

EFFECTIVE PREVENTION OF MOTHER-TO-CHILD TRANSMISSION OF HIV AT OSHAKATI DISTRICT HEALTH CENTRE IN THE REPUBLIC OF NAMIBIA

by

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DECLARATION

I declare that **“EFFECTIVE PREVENTION OF MOTHER-TO-CHILD TRANSMISSION OF HIV AT OSHAKATI DISTRICT HEALTH CENTRE IN THE REPUBLIC OF NAMIBIA”** is my own work and that all sources that I have used or quoted have been indicated and acknowledged by means of complete reference and that this work has not been submitted before for any other degree at any other institution.



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28 February 2012

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ABSTRACT

The aim of this study was to assess the extent on how effective was the prevention of mother-to-child transmission of Human Immunodeficiency Virus (HIV) infection at Oshakati District Health Centre. Explanatory survey was used to conduct the research. A total of 160 nurses experienced in prevention of mother-to-child transmission and women who attended antenatal care and post natal care services participated in the study. Respondents expressed unsatisfactory with the promoting involvement of male partners, high quality voluntary counselling and testing services, couple counselling and testing, integration of Highly Active Antiretroviral Therapy services, administration of short course of Zidovudine to pregnant mothers and the provision of antiretroviral drugs to infants. Therefore, promoting involvement of male partners, couple counselling and testing, administration of short course of Zidovudine to pregnant mothers and educating women about exclusive breastfeeding prior to delivery are some of recommendations for effective prevention of mother-to-child transmission of HIV infections.

Keywords

Prevention of mother-to-child transmission; HIV; antepartum; intrapartum; postpartum; highly active antiretroviral therapy; Zidovudine, Nevirapine, exclusive breastfeeding; challenges; effective prevention of mother-to-child transmission; Namibia.

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Dedication

*To the PMTCT mothers and their infants
and to the clinicians and all volunteers
who work tirelessly toward an HIV free generation*

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List of abbreviations

3TC	Lamivudine
AIDS	Acquired Immune Deficiency Syndrome
ANC	Antenatal Care
ART	Antiretroviral Therapy
ARV	Antiretroviral
AZT/ZDV	Zidovudine
CTX	Cotrimoxazole
DNA	Deoxyribonucleic Acid
d4t	Stavudine
EBF	Exclusive Breastfeeding
EID	Early Infant Diagnosis
ELISA	Enzyme Linked Immunosorbent Assay
FP	Family Planning
HAART	Highly Active Antiretroviral Therapy
HCT	HIV Testing and Counseling
HCWs	Health Care Workers
HIV	Human Immunodeficiency Virus
HVCT	HIV Voluntary Counselling and Testing
MoHSS	Ministry of Health and Social Services
MTCT	Mother-to-Child Transmission of HIV infection
NVP	Nevirapine
PCR	Polymerase Chain Reaction
PITC	Provider initiated testing and counselling
PMTCT	Prevention of Mother-to-Child Transmission of HIV
RF	Replacement Feeding
RNA	Ribonucleic Acid
STIs	Sexually Transmitted Infections
UNAIDS	Joint United Nations Programme on AIDS
UNICEF	United Nations Children's Fund
WHO	World Health Organization

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CHAPTER 1

ORIENTATION OF THE STUDY

1.1 INTRODUCTION

The nature, scope and organisation of this study are discussed under the following headings: In the first instance the background to the study is given and flowing from that research problem is defined in the form of a problem statement. Secondly, the main research question is used to focus the assessment. For purposes of unpacking the research problem and maintaining coherence throughout the study. Thirdly, the methodology to attain the aim is given. Lastly, the scope and structure of the research study is presented.

1.2 BACKGROUND INFORMATION ABOUT THE RESEARCH PROBLEM

The Republic of Namibia conducted a sero-prevalence survey among pregnant women attending antenatal care (ANC) clinic for the first time in 1992 and then every second year. The result of the first survey reported a prevalence of 4.2% among pregnant women attending antenatal care clinic services and the country reached a peak of 22% in 2002 and has been declining thereafter with the latest being 18.8% in 2010 (Ministry of Health and Social Services [MoHSS] 2010:12). With such high sero-prevalence among pregnant women, the World Health Organization (WHO) recommended strategies to reduce mother-to-child transmission of Human Immunodeficiency Virus (HIV) infection, using scientific evidence based interventions, which if implemented correctly can reduce mother-to-child transmission of HIV infection to below 2%–5% among non-breastfeeding and breastfeeding population respectively (WHO 2010a:6).

In order to prevent mother-to-child transmission of HIV infection, the WHO (2008a:8) proposes a comprehensive strategic approach that includes the following four components:

- Primary prevention of HIV infection among women of childbearing age
- Preventing unintended pregnancies among women living with HIV
- Preventing HIV transmission from a woman living with HIV to her infant
- Providing appropriate treatment, care and support to mothers living with HIV and their children and families

A study by United Nations Children's Fund (UNICEF) (2007:3) reveals that prevention of mother-to-child transmission of HIV infection (PMTCT) intervention is mainly focusing on the third component as WHO (2008a:8) indicates which is preventing the already infected mother from transmitting the HIV to her infant in utero, around the time of delivery and in the postpartum period.

Magder, Mofenson, Paul, Zorrilla, Blattner, Tuomala, LaRussa, Landesman and Rich (2005:6) indicate that that mother-to-child transmission of HIV infection (MTCT) can occur in antepartum, intrapartum or postpartum through breast-feeding. Different factors may influence MTCT during each of these time periods and hence interventions to reduce transmission during each of these periods may also require different preventive strategies.

1.2.1 The source of the research problem

UNICEF reported that 1400 infants are infected with HIV during pregnancy, labour and delivery or breastfeeding every day. Unlike adults, infant infected with HIV report to have quicker progress to disease stage and 50% could die before 2 years of age if not initiated on treatment with antiretroviral prophylaxis (UNICEF 2008:5). To prevent this catastrophe, the WHO recommends full highly active antiretroviral therapy (HAART) to eligible pregnant women and antiretroviral (ARV) prophylaxis to those not eligible as indicated by WHO clinical staging or CD4 cell count. The call to use more efficacious regimen was adapted in Namibia late 2008, when the ministry of health pass a guideline to move away from giving single dose Nevirapine (NVP) at onset of labour to antepartum Zidovudine (AZT) from 28 weeks of pregnancy to all pregnant women not yet eligible to receive a full course of HAART. By end March 2009 Namibia had reached 76% PMTCT coverage with a total of 340 health care facilities providing PMTCT

services (MoHSS 2008:3). HIV testing for infant using Deoxyribonucleic Acid Polymerase Chain Reaction (DNA PCR) from 6 weeks was also introduced late 2006.

Apart from the pilot study done at the beginning of the PMTCT programme in Namibia, new recommendations have been adapted and implemented. Through clinical practice, mentoring of nurses in the PMTCT clinics and interaction with other health care professionals in PMTCT programmes, it became interesting to the researcher to conduct a survey to assess the effectiveness of the PMTCT interventions at Oshakati District Health Centre.

1.2.2 Outline to the research problem

Oshakati District Health Centre has been facing challenges in PMTCT. The Centre has antepartum, intrapartum and postpartum HIV transmission prevention intervention programmes in place but the interventions are not effectively contributing to PMTCT. According to The Independent Expert Panel (2010:9), effective PMTCT requires a range of services since access to most interventions to reduce MTCT requires knowledge of maternal HIV serostatus, access to voluntary HIV testing and confidential counselling is critical. High uptake of testing can be achieved with routine provider-initiated HIV testing and counselling (PITC) combined with use of rapid tests offering same day results in antenatal and delivery settings.

The Independent Expert Panel (2010:9) states that in the absence of PITC in ANC clinics, testing rates remain low, even where ANC attendance rates are high. While this is primarily due to lack of offering of the test, other factors are also involved including lack of test kits, inadequate counselling, need to discuss with male partner before making decision and fear of stigma. Provision of couple counselling and testing has been shown to increase acceptance of HIV testing by pregnant women.

1.3 PROBLEM STATEMENT

The PMTCT programme was implemented in Namibia in 2002, with two main goals, which were:

- Firstly, to ensure that 90% of HIV positive pregnant women, their children and partners had access to PMTCT services and receive a complete course of ARV prophylaxis to prevent MTCT.
- Secondly, was to reduce the risk of MTCT from 30% to 15% (by 50%) by 2010.

Like in other countries of the world, such as South Africa and Botswana just to mention a few, the Republic of Namibia's interventions for PMTCT follow the four prongs approach as recommended by WHO (2008:8) but the result of the survey reported a prevalence rate of 18.8% among pregnant women attending ANC clinic services in 2011. As a result, nearly 19 out of 100 babies at Oshakati District Health Centre are exposed to HIV and at risk of getting infected with HIV. Therefore a good understanding of the effectiveness of the following important interventions is crucial:

- **Antepartum HIV transmission prevention interventions**

A study by the WHO (2008:3) defines antepartum HIV transmission prevention interventions as an early identification of pregnant women living with HIV who require antiretroviral therapy (ART) for their own health and successful initiation of such drugs that improve the health and survival of mothers and significantly reduce infant and child mortality.

WHO, UNAIDS and UNICEF (2009:97) further define antepartum HIV transmission prevention interventions as a set of sequential interventions that include HIV testing and counselling (HCT) for pregnant women and their partners; clinical and immunological assessment to determine the eligibility of mothers for treatment and ART for eligible mothers for their own health and for their infants to prevent vertical transmission.

Oshakati District Health Centre has challenges to achieve effective antepartum HIV transmission prevention interventions as women starts to attend antepartum services late in pregnancy mostly in the second and third trimester and some women do not attend antepartum services at all until delivery. This is influenced due to low community literacy level on PMTCT, cultural believes – not to disclose pregnancy too early and limited number of PMTCT trained nurses. As a result, Oshakati District Health Centre

experiences miss opportunities to PMTCT, delayed initiation of ART and prophylaxis and increase risk of MTCT in utero.

- **Intrapartum HIV transmission prevention interventions**

A study by the MoHSS (2008:13) defines intrapartum HIV transmission prevention interventions as management of the HIV positive woman during labour and delivery. The Ministry stresses that most infants who acquire HIV during labour and delivery do so by sucking, imbibing or aspirating maternal blood or cervical secretions that contains HIV.

Oshakati District Health Centre has challenges to achieve effective intrapartum HIV transmission prevention interventions as a number of women still turns up in labour with unknown HIV status, some delivery on arrival to labour ward without ARV prophylaxis, and have not taken ARV prophylaxis during pregnancy, labour and delivery, they do not attend ANC clinic as scheduled and their babies are not given ARV prophylaxis at birth. This is influenced by women opted out to routine HIV testing, women drop ANC clinic visits, lack of knowledge on how the PMTCT programme works and fear of stigma if tested HIV positive. As a result, Oshakati District Health Centre experience missed opportunities of PMTCT, delayed initiation of ARV prophylaxis and increase risk of MTCT during labour and delivery.

- **Postpartum HIV transmission prevention interventions**

A study by the MoHSS (2008:14) defines postpartum HIV transmission prevention interventions as care of HIV-positive women after delivery that include treatment with antibiotics, reviewing and supporting the infant feeding option chosen, providing information on contraception options and women whose HIV status is not known are offered HCT in the immediate postnatal period once the patient has been stabilised. The MoHSS (2008:14) states that postpartum HIV transmission prevention interventions offers a window of opportunity to give ARV prophylaxis to the baby and counsel on infant feeding options.

The WHO (2009:97) further defines postpartum HIV transmission prevention interventions as counselling and support for feeding infants and young children in the context of HIV. The WHO (2009:97) indicates that HIV transmission prevention interventions are comprehensive care and support services that are particularly important for women with HIV infection and their families, who often face multiple social and medical challenges.

Oshakati District Health Centre has challenges to achieve effective postpartum HIV transmission prevention interventions as infants are not initiated on breastfeeding immediately to promote bonding for mother who chose to breastfeed exclusively and no intensive infant feeding counselling is provided to HIV infected mothers. Most mothers and their children are not seen at 6 day and then after 6 weeks for postnatal care as recommended. Mothers are also not regularly monitored for HIV disease progression after delivery and most children do not have the first DNA PCR test at 6 weeks as per guideline.

The interventions described above lead to main problem of this study, which is, what are the challenges affecting effective prevention of mother-to-child transmission of HIV infection?

1.4 AIM OF THE STUDY

The aim is to describe challenges to effective prevention of mother-to-child transmission of HIV infection interventions in order to effectively address identified challenges thus promoting an effective prevention of MTCT of HIV infection at Oshakati District Health Centre.

1.4.1 Research objectives

The objectives of this study were to

- Describe the challenges faced in the interventions for effective prevention of mother-to-child transmission of HIV infection in Namibia
- describe the strategies used in the effective prevention of mother-to-child transmission of HIV infection
- recommend effective measures to promote the interventions on the prevention of mother-to-child transmission of HIV infection in Namibia

1.5 SIGNIFICANCE OF THE RESEARCH

The researcher envisaged that the findings of this study would contribute towards the reduction of the spread of HIV infections through improvement of interventions for PMTCT programmes in Namibia. The research also examined how to improve and learn from challenges experienced in the past, and reference was made to various approaches utilised by other health facilities to achieve effective PMTCT within their areas of jurisdiction. Therefore, the advantages of effective PMTCT were explained.

The research assisted in drawing and submitting conclusions and proposals that will contribute to the effective PMTCT. An additional, aspect was to provide recommendations that will contribute to Oshakati District Health Centre achieving expected effective PMTCT objectives. The research on effective PMTCT creates knowledge through which publicly available information will be shared with other health facilities.

1.6 DEFINITIONS OF KEY CONCEPTS

In the context of the study, certain key concepts that relate to the main problem statement are defined and these include:

1.6.1 Human Immunodeficiency Virus (HIV)

According to the MoHSS (2010:1), HIV is a virus that weakens the immune system leaving the body vulnerable to diseases and causes AIDS.

1.6.2 Prevention of mother-to-child transmission

A programme aimed at preventing vertical transmission of HIV from the mother to her unborn baby or infant in utero, during labour and delivery and in the postpartum period including the breastfeeding period (UNICEF2010:3). In this study it means all interventions at Oshakati District Health Centre that are targeted to prevent HIV transmission from mother to her baby during pregnancy, labour and delivery and during postpartum.

1.6.3 Antepartum HIV transmission prevention interventions

McIntyre and Gray (2009:475) define antepartum HIV transmission prevention interventions as ANC services that are available and accessible at an early stage of pregnancy, to identify HIV-positive mothers and to provide ARV regimens. They indicate that antepartum services need to provide HCT, which must be acceptable to pregnant women to ensure uptake because high levels of acceptance of testing in pregnancy have been demonstrated in many high HIV-prevalence and low-resource areas. In this study it means the entire package of services that are recommended to reduce MTCT provided to women when they attend antenatal care services at Oshakati District Health Centre that is targeted to prevent HIV transmission from mother to her baby during pregnancy, labour and delivery and during postpartum.

A study by the WHO (2008a:3) defines antepartum HIV transmission prevention interventions as an early identification of pregnant women living with HIV who require ART for their own health and successful initiation of such drugs that improve the health and survival of mothers and significantly reduce infant and child mortality.

1.6.4 Intrapartum HIV transmission prevention interventions

Public Health Service Task Force (2009:59) defines intrapartum HIV transmission prevention interventions as the management of HIV-infected pregnant women during labour and delivery to minimise both the risk for perinatal HIV transmission and the potential for maternal and neonatal complications. In this study it means the entire package of services provided in labour and delivery room to reduce MTCT from the time the pregnant woman gets in true labour to delivery. This include safe obstetric practices the management of first, second and third stage of labour, and intervention with ARVs.

Umerah-Udezulu and Williams (2006:44) further define intrapartum HIV transmission prevention interventions as protocol involving having HIV-positive women begin an antiretroviral regimen at the time of delivery. They state that intervention is dependent upon access to HVCT and adequate infrastructure to procure and administer ART drugs.

1.6.5 Postpartum HIV transmission prevention interventions

Bii, Otieno-Nyunya, Siika and Rotich (2008:158) define postpartum HIV transmission prevention interventions as determining the types and modes of infant feeding practices among the HIV infected mothers on PMTCT. In this study it means postpartum HIV prevention interventions provided during the early postpartum phase, this starts immediately after the third stage of labour to late postpartum.

1.7 FOUNDATIONS OF THE STUDY

Challenges facing effective PMTCT can be understood in terms of the theoretical issues of the critical activities for effective PMTCT model as displayed in figure 1.1.

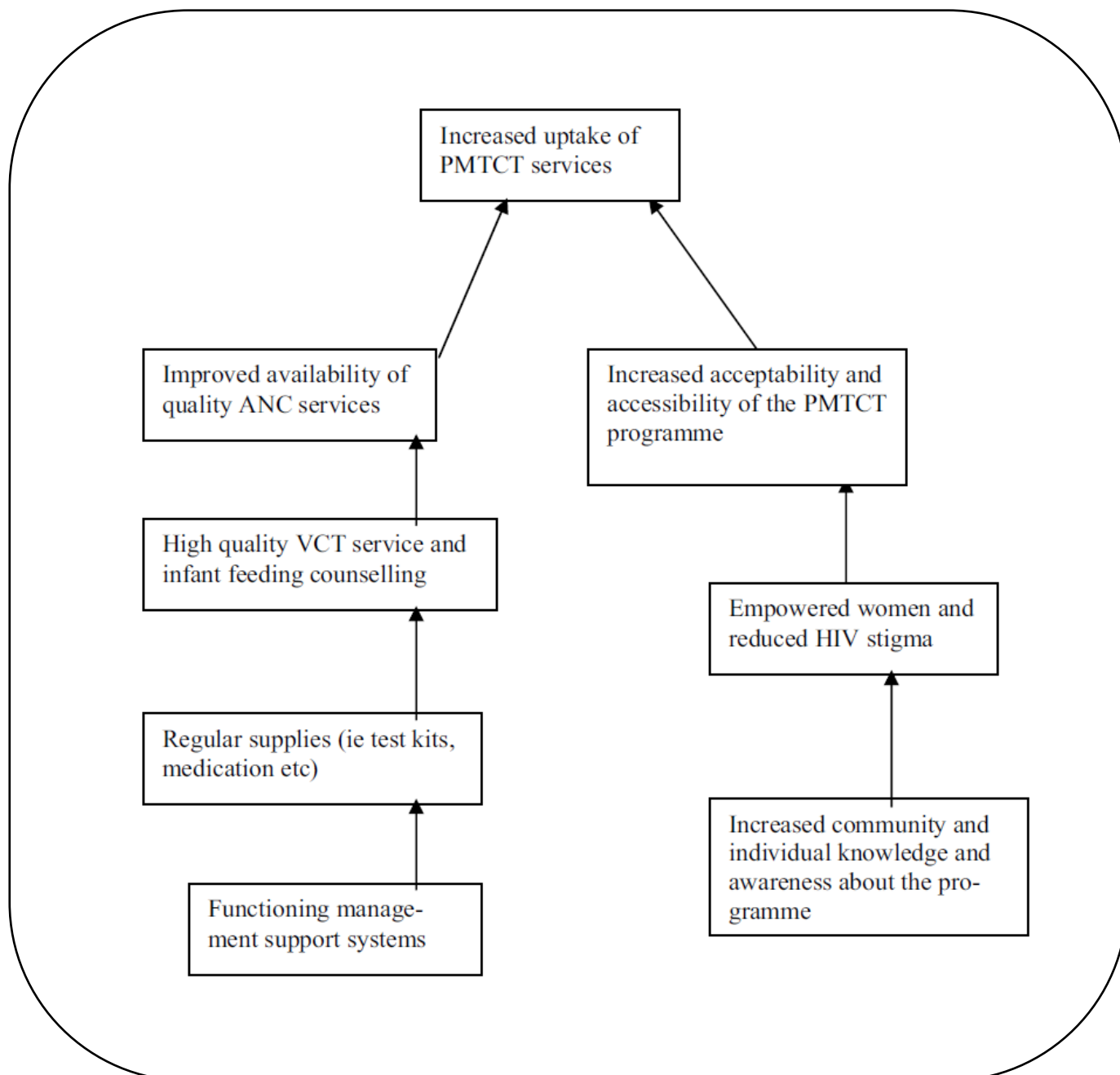


Figure 1.1 Critical activities for effective PMTCT model

Source: Chopra (2008:19)

According to Chopra (2008:19), as demonstrated in figure 1.1, key critical activities that need to happen in order to achieve the overall aim of PMTCT includes the presence of high quality HVCT service, regular supplies, increased community and individual knowledge and awareness of the PMTCT programme.

Chopra (2008:19) states that PMTCT programme fulfils the following conditions:

- **Operational strategies and availability of financial resources:** Policies, planning, protocols and co-ordination between the different management levels are necessary for an operational intervention. This must be supported by adequate financial resources.
- **Quality of the services and human resources:** These are major elements of the final effectiveness of the intervention. Standard procedures have to be well designed and they have to be followed. Personnel must be positive, empathetic and compassionate. The criteria for counselling quality must be met. Human resource issues include availability of trained personnel, quality of training programmes and quality of follow up after training.
- **Availability of key resources and management systems:** An uninterrupted supply of HIV tests, ARV and laboratory supplies must be guaranteed. This requires either procurement through the usual channels of drug supply or the establishment of a parallel system. This in turn requires functioning management systems.
- **Access and continued use of service.** Women have to be able to get to the place where counselling, testing and treatment by ARV is offered.

1.8 RESEARCH DESIGN AND METHODOLOGY

Crosby, DiClemente and Salazar (2006:75) defined research design as “the strategy the investigator chooses for answering the research question”. The research question to be answered determined and helped the researcher identify the most appropriate research design used.

1.8.1 Research design and method

Research design is defined by Leedy and Ormrod (2010:91) as a framework or blueprint for conducting the research project. It specifies the details of the procedures necessary for obtaining the information needed to structure or solve research problems. The researcher’s first task was to make a decision on the type of research design to use. Therefore, the study employed exploratory design to measure the perceptions of HCWs

experienced in PMTCT and women who attended ANC and post natal care services at Oshakati District health Centre during one week of the research survey.

This study used a quantitative approach. Data was collected through survey questionnaires. Questionnaires for patients were given to nurses in charge of Antenatal and postnatal unit for distribution to patients attending these services and patient were directed to drop them in boxes which were closed with a "ballot box" like opening. All questionnaires for HCWs were handed over to HCWs by the researcher and HCWs were directed to drop them in a closed box. The researcher collected all questionnaires at the end of the data collection period.

1.9 SCOPE OF THE STUDY

This study included HCWs experienced in PMTCT and women who attended ANC and post natal care services at Oshakati District health Centre. HCWs not experienced in PMCTC were not surveyed. The convenient sampling applied makes results contained from study applicable to and limited to those units under study.

1.10 STRUCTURE OF THE DISSERTATION

The study consists of the following five chapters.

- Chapter 1 presents the introduction, which includes the background to research problem, problem statement, aims of the study, research objectives, research questions and significance of the study.
- Chapter 2 Present literatures reviewed related to the study.
- Chapter 3 address the research methodology selected for this study including the data collection and data analysis methods.
- Chapter 4 presents and analyses the results of the findings with respect to the challenges faced as well as the strategies deployed. It presents all findings in table and graphic form for each test item of the questionnaire and explains them.
- Chapter 5 provides recommendations of the discussions of the findings as presented in the previous chapters, draw conclusions and implications of the study and finally provides suggestions for further study.

1.11 CONCLUSION

This chapter has introduced the study by discussing the background information about the research problem, problem statement, aims of the study, significance of the research, definitions of key concepts, foundations of the study, research design and method, scope and structure of the study. Findings of the reviewed literature based on the previous and similar studies conducted on PMTCT will be presented in the next chapter.

CHAPTER 2

LITERATURE REVIEW

2.1 INTRODUCTION

This chapter presents relevant literature that has been identified, reviewed and synthesised. The premise of the literature review is that it should build on what others have done instead of potentially re-inventing the wheel. The section begins by focusing on a brief review of effective PMTCT, as well as the challenges facing the prevention. Various models have been developed to assist with compliance and several of these, and their inherent flaws, are discussed in this chapter. This is followed by suggestions in literature with regards to interventions to prevent antepartum, intrapartum and postpartum HIV transmission for effective PMTCT programme.

2.2 INTERVENTIONS TO PREVENT ANTEPARTUM HIV TRANSMISSION

According to Family Health International (2004:4), a growing body of research and experience has identified safe, feasible and effective interventions to reduce MTCT. However, for a woman to benefit from these interventions she must come for ANC and must access HCT services.

A study conducted by the Public Health Service Task Force (2009:16) in the United States of America reveal that initial evaluation of an infected pregnant woman should include an assessment of HIV disease status and recommendations regarding ARV treatment or alteration of her current ART regimen. The known benefits and potential risks of ARV use during pregnancy should be discussed with all women. ART or ARV prophylaxis for prevention of perinatal HIV transmission during the antepartum period should be recommended to all pregnant, HIV-infected women regardless of plasma HIV (Ribonucleic Acid) RNA copy number or CD4 cell count.

The Public Health Service Task Force (2009:16) indicated that AZT should be included in the antenatal ARV regimen unless there is severe toxicity or documented resistance.

If HIV RNA is detectable, ARV drug resistance studies should be performed before starting or modifying therapy. The Public Health Service Task Force (2009:16) advises that the importance of adherence to the ARV treatment or prophylaxis regimen should be emphasised and coordination of services among prenatal care providers, primary care and HIV specialty care providers and public assistance programs should be assured as part of recommending antiretroviral drugs during pregnancy.

2.2.1 HIV testing and counselling during antepartum period

Kizito, Woodburn, Kesande, Ameke, Nabulime, Mawanga, Grosskurth and Elliott (2008:680) in their study on uptake of HIV and syphilis testing of pregnant women and their male partner in PMTCT indicated that the findings showed that HIV testing in antepartum period support interventions that address PMTCT, but uptake of opt-in testing “where tests are offered, as opposed to opt-out, where they are done routinely” is sometimes low in resource-poor settings. This has implications for prevention of transmission between serodiscordant partners and for PMTCT programmes adherence.

Kizito et al (2008:680) further stated that the interventions to prevent MTCT are difficult for women whose partners are unaware or not supportive of their participation. Thus, promoting involvement of male partners in PMTCT programmes may improve uptake, behaviour change and compliance with PMTCT measures (Kizito et al 2008:680).

Similarly, Katz, Kiarie, John-Stewart, Richardson, John and Farquhar (2009:6) suggested that offering HIV Voluntary Counselling and Testing (HVCT) services for men at ANC clinics, with options for couples counselling, may be an acceptable strategy for increasing male involvement in HVCT and PMTCT interventions in resource limited settings. MTCT remains a significant problem in the developing world despite the development and growing availability of effective prevention methods appropriate for resource-limited settings (Katz et al 2009:6).

Katz et al (2009:6) study further indicated that HVCT in the context of ANC serves as the entry point for targeted PMTCT, although a majority of pregnant women accept antenatal HVCT in these settings, many do not learn their HIV serostatus, take part in prevention programs or implement interventions to reduce the risk of vertical HIV transmission. They advise that male partners play a role not only in women’s risk of

acquiring HIV but also in uptake of antenatal HVCT and PMTCT programs (Katz et al. 2009:6).

In a study by Nyblade and Field-Nguer (2007:37), it was found that community acceptance and support address and reduce stigma and discrimination against people living with HIV/AIDS, making it psychologically safer for women to participate in HVCT. Women faced with a decision about HVCT will be influenced by perceptions of how their families and communities will treat them if it becomes known that they participated in such a program, in particular if they prove to be HIV positive (Nyblade & Field-Nguer 2007:37).

Nyblade and Field-Nguer (2007:37) further stated that directors and staff of PMTCT programs need to recognise the influence that attitudes of the general community toward people living with HIV/AIDS have on women's participation in HVCT. Therefore directors and staff of PMTCT programs should seek to improve community acceptance of HVCT and community support of people with HIV/AIDS.

2.2.2 The conceptual model of antepartum interventions

According to Stinson, Myer and Boulle (2008:3), challenges facing effective PMTCT can be understood in terms of the theoretical issues of the HAART eligibility initiation model as displayed in figure 2.1.

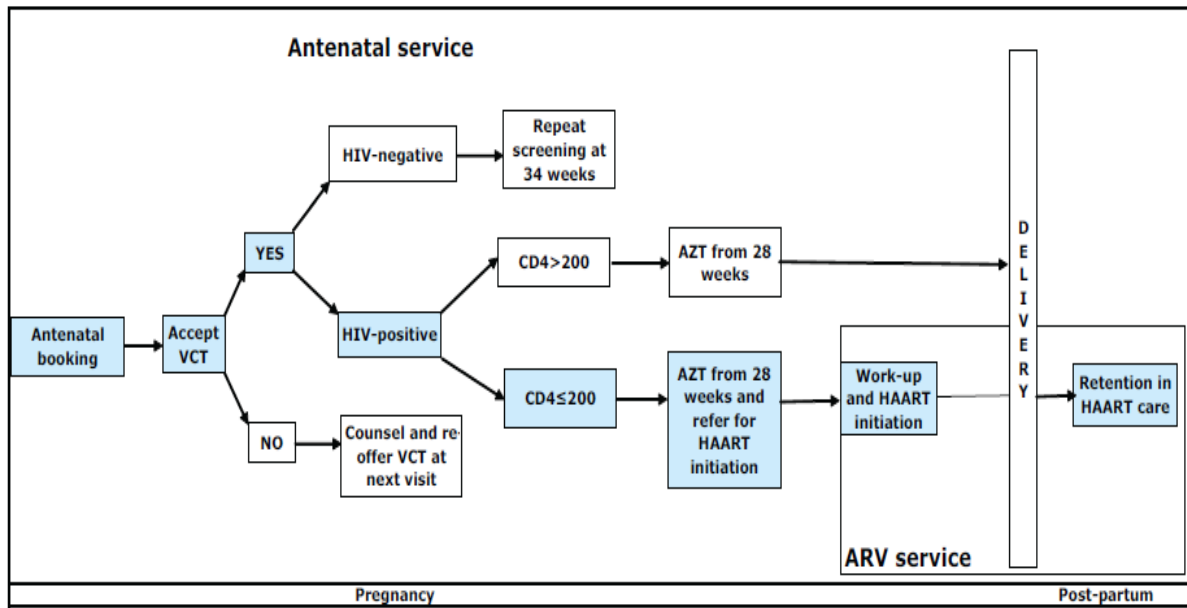


Figure 2.1 The HAART eligibility initiation model

Source: Stinson et al (2008:3)

Stinson et al (2008:3) build on Chopra (2008:19) work with their HAART eligibility initiation model of PMTCT. They further indicated that a number of interventions are possible to optimise the identification of HIV-infected women early in pregnancy, identify those women in need of ART and start ART rapidly and effectively to promote maternal and child health. They indicate that there must be promotion of pre-pregnancy HVCT with the interventions that aid pre-pregnancy diagnosis of HIV in all women of reproductive age so that women enter antepartum services aware of their serostatus and where applicable, already on ARV treatment.

The authors further advised that health facilities should promote awareness of PMTCT outside of the ANC setting to ensure that HIV-infected women are aware of the benefits of early pregnancy booking before becoming pregnant. They emphasise that health facilities should also introduce point of care CD4 count testing to aid fast-tracking of clients eligible for HAART. This will alternatively, make provision for all HIV-infected women to return for follow-up within a week of booking to get their CD4 results and make pregnancy tests free at all services to encourage earlier diagnosis and promote earlier booking (Stinson et al 2008:3).

2.2.3 Provision of antiretroviral therapy to prevent vertical transmission during antepartum period

According to Tsague, Tsiouris, Carter, Mugisha, Tene, Nyankesha, Koblavi-Deme, Mugwaneza, Kayirangwa, Sahabo and Abrams (2010:2), MTCT remains the major route of paediatric HIV infection. While access to HIV testing during pregnancy has improved, most PMTCT programs still rely on administration of single-dose NVP (ds-NVP) to mothers and babies, a simple, inexpensive, but low efficacy ARV regimen to reduce the risk of HIV transmission.

A study by Tsague et al (2010:2) indicated that in November 2009, the WHO issued revised guidelines emphasising the use of multi-drug antiretroviral (md-ARV) regimen for PMTCT as well as the critical need for measuring antenatal CD4 cell counts to determine HAART eligibility. Tsague et al (2010:2) state that the WHO report demonstrated that regardless of the model of PMTCT service delivery, it is feasible to transition from SD-NVP regimen to more effective md-ARV regimen in a resource limited, public sector PMTCT program. However, more efforts are needed to ensure effective CD4+ cell count assessment and the enrolment of HIV+ women in ART services in stand-alone sites and task-shifting is necessary to ensure the timely initiation and follow-up of HAART among pregnant women.

The Royal College of Paediatrics and Child Health (2006:13) agrees with Tsague et al (2010:2) by stating that the management of HIV in general has evolved with the use of HAART, which has the ability to suppress viral replication. The role of such combination treatments in pregnancy is, as yet, unclear and their use does carry a potential risk of side effects for both mother and the unborn baby.

McIntyre and Gray (2009:475) share the same view, by advising that to fully implement an integrated strategy of providing ART for women with low CD4 _ counts or clinical symptoms of AIDS and a prophylactic regimen for other HIV-positive women, the ANC services and health workers need to be able to undertake clinical assessment for HIV signs and symptoms and obtain a baseline CD4 _ cell count. McIntyre and Gray (2009:475) advise that this level of care is not widely available in maternity settings in many low-resource settings and needs to be strengthened, along with the infrastructure for ARV drug supplies and access to early diagnostic HIV testing.

2.3 INTERVENTIONS TO PREVENT INTRAPARTUM HIV TRANSMISSION

According to Rutenberg, Kalibala, Baek and Rosen (2006:49), a substantial proportion of perinatal HIV transmission occurs during intrapartum and immediately postpartum. This period should be the target of intensive PMTCT program efforts. The efforts should include improving obstetrical practices that entails working closely with safe motherhood programs to develop and disseminate appropriate guidelines which address HIV and PMTCT, skills building and ensuring that health workers have the supplies they need to safeguard their clients and themselves.

Study findings by Rutenberg et al (2006:49) indicated that improved obstetrical practice interventions to support PMTCT also include reducing unnecessary instrumentation and invasive procedures, averting artificial rupture of membranes and prolonged labour, reducing unsafe medical practices and improving home-based obstetric practices. Rutenberg et al (2006:49) state that good discussion of these practices and suggested behaviour change interventions promote good practice. They state that PMTCT program should link with programs that screen blood for HIV to ensure that all birthing sites have supplies of screened blood for pregnancy-related emergencies. The PMTCT program must also work hand-in-hand with safe motherhood efforts to develop policies, guidelines, pre-service training and programs which address reducing the risk of HIV infection in women and their infants.

The Public Health Service Task Force (2009:59) concurs with Rutenberg et al (2006:49) by advising that intrapartum intravenous AZT is recommended for all HIV-infected pregnant women, regardless of their antepartum regimen to reduce perinatal HIV transmission. For women who are receiving a Stavudine (d4T) -containing antepartum regimen, d4T should be discontinued during labour while intravenous AZT is being administered. Women who are receiving an antepartum combination ARV treatment regimen should continue this regimen on schedule as much as possible during labour and prior to scheduled caesarean section.

The Public Health Service Task Force (2009:59) is of the opinion that women receiving fixed-dose combination regimens that include AZT should have AZT administered intravenously during labour while other ARV components are continued. For women

who have received antepartum ARV drugs but have suboptimal viral suppression near delivery, scheduled caesarean delivery is recommended. The Public Health Service Task Force (2009:59) states that for women of unknown HIV status who present in labour should have rapid HIV antibody testing performed and intravenous AZT initiated if the test is positive without waiting for results of the confirmatory test and infant AZT should be initiated.

2.3.1 The conceptual model of intrapartum interventions

According to Merchant and Lala (2005:491), challenges facing effective PMTCT can be understood in terms of the theoretical issues of the five Phases of PMTCT model as displayed in figure 2.2.

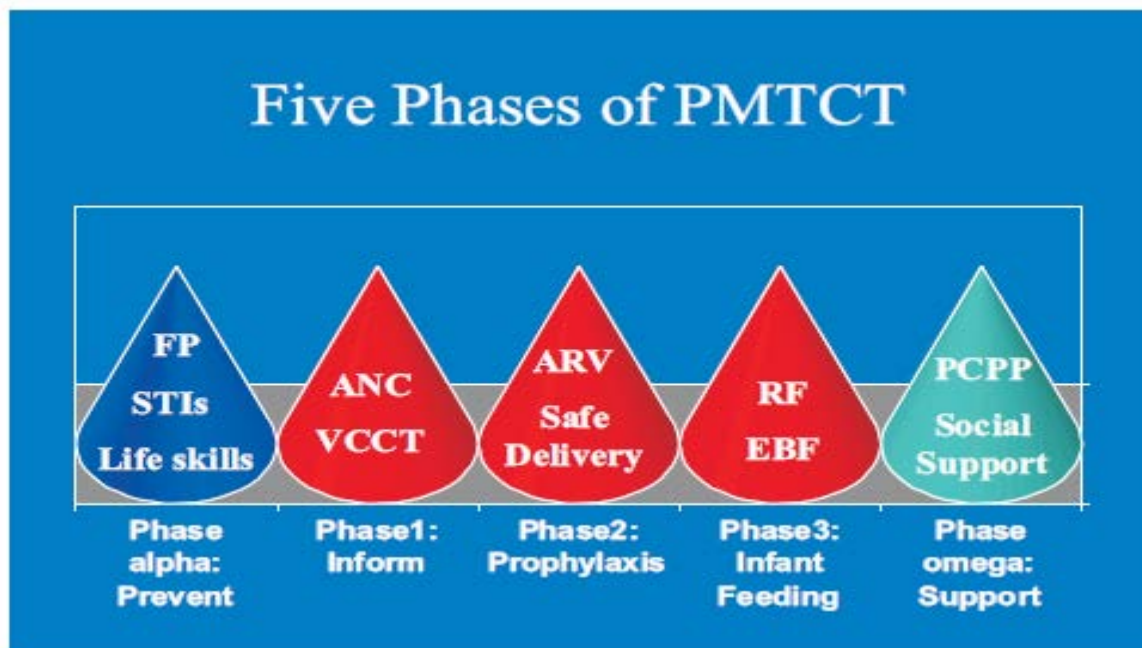


Figure 2.2 Five phases of PMTCT model

Source: Merchant and Lala (2005:491)

According to Merchant and Lala (2005:491), as demonstrated in figure 2.3, for the large scale implementation of PMTCT, they identified 5 phases, namely:

- **Phase 1:** This phase of imparting information in the antenatal period on HVCT, family planning measures, option of medical termination of pregnancy, appropriate infant feeding recommendations, goes a long way in the prevention

of unintended pregnancies in HIV-positive women and all women at risk. This requires strengthening of family planning services. Women considering pregnancy should be encouraged to determine their HIV status and the implications of pregnancy when infected with HIV.

- **Phase 2:** This consists of ARV prophylaxis to the mother antenatally and intranatally and to the baby postnatally. These ARVs act by reducing the viral load in the mother and preventing the virus from fixating itself in the child.
- **Phase 3:** This phase deals with issues related to replacement feeds versus breast feeds in the context of maternal HIV. It supports the mother-infant pair in conducting a successful method of feeding.
- **Phase alpha:** This phase deals with the primary prevention of HIV through sex education, family planning education and avoidance of high risk behaviour. The best way to prevent MTCT in girls and women of childbearing age and the society at large.
- **Phase omega:** This phase deals with support-care protection package to the HIV infected mother, child and the family. Issues like pneumocystis jirovecii pneumonia prophylaxis, early detection of tuberculosis and management, weaning food supplements, vitamin A supplementation are considered.

2.3.2 Provision of prophylactic regimens and cotrimoxazole during intrapartum period

According to Homsy, Kalamya, Obonyo, Ojwang, Mugumya, Opio and Mermin (2006:149), although combined antenatal, perinatal and neonatal interventions offer optimal protection from MTCT, intrapartum regimens such as SD-NVP or AZT/3TC for women in labour and their newborns remain the main strategy for the PMTCT in the majority of sub-Saharan African countries. Homsy et al (2006:149) indicate that poor integration of the strategy in mother and child health (MCH) services has curtailed its potential to become the cost effective entry point for comprehensive HIV prevention and care. They advise that PMTCT is a multiple-step intervention requiring serial decisions and actions on the part of women.

In a study conducted by Adler and Qulo (2007:308), it was found that a short course of AZT to pregnant mothers shortly before birth and to the babies after birth reduces transmission. In the light of this, the decision of government, if any to deny prospective

mother access to AZT on the grounds that it is too expensive and difficult to implement is controversial.

McConnell, Bakaki, Eure, Mubiru, Bagenda, Downing, Matovu, Thigpen, Greenberg and Fowler (2007:291) share the same view by advising that SD-NVP given to mothers at labour and to their newborns has been shown to be effective in reducing MTCT. According to McConnell et al (2007:291), SD-NVP low cost, lack of refrigeration requirements, availability from donation programs, ability for self-administration has made it a first-line mother-to-child transmission prophylaxis regimen in resource-constrained settings. Not only that, but also need for only simplified health care worker training and sustained efficacy at 18 months postpartum in breastfeeding populations, relative to other short-course perinatal prophylaxis regimens when other ARV drugs are not available or where infrastructure does not allow for more complex regimens.

Prasitwattanaseree, Lallemand, Costagliola, Jourdain and Mary (2006:179) conducted a study on influence of mother and infant AZT treatment duration on the age at which HIV infection can be detected by PCR in infants, the findings of their study supported McConnell et al (2007:291) by advising that perinatal HIV transmission may occur in utero and at delivery. In the absence of antiviral prophylaxis, the risk of mother-to-child HIV transmission is about 25% and the use of ARV prophylaxis in women during pregnancy and in their infants after birth has lowered the risk of transmission. According to Prasitwattanaseree et al (2006:179), knowledge of the timing of MTCT is critical to better understand the mechanism of protection and important to optimise prevention. They caution that timing of transmission cannot be directly observed and detection of infection in the child cannot be determined immediately after transmission has occurred, but only when infection is established well enough so that biological tests can detect the presence of the virus.

Chopra (2008:11) in his study on PMTCT in Africa, operational research to reduce post-natal and infant mortality concurs with Prasitwattanaseree et al (2006:179) by suggesting that short course monotherapy regimes with either AZT from 36 weeks gestation, through labour and delivery or NVP given as a single dose to the mother during labour and once to the baby reduce transmission at six weeks. Although similar results have been observed with dual therapy using AZT and 3TC (AZT/3TC)

commencing at 36 weeks gestation, the positive effect seems to be significantly reduced after eighteen months of mixed feeding.

Chopra (2008:11) further advises that the WHO currently recommends the ARV regimen of AZT from 28 weeks of pregnancy, AZT + 3TC plus SD-NVP at the onset of labour, maternal AZT + 3TC for 7 days after delivery and SD-NVP plus one week of AZT for newborn infants for PMTCT among women who do not have indications for ART for their own health. However in most resource constrained settings it is the short course NVP regime that is being used.

2.4 INTERVENTIONS TO PREVENT POSTPARTUM HIV TRANSMISSION

According to the Public Health Service Task Force (2009:72), postpartum period provides an opportunity to review and optimise women's health care and should include assessing the need for prophylaxis against opportunistic infections, cervical cancer screening and routine immunisations. The Public Health Service Task Force (2009:72) indicates that the period also provides an opportunity to assess the need for behavioural health interventions which include an assessment for signs of postpartum depression and providers should also re-emphasise the importance of safer sex practices.

The Independent Expert Panel (2010:17) indicates that the only method known to completely eliminate the risk of breastfeeding-associated HIV transmission is not to breastfeed. The Independent Expert Panel (2010:17) advises that this is recommended in settings in which infant replacement feeding is affordable and sustainable, clean water is widely available, hygiene and sanitation conditions are good and deaths due to diarrhoea and other infectious diseases are relatively uncommon. However, this approach is neither feasible nor safe in many resource-limited countries because of cost, inadequate replacement foods to meet the nutritional needs of the infant, unsafe water supply and low acceptability due to stigma associated with not breastfeeding.

The Independent Expert Panel (2010:17) states that exclusive breastfeeding has been shown to lower the risk of postnatal HIV transmission compared to mixed feeding, but does not eliminate risk. In resource-limited settings, the benefit of breastfeeding in terms of reducing infant mortality appears to be greatest in the first 6 months of life. Two potential prevention strategies in resource-limited settings are provision of ARV drugs to

infants exposed to HIV during breastfeeding and provision of combination ART to lactating women.

The Royal College of Paediatrics and Child Health (2006:13) concurs with The Independent Expert Panel (2010:17) by advising that for women not infected with HIV, breastfeeding is the ideal way to feed infants and should be promoted. However, in HIV infected women, breastfeeding will contribute significantly to MTCT. Royal College of Paediatrics and Child Health (2006:13) cite example that in the UK, nutritionally adequate formula milk alternatives are available and can be obtained on prescription for infants of HIV positive mothers. The Royal College of Paediatrics and Child Health (2006:13) states that for some women, avoidance of breastfeeding is culturally difficult and may be considered a sign to others that the mother is HIV positive. However, there is insufficient evidence to change the current recommendation of universal avoidance of breastfeeding.

2.4.1 The conceptual model of postpartum interventions

According to MoHSS (2008:29), challenges facing effective PMTCT can be understood in terms of the theoretical issues of the diagnosis of HIV infection in children model as displayed in figure 2.3.

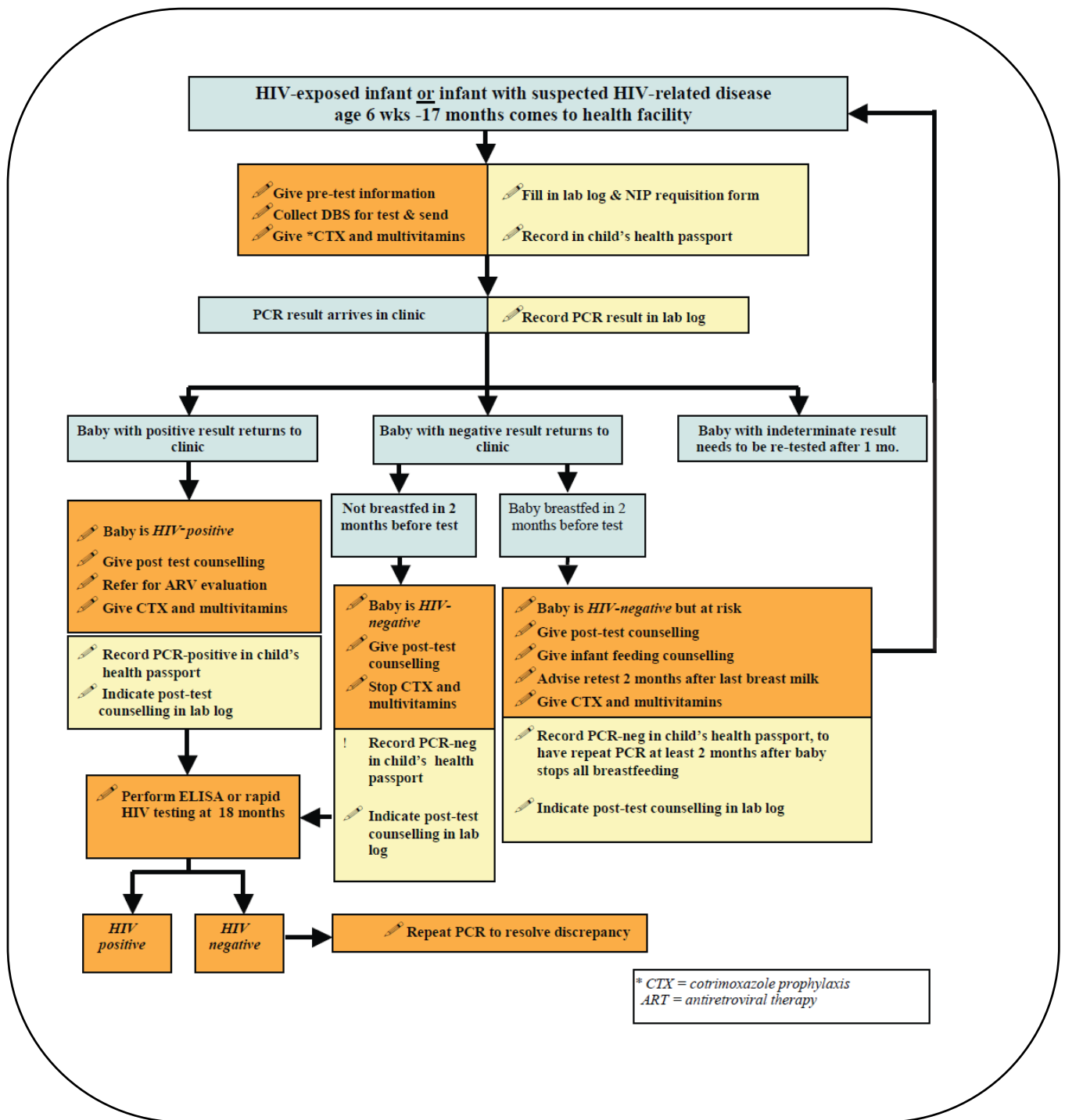


Figure 2.3 Diagnosis of HIV infection in children

Source: MoHSS (2010:44)

According to MoHSS (2008:29), as demonstrated in figure 2.4, a large number of HIV-exposed infants are being identified who require HIV diagnosis and follow-up care. It is important to identify young infants with HIV infection early and to refer them for ART because of the high mortality from untreated HIV/AIDS. The Ministry is of the opinion that promptly identifying young infants, who are not HIV-infected help to reassure their

parents, discharge them from costly follow-up and measure the overall effectiveness of the PMTCT programme.

According to MoHSS (2010:45), challenges facing effective PMTCT can be understood in terms of the theoretical issues of the HIV antibody testing model as displayed in figure 2.4.

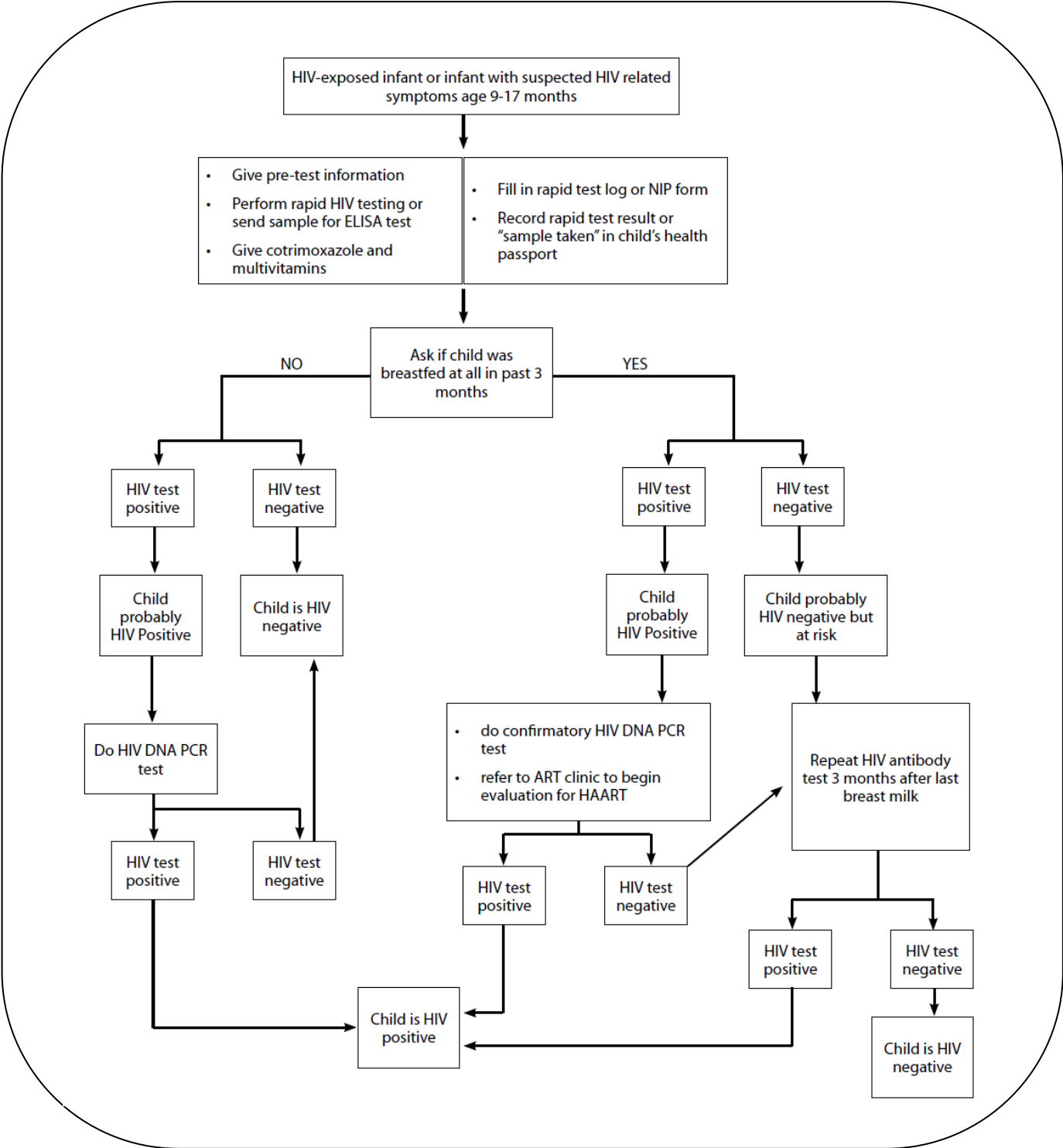


Figure 2.4 HIV antibody testing

Source: MoHSS (2010:45)

According to MoHSS (2010:45), as demonstrated in figure 2.4, HIV antibody testing gives definitive results for diagnosis of HIV infection in children less than 18 months old. Either rapid HIV testing or enzyme-linked immuno sorbent assay (ELISA) can be used. As such this is the recommended testing approach for the diagnosis or exclusion of HIV in this age group. The MoHSS states that antibody testing for HIV diagnosis is less useful in infants because passively transferred maternal anti-HIV antibodies may persist and be detected in a child for up to 18 months of age. The MoHSS (2010:45) states that following HIV antibody testing at 9 months of age or older, diagnosis of HIV infection may be excluded if the child's test is negative and there has been no breastfeeding for the past 3 months. If the child tests positive before 18 months, an HIV DNA PCR test should be performed to confirm HIV infection.

2.4.2 Safe feeding practices for the infant

Saadeh, Henderson and Vallenias (2005:8) define replacement feeding as feeding an infant receiving no breast milk a diet that provides the necessary nutrients and suitable breast milk substitutes include commercial infant formula or home modified animal-milk. They indicate that little is known about how replacement feeding affects infant morbidity or mortality in the context of PMTCT programmes. According to Saadeh et al (2005:8), the indications are that mortality is high for both uninfected and infected infants of HIV-positive mothers and avoidance of all breastfeeding is recommended for HIV-positive mothers when replacement feeding is acceptable, feasible, affordable, sustainable and safe. Otherwise, exclusive breastfeeding for the first months of life is recommended.

Saadeh et al (2005:8) define exclusive breastfeeding as nourishing an infant on breast milk alone with no other liquids or solid foods apart from human milk, although prescribed medicines and vitamin-mineral supplements are allowed within this definition. Saadeh et al (2005:8) advise that while early cessation means completely stopping breastfeeding before age 2 years and ideally, it occurs among HIV-positive mothers as soon as replacement feeding is acceptable, feasible, affordable, sustainable and safe, as a strategy to reduce the risk of MTCT by limiting the infant's exposure to HIV infection through breast milk.

Kuhn, Aldrovandi, Sinkala, Kankasa, Semrau, Mwiya, Kasonde, Scott, Vwalika, Walter, Bulterys, Wei-Yann Tsai and Thea (2008:131) in their study on effects of early abrupt

weaning on HIV-free survival of children, their findings concur with Saadeh et al (2005:8) by explaining that breast-feeding poses a dilemma for women who live in low-resource settings and who are infected with HIV because the practice can transmit HIV but is the source of optimal nutrition and protection against other serious infectious diseases. The authors advised that early cessation of breastfeeding has been recommended to balance these competing risks favourably – reducing postnatal transmission of HIV while preserving the nutritional and immunologic benefits of breastfeeding at the time when they are needed most.

Kuhn et al (2008:131) indicate that exclusive breast-feeding confers lower risks of postnatal transmission of HIV than predominant or partial breastfeeding but is recommended only for 6 months, after which infants require other foods to complement breast milk. If early weaning is to be encouraged for HIV-infected women, the end of exclusive breast-feeding offers a logical end point. The authors further indicated that in low-resource settings, many programs that attempt to prevent MTCT have recommended abrupt or rapid weaning to minimise the period of nonexclusive breastfeeding.

Desmond, Bland, Boyce, Coovadia, Coutsooudis, Rollins and Newell (2008:1) support Kuhn et al (2008:131) by advising that exclusive breast milk is endorsed by the WHO as the ideal food for infants from birth to six months, because of its nutritional superiority over commercial formulas, and the significant protection afforded to the infant against acute and chronic illnesses. The authors stated that exclusive breastfeeding by HIV-infected women has recently been shown to carry less risk of postnatal HIV transmission compared to mixed feeding, particularly with solid foods and has been associated with greater HIV-free survival at 18 months compared to infants fed solely on formula milk. They further advise that there is no doubt; therefore, that exclusive breastfeeding for the first six months should be promoted globally and exclusive breastfeeding for six months is feasible and practical, as demonstrated in many settings, including high HIV prevalence areas (Desmond et al 2008:1; Kuhn et al 2008:131).

Kuhn, Sinkala, Kankasa, Semrau, Kasonde, Scott, Mwiya, Vwalika, Walter, Tsai, Aldrovandi and Thea (2007:1) in their study on high uptake of exclusive breastfeeding and reduced early post-natal HIV transmission, their findings concur with Desmond et al

(2008:1) by indicating that promotion of exclusive breastfeeding has been a cornerstone of public health measures to promote child survival. Exclusive breastfeeding is associated with lower risks of diarrhoea and pneumonia-related infant morbidity and mortality than breastfeeding with addition of other fluids and solids in both developed and developing world settings (Desmond et al 2008:1).

2.4.3 Infant rapid initiation of antiretroviral treatment

According to the MoHSS (2008:7), women who have not been tested during pregnancy or labour should receive counselling and be offered rapid HIV testing in the immediate postpartum period. If the mother is found to be HIV positive, the newborn can be started immediately on ARV prophylaxis. The MoHSS advises that within the prescribed 72 hours after delivery, there is still a window of opportunity to offer PMTCT interventions that include ARV prophylaxis to the baby and counselling on safe infant feeding options.

Findings from a study conducted by UNICEF (2007:4) revealed that following all complex steps does not yet guarantee that the infant is not infected with HIV. Addressing properly infant feeding options is as important as applying ARV prophylaxis. Around one third of all infections transmitted from the mother to the baby may occur through breastfeeding and WHO recommends avoiding breastfeeding from birth only if substitute feeding is acceptable, feasible, affordable, sustainable and safe. According to UNICEF (2007:4), exclusive breastfeeding is supported in all other cases when these conditions are not met and WHO recommends that all infants exposed to HIV should receive cotrimoxazole prophylaxis starting at 4-6 weeks of age and continuing until HIV infection is excluded.

UNICEF (2007:4) stated that cotrimoxazole reduce child mortality in HIV positive children by over 40%, however, although cotrimoxazole is widely available and is affordable, the progress of its provision for prophylaxis in infants exposed to HIV and HIV positive mothers is still slow. To measure the effectiveness of the PMTCT intervention and be able to offer proper care, the infant needs to be diagnosed as early as possible. UNICEF (2007:4) further advises that the testing method that detects antibodies used to test adults cannot be applied in children younger than 18 months due to the presence of antibodies from the mother in the infant's blood. Instead, virology

testing is required using the PCR method, which is the gold standard of Early Infant Diagnosis (EID).

Public Health Service Task Force (2009:76) agrees with UNICEF (2007:4) by advising that all HIV-exposed infants should receive postpartum ARV drugs to reduce perinatal HIV transmission. The 6-week neonatal AZT chemoprophylaxis regimen is recommended for all HIV-exposed infants. They advise that infants born to mothers who have received standard antepartum and intrapartum antiretroviral prophylaxis and have undetectable viral load are at very low risk of HIV transmission. According to the Public Health Service Task Force (2009:76), the risk of transmission is increased when the mother has high viral load at delivery or when the mother has not received the full antepartum and intrapartum prophylaxis regimen.

The Public Health Service Task Force (2009:77) states that infants born to women who received standard ARV prophylaxis regimens during pregnancy and labour and had undetectable viral load at delivery or born to mothers with low viral load at delivery and delivered by cesarean section have a very small risk of HIV acquisition. Such infants should receive the 6-week AZT infant prophylaxis regimen.

Similarly, Betancourt, Abrams, McBain and Fawzi (2010:1) in their study on family-centred approach to PMCTC indicated that many programmes that aim to prevent mother-to-child transmission of HIV in resource-limited settings have tended to take a narrow focus, often providing targeted biomedical interventions during late pregnancy and delivery, and neglecting the impact of HIV on the health of both pregnant women and families. Betancourt et al (2010:1) indicate that the narrow focus of PMTCT to date represents a lost opportunity to effectively combat the vertical transmission of HIV to children – a largely preventable infection given current scientific knowledge.

Betancourt et al (2010:1) are of the opinion that family-focused approaches facilitate broader implementation of PMTCT programming, addressing the comprehensive needs of women, particularly those in need of treatment for their own health, as well as of children and other family members, over time. Betancourt et al (2010:1) advise that a paradigm shift is needed in PMTCT which considers the needs of entire families, rather than placing a singular focus on preventing MTCT during pregnancy and delivery.

Betancourt et al (2010:1) advise that PMTCT represents an entry point for improving overall family health.

2.5 CONCLUSION

A review of the literature has depicted areas of effective PMTCT and discussed PMTCT interventions based on three concepts, antepartum, intrapartum and postpartum interventions. Literature review indicate that promoting involvement of male partners in PMTCT programmes, providing the couple counselling and testing, antiretroviral drugs availability, caesarean intervention, administering SD-NVP, giving HIV infected mothers HAART during the breast-feeding period and women education about exclusive breastfeeding prior to delivery are some of interventions in the PMTCT. In this chapter, different PMTCT management models have also been highlighted. These models were developed by some interested management experts and most of the models share similar principles. Chapter 3 will describe and discuss the details of the research methodology that was used to carry out this study.

CHAPTER 3

RESEARCH DESIGN AND METHODS

3.1 INTRODUCTION

This chapter focuses on the research design and method applied to resolve the main and sub-problems as identified in chapter one. It includes an outline of the research methodology adopted for this study, that is, the research design together with the reason why the study was conducted (purpose) and the objectives of the study. Population and sampling rationale are explained, as well as the setting under which the study was undertaken. Data collection method, process and analysis are also discussed. Lastly, details pertaining to issues of reliability, validity and ethical considerations are also explained.

3.2 RESEARCH DESIGN

Crosby et al (2006:75) defined research design as “the strategy the investigator chooses for answering the research question”. The research question to be answered determined and helped the researcher identify the most appropriate research design used. The design used for this study was a descriptive cross-sectional design.

3.2.1 Study area

This research was conducted in Oshakati District Health Centre, a health Centre in Oshana health region. Oshakati district health centre is located in Oshakati, which is the second biggest town in Namibia. The health centre is on the same ground with Oshakati intermediate referral hospital.

3.2.2 Research design

A descriptive quantitative cross-sectional survey was conducted among 2 groups of participants, i.e. patients and nurses at Oshakati District Health Centre. Descriptive

study allow researcher to describe phenomena as they occurred and to measure variables quantitatively (Brink 2009:104). The design is best suit to describe challenges affecting effective prevention of mother-to-child transmission of HIV infection at Oshakati District Health Centre.

3.3 RESEARCH METHOD

3.3.1 Population

The population refer to the entire group or objects of interest to the researcher (Bless & Higson-Smith 1995:85). In this study the population were all HCWs experienced in PMTCT and patients who attended ANC and post natal care services at Oshakati District health Centre. In the context of this study, "HCWs experienced" is defined as HCWs who worked in the ANC/PMTCT unit. The patient and HCWs participants that formed the study population have experiences of Oshakati District Health Centre's antepartum, intrapartum and postpartum HIV transmission prevention interventions. The accessible population were a sample of patients who attended ANC and post natal care services during the survey period and met the inclusion criteria. The accessible population of HCWs were all HCWs who were on duty at Oshakati District Heal Centre during the survey period.

3.3.2 Sampling methods

The sampling method chosen for this study was purposive sampling. Leedy and Ormrod (2010:211) indicate that purposive samples are samples where subjects of the study are selected with a specific purpose in mind, such as the likelihood of representing best practice in a particular issue. The composition of such a sample is not made with the aim of it being statistically representative of the population. Such samples comprise individuals considered to have the knowledge and information in order to provide useful ideas, experiences and insights Leedy and Ormrod (2010:211). Therefore, the sample for this study was purposely emanating from all HCWs experienced in PMTCT and patients who attended ANC and post natal care services at Oshakati District health Centre during the period of the research survey.

Criteria of inclusion, or eligibility criteria as Brink (2006:133) refers to them, are those specific characteristics which make elements of the population eligible for selection to participate in a study. This study included all HCWs working at Oshakati District Health Centre experienced in PMTCT and patients who attended ANC and post natal care services at Oshakati district health Centre during one week of the research survey because they had experience of Oshakati District Health Centre's antepartum, intrapartum and postpartum HIV transmission prevention interventions services.

Polit and Beck (2006:499) define exclusion criteria as those specific characteristics that certain elements in the population do not possess and are therefore not eligible for inclusion in a sample. In this study, HCWs not experienced in PMTCT were not surveyed. Also excluded were women who did not attend ANC and post natal care services, or those under 18 years of age.

The final sample surveyed comprised of both male and female HCWs experienced in PMTCT and women who attended ANC and post natal care services at Oshakati District health Centre during one week of the research survey, but there was also one male patient who accompanied the partner. A total of 160 participants have participated in the survey, and this sample included 30 HCWs and 130 patients.

3.3.3 Data collection methods

Structured questionnaires: A self-administered structured questionnaire was issued to participants to respond to. This was in line with Shajahan (2005:133) suggestion that questionnaires are widely used for data collection in social science research, particularly in surveys. It is a fairly reliable tool for gathering data from large, diverse, varied and scattered social groups. It is used in obtaining objective and quantitative data as well as in gathering information of a qualitative nature (Shajahan 2005:133).

For the purpose of this study two different structured data collection tools were used, one for the HCWs and another for patients. This was necessary to get the patients and HCWs' perception on challenges affecting effecting PMTCT at Oshakati District Health Centre, because HCWs are the providers and Patients are the recipient of the services.

The questionnaires consisted of four main (4) questions and each questionnaire consisted of sections A and B. Section A for both HCWs and patient participants collected the socio-demographic data such as age, gender and population group. But the HCWs' questionnaire collected additional data under section A, i.e level of education and years of experience. Section B required participants both HCWs and patients to rate their perception towards the extent to which Oshakati District Health Centre's antepartum, intrapartum and postpartum HIV transmission prevention interventions programmes effectively contribute to the PMTCT of HIV infection (refer to Annexures A and B).

Close-ended questions in form of statements were used and participants were requested to respond to those statements, indicating how they agreed to the statements by use of a 5 type Likert scale. The scale included, strongly disagree, disagree, uncertain, agree and strongly agree. The statements were about interventions for prevention of mother-to-child transmission during antepartum, intrapartum and postpartum period. This was in line with Polit and Beck (2006:498) guideline that data collection is the gathering of information to address a research problem.

The questionnaires contained questions of close-ended and a 5-point Likert scale was used. This was in line with Hofstee (2006:134) suggestions that the Likert scale is a widely used means for measuring perceptions. Respondents indicated how they agree or disagree with statements.

Hofstee (2006:133) assert that the aim of the questionnaire is to gather information specific information about a particular subject of research. The researcher ensured that the information gathered had some tolerable accuracy and completeness by depicting all questions from literature review in chapter 2. As is common in research, pre-testing of the instrument was conducted on four participants (two staff participants and two patients' participants) in order to comply with Polit and Beck (2006:41) advice that pre-testing is done by administering the questionnaire to a small but representative sample of potential participants under conditions that are identical in all respects to those under which the final questionnaire will be administered.

Pre-testing of the nurses and patients questionnaires, led to the changes in the questionnaire to include more closed ended questions with a Likert scale then just open

ended questions. The pre-testing also informs the researcher of the need to translate the patient questionnaire into an African language known as “Oshiwambo” language as per recommendations of patients and HCWs who participated in the pre-testing of instruments (Annexure C). Additional items were added to the questionnaire as a result of pre-testing that included adding an age group of less than 20 years. Patients who participated in the pre-testing also recommended that distributing the questionnaire in the waiting area was best than on exit, when their focus is just to go back home.

A week prior data collection research briefing was done with the nurse-in-charge of antenatal and postnatal units informing them of intention to start with data collection. Nurses in charge were briefed about the research project, purpose and the data collection method who subsequently briefed their nurses experienced in PMTCT and women who attended ANC and post natal care services at Oshakati District Health Centre during one week of the research survey. This briefing was very crucial in making sure that no service interruption or no adverse reaction as result of the survey. Self-administered questionnaire were distributed to the HCWs, one-by-one. Questionnaires for patients in a language of their choice, English or Oshiwambo were distributed every day while patients were in the waiting areas and they were asked to drop them off anytime they finish.

3.3.4 Data analysis

The research results were analysed by the researcher, using the Microsoft Excel program 2007 version. Statistical arithmetic mean and frequency were used to determine percentages and the information was presented in tables and graphical formats. This was in line with Polit and Beck (2006:498) advice that the analysis of data is one of the most important aspects of research. Although a 5-point Likert scale was used to respond to statements on PMTCT interventions, under analysis, the researcher analysed strongly agree and agree as “agree” while strongly disagree and disagree were analysed “disagree” and lastly “uncertain”.

3.4 VALIDITY AND RELIABILITY

Leedy and Ormrod (2010:31) suggest that the internal and external validity of the researcher’s measurement instruments influence the extent to which one can learn

something about the phenomenon being studied, the probability that statistical significance will be obtained in the data analysis and the extent to which the researcher can draw meaningful conclusions from the data.

This study made use of content and construct validity where the implemented measurement instrument, being the questionnaires, required feedback from participants based on their perceptions. The content of the questionnaires required specific feedback on effective PMTCT from HCWs experienced in PMTCT and women who attended ANC and post natal care services at Oshakati District health Centre during one week of the research survey.

Whitehead and Mcniff (2006:97) define validity as the degree to which an instrument (in this case the questionnaires) actually measures what it is intended to measure. Whitehead and Mcniff (2006:97) posit that the measurement instruments provide a basis on which the entire research effort rests. They have further identified several types of validity:

Face validity is the extent to which, on the surface, an instrument looks like it's measuring a particular characteristic and is often useful for ensuring the co-operation of people who are participating in a research study (Mcniff 2006:97). The researcher had a face-to-face interaction with nurses in charge of antenatal and postnatal units for detailed explanation on the purpose of the survey that assisted in achieving face validity.

Content validity refers to the extent to which a measurement instrument is a representative sample of the content area being measured. It is often a consideration when people's achievement in some area is to be assessed (Mcniff 2006:97). The researcher ensured that the questions covered all the important areas on PMTCT interventions identified in the literature review in order to address content validity.

Criterion validity refers to the extent to which the results of an assessment instrument correlate to one another (Mcniff 2006:97). As already stated the participants that formed the study population had experiences of Oshakati District Health Centre's antepartum, intrapartum and postpartum HIV transmission prevention interventions programme services.

Construct validity refers to the extent to which an instrument measures a characteristic that cannot be directly observed but must instead be inferred from patterns in people's behaviour (Mcniff 2006:97). This was addressed by the quantitative survey. The researcher ensured that the constructs were clear, unambiguous and did not result in bias.

3.5 ETHICAL CONSIDERATIONS

In research one has to conform to ethical standards. In this study self-administered questionnaires were given to participants. Therefore it was important for the researcher to conform to ethical standards, to get permission, obtain consent, and protect the right of the institution as well as the rights of participants.

3.5.1 Protecting the rights of the participants

Informed consent: Informed written consent was obtained from nurses and patients who participated in the study, prior to accepting a questionnaire (Annexure H). Patient who were less than 18 years were excluded from the study.

Autonomy: Prior to receiving the self-administered questionnaire, the researcher explained to participants individually, that participation is voluntary and that participants have the right to terminate participation at anytime they deem necessary.

Confidentiality and privacy: In this study the researcher upheld privacy and confidentiality of the participants, by consulting participants one-by-one to explain the purpose of the study and to obtain consent and hand-over the questionnaire. The researcher did not collect any information that might expose the identity of participants and in addition, no names were used.

Justice: The researcher explained consent to all the participants to make sure that all participants understood what was the purpose of the study for them to make informed consent, in the interested of treating participants in the study with respect and fairness.

Coercion and perverse incentives: There were no undue incentives to those who consented to form part of the study and respondents were neither intimidated nor compelled to take part in the study.

Deception: In this research, efforts were made to ensure that participants were not deceived in any way during the process. In this study, the research explained to the participants the purpose of the study and the informed them of their rights with regard to participation, and that they can stop participation anytime. The researcher translated the patient questionnaire in a local African language called "Oshiwambo" a language spoken by most patients in the catchment area of Oshakati District. This ensured patients who do not speak nor understand English equally take part and understand what is being asked and they can give their opinion.

3.5.2 Protecting the right of the institution

The study conformed to all ethical considerations consistent to conducting a study. Ethical clearance was ensured; permission was sought and granted by the Ethics Committee of the University of South Africa (Annexure D), Ministry of Health and Social Services (Annexure E), Oshana Regional Directorate of Health (Annexure F). In carrying out this research, ethical issues were also considered by seeking consent from participants through a detailed explanation on the purpose of the survey and by providing full assurance to the participants of anonymity and confidentiality as referred to in the consent forms (Annexures G and H) that were affixed to the questionnaires. The Oshana Health Region and the study supervisor were both informed of the changes in the questionnaires and approach after pre-testing.

3.5.3 Scientific integrity

All sources consulted were acknowledged, cited and reference according to the acceptable standard. Research findings were presented without distortion.

3.6 CONCLUSION

This chapter highlighted the research method used in this study. Research design followed in this study was also explained. Outlined in the methodology were the study area; sampling procedure followed; including the eligibility criteria, sample size and characteristics. Data collection processes were explained also highlighting the ethical considerations involved. Data analysis process was looked into. Measures to ensure reliability and validity were addressed. The next chapter will focus on the presentation and interpretation of data.

CHAPTER 4

ANALYSIS, PRESENTATION AND DISCUSSION OF RESEARCH FINDINGS

4.1 INTRODUCTION

This chapter presents the analysis of the research findings as well as the interpretation and discussion of the findings. Results are presented in tables followed by the discussion of such results. In this chapter primary data findings from staff challenges in PMTCT and women who attended ANC and post natal care services at Oshakati District health Centre during one week of the research survey have been examined, analysed and findings have been linked to theories.

4.2 DATA MANAGEMENT AND ANALYSIS

4.2.1 Data quality assurance

The researcher checked all completed data collection instrument for completeness and consistency before being entered into computer.

4.2.2 Data entry

The raw data on data collection instrument was coded and entered into computer by a researcher using the Microsoft Excel program.

4.2.3 Data cleaning

The researcher had worked in ensuring that data was accurately captured and cleaned using the Microsoft Excel program (XP 2007 version). All inconsistent data entries were identified, verified and corrected.

4.2.4 Data processing and analysis

Data from the Microsoft Excel 2007 program were used to draw statistics using frequency distribution and percentages and these were displayed using tables.

4.3 RESEARCH RESULTS

4.3.1 Demographic data of the study participants

This sections contained participants' demographic data. For, patients and healthcare workers' gender, age, population group is reported. Level of education and years of experience were reported for health care workers (HCWs) only.

4.3.1.1 Gender distribution

Table 4.1 illustrates the results obtained from the analysis of participants' gender distribution. The results of HCWs indicate that 26 (86.67%) were females while 4 (13.33%) were males. The results of patients' responses indicate that the majority (99.23%) were females and only 1 (0.77%) were males. Based on the findings, the majority of participants in this survey were females.

Table 4.1 Participants' gender distribution (n=160)

Gender	HCWs		Patients	
	Frequency	Percent	Frequency	Percent
Male	4	13.33	1	0.77
Female	26	86.67	129	99.23
Total	30	100.00	130	100.00

4.3.1.2 Population group

Table 4.2 shows the results of the distribution of participants' population group. The results of HCWs indicate that the majority 28 (93.33) were black, 1 (3.33%) were coloured and the remaining 1 (3.33%) did not disclose their population group. The results of patients' population group distribution showed that the majority (98.46%) were black, while equal proportions 1 (0.77%) were coloured and those who did not disclose

1 (0.77%). Based on the research findings, most of the participants were from the black population group.

Table 4.2 Participants' population group (n=160)

Participants	Population group	Frequency	Percent
HCWs	Black	28	93.33
	Coloured	1	3.33
	Did not disclose	1	3.33
	Total	30	100.00
Participants	Population group	Frequency	Percent
Patients	Black	128	98.46
	Coloured	1	0.77
	Did not disclose	1	0.77
	Total	130	100.00

4.3.1.3 Age group of participants

4. 3.1.3.1 Age group distribution for HCWs

Figure 4.1 illustrates the results obtained for participants' age group profile. The results of HCWs showed that 12 (40%) were between the age group of 31-40 years, 11 (36.67%) were between 20-30 years, and 5 (16.67%) were 51 years and above. Only 2 (6.67%) were between 41-50 years. Based on the research findings, most HCWs participants were aged between 20-40 years.

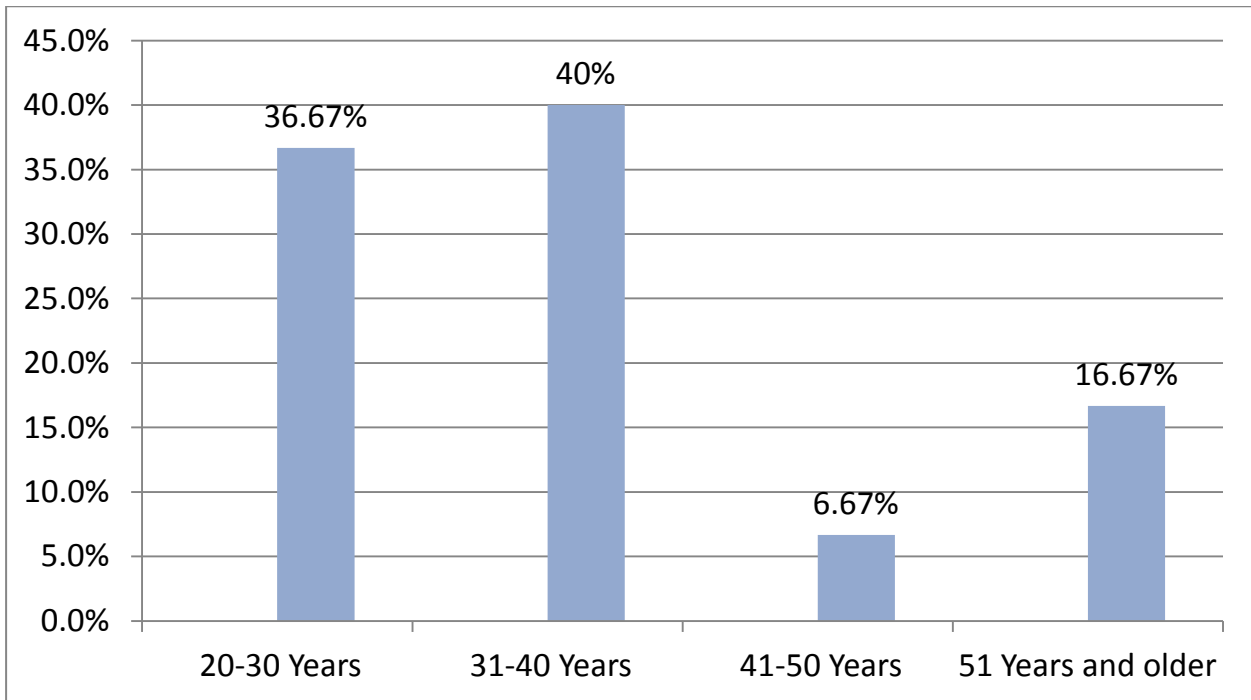


Figure 4.1 Distribution of age group for HCWs (n=30)

4.3.1.3.2 Age group distribution for patients

As shown in figure 4.2 age group distribution for patients revealed that slightly above half (53.08%) of the participants were between 20-30 years, 32 (24.62%) were between 31-40 years and 19 (14.62%) were under the age of 20 years. Only 10 (7.69%) were between the ages of 41-50 years. Based on the research findings, most patients who participated in this study were aged between 20-40 years.

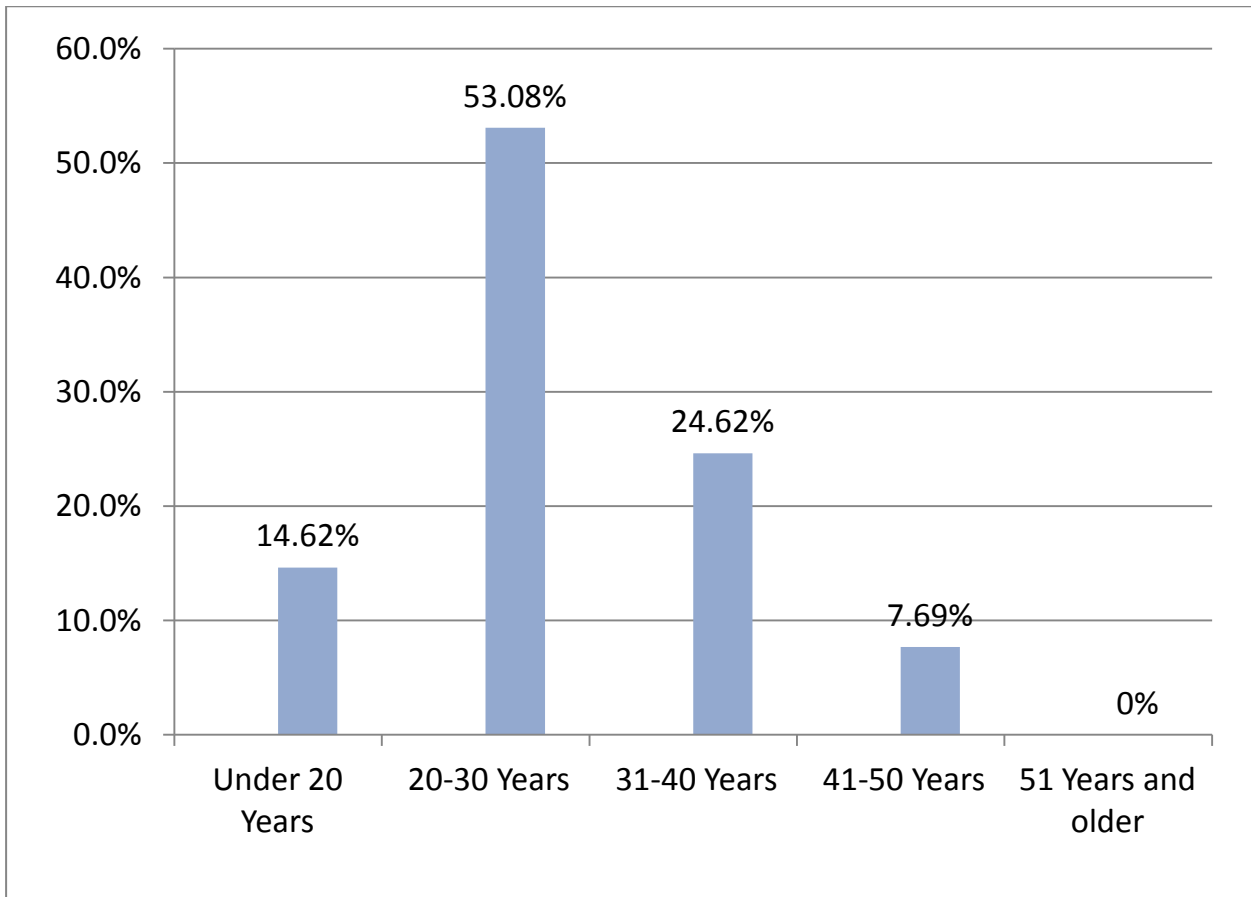


Figure 4.2 Distribution of age group for patients (n=130)

4.3.1.4 HCWs years of experience

Table 4.3 illustrates the analysis of HCWs' years of working experience and the results showed that 12 (40%) indicated that they have between 1-5 years of working experience, 8(26.67%) have less than 1 year and 7 (23.33%) have between 6-10 years. Only a small proportion (6.67%) reported over 15 years while 1 (3.33%) indicated a working experience between 11-15 years. Based on the research findings, most HCWs who participated in this study had between 1-5 years of working experience.

Table 4.3 HCWs' years of experience (n=30)

Years of experience	Frequency	Percent
Less than 1 Year	8	26.67
1-5 Years	12	40.00
6-10 Years	7	23.33
11-15 Years	1	3.33
Over 15 Years	2	6.67
Total	30	100.00

4.3.1.5 Level of highest education for HCWs

Figure 4.3 indicates that HCWs' who participated in this survey have achieved the following level of education: below Matric represents 1 (3.33%), Matric represents 2 (6.67%), Certificate represents 15 (50%), Diploma represents 9 (30%), Undergraduate degree represents 1 (3.33%), Honours/B Tech represents 1 (3.33%). This finding suggests that 90% of the participants have received formal education and have acquired formal qualifications.

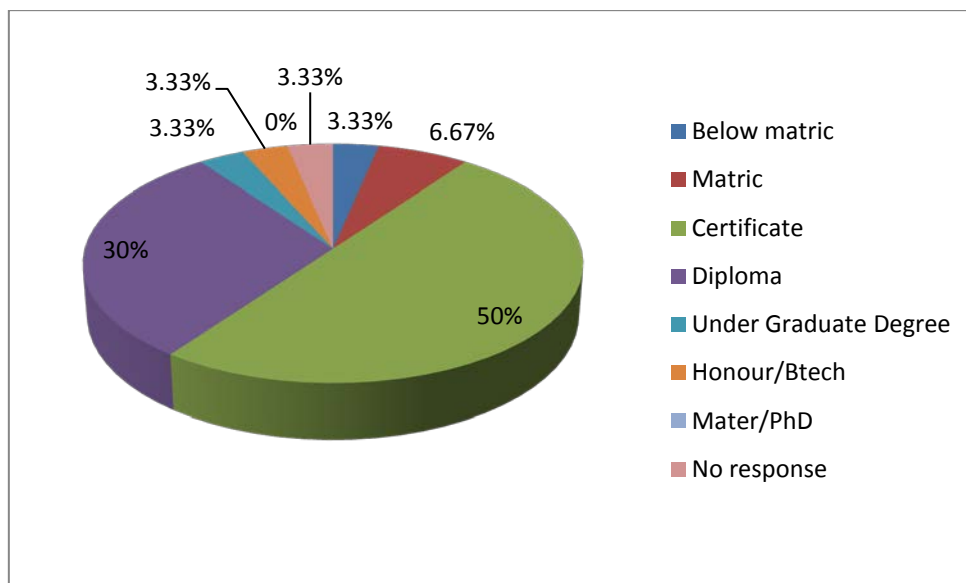


Figure 4.3 Level of highest education for HCWs (n=30)

4.3.2 Interventions to effective prevention of antepartum HIV transmission

Table 4.4 HCWs' responses on interventions to effective prevention of antepartum HIV transmission (n=30)

In table 4.4, the researcher analysed strongly agree and agree as “agree” while strongly disagree and disagree were analysed “disagree” and lastly “uncertain”.

CHARACTERISTICS	Frequency	Percent
Most women come for antepartum care and access HIV counselling and testing services.		
Agreed	29	96.67
Disagreed	1	3.33
Uncertain	0	0.00
Total	30	100.00
The importance of adherence to the antiretroviral treatment during pregnancy is emphasised.		
Agreed	27	90.00
Disagreed	2	7.00
Uncertain	1	3.00
Total	30	100.00
There is male partners' involvement in prevention of mother-to child transmission of HIV infection programme.		
Agreed	15	50.00
Disagreed	8	27.00
Uncertain	7	23.00
Total	30	100.00
There is couple HIV counselling and testing that increase acceptance of testing by pregnant women.		
Agreed	17	56.67
Disagreed	5	16.67
Uncertain	8	26.67
Total	30	100.00
HIV testing and counselling is provided to all pregnant women as a routine comprehensive package of care.		
Agreed	30	100.00
Disagreed	0	0.00
Uncertain	0	0.00
Total	30	100.00
Enzyme-Linked Immunosorbent Assay is used in prevention of mother-to child transmission of HIV infection.		
Agreed	9	30.00
Disagreed	10	33.33
Uncertain	11	36.67
Total	30	100.00

CHARACTERISTICS	Frequency	Percent
Management of HIV in women evolve the use of highly active antiretroviral therapy.		
Agreed	25	83.33
Disagreed	3	10.00
Uncertain	2	6.67
Total	30	100.00
The antenatal services undertake clinical assessment for HIV signs and symptoms and obtain a baseline CD4 _ cell count.		
Agreed	27	90.00
Disagreed	2	6.67
Uncertain	1	3.33
Total	30	100.00

As shown in table 4.4, the results of the survey indicated that 29 (96.67%) of HCWs agreed that most women come for antepartum care and access HIV counselling and testing services while 1 (3.33%) disagreed with the statement. The research findings mean that women do attend ANC and access HCT services. A study conducted by the Family Health International (2004:4) reveals that a growing body of research and experience has identified safe, feasible and effective interventions to reduce HIV transmission from HIV-infected pregnant women to their infants. However, for a woman to benefit from these interventions she must come for ANC and must access HCT services.

A total of 27 (90.00%) of HCWs who participated in this survey agreed that the importance of adherence to the antiretroviral treatment during pregnancy is emphasised, compared to 2 (7.00%) of HCWs who disagreed with the statement while 1 (3.00%) of HCW were uncertain. The findings can be compared with the findings of study conducted by the Public Health Service Task Force (2009:16) that reveal that the importance of adherence to the antiretroviral treatment or prophylaxis regimen should be emphasised and coordination of services among prenatal care providers, primary care and HIV specialty care providers and public assistance programs should be assured as part of recommending antiretroviral drugs during pregnancy. ‘

The result further indicated that, 15 (50.0%) HCWs who participated in this survey agreed that male partners are involved in PMTCT of HIV intervention programme compared to 8 (27.0%) of HCWs who disagreed with the statement while 7 (23.0%) of HCW were uncertain. This finding indicates that male partners are involved in PMTCT. Interventions are difficult for women whose partners are unaware or not supportive of

their participation. Thus, promoting involvement of male partners in prevention of mother-to child transmission of HIV infection programmes may improve uptake, behaviour change and compliance with prevention of mother-to child transmission of HIV infection measures (Kizito et al 2008:680). HCWs were asked if there is male partners' involvement in PMTCT of HIV intervention programme.

With respect to couple HIV counselling and testing that increase acceptance of testing by pregnant women, results have shown that 17 (56.67%) of HCWs agreed that there is couple HIV counselling and testing that increase acceptance of testing by pregnant women, 5 (16.67%) disagreed while 8 (26.67%) were uncertain. This finding can be compared with the findings of study conducted by The Independent Expert Panel (2010:9) that revealed that provision of couple counselling and testing has been shown to increase acceptance of HIV testing by pregnant women. High uptake of testing can be achieved with routine PITC combined with use of rapid tests offering same day results in antenatal and delivery settings.

Routine HCT is the cornerstone of all interventions to reduce MTCT. All HCWs 30 (100%) agreed that HIV testing and counselling is provided to all pregnant women as a routine comprehensive package of care. This finding means that there is effective HIV testing and counselling provided to all pregnant women. In the PMTCT programme, pre-test, post-test and on-going counselling should be offered to all pregnant women, postpartum women, their partners and families. Therefore, HCT in the ANC clinic should be provided to all pregnant women as part of a routine comprehensive package of care (MoHSS 2008:6).

The result in table 4.4 illustrated that 9 (30.0%) of the HCWS agreed that ELISA is used in PMTCT of HIV infection, 10 (33.3%) disagreed with the statement and 11 (36.7%) were uncertain. This finding indicates that there are challenges with the use of ELISA in PMTCT. While tests commonly used for HIV diagnosis are ELISA and Rapid HIV Test. ELISA is highly sensitive and is widely used in PMTCT and HVCT before the introduction of rapid testing but it requires more expensive infrastructure, trained personnel and batch testing (MoHSS 2008:7).

This study results as tabulated in table 4.4 indicated that the majority of HCWs (83.3%) agreed that management of HIV among women evolve the use of HAART, 3 (10.0%) of

the HCWs disagreed with this statement and 2 (6.67%) were uncertain. The findings indicate that management of HIV among women evolve the use of HAART. The management of HIV in general has evolved with the use of HAART, which has the ability to suppress viral replication (Royal College of Paediatrics and Child Health 2006:13).

An overwhelming majority of the surveyed HCWs (90.00%) agreed that antenatal services undertake clinical assessment for HIV signs and symptoms and obtain a baseline CD4 _ cell count, while a small proportion (6.67%) disagreed with the statement and 1(3.33%) were uncertain. The results indicate that antenatal services undertake clinical assessment for HIV signs and symptoms. In order to fully implement an integrated strategy for providing ART for pregnant women with a low CD4 _ counts or clinical symptoms of AIDS and a prophylactic regimen for other HIV-positive women, the antenatal services and health workers need to be able to undertake clinical assessment for HIV signs and symptoms and obtain a baseline CD4 _ cell count (McIntyre & Gray 2009:475).

Table 4.5 Patients’ responses on interventions to effective prevention of antepartum HIV transmission (n=130)

CHARACTERISTICS	Frequency	Percent
There is presence of high quality voluntary counselling and testing service.		
Agreed	112	86.15
Disagreed	6	4.62
Uncertain	12	9.23
Total	130	100.00
There is integration of highly active antiretroviral therapy services prioritised in antenatal services.		
Agreed	79	60.77
Disagreed	21	16.15
Uncertain	30	23.08
Total	130	100.00
There is community acceptance of HIV voluntary counselling, testing.		
Agreed	103	79.23
Disagreed	14	10.77
Uncertain	13	10.00
Total	130	100.00

CHARACTERISTICS	Frequency	Percent
Rapid HIV test is the first choice for routine testing.		
Agreed	115	88.46
Disagreed	9	6.92
Uncertain	6	4.62
Total	130	100.00
They use md-ARV for prevention of mother-to child transmission of HIV infection.		
Agreed	101	77.69
Disagreed	12	9.23
Uncertain	17	13.08
Total	130	100.00
HIV-infected pregnant women are counselled regarding the benefits of antiretroviral therapy for prevention of perinatal transmission.		
Agreed	115	88.46
Disagreed	5	3.85
Uncertain	10	7.69
Total	130	100.00
Antiretroviral drugs are always available for interventions in reduction of HIV infection transmission.		
Agreed	106	81.54
Disagreed	9	6.92
Uncertain	15	11.54
Total	130	100.00

The results in table 4.5 indicate that 112 (86.5%) of the patients agreed that there is presence of high quality voluntary counselling and testing service, 6 (4.6%) disagreed with the statement while 12 (9.2%) were uncertain. The results mean that there is high quality voluntary counselling. The key critical activities that need to happen in order to achieve the overall aim of reduced HIV incidence includes the presence of high quality HVCT service, regular supplies, increased community and individual knowledge and awareness of the prevention of mother-to-child transmission of HIV infection programme (Chopra 2008:19).

With regard to service integration, 79 (60.7%) of patients who participated in this survey agreed that there is integration of HAART services prioritised in antenatal services, 21 (16.1%) disagreed with the statement while 30 (23.0%) were uncertain. The results suggest that there is integration of HAART services prioritised in antenatal services. The integration of HAART services should be prioritised in ANC services; however, where this is not feasible specific models should work towards intensifying follow-up of patients. This could be achieved through regular ANC service providers' provision that

ensure same day services for all women receiving CD4 counts that make them eligible for HAART; and active tracing of pregnant women who are eligible for HAART to ensure that they complete referrals for HIV treatment (Stinson et al 2008:3).

The finding of this study indicate that 103 (79.2%) of patients agreed that there is community acceptance of HIV voluntary counselling and testing services, 14 (10.7%) disagreed with the statement and 13 (10.0%) were uncertain. The results mean that there is community acceptance of HIV voluntary counselling and testing. Such findings can be compared to the study conducted by Nyblade and Field-Nguer (2007:37) that revealed that directors and staff of PMTCT programs should recognise the influence that general community attitudes toward people living with HIV/AIDS have on women's participation. They should seek to improve community acceptance of HVCT and community support of people with HIV/AIDS.

Over three quarter (88.4%) of patients agreed that rapid HIV test is the first choice for routine testing, 9 (6.9%) disagreed with the statement and 6 (4.62%) were uncertain. These results indicate that rapid HIV test is the first choice in routine testing. Rapid HIV tests should be accurate, simple to perform and provide results immediately. For this reason, the rapid HIV test is now the first choice for routine testing. For a pregnant woman arriving late in pregnancy, early in labour or immediately postpartum, the rapid test is the only option to get an HIV test result in time to intervene effectively for PMTCT (MoHSS 2008:7).

The results of the current survey as reflected in table 4.5 indicate that the majority (77.69%) of the patients agreed that the health centre provide MD-ARV for PMTCT of HIV infection, 12 (9.2%) of the patients disagreed with this statement and 17 (13.0%) were uncertain. The findings indicate that there is effective use MD-ARV for PMTCT of HIV infection. In November 2009, WHO issued revised guidelines emphasising the use of MD-ARV for PMTCT as well as the critical need for measuring antenatal CD4 cell counts to determine HAART eligibility. The WHO report in 2009 also demonstrated that regardless of the model of PMTCT service delivery, it is feasible to transition from SD-NVP regimen to more effective MD-ARV regimen in a resource limited, public sector PMTCT program (Tsague et a 2010:2).

As shown in table 4.5, the study results show that 115 (88.4%) of the patients who participated in this survey agreed that HIV-infected pregnant women are counselled regarding the benefits of antiretroviral therapy for prevention of perinatal transmission, 5 (3.8%) of the patients disagreed with the statement and 10 (7.6%) were uncertain. The results suggest that HIV-infected pregnant women are counselled regarding the benefits of antiretroviral therapy. HIV-infected pregnant women should be counselled regarding the benefits of ART for prevention of perinatal transmission even when initiation of ART is not recommended or considered optional on the basis of current guidelines for treatment of non pregnant persons (Public Health Service Task Force 2009:19).

As shown in table 4.5, an overwhelming majority (81.5%) of patients stated that antiretroviral drugs are always available for interventions in reduction of HIV infection transmission, 9 (6.9%) disagreed with the statement while 15 (11.5%) were uncertain. The results are indication that antiretroviral drugs are always available. MTCT can occur during pregnancy and in the developed countries PMTCT has decreased to approximately 1 or 2% after implementation of universal prenatal ARV prophylaxis (Aikhionbare, Kumaresan, Shamsa & Bond 2006:3). However, factors primarily related to logistics, costs and access have limited the impact of these interventions in developing countries. Although it remains important to continue to pursue strategies to make effective ARV interventions available in developing countries, an efficacious vaccine would surely be highly valuable for reduction of transmission and certainly would be the best strategy for reducing infection spread worldwide among adults (Aikhionbare et al 2006:3).

4.3.3 Interventions to effective prevention of intrapartum HIV transmission

Table 4.6 HCWs' responses on interventions to effective prevention of intrapartum HIV transmission (n=30)

CHARACTERISTICS	Frequency	Percent
Intrapartum intravenous ZDV is recommended for all HIV-infected pregnant women.		
Agreed	12	40.00
Disagreed	15	50.00
Uncertain	3	10.00
Total	30	100.00
Administration of single-dose nevirapine, zidovudine or lamivudine for women in labour is strategy for the PMTCT.		
Agreed	22	73.33
Disagreed	8	26.67
Total	30	100.00
Women without documented HIV status at the time of labour are screened with rapid HIV testing.		
Agreed	26	86.67
Disagreed	4	13.33
Total	30	100.00
There is cesarean intervention for the PMTCT of HIV among HIV-infected women not taking antiretrovirals.		
Agreed	8	26.67
Disagreed	13	43.33
Uncertain	9	30.00
Total	30	100.00
Lowering the viral load by antenatal antiretroviral therapy is a critical component of PMTCT of HIV infection.		
Agreed	25	83.33
Disagreed	2	6.67
Uncertain	3	10.00
Total	30	100.00
HIV-infected women who had not received antepartum antiretroviral therapy start receiving intravenous ZDV immediately to prevent perinatal HIV transmission.		
Agreed	5	16.67
Disagreed	17	56.67
Uncertain	8	26.67
Total	22	100.00

The results in table 4.6 indicate that 12 (40.0%) of the HCWs agreed that intrapartum intravenous ZDV is recommended for all HIV-infected pregnant women, 15 (50.0%) disagreed with the statement and 3 (10.0%) were uncertain. The results indicate that

intrapartum intravenous ZDV is rarely recommended for all HIV-infected pregnant women. Intrapartum intravenous AZT is recommended for all HIV-infected pregnant women, regardless of their antepartum regimen to reduce perinatal HIV transmission. For women who are receiving a d4T-containing antepartum regimen, d4T should be discontinued during labour while intravenous AZT is being administered (Public Health Service Task Force 2009:59). Women who are receiving an antepartum combination ART regimen should continue this regimen on schedule as much as possible during labour and prior to scheduled caesarean section (Public Health Service Task Force 2009:59).

As shown in table 4.6, 22 (73.3%) of HCWs agreed that administration of single-dose nevirapine, zidovudine or lamivudine for women in labour is strategy for the PMTCT, 8 (26.6%) disagreed with the statement. The results implied that administration of single-dose nevirapine, zidovudine or lamivudine for women in labour is strategy for the PMTCT. Although combined antenatal, perinatal and neonatal interventions offer optimal protection from MTCT, intrapartum regimens such as SD-NVP or AZT/3TC for women in labour and their newborns remain the main strategy for the PMTCT (Homsy et al 2006:149).

As shown in table 4.6, the finding of this study indicated that 26 (86.6%) of HCWs agreed that women without documented HIV status at the time of labour are screened with rapid HIV testing, 4 (13.3%) disagreed with the statement. The results indicate that women without documented HIV status at the time of labour are screened with rapid HIV testing. Any woman without documented HIV status at the time of labour should be screened with rapid HIV testing unless she declines or opt-out screening (Public Health Service Task Force 2009:60).

As shown in table 4.6, 8 (26.6%) of HCWs agreed by stating that there are caesarean section interventions for the PMTCT of HIV among HIV-infected women not taking antiretroviral drugs, 13 (43.3%) disagreed with this statement and 9 (30.0%) were uncertain. The results mean that there are rarely caesarean section interventions for the PMTCT. The caesarean section before labour and before ruptured membranes has been introduced as an intervention for the PMTCT. The role of mode of delivery in the management of HIV infected women should be assessed in light of risks as well as benefits, since HIV infected pregnant women must be provided with available

information with which to make informed decisions regarding caesarean section and other options to prevent transmission of infection to their children (Read & Newell 2007:2).

The majority (83.3%) of the HCWs agreed that lowering the viral load by antenatal antiretroviral therapy is a critical component of PMTCT of HIV infection, 2 (6.6%) disagreed with the statement and 3 (10.0%) were uncertain. The results suggest indicate that lowering the viral load by antenatal antiretroviral therapy is a critical component of PMTCT. In women with high viral loads, it is likely that lowering the viral load by antenatal ART is a critical component of protection (The Independent Expert Panel 2010:10). However, ARV drugs have been shown to reduce the risk of transmission. Additionally, the level of HIV RNA at delivery and use of antenatal ART are each independently associated with the risk of transmission, suggesting that ARV prophylaxis does not work solely through reduction in viral load (The Independent Expert Panel 2010:10).

As shown in table 4.6, the results of this study show that 5 (16.6%) of HCWs agreed that HIV-infected women who had not received antepartum antiretroviral therapy start receiving intravenous ZDV immediately to prevent perinatal HIV transmission, 17 (56.6%) of the HCWs disagreed with the statement and 8 (26.6%) were uncertain. The results mean that rarely HIV-infected women who had not received antepartum antiretroviral therapy start receiving intravenous ZDV immediately to prevent perinatal HIV transmission. All HIV-infected women who have not received antepartum ARV should have intravenous AZT started immediately to prevent perinatal HIV transmission. Although intrapartum or neonatal antiretroviral medications will not prevent perinatal transmission that occurs before labour, most transmission occurs near to or during labour and delivery. Pre-exposure prophylaxis for the fetus can be provided by giving the mother a drug that rapidly crosses the placenta to produce systemic ARV drug levels in the fetus during intensive exposure to HIV in maternal genital secretions and blood during birth (Public Health Service Task Force 2009:60).

Table 4.7 Patients' responses on interventions to effective prevention of intrapartum HIV transmission (n=130)

CHARACTERISTICS	Frequency	Percentage
There are obstetrical interventions for PMTC of HIV infection.		
Agreed	111	85.38
Disagreed	3	10.00
Uncertain	6	4.62
Total	130	100.00
There is administration of short course of AZT to pregnant mothers before birth in order to reduce HIV transmission.		
Agreed	111	85.38
Disagreed	6	4.62
Uncertain	13	10.00
Total	130	100.00
There is understanding and knowledge of the mechanism in the timing of preventing mother-to-child transmission of HIV infection.		
Agreed	115	88.46
Disagreed	6	4.62
Uncertain	9	6.92
Total	130	100.00
There is administration of short course monotherapy regimes from 36 weeks gestation to reduce HIV transmission.		
Agreed	87	66.92
Disagreed	14	10.77
Uncertain	29	22.31
Total	130	100.00
HIV transmission is prevented by treating the pregnant woman during the third trimester, delivery and by giving the child prophylactic.		
Agreed	101	77.69
Disagreed	10	7.69
Uncertain	19	14.62
Total	130	100.00
HIV transmissions at different stages are prevented by the use of prophylactic interventions with combination of antiretroviral therapy.		
Agreed	105	80.77
Disagreed	7	5.38
Uncertain	18	13.85
Total	130	100.00

Patients were asked if there are obstetrical interventions for PMTC of HIV infection. As shown in table 4.7, 111 (85.3%) of patients agreed, 3 (10.0%) disagreed with the statement and 6 (4.6%) were uncertain. The results mean that there is an effective obstetrical intervention for PMTC. Improving obstetrical practice entails working closely

with safe motherhood programs to develop and disseminate appropriate guidelines which address HIV and PMTCT, skills building and ensuring that health workers have the supplies they need to safeguard their clients and themselves (Rutenberg et al 2006:49).

Table 4.7 shows that 111 (85.3%) of patients agreed that there is administration of short course of AZT to pregnant mothers before birth in order to reduce HIV transmission, 6 (4.6%) disagreed with the statement and 13 (10.0%) were uncertain. The results indicate that there is effective administration of short course of AZT to pregnant mothers. Short course of AZT to pregnant mothers shortly before birth and to the babies after birth reduces HIV transmission. In the light of this, the decision of government to deny prospective mother access to AZT on the grounds that it is too expensive and difficult to implement is controversial (Adler & Qulo 2007:308).

As shown in table 4.7, 115 (88.4%) of patients agreed that there is understanding and knowledge of the mechanism in the timing of PMTCT of HIV infection, 6 (4.6%) disagreed with the statement and 9 (6.9%) were uncertain. The results mean that there is effective understanding and knowledge of the mechanism in the timing of PMTCT. In the absence of antiviral prophylaxis, the risk of MTCT is about 25%. The use of antiretroviral prophylaxis in women during pregnancy and in their infants after birth has lowered the risk of transmission (Prasitwattanaseree et al 2006:179). However, the mechanism of protection provided by AZT is not completely understood. Therefore, knowledge of the timing of MTCT is critical to better understand the mechanism of protection and important to optimise prevention (Prasitwattanaseree et al 2006:179).

As shown in table 4.7, 87 (66.9%) of patients agreed that there is administration of short course monotherapy regimes from 36 weeks gestation to reduce HIV transmission, 14 (10.7%) disagreed with the statement and 29 (22.3%) were uncertain. The results mean that there is administration of short course monotherapy regimes. Short course monotherapy regimes with either AZT from 36 weeks gestation, through labour and delivery or NVP given as a single dose to the mother during labour and once to the baby reduce transmission at six weeks (Chopra 2008:11).

The results of this study as refers to table 4.7, show that most of the patients (77.69%) agreed that HIV transmission is prevented by treating the pregnant woman during the

third trimester, delivery and by giving the child prophylactic, 10 (7.69%) disagreed with the statement and 19 (14.6%) were uncertain. The results indicate that HIV transmission is prevented by treating the pregnant woman during the third trimester, delivery and by giving the child prophylactic. MTCT mainly occurs during the third trimester of pregnancy or at delivery in the absence of breastfeeding. Transmission can be prevented by treating the pregnant woman during the third trimester, at delivery and by giving the child prophylactic treatment during the first weeks of life. Short-course NVP exposure may be beneficial with respect to driving immune activation before the establishment of an infection in an infant exposed to HIV, but may have some detrimental consequences in the case of existing infection acquired in utero (Schramm, Kuhn, Gray & Tiemessen 2008:3).

An overwhelming majority of the surveyed patients (80.77%) as table 4.7 indicates that agreed that HIV transmissions at different stages are prevented by the use of prophylactic interventions with combination of antiretroviral therapy, 7 (5.3%) disagreed with the statement and 18 (13.8%) were uncertain. The results mean that HIV transmissions at different stages are prevented by the use of prophylactic interventions In the absence of treatment or prophylaxis, most transmissions are thought to occur during the intrapartum period. The proportions of transmission at different stages are changed by the use of prophylactic interventions with combination of ART almost eliminating antepartum and intrapartum transmission and shortcourse ARVs having less effect on antepartum transmission, although achieving a major reduction in intrapartum transmission (McIntyre & Gray 2009:474).

4.3.4 Interventions to prevent postpartum HIV transmission

Table 4.8 HCWs' responses on interventions to effective prevention of postpartum HIV transmission (n=30)

CHARACTERISTICS	Frequency	Percent
Infants exposed to HIV receive antiretroviral drugs during breastfeeding.		
Agreed	25	83.33
Disagreed	3	10.00
Uncertain	2	6.67
Total	30	100.00
HIV-exposed infants are being identified who require HIV diagnosis and follow-up care.		
Agreed	25	83.33
Disagreed	3	10.00
Uncertain	2	6.67
Total	30	100.00
There is HIV antibody testing for diagnosis of HIV infection in children less than 18 months old.		
Agreed	19	63.33
Disagreed	8	26.67
Uncertain	3	10.00
Total	30	100.00
HIV infected mothers are given highly active antiretroviral treatment during the breast-feeding period.		
Agreed	13	43.33
Disagreed	13	43.33
Uncertain	4	13.33
Total	30	100.00
Infants exposed to HIV receive cotrimoxazole prophylaxis starting at 4-6 weeks of age.		
Agreed	16	53.33
Disagreed	12	40.00
Uncertain	2	6.67
Total	30	100.00
Newborn from an HIV-infected mother receives single-dose Nevirapine between 12-72 hours.		
Agreed	23	76.67
Disagreed	4	13.33
Uncertain	3	10.00
Total	30	100.00
HIV-exposed infants receive postpartum antiretroviral drugs to reduce perinatal HIV transmission.		
Agreed	20	66.67
Disagreed	5	16.67
Uncertain	5	16.67
Total	30	100.00

HCWs were asked if infants exposed to HIV receive antiretroviral drugs during breastfeeding. As shown in table 4.8, 25 (83.3%) of the HCWs agreed, 3 (10.0%) disagreed with the statement and 2 (6.6%) were uncertain. The results mean that infants exposed to HIV receive antiretroviral drugs. Two potential prevention strategies in resource-limited settings are provision of antiretroviral drugs to infants exposed to HIV during breastfeeding and provision of combination ART to lactating women. Exclusive breastfeeding has been shown to lower the risk of postnatal HIV transmission compared to mixed feeding, but does not eliminate risk (The Independent Expert Panel 2010:17).

Table 4.8 shows that 25 (83.3%) of the HCWs agreed that HIV-exposed infants are being identified who require HIV diagnosis and follow-up care, 3 (10.0%) disagreed with the statement and 2 (6.6%) were uncertain. The results indicate that HIV-exposed infants are being identified who require HIV diagnosis. As a result of the programme for the PMTCT, a large number of HIV-exposed infants are being identified who require HIV diagnosis and follow-up care. It is important to identify young infants with HIV infection early and to refer them for ART because of the high mortality from untreated HIV/AIDS. It is also important to promptly identify young infants who are not HIV-infected in order to reassure their parents, discharge them from costly follow-up and measure the overall effectiveness of the PMTCT programme (MoHSS 2008:29).

As shown in table 4.8, 19(63.3%) of HCWs agreed that there is HIV antibody testing for diagnosis of HIV infection in children less than 18 months old, 8 (26.6%) disagreed with the statement and 3 (10.0%) were uncertain. The results mean that there is HIV antibody testing for diagnosis of HIV infection in children. HIV antibody testing gives definitive results for diagnosis of HIV infection in children less than 18 months old. As such this is the recommended testing approach for the diagnosis or exclusion of HIV in this age group. It is important to remember that HIV-exposed children less than 18 months old who have had prolonged breastfeeding would need to have a negative HIV antibody test result at least 3 months after breastfeeding is discontinued to exclude HIV infection (MoHSS 2010:45).

As shown in table 4.8, the study results show that 13 (43.3%) of HCWs agreed that HIV infected mothers are given HAART treatment during the breast-feeding period, 13

(43.3%) disagreed with the statement and 4 (13.3%) were uncertain. The results indicate that HIV infected mothers are rarely given HAART treatment. Another approach to prevent HIV transmission during breast-feeding that is now under evaluation is to give HAART to HIV-infected mothers during the breast-feeding period even if they do not need HAART for their own health (Kilewo, Karlsson, Massawe, Lyamuya, Swai, Fred Mhalu & Biberfeld 2008:1).

The result of this study as shown in table 4.8, slightly above half (53.33%) of the HCWs agreed that infants exposed to HIV receive cotrimoxazole prophylaxis starting at 4-6 weeks of age, 12 (40.0%) disagreed with the statement and 2 (6.67%) were uncertain. The results further show that infants exposed to HIV receive cotrimoxazole prophylaxis. All infants exposed to HIV should receive cotrimoxazole prophylaxis starting at 4-6 weeks of age and continuing until HIV infection is excluded. Cotrimoxazole can reduce child mortality in HIV positive children by over 40%. However, although cotrimoxazole is widely available and is affordable, the progress of its provision for prophylaxis in infants exposed to HIV and HIV positive mothers is still slow (UNICEF 2007:4).

The majority of the surveyed HCWs (76.6%) agreed that newborn from an HIV-infected mother receives single-dose Nevirapine between 12-72 hours, 4 (13.3%) disagreed with the statement and 3 (10.0%) were uncertain. The results mean that newborn from an HIV-infected mother receives single-dose Nevirapine. The newborn from an HIV-infected mother should receive SD-NVP mg/kg between 12-72 hours after delivery if mother has received Nevirapine at least 2 hours before delivery. In addition, the baby should receive a tail of AZT/3TC BD for 7 days (MoHSS 2008:23). If an HIV-infected mother has not received Nevirapine more than two hours before delivery and the newborn presents at the health facility less than 24 hours of age, the newborn should receive a stat dose of Nevirapine syrup and a second dose at 48-72 hours. In addition the infant should be given AZT/3TC for 7 days and AZT 4 mg/kg + 3TC 2 mg/kg every 12 hours (MoHSS 2008:23).

As shown in table 4.8, the study results reveal that 20 (66.6%) of HCWs agreed that HIV-exposed infants receive postpartum antiretroviral drugs to reduce perinatal HIV transmission, while equal proportions of 5 (16.67%) disagreed with the statement and were uncertain. All HIV-exposed infants should receive postpartum antiretroviral drugs to reduce perinatal HIV transmission. The 6-week neonatal AZT chemoprophylaxis

regimen is recommended for all HIV-exposed infants. Infants born to mothers who have received standard antepartum and intrapartum ARV prophylaxis and have undetectable viral load are at very low risk of HIV transmission (Public Health Service Task Force 2009:76).

Table 4.9 Patient’s responses on interventions to effective prevention of postpartum HIV transmission (n=130)

CHARACTERISTICS	Frequency	Percent
Women are educated about exclusive breastfeeding prior to delivery.		
Agreed	93	71.54
Disagreed	8	6.15
Uncertain	29	22.31
Total	130	100.00
Prevention of mother-to-child transmission of HIV infection represents an entry point for improving overall family health.		
Agreed	107	82.31
Disagreed	6	4.62
Uncertain	17	13.08
Total	130	100.00

As shown in table 4.9, the majority of the surveyed patients (71.5%) agreed that women are educated about exclusive breastfeeding prior to delivery, 8 (6.1%) disagreed with the statement and 29 (22.3%) were uncertain. The results imply that women are educated about exclusive breastfeeding. Infant formula is already modified to meet the infant’s nutritional needs while cow’s and goat’s milk need to be modified for the first 6 months. The baby on exclusive replacement feeding also needs additional water and daily multivitamin and mineral supplements. An HIV positive mother may choose to breastfeed her baby if she considers it to be the best way of feeding. If the mother chooses to breastfeed, she should be educated about exclusive breastfeeding prior to delivery and be provided with support and encouragement (MoHSS 2008:24).

As shown in table 4.9, the study results show that 107 (82.3%) of patients agreed that PMTCT of HIV infection represents an entry point for improving overall family health, 6 (4.6%) disagreed with the statement and 17 (13.0%) were uncertain. The results mean that PMTCT of HIV infection represents an entry point for improving overall family health. PMTCT represents an entry point for improving overall family health and functioning. Family-focused approaches facilitate broader implementation of PMTCT

programming, addressing the comprehensive needs of women, particularly those in need of treatment for their own health, as well as of children and other family members, over time. A paradigm shift is needed in PMTCT which considers the needs of entire families, rather than placing a singular focus on PMTCT during pregnancy and delivery (Betancourt et al 2010:1).

4.4 CONCLUSION

This chapter focussed on the analysis of the results obtained from the empirical study through the research questionnaires. The result of each question from questionnaires was analysed, presented in the form of tables. The chapter also provided the discussions and interpretations of the research findings. The studies found that there were mixed perceptions of respondents for effective antepartum HIV transmission, intrapartum HIV transmission and postpartum HIV transmission prevention interventions programmes to PMTCT. The following chapter will focus on summary, conclusions, recommendations and limitations of the research.

CHAPTER 5

SUMMARY, CONCLUSIONS, RECOMMENDATIONS AND LIMITATIONS OF THE STUDY

5.1 INTRODUCTION

This chapter lays out the summary of the research findings, conclusions drawn from the research findings and contributions of the study. The study limitations and the recommendations with PMTC interventions implications have been described as well as recommendations for further research are provided in this chapter.

5.2 SUMMARY

In chapter 1 the nature of the problem, which formed the basis of the study, was presented. The purpose of this study was to provide an idea and understanding of the importance of effective interventions to prevent antepartum, intrapartum and postpartum HIV transmission. It was also to focus on providing explanation regarding the advantage of the PMTCT concepts. This research has dealt with the objectives of the study which were to investigate the challenges faced in the interventions for PMTCT of HIV infection, to describe the strategies used in the PMTCT of HIV infection and to recommend effective measures to promote the interventions on the PMTCT of HIV infection. Based on the aim, objectives and research questions of the study, this research was worth to be conducted at Oshakati District Health Centre.

The study was able to indicate the condition of PMTCT interventions at Oshakati District Health Centre mainly in relation to interventions to prevent antepartum, intrapartum and postpartum HIV transmission. Overall, the finding of the study showed that there is effective PMTCT at Oshakati District Health Centre. It also became known that Oshakati District Health Centre' PMTCT interventions rarely use ELISA that is widely used in PMTCT, intrapartum intravenous ZDV is rarely recommended for all HIV-infected pregnant women, rarely use of caesarean section intervention for the PMTCT. The results of the study brought forth the following major findings.

5.2.1 Participants demographics

The research finding has shown that majority of the participants from the HCWs and patients group were females. Only one female patient was accompanied by a male partner. Most of the participants were black. Both HCWs and patients who participated in this survey were mostly young between the ages of 20-40. More than three quarter of the HCWs were certificate holders and above. A great number of health workers had 1-5 years of experience.

5.2.2 Responses on interventions to effective prevention of antepartum HIV transmission

The results showed that the majority of HCWs agreed that most women come for antepartum care and access HIV counselling and testing services. The findings reveal that over three quarter of HCWs agreed that the importance of adherence to the antiretroviral treatment during pregnancy is emphasised and HIV testing and counselling is provided to all pregnant women as a routine comprehensive package of care and management of HIV in women evolve the use of HAART. A higher percentage of HCWs agreed that the antenatal services undertake clinical assessment for HIV signs and symptoms and obtain a baseline CD4 _ cell count. Majority of the patients agreed that there is presence of high quality voluntary counselling and testing service. The study showed that majority of the patients agreed that there is community acceptance of HIV voluntary counselling and testing and more than three quarter of patients agreed that rapid HIV test is the first choice for routine testing. Majority of patients agreed that HIV-infected pregnant women are counselled regarding the benefits of antiretroviral therapy for prevention of perinatal transmission. There were a higher percentage of patients stating that antiretroviral drugs are always available for interventions in reduction of HIV infection transmission.

However, a minority of HCWs expressed concern that there is an inadequate male partners' involvement in PMTCT programme. The study also showed that about one-fifth of the HCWs agreed that couple HIV counselling and testing that increase acceptance of testing by pregnant women is rarely done. In addition, about one-fifth of patients disagreed that there is integration of HAART services prioritised in antenatal services at Oshakati District Health Centre.

5.2.3 Responses on interventions to effective prevention of intrapartum HIV transmission

From the findings of this study, HCWs agreed that women without documented HIV status at the time of labour are screened with rapid HIV testing. The majority of staff agreed that lowering the viral load by antenatal antiretroviral therapy is a critical component of PMTCT of HIV infection. The large proportion of patients agreed that there are obstetrical interventions for PMTC of HIV infection. There was a higher percentage of patients that agreed that there is administration of short course of AZT to pregnant mothers before birth in order to reduce HIV transmission. The majority of the patients stated that there is understanding and knowledge of the mechanism in the timing of PMTCT of HIV infection.

However, minority of HCWs expressed concern that administration of single-dose nevirapine, zidovudine or lamivudine for women in labour is rarely a strategy for the PMTCT. The study result indicated that staff agreed that intrapartum intravenous ZDV is rarely recommended for all HIV-infected pregnant women or when in labour. Only small proportion of the HCWs agreed that caesarean section is used as an intervention for the MTCT of HIV among HIV-infected women not taking antiretroviral drugs.

5.2.4 Responses on interventions to effective prevention of postpartum HIV transmission

There were a higher percentage of patients agreeing that women are educated about exclusive breastfeeding prior to delivery. Majority of patients agreed that PMTCT of HIV infection represents an entry point for improving overall family health. Only small proportion of the HCWs agreed that HIV-exposed infants are being identified who require HIV diagnosis and follow-up care.

The study also showed that about one-third of the HCWs disagreed that HIV antibody testing for diagnosis of HIV infection in children less than 18 months old is widely used. Half of the HCWs surveyed disagreed HIV infected mothers are given HAART treatment during the breast-feeding period. The minority of the HCWs disagreed that infants exposed to HIV receive cotrimoxazole prophylaxis as early as 4-6 weeks of age. Only

small proportion of the HCWs disagreed that HIV-exposed infants receive postpartum antiretroviral drugs to reduce perinatal HIV transmission.

5.3 CONCLUSIONS

The evidence above demonstrated that antepartum, intrapartum and postpartum HIV transmission interventions for effective PMTCT is still a challenge. From the findings of this study, it emerged that the majority of staff and patients perceive that there is effective PMTCT. However, Oshakati District Health Centre has challenges of male partners' involvement in PMTCT programme, couple HIV counselling and testing that increase acceptance of testing by pregnant women; integration of HAART in antenatal services for effective interventions to prevent antepartum HIV transmission.

Oshakati District Health Centre has challenges administering intrapartum intravenous ZDV and performing caesarean section recommended for HIV-infected pregnant women effective interventions to prevent intrapartum HIV transmission. Oshakati District Health Centre has challenges giving antiretroviral drugs during breastfeeding to HIV exposed infants and rarely identified those who require HIV diagnosis and follow-up care, provision of cotrimoxazole prophylaxis starting at 4-6 weeks of age, and HIV-exposed infants rarely receive postpartum antiretroviral drugs to reduce perinatal HIV transmission for effective prevention of postpartum HIV transmission.

5.4 RECOMMENDATIONS

The following recommendations were made in order to achieve effective PMTCT at Oshakati District Health Centre based on the findings of this study:

I INTERVENTIONS TO EFFECTIVE PREVENTION OF ANTEPARTUM HIV TRANSMISSION

- Promoting strategies that will increase involvement of male partners in PMTCT of HIV infection programmes that may improve uptake, behaviour change and compliance with HIV preventive measures.
- Strengthening couple counselling and testing that has been shown to increase acceptance of HIV testing by pregnant women.

- The integration of HAART services should be prioritised in ANC services and specific models should work towards intensifying follow-up of patients. This could be achieved through regular ANC service providers ensuring same day services for all women receiving CD4 counts that make them eligible for HAART and active tracing of pregnant women who are eligible for HAART to ensure that they get to facilities where they are referred for HIV treatment.
- Strengthening administration of antepartum short course monotherapy regimes with AZT prophylaxis earlier to women not eligible for HAART.

II INTERVENTIONS TO EFFCETIVE PREVENTION OF INTRAPARTUM HIV TRANSMISSION

- Promoting proper administration of single-dose nevirapine, zidovudine or lamivudine for women in labour as a strategy for the PMTCT because intrapartum regimens such as SD-NVP or AZT/3TC for women in labour lower maternal HIV viral load thereby reduce risk of transmitting HIV to her baby during labour and delivery.
- Intrapartum intravenous AZT should be recommended for all HIV-infected pregnant women, regardless of their antepartum regimen to reduce perinatal HIV transmission. Women who are receiving an antepartum combination ART regimen should continue this regimen on schedule as much as possible during labour and prior to scheduled caesarean section.
- The caesarean section before labour and before ruptured membranes should be introduced as an intervention for the PMTCT. The role of mode of delivery in the management of HIV infected women should be assessed in light of risks as well as benefits since HIV infected pregnant women must be provided with available information with which to make informed decisions regarding caesarean section and other options to prevent transmission of infection to their children.
- All HIV-infected women who have not received antepartum ARV should have intravenous AZT started immediately to prevent perinatal HIV transmission although intrapartum or neonatal antiretroviral medications will not prevent perinatal transmission that occurs before labour since most transmission occurs near to or during labour and delivery.

III INTERVENTIONS TO EFFECTIVE PREVENTION OF POSTPARTUM HIV TRANSMISSION

- Promoting the provision of antiretroviral drugs to infants exposed to HIV during breastfeeding and provision of combination ART to lactating women because these are two potential prevention strategies recommended in the PMTCT in the resource-limited settings.
- Increasing emphasis on identifying HIV-exposed infants who require HIV diagnosis and follow-up care and to refer HIV-exposed infants for ART because of the high mortality from untreated HIV/AIDS and identifying young infants who are not HIV-infected in order to reassure their parents, discharge them from costly follow-up measures.
- Strengthening HIV antibody testing that gives definitive results for diagnosis of HIV infection in children less than 18 months old because this is the recommended testing approach for the diagnosis or exclusion of HIV in this age group.
- Increasing emphasis of giving HAART to HIV-infected mothers during the breastfeeding period even if they do not need HAART for their own health.
- All infants exposed to HIV should receive cotrimoxazole prophylaxis starting at 4-6 weeks of age and continuing until HIV infection is excluded because cotrimoxazole reduce child mortality in HIV positive children by over 40%.
- The newborn from an HIV-infected mother should receive SD-NVP mg/kg between 12-72 hours after delivery if mother has received Nevirapine at least 2 hours before delivery.
- All HIV-exposed infants should be receiving postpartum antiretroviral drugs to reduce perinatal HIV transmission.

IV FURTHER RESEARCH

It is envisaged that this study can lay the foundation for further research within the interventions to prevent antepartum, intrapartum and postpartum HIV transmission to prevent MTCT. The interventions to prevent antepartum, intrapartum and postpartum HIV transmission in hospitals/Health Centres/Clinics could roll-out or introduce the questionnaire in all healthcare centres and the results obtained from staff and patients'

perception on the effectiveness of the PMTCT programme could be segmented nationally, per region or per district.

Alternatively, hospitals/health centres/clinics could also determine the extent to which their interventions to prevent antepartum, intrapartum and postpartum HIV transmission effectively contribute to PMTCT. The benefits of the results can assist the hospitals/Health centre and Clinics to effectively PMTCT of HIV infection.

5.5 CONTRIBUTIONS OF THE STUDY

This study has made the following contributions:

- Important contributions to Oshakati District Health Centre and other hospitals/Health Centres/Clinics in terms of benchmarking their interventions to prevent antepartum, intrapartum and postpartum HIV transmission to effectively prevent MTCT.
- Contribution towards the reduction of the spread of HIV infections through improvement of interventions for PMTCT programmes in Namibia.
- Based on findings, Oshakati District Health Centre now recognises its strong and weak points for effective PMTCT of HIV infection.
- Academically, the study findings have helped the researcher in designing relevant recommendations to Oshakati District Health Centre for effective PMTCT of HIV infection.
- From the Namibian government point of view, this study will serve as a useful (baseline) reference material to provide appropriate strategic interventions to prevent antepartum, intrapartum and postpartum HIV transmissions for effective PMTCT of HIV infection.

5.6 IMPLICATION OF THE STUDY

- The result of this study shows the need to increase male involvement in PMTCT, increase couple counselling and integration of HAART in ANC to overcome challenges to effective PMTCT during the antepartum period.

- Findings of this study also indicated that the need to perform elective Caesarean section as a delivery method for HIV infected women and administration of intravenous AZT during labour to effectively reduce MTCT.
- Finally, the impact of this study has shown the need to overcome challenges to effective PMCT in the postpartum period by addressing infant feeding practices and strengthening provision of infant ARV prophylaxis.

5.7 LIMITATIONS OF THE STUDY

This study had the following limitations:

- An assessment of effective PMTCT of HIV infection study was conducted at Oshakati District Health Centre only and other hospitals/Health Centres/Clinics were not included in the study. Research results therefore are limited to this particular District Health Centre and cannot be generalised to other hospitals/Health Centres/Clinics.
- Another limitation was that nurses not experienced in PMCTC were not surveyed who might have knowledge in the PMTCT and this also affected the ability to generalise the results.
- The study is limited to the interventions to prevent antepartum, intrapartum and postpartum HIV transmissions in order to contribute to PMTCT and did not include the general interventions to prevent HIV and AIDS such as enabling environment, impact mitigation services and integrated and co-ordinated programme management.

5.8 CONCLUDING REMARKS

The WHO (2008a:8) findings stress that HIV infection transmitted from an HIV-infected mother to her child during antepartum, intrapartum and postpartum period is known as MTCT. PMTCT of HIV infection is a highly effective intervention and has huge potential to improve both maternal and child health. The MOHSS (2008:6) emphasises that routine HIV testing and counselling is the cornerstone of all interventions to reduce MTCT of HIV infection. This is accompanied with appropriate involvement of male partners in PMTCT of HIV infection programmes, couple counselling and testing, integration of HAART services, administration of single-dose nevirapine, zidovudine or

lamivudine for women in labour, administration of short course monotherapy regimes, intrapartum intravenous AZT recommendations for all HIV-infected pregnant women, provision of antiretroviral drugs to infants exposed to HIV, identifying HIV-exposed infants who require HIV diagnosis and HIV antibody testing.

The inadequate interventions to prevent antepartum, intrapartum and postpartum HIV transmissions to prevent MTCT could serve to inform the healthcare management to strengthen interventions to achieve the effective PMTCT through further focusing on improvements in the interventions which will be able to address the shortcomings in an innovative way. Therefore, due attention has to be given to all concerned stakeholders to promote involvement of male partners in PMTCT of HIV infection programmes, strengthening couple counselling and testing, integration of HAART services, promoting proper administration of single-dose nevirapine, zidovudine or lamivudine for women in labour, strengthening administration of short course monotherapy regimes, promoting the provision of antiretroviral drugs to infants exposed to HIV and increasing emphasis on identifying HIV-exposed infants who require HIV diagnosis.

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ANNEXURE A: RESEARCH QUESTIONNAIRE FOR HEALTH CARE WORKERS
EFFECTIVE PREVENTION OF MOTHER-TO-CHILD TRANSMISSION OF HIV
INFECTION: OSHAKATI DISTRICT HEALTH CENTRE IN THE REPUBLIC OF
NAMIBIA

SECTION A

Biographical Information

Respondent Number:

1. Please indicate your gender:

Male	
Female	

2. Please indicate to which population group you belong.

Asian	
Black	
Coloured	
White	
Not willing to disclose	

3 Please indicate to which of the following age groups you belong.

Between 20-30 years	
Between 31-40 years	
Between 41-50 Years	
51 ears and older	

4 How long have you been working at Oshakati District Health Centre?

Less than 1 year	
1-5 years	
6-10 years	
11-15 years	

Over 15 years	
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5 What is your highest qualification?

Below Matric	
Matric	
Certificate	
Diploma	
Undergraduate degree	
Honours/ B Tech	
Masters	
PhD	

SECTION B

INSTRUCTIONS FOR COMPLETING QUESTIONS OF SECTION B

1 = Strongly Disagree

2 = Disagree

3 = Uncertain

4 = Agree

5 = Strongly Agree

It is important to note that there are no right or wrong answers to this survey. Kindly rate the statements below which best indicate your views.

QUESTION 1 – THE EXTENT TO WHICH ANTEPARTUM HIV TRANSMISSION PREVENTION INTERVENTIONS CONTRIBUTE TOWARDS PREVENTION OF MOTHER-TO-CHILD TRANSMISSION OF HIV INFECTION

It is believed that antepartum HIV transmission prevention interventions programmes have made a major contribution to prevent mother-to-child transmission of HIV infection. I would like to find out your perception towards Oshakati District Health Centre antepartum HIV transmission prevention interventions.

No.	Item	Strongly Disagree	Disagree	Uncertain	Agree	Strongly Agree
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1	Most women come for antepartum care and access HIV counseling and testing services.					
2	The importance of adherence to the antiretroviral treatment during pregnancy is emphasized.					
3	There is male partners' involvement in prevention of mother-to child transmission of HIV infection programme.					
4	There is couple HIV counseling and testing that increase acceptance of testing by pregnant women.					
5	HIV testing and counselling is provided to all pregnant women as a routine comprehensive package of care.					
6	Enzyme-Linked Immunosorbent Assay is used in prevention of mother-to child transmission of HIV infection.					
7	Management of HIV in women evolve the use of highly active antiretroviral therapy.					
8	The antenatal services undertake clinical assessment for HIV signs and symptoms and obtain a baseline CD4 _ cell count.					

QUESTION 2 – THE EXTENT TO WHICH INTRAPARTUM HIV TRANSMISSION PREVENTION INTERVENTIONS CONTRIBUTE TOWARDS PREVENTION OF MOTHER-TO-CHILD TRANSMISSION OF HIV INFECTION

It is believed that intrapartum HIV transmission prevention interventions programmes have made a major contribution to prevent mother-to-child transmission of HIV infection. I would like to find out your perception towards Oshakati District Health Centre intrapartum HIV transmission prevention interventions.

No.	Item	Strongly Disagree	Disagree	Uncertain	Agree	Strongly Agree
1	Intrapartum intravenous ZDV is recommended for all HIV-infected pregnant women.					
2	Administration of single-dose nevirapine, zidovudine or lamivudine for women in labour is strategy for the prevention of mother-to-child transmission of HIV infection.					
3	Women without documented HIV status at the time of labour are screened with rapid HIV testing.					
4	There is cesarean intervention for the prevention of mother-to-child transmission of HIV among HIV-infected women not taking antiretrovirals.					
5	Lowering the viral load by antenatal antiretroviral therapy is a critical component of preventing mother-to-child transmission of HIV					

	infection.					
6	HIV-infected women who had not received antepartum antiretroviral therapy start receiving intravenous ZDV immediately to prevent perinatal HIV transmission.					

QUESTION 3 – THE EXTENT TO WHICH POSTPARTUM HIV TRANSMISSION PREVENTION INTERVENTIONS CONTRIBUTE TOWARDS PREVENTION OF MOTHER-TO-CHILD TRANSMISSION OF HIV INFECTION

It is believed that postpartum HIV transmission prevention interventions programmes have made a major contribution to prevent mother-to-child transmission of HIV infection. I would like to find out your perception towards Oshakati District Health Centre postpartum HIV transmission prevention interventions.

No.	Item	Strongly Disagree	Disagree	Uncertain	Agree	Strongly Agree
1	Infants exposed to HIV receive antiretroviral drugs during breastfeeding.					
2	HIV-exposed infants are being identified who require HIV diagnosis and follow-up care.					
3	There is HIV antibody testing for diagnosis of HIV infection in children less than 18 months old.					
4	HIV infected mothers are given highly active antiretroviral treatment during the breast-feeding period.					
5	Infants exposed to HIV receive cotrimoxazole prophylaxis starting at 4-6					

	weeks of age.					
6	Newborn from an HIV-infected mother receives single-dose Nevirapine between 12-72 hours.					
7	HIV-exposed infants receive postpartum antiretroviral drugs to reduce perinatal HIV transmission.					

Thank you for your time and participation.

ANNEXURE B: RESEARCH QUESTIONNAIRE FOR PATIENTS

EFFECTIVE PREVENTION OF MOTHER-TO-CHILD TRANSMISSION OF HIV INFECTION: OSHAKATI DISTRICT HEALTH CENTRE IN THE REPUBLIC OF NAMIBIA

SECTION A

Biographical Information

Respondent Number:

1 Please indicate your gender:

Male	
Female	

2 Please indicate to which population group you belong.

Asian	
Black	
Coloured	
White	
Not willing to disclose	

3 Please indicate to which of the following age groups you belong.

Under 20 years	
Between 20-30 years	
Between 31-40 years	
Between 41-50 Years	
51 years and older	

SECTION B

INSTRUCTIONS FOR COMPLETING QUESTIONS OF SECTION B

1 = Strongly Disagree

2 = Disagree

3 = Uncertain

4 = Agree

5 = Strongly Agree

It is important to note that there are no right or wrong answers to this survey. Kindly rate the statements below which best indicate your views.

QUESTION 1 – THE EXTENT TO WHICH ANTEPARTUM HIV TRANSMISSION PREVENTION INTERVENTIONS CONTRIBUTE TOWARDS PREVENTION OF MOTHER-TO-CHILD TRANSMISSION OF HIV INFECTION

It is believed that antepartum HIV transmission prevention interventions programmes have made a major contribution to prevent mother-to-child transmission of HIV infection. I would like to find out your perception towards Oshakati District Health Centre antepartum HIV transmission prevention interventions.

No.	Item	Strongly Disagree	Disagree	Uncertain	Agree	Strongly Agree
1	There is presence of high quality voluntary counselling and testing service.					
2	There is integration of highly active antiretroviral therapy services prioritized in antenatal services.					
3	There is community acceptance of HIV voluntary counseling, testing.					
4	Rapid HIV test is the first choice for routine testing.					
5	They use md-ARV for prevention of mother-to child transmission of HIV infection.					
6	HIV-infected pregnant women are counselled regarding the benefits of antiretroviral therapy for					

	prevention of perinatal transmission.					
7	Antiretroviral drugs are always available for interventions in reduction of HIV infection transmission.					

QUESTION 2 – THE EXTENT TO WHICH INTRAPARTUM HIV TRANSMISSION PREVENTION INTERVENTIONS CONTRIBUTE TOWARDS PREVENTION OF MOTHER-TO-CHILD TRANSMISSION OF HIV INFECTION

It is believed that intrapartum HIV transmission prevention interventions programmes have made a major contribution to prevent mother-to-child transmission of HIV infection. I would like to find out your perception towards Oshakati District Health Centre intrapartum HIV transmission prevention interventions.

No.	Item	Strongly Disagree	Disagree	Uncertain	Agree	Strongly Agree
1	There are obstetrical interventions for prevention of mother-to-child transmission of HIV infection.					
2	There is administration of short course of AZT to pregnant mothers before birth in order to reduce HIV transmission.					
3	There is understanding and knowledge of the mechanism in the timing of preventing mother-to-child transmission of HIV infection.					
4	There is administration of short course monotherapy regimes from 36 weeks gestation to reduce HIV transmission.					

5	HIV transmission is prevented by treating the pregnant woman during the third trimester, delivery and by giving the child prophylactic.					
6	HIV transmissions at different stages are prevented by the use of prophylactic interventions with combination of antiretroviral therapy.					

QUESTION 3 – THE EXTENT TO WHICH POSTPARTUM HIV TRANSMISSION PREVENTION INTERVENTIONS CONTRIBUTE TOWARDS PREVENTION OF MOTHER-TO-CHILD TRANSMISSION OF HIV INFECTION

It is believed that postpartum HIV transmission prevention interventions programmes have made a major contribution to prevent mother-to-child transmission of HIV infection. I would like to find out your perception towards Oshakati District Health Centre postpartum HIV transmission prevention interventions.

No.	Item	Strongly Disagree	Disagree	Uncertain	Agree	Strongly Agree
1	Women are educated about exclusive breastfeeding prior to delivery.					
2	Prevention of mother-to-child transmission of HIV infection represents an entry point for improving overall family health.					

Thank you for your time and participation.

**ANNEXTURE C: RESEARCH QUESTIONNAIRE FOR PATIENTS TRANSLATED
IN OSHIWAMBO LANGAUGE**

**OMAPULAAPULO KAAYAKULWA GE NASHA NA NKENE OPROGRAMA
YEKEELELO LYO MBUTO YOHIV OKUZA KUMEME OKUYA KOKANONA TAYI
LONGO MPAKA MOSHAKATI**

OSHITOPOLWA SHA A

Omauyeleele go petameko ge na sha nomuyamukuli

1 Onomola yomuyamukuli:

2 Ulika kutya ngweye omulumentu nenge omukiintu:

Omulumuntu	
Omukiintu	

3 Alikana ulika kutya ouli mongundu yoludhi lyuukwashigwana yini

Omu Asia	
Omuluudhe	
Omumbambi	
Omutokele	
Ino hala oku holala oludhi lwoye	

4 Ulika kutya owuli mongundu yepipi lyeemvula dhini:

Koshi yeemvula 20	
Pokati keemvula 20-30	
Pokati keemvula 31-40	
Pokati keemvula 41-50	
Eemvula 51 nenge dhi vulithe po	

OSHITOPOLWA SHA B

OMALOMBWELO NKENE UNA OKUYAMUKULA OMAPULO

GOMOSHITOPOLWA SHA B

1 = Itandi tsu kumwe nande nande

2 = Itandi tsu kumwe

- 3 = Kandishi wo naana
- 4 = Otandi tsu kumwe
- 5 = Otandi tsu kumwe lela lela

Dhimbulukwa kutya kapena nana eyamukulo lya tali ka ko lya puka nenge lyomondjila momapulaapulo ngaka. Onkee ano yamukula omapulo ngaka shii ikwatelela komaiyuvo goye mwene.

EPULO 1 –NKENE OMIKALO DHOKUKEELELA ETAANDELO LYOMBUTO YO HIV, DHOKA HADHI LONGITHWA PETHIMBO MEME ELI METEGELELO TADHI KWATHELE MEKEELELO LYOMBUTO YO HIV OKUZA KUMEME OKUYA KOKANONA.

Oshili sha itaalwa ko kutya omikalo dhekeelelo lyombuto yo HIV okuza kumeme okuya kokanona odha kwathela lela moku keelela etaandelo lyombuto yo HIV okuza kumeme okuya kokanona.

Onda hala uku uva omaiyuvo goye kombinga yomikalo hadhi longithwa muka mOshakati dhekeelelo lyetaandelo lyo mbuto yo HIV okuza kumeme okuya kokanona pethimbo meme eli metegelelo.

(Gandja okangombe √ mokakololo kehogololo lyoye)

No.	Etumbulo	Itandi tsu kumwe nande nande	Itandi tsu kumwe	Kandishi wo naana	Otandi tsu kumwe	Otandi tsu kumwe lela lela
1	Ehungomwenyo neikonaakonitho lyo HIV hali ningwa moshakati olyo ngushu lela.					
2	Egandjo lyomiti dho kulelepeka oha li ningwa pamwe/mumwe nomathulo.					
3	Ehungomwenyo					

	nomaikonaakonitho oga taambwa ko nawa moshigwana.					
4	Meikonaakonitho lyakwalukehe, ata ku longithwa omukalo ngoka omuntu ta konakonwa nokumona eyamukulo lye pethimbo mpoka					
5	Oha ku longithwa omiti odhindji dho ARVs mekelelo lyombuto okuza kumeme okuya kokanona.					
6	Oomeme yeli momategelelo yo oyena ombuto yo HIV oha ya pewa ehungo mwenyo li nasha nuwanawa womiti dhokulelepeka opo ku keelelwe ombuto pethimbo lyoshitheta nokupulumutha					
7	Omiti dhokulelepeka opo aluhe hadhi kala dhoka handi longithwa meshunitho pevi lyetaandelo lyo mbuto yo HIV.					

EPULO 2 – NKENE OMIKALO DHOKUKEELELA ETAANDELO LYOMBUTO YO HIV, DHOKA HADHI LONGITHWA PETHIMBO LYOKUPULUMUTHA TADHI KWATHELE MEKEELELO LYOMBUTO YO HIV OKUZA KUMEME OKUYA KOKANONA.

Oshili sha itaalwa ko kutya omikalo dhekeelelo lyombuto yo HIV okuza kumeme okuya kokanona odha kwathela lela moku keelela etaandelo lyombuto yo HIV okuza kumeme okuya kokanona.

Onda hala uku uva omaiyuvo goye kombinga yomikalo hadhi longithwa muka mOshakati dhekeelelo lyetaandelo lyo mbuto yo HIV okuza kumeme okuya kokanona pethimbo lyokupulumutha.

(Gandja okangombe ✓ mokakololo kehogololo lyoye)

No.	Etumbulo	Itandi tsu kumwe nande nande	Itandi tsu kumwe	Kandishi wo naana	Otandi tsu kumwe	Otandi tsu kumwe lela lela
1	Opena omikalo dhoka handi longithwa po ku valitha opo ku keelelwa etaandelo lyombuto yo HIV okuza kumeme okuya kokanona.					
2	Oomeme yeli momategelelo ohaya pewa omuti wo "AZT" manga inaya mona okanona opo ku shunithwe pevi ompito yetaandelo lyo HIV.					
3	Oku niwe euveko nuunongo nkene ekelelo lyombuto yo HIV okuza kumeme okuya kokanona hali					

	longo.					
4	Ohaku gandjwa omuti gumwe gwo AZT kuza peewike 36 opo ku shunithwe pevi oompito dhetaandelo lyombuto yo HIV okuya kokanona					
5	Etaandelo lyombuto ohali keelelwa moku gandja epango komusimba peemwedhi dhahugunina dhe tegelelo, pethimbo lyokupulumutha nokugandja omuti kokanona ke.					
6	Etaandelo lyombuto yo Hiv ohali vulu oku keelelwa pompito dhayooloka ngele omuntu ta nu ehwata lyomiti dho ARV.					

EPULO 3 – NKENE OMIKALO DHOKUKEELELA ETAANDELO LYOMBUTO YO HIV, DHOKA HADHI LONGITHWA KONIMA YOKUPULUMUTHA TADHI KWATHELE MEKEELELO LYOMBUTO YO HIV OKUZA KUMEME OKUYA KOKANONA.

Oshili sha itaalwa ko kutya omikalo dhekeelelo lyombuto yo HIV okuza kumeme okuya kokanona odha kwathela lela moku keelela etaandelo lyombuto yo HIV okuza kumeme okuya kokanona.

Onda hala uku uva omaiyuvo goye kombinga yomikalo hadhi longithwa muka mOshakati dhekeelelo lyetaandelo lyo mbuto yo HIV okuza kumeme okuya kokanona konima yokupulumutha.

(Gandja okangombe ✓ mokakololo kehogololo lyoye)

No.	Etumbulo	Itandi tsu kumwe nande nande	Itandi tsu kumwe	Kandishi wo naana	Otandi tsu kumwe	Otandi tsu kumwe lela lela
1	Oomeme mboka taya lumbu nombuto yo HIV yeli momategelelo oha ya longwa shina sha neyamutho lyokontulo alike o manga nokuli ina ya mona uunona					
2	Ekelelo lyombuto yo HIV okuza kumeme okuya kokanona osho osheelo okupitila moku hwepopeka uudjolowele waanegumbo ayehe.					

Tangi unene molwa ethimbo lyoye naasho wa kutha ombinga momapulapulo ngaka!

**ANNEXTURE D: UNIVERSITY OF SOUTH AFRICA ETHICAL COMMITTEE
PERMISSION LETTER**



**UNIVERSITY OF SOUTH AFRICA
Health Studies Research & Ethics Committee
(HSREC)
College of Human Sciences**

CLEARANCE CERTIFICATE

Date of meeting: **17 May 2010** Project No: **43720358**

Project Title: Efficacy of the new antiretroviral regimen for the prevention of
mother – child transmission in Namibia

Researcher: **NN Shoopala**

Supervisor/Promoter: **Prof LI Zungu**

Joint Supervisor/Joint Promoter: **Mrs TG Lumadi**

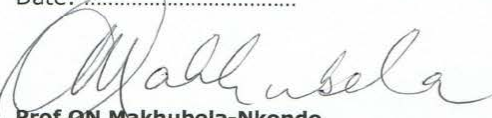
Department: **Health Studies**

Degree: **MPH**

DECISION OF COMMITTEE

Approved Conditionally Approved

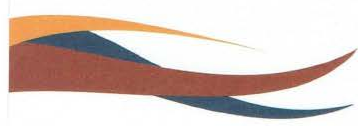
Date: **17 May 2010**


Prof ON Makhubela-Nkondo
RESEARCH COORDINATOR: DEPARTMENT OF HEALTH STUDIES



Prof MC Bezuidenhout
ACADEMIC CHAIRPERSON: DEPARTMENT OF HEALTH STUDIES

PLEASE QUOTE THE PROJECT NUMBER IN ALL ENQUIRES



**ANNEXTURE E: MINISTRY OF HEALTH AND SOCIAL SERVICES
PERMISSION LETTER**

9 - 0/0001



REPUBLIC OF NAMIBIA

Ministry of Health and Social Services

Private Bag 13198	Ministerial Building	Tel: (061) 2032125
Windhoek	Harvey Street	Fax: (061) 272286
Namibia	Windhoek	E-mail: amuheua@mhss.gov.na
Enquiries: Mr. A. Muheua	Ref.: 17/3/3/AP	Date: 20 January 2011

OFFICE OF THE PERMANENT SECRETARY

P. O. Box 3612
Ongwediva
Namibia

Dear Miss Shoopala

Re: Study – Prevention of mother to child transmission of HIV: A comparison of single dose Nevirapine and antepatum AZT regimen in Namibia

1. Reference is made to your application to conduct the above-mentioned study.
2. The proposal has been evaluated and found to have merit.
3. Kindly be informed that approval has been granted under the following conditions:
 - 3.1 The data collected is only to be used for your academic purpose,
 - 3.2 A quarterly progress report is to be submitted to the Ministry's Research Unit;
 - 3.3 Preliminary findings are to be submitted to the Ministry before the final report,
 - 3.4 Final report to be submitted upon completion of the study,
 - 3.5 Separate permission to be sought from the Ministry for the publication of the findings.

Wishing you success with your project.

Yours sincerely,


MR. K. KAHURE
PERMANENT SECRETARY

"Health for All"

**ANNEXTURE F: OSHANA REGIONAL DIRECTORATE OF HEALTH
PERMISSION LETTER**



**REPUBLIC OF NAMIBIA
MINISTRY OF HEALTH & SOCIAL SERVICES
OSHANA REGION DIRECTORATE OF HEALTH**

INTERMEDIATE HOSPITAL OSHAKATI

Private Bag X5501
Oshakati

Phones: +264(65)2233000
+264(65) 221 380
Faxes: +264(65) 224564
+264(65) 221 390

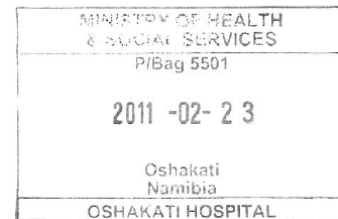
E-mail: supt.ihosh@iway.na

Enquiries:

Ref: 17/3/3

Date: 23 February, 2011

Ms Naemi Shoopala
PO Box 3612
ONGWEDIVA



**REQUEST TO CONDUCT STUDY ON PREVENTION OF MOTHER TO CHILD
TRANSMISSION OF HIV: A COMPARISON OF SINGLE DOSE NEVIRAPINE AND
ANTEPATUM AZT REGIMEN IN NAMIBIA**

Your letter on the above issue refers.

The Intermediate Hospital Oshakati Management granted you a permission to conduct your study on condition that you must adhere to the rules and regulations of the institution and to the authorization letter from the Permanent Secretary.

During your study period, you must under the supervision of the Medical Officers and Registered Nurse in charge of the sections concern.

Yours Sincerely


**MEDICAL SUPERINTENDENT
OSHAKATI HOSPITAL
MINISTRY OF HEALTH
AND SOCIAL SERVICES
NAMIBIA**
DR SHANNON KAKUNGULU
MEDICAL SUPERINTENDENT

ANNEXTURE G: HEALTH CARE WORKERS' INFORMED CONSENT FORM

Annexure : Informed Consent Form: Staff

Hello,

My Name is Naemi Shoopala. I am student at University of South Africa, doing a Masters degree in Public Health. As part of my study requirement, I am expected to complete a research project. I chose to research on the PMTCT program. I therefore would like you to be a respondent because you are working in Oshakati Health Centre. Before we start with the interview, I would like to discuss a few things with you, just to make sure you understand this exercise clearly.

1. Voluntary participation

Even though I have selected you for the self-administered questionnaire because you are working in Oshakati Health Centre you still have the right not to participate if you don't feel like. Should you feel not comfortable to answer some of the questions you are free not to answer them. You have the right to stop participating at anytime. You will not be reported to your supervisor or viewed negatively by the research.

2. Confidentiality

If you decide to take part in the study, the information will be analysed but no name will be referred to.

3. Benefits

Information obtained during study is critical to the program as it will be used for quality improvement of the PMTCT program which will lead to reduced mother to child transmission of HIV.

4. Contact

Should you change your mind or wanting to ask something about this study please don't hesitate to contact me at 0811221920.

5. Request to sign consent

Do you agree to participate in this study? If yes, please take the questionnaire and complete it. Please remember to drop the completed questionnaire in a box at the counter in front of the district office.

Thank you,



ANNEXTURE H: PATIENTS' INFORMED CONSENT FORM

Annexure: Informed Consent Form: Patient

Hello,

My Name is Naemi Shoopala. I am student at University of South Africa, doing a Masters degree in Public Health. As part of my study requirement, I am expected to complete a research project. I chose to research on the PMTCT program. I therefore would like you to be a respondent because you receive service here at Oshakati health Centre . Before we start with the interview, I would like to discuss a few things with you, just to make sure you understand this exercise clearly.

1. Voluntary participation

Even though I have selected you for the self-administered questionnaire because you get service here in Oshakati Health Centre you still has the right not to participate if you don't feel like. Should you feel not comfortable to answer some of the questions you are free not to answer them. You have the right to stop participating at anytime. You will not be reported to Staff at this Health Centre or viewed negatively by the research.

2. Confidentiality

If you decide to take part in the study, the information will be analysed but no name will be referred to.

3. Benefits

Information obtained during this interview is critical to the program as it will be used for quality improvement of the PMTCT program which will lead to reduced mother to child transmission of HIV.

4. Contact

Should you change your mind or wanting to ask something about this study please don't hesitate to contact me at 0811221920.

5. Request to sign consent

Do you agree to participate in this study? If yes, please take the questionnaire and complete it. Please remember to drop the completed questionnaire in a box at the counter in front district office.

Thank you,

