

**DETERMINANTS OF THE EFFECTIVENESS OF SERVICES FOR  
PREVENTION OF MOTHER TO CHILD TRANSMISSION OF HUMAN  
IMMUNODEFICIENCY VIRUS:  
A CASE OF KIBERA SLUM IN NAIROBI PROVINCE**

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**A Research Project Report Submitted in Partial Fulfillment of the  
Requirements for the Award of the Degree of Masters of Arts in Project  
Planning and Management of the University of Nairobi**

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## DECLARATION

This research project report is my original work and has not been presented for a degree in any other university.

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## **DEDICATION**

I wish to dedicate this work to my dear husband Julius and my son Victor for their support and encouragement throughout the period since I started my master's course work and the research project.

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First, I would like to thank Almighty God for granting me favor to successfully join the Project Planning and Management (PPM) masters program. I also thank Him for his continued provision that has enabled me to get this far with my project work. I sincerely want to thank my supervisor, Ms. Nyawira Kuria, who tirelessly reviewed and guided my research project work from commencement to completion. I would also wish to thank all my other lecturers including those who taught me during the research seminar, who through their lectures provided me with a wealth of information that I applied during the development of this proposal and specifically to Dr. Gakuu for his diligent lecture on research methods. My appreciation also goes to all the extramural department staff and all my classmates at the University of Nairobi for their support. I want to sincerely thank the Kibera Prevention of Mother-to-Child Transmission (PMTCT) programs team who helped me in carrying out this research project. I may not be able to mention by name everyone who offered me support in one way or the other but may God bless them for their contribution to the success of research project work.

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## ABBREVIATIONS AND ACRONYMS

AIDS	Acquired Immunodeficiency Syndrome
AMREF	African Medical and Research Foundation
ANC	Antenatal Clinic
ART	Antiretroviral therapy
ARV	Anti Retroviral
CDC	Centers for Diseases Control and Prevention
CHWs	Community Health Workers
HIV	Human Immunodeficiency Virus
KCBHC	Kibera Community Based Health Center
MCH	Maternal and Child Health
MDG's	Millennium Development Goals
MoPHS	Ministry of Public Health and Sanitation
MSF	Médecins Sans Frontières
MTCT	Mother to Child Transmission
NASCOP	National Aids and Sexually Transmitted Infections Control Program
NVP	Nevirapine
PEPFAR	Presidents Emergency Plan for AIDS Relief
PMTCT	Prevention of Mother to Child Transmission
SPSS	Statistical Package for the Social Sciences
STI	Sexually Transmitted Infections
TBAs	Traditional Birth Attendants
UNAIDS	United Nations Programs on Acquired Immunodeficiency Syndrome
UNGASS	United Nations General Assembly Special Session
UNICEF	United Nations International Children Emergency Fund
USD	United States Dollar
VCT	Voluntary Counseling and Testing
W HO	World Health Organization

## ABSTRACT

The severity of the problem of Mother-to-Child Transmission (MTCT) of Human Immunodeficiency Virus / Acquired Immunodeficiency Syndrome (HIV/AIDS) in Sub-Saharan Africa is due to high rates of HIV/AIDS infection in women of reproductive age, the large total population of women of reproductive age, high birth rates and the lack of effective MTCT prevention interventions. Two-thirds of Human Immunodeficiency Virus (HIV) positive pregnant women in the developing world do not have access to services needed for effective prevention of MTCT of HIV, which leads to high rates of new HIV cases annually among infants. In Kenya, an estimate of 270 new pediatric HIV infections occurs each day through MTCT. In order to address this problem, the Kenyan Government has implemented several PMTCT programs throughout the country. There has been a scarcity of studies especially in Kibera to evaluate the factors that determine effectiveness of these PMTCT services in ensuring quality prevention of MTCT. This study was thus prompted to establish the determinants of the effectiveness of PMTCT services being implemented by different programs in Kibera due to its high HIV prevalence rate of 15 percent double the national figure. The objectives of this study were to establish how male partner involvement influences the uptake of PMTCT services, how the perception of mothers towards PMTCT services influences the effectiveness, how the accessibility of these services to the mothers and the availability of follow-up mechanisms to trace defaulters affect the effectiveness of PMTCT services. The findings of this study are important in making informative decision towards achieving the 2010-2015 strategic vision and Millennium Development Goals (MDGs) four and five. The study was a cross-sectional descriptive survey design in which 182 HIV positive mothers attending PMTCT services in PMTCT centers in Kibera and 27 health care workers in the same centers were contacted and taken through a semi structured questionnaire that was designed for each group. A systematic random sampling procedure was used to select the 182 mothers, while a purposive sampling procedure was used to select the health care workers by the fact that they had worked in that center for the last two years. A pilot study was conducted to ensure validity of the data and for reliability of the study instruments a test-retest technique was used. Data was collected within a span of one week and was then entered in Statistical Package for Social Sciences (SPSS), cleaned and analyzed to obtain frequencies and percentages. Relationships among variables were computed through chi-square statistics. Approval of the study was obtained from University of Nairobi and PMTCT center administrators. Also an informed consent document was read to and explained to the participants for them to sign as acceptance to participate in the study. The study findings confirmed that male partner involvement is one of the major determinants to the effectiveness of PMTCT services with 62.4 percent of the married mothers confirming that they have had male directed violence due to their involvement in PMTCT programs. Perception of the mothers was also found to be another determinant with 59.4 percent of the mothers confirming that they are not happy about various aspects of the program especially lack of confidentiality among the health care givers hence making them have a negative attitude. Poor accessibility of some PMTCT services is another determinant with 64.2 percent of the mothers defaulting from the programs. Poor follow-ups to track and trace the mothers is another determinant with 53.8 percent of the mothers who defaulted due to lack of follow-ups having HIV positive children and 24.5 percent of them, their children have died out of HIV infection. The study recommends that awareness targeting males should be emphasized and especially the less literate ones and also

that PMTCT programs should adequately offer all the necessary services to the mothers and practice confidentiality.

# CHAPTER ONE

## INTRODUCTION

### 1.1 Background

The (MTCT of HIV is the HIV infection transmitted from an HIV-infected mother to her child during pregnancy, labour, delivery or breastfeeding (Creek et al, 2003). The severity of the problem of MTCT of HIV/AIDS in Sub-Saharan Africa is due to high rates of HIV/AIDS infection in women of reproductive age, the large total population of women of reproductive age, high birth rates and the lack of effective MTCT prevention interventions (Elizabeth et al, 2009). Two-thirds of HIV-positive pregnant women in the developing world do not have access to treatment to prevent mother-to-child HIV transmission, which could lead to 370,000 new HIV cases annually among infants (Kaiser Daily Global Health Policy Report, 2009). According to a study released by the International Treatment Preparedness Coalition Bloomberg reports (2009) by US global health policy, of the 1.5 million HIV-positive pregnant women each year in the developing world, about one-third receive any kind of drug therapy at all, adding that most of the treatment is inadequate and fails to prevent MTCT. A study done by Kwasi et al (2010) shows that, most HIV-positive pregnant women who do have access to prevention services in developing countries receive nevirapine for PMTCT, which is 40 percent effective at reducing transmission. Nevirapine can also lead to drug-resistant strains of HIV from developing. HIV/AIDS is a major cause of infant and childhood morbidity and mortality in Africa. In children under 5 years of age, HIV/AIDS now accounts for a rise of more than 19 percent in infant mortality, and a 36 percent rise in under-5 mortality, since its earliest days in the 80s' (Salojee and Violari, 2001). A study by the Ministry of Health and social welfare in Tanzania (2005) shows that chances of survival for a child infected with HIV/AIDS through maternal transmission are rare and thus aggravates infant and child mortality rates.

The PMTCT should be a highly effective intervention that has huge potential to improve both maternal and child health (Lettow et al, 2011). In 2001, the United Nations General Assembly set a target for 80 percent of pregnant women and their children to have access to essential prevention, treatment and care by 2010 to reduce the proportion of infants infected by HIV by 50 percent (World Health Organization (WHO) report 2010a), However, the 50 percent reduction



by 2010 was not achieved though significant progress in the area of PMTCT has been made during the past several years. According to WHO, United Nations Programs on Acquired Immunodeficiency Syndrome (UNAIDS), and United Nations International Children Emergency Fund (UNICEF) report (2009), HIV testing among pregnant women is increasing with the expansion of provider-initiated testing and counseling in antenatal clinics, labour and delivery centers, and other health-care settings. However, according to Rutenberg et al (2011), there is little follow up done on those found positive to ensure that they have been put on Anti Retrovirals (ARV's) and continuous counseling done to prevent MTCT. Also there is no adequate access to these PMTCT services to HIV positive pregnant mothers.

According to WHO report (2003), to effectively address MTCT of HIV requires a comprehensive approach that includes the following four strategic components primary prevention of HIV infection among women of childbearing age; preventing unintended pregnancies among women living with HIV; preventing HIV transmission from women living with HIV to their infants, and providing appropriate treatment, care and support to mothers living with HIV and their children and families. This approach will ensure a continuum of interventions and care for women, children and their families which starts before pregnancy and continues through pregnancy, labour, delivery and postpartum, and subsequently as part of routine or specialized chronic care services for the mother, child and family after the child is born. To ensure quality preventive MTCT of HIV, this approach needs to be effectively monitored and proper follow up done for those mothers who turn HIV positive on testing. This study assessed the determinants of the effectiveness of PMTCT services in achieving quality prevention of MTCT of HIV. The information will be useful to health policy makers to improve PMTCT services and also contribute in achieving MDGs four and five.

In Kenya, an estimate of 270 new pediatric HIV infections occurs each day through MTCT (National Aids and Sexually Transmitted Infections Control Program (NASCO) 2002). The MTCT of HIV is the cause of most HIV infections in children. In order to address this problem, the Kenyan Government has implemented several PMTCT services throughout the country. These services include routine and Voluntary Counseling and Testing (VCT) for HIV, improved

obstetric practices, Antiretroviral Therapy (ART), counseling and support for safer infant feeding practices, and family planning. The effectiveness of these services in achieving quality PMTCT has not been established. Kibera being the biggest slum in Kenya where most jobless illiterate people dwell and due to the existence of many entertainment spots providing alcohol, drugs and large networks of commercial sex workers, Kibera is a high risk environment for HIV transmission (Gulis et al, 2004). There is no literature showing the defaulter levels and if there are follow-up mechanisms put in place to ensure that all the detected HIV positive mothers are followed until their children attain 18 months of age. This study evaluated the determinants of the effectiveness PMTCT services in the area among HIV pregnant women and mothers having children of 18 months and below who were born when the mother was HIV positive. This information was also obtained from the health care givers working in various PMTCT centers in the area and relevant documents.

## **1.2 Statement of the Problem**

Sub-Saharan Africa has a high rate of pregnancies (Ngurea et al, 2011). Effective PMTCT services are needed to reduce vertical transmission of HIV from mothers to their children. Some of these strategies are reducing unintended pregnancies among HIV positive mothers through the use of contraceptives, giving ARVs to HIV positive pregnant mothers to prevent the infection being transferred to the fetus and giving health education in form of counseling to pregnant mothers and encouraging them to go for Antenatal Clinics (ANC) and VCT centers to know their status. Despite all these interventions in place, UNAIDS report (2008) estimates that more than 90 percent of children living with HIV are infected through MTCT during pregnancy, around the time of birth or through breastfeeding. This has contributed to increased child mortality. In 2001, a declaration of commitment on HIV/AIDS at the United Nations General Assembly Special Session (UNGASS) on HIV/AIDS, all the countries committed to ensure a reduction of 20 percent by 2005 and 50 percent by 2010, the number of infants infected with HIV by ensuring that "80 percent of pregnant women in antenatal care receive HIV information, counseling and other HIV prevention services; increasing the availability of and providing access for HIV-infected women and babies to effective treatment to reduce MTCT of HIV, as well as through effective interventions for HIV-infected women, including voluntary and confidential testing and

counseling, access to treatment, especially ART and, where appropriate, breast-milk substitutes and the provision of a continuum of care” (UNGASS Declaration, 2001). Ten years down the line since UNGASS declared that by 2010, 80 percent of pregnant women in antenatal care should be receiving and accessing PMTCT services, this has not been achieved yet.

Kibera being the biggest slum in Kenya and whose HIV prevalence is at 15 percent double the national figure, there are so many organizations implementing PMTCT services but still there is high rate of HIV transmission from HIV positive mothers to their children. There has been a scarcity of studies especially in Kibera which is the biggest slum in Africa to evaluate the determinants of the effectiveness of PMTCT services in order to ensure reduced HIV transmission to infants by their positive mothers and also as a contribution towards achieving the health specific MDG's four and five. This therefore prompted a cross-sectional descriptive study that was conducted at Kibera to establish the determinants of the effectiveness of PMTCT services in the area in ensuring quality prevention of MTCT of HIV among pregnant women and mothers having children of 18 months and below who were born when the mother was HIV positive.

### **1.3 Objectives of the Study**

The purpose of this study was to establish the factors that determine the effectiveness of PMTCT services in achieving quality prevention of MTCT in Kibera slum of Nairobi. By identifying these factors, procedures will be put in place to address the gaps in them and thus lead to reduction of HIV positive infants and hence reduction of child morbidity and mortality attributed to transmission of HIV from the mother to the child. This will also contribute to reduced maternal mortality and hence contribute towards achieving the health specific MDGs.

The general objective of the study was to establish the factors that determine the effectiveness of PMTCT services in Kibera and the extent to which the available PMTCT services are being utilized by the target group, whereas the specific objectives of the study were to:

1. Access the extent to which male partner involvement on PMTCT services determines the effectiveness of the services

2. Establish the extent to which mothers perception on PMTCT services affects the effectiveness of the services
3. Establish how accessibility of PMTCT services to mothers affects the effectiveness of the services
4. Ascertain the extent to which follow-up mechanisms for tracking HIV positive mothers affect the effectiveness of PMTCT services

#### **1.4 Research Questions**

In order to realize these objectives, the following research questions arise from this study:

1. How does male partner involvement on PMTCT services affect the effectiveness of the services?
2. What perceptions do mothers have on PMTCT services that are likely to affect the effectiveness of the services?
3. To what extent is the accessibility of PMTCT services to the HIV positive mothers a determinant factor to its effectiveness?
4. To what extent are the available follow-up mechanisms for tracking HIV positive mothers a determinant factor to the effectiveness of PMTCT services?

#### **1.5 Significance of the Study**

The WHO released its PMTCT strategic plan 2010–2015 to prevent MTCT and improve maternal, newborn, and child health and survival in the context of HIV, to reach UNGASS targets and health specific MDGs four and Five (WHO report 2010b). In line with this strategic plan, there is need to establish the determinants of the effectiveness of these PMTCT services so far in ensuring quality prevention of MTCT of HIV. According to a study carried out in Malawi at a similar set up to Kibera by Manzi et al (2005), it was found that although VCT is widely accepted, there are progressive and unacceptable losses to follow-up of 55 percent, 68 percent, and 70 percent of HIV-positive mothers during the antenatal period, delivery, and first postnatal visits, respectively. This thus leads to a big gap between PMTCT services and the intended purpose of ensuring quality PMTCT of HIV. Kibera being a slum there is need to establish the effectiveness of the follow-ups to those HIV positive mothers from the time the infection is

detected up to about 18 months post-delivery in order to ensure that the baby is safe. The information obtained by carrying out the study will ensure informative decision making towards achieving WHO 2010-2015 strategic plan and MDGs four and five hence a greater reduction of the number of infants born HIV positive.

### **1.6 Delimitations of the Study**

The study was limited only to HIV positive mothers and the health care givers working in various PMTCT centers in Kibera slum of Nairobi Province. The study specifically focused on those mothers who are enrolled in PMTCT programs based in Kibera and whose children are below 18 months.

### **1.7 Limitations of the Study**

The limitations of this study are the ethical issues associated to the target group because it's hard to know if somebody is HIV positive unless it is confirmed in a VCT which is part of the interventions offered in PMTCT programs. As a result, the study was only limited to those mothers who are already confirmed to be HIV positive and enrolled to PMTCT program. The limitation is that there could be other HIV positive mothers who were within the community but since they were not enrolled in a PMTCT center, it was hard to trace them because you cannot move around the community asking people if they are HIV positive or not. Due to this limitation the study may have ended up missing out some potential respondents.

### **1.8 Assumptions of the Study**

The study assumed that almost all the pregnant mothers attended ANC clinic where their HIV status was likely to have been detected so that they can be incorporated in PMTCT program

### **1.9 Definition of Significant Terms used in the Study**

**Male partner involvement in the PMTCT Services:** The way in which males support their female partners by encouraging them to take part in the PMTCT services. Includes also the male's participation either by accompanying their female partners to the PMTCT services and paying for the services when necessary.

Perception of HIV positive mothers towards the PMTCT services: The way in which mothers think or react towards PMTCT services and their level of awareness and knowledge about the services.

Accessibility of PMTCT services: the ability of PMTCT programs to be easily available and affordable to the target group and to contain all the necessary packages (contents) needed for the services to effectively achieve their intended purpose.

Follow-up mechanisms to track defaulters of PMTCT services: These are the techniques used by the PMTCT programs to follow the HIV positive mothers in order to ensure that the mothers don't default from the program and also to ensure that all the critical services needed for effective PMTCT are well provided.

## **CHAPTER TWO**

### **LITERATURE REVIEW**

#### **2.1 Introduction**

According to Clinton Health Access Initiative (2010), programmes for preventing MTCT are difficult to monitor for several reasons: they comprise a cascade of multiple interventions, the interventions often occur across various service delivery points (for instance, they can be delivered in facilities providing antenatal care, labour and delivery services, child health services or HIV care and treatment services), and mother and child follow up is often poor, and records of interventions and outcomes are not linked, resulting in a lack of information on longitudinal follow up after pregnancy, including on final transmission and survival outcomes. In some instances, a considerable number of women deliver at home and in such a case most of the women are not aware of their HIV status hence high chances of transmitting the infection to the fetus in case they are infected. Even for those who deliver in health facilities, ARVs to a pregnant woman living with HIV and to the exposed infant to reduce the risk of transmission to the baby are given to the hospital but whether the mother takes the drugs or not is not followed up neither is it recorded. According to a study carried out in Malawi at a similar set up to Kibera by Manzi et al (2005), it was found that although VCT is widely accepted, there are progressive and unacceptable losses to follow-up of 55 percent, 68 percent, and 70 percent of HIV-positive mothers during the antenatal period, delivery, and first postnatal visits, respectively. This, thus leads to a big gap between HIV management interventions among pregnant women and the intended purpose of ensuring quality prevention of MTCT of HIV. Kibera being a slum there is need to establish the effectiveness of the follow-ups to those HIV positive mothers From the time the infection is detected up to about 18 months post-delivery in order to ensure that the baby is safe.

#### **2.2 Male Partner Involvement and Approval of Prevention of Mother-to-Child**

##### **Transmission Enrollment**

A study in Uganda conducted by Bajunirwe and Mizzor (2005) found that the strongest predictor of willingness to accept an HIV test and join PMTCT program was the woman's perception that her husband would approve of her testing for HIV. In some cases, this brings violence in the

family if the woman goes for PMTCT program without the approval of the partner. A study done by Akarro (2011) found out that various researches conducted in different countries in Sub-Saharan Africa have shown that women who have good supporting husbands and members of the community are more likely to accept HIV/AIDS VCT services and follow-up to the uptake of PMTCT services if they are diagnosed HIV/AIDS positive. For those women with un-supporting husbands face a lot of difficulties in taking up PMTCT services because their spouses are not willing or have cautioned them not to dare take up the services.

The HIV remains a major health problem globally with women being the most infected and affected (UNAIDS report, 2008). In response to HIV pandemic, global and international health initiatives have targeted several countries, including Kenya, for the expansion of PMTCT programs due to the increasing number of pregnant women living with HIV/AIDS. The success of these expanded PMTCT initiatives depends on the targeted individual's continual adherence to the services (Gill et al, 2005). Until recent years, uptake of VCT for HIV and enrolment into the program of PMTCT of HIV is very poor among pregnant women (Ajewole, 2005). According to a joint report by UNAIDS and WHO (2006), worldwide more than two million HIV-infected women give birth annually, but only 9 percent of them receive PMTCT intervention. Having in place a simple PMTCT program that provides ARV prophylaxis for HIV-infected mothers and children is expected to increase the utilization of these services. However, different studies from both developed and developing countries have proven that the services are being underused (Mills, 2008).

Though PMTCT services have shown feasibilities of reducing HIV infection transmission from mother to fetus, its success is hindered by a number of factors ranging from patient-related factors, institutional factors, and the environment or community factors (Mutsotso, 2005). This study focused on the patient's perspective since they are the ones at the centre, being influenced either positively or negatively by the other two broad categories of factors. As well as identifying factors hindering uptake of PMTCT services, this study also highlighted some factors that have facilitated the improvement in PMTCT enrollment. Together, these are the factors influencing enrolment into PMTCT program which is what the objective of this study is aimed to identify.

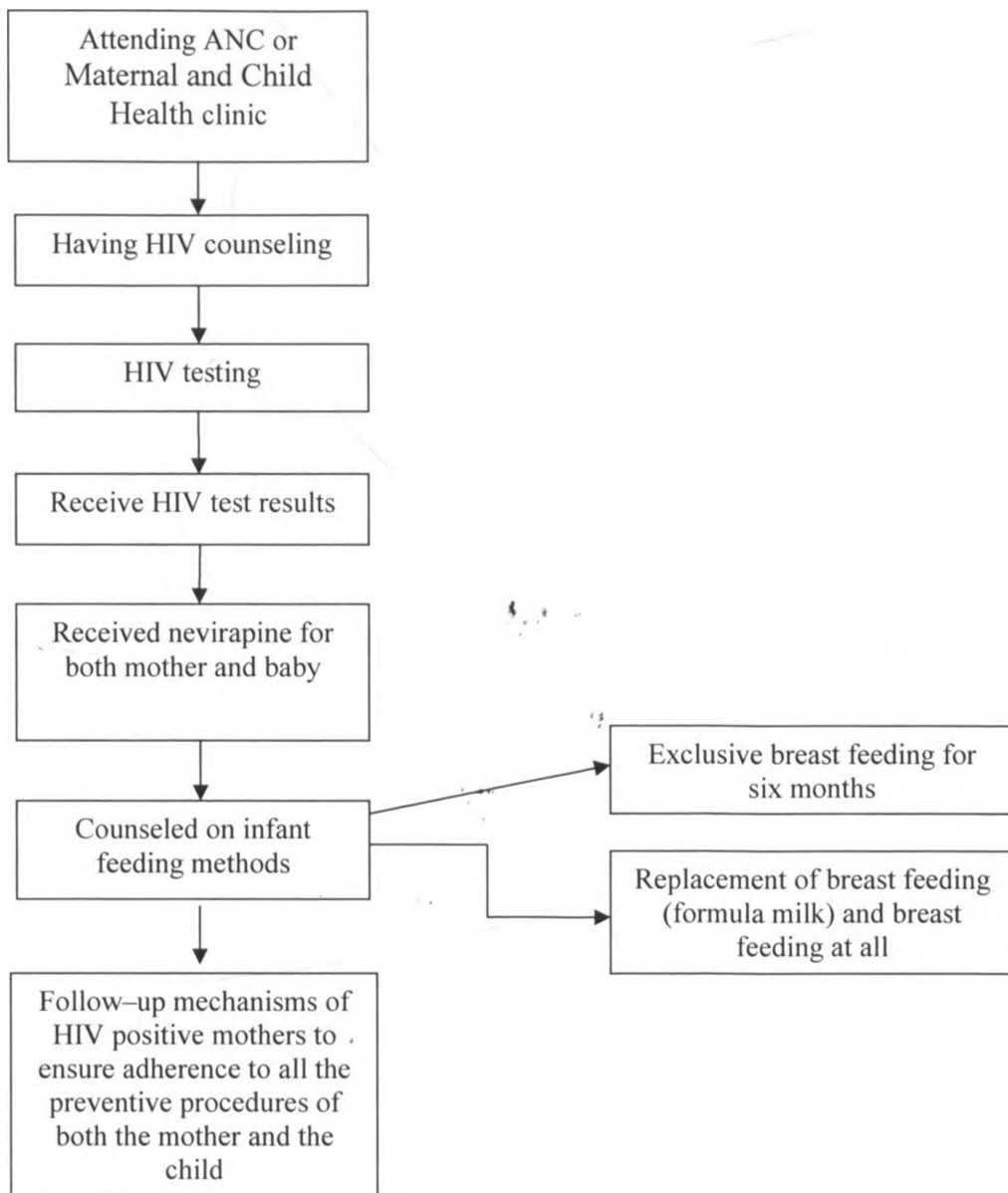


### **2.3 Perceptions of Mothers towards Prevention of Mother to Child Transmission Services**

The pregnant women decision making for HIV testing and counseling depends on several factors. One of the factors is the women's perception towards the available HIV management interventions which include ANC and PMTCT services and benefits such as getting care and support, knowing of free ARV drugs for herself and the baby and having future follow-ups. If the women have negative attitude about ANC, PMTCT and inadequate knowledge about the service benefits, they would prefer traditional healers instead of health facilities. Thus, the existence of integrated, adequate, quality and reliable ANC and HIV management interventions are critical for ensuring quality prevention of HIV transmission from mother to child. The HIV management interventions for pregnant women began with different behaviors (WHO, 2007). Figure 1 below shows a basic flow of HIV management intervention among pregnant women. If women have a negative perception in one of the elements in the flow chart, then it means that PMTCT service will not be effective since the woman may default along the process.

**Figure 1**  
**Services**

**Flow of Activities for Effective Prevention of Mother to Child Transmission**



Source: Biribonwoha N., White T., Okong P. and Carpenter M. 2007

### **2.3.1 Awareness and Knowledge of Prevention of Mother to Child Transmission Services among Mothers**

For mothers to have positive perception on PMTCT services there is need for a proper awareness to make them knowledgeable about the services. Ajewole (2005) states that PMTCT should involve every would-be mother either HIV-negative or positive. For HIV negative mothers, it starts and ends with a second VCT after the window period. For HIV positive mothers, they have to go through the program from VCT till probably 18 months after delivery when the outcome of the intervention can safely be verified. Mothers are expected to have a good knowledge of the program because knowledge is power. A good knowledge of the processes and expected outcome has empowered many mothers to take a bold step in accepting VCT and those who tested positive going ahead to enroll into PMTCT program against all odds. A multivariate analysis in a study by Creek et al (2003) showed that factors associated with having an HIV test included being interviewed at an urban site, having a high PMTCT knowledge score, knowing someone receiving PMTCT or ART and having a partner who had been tested for HIV.

A study in Uganda conducted by Biribonwoba et al (2007), showed that increasing awareness of women on possible transmission of HIV to their children during pregnancy, delivery and breast feeding, and informing them on the benefits of PMTCT services, improved service seeking behavior among women. One best way to improve the awareness is through a community based service which not only increases awareness but also helps to overcome the community's negative perception towards PMTCT services. Horizons (2007) conducted an operational research in Kibera, a highly populated urban slum in Nairobi in order to establish if implementing community based activities increases the utilization of PMTCT services and whether it increases PMTCT related knowledge and behaviors in the area. This included training Traditional Birth Attendants (TBAs) and Community Health Workers (CHWs) to help in educating the pregnant mothers about vertical transmission and encouraging them to give birth in health facilities. Also tracing of those new born babies delivered at home by HIV positive mothers within 72 hours of birth to give them nevirapine to prevent them from being infected. They also trained community peer counselors who were HIV positive women who had already received PMTCT services and knew the benefit of it to encourage and counsel the other women who had tested positive for

HIV and also encourage those yet to be tested to go for VCT. The study thus realized that community based approach is a critical way of improving PMTCT awareness and reduce stigma among the community members. As a result, the proportion of women who had four or more antenatal care visits increased significantly from 41 percent at baseline to 54 percent at follow-up. Delivery at a health facility increased from 47 percent at baseline to 54 percent at follow-up. Since then, there is little follow up that has been done to ensure improved awareness and effectiveness of PMTCT approach in ensuring quality prevention of MTCT of HIV in Kibera (Horizons, 2009).

### **2.3.2 Social Stigma in the Participant's Environment**

The social stigma in the mother's environment or the community represents a major determinant on her perception towards PMTCT programs and services. This factor of fear of stigma and discrimination by the society cuts across all studies on HIV and PMTCT. In a study by Carr and Gramling (2004), many mothers told the authors that "fear of stigma and discrimination was the most important barrier for them to use HIV testing services". Community members and partners of the mothers generally contribute negatively by way of stigma and discrimination or apathy towards HIV positive mothers. Most families are dysfunctional with the woman having no support from the partner. Thus, the decision to take an HIV testing and enroll into PMTCT program is solely for the pregnant woman in many instances.

A study conducted in Kenya by Rutenberg et al. (2003) showed that, making PMTCT services available to women who need them has proven to be only half of the battle. The medical recommendations made by PMTCT programs can be overshadowed by community norms, values, and cultural beliefs. As a result, fear of disclosure and stigma prevent many women from following recommended practices, and a lack of resources and motivation limit women's abilities to access available PMTCT services.

### **2.4 Accessibility of Prevention of Mother to Child Transmission Services to Mothers**

Adequate and quality Maternal and Child Health (MCH) services are critical in ensuring effective interventions in preventing MTCT of HIV. Thus, upgrading and expanding MCH services and making them available and affordable has a great impact in increasing the uptake of

PMTCT services by pregnant women (Ministry of Health and Social Welfare Tanzania, 2005). This ensures numerous ANC attendants hence provide a greater opportunity to the health care providers to provide information routinely on the benefits of HIV counseling and testing to pregnant women. A joint progress report of WHO/UNAIDS/UNICEF, (2009) showed that some countries have high utilization of ANC services and low coverage of PMTCT services. This could be attributed to the poor perception, the availability and affordability of PMTCT services to the pregnant women or mothers may be having inadequate knowledge regarding the benefits of PMTCT affecting their service seeking behavior. Also, the distance covered by women to access PMTCT services and the nature of roads especially during rainy season can be a major blow to ensuring effective prevention of MTCT of HIV. Inaccessibility related to financial problem is also another barrier that prevents most pregnant women from utilizing PMTCT services, (Matovu and Joseph, 2007). Kibera being a slum based in Nairobi there is a lot of congestion and there is need to establish if the location of ANC and PMTCT services are easily accessible and affordable to the pregnant women in the area. There is also need to establish if there is equal distribution of these services within the area.

A study conducted in Kibera by Opondo et al (2010) showed that women enrolled on ART at the African Medical and Research Foundation (AMREF) community health center were counseled and told that they can have children with a high chance to be born free of HIV if the correct precautions were taken, and women were encouraged to discuss their pregnancy intentions with health care providers to enable pre-conception assessment and plan for PMTCT of HIV. Women on ART were counseled and advised to wait with pregnancy until HIV is suppressed and a stable Cluster Differentiation (CD) 4 count of 350 cells per millimeter is reached. For this effort to be achieved there is need to ensure proper adherence of family planning methods to prevent the unintended pregnancies among HIV positive women. It is not clear if follow up was done to ensure that all HIV positive women were exposed to affordable family planning methods.

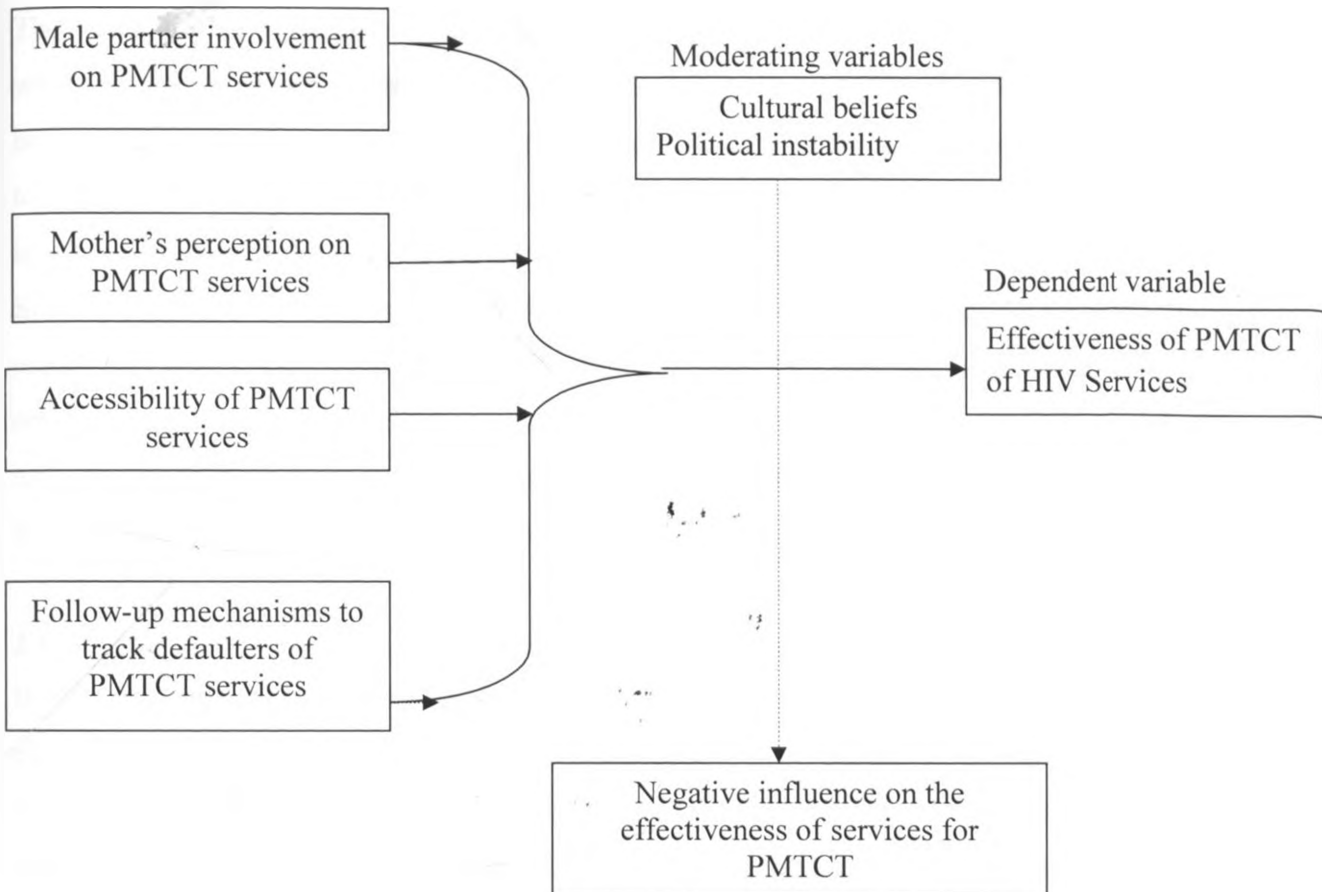
## **2.5 Follow-Up Mechanisms to Track Defaulters of Prevention of Mother to Child Transmission Services**

Mechanisms to trace the defaulters of PMTCT services are needed to ensure effective services for quality PMTCT of HIV. Figure 1 above shows how an effective HIV management intervention on mothers and their children should be. First, the mother must be attending an ANC clinic then the health care provider counsel the mothers on the importance of knowing their HIV status. What follows is an HIV testing and for those found positive should be followed until post delivery when their children are 18 months and above. Whether this flow of activities is followed in PMTCT centers has not been established yet and especially in Kibera slum where the infrastructures to enable the follow-up mechanisms are poor/missing. A study by Hendramoorthy and Ruth (2009) in a resource limited settings reported that despite knowledge of how to reduce MTCT of HIV in resource-poor settings, an unacceptably low proportion of women access PMTCT services because follow-up of HIV positive women and children is poor.

Figure 2 below shows the conceptual framework used in this study where the independent variables are the determinants of effectiveness whereas the dependent variable is the services for PMTCT of HIV. The moderating variables are cultural beliefs and political instability.

**Figure 2 Conceptual Framework**

Independent variables



The independent variables will determine the effectiveness of the services for PMTCT of HIV. Positive determinant factors will lead to effective services in ensuring quality PMTCT of HIV. If the male partners will encourage mothers to go for PMTCT services and if the mothers will have positive perception towards PMTCT services while there is proper accessibility of the services and well established follow –up mechanisms, then this will ensure quality prevention of HIV transmission to the children from their mothers and reduce the prevalence of HIV positive infants as well as child mortality rates and maternal mortality rates attributed to HIV infection. The PMTCT services include VCT, counseling on pregnancy decisions if HIV positive, attending of ANC, family planning programs, advice on infant feeding methods to HIV positive mothers, care

and support for mothers living with HIV/AIDS and use of ARVs. If those factors that adversely influence uptake of PMTCT services are addressed accordingly, then the prevention will be improved hence effective.

The perception of the mothers towards the interventions is also a factor that can influence whether the mother will utilize PMTCT services or not. If the mother has negative attitude that be attributed either by cultural beliefs of political instability of the area, then the mother may fail to take up the interventions or default at some point. Accessibility and the content of the services is a major factor to the effectiveness of the prevention of mother to child prevention of HIV. Some people may be very far away to where the services are offered and due to poor transport means they may decide not to take up the interventions or they may default at some point. If the organizations offering PMTCT services do not have follow-up mechanisms to trace defaulters and encourage them to continue, then the defaulter rate may be very high hence the PMTCT services will not be effective because it will not achieve its intended purpose.

## 2.6 Summary

By going through the different literature, it is clear that several factors determine the effectiveness of PMTCT services. Such factors include male partner involvement and approval of PMTCT enrollment, accessibility of PMTCT services and their content, perception of mothers towards PMTCT services as well as the awareness and knowledge of PMTCT processes among mothers and social stigma in the participant's environment and the availability of effective follow up mechanisms to trace defaulters. There is no literature on whether these factors can determine the effectiveness of PMTCT services. These are the factors that this study investigated to see their contribution in ensuring effective PMTCT services for quality PMTCT of HIV.

It has been cited in the existing literature that the perception of mothers towards HIV management interventions depends on several factors that include the women's knowledge of PMTCT services and their benefits, fear of stigmatization by the community, fear of ARV's adverse effects and fear of un-confidential VCT attendants. Most of these factors will make the women have negative attitude towards HIV management interventions hence leading to



ineffective PMTCT services. There is no literature showing how the authorities are working to address these factors and especially in Kibera where HIV prevalence is double the national one. In addition, there is no study that has been conducted in Kibera to establish if some of these factors are contributing to negative perspective among the women despite the high transmission rate of HIV from the mother to the child.

Accessibility of PMTCT services is critical to achieving effective PMTCT services. Studies in other areas have shown that, these two factors leads to high rate of defaulters among HIV positive mothers. When the two factors are combined with poor/lack of follow-up procedures to trace the defaulters and the protest by male partners, then PMTCT program loses focus and it becomes very ineffective. In Kibera there is no study showing how this factors influence the effectiveness of PMTCT services and whether the available programs have follow-up mechanisms to trace the defaulters.

The objective of this study was therefore to establish the factors that determine the effectiveness of PMTCT services in achieving quality PMTCT of HIV. The specific objectives were to establish how the involvement of male partners, the perception of mothers towards PMTCT services, the accessibility of the services to mothers and the availability of effective follow-up mechanisms to trace defaulters determine the effectiveness of PMTCT services.

## **CHAPTER THREE**

### **RESEARCH DESIGN AND METHODOLOGY**

#### **3.1 Introduction**

The aim of this chapter was to describe the methods used in the collection and analysis of the data. The chapter includes a description of the study design and the site of the study and the study population. It includes a description of the sampling method and the actual process of data collection together with the instruments to be used for data collection and data analysis procedures. A description of the reliability and validity of the study instruments has been included. Ethical clearance of the study is also discussed in this chapter.

#### **3.2 Study Site Description**

The study was carried out in Kibera slum in Nairobi. Kibera has an estimated population of about 1 million people living in an area of 2.5 square kilometers and is the biggest slum in Africa and one of the biggest in the world (Mutisya and Yarime, 2011). The area is administratively organized into 16 villages and has an estimated HIV prevalence of 15 percent which is double the national rate. Social exclusion and deprivation in the midst of an affluent city is a key characteristic of Kibera slums. Not only is the population extremely poor, that is people live on an average of United States Dollar (USD) 1.24 a day ((Kenya National Bureau of Statistics (KNBS), 2010), but basic services such as water, sanitation, housing and access roads are either lacking or of extremely low quality. The Kibera slum attracts many people from rural areas in search of employment and livelihood (Erulkar and Matheka, 2007). Due to the existence of many entertainment spots providing alcohol, drugs and large networks of commercial sex workers, Kibera is a high risk environment for HIV transmission (Gulis et al, 2004). Kibera does not have multi-level housing and most people living in Kibera have little or no access to basic necessities, such as electricity, clean water, toilet facility and sewage disposal. The combination of poor nutrition and lack of sanitation accounts for many illnesses and deaths. Diseases such as HIV, tuberculosis, malaria, cholera, and typhoid afflict large proportions of Kibera residents. These diseases are caused by a lack of sanitation facilities in the slum, and often in the case of communicable disease, sickness is spread across large portions of the populace. Sanitation in

Kibera is nonexistent, open sewers carrying fetid water are everywhere. Cholera and typhoid cases in Kibera are a direct result of the lack of proper sewage control and disposal.

The current Kenyan Government is putting development plans in place to upgrade the area. However, health care still remains a challenge despite many organizations such as AMREF, Centers for Diseases Control (CDC), NASCOP in conjunction with other stake holders and the Ministry of Public Health and Sanitation and the Ministry of Medical Services, are putting much effort to reduce the disease burden in the area, HIV/AIDS being one of the major targeted diseases through the United States Presidents Emergency Plan for AIDS Relief (PEPFAR).

### **3.3 Research Design**

This was a cross-sectional descriptive survey in design in the main centers offering ANC and PMTCT services to the Kibera population. Information was gathered using semi structured questionnaires for HIV positive mothers, and health care workers in PMTCT centers and a checklist for document review.

### **3.4 Target Population**

The study targeted all HIV positive pregnant women and mothers having children of 18 months and below enrolled for PMTCT services in Kibera. These mothers are the ones already enrolled in the program for the last 18 months. The study also targeted the health care workers in PMTCT centers in Kibera for purposes of triangulation and relevant documents were also reviewed.

### **3.5 Sampling and Sample Size Calculation**

Since HIV prevalence rate of the women of child bearing age in Kibera could not be established, HIV prevalence of Kibera (15 percent) was used to estimate the sample size. Kibera has an estimated total population of over 1 million people and the total of estimated target population of HIV positive mothers already enrolled in PMTCT centers is 2,545. The formula (Mugenda and Mugenda, 1999) was used to determine the sample size.

$$n = z^2 (pq) / d^2$$

where:

$n$  = desired sample size

$z$  = the standard normal deviate at the required confidence level usually 1.96 which corresponds to 95 percent confidence interval

$p$  = the proportion in the target population estimated to have a characteristic being measured. If there is no reasonable estimate then 50 percent is used

$q = 1 - p$  = the population without the desired characteristic

$d$  = the level of statistical significance usually set at 0.05 level of significance

Therefore,  $p = 15$  percent (0.15);  $z = 1.96$ ;  $d = (0.05)$ ;  $q = 0.85$

Thus, the sample size is given by:

$$n = \frac{(1.96 \times 1.96) \times 0.15 \times 0.85}{0.05 \times 0.05}$$

$$n = 195.92$$

Since the total of estimated target population of HIV positive mothers already enrolled in PMTCT centers in Kibera is less than 10,000 (that is 2,545), the sample size was further calculated using the formula below.

$$nf = n/(1+n/N)$$

where  $nf$  is the desired sample size and  $N$  is the estimated total population less than 10,000 (that is 2,545) and  $n$  is the estimated sample when the estimated total population ( $N$ ) is greater or equal to 10,000.

The value for  $n$  is 195.92, thus  $nf$  was calculated as:

$$nf = 195.92/(1+195.92/2545)$$

$$nf = 195.92/1.07698$$

$$nf = 181.91$$

$$nf = 182$$

Therefore a sample size of 182 HIV positive mothers was taken through the questionnaires.

For the health care workers their estimated number in the 9 PMTCT centres is 90. Since according to Mugenda and Mugenda (1999), 10 percent to 30 percent of the target total population is a representative sample, then the sample size for health care workers was

calculated by taking 30 percent of 90 which is 27. Thus, a total of 27 health care workers across all PMTCT centers were contacted and taken through the questionnaires.

### **3.6 Sampling Procedure**

A systematic random sampling procedure was used to obtain a sample size of 181 HIV positive mothers. This was done by selecting every  $k^{\text{th}}$  respondent from a list of all HIV positive mothers who were already enrolled in PMTCT centers. The  $k^{\text{th}}$  number was calculated by dividing 2,545 by 182 which is 13.98 then rounded to 14. Thus, every 14<sup>th</sup> respondent from the entire list of the enrolled HIV positive mothers was selected but the starting respondent was obtained by randomly selecting any respondent in the list within the first 14 respondents. This continued until all the required 182 respondents were selected and taken through the semi structured questionnaire. The main centers offering PMTCT services in Kibera included Tabitha clinic managed by CDC Kenya, Kibera Community Based Health Center (KCBHC) managed by AMREF, Pentecostal Assemblies of God (PAG) Médecins Sans Frontières (MSF) German, Silanga MSF, Kwa Wanga MSF, Shofco, Lea Toto, St. Mary's and Mbagathi district hospital.

The questionnaire administration was conducted within a span of one week on a daily basis. For the health care workers, a purposive sampling procedure was used to administer questionnaires to about three persons in each PMTCT center who have been working there for the last two years. All the relevant documents in PMTCT centres were also reviewed to gather information about the defaulter rate and the follow up mechanisms used.

### **3.7 Methods of Data Collection**

Data was collected within a span of one week and a semi-structured interviewer-administered questionnaire was used to gather information from HIV positive mothers and the health care workers. In each center, a research assistant was identified and thoroughly briefed on the research objectives and trained on the data collection instrument in order to help in administering the questionnaire and obtain accurate data in a consistent manner. For those participants who were not able to understand English, the research assistants translated the questions into Swahili on the time of interview. During the time of administration, each participant was explained about

the purpose of the research then consented in order to obtain their permission to get information from them. Thus, an informed consent form was read and explained to them upon which they signed it to show that they have accepted to take part in the study. A document review check list was also used to collect information on the enrollment and defaulter rate of the participants for triangulation purposes. The data was collected in a span of one week by the trained research assistants in each of PMTCT centers.

### **3.8 Reliability and Validity**

In order to ensure consistency of the data and increase the reliability of the study, a test-retest technique in form of interview-reinterview procedure was employed in one of PMTCT centers. This was done by administering the questionnaires to five different respondents each twice at two different points in time by different administrators. To corroborate the answers that they provided on the questionnaires, the responses of both occasions for each respondent were compared. This group of the respondents was not involved in the main study.

A pilot study was conducted in which 10 enrolled HIV positive mothers and five health care workers in one of PMTCT centers in another slum were taken through the questionnaires and their responses considered in determining whether the samples understood the questions in the research instruments. This group of the respondents in the pilot study was not involved in the final study. The questions that were not understood by the pilot respondents were modified to improve the validity of the data.

### **3.9 Operational Definition of Variables**

Table 3.1 shows the operational definitions of the study variables.

**Table 3.1 Operational Definitions of Variables**

Research Objective	Variables	Indicators	Measurement	Measurement Scale	Analysis
To determine how male partner involvement on PMTCT services affects effectiveness of the services	-Male partner encouragement -Male partner participation	-Nature of encouragement -Nature of participation	-Number of mothers discouraged to continue with PMTCT services by their male partners -Consequences of opposition	Ordinal Nominal	Percentages, frequencies, Chi-square and correlations
To establish the extent to which mothers perception on PMTCT services affects effectiveness of the services	-Mothers perception on PMTCT services -Mothers awareness on PMTCT services -Social stigma in the community -Mothers Cchallenges on PMTCT services -Fear of non-confidential care givers -Fear of ARV side effects	-Positive or negative perception -Methods of creating awareness on PMTCT services -Level of social stigma in the community -Number of challenges in PMTCT services -Number of mothers complaining of non-confidential care givers -Number of mothers who have experienced ARV side effects	-Existence of negative or positive perception on PMTCT services -Level of mothers awareness on PMTCT services Existence of social stigma in the community -Existence of challenges in PMTCT services -Existence of non-confidential care givers -Existence of mothers complaining about ARV side effects	Ordinal Nominal	Percentages, frequencies Chi-square and correlations
To establish how accessibility of PMTCT services to mothers affect the effectiveness of the services	-Accessibility to PMTCT services -Content of PMTCT services -Defaulters of PMTCT	-Number of mothers who can easily access PMTCT services -Completeness of PMTCT	-Level of accessibility to PMTCT services by the mothers -Level of completeness of PMTCT	Ordinal Nominal	Percentages and frequencies

	services	services contents -Rate of defaulters from PMTCT services	services -Level of defaulting from PMTCT services		
To ascertain the extent to which follow-up mechanisms for tracking HIV positive mothers affect the effectiveness of PMTCT services	-Availability of follow up mechanisms -Aspects of PMTCT services followed	Number of follow up mechanism used Nature of the aspects of PMTCT services that are followed	-Existence of follow up mechanisms -Level of defaulting due to poor follow-up	Ordinal Nominal	Percentages, Frequencies, Chi-square and correlations

### 3.10 Methods of Data Analysis

Data from questionnaires was checked for omissions and completeness while in the field then entered into SPSS data base for analysis. The SPSS version 12.0 software was used to clean the data and analyze it. Frequencies and percentages of different variables were obtained and tabulated for presentation while Chi-square statistics was used to compare variables in-order to determine their relationships.

### 3.11 Ethical Considerations

Approval of the study was obtained from the University of Nairobi School of Distance and Continuing Education. Permission was also sort from PMTCT center administrators in order to allow the engagement with the participants. Informed consent document was read and explained to the participants to seek their permission to participate in the study. Confidentiality was also maintained by ensuring that the participant's names were not indicated in the questionnaire and also by discarding the questionnaires immediately after publishing the work.

### 3.12 Summary

This Chapter covered the research design and methodology that was adopted by the study in collecting relevant data from the field. The section covered the research design, target population, sampling method, data collection method, validity and reliability tests, operational definition of variables, data analysis methods used and the ethical considerations of the study.



## CHAPTER FOUR

### DATA ANALYSIS, PRESENTATION AND INTERPRETATION

#### 4.1 Introduction

This Chapter presents the data analysis, presentation and interpretation. Data was analyzed using SPSS version 12.0. Descriptive and inferential statistics such frequencies, tables, percentages and correlation tests were used in the data analysis and summaries. Relationships between variables were identified using frequencies and chi-square tests.

#### 4.2 Respondents Response Rate

The respondent response rate is shown in table 4.1

**Table 4.1 Respondents Response Rate**

	Sample Size	Respondents Frequency	Response Rate (Percent)
HIV positive mothers	182	165	90.7
Health care workers	27	27	100
Total	209	192	91.9

As shown in Table 4.1, a total of 182 questionnaires were administered to HIV positive mothers but only 165 accepted to take part. For health care workers, a total of 27 questionnaires were given out and all the 27 respondents accepted to take part. This accounts to a response rate of 90.7 percent for HIV positive mothers and 100 percent for the health care workers. The total response rate of all the target groups was 91.9 percent which was representative enough for the purpose of this study.

#### 4.3 Demographic and Respondents Information

In order to capture the general information of the respondents, information such as age, marital status, education status and employment status was captured in the first section of the questionnaire. This was to get a better understanding of the respondents who took part in the study and their defaulting level. This information is shown in table 4.2.

**Table 4.2 Demographic and Respondent's Information**

Age Group (Years)	Frequency	Percent	Defaulter Rate (Percent)
16-20	2	1.2	50
21-25	22	13.3	68.2
26-30	83	50.3	90.4
31-35	24	14.5	66.7
36-40	25	15.2	20
41-45	7	4.2	28.6
46-50	2	1.2	0
<b>Marital Status</b>			
Married	100	60.6	95
Single	40	24.2	57.5
Divorced	11	6.7	45.5
Widowed	14	8.5	21.4
<b>Level of Education</b>			
None	2	1.2	100
Completed primary school	73	44.2	93.2
Completed secondary school	61	37.0	67.1
Completed tertiary education	29	17.6	38
<b>Employment Status</b>			
Permanently employed	27	16.4	22.2
Casually employed	87	52.7	90.8
Unemployed	14	8.5	71.4
Self employed	37	22.4	54.1

The data in table 4.2 shows that the highest defaulting level of 90.4 percent is among mothers of 26 to 30 years of age. The least defaulting rate of 0 percent is among mothers of 46 to 50 years. Those who are married did show the highest default level of 95 percent compared to the least defaulting level of 21.4 percent for the widowed. This information compares with what is in the records because according to the reviewed records, it showed that majority of the defaulters are married women. Level of education is a major determinant to the defaulting level with those who have no education showing a defaulting level of 100 percent followed by those who reached primary education with 93.2 percent defaulter rate. The least defaulter rate was among those who went for tertiary education with 38 percent defaulter rate. For employment status, casually employed mothers had the highest defaulter rate of 90.8 percent compared to the least defaulter rate of 22.2 percent for the permanently employed mothers.

#### 4.4 Male Partner Involvement as a Determinant on the Effectiveness of Prevention of Mother to Child Transmission (PMTCT) Services

This section sought to establish the extent to which male partner involvement determines the effectiveness of PMTCT services. The findings are shown in table 4.3.

**Table 4.3 How Male Partner Involvement Determined the Effectiveness of Prevention for Mother to Child Transmission Services Among Human Immunodeficiency Virus Positive Mothers**

	Yes		No	
	Frequency	Percent	Frequency	Percent
PMTCT awareness created by male partner	31	18.8	134	81.2
Discouraged by male partner	69	41.8	37	22.4
Stopped due to discouragement by male partner	106	64.2	59	35.8
Violence occurred due to involvement in PMTCT program	103	62.4	62	37.6

The findings in Table 4.3 indicate that the number of mothers whose PMTCT awareness was created by male partners is very small because 81.2 percent of the respondents said that they did not hear about PMTCT programs from their male partners while only 18.8 percent heard it from their male partners. From the data, it is clear that majority of the male partners discouraged their female partners from taking part in PMTCT programs. This is due to the 41.8 percent of mothers discouraged compared to 22.4 percent encouraged by their male partners. As a result, 64.2 percent of the mothers stopped uptake of PMTCT services due to discouragement by their male partners compared to 35.8 percent who continued. Male directed violence occurred in 62.4 percent of mothers whose male partners realized that they were utilizing PMTCT services without their approval.

##### 4.4.1 How Health Care Workers View Male Partner Involvement as a Determinant to Effectiveness of Prevention for Mother to Child Transmission Services

Table 4.4 shows the findings on how health care workers view male partner involvement as a determinant to the effectiveness of the PMTCT services.

**Table 4.4 How Health Care Workers View Male Partner Involvement as a Determinant to Effectiveness of Prevention for Mother to Child Transmission Services.**

	Yes		No	
	Frequency	Percent	Frequency	Percent
Heard cases of male partner opposition	23	85.2	4	14.8
Awareness targeting male partners	25	92.6	2	7.4
Turn up rate of males in the awareness campaigns	Good		Poor	
	Frequency	Percent	Frequency	Percent
	5	20	20	80

From the findings in Table 4.4, it is clear that most (85.2 percent) health care workers have heard cases of male partner opposition as they try to follow their clients. This is despite the 92.6 percent of the health care workers who said that they conduct awareness campaigns targeting males but the turn up rate of most males is poor at 80 percent compared to 20 percent whose turn up rate is said to be good.

#### 4.4.2 Male Partner Discouragement and Level of Education

A comparison of the male partner discouragement and their level of education were done and are shown in Table 4.5.

**Table 4.5 Male Partner Discouragement and Level of Education**

Male Partner Level of Education	Discouragement by Male Partner ( percent)
None	0
Completed primary education	96.3
Completed secondary education	56.3
Completed tertiary education	14.5

A chi-square analysis was done to determine if there is any relationship between the education level of the male partners and those discouraging their female partners from taking part in PMTCT programs. Table 4.5 shows the relationship between male partner discouragement and the level of education. There seemed to be a significant statistical relationship between the level of male partner's education and discouragement in utilization of PMTCT services. This is

because of the p-value of 0.01 which is less than 0.05 level of significance and the trend shown in Table 4.5 where by those who reached primary education seemed to be the ones mostly (96.3 percent) discouraging their female partners from taking part. This is followed by those who reached secondary education (56.3 percent) then finally those who reached tertiary education with 14.5 percent. There was no male with none education.

#### 4.5 Mothers Perception as a Determinant on the Effectiveness of Prevention of Mother to Child Transmission (PMTCT) Services

The section sought to establish if mother's perception is a determinant to the effectiveness of PMTCT services in achieving quality prevention of MTCT of HIV. Table 4.6 shows how mothers perceive different aspects of PMTCT programs.

**Table 4.6 Perception of Mothers on the Prevention for Mother to Child Transmission Programs**

	Happy		Not Happy	
	Frequency	Percent	Frequency	Percent
Mothers happy about the program	67	40.6	98	59.4
Perception on health care givers	66	40.0	99	60.0
Perception on program organization	152	92.1	13	7.9
Perception on the drug supply	150	90.9	15	9.1
Mothers aware of existence of PMTCT services	Aware		Not Aware	
	Frequency	Percent	Frequency	Percent
	163	98.8	2	1.2

From the findings in Table 4.6, it is clear that 59.4 percent of the mothers were not happy with the programs compared to 40.6 percent who said that they were happy about the program. Most mothers (60 percent) were not happy with the contact of the health care givers compared to 40 percent who were happy about the contact. Majority (92.1 percent) of the respondents seemed to be happy about the program organization compared to 7.9 percent who were not happy about it. Mother's awareness of PMTCT services which is one of the determinate of their perception seemed to be high at 98.8 percent awareness compared to 1.2 those not aware. This was a clear

indication that greatest numbers of the mothers in the area were aware of the existence of PMTCT services and the defaulter rate was due to other factors other than lack of awareness.

#### **4.5.1 Perceptions That Make Mothers Stop Utilizing Prevention for Mother to Child Transmission Services**

The findings in Table 4.7 show those negative perceptions that make mothers to stop utilizing PMTCT services making the services ineffective.

**Table 4.7 Perceptions That Make Mothers to Stop Utilizing Prevention for Mother to Child Transmission Services**

	Yes		No	
	Frequency	Percent	Frequency	Percent
Fear of unconfidential care givers	154	93.3	11	6.7
Fear of ARV side effects	106	64.2	59	35.8
Fear of stigmatization by the community	133	80.6	32	19.4
Fear of disclosure to their male partners	69	65.1	37	34.9

Fear of un-confidential care givers is one of the factors with 93.3 percent of the respondents said that they stopped because the care givers revealed their HIV status to the community. Other respondents (64.2 percent) said that they feared the side effects accompanied by ARVs and that is why they had stopped taking part in PMTCT services. Fear of stigmatization by the community was another factor that most (80.6 percent) mothers expressed as one of the factors that made them to stop following up the program. Other mothers (65.1 percent) feared disclosing their HIV status to their male partners and as a result they found it difficult to adhere to the program as required.

#### **4.5.2 Factors That Are Perceived by Mothers as Challenges to Effectiveness of Prevention for Mother to Child Transmission Services**

The mothers expressed several factors that seem to be a challenge to achieving effectiveness in PMTCT services. The findings in Table 4.8 show clearly the different responses of the mothers concerning those challenges.

**Table 4.8 Factors That Are Perceived by Mothers as Challenges to Effectiveness of Prevention for Mother to Child Transmission Services**

	Yes		No	
	Frequency	Percent	Frequency	Percent
Lack of sufficient supply of baby Breast formulae	96	69.1	43	30.9
Lack of sufficient supply of food to enable exclusive breast feeding	78	71.6	31	28.4
Lack confidentiality by the care givers	154	93.3	11	6.7
Cultural/religious beliefs	99	90	11	10
Lack family planning services	87	79.8	22	20.2
Lack of enough care givers at MCH clinics	125	75.8	40	24.2

Lack of sufficient supply of baby breast formulae was one of the challenges which, 69.1 percent of the mothers thought had a contribution to ineffective PMTCT services. Lack of sufficient supply of food to enable exclusive breast feeding was another challenge expressed by 71.6 percent of the mothers. Other challenges included lack of confidentiality by the care givers with 93.3 percent responses, cultural/religious beliefs with 90 percent responses, Lack family planning services with 79.8 percent responses and lack of enough care givers at MCH clinics with 75.8 percent responses from the mothers. All these factors discouraged mothers from following up the services as it is required and hence leading to defaulting and thus poor health status of their children. Most of the mothers said that some programs did not provide sufficient breast milk formulae for the baby and this made them to keep moving from one program to another until they lost focus. For those who were exclusively breastfeeding, the programs did not provide them with enough food to enable production of the breast milk hence leading to poor health of both the baby and the mother.

#### **4.5.3 Factors That Are Perceived by Mothers as Benefits Contributing to Effectiveness of Prevention for Mother to Child Transmission Services**

Despite the many challenges experienced by the mothers as they try to follow the programs, they also expressed several benefits that contribute to effective PMTCT services. The benefits are shown in Table 4.9.

**Table 4.9 Factors That Are Perceived by Mothers as Benefits Contributing to Effectiveness of Prevention for Mother to Child Transmission Services**

	Yes		No	
	Frequency	Percent	Frequency	Percent
Proper teaching on child feeding	115	69.7	50	30.3
Proper counseling and encouragement	98	59.4	67	40.6
Home based care	86	52.1	79	47.9
Free ARVs/Medication	145	87.9	20	12.1
Free MCH programs	94	57	71	43

According to data in table 4.9, the benefits included proper teaching on child feeding with 69.7 percent responses, proper counseling and encouragement with 59.4 percent responses, home based care with 52.1 percent responses, free ARVs/medication with 87.9 percent of responses, and free MCH programs with 57 percent of responses.

#### **4.5.4 Perception of Mothers towards Prevention for Mother to Child Transmission Services Compared to Their Level of Education**

A comparison was done between those mothers who did not follow PMTCT services accordingly due to their negative perceptions and their level of education and age. Table 4.10 shows the comparisons.

**Table 4.10 Comparison between Mother's Level of Education and Their Negative Perception towards Prevention for Mother to Child Transmission Services**

Mothers Level of Education	Not Happy with the Program (Percent)
None	100
Completed primary education	93.3
Completed secondary education	49.5
Completed tertiary education	13.6

Education level of the mothers seemed to be a contributor to their negative attitude towards PMTCT services hence leading to ineffectiveness in the services. This was due to the statistical significance difference shown by the p-value of 0.002 which was less than 0.05 significance level. The lower the level of education the more likely the mothers were likely to have a negative attitude towards PMTCT services. From Table 4.10, it is shown that 100 percent out of those



who had no education were likely to have negative attitude when prompted by other factors, this is followed by 93.3 percent of those who reached primary education, 49.5 percent of those who reached secondary education and 13.6 percent of those who reached tertiary education.

#### **4.6 Accessibility as a Determinant on the Effectiveness of Prevention of Mother to Child Transmission (PMTCT) Services**

This section sought to access the extent to which accessibility of PMTCT services to the mothers was a determinant to the effectiveness of the services in achieving quality PMTCT of HIV. The data is shown in Table 4.11.

**Table 4.11 Accessibility of Prevention for Mother to Child Transmission Services to Mothers as a Determinant of the Effectiveness of the Services**

Accessibility of PMTCT services	Accessible		Not accessible	
	Frequency	Percent	Frequency	Percent
	161	97.6	4	2.4
Defaulted due to poor access of some PMTCT services	Defaulted		Continued	
	Frequency	Percent	Frequency	Percent
	106	64.2	59	35.8

From Table 4.11, it is clear that most of the PMTCT services were accessible with 97.6 percent of the mothers saying that they easily accessed the services as compared to only 2.4 percent of those who said that they could not access the services well. Despite the proper accessibility of the services, the mothers said that some PMTCT programs did not offer all the services as required and as a result most mothers defaulted if they could not fully access all the services from one program. Those who had defaulted due to partial access of the services were 64.2 percent compared to 35.8 percent who opted to continue with the partial services.

##### **4.6.1 Level of Mothers Accessibility of Prevention for Mother to Child Transmission Services**

There are several services that are needed to be provided by each PMTCT program for effective delivery of its objectives. These services are shown in Table 4.12 with their availability responses given by the mothers.

**Table 4.12 Level of Mother's Accessibility of Prevention for Mother to Child Transmission Services**

Service	Mothers Response				Document Review	
	Accessible		Not Accessible		Available	Not Available
	Frequency	Percent	Frequency	Percent	Percent	Percent
VCT	165	100.0	0	0	100	0.0
MCH/ANC	87	52.7	78	47.3	60.3	39.7
Infant feeding counseling	98	59.4	67	40.6	48.5	51.5
Family planning services	44	26.7	121	73.3	23.2	76.8
Provision of ARVs to mother and child	151	91.5	14	8.5	100	0.0
Counseling of pregnancy decisions when HIV positive	69	41.8	96	58.2	51.5	48.5
Continued care and support for mothers and their children	77	46.7	88	53.3	56	44
Testing of child at different ages up to 18 months	122	73.9	43	26.1	81.4	18.6

The first service was VCT which, 100 percent of the mothers said it was well accessible to them while by document review 100 percent of PMTCT programs offered VCT services. MCH and ANC clinics were other services which, 52.7 percent of the mothers said it was accessible to them while document review showed 60.3 percent of PMTCT programs offered MCH and ANC services. The reason why 47.3 percent of the mothers said it was not accessible was due to shortage of healthcare workers and that some centers did not charge some fee that was not affordable to all. Another important PMTCT service was family planning which, majority (73.3 percent) said that it was not accessible to them compared to 26.7 percent who said that it was accessible while 23.2 percent of the programs did not have documentation about it. Infant feeding counseling was another important service and 59.4 of the mothers said that it was accessible to them against 40.6 percent who said it was not accessible while from document review it was clear that 48.5 percent of the programs did not offer the counseling. Most (91.5 percent) of the mothers said that provision of ARVs to mother and child was accessible to them with only 8.5 percent of them saying that it was not accessible to them while 100 percent of the programs showed documents that they provided ARVs to both mother and child. Counseling on

pregnancy decisions when HIV positive was another important PMTCT service because when one was HIV positive there was a certain level of CD4 at which one should not get pregnant but only 41.8 percent of the mothers said it was accessible to them with majority (58.2 percent) saying that it was not accessible to them while by documentation, only 51.5 percent of the programs offered such counseling. Continued care and support for mothers and their children was accessible to 46.7 percent against 53.3 percent of the mothers who did not access it while documents showed that 56 percent of the programs offered the support. Testing of child at different ages up to 18 months was very important to ensure that the child remains HIV negative throughout and it was accessible to 73.9 percent while 26.1 percent of the mothers said that it was not accessible and by document review, 81.4 percent of the programs test the children at different ages until 18 months.

#### **4.6.2 Activities through Which Health Care Workers Increase Accessibility of Prevention for Mother to Child Transmission Services to Mothers**

Health care workers gave a number of activities to ensure effective delivery of PMTCT services to mothers. Findings in Table 4.13 show the responses given by health care workers in terms of availability of those activities.

**Table 4.13 Activities through Which Health Care Workers Increase Accessibility of Prevention for Mother to Child Transmission Services to Mothers**

	Activity Available		Activity Not Available	
	Frequency	Percent	Frequency	Percent
Creating proper awareness to the community	27	100.0	0	0.0
Counseling mothers	27	100.0	0	0.0
Use of follow-up mechanisms	23	85.2	4	14.8
Giving free services	21	77.8	6	22.2
Home based care	22	81.5	5	18.5
Change of ARV regimen in case of side effects	27	100.0	0	0.0

All the health care givers (100 percent) said that they created proper awareness about PMTCT services to mothers. This was agreeing with what the mothers said since the level of awareness among the mothers was 98.8 percent and also. 100 percent of the health care workers said that they offered counseling sessions to mothers to encourage them and give them hope. This tent to disagree with what the mothers said because only 59.4 percent of the mothers said that they were given counseling and encouragement. This could be associated with the said lack of enough health care workers. Use of follow up mechanisms was another activity which, 85.2 percent of health care workers said they used as a way of ensuring effective delivery of the services. This was agreeing with what the mothers said because 98.2 percent of them said that they were aware of follow-up mechanisms available to track them. Giving free services was another activity expressed by 77.8 percent of the healthcare workers. This was agreeing to some extent with what the mothers said because most of them talked of getting free medication though to some, MCH clinics were not free. Home based care was another activity which, 81.5 percent of the health care workers said they offered to mothers. This was expressed by majority of the mothers as a benefit they gained from PMTCT programs. Change of ARV regimen in case of side effects was another activity which, 100 percent of the health care workers said they did to encourage mothers to continue taking them without fear.

#### **4.7 Follow-Up Mechanisms as a Determinant on the Effectiveness of Prevention of Mother to Child Transmission (PMTCT) Services**

This section sought to establish if there were available follow-up mechanisms in tracking defaulters of PMTCT services and the extent to which the follow-up mechanisms determined the effectiveness of PMTCT services. Table 4.14 shows the awareness of mothers about availability of follow-up mechanisms while Table 4.15 shows the available different types of follow-up mechanisms used to track the HIV positive mothers.

**Table 4.14 Mothers Awareness of Follow-Up Mechanisms Used to Track Them**

	Yes		No	
	Frequency	Percent	Frequency	Percent
Are you aware of any follow-up mechanisms used to track HIV positive mothers	162	98.2	3	1.8

**Table 4.15 Available Follow-Up Mechanisms to Trace Defaulters of Prevention for Mother to Child Transmission Services**

Follow-Up Mechanisms	Mothers Responses		Care Givers Responses	
	Aware of (Percent)	Not Aware of (Percent)	Aware of (Percent)	Not Aware of (Percent)
Home visits	78.2	21.8	88.9	11.1
Use of CHWs and CIs	95.8	4.2	92.6	7.4
Use of TBAs	82.4	17.6	77.8	22.2
Promise of incentives	3.6	96.4	7.4	92.6
Phone calls	77.6	22.4	81.5	18.5

In Table 4.14, it is clear that most (98.2 percent) of the mothers were aware of follow up mechanisms used to track them. This was agreeing with what majority of the health care workers said that they used follow-ups to track defaulters. The findings in Table 4.15 show the responses of both the mothers and the care givers concerning the available follow-up mechanisms. One of the mechanisms used was home visits for which, 78.2 percent of the mothers and 88.9 percent of the health care workers said they are aware of. The use of Community Health Workers (CHWs) and Community Interviewers (CIs) received 95.8 percent response from mothers and 92.6 percent from the health care workers in terms of awareness. Another mechanism used was the use of Traditional Birth Attendants (TBAs) whose awareness by mothers was 82.4 percent and 77.8 percent by health care workers. The mothers said that TBAs played a great job in encouraging them to follow-up PMTCT services accordingly for the benefit of their health and the baby. Promise of incentives received very low response of awareness from both the mothers (3.6 percent) and the health care workers (7.4 percent) and this was an indication that it was not a common mechanism used. The health care workers said the reason why it was not commonly used was because it was not a permanent mechanism that was difficult to maintain and when the incentives were promised and not given, this discouraged mothers even more. Use of phone calls was another mechanism used and it received a response rate of 77.6 percent from mothers and 81.5 percent from health care workers in terms of awareness. According to the data there was a lot of agreement between the responses of mothers and care givers for all the mechanisms in terms of awareness.

#### 4.7.1 Prevention for Mother to Child Transmission Services for Which Follow-Ups Are Done

Despite the high level of awareness for most of the follow-ups, there seem to be a gap in some of the services that are supposed to be followed up for effective delivery of PMTCT services. These findings are shown in Table 4.16.

**Table 4.16 Prevention for Mother to Child Transmission Services for Which Follow-Ups Are Done**

Services	Mothers Responses		Care Givers Responses		Document Review	
	Follow-Ups Done (Percent)	Follow-Ups Not Done (Percent)	Follow-Ups Done (Percent)	Follow-Ups Not Done (Percent)	Follow-Ups Done (Percent)	Follow-Ups Not Done (Percent)
Ensure taking of ARVs	97	3.0	100.0	0.0	100	0.0
Ensure appropriate feeding of the baby	36.4	63.6	74.1	25.9	38.6	61.4
Ensure use of family planning services after delivery	26.1	73.9	59.3	40.7	11.5	88.5
Ensure delivery in the health facility	33.3	66.7	85.2	14.8	25.8	74.2
Ensure baby is taken for KEPI recommended immunizations	37.0	63.0	55.6	44.4	41.2	58.8

In Table 4.16, it is clear that there was a discrepancy in the responses of both the mother and the health care givers in most of the services that needed follow-up. One of the services to be followed up was ensuring that the mothers take ARVs accordingly and this received 97 percent positive response from the mothers and 100 percent response from the health care workers meaning that this was perfectly done. Ensuring appropriate feeding of the baby was another service that needed follow-ups but 36.4 percent of the mothers said that it was not done while 74.1 percent of the health care givers said they did it. Ensuring use of family planning services after delivery was another PMTCT service that needed follow-ups to ensure that HIV positive mothers only conceive after a careful guidance but only 26.1 percent of the mothers said that it was done to them while 59.3 percent of the health care workers said that they did it. Ensuring

delivery in the health facility was another service for which, HIV pregnant mothers needed to be followed but only 33.3 percent of the mothers confirmed being aware of it while 85.2 percent of the health care workers said they did it. Ensuring that the baby was taken for immunizations was another service for which, mothers needed to be followed for to protect their babies from vaccine preventable diseases but only 37 percent of the mothers said it was done while 55.6 percent of the health care workers said they did it. The information given by mothers seemed to agree with what was gathered from the documents because 100 percent of all the PMTCT programs visited showed records on how they followed their clients for ARV use, 38.6 percent ensured appropriate feeding of the baby, 11.5 percent ensured use of family planning services after delivery, 25.8 percent ensured delivery in the health facility and 41.2 percent ensured that baby was taken for Kenya Expanded Program for Immunizations (KEPI) recommended immunizations.

#### 4.7.2 Factors That Act as Obstacles to Follow-Up Mechanisms

Several factors were expressed by the health care workers as obstacles to effective delivery of PMTCT services that makes mothers not to follow the services as required. This data is presented by table 4.17.

**Table 4.17 Factors Given by Health Care Workers as Obstacles to Follow-Up Mechanisms**

Factors	Yes		No	
	Frequency	Percent	Frequency	Percent
Some do not know the importance of PMTCT services	20	74.1	7	25.9
Fear of stigmatization by the community	25	92.6	2	7.4
Fear of ARV side effects	24	88.9	3	11.1
Ignorance	27	100.0	0	0.00
Cultural/religious beliefs	22	81.5	5	18.5
Discouragement by their male partners	23	85.2	4	14.8

The fact that some of the mothers did not know the importance of PMTCT services was one factor that 74.1 percent of the health care workers considered as an obstacle to effective PMTCT of HIV. Fear of stigmatization by the community was another factor that 92.6 percent of the

health care workers said had been as obstacle to effective delivery of PMTCT services to mothers since it made them fear to take part. Fear of ARV side effects was also a factor that 88.9 percent of the health care workers gave as an obstacle to effective delivery of PMTCT services. Ignorance of the mothers was another factor that 100 percent of the mothers said had been a major obstacle to effective delivery of PMTCT services because their ignorance made them not consider the importance and hence they default. Cultural and religious beliefs were other factors for which 81.5 percent of the health care workers said had been a major obstacle because some religions and cultures discouraged the use of contraception and other PMTCT services. Discouragement by the male partners was also a factor which, 85.2 percent of the health care workers said had contributed to ineffective delivery of PMTCT services because most mothers default since they feared that their male partners could be violent if they were going for PMTCT services. This agreed with what most of the mothers said as one of the reasons that made them not to follow PMTCT services.

#### 4.7.3 Comparison between Education Level and the Defaulter Level of Mothers

Chi-square statistics was used to do a comparison between the mother's level of education and the defaulter level. Table 4.18 shows that relationship and the p-value.

**Table 4.18 Comparison between Education Level of Mothers and Those Who Defaulted From Prevention for Mother to Child Transmission Program**

Level of Mothers Education	Defaulted From PMTCT Program (Percent)
None	100
Completed primary education	93.2
Completed secondary education	67.1
Completed tertiary education	38

A p-value of 0.03 (less than 0.05 level of significance) shows that there was a significant relationship between mothers defaulting and the education level. This shows that education level was a major contributor to defaulting as shown in the Table 4.18 with defaulter rate of 69 percent for those who reached primary school, 20.6 percent for secondary school leavers and 10.4 for those who completed tertiary education. It can be concluded that mother's level of education is major determinant on how effective they followed the program.



#### 4.7.4 Defaulter Level of Mothers Compared to Their Children's Human Immunodeficiency Virus Status

The findings in Table 4.19 show the defaulter level of mothers compared to their children's Human Deficiency Virus status.

**Table 4.19 Defaulter Level of Mothers Compared to Their Children's Human Immunodeficiency Virus Status**

HIV Status of the Child	Frequency	Percent
HIV positive	57	53.8
HIV negative	23	21.7
Died of HIV	26	24.5
Total	106	100

Out of the 106 mothers who defaulted from PMTCT services, 53.8 percent of them whose children are HIV positive compared to 21.7 percent, whose children are HIV negative and 24.5 percent whose children have died of HIV infection. This shows why PMTCT services seemed to be ineffective despite the high level of awareness created among mothers and as a result lead to high rate of HIV positive children and mortality attributed to HIV infection among the children.

#### 4.8 Summary

This Chapter discussed the data analysis and interpretation procedures with the use of frequency tables, descriptions and inferential statistics. The Chapter also discussed the findings in relation to each study objective and data and information was presented using tables.

## **CHAPTER FIVE**

### **SUMMARY OF FINDINGS, DISCUSSIONS, CONCLUSIONS AND RECOMMENDATIONS**

#### **5.1 Introduction**

This chapter provides a summary of the findings, Discussion, Conclusion and Recommendations on the study which sought to establish the determinants of the effectiveness of PMTCT services in Kibera slum of Nairobi Province.

#### **5.2 Summary of findings**

This section gives a brief explanation of the Key findings for each study objective.

##### **5.2.1 Male Partner involvement as a Determinant on the Effectiveness of Prevention of Mother to Child Transmission (PMTCT) Services.**

The male partner involvement was found to be a major factor that determines the effectiveness of PMTCT services. This is because most mothers stopped the uptake of PMTCT services due to discouragement by their male partners and to others violence occurred at homes when their male partners realized they were taking part in PMTCT services. Male partner level of education was also a factor contributing to high level of opposition since the highest number of those who discouraged their female partners from taking part in PMTCT services are those who reached primary education thus the lower the literacy level the higher the opposition level.

##### **5.2.2 Mother's Perception as a Determinant on the Effectiveness of Prevention of Mother to Child Transmission (PMTCT) Services.**

Despite the level of awareness of the mothers being very high majority of them were not happy about the programs and the main factors that seemed to make them unhappy were lack of confidentiality among the health care givers, inadequate health care givers and the fact that not all the necessary PMTCT services where available to them in all the programs they could access. Several perceptions were expressed by the mothers as the ones making them not utilize PMTCT services. Such factors included fear of un-confidential care givers, fear of ARV side effects, fear

of stigmatization by the community and fear of disclosure to their male partners. Factors that were perceived by mothers as challenges to effectiveness of PMTCT services included lack of sufficient supply of baby breast formulae, lack of sufficient supply of food to enable exclusive breast feeding, lack confidentiality by the care givers, cultural/religious beliefs, lack of family planning services and lack of enough care givers at MCH clinics. Level of mother's education seemed to have a contribution in their negative perception on the PMTCT services when prompted by other factors. The lower the literacy level, the higher the ability to be prompted to have a negative attitude towards the PMTCT services.

### **5.2.3 Accessibility as a Determinant on the Effectiveness of Prevention of Mother to Child Transmission (PMTCT) Services.**

Accessibility of PMTCT services was another factor that was found to be a determinant of the effectiveness of the services in ensuring quality PMTCT of HIV. Despite the high level of accessibility of the PMTCT programs to the mothers, not all the critical services needed for effective PMTCT were accessible to the mothers in most of the programs. As a result many mothers defaulted from the programs due to poor access of those PMTCT services that were important to them. Health care workers talked of several activities through which they increased accessibility of the services to mothers so as to ensure effectiveness to PMTCT services. These were creating proper awareness to the community, counseling mothers, use of follow up mechanisms, giving free services and home based care.

### **5.2.4 Follow-up Mechanisms as a Determinant on the Effectiveness of Prevention of Mother to Child Transmission (PMTCT) Services.**

Follow up mechanisms was another factor that was found to be a determinant to the effectiveness of PMTCT services. This was because despite majority of the mothers saying that they were aware of follow-ups being done to trace them, not all PMTCT services were effectively followed and this led to high rate of defaulters hence ineffectiveness in the PMTCT services. Defaulter level of the mothers was compared with HIV status of their children and it was found that majority of those who defaulted their children were either HIV positive or the children had died of HIV hence leading to ineffectiveness in the intended purpose of PMTCT services.

### **5.3 Discussion on Findings**

This study sought to establish the determinants of the effectiveness of PMTCT services in Kibera slum of Nairobi province. The findings confirm that several factors play a role in determining whether the PMTCT services will be effective in ensuring quality prevention of mother to child transmission or not and also compares with several previous studies. These factors include; the male partner involvement, mother's perception towards the PMTCT services, accessibility of the PMTCT services to the mothers and availability of follow-up mechanisms to track the PMTCT defaulters. All these factors if not well considered and investigated may lead to ineffective PMTCT delivery hence increased number of HIV positive children and child mortality attributed to HIV infection and its opportunistic infections.

#### **5.3.1 Male partner involvement as a Determinant on the Effectiveness of the Prevention of Mother to Child Transmission (PMTCT) Services**

Male partner involvement was found to be one of the major determinants to the effectiveness of PMTCT services because majority of the mothers said that they get opposition from their male partners as they try to get part in the PMTCT programs and sometimes it leads to violence. Even the health care workers said male discouragement and opposition is one of the challenges they face as they try to do follow-ups to those who have defaulted. As a result most women end up even fearing disclosing their HIV status to their male partners because of the fear that they may turn violent to them. Due to this it becomes hard to them to remain loyal to the PMTCT services because they are being careful not to be caught either taking the ARVs or their partners may get suspicious when they see them not breastfeeding their babies. This then leads to ineffectiveness in the PMTCT services since the intended purpose of the intervention may not be achieved. The findings in this objective agree with a study in Uganda that was conducted by Bajunirwe and Mizoor (2005). They found that the strongest predictor of willingness to accept an HIV test and join the PMTCT program was the woman's perception that her husband would approve of her testing for HIV. As a result they end up refuse to take part or fail to follow the programs accordingly of which finally they default. Akarro (2011) found that in some cases this brings violence in the family if the woman goes for PMTCT program without the approval of the male partner. This agrees with what this study found that domestic violence occurred among majority

of the mothers who tried to push their ways to PMTCT services without their partner's approval. It's therefore important to conduct several awareness campaigns that target the males and enlighten them on the importance of allowing their female partners to take part in the PMTCT services. These campaigns should target especially the illiterate and partially literate men because level of education was found to be a factor in males that make them to discourage their partners from taking part in the PMTCT programs. This finding is agreeing with what Godlove et al (2010) found when they tried to investigate the barriers to males involvement in the PMTCT services and the ability to recommend them to their female partners. They found that male's level of education is one of the barriers that make males not to understand the importance of their pregnant partners to participate in the PMTCT services. A study by Bwirire et al (2008) also found out that one of the reasons for loss to follow-up among mothers registered in a PMTCT programs in rural Malawi was discouragement by their male partners hence leading to ineffective delivery of the intended purpose of the services.

### **5.3.2 Mother's Perception as a Determinant on the Effectiveness of Prevention of Mother to Child Transmission (PMTCT) Services**

Mother's perception is one factor that according to the study findings, was found to be a determinant to the effectiveness of the PMTCT services. Mother's decision to take part in the PMTCT programs depends on their negative or positive perception towards the PMTCT services. The study found that despite the high level of PMTCT awareness among the mothers, majority of them had negative perceptions about several aspects of the programs that make them to follow up the services accordingly. The aspects that make mothers to have a negative perception on the PMTCT programs include; the lack of confidentiality among the health care givers in which most of them reveal the HIV status of their clients and hence the clients have no trust in them any more thus instead they stop following up the PMTCT services as required. Fear of ARV side effects also makes most mothers to default from the PMTCT services and stop taking the ARV regimen while at the same time they discourage others from taking them. This confirms with a study by Maedot et al (2007) that found that in Ethiopia most HIV pregnant women were avoiding to utilize the PMTCT services due to fear that the care givers will reveal their HIV status and also due to fear of ARV side effects. Fear of stigmatization by the

community is another factor that makes the mothers to have a negative attitude because they think that the community will discriminate them after realizing their HIV position and thus they opt not to take part in the PMTCT services to avoid being recognized. The fact that the mothers fear disclosing the HIV status to their male partners to avoid violence also makes them develop a negative attitude to the PMTCT services hence leading to defaulting and hence leading to ineffective delivery of the services. There are several factors that most of the mothers perceive as challenges to their effective follow-up of the PMTCT services. These challenges include: lack of sufficient supply of baby breast formulae, lack of sufficient supply of food to enable exclusive breast feeding, lack of confidentiality by the care givers, cultural/religious beliefs, Lack of family planning services and lack of enough care givers at the MCH clinics. This agrees with findings of a study by Nyasulu and Nyasulu, (2011) which found that barriers to effective uptake of PMTCT services included, high cost of baby formulae, lack of food to the mother for exclusive breastfeeding, lack of privacy and confidentiality, opposition from male partners that may eventually lead to divorce and cultural beliefs like fear of being bewitched. The mother's also confirmed that there are certain benefits that they gain from the PMTCT programs and if these benefits are implemented properly then this will lead to effectiveness in the services by ensuring proper prevention of mother to child transmission of HIV. Mother's level of education was found to be a factor that when combined with another discouraging factor makes the mothers to have a negative attitude towards the PMTCT services. This confirms with Nyasulu and Nyasulu (2011) who also found that illiteracy was a major barrier to effective follow-ups of the PMTCT services among the HIV positive mothers.

### **5.3.3 Accessibility as a Determinant on the Effectiveness of Prevention of Mother to Child Transmission (PMTCT) Services**

The study findings also confirm that accessibility of the PMTCT services is one of the determinants to the effectiveness of the PMTCT services. Despite most of the mothers saying that they are able to access a good number of PMTCT services they also said that they have defaulted from the programs due to poor or lack of access to certain important services. For effective PMTCT services to be achieved, WHO report (2007) confirmed that there are several critical services that must be provided in each PMTCT program. These services include: VCT,

MCH/ANC, infant feeding counseling, family planning services, provision of ARVs to mother and Child, counseling of pregnancy decisions when HIV positive, continued care and support for mothers and their children and testing of child at different ages up to 18 months. According to the mothers, some of these services are poorly or not provided at all and as a result they default from the programs and stop the uptake of the services hence leading to ineffective delivery of the intended purpose of the PMTCT services. This agrees with a report by NASCOP (2002) that found that the high rate of defaulting is caused by lack of services like family planning and guidance on pregnancy decisions when HIV positive. This was also confirmed by the document review findings that some programs don't offer all the critical PMTCT services.

#### **5.3.4 Follow-up Mechanisms as a Determinant on the Effectiveness of Prevention of Mother to Child Transmission (PMTCT) Services**

Follow-up mechanisms were found to be a determinant on the effectiveness of the PMTCT services. This is because despite most of the mothers as well as health care workers confirming that they are aware of several mechanisms used to track the PMTCT defaulters, the findings show that only a few aspects of the PMTCT services are followed leaving other crucial ones not followed. For effective prevention of mother to child transmission of HIV, there are several services that should be followed to ensure that the mothers adhere to them. If this is not done then the PMTCT services will be ineffective because they will not have achieved their intended objective. The available follow-up mechanisms available include; home visits, use of CHWs and CIs, use of TBAs, promise of incentives and phone calls. For all these mechanisms there agreement in the responses of both the mothers and the health care workers as an assurance that they happen. Except for promise of incentives the rest received high rate of positive response. The reasons given by health care workers for not promising incentives is that since it's hard to maintain them a times its easy to discourage the mothers when they come for the promise and then it's not fulfilled. According to WHO report (2007), to ensure quality prevention of mother to child transmission of HIV, the following services needs thorough follow-up; ensure taking of ARVs, ensure appropriate feeding of the baby, ensure use of family planning services after delivery, ensure delivery in the health facility, ensure baby is taken for KEPI recommended immunizations. Out of all these services it was found that only uptake of ARVs was followed

100% but the rest had gaps that led to mothers defaulting from the PMTCT programs. Especially for use of family planning services after delivery, this received very low response from both the mothers and the health care workers meaning that it was poorly done hence its very crucial for preventing the mothers from unwanted pregnancies and also give them time to bring up the other child in a healthy way. This agrees with a study by Hendramoorthy and Ruth (2009) in a resource limited Settings which reported that despite knowledge of how to reduce MTCT of HIV in resource-poor settings, an unacceptably low proportion of women access prevention of MTCT services (PMTCT) because follow-up of HIV positive women and children is poor for most services. This has thus led to increased number of children born HIV positive because the mother has not been loyal in the uptake of the PMTCT services due to lack of follow-ups by the health care givers. This is true because when defaulter level of the mothers was compared with their children's HIV status, it was found that most of those who defaulted from the PMTCT services, their children were either HIV positive or dead due to HIV infection.

#### **5.4 Conclusions**

The findings in this study show that the services for the Prevention of Mother to Child Transmission of Human Immunodeficiency Virus in Kibera were ineffective. Several factors were found to contribute to the ineffectiveness of these services. These factors include: male partner involvement where by the males instead of encouraging their female partners to participate in the PMTCT programs, they instead discourage and oppose the idea of PMTCT and some go to an extent of causing violence hence making the mothers to default. Mothers develop negative perception when prompted by other factors and as result they default from the program. Poor accessibility of certain crucial services in the PMTCT programs has also made most mothers to default from the programs. Inability of the PMTCT programs to follow the mothers and ensure that they get all the crucial services needed has also contributed to high rate of defaulting. As a result PMTCT services have been ineffective and have failed to achieve their intended purpose of ensuring quality prevention of mother to child transmission of HIV.

#### **5.5 Recommendations**

This study makes the following recommendations with respect to the factors that determine the effectiveness of PMTCT services.



1. The NGO's and the MoPHS arm implementing the PMTCT programs should ensure that, awareness targeting males is increased and be formulated in a way that will focus on those of low literacy level. This will help reduce their opposition on PMTCT services and instead make them encourage their female partners to take part in PMTCT services.
2. The PMTCT programs should ensure that the factors that make mothers to have a negative perception towards PMTCT services are addressed. Such factors include confidentiality among the health care givers, inadequate health care givers and provision of food supplements and breast milk formulae to the mothers.
3. All PMTCT programs should ensure that they adequately offer all the crucial services needed for effective PMTCT. Some of these services that needs to be improved on include provision of family planning services, counseling on pregnancy decisions when HIV positive and continued care and support to both the mother and the child.
4. The PMTCT programs should also ensure that follow-ups are done to track mothers on the uptake of all PMTCT services. Services such as appropriate feeding of the baby, use of family planning services after delivery, delivery in the health facilities and baby immunizations need to be highly emphasized for effective PMTCT of HIV.

## **5.6 Areas of Further Study**

Based on this study, the following topics for further inquiry, which could not be studied due to time constraints and the fact that they fall outside the scope of this study are recommended.

1. Factors that influence male partner opposition of PMTCT services in Kibera slum.
2. The relationship between discordant couples and the uptake of PMTCT services among the female partners in Kibera
3. Factors that make PMTCT programs not to adequately offer all the critical services needed for effective MTCT of HIV.

## **5.7 Summary**

This Chapter summarized the findings, discussed the findings comparing with other studies, concluded the findings and made recommendations for practice and areas of further research.

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## APPENDICES

### APPENDIX 1 LETTER OF INTRODUCTION

Date:

#### TO WHOM IT MAY CONCERN

Dear Sir/Madam,

#### REF: REQUEST FOR COLLECTION OF DATA

I Eunice Wandia Mailu, Reg. No. L50/61645/2011 is a post-graduate student at the School of Distance and Continuing Education, University of Nairobi. I am conducting a research project entitled “**Determinants of the Effectiveness of services for Prevention of Mother to Child Transmission of Human Immunodeficiency virus: A case of Kibera slum in Nairobi province**”.

You have been selected to form part of this study project. Kindly assist by filling in the attached questionnaire. The information given will be treated with strict confidence and will be purely used for academic purposes. Do not indicate your name details on the questionnaire.

A copy of the final report will be availed upon request.

Your assistance and cooperation will be highly appreciated.

Yours Sincerely,

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**Eunice Wandia Mailu**

(Student) L50/61645/2011

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**Ms. Nyawira Kuria**

Lecturer

Dept of Educational Studies

University of Nairobi

**APPENDIX 2 SEMI-STRUCTURED QUESTIONNAIRE FOR HIV POSITIVE MOTHERS IN KIBERA SLUM OF NAIROBI**

Name of residence.....

Where applicable please tick (√) in the following questions:

**Section 1: Demographic details:**

1. How old are you? (Which year were you born?).....
2. What is your marital status?
  - a) Married
  - b) Single
  - c) Divorced
  - d) Widowed
  - e) Others.....
3. What is your highest level of education?
  - a) None
  - b) Completed Primary education
  - c) Completed Secondary education
  - d) Completed Tertiary education
  - e) Others (please specify).....
4. If yes to question 3, what is your partner's highest level of education?
  - a) None
  - b) Primary education
  - c) Secondary education
  - d) Tertiary education
  - e) Others (please specify).....
5. What is your employment status?
  - a) Permanently employed
  - b) Casually employed
  - c) Unemployed
  - d) Self employed (If self employed explain the type of business whether small scale or large scale)



**Section two: Male partner involvement as a determined to the effectiveness of PMTCT services among HIV positive mothers**

1. Are you aware that there is a program for prevention of mother to child transmission of HIV near your area? Yes  No
2. If yes how did you know about it? Prompt for
  - a) Friend
  - b) Health care staff during ANC visit
  - c) Media
  - d) Male partner
  - e) TBA/CHW
  - f) Other (Please specify).....
3. Do you follow the program interventions accordingly as its required?  
Yes  No
4. If no in number 8 what factors make you not to follow the services/interventions accordingly?
  - a) Don't know its importance to me
  - b) Fear of stigmatization by the community
  - c) Discouragement by the male partner
  - d) Fear of ARV side effects
  - e) Poor management of the Program
  - f) Lack of ARVs every time you go
  - g) Poor access of the interventions
  - h) Other (Specify)
5. Has your male partner brought violence due to your involvement in the PMTCT program  
Yes  No

**Section 3: Perception of mothers towards PMTCT services as a determinant to the effectiveness of the services**

1. i) Are you happy with the program so far?

Yes  No

ii) Particularly in the following areas are you happy about them?

A) Hospital staff? Yes  No  Don't know

B) Organization of the program? Yes  No  Don't know

C) Drug supply? (Is it always available) Yes  No  Don't know

2. If yes in 1a) what factors make you feel happy about the program?

- a) The benefits gained from the program (Explain them)
- b) Proper teachings on child feeding
- c) Other (Specify)

3. If no in number 1 what factors make you not to be happy about the program?

- a) Lack of confidentiality by the care givers
- b) Poor organization of the program
- c) Inadequate drug supply
- d) Lack of enough health care givers
- e) Stigmatization by the community
- f) Other (Specify)

4. Have you faced any challenges that made you have negative attitude of the program?

Yes  No

5. If yes in 6 what are the challenges

- a) Lack of confidentiality by the care givers
- b) Cultural beliefs
- c) Lack of family planning services
- d) Lack of food supplements to enable enough breast milk for exclusive breast feeding
- e) Other (Specify)

#### **Section 4: Accessibility of PMTCT services as a determinant to the effectiveness of the services**

1. Are you able to access all the PMTCT services near your area?

Yes  No

2. What are the reasons?

- a) Poor road network
- b) Lack of money for transport
- c) Other

3. What HIV intervention services are offered in PMTCT programs that are accessible to you?

- a) VCT
- b) MCH/ANC
- c) Infant feeding counseling
- d) Family planning services
- e) Provision of ARVs to both the mother and baby
- f) Counseling on pregnancy decisions when HIV positive
- g) Continued care and support for mothers living with HIV and their children
- h) Other (Specify)

4. Did you stop the program due poor access or lack of some services?

Yes  No

**Section 5: Follow – up mechanisms to track the HIV positive mothers as a determinant to PMTCT services effectiveness**

- 1. Are you aware of any follow-ups done by the programs to track the HIV positive mothers? Yes  No
- 2. If yes in number 1 above what is done to follow them up?
  - a) Going to their homes if they don't turn up
  - b) Use of community health workers (CHWs) to trace them
  - c) Use of TBAs to trace them
  - d) Promising them incentives to retain them in the program
  - e) Other ( Specify)

If yes in number 1

- 3. Are you followed up to ensure use of ARVs accordingly? Yes  No
- 4. Are there follow-ups to ensure proper feeding methods of the baby? Yes  No

5. Are there follow –ups after delivery to ensure use of family planning services? Yes   
No
6. Are their follow ups during pregnancy to ensure delivery in the health facility?  
Yes  No
7. Are their follow – ups after delivery to ensure the baby is taken for Immunizations recommended by Kenya Expanded Program for Immunizations (KEPI)?  
Yes  No
8. If yes in number 1, do you follow the PMTCT services accordingly even after being followed up? Yes  No
9. How do you rate yourself in terms of adherence to the PMTCT services
- a) Complete adherence (100 percent)
  - b) Fair adherence (50 percent)
  - c) Defaulted (0 percent adherence)
10. If your adherence is not complete or if you defaulted, how is the HIV status of your baby?
- a) HIV negative
  - b) HIV positive
  - c) Died

**APPENDIX 3 SEMI-STRUCTURED QUESTIONNAIRE FOR HEALTH CARE WORKERS IN PMTCT CENTERS**

**Designation of the respondent in PMTCT center**

.....

Where applicable please tick (√) in the following questions:

1. Do you think that there is adequate awareness of PMTCT services in the area?

Yes  No

2. If yes what methods do you use to create the PMTCT awareness?

- a. Awareness by Health care staff during ANC visit
- b. Media
- c. Use of TBA/CHW
- d. IEC materials
- e. Other (Please specify).....

3. What are the contents of the PMTCT services that you offer in this area?

- a. VCT
- b. MCH/ANC
- c. Infant feeding counseling
- d. Family planning services
- e. Provision of ARVs to mother and Child
- f. Counseling of pregnancy decisions when HIV positive
- g. Continued care and support for mothers and their children
- h. Testing of child at different ages up to 18 months

4. How do you ensure that the PMTCT interventions are well followed?

- a. Creating Proper Awareness to the community
- b. Counseling the mothers
- c. Use of Follow up mechanisms
- d. Giving free services
- e. Home based care
- f. Change of ARV Regimen in case of side effects
- g. Other (Specify)

5. If no in number 5 what factors do you think make them not to use the PMTCT services accordingly?

- a. Some don't know the importance of PMTCT services
- b. Fear of stigmatization by the community
- c. Discouragement by their male partner
- d. Fear of ARV side effects
- e. Ignorance
- f. Cultural/Religious beliefs
- g. Other (Specify)

5a) Do you contact awareness campaigns targeting male partners?

Yes  No

5b) If yes in 7a) above, what is the turn up rate of males in the awareness campaigns

Good  Poor

6. What follow up mechanisms do you use to track defaulters of the PMTCT services?

- f) Going to their homes if they don't turn up
- g) Use of community health workers (CHWs) to trace them
- h) Use of TBAs to trace them
- i) Promising them incentives to retain them in the program
- j) Use of phone calls
- k) Other ( Specify)

If yes in number 10

7. Do you follow the clients to ensure use of ARVs accordingly? Yes  No

8. Do you follow them to ensure proper feeding methods of the baby? Yes  No

9. Do you follow them up after delivery to ensure use of family planning services? Yes   
No

10. Are their follow ups during pregnancy to ensure delivery in the health facility?

Yes  No

11. Are their follow – ups after delivery to ensure the baby is taken for Immunizations recommended by Kenya Expanded Program for Immunizations (KEPI)?

Yes  No

**APPENDIX 4**

**DOCUMENT REVIEW CHECKLIST**

Activity Carried Out	Observation		Comments
	Yes	No	
1. Are there records to show how many HIV positive mothers were enrolled for the last 18 months?			
2. Are there records to show out of those enrolled, how many are still active in the program?			
3. Are there records to show how the enrolled HIV positive mothers are followed up to ensure adherence to PMTCT services?			
4. Are there records to show how PMTCT defaulters are traced?			
5. Are there documents showing if the ANC profile is captured for all pregnant women?			
6. Are there records to show if VCT services are offered to all the mothers who attend MCH services?			
7. Are there records to show that all the HIV positive mothers are taken through PMTCT services?			
8. Are there records showing if the HIV positive mothers are trained on proper child feeding?			
9. Are there documents to show if the HIV positive mothers are given breast milk replacements for their children if they are not breast feeding?			
10. Are there records to show how PMTCT services awareness is done?			
11. Are there records to show if the male partners are involved and trained on the importance of PMTCT services to their wives and children?			
12. Are there records to show how stigma in the community is dealt with?			

## **APPENDIX 5            INFORMED CONSENT DOCUMENTS FOR THE PARTICIPANTS**

### **a. Statement that the study involves research**

This study in which we want you to participate is a research project activity.

### **b. Explanation of the purposes of the research project**

We are visiting your community to learn about your knowledge and experience with HIV management interventions for PMTCT of HIV and the utilization of such services by the targeted group. The purpose of this study is to gain information that will eventually help in strengthening the HIV management interventions programs and services in your community towards achieving quality prevention of mother to child transmission.

### **c. Description of the procedures to be followed.**

We will ask questions about many aspects related to PMTCT services offered in this community. We want to learn more about you and your health care experience in relation to the HIV management interventions. We will not take your pictures but we shall take notes, which will help us to explain our findings. We will also talk to many other people of your category in order to gather enough information that can be generalized.

### **d. Disclosure of appropriate alternative to participation**

We shall appreciate your participation in this study; however, feel free to decline this request if you are uncomfortable. Taking part in this study will not cost you or your family anything.

### **e. Description of any benefits to the subject or to others, which may reasonably be expected from the research**

You and your family may not get any direct benefits from being in this study but what you tell us will help us better develop a strategy for strengthening HIV management interventions in achieving quality Prevention of mother to child transmission of HIV and thus improve the maternal and child health status in this community.

### **f. Risk involved**

There are no risks associated with your participation in this study

### **g. Confidentiality of records**

Your name and what you say to us for this study will be kept private as much as the law allows. The information you provide shall remain confidential. The notes shall be stored in a place where



only the research team will have access. This will be for a period of one year and after completing the study they will be destroyed.

**h. Questions about research**

If you have any questions about this study, you may contact Eunice Mailu of University of Nairobi Tel: +254 – 720795721; email: mailu.eunice@gmail.com during the study and in the future.

I have read the foregoing information, or it has been read to me. I have had the opportunity to ask questions about it and any questions I have asked have been answered to my satisfaction. I consent voluntarily to participate as a subject in this study and understand that I have the right to withdraw from the study at any time I want.

\_\_\_\_\_

Individual Participant's signature

\_\_\_\_\_

Date

\_\_\_\_\_

Interpreter/Witness's signature (verbal consent)

\_\_\_\_\_

Date

\_\_\_\_\_

Person conducting the informed consent signature (verbal consent)

\_\_\_\_\_

Date

**APPENDIX 6  
SLUMS**

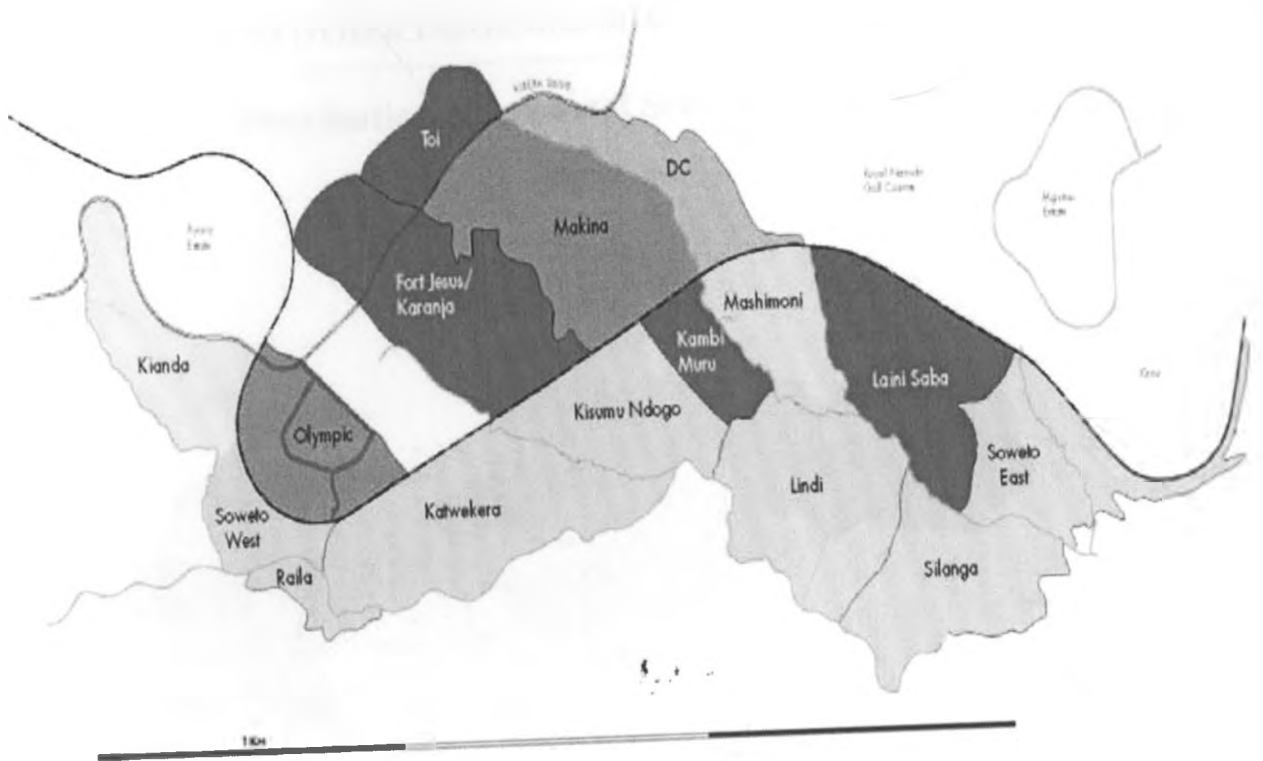
**KIBERA SLUM IN NAIROBI: ONE OF THE AFRICA'S LARGEST**



Source: Wikipedia

APPENDIX 7

MAP OF KIBERA SHOWING LOCATION OF ITS VILLAGES



Source: Carolina for Kibera

APPENDIX 8

MAP SHOWING LOCATION OF KIBERA IN NAIROBI

AND OTHER INFORMAL SETTLEMENTS IN NAIROBI

