) for infants that is determined by a positive PCR HIV test, and knowledge about the ARVs that are taken by HIV-positive mothers during pregnancy.

3.5.1 Sub-theme 4.1: Initiation of Antiretroviral Treatment (ART) for infants that is determined by a positive PCR HIV test

The study results confirmed that infants were initiated on ART based on the results of their PCR HIV tests. A nurse counsellor said: *"Infants with positive PCR test results are started on ART as soon as possible".*

The nurse counsellor added: "*We conduct PCR because we want to know if the child is eligible for ART's* [sic] *or not because they have been exposed to HIV*".

A lay counsellor confirmed this principle: "*We start treatment for all infants with positive PCR test results regardless of their clinical staging*".

All infants with confirmed HIV infection should be started on ART, irrespective of the clinical or immunological stage. Where viral testing is not available, infants less than 12 months of age with clinically diagnosed, presumptive, severe HIV infection should start ARVs as soon as possible (WHO, 2010). Starting asymptomatic infants on ART as soon as possible after diagnosis leads to a reduction in mortality when compared to the ones for whom treatment initiation is delayed until immunological decline or clinical symptoms develop (WHO, 2010).

3.5.2 Sub-theme 4.2: Knowledge about the ARVs that are taken by HIV-positive mothers during pregnancy

The study findings pointed out that pregnant women who tested HIV-positive during antenatal care visits should receive ARVs if they were eligible. It was supported by the following responses**:**

A nurse counsellor said: "*We collect blood for CD4 cell count from all HIV positive women and if we find that the CD4 cell count is 350 and below we give a full package of ARV's* [sic]".

The nurse counsellor affirmed: "*We protect the baby by giving the mother AZT at 14weeks an above. If the CD4 cell count is 350 and below we start ARV's* [sic] *and we also do clinical staging*".

The lay counsellor commented: "*AZT is started at 14 weeks of pregnancy if the women CD4 is less than 350 we start lifelong antiretroviral*".

HIV-positive pregnant women are given AZT because it is used as prophylaxis to reduce the risk of MTCT. When the CD4 count is 350 and below, they are put on lifelong antiretroviral treatment (Shargie, Eek, Abaychew, 2011). The provision of PMTCT prophylaxis to HIV-positive women is allocated according to set criteria. If a pregnant mother is eligible for ART, she is supposed to start the long-term treatment of a combination of triple highly active antiretroviral therapy (HAART) after the end of first trimester, which plays a great role in preventing mother-to-child HIV transmission (Shargie et al., 2011).

3.6 THEME 5: OPINIONS OF THE PARTICIPANTS WITH REGARD TO THE ACCEPTANCE OF THE PCR HIV TEST

This theme describes the views of lay counsellors and nurse counsellors with regard to the PCR HIV testing of infants. The following sub-themes emerged from this theme: Increased acceptance of the PCR HIV test is related to health education, support, and empowerment of women, and poor recording leads to inconsistent statistics of deliveries in relation to infants taking the PCR HIV test**.**

3.6.1 Sub-theme 5.1: Increased acceptance of the PCR HIV test is related to health education, support, and empowerment of women

Participants described how they empowered the pregnant women with knowledge. It was evident by the following responses:

A nurse counsellor: "*Pregnant women are educated about the importance of disclosing their HIV status to the health worker and we have a high number of PCR HIV testing in infants because women return to the clinic at six week*".

Another nurse counsellor: "*With every ANC visit women are given information about compliance to HIV prophylaxis, breastfeeding and importance of follow up visits to the clinic*".

The lay counsellor: "*We tell the mother with every visit that the child will be tested at six weeks*."

Health education needs to address the importance of early infant HIV diagnosis and management, including ART even in the absence of infant ill-health. Health care providers need to provide more effective communication while they are taking into account the normative community views, and closely attuned to the changing needs of HIV infected mothers. By incorporating infant testing and diagnostic issues into counselling, PMTCT programmes will be more effective for ensuring that mothers accept early infant testing and are more prepared psychologically and emotionally (Peltzer & Mlambo, 2010).

3.6.2 Sub-theme 5.2: Poor recording leads to inconsistent statistics of deliveries in relation to infants taking the PCR HIV test

The nurse counsellors and the lay counsellors indicated that errors were likely to occur while they were compiling monthly statistics that might affect PCR acceptance at facilities. The principle was supported by the following responses:

A nurse counsellor: "*The PCR uptake may be low due to poor recording because we conduct PCR HIV tests at six weeks*".

Another counsellor: "*The delivery of HIV-positive women and PCR uptake in infants may vary due to poor recoding by staff*".

The lay counsellor: "*The mothers respond well to follow up and the PCR low up take might be due to poor recording of statistics at the clinic or at the district*".

Major defects in both the completeness and accuracy of the data at the facilities lead to poor acceptance of PCR HIV testing. PCR tests are conducted at facilities but there is poor record keeping. Yet, the national health systems rely on this type of data for national reports and for planning resources inclusive of future financial allocations (Kedar, Brandon, Mphatswe, Baker & Rollins, 2009).

3.7 CONCLUSION

In this study, themes and sub-theme are developed. The sub-themes are supported by literature. The findings indicate that the participants have had knowledge with regard to the PCR HIV testing of infants.

CHARTER 4
DISCUSSIONS OF THE MAJOR FINDINGS, RECOMMENDATIONS LIMITATIONS AND CONCLUSION

4.1 INTRODUCTION

This chapter presents the major findings of the study, the recommendations, the limitations of the study and a conclusion.

4.2 RESTATEMENT OF THE PROBLEM

All pregnant women who seek antenatal health care at the public clinics are offered Voluntary Counselling and Testing. The ones who agree to test and test positive often fail to bring their infants for PCR HIV testing after delivery despite the fact that they have been advised to do so during delivery. According to the clinic statistics at Molemole Municipality, there are a high number of women who have tested HIV-positive but very few infants born by these mothers are brought for PCR HIV testing. The researcher has been interested in studying the pregnant women's knowledge with regard to the PCR HIV testing of infants.

4.3 RESTATEMENT OF THE OBJECTIVES

The objectives of the study are to:

- Explore the knowledge of pregnant women and the information that is given to the pregnant women by nurse and lay counsellors with regard to the PCR HIV testing of infants in the Molemole Municipality of the Capricorn District.
- Describe the knowledge of pregnant women and the information that is given to pregnant women by the nurse and lay counsellors with regard to the PCR HIV testing of infants in the Molemole Municipality of the Capricorn District.
- Make recommendations about the pregnant women's knowledge with regard to the PCR HIV testing of infants in the Molemole Municipality of the Capricorn District

4.4 DISCUSSION OF THE MAJOR FINDINGS

The major themes that address the study objectives are discussed to ensure that the aims of the study are attained. At the same time, this discussion seeks to answer the research questions.

Pregnant women's share analogous knowledge about the PCR HIV testing of infants who are born to HIV-positive mothers.

The study reveals that some pregnant women have knowledge with regard to the PCR HIV testing of infants. They know that infants are tested for HIV even when some mothers do not know the name of the test. The pregnant women know that they need to test for HIV during pregnancy for initiating PMTCT of HIV when it is necessary. Pregnant women are willing to bring their children for PCR HIV testing at six weeks during the first immunisation. They know that when the child is HIV negative at six weeks the test needs to be repeated again at 18 months. Pregnant women know that their children will be given treatment when they test HIV-positive.

The knowledge of women about the PCR HIV testing of infants is supported by their confidence when they are explaining the benefits of this test. Pregnant women are aware that when they know their HIV status they will be capable of preventing mother-to-child transmission of HIV and they will bring their infants for PCR HIV testing when necessary. Pregnant women are also aware that if they bring their infants for PCR HIV testing they will improve their quality of life. The infants will be given treatment to prevent opportunistic infections and, subsequently, the mortality rate of infants will be reduced (Feucht, et al., 2012).

Pregnant women attain sufficient knowledge about the PCR HIV testing of infants from their clinic during antenatal care. All the pregnant women receive HIV counselling and they are tested. Some pregnant women have heard about PCR HIV testing for the first time during the awareness campaign in their community before they even become pregnant. The knowledge about PCR HIV testing gets provided by lay counsellors and nurse counsellors during HIV counselling and during subsequent visits at the clinics.

Anti-Retroviral Treatment initiation determinants

This theme explores and describes the information which the lay counsellors and nurse counsellors provide to the pregnant women with regard to the PCR HIV testing of infants in the Molemole Municipality of the Capricorn District. The nurses and lay counsellors have received HCT and PMTCT training and they attend continuous training workshops. Due to the initial and continuous training, they ensure that all the pregnant women are receiving HCT during their initial visits to the clinic. The nurse and lay counsellors supply health education about PMTCT to the community and they encourage early ANC bookings.

Educating pregnant women about the importance of HIV is a critical element of the process to prevent perinatal HIV transmission. Successful delivery of PMTCT relies on a cascade of successful steps that include HIV counselling and testing, assessment of HAART eligibility by means of CD4 cell count testing and clinical staging, ARV prophylaxis, infant testing, and HAART provision for HIV positive infants and mothers (Dillabough, Kulzer, Owuor, Ndenge, Onyanga, Ngugi, Shade, Bukusi & Cohen, 2012). The study reveals that the nurse and lay counsellor provide pregnant women with the structured information about PCR HIV testing.

The importance of HIV testing during pregnancy

The nurse and lay counsellors provide HIV counselling and testing to all pregnant women and they will continue counselling those women who refuse to test during subsequent visits. The CD4 cell count of all pregnant women who have tested HIV-positive is recorded. When the CD4 cell count is 350 and below, or the women is at WHO clinical stage 4 TB/HIV the adherence counselling is started in order to initiate ARVs. When the CD4 cell count is above 350, the women are initiated to start taking AZT from 14 weeks (Department of Health, 2010 & Northern Cape HIV Preventive Partnership (NCPP, 2012).

Initiation of prophylaxis

The nurses and lay counsellors encourage the pregnant women to book early for ANC with the purpose of identifying HIV exposed infants and initiating the use of AZT. The pregnant women are educated about the availability of treatment for the

PMTCT of HIV. Pregnant women are encouraged to book early because AZT needs to be initiated as early as 14 weeks of gestational age and when the gestational age is still less than 14 weeks, the women will be given a return date to come for the initiation of AZT. The nurse and lay counsellors also educate the women about the side effects of AZT and encourage them to return immediately as soon as they experience any of these side effects.

Pregnant women are encouraged either to deliver at the health facility for early initiation of NVP to the infant, or to report to the health facility within 72 hours after they have delivered at home. Nevirapine will be administered according to the infant's weight until the mother stops breastfeeding. Nevirapine remains the only available drug for PMTCT of HIV in areas with nominal medical resources (NCPP, 2012). The lay and nurse counsellors advise the women to bring their infants for continuity of care at the clinic and for the monthly adjustment of NVP doses according to weight (Bandezi, Carroll, Conradie, Ghood, Lusu & Van Der Merwe, 2011).

Feeding choices

The pregnant women are educated about feeding choices and this information is given to all the pregnant women regardless of their HIV status. The lay and nurse counsellor supply information about exclusive bottle feeding and breastfeeding. The benefits of breastfeeding are emphasised because breastfeeding is best for the baby. Pregnant women who are HIV-positive and who are taking ARVs or AZT are encouraged to breastfeed exclusively for six months and to give NVP to the new-born until breastfeeding is stopped. When the PCR HIV test of the infant is positive at six weeks, the mother is encouraged to continue breastfeeding (Department of Health, 2010).

PCR HIV testing

Early infant diagnosis by means of PCR testing is an important step in increasing the acceptance of HAART for HIV infected infants (Dillabaugh, et al., 2012). The lay and nurse counsellors inform the pregnant women about PCR HIV testing and its benefits. The pregnant women are given are turn date of six weeks after birth to come to the clinic for the first immunisation and PCR HIV testing when the mother is

HIV-positive. The counsellors encourage the pregnant women to disclose their HIV status to the health care provider for continuity of care and to ensure a high acceptance rate of PCR for infants. The counsellors even elaborate to the extent of explaining to the pregnant women how the PCR HIV test for infants is conducted.

Pregnant women are informed that the PCR HIV test of infants helps to identify the HIV status of infants timely with the purpose of initiating the use of ARVs when the test is positive. The PCR HIV test gets repeated when breastfeeding is stopped. At eighteen months, all infants who have tested HIV- negative will be tested again by using the rapid HIV antibody test. When the PCR HIV test is negative and the women continue breastfeeding, the test gets repeated when breastfeeding is stopped completely (Department of Health, 2010). By early identification of HIV exposed infants and initiation of ARVs, the quality of life improves and it is likely that the mortality rate will decline.

4.5 RECOMMENDATIONS

Pregnant women share analogous knowledge related to the PCR HIV testing of infants who are born to HIV-positive mothers:

- Mother-to-mother support groups for HIV-positive pregnant and lactating women should be established for continuous support and counselling with the aim of achieving an HIV free generation. Pregnant women who have tested HIV positive need to be encouraged to attend the support group meetings and to continue even after delivery if it is available in their area.
- More awareness campaigns for PMTCT of HIV should be conducted at the clinics and even in the community. The information, education, and communication (IEC) material; such as posters, booklets, and pamphlets should be available at the health care facilities.
- Prior to discharge, notes should be written on the road to health card to indicate whether the infant has received prophylaxis and what feeding option the mother has chosen (Department of Health, 2010).

The determinants of Antiretroviral Treatment initiation

- It is recommended that lay and nurse counsellors attend successive workshops about PMTCT, HCT, and infant feeding because they are the ones who usually have close contact with the pregnant women.
- In-service training of staff members who have not yet received formal training about HIV prophylaxis during pregnancy and ART will ensure continuity of care and will enable them to supply accurate information during health talks.

4.6 LIMITATIONS OF THE STUDY

The sample of the study consisted of the pregnant women, nurse and lay counsellors of three PHC facilities in the Molemole Municipality of the Capricorn District. Therefore, the results cannot be generalised to other municipalities**.**

4.7 CONCLUSION

This chapter focuses on a comprehensive discussion of the major findings of the study, the recommendations, the limitations of the study, and a conclusion. The objectives of the study have been attained and the research questions have been answered by means of the themes developed. Recommendations are made in relation to the major themes.

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ANNEXURE A: SCHEDULED INTERVIEW GUIDE

QUESTIONS THAT WILL BE ASKED DURING THE SEMI-STRUCTURED INTERVIEWS

PREGNANT WOMEN

1. Central question:

1.1 Describe what you understand about the PCR HIV testing of infants.

1.2 Questions to be covered:

1.2.1 What do you think about the PCR HIV testing of infants?

1.2.2 Where or when did you hear about the PCR HIV testing of infants?

2. Counsellors

2.1. Describe what you understand about the PCR HIV testing of infants.

2.2 What information do you give pregnant women with regard to the PCR HIV testing of infants?

ANNEXURE B: INTERVIEW TRANSCRIPT

P=Participant

R=Researcher

R= What do you know about PCR HIV testing in infants?

P=I know that PCR HIV test is the test that is done to infant born from HIV-positive mother.

R=Please explain further.

P = I know that when you are pregnant you have to get tested for HIV and results are positive you will be give treatment to protect the baby at 3 months.

R = What do you know about the treatment?

P = I don't know the name of the tables but I know that you have to take them until deliver and the infant will be test to check if they have worked.

R = If I understand you well, your said pregnant women are tested for HIV and if they are HIV-positive they are give tables to protect the infant from the virus and this infant are going to be tested to check if the treatment had worked?

P = Yes! [Nodding]

R = What do you mean when you say they check if the treatment had worked?

P = The tables that they give you when you are HIV-positive during pregnancy is to prevent the infant from getting HIV virus so after delivery they are going to check if the infant is HIV-positive or not.

R = When are they going to do the HIV test for infants?

P = They are going to do the test after giving the infant NVP for six weeks during the first immunisation.

R = Mmm! Tell me more about the NVP.

P = NVP also help to protect the infant from get HIV and it is give to infant born from the mothers who test HIV-positive during pregnancy and the nurse tell them when to come for infant HIV testing.

R = Ok, go ahead, I am listening.

P= the infant will be test at six weeks to check if the s/he is HIV-positive or not. If the infant is HI- positive treatment will be given immediately.

R= Ok.

P= If the infants is HIV-negative the test will be done again 18 months.

R = Where and when did you hear about PCR HIV testing in infants?

P = I had about PCR HIV testing in infants at this clinic and during HIV counselling when I came to book for antenatal care.

R= Who gave you this information about PCR HIV testing in infants?

P= At the clinic the lay counsellors give us health education about HIV in the morning and the nurse will also give you more information in the consulting room.

R= Your saying the lay counsellor and nurse counsellor gave you this information at this clinic about PCR HIV testing in infants?

P = Yes, even during the mother-to-mother support group that we attend, they educate use about PMTCT and breastfeeding.

R = Ok! Who attend this support group?

P = All the pregnant women at the clinic.

R= Which do the nurse and lay counsellor give you about breastfeeding?

P= The nurse counsellor and lay counsellors advice to choice one method of feeding, you have to choice the breastfeeding or bottle feeding because mix feeding can in increase the risk of MTCT of HIV.

R = Thank you so much for your time and the information you have shared.

ANNEXUREC: CONSENT FORM – UNIVERSITY OF LIMPOPO

UNIVERSITY OF LIMPOPO (Turfloop Campus) CONSENT FORM

Statement in relation to participation in a research project.

Name of Project: The knowledge of women about the PCR HIV testing of infants in the Molemole Municipality of the Capricorn District, Limpopo Province.

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

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

I know that this project has been approved by the Research, Ethics and Publications Committee of Faculty of Health Sciences of University of Limpopo (Medunsa Campus). I am fully aware that the results of this project will be used for scientific purposes and may be published. I agree to this, provided my privacy is guaranteed.

I hereby give consent to participate in this project.

.....

Name of volunteer

....

Place Date Witness

Statement by the Researcher

I provided verbal information regarding this Project

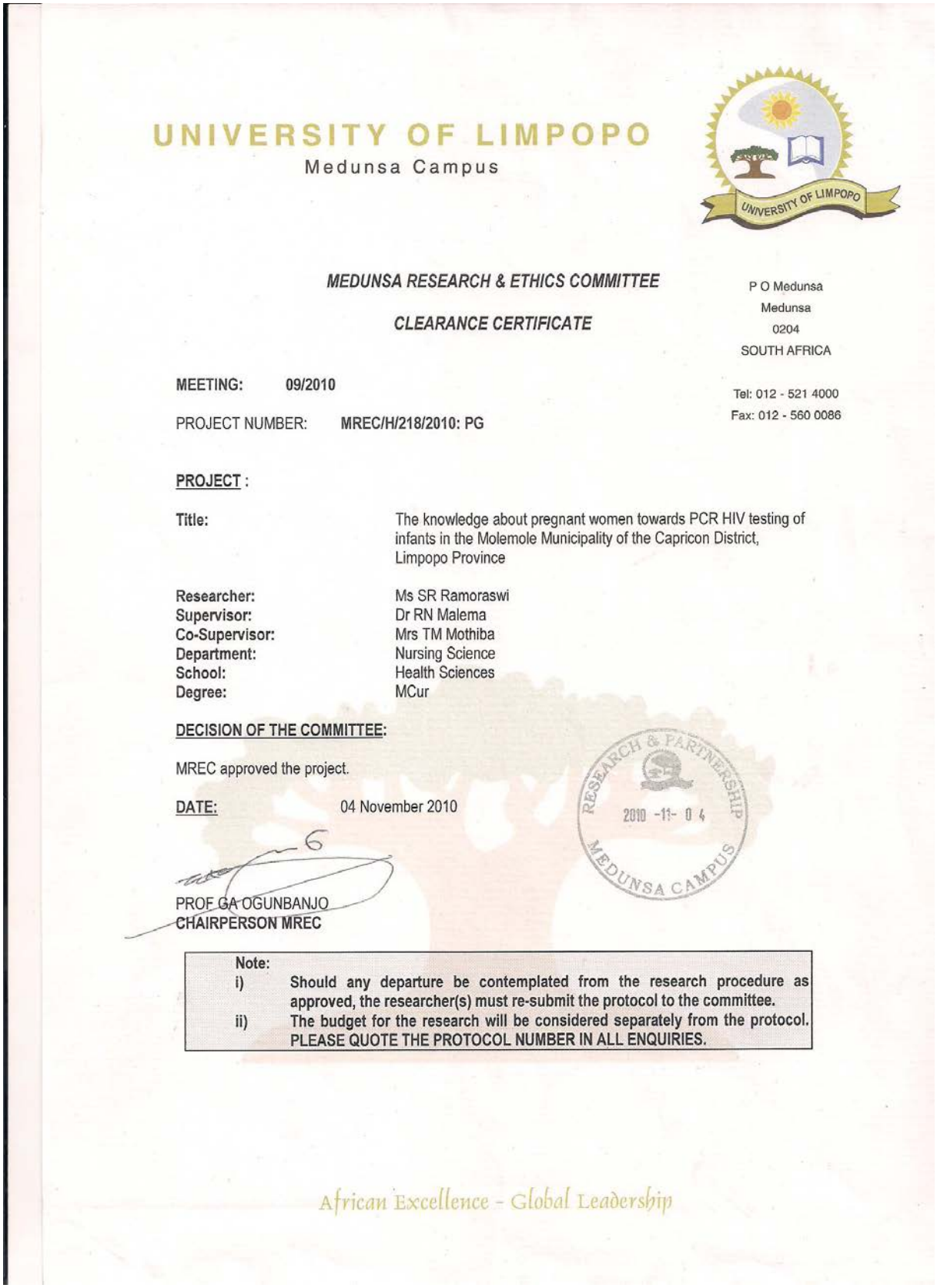
I agree to answer any future questions concerning the Project as best as I am able.

I will adhere to the approved protocol.

....

Name of Researcher Signature Date Place

ANNEXURE D: CLEARANCE CERTIFICATE



UNIVERSITY OF LIMPOPO
Medunsa Campus

MEDUNSA RESEARCH & ETHICS COMMITTEE

CLEARANCE CERTIFICATE

P O Medunsa
Medunsa
0204
SOUTH AFRICA

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

MEETING: **09/2010**

PROJECT NUMBER: **MREC/H/218/2010: PG**

PROJECT :

Title:	The knowledge about pregnant women towards PCR HIV testing of infants in the Molemole Municipality of the Capricon District, Limpopo Province
Researcher:	Ms SR Ramoraswi
Supervisor:	Dr RN Malema
Co-Supervisor:	Mrs TM Mothiba
Department:	Nursing Science
School:	Health Sciences
Degree:	MCur

DECISION OF THE COMMITTEE:

MREC approved the project.

RESEARCH & PARTNERSHIP 2010 -11- 04 MEDUNSA CAMPUS

DATE: 04 November 2010

PROF GA OGUNBANJO
CHAIRPERSON MREC

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

African Excellence - Global Leadership

ANNEXURE E: CERTIFICATE FROM INDEPENDENT CODER

INDEPENDENT CODER CERTIFICATE

Qualitative data analysis

Master's degree in Nursing Science

SR RAMORASWI

THIS IS TO CERTIFY THAT:

Prof MS MAPUTLE has co-coded the following qualitative data:

12 Individual interviews for mothers

6 Individual interviews for nurse counsellors and

3 Individual interviews for lay counsellors

For the study: THE KNOWLEDGE OF PREGNANT WOMEN TOWARDS PCR HIV TESTING OF INFANTS IN THE MOLEMOLE MUNICIPALITY OF THE CAPRICORN DISTRICT, LIMPOPO PROVINCE

I declare that adequate data saturation was achieved as evidenced by repeating themes.

PROF MS MAPUTLE

Annexure F: PERMISSION LETTER FROM DEPARTMENT OF HEALTH

LIMPOPO
PROVINCIAL GOVERNMENT
REPUBLIC OF SOUTH AFRICA

DEPARTMENT OF HEALTH

Enquiries: Selamolela Donald
Ref: 4/2/2

22 July 2011
Ramoraswi SR
University of Limpopo
Sovenga
0727

Greetings,

Re: Permission to conduct the study titled: The knowledge of pregnant women towards PCR HIV testing of infants in Molemole Municipality of the Capricorn District

1. The above matter refers.
2. The permission to conduct the above mentioned study is hereby granted.
3. Kindly be informed that:-
   - Further arrangement should be made with the targeted institutions.
   - In the course of your study there should not be any action that will disrupt the services
   - After completion of the study, a copy of the report should be submitted to the Department to serves as a resource
   - You should be prepared to assist in the interpretation and implementation of study recommendations where possible

Your cooperation will be highly appreciated

Head of Department
Department of Health
Limpopo Province

18 College Street, Polokwane, 0700, Private Bag x9302, POLOLKWANE, 0700
Tel: (015) 293 6000, Fax: (015) 293 6211/20 Website: http/www.limpopo.gov.za

ANNEXURE G: EDITING CONFIRMATION LETTER

* The stars that tell the spade when to dig and the seeds when to grow *
* Isilimela – iinkwenkwezi ezixelela umhlakulo ukuba mawembe nembewu ukuba mayikhule*

P O Box 65251
Erasmusrand
0165

24 January 2013

Dear Ms Ramoraswi

CONFIRMATION OF EDITING YOUR DISSERTATION WITH THE TITLE THE KNOWLEDGE OF PREGNANT WOMEN ABOUT POLYMERASE CHAIN REACTION HIV TESTING OF INFANTS IN THE MOLEMOLE MUNICIPALITY OF THE CAPRICORN DISTRICT, LIMPOPO PROVINCE

I hereby confirm that I have edited the abovementioned dissertation as requested.

Please pay particular attention to the editing notes AH01 to AH14 for your revision.

The tracks copy of the document contains all the changes I have effected while the edited copy is a clean copy with the changes removed. Kindly make any further changes to the edited copy since I have effected minor editing changes after removing the changes from the tracks copy. The tracks copy should only be used for reference purposes.

Please note that it remains your responsibility to supply references according to the convention that is used at your institution of learning.

You are more than welcome to send me the document again to perform final editing should it be necessary.

Kind regards

André Hills

083 501 4124