ACCESS AND QUALITY OF SERVICES IN THE PREVENTION OF MOTHER TO CHILD TRANSMISSION OF HIV IN PUBLIC HEALTH INSTITUTIONS IN THIKA DISTRICT, KENYA

BY

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DECLARATION

This thesis is my original work and has not been presented for a degree in any other University

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DEDICATION

This thesis is dedicated to my mother Mary, Wanjiku and to all those who spend time and energy in response to HIV and AIDS everywhere

God bless you.

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ABBREVIATIONS AND ACRONYMS

ANC	Antenatal Care
AIDS	Acquired Immune Deficiency Syndrome
ARV	Antiretroviral (drugs)
AZT	Azidothymidine (Zidovudine)
CT	Counselling and Testing
CBO	Community Based Organization
CCC	Comprehensive Care Clinic
CHW	Community Health Worker
FGDs	Focus Group Discussions
FBO	Faith Based Organization
HIV	Human Immunodeficiency Virus
HCPs	Health Care Providers
KDHS	Kenya Demographic and Health Survey
KIIs	Key Informant Interviews
MCH/FP	Maternal and Child Health and Family Planning
MTCT	Mother to Child Transmission
MOH	Ministry of Health
NASCOP	National AIDS and STD Control Programme
NACC	National AIDS Control Council
NVP	Nevirapine
NGO	Non Governmental Organization
OVC	Orphans and Vulnerable Children
OIs	Opportunistic Infections
PMTCT	Prevention of Mother to Child Transmission
PLWHA	People living with HIV and AIDS
STI	Sexually Transmitted Infections
SSA	Sub-Saharan Africa
SPSS	Statistical Package for Social Sciences
UNAIDS	Joint United Nations programme on HIV and AIDS
VCT	Voluntary Counselling and Testing
WHO	World Health Organization

ABSTRACT

PMTCT of HIV has become an important intervention for prevention and control of HIV and AIDS in developing countries. MTCT is the most significant source of HIV infection in children below the age of 15 years, with approximately 2.5 million living with HIV and AIDS worldwide. Sub-Sahara Africa contributes 2.2 million of those living with HIV and AIDS globally. The prevalence rate of HIV in adults aged 15-49 years was estimated at 5.1% in Kenya in 2006 and in pregnant women attending ANC clinics in Thika district stood at 5%. Public health facilities are challenged to adequately offer PMTCT services due to various constraints leading to loss of intervention opportunities which contribute to the high prevalence of HIV and AIDS in children. The objectives of this study were to determine the level of access and quality of PMTCT services and factors that influenced both in Thika District. The study population comprised of women of child bearing age (15-49 years) attending MCH clinics who were interviewed at the exit. Quantitative data was collected using structured face to face interview schedule and questionnaire and qualitative data through observation checklist, FGDs and key informant interviews. SPSS and MS Excel computer softwares were used to manage data. Descriptive statistics was used and computation of derived values used in data analysis. PMTCT of HIV services are accessed through attending ANC clinics, visiting a VCT centre, at the maternity, and CCC. In the study, distance from home to health facilities was not associated with antenatal clinic attendance (χ^2 =.728; df =1; $p>0.05$). No relationship was established between clinic attendance and testing (χ^2 =1.370; df =1; $p>0.05$) and frequency of attendance and testing (χ^2=2.980; df =1; $p>0.05$). Uptake of testing was higher in urban than in rural health facilities (χ^2=14.436; df =3; $p<0.05$).Younger clients (15-24) were more receptive to testing than older clients (χ^2=8.546; df =2; $p<0.05$). ARV prophylaxis is a core intervention in PMTCT of HIV. Nevirapine was the only ARV being offered to infected mothers and infants at health facilities in the district during the study period beside cotrimoxazole for prevention of OIs. Occasional shortages were reported. Breastfeeding is a proved mode of MTCT of HIV. Respondents who reported breast problems and were breastfeeding were (19) 54.3%. The HIV infected were less likely to breastfeed (χ^2=34.942; df =1; $p<0.05$) and were more likely to practice exclusive replacement feeding as compared to the uninfected women (χ^2=52.721; df =2; $p<0.05$). All study sites offered free FP services and resources were available. Any effective FP method together with the condom is recommended for the HIV infected. In this study, FP method use was found to be influenced by marital status and occupation. Those married adopted FP method use more than others (χ^2=39.059; df =4; $p<0.05$) and professionals used FP methods more than others. Knowledge of where to find PLWHA support groups was higher in those who were visited by a health worker or a PLWHA since delivery (χ^2=8.109; df =1; $p<0.05$). Women who had involved their spouses in VCT highly influenced them to seek for these services (χ^2 =67.156; df =2; $p<0.05$) and were more likely to know where to seek for emotional support (χ^2= 4.846; df =1; $p<0.05$). Overall access to services was 16.7% and quality 12.5%. Consistent, sustainable availability of basic resources and standardized and knowledge based provision of care and follow up services underlined the quality of PMTCT of HIV services. Conclusions point to the need for policy and practical interventions that focus on enhancing access and quality of these services. The results from this study will assist policy makers, service providers and the wider community in scaling up PMTCT of HIV services for greater access and better quality.

CHAPTER ONE

INTRODUCTION

1.1 Background information

UNAIDS and WHO (2007) reported an estimated 33.2 million (30.6 – 36.1 million) people living with HIV worldwide as at December 2007. Sub-Saharan Africa (SSA) had the highest number estimated at 24.7million (21.8 – 27.7 million). Deaths due to AIDS were estimated at 2.1 million (1.9 – 2.4 million) with 1.6 million (1.5 - 2.0 million) of the global 2.1 million (more than three quarters i.e. 76% of all adult and child deaths) occurring in SSA. Approximately 2.1 million children below the age of 15 years were living with HIV worldwide with nearly 90% of all of HIV- positive children living in SSA in the same period. The number of new HIV infections for the year 2007 worldwide stood at 2.5 million (1.8 - 4.1 million) with SSA having 1.7 million (1.4 - 2.4 million) and estimates in children below 15 years old ranged from 350,000 to 540,000 worldwide. Women accounted for 61% of people living with HIV in SSA in 2007. The 2004 report shows that there were 14,000 new HIV infections daily in 2003, 95% occurring in the low- to middle-income countries, particularly in Africa. Out of these, 12,000 occurred in the 15 – 49 age bracket, half of which were in women and 50% in those aged between 15 – 24 years (UNAIDS, 2004; 2007).

Prevention of Mother to Child Transmission (PMTCT) of HIV has become an important intervention in the prevention and control of HIV and AIDS in developing countries. MTCT rates in developed countries have fallen to as low as 1 – 2% of births among HIV-infected mothers. This has been through introduction of comprehensive services that include HIV counselling and testing, ARV therapy, elective cesarean section delivery and use of infant feeding formulas instead of breast feeding. In Africa, these interventions have generally not been available and prolonged breastfeeding is the norm thus 20 – 40% of HIV infected mothers transmit the virus to their infants. Counselling and support for safer infant feeding practices and modified obstetric procedures can greatly reduce the number of children dying of AIDS related illnesses annually (NASCOP, 2002; Policy Project, 2004). MTCT is the most significant source of HIV infection in children below the age of 15 years with an estimated 5.1 million children worldwide being infected, almost all through MTCT

(WHO, 2001). An estimated 630,000 children worldwide became infected with HIV in 2003 most through MTCT (UNAIDS, 2004).

In Kenya, monitoring and evaluation of PMTCT of HIV programme is under the Policy, Research, Monitoring and Evaluation unit of NACC. It is important to set priorities on what intervention should be monitored and what indicators are the most feasible and best measures for these key interventions, and what system should be in place to collect, analyze report and disseminate this data and information. Indicators for monitoring should be simple, easy to collect and useful locally and within the health system. Periodic evaluation should be done to measure quality of services, progress towards attaining goals, impact of and or effectiveness of the programme (National guidelines on PMCT, NASCOP, 2002; Monitoring and evaluation implementation manual, NACC, 2005; Kenya HIV and AIDS data booklet, NACC, 2005).

1.2 Problem statement

The prevalence rate of HIV in pregnant women attending ANC clinics in Thika District is currently 5%. Public Health facilities in the district are challenged to adequately offer PMTCT services which provide an opportunity for prevention of HIV and AIDS during prenatal, perinatal and postnatal periods due to various constraints. Access to this service and its quality and mainstreaming within the existing integrated reproductive health services are wanting to the extent that many opportunities are still being lost, contributing to the high prevalence of HIV and AIDS in children.

1.3 Justification / significance of the study

PMTCT as a strategy is part of the broader strategies of HIV and STI prevention and care for HIV- positive women and their families and of promotion of MCH. Women, especially those pregnant or contemplating pregnancy, must have access to sexual and reproductive health information in order to make appropriate choices; to counsel on needs of pregnant women and needs of women living with HIV and AIDS; to voluntary confidential HIV testing and counselling; to social support for themselves and their families if they are HIV- positive and to antenatal, delivery and postnatal care. Therefore, determination of the level of access to and establishing the quality

and mainstreaming of PMTCT services and identifying factors affecting them provides a basis for enhanced access to and improved quality of HIV preventive care services such as VCT and quality antenatal care, access to ARV treatment, safe delivery practices, and availability of safe infant feeding options and family planning for HIV-infected women.

1.4 Research questions

(a) How accessible are PMCT of HIV services as interventions in HIV and AIDS?

(b) What are the quality of service ingredients in place?

1.5 Null hypothesis

Uptake of PMTCT of HIV services is not influenced by improved access and quality.

1.6 Objectives of the study

1.6.1 General objective

To determine accessibility to and quality of PMTCT of HIV services in Thika district, Kenya.

1.6.2 Specific objectives

(i) To determine the level of access to PMTCT services in Thika district,

(ii) To identify factors that influence access to PMTCT services in the study area,

(iii) To establish the quality of PMTCT services in the health institutions in Thika district and

(iv) To establish factors that affect quality of these services in the health institutions in Thika district.

1.7 Delimitations and limitations

The study was carried out as intended with the cooperation of the Ministry of Health administration and staff and antenatal clients. However, the researcher was not able to practically observe obstetric practices but depended on interviews with key informants to make conclusions on modified and safe obstetric practices.

1.8 Conceptual framework

Prevention of Mother to Child Transmission of HIV (PMTCT of HIV) strategy must be viewed in the wider response to HIV and AIDS. ANC clinics offer the necessary entry point for provision of PMTCT of HIV services. These services have to be provided in an environment that promotes greater access and better quality to realize success of PMTCT of HIV programme. The conceptual model below illustrates this well.

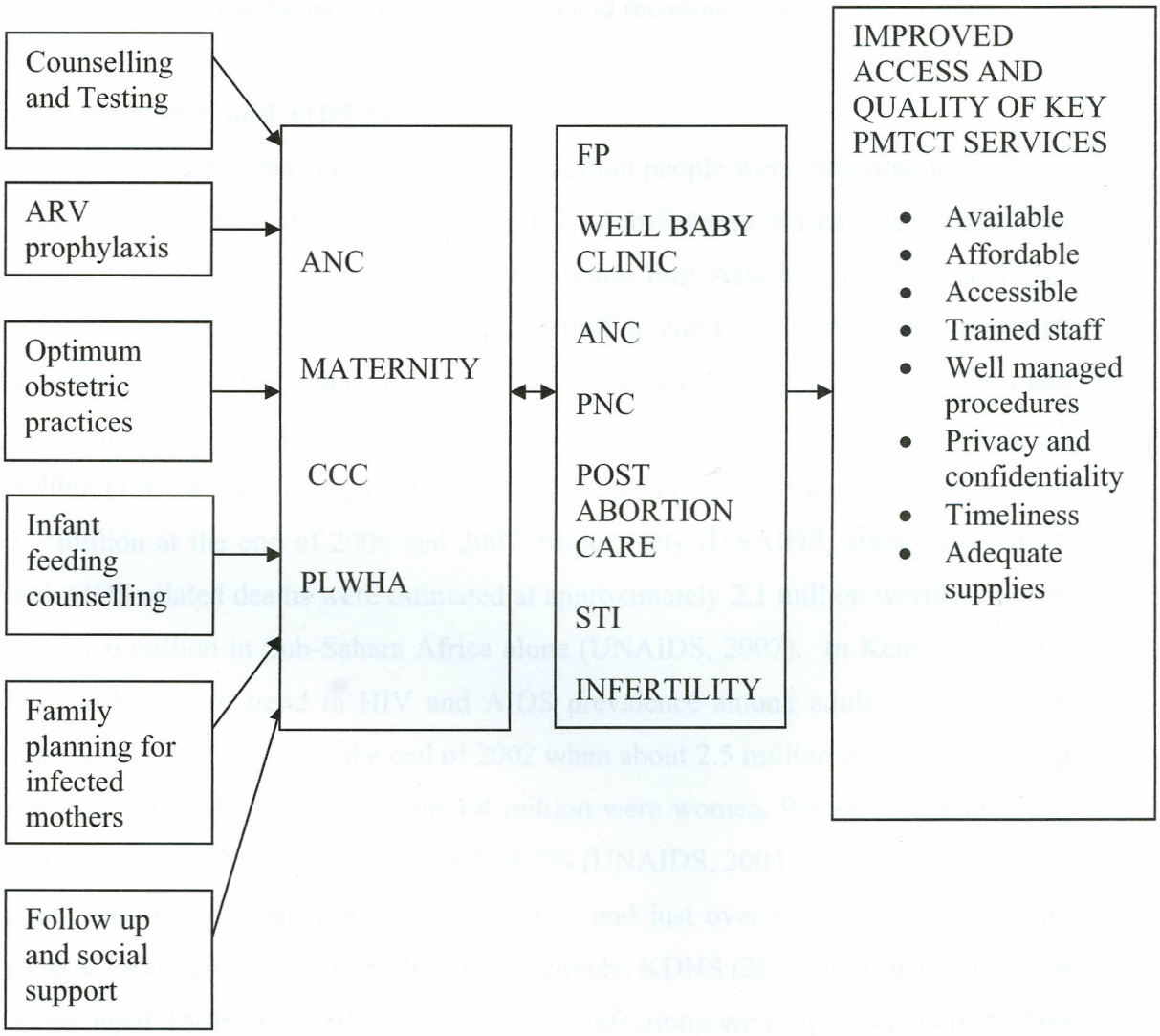


Figure 1.0: A conceptual model showing components of PMTCT of HIV services, mainstreaming and the outcome.

CHAPTER TWO

LITERATURE REVIEW

2.1 Introduction

This chapter reviews the literature related to the problem under study. It explores significant aspects of MTCT of HIV such as prevalence, risk factors, core PMTCT interventions etc which are then reviewed in relation to the study findings. The outcome then forms the basis for conclusions and recommendations in this study.

2.2 Global HIV and AIDS prevalence

At the end of 2007, between 30.6 and 36.1 million people were estimated to be living with HIV worldwide (UNAIDS/WHO, 2007). Sub-Saharan Africa was leading with 22.5 million (over 2/3 or 68%). South and South East Asia had 4 million and East Asia 800 thousands. Latin America had 1.6 million and Caribbean islands about 230 thousands, North America had 1.3 million and Eastern Europe and Central Asia had 1.6 million and west coast of Europe had 760 thousands. New infections were 2.5 million (1.8 – 4.1 million) globally and in Sub-Sahara Africa reached 2.8 million and 1.7 million at the end of 2006 and 2007, respectively (UNAIDS, 2006; 2007). HIV and AIDS related deaths were estimated at approximately 2.1 million worldwide with up to 1.6 million in Sub-Sahara Africa alone (UNAIDS, 2007). In Kenya, there has been a downward trend in HIV and AIDS prevalence among adults aged 15 – 49 years as follows:- 9.4% by the end of 2002 when about 2.5 million people were living with HIV and AIDS, out of whom 1.4 million were women, 900,000 were men and 23,000 were children (NASCOP, 2003); 6.7% (UNAIDS, 2004); 5.9% (5.0 – 6.8%) in 2005, and it is estimated at 5.1% (4.6-5.8%) and just over 6% (5.2-7.0%) in 2006 (NACC, 2006/2007; UNAIDS, 2006) respectively. KDHS (2003) indicated that 7% of adults aged 15-49 were HIV infected. New infections were approximately 55,000 (approximately 151 persons per day) in 2006 compared to 60,000 in 2005. Deaths per year were 85,000 (approximately 233 persons per day) compared to 115,000 in 2005. Approximately 1.2 million adults and 100,000 children were infected with HIV and approximately 1.2 million were orphaned from HIV and AIDS related illnesses. Urban prevalence was about 9.6% while rural prevalence was 4.6% in 2005 compared to 8.3% and 4.0%, respectively, in 2006 (NACC, 2006/2007). In 2006, HIV prevalence in the study area was 3.7% with the number standing at 8,355 and 9,186

for the urban and rural infected, respectively, and a male and female prevalence of 1.6% and 5.9%, respectively. The national male and female prevalence was 3.5% and 6.7%, respectively (NACC HIV and AIDS Monitoring and Evaluation Annual Report 2006/2007).

2.3 Prevalence of Mother to Child Transmission of HIV

In 2001, there were 2 million women and 800,000 children with new infections while 2.1 million adults and 420,000 children under 15 years were newly infected with HIV in 2007 (UNAIDS, 2002; 2007) and 1.1 million women and 580,000 children died of HIV and AIDS (UNAIDS, 2002) while 1.7 million adults and 290,000 children under 15 years died of AIDS (UNAIDS, 2007). In Kenya, 10% of reported AIDS cases in children occur in the under-fives and are mostly attributed to MTCT of HIV – 1 strain. Approximately 133,000 births per year are exposed to the risk of MTCT, out of which 53,000 infants are infected annually (NASCOP, 2002). The prevalence of HIV in women attending antenatal clinics varies greatly from one sentinel site to another ranging from 1-30% in 2004. However, some sentinel sites have reported higher rates with large regional variations. Thika district had a prevalence rate of 8% in 2005 and 5% in 2006. Approximately 35% of HIV and AIDS exposed pregnancies results in HIV infection to the unborn babies without treatment (NASCOP, 2003, 2005; NACC, 2005, 2006/2007).

2.4 Occurrence of MTCT of HIV

MTCT of HIV can occur during pregnancy, labour and delivery and through breastfeeding. During pregnancy, 5 to 8% of babies are infected through the trans-placental route. Labour and delivery pose the greatest risk for transmission with 10 to 20% of exposed infants becoming infected at this time (WHO, 2001). Breastfeeding accounts for up to 20% transmission rate, while overall transmission rate with no breastfeeding is estimated at 15 to 30% and with breastfeeding 25 – 45% (De cock *et al.,* 2000).

2.5 Risk factors for MTCT of HIV

Many factors are known or are suspected to increase the risk of MTCT of HIV. These include presence of mastitis, breast abscess (John *et al.,* 2001) and other local factors e.g. placental infection and duration of breastfeeding-risk is greatest before 6 months

and persists with continuity (Miotti *et al.,* 1999) and longer breastfeeding increases risk of MTCT (Nduati *et al.,* 2000). Viral load (and viral genotype and phenotype) appear to be the most important in that the higher the load the higher the risk (Semba *et al.,* 1999). Other factors include immune deficiency, (low CD_4 cell count) (Embree *et al.,* 2000) and HIV infection acquired during pregnancy and breastfeeding period. Obstetric factors such as vaginal delivery as compared to elective caesarean section and ruptured membranes for more than four hours before delivery are also important. Preterm babies are at an increased risk of intrapartum transmission due to an immature immune system.

2.6 PMTCT Strategy

UNAIDS recommends a three pronged strategy to prevent transmission of HIV to infants. These include: (a) Primary prevention of HIV among parents to-be which requires young adults to grow free of HIV by preventing contracting HIV virus all together through reduction of risk behaviour and making informed choices through information, education and communication, use of condoms, use of VCT before planning for a family and early diagnosis and treatment of STIs, (b) Prevention of unwanted pregnancies among HIV infected women mainly through use of an effective family planning method, and (c) Prevention of transmission from HIV infected women to their infants through the provision of ARVs to HIV infected pregnant women and their infants, safe delivery practices, and counselling and support for safer infant feeding practices. Antenatal clinic provides the necessary entry point through counselling and testing for HIV.

2.7 Benefits of PMTCT of HIV in ANC

Early identification of HIV positive women during pregnancy at ANC clinic through counselling and testing provides the best opportunity to enroll them in the continuum of care. This is through promotion of behaviour change which helps in reduction of HIV risky behaviour, identification of HIV discordant couples, increase of use of dual methods of FP and STI prevention, improves antenatal care and guided infant feeding. It also enables preventive therapy malaria, TB and other opportunistic infections and promotes access to early medical care i.e. obstetric care, TB therapy, malaria treatment, STD treatment, and ARV therapy for mother and family. Lastly it helps in future planning on infant feeding support systems, FP and personal and financial

decisions. At the national level, preventing MTCT has the potential to increase the understanding and acceptance of the HIV and AIDS epidemic and those living with HIV and AIDS. Community sensitization and counselling and testing can contribute in reducing stigma. Reduction of MTCT of HIV decreases numbers of children infected with HIV, increases child health and survival, decreases the load to healthcare system, and gives an opportunity to improve, expand health services and strengthen the health infrastructure (UNAIDS, 2002; NASCOP, 2002; McIntyre, 2003).

2.8 Core interventions for the PMTCT of HIV

The specific PMTCT interventions include: (a) counselling and testing for HIV for pregnant women (b) prophylactic use of an ARV regimen for mother and infant, (c) optimal obstetric care, and (d) counselling and support for safer infant feeding practices (WHO, 2001). NASCOP recommends screening for sexually transmitted infections and anaemia, malaria chemoprophylaxis, micronutrient supplementation and immunization, counselling and testing for HIV, and infant feeding at ANC clinics. However, significant and sustainable impact will only be achieved when all components of the comprehensive programme are in place and functioning in the broader HIV prevention and effort. Other components include information, education and communication (IEC) on HIV prevention and care, condom promotion, family planning services, treatment of STIs, safe delivery practice, and community action to reduce stigma and discrimination and increase support for HIV prevention and care interventions.

2.8.1 a Counselling and Testing for HIV in Antenatal Clinics

Counselling and testing for HIV in the ANC is at best a secondary purpose for seeking care. A pregnant woman at this time is seeking medical care to ensure the well being of her unborn baby's health and also her own health. It is therefore recommended as part of comprehensive care package. In PMTCT of HIV, testing cannot be anonymous but must always be confidential. Overstressing confidentiality aspect of HIV and AIDS has led to increased stigma and discrimination (Msellati *et al.,* 2001). PMCT testing should be routine like other tests and with informed consent. A pregnant woman must be allowed to opt-out and decline these services. When testing in the ANC is presented routinely, as part of antenatal care, most women

consent to testing and this destigmatizes HIV testing and indirectly reduces stigma of HIV in health settings. When presented as an option service, stigma increases. Testing should be at the same place within the health center to encourage mothers and reduce waiting time.

2.8.1 b HIV tests done at ANC clinics

Most commonly available HIV tests only detects antibodies against HIV and do not detect the virus itself. Antibodies against HIV take 1-3 months to develop after initial exposure to the virus and are sometimes falsely positive and therefore should always be confirmed with another but different antibody test. A baby may have maternal antibodies in his/her blood for up to 18 months of age even though it may not be infected. These tests include:

a) Enzyme- Linked Immuno sorbent Assays (ELISA): These are highly sensitive and efficient methods for testing large numbers of people per day but are expensive and require a laboratory facility.
b) Rapid HIV tests: These do not require special equipment or training and are also highly accurate. They utilize whole blood or serum and give results in less than 10-15 minutes.
c) Western blot: It is usually used for confirmation of positive results or where other tests are discordant. It is very specific but costly and difficult to perform.
d) HIV antigen test: This test is sensitive and can pick up early infections e.g. P_{24} antigen test. It is not a routine test.
e) PCR test: The polymerase chain reaction (PCR) test is the earliest test for detecting infected infants (as early as 6 weeks of life). It is not available or is expensive and is not used routinely.
f) Viral culture: It is a complex and expensive test and is mainly used for research purposes or in staging of HIV infection (NASCOP, 2002; 2005).

2.8.2 Use of Antiretroviral Drugs for Prevention of MTCT

2.8.2.1 ARV Therapy for the Mother

The use of antiretroviral drugs reduces mother to child transmission of HIV. These regimens reduce the risk of MTCT by decreasing viral replication in the mother and through prophylaxis of the infant during and after exposure to the virus (WHO, 2001).

They also reduce the cost of caring for an HIV positive infant. The choice of antiretroviral regimens depends on the cost and financial status of the mother and the time point when she presents for care (Preble and Piwoz, 2000). NASCOP has classified women attending ANC according to such presentation, thus:- those who attend antenatal clinic early; late attendees; non attendees who present to the healthcare system in labour with unknown HIV status, and those who deliver before arrival to labour ward who may or may not have attended ANC. Initiation of ARVs is at the 2nd trimester and Nevirapine (NVP) as prescribed by the HIVNET 012 trial is recommended as the best available option for resource-constrained nations (NASCOP, 2002). Alternatively, short course Zidovudine (AZT) should be initiated at 34 to 36 weeks of pregnancy to ensure majority of women are reached before onset of labour.

2.8.2.2 ARV Therapy for the Infant

Women presenting with unknown HIV status in labour should have immediate post delivery counselling and testing. Babies of HIV positive women should receive a prophylactic dose of NVP within 72 hours of birth. Alternatively, they should be given prophylaxis with AZT for 6 weeks. Therapy should be initiated within 48 hours. Postnatal prophylaxis in the baby reduces the risk of HIV infection by 50% (NASCOP, 2002). Currently, MOH and some non-profit making organizations are providing ARVs at subsidized cost or free altogether.

2.8.3 Optimal obstetric practices

Improving obstetric care has broader benefits than just preventing MTCT. Infants whose mothers die from delivery related complications have a lower chance of survival themselves. Generally, managing and supporting labour in a way that keeps it "normal" is an effective way to support safe delivery. This may be done by simple steps such as encouraging mothers to walk, to stay well nourished and hydrated, and to have a safe delivery plan and a contingency plan for referral. Progress of labour and vital signs should be recorded routinely and referrals done on the basis of this monitoring to prevent prolonged labour. Family support should be encouraged for its psycho-social benefits and because this support may reduce the need for invasive procedures such as artificial rupture of membranes (ARM) and instrumental delivery (Madi *et al.,* 1999; Kennel *et al.,* 1991). Great care needs to be taken to avoid

practices that may facilitate exposure to infected blood and other body fluids from the mother e.g. ARM and episiotomy where not indicated. These safer practices should be introduced as a routine part of management of labour for all women in high HIV sero-prevalence areas (WHO, 1999). Handling of the newborn infants soon after delivery should include thorough drying to minimize heat loss and also remove any remaining maternal blood and amniotic fluid. It is unnecessary to bathe the baby before giving him or her to the mother and skin-to-skin bonding should be encouraged regardless of the mothers choice to breastfeed or not. Vigorous suctioning of the infants mouth and pharynx after delivery should be avoided unless absolutely necessary and umbilical cord cutting and care handled carefully to minimize infant's and HCPs' exposure to blood. Elective caesarian section for most women in resource poor settings in Africa is precluded by cost and lack of surgical facilities besides posing risks of complications e.g. infection, hemorrhage, organ injury, and complications related to anaesthesia (Preble and Piwoz, 2001).

2.8.4 Infant Feeding for HIV infected Mothers

2.8.4.1 Infant feeding patterns

Breastfeeding provides adequate nutrients, protective immune factors, and stimulation necessary for good development and contributes to natural birth spacing. It also provides protection from death due to diarrhea, respiratory and other infections, particularly in the first months of life. The risk of HIV infection has to be compared with the risk of illness and death faced by infants who are not breastfed. During the first two months, a child receiving replacement feeding is nearly six times more likely to die from these infectious diseases compared to a breastfed child (WHO, 2000).

Infants whose mothers are HIV positive face 10-15% chance of acquiring HIV through breastfeeding depending on how long they are breastfed. The use of breast milk substitutes reduces this risk but can expose them to other dangerous health risks including diarrhea especially in developing countries.

A mother living with HIV and AIDS faces many difficulties and worries about her own health and survival, risk of infecting her baby through breast milk, and the danger that her baby will develop other problems if she does not breastfeed. The decision on whether to breastfeed or not is a frightening dilemma. It is therefore

recommended that babies be exclusively breastfed for the first six months of life and be weaned abruptly (Coutsoudis *et al.,* 1999; Smith and Kuhn, 2000; NASCOP, 2002); duration of breastfeeding be shortened – the longer the period the higher the risk; breast problems be prevented and treated – cracked nipples, mastitis, and abscess increases the risk of HIV transmission; HIV infection during breastfeeding be prevented to reduce infant risk of infection – viral load is higher shortly after infection with HIV and when AIDS develops and sores or thrush in the infants mouth be treated early as this makes it easier for the virus to enter the infants' body. There is early evidence that mixed feeding increases the risk of breast milk transmission of HIV (Coutsoudis *et al.,* 1999). In Kenya, 82 percent of children are given food or liquid supplements by 2 to 3 months, and 94 percent by 4 to 5 months in addition to breast milk. Only 28 percent of children below 2 months and 17 percent below 4 months of age are exclusively breastfed (NCPD and CBS, 1999).

2.8.4.2 Infant Feeding Options for HIV Infected Women

Women should be counselled about different possible infant feeding alternatives and their choice be respected and supported by healthcare provider, family and community. Couple decision-making on available options and choice should be encouraged to be better upheld. NASCOP recommends exclusive breastfeeding for the first 6 months after which balanced complimentary foods are added to the diet. Mothers may choose from breast milk, commercial infant formula or home modified infant formula (NASCOP, 2002). UNAIDS recommends absolute avoidance of breastfeeding by HIV positive women (those at high risk) and replacement feeding should be advocated for in an environment where it is acceptable, feasible, affordable, sustainable and safe. This however, may increase the risk of diarrhea malnutrition, and acute respiratory infections where unsanitary conditions exist (WHO, 2000). Careful consideration should be made in recommending that all HIV infected women avoid breastfeeding due to stigmatization.

2.9 Family Planning in PMTCT of HIV

Availability of safe and effective contraceptives and high quality reproductive health counselling can help a woman practice safer sex, determine her future child bearing patterns on a more responsible and informed basis, and potentially reduce numbers of HIV infected births. Women who learn that they are HIV infected may have a strong

desire to avoid bearing additional children who may be born HIV infected and will become orphaned at an early age (Preble and Piwoz, 2001). HIV infected women can use all modern methods of contraception and should initiate a reliable contraceptive method by 2 to 4 weeks after delivery. Lactational amenorrhea method (LAM) is suitable for a breastfeeding HIV infected woman and should be used together with condoms to offer protection from STIs and HIV re-infection. However, those who choose not to breastfeed altogether forego the benefit of LAM.

2.10 Social Support for the HIV Infected and the Affected

Social support and healthcare is indicated for mothers and infants affected by HIV and AIDS. Even in settings where intensive MTCT prevention packages are introduced and the total number of HIV infected children reduced, there will still be HIV positive children born and orphans needing care and support since none of the MTCT of HIV interventions are 100 per cent effective. Models of care exist and deal with care for those who are ill, improving nutrition, help in acquiring basic medications, reducing stigma and psychological distress, keeping children in school, and protecting their legal rights and compensating for lost adult labour and income. Despite these, fairly a small fraction has been reached (Williamson, 2003). In Kenya, there exist groups of people, especially networks of those living with HIV and AIDS, who offer support services. Aid also comes through church organizations and individuals to meet these needs.

CHAPTER THREE

MATERIALS AND METHODS

3.1 Introduction

This chapter presents materials and the methodology of the study. The study area and study population including inclusion criteria, ethical considerations and study design, sampling methods, sample size determination, data collection and analysis are all covered. Validity and reliability of data used in this study is also accounted for as a requirement in credible scientific research.

3.2 The Study Area

Thika District is one of the seven districts that form Central Province in Kenya. It lies between latitude 3^0 53'' and 1^0 45'' South of the Equator and longitudes 36^0 35'' and 37^0 25'' East (See appendix 6). It borders Nairobi Province to the south, Murang'a District to the North and Machakos District to the East. Total population is projected at 677334 for 2005. Most people are small-scale farmers growing coffee and tea. Thika town is one of the major industrialized towns in Kenya with several processing industries and together with Ruiru municipality have various manufacturing industries. There are few civil servants and business people staying in towns. Casual labourers in the urban areas constitute a big percentage because of many industries/factories in the towns. The high level of poverty and large population in the towns contribute to HIV spread in the District (MOH, 2004).

3.3 The Study Population

Women of child bearing age (15-49) attending MCH clinics in Thika district.

3.3.1 Inclusion Criteria

Women of child bearing age attending MCH clinic with children below 5 years.
Those who consented to participate in the study

3.3.2 Exclusion Criteria

Women below15 and above 49 years; those with children above 5 years and those who did not consent to participate in the study.

3.3.3 Ethical considerations

Clearance for the study was sought from the necessary authorities from the Ministry of Science and Technology and the Ministry of Health, (see Appendices Ia and b, respectively). Right to privacy for respondents and strict confidentiality was observed and informed consent sought from respondents before interviews. Mothers below 18 years of age (5) who by law are minors, were considered mature minors and enrolled in the study.

3.4 The Study Design

A descriptive cross-sectional study design was adopted. The research covered four (4) study sites namely: Thika District Hospital in the municipality, Gatundu Sub-District Hospital, Ruiru Health Center and Kirwara Health Center representing both urban and rural settings, respectively (see Appendix 6 and plates 1-4 on pages 16, 17 and 18).

3.4.1 Variables

Independent variables were:- proximity, availability, affordability, available facilities i.e. infrastructure/space, staff training in PMTCT of HIV, time spent in counselling per individual or group, issues of privacy and confidentiality, availability of test kits, drugs, etc, and issues of monitoring and evaluation (availability of tools, adequacy, correct entry of summaries, and timeliness in dissemination). Dependent variables were:- age, marital status, religion, occupation, level of education, and time spent to deliver test results, correct use of testing protocol, and consistency and availability of written policy guidelines.

3.5 Sampling method and sample size determination

3.5.1 Sampling method

Both Thika and Gatundu Hospitals were selected purposively while simple random sampling was used for Ruiru and Kirwara Health Centers. Systematic sampling of respondents was done at each site and mother/infant pairs interviewed using interview guide for ANC (Appendix 2) at the MCH clinic exit. HCPs were interviewed using a questionnaire (Appendix 3) while other service providers and key informants e.g. clinic managers and community resource persons were also interviewed (Appendix 4). An observation checklist was used to collect data on PMTCT of HIV services offered, information or IEC materials availability, infrastructure, and indicators for

family involvement, social support and referral for PMTCT in the healthcare facilities (Appendix 5).

Plate 1.0 Thika hospital's MCH/FP area and PMTCT of HIV room

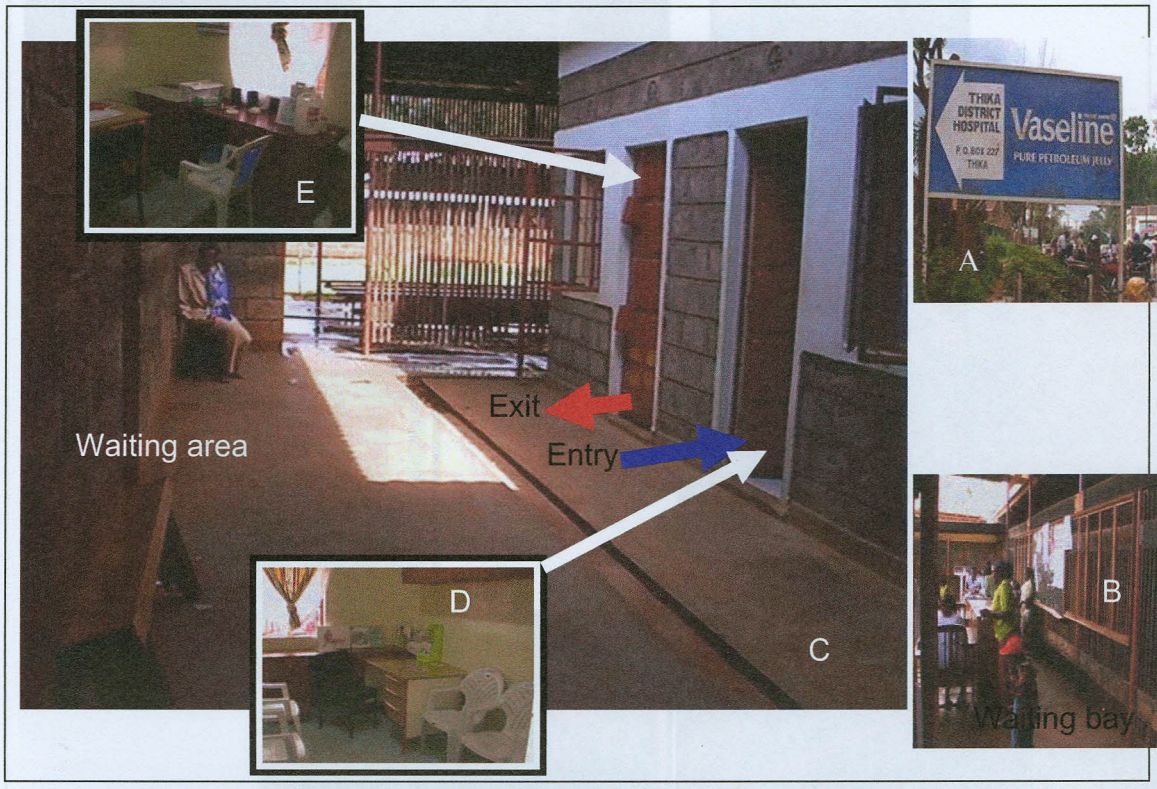


Plate 2.0 Gatundu hospital's MCH/FP area and PMTCT of HIV room

Plate 3.0 Ruiru Health Center's MCH/FP area and PMTCT of HIV room

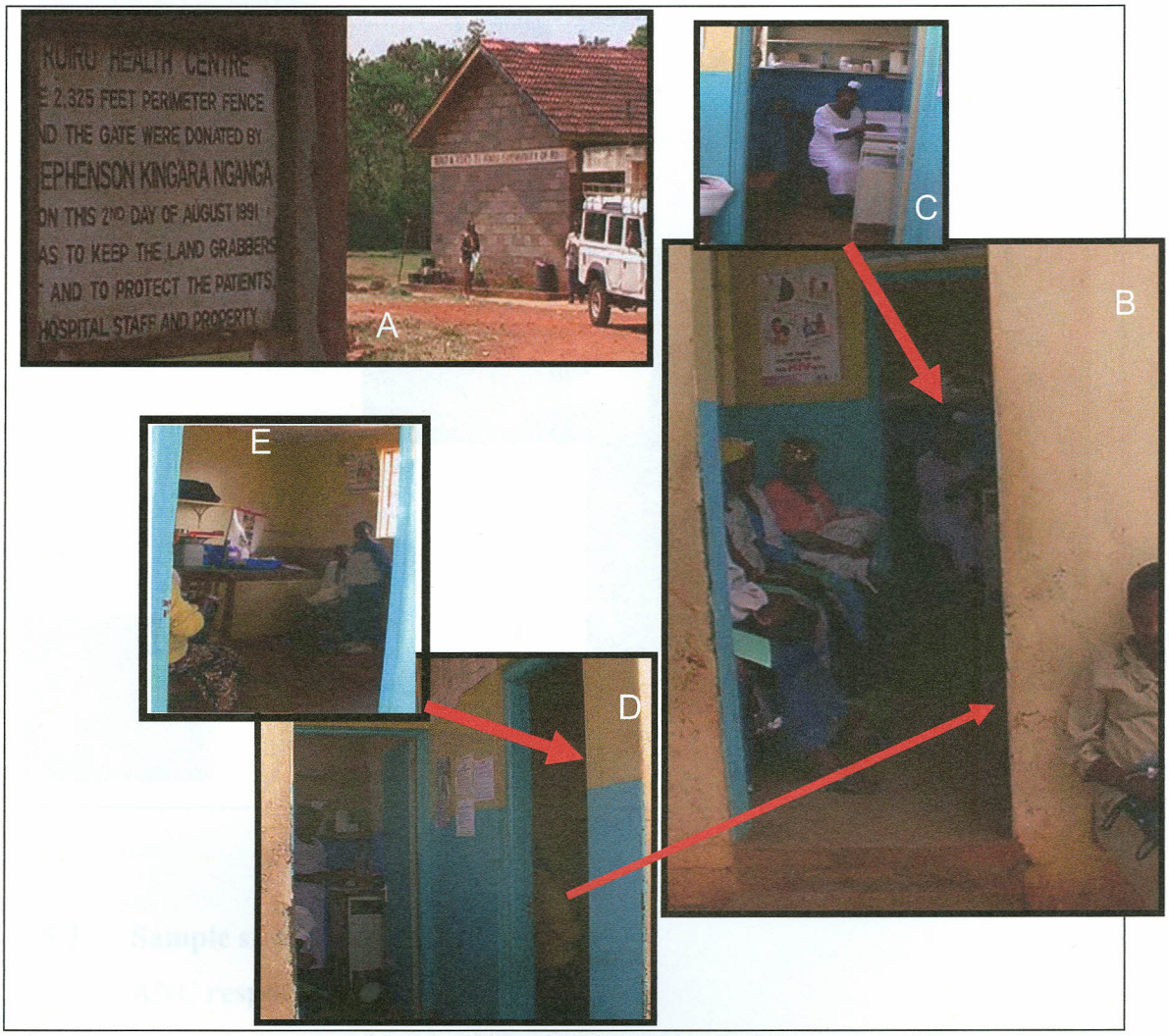
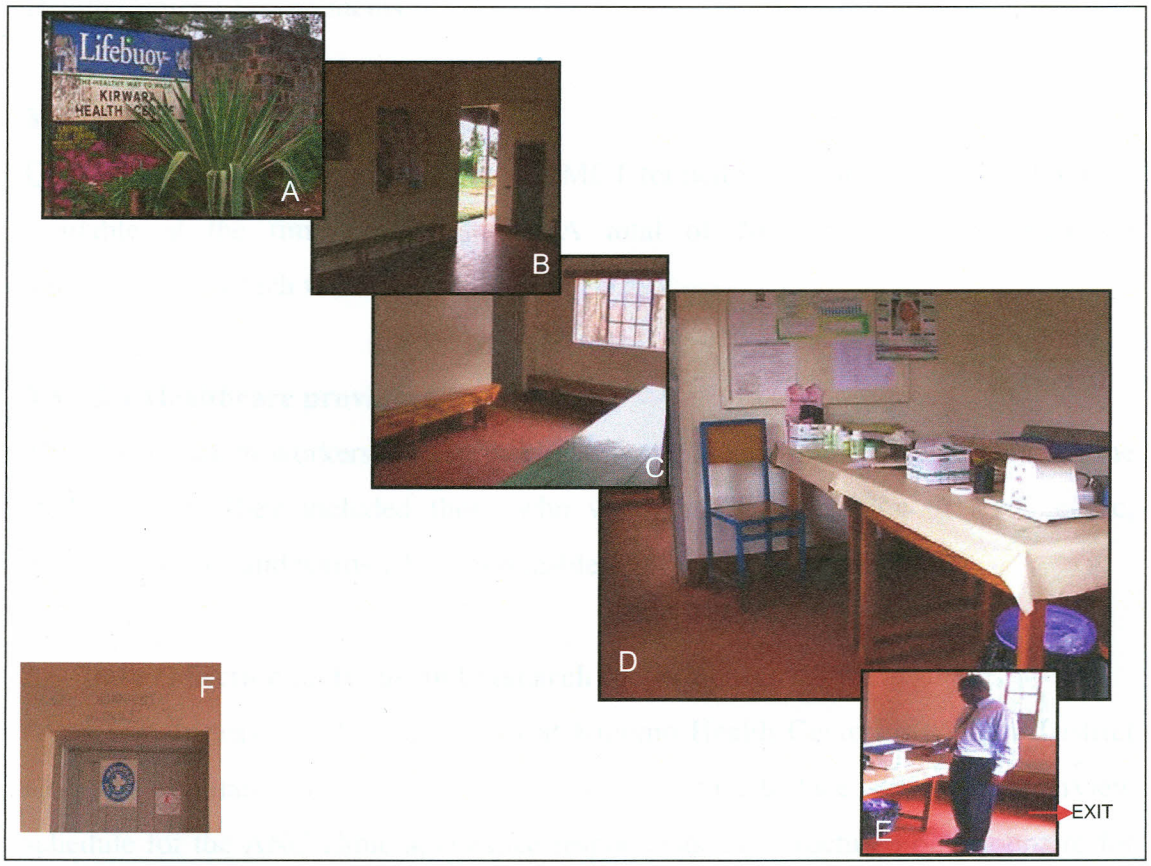


Plate 4.0 Kirwara Health Center's MCH/FP area and PMTCT of HIV room



3.5.2 Sample size determination

3.5.2.1 ANC respondents

Sample size was determined by the formula as used by Fisher *et al.,* (1998)

$n = Z^2 p q D/d^2$

Where n = sample size

Z = 1.96, standard normal deviate, corresponds to 95 percent confidence level

P = 0.22, the proportion of women who have received basic PMTCT services in Kenya (2005)

q = 0.78,1 – p

d = 0.05, degree of desired accuracy

D=1, design effect

$n = 1.96^2 \times 0.22 \times 0.78 \times 1/ 0.05^2$

Thus, n = **264** minimum. However, **267** respondents in total were recruited and each study site allocated a sample in proportion to the ANC clinic attendance as follows: -

Thika Hospital 122, Gatundu Hospital 92, Ruiru Health Center 41, and Kirwara Health Center 12 respondents.

3.5.2.2 HCP respondents

Questionnaires were administered to all PMCT trained healthcare providers who were available at the time of the study. A total of **26** respondents returned the questionnaires which were analyzed.

3.5.2.2.1 Healthcare providers

These were health workers trained in PMTCT of HIV who were available during the study period. They included those who were currently working at ANC clinic, maternity, CCC, and wards where applicable. Age was not a restriction.

3.6 Data collection methods and research instruments

A pilot study was initially carried out at Kigumo Health Center in Kiambu District Kenya. Quantitative data was collected using a face-to-face structured interview schedule for the ANC clinic attendance respondents and structured questionnaire for HCPs. Qualitative data was collected through focus group discussions which were carried out at each study site and involved 12-15 respondents who had not been earlier interviewed. Key informants interviews and an observation checklist were also used and service records and reports reviewed.

3.6.1 Focus group discussions (FGDs)

FGDs were held in the mornings before HCPs began to be offer services. Participants were mothers attending ANC clinics but who had not been earlier interviewed. Participants were randomly selected and a sample size of 15 was used. It was assumed that they were of the same mean age as those who had been interviewed.

3.6.2 Key informant interviews (KIIs)

Mainly HCP in-charges of PMTCT programme at MCH clinics, Matron at maternity, In-charges of Comprehensive Care Clinics (CCCs) were involved in KIIs. In addition, Health Center in-charges, Health Management Information Systems (HMIS) officer in-charge, and District AIDS and STI coordinator (DASCO) were also involved.

3.6.3 Validity and reliability of data

The researcher designed and pre-tested the research tools. At the end of every day's collection of data, the researcher and the research assistants studied and edited the tools used, and where problems were encountered, data collection was repeated again until approved by the researcher.

3.6.4 Data Analysis

Data was processed using statistical package for social sciences (SPSS) and MS Excel computer softwares. Descriptive statistics was used and computation of derived values used in data analysis. Chi-square was used to test the association between variables such as age groups, education levels and proximity to health facilities. Qualitative data was grouped into themes from which meaning was drawn and conclusions made.

CHAPTER FOUR

RESULTS

4.1 Introduction

In this chapter, the findings of the study are presented in both quantitative and qualitative terms such as percentages, means, frequencies and derived meanings.

4.2 Socio-demographic characteristics of the respondents

4.2.1 Age of the respondents

The results in table 4.0 show that 140 (52.4%) of the respondents were aged between 25 - 34 years. The results also revealed that those aged 15 - 24 years were 99 (37.1%) while those aged between 35 - 44 years were 27 (10.1%). Only 1 (0.4%) respondent was aged above 45 years. The ages of the respondents ranged from 16-46 years with a mean age of 26.7 years.

Table 4.0: Distribution of respondents by age

Age of respondents	Frequency	Proportion (%)
15-24	99	37.1
25-34	140	52.4
35-44	27	10.1
45 and above	1	0.4
Total	267	100.0

4.2.2 Marital status of the respondents

The results presented in Figure 4.0 shows that 195 (74%) of the respondents were married followed by single respondents at 41 (15%). Respondents who were separated were 20 (7%), widowed 9 (3%) and those divorced were 2 (1%).

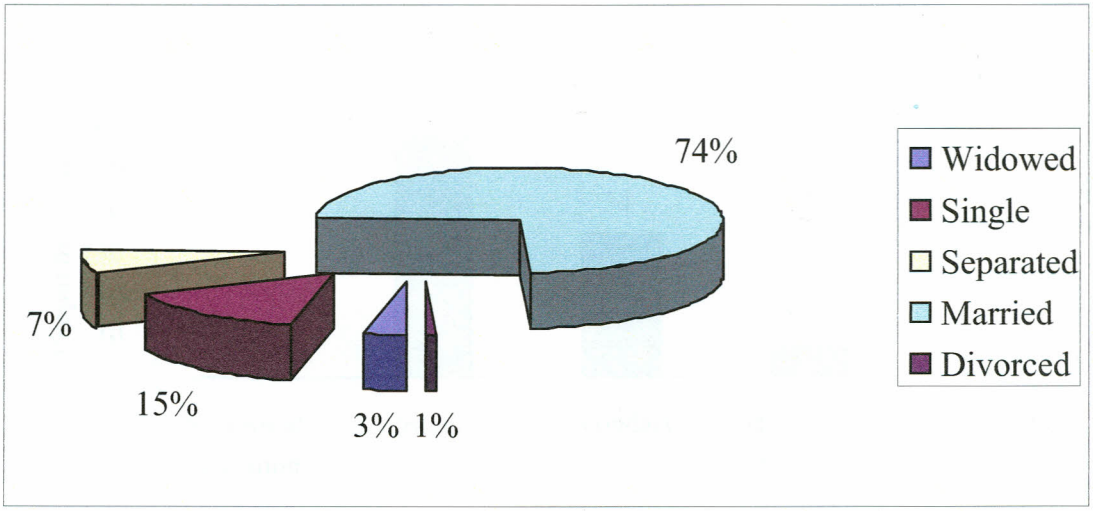


Figure 4.0 Distribution of respondents by marital status.

4.2.3 Number of children

The results presented in Figure 4.1 indicate that 91 (34.1%) women had one child, 87 (32.6%) had 2 children, followed by 47 (17.6%) women with 3 children, 23 (8.6%) with 4 children, 9 (3.4%) women with 5 children, 6 (2.2%) with 6 children, 2 (0.7%) with 7 children, 1 (0.4%) with 8 children and the other 1 (0.4%) had 10 children.

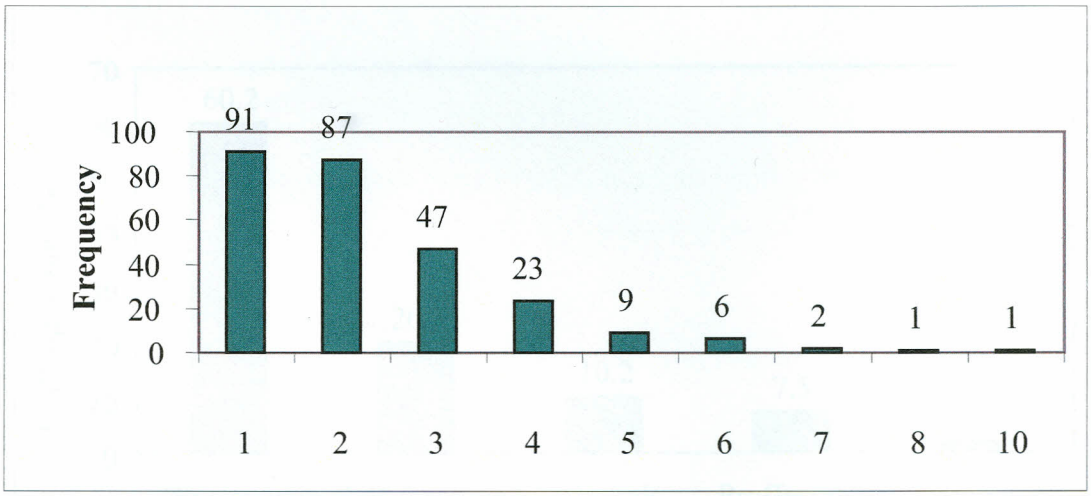


Figure 4.1: Distribution of respondents by number of children.

4.2.4 Education level of the respondents

The results presented in Figure 4.2 indicate that 153 (57%) of the respondents were of primary level of education. The results also showed that 91 (34%) were of secondary, 18 (6.7%) of mid-level colleges, while 4 (1.5%) had no formal education. Only 1 (0.4%) respondent had university education.

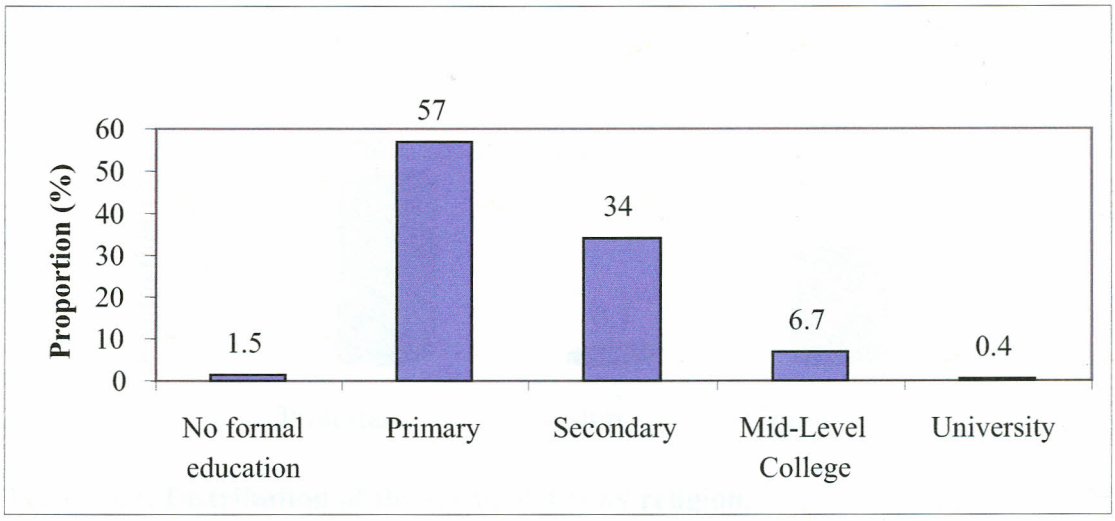


Figure 4.2: Distribution of respondents by level of education.

4.2.5 Occupation of the respondents

The results in Figure 4.3 shows that 160 (60.2%) of women were housewives, 54 (20.3%) were self employed, while 27 (10.2%) were casual employees in the surrounding farms and factories. Only 20 (7.5%) of the women were professionals while 5 (1.9%) indicated they were students.

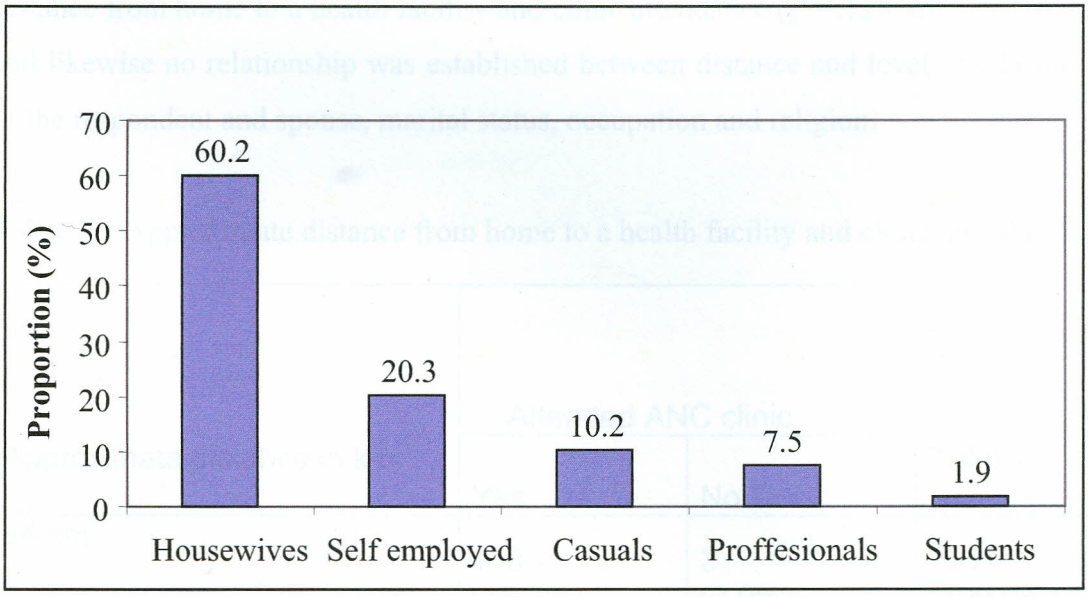


Figure 4.3: Distribution of respondents by occupation.

4.2.6 Religion of the respondents

The results presented in Figure 4.4 indicate that 166 (62.1%) of the respondents were protestants followed by catholics at 99 (37%) while muslims were the least at 2 (0.7%). No respondent was from other religions.

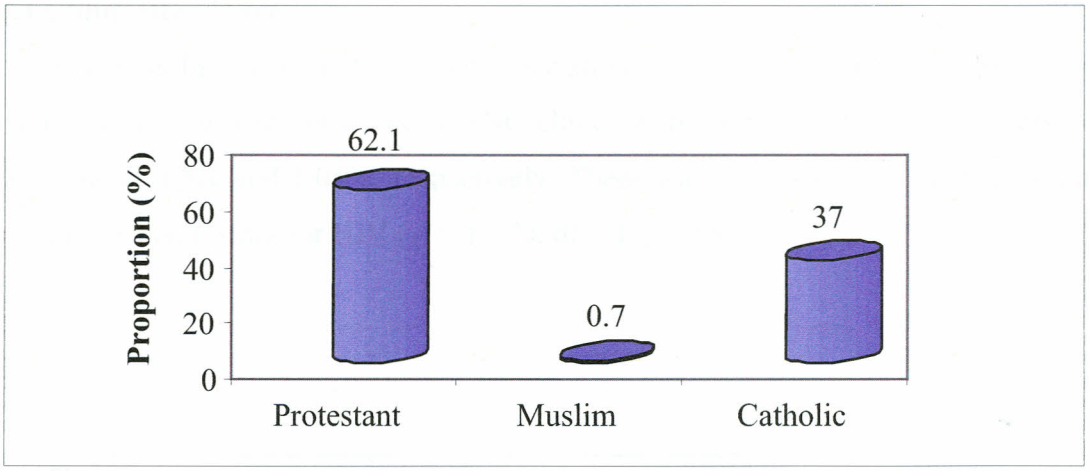


Figure 4.4: Distribution of the respondents by religion.

4.3 Distance from home to health facilities and clinic attendance

The results indicated that 151 (58.3%) of the respondents who attended ANC clinics lived within 4 km while 107 (41.7%) lived 5 km and above from health facilities. Table 4.1 shows that the proportion of clinic attendance for those living closer was higher than for those living further from a health facility (up to 4km and 5km and above at 98% & 96.3%, respectively). There was however no relationship between distance from home to a health facility and clinic attendance (χ^2 =.728; df =1; $p>0.05$) and likewise no relationship was established between distance and level of education of the respondent and spouse, marital status, occupation and religion.

Table 4.1 Approximate distance from home to a health facility and clinic attendance.

Approximate distance in km	Attended ANC clinic		Total
	Yes	No	
≤4 km	148 (98.0%)	3 (2.0%)	151 (100.0%)
≥5 km	103 (96.3%)	4 (3.7%)	107 (100.0%)
Total	251 (97.3%)	7 (2.7%)	258 (100.0%)

4.4 Clinic attendance

The results in Figure 4.5 indicate that clinic attendance in the district was above 95%. Respondents who had not attended ANC clinics were in both district and sub-district hospitals at 4.5% and 1.08%, respectively. There was no association between clinic attendance and testing for HIV ($\chi^2 = 1.370$; df = 1; $p>0.05$).

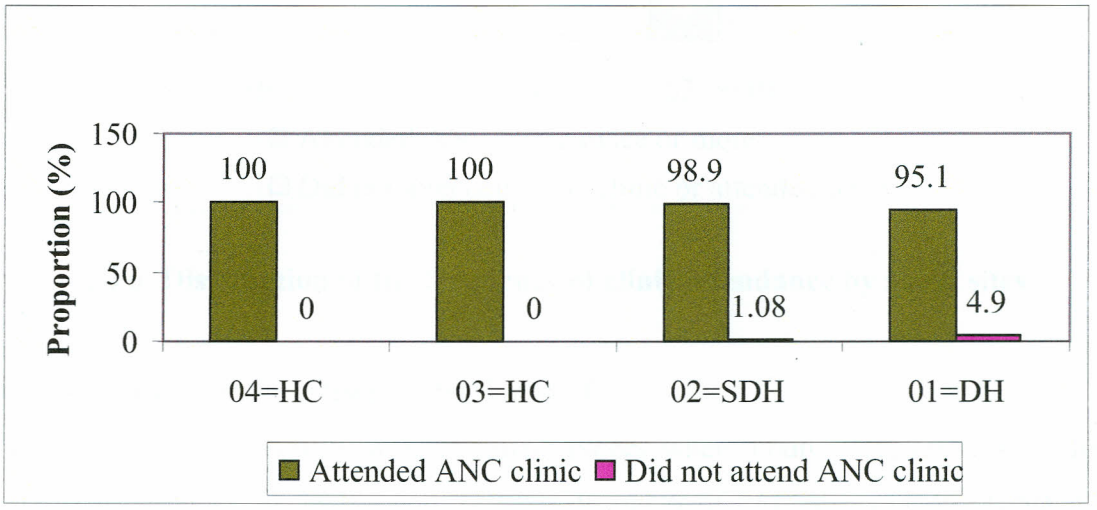


Figure 4.5: Distribution of clinic attendance by study sites.

Key to Fig. 4.5 & 4.6: 01=Thika District Hospital. 03= Ruiru Health Center. 02=Gatundu Sub District Hospital. 04= Kirwara Health Center.

4.5 Frequency of ANC clinic attendance

Results presented in Figure 4.6 indicate that the frequency of clinic attendance was higher in urban than in rural health facilities. Respondents attended twice or more at 97.4% at the District hospital, 95% at Ruiru Health Center, 92.3% at Gatundu sub-district hospital and 91.7% at Kirwara Health Center, respectively. Those who had attended ANC clinics once or had not attended at all were more in rural than in urban health facilities at 7.7% in Gatundu hospital, 8.7% in Kirwara Health Center, 2.6% at Thika District Hospital, and 5% at Ruiru Health Center. There was no association between the frequency of clinic attendance and testing for HIV (χ^2 =2.980; df =1; $p>0.05$).

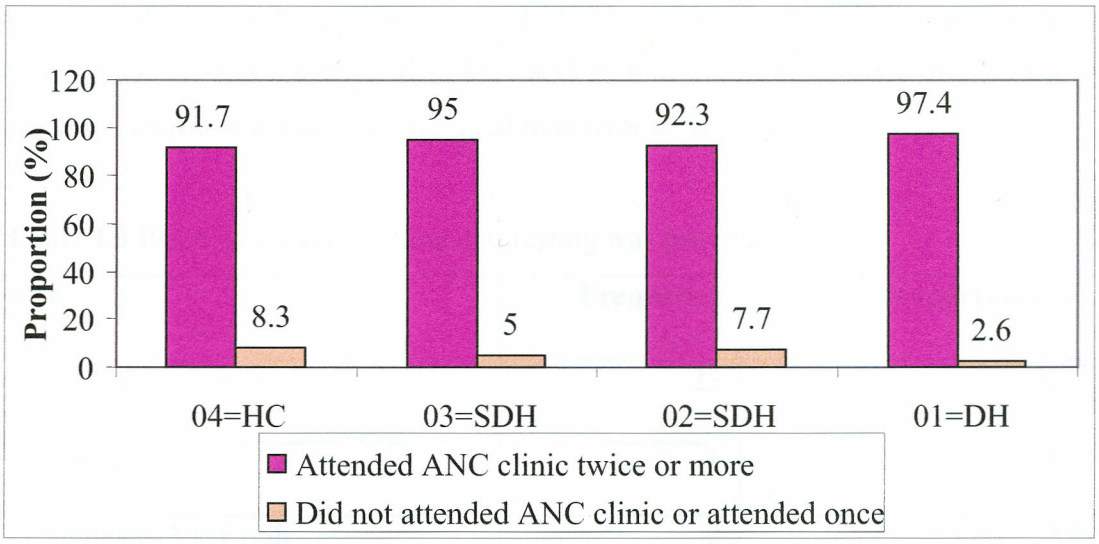


Figure 4.6: Distribution of the frequency of clinic attendance by study sites

4.6 Counselling and Testing for HIV at ANC

ANC clinics and maternity were the main places where counselling and testing for HIV was provided at 73.1% and 23.1% (19 and 6 of 26), respectively. Table 4.2 shows counselling and testing activities in the study area during the study period.

Table 4.2 Counselling and Testing for HIV

Activity	**Frequency**	**Proportion (%)**
Counselled on HIV and AIDS prevention to self and baby	224	**83.9**
Tested for HIV	216	**84**
Post test counselling done	190	**87.6**
Received results same day	198	**90**

Healthcare provider responses showed that on-going counselling and VCT were offered at all study sites. Post test counselling was also offered at all sites 24 (92.3%). VCT was offered to all ANC clients routinely as part of service (20 of 25) 80%, while 50% (4 of 8) of respondents said it was offered to all first visits and revisits. Rapid

HIV tests were mainly used as reported by 24 of 26 (92.3%) of HCP respondents. Tables 4.3, 4.4, and 4.5 show the place and type of counselling done and means by which infected women were encouraged to deliver at the health facilities.

Table 4.3 Place where counselling and testing was provided

Site	Frequency	Proportion (%)
MCH-PMTCT room	25	**96.2**
Maternity	1	**3.8**
Designated VCT unit	2	**7.7**

Table 4.4 Type of counselling offered

Type	Frequency	Proportion (%)
Individual	14	**53.8**
Couple	10	**38.5**
Group	22	**84.6**

Table 4.5 How infected women were encouraged to deliver at study sites

Means of encouragement	Frequency	Proportion (%)
Counselling at ANC clinic	25	**96.2**
CBOs	4	**15.4**
TBAs	2	**7.7**

4.6.1 Pregnancy stage at which the clients were first counselled

The results shown in Figure 4.7 indicate that 139 (57.7%) of respondents were first counselled between the 4th and 6th month, 67 (27.8%) between the 7th and 9th month, and 26 (10.8%) between the 1st and 3rd month. Those who were counselled at maternity before delivery were 3 (1.2%), and 1 (0.4%) was counselled after delivery and after 2 years, respectively, with 2 (0.8%) being counselled before conception and

a similar proportion did not know or could not remember when they were first counselled.

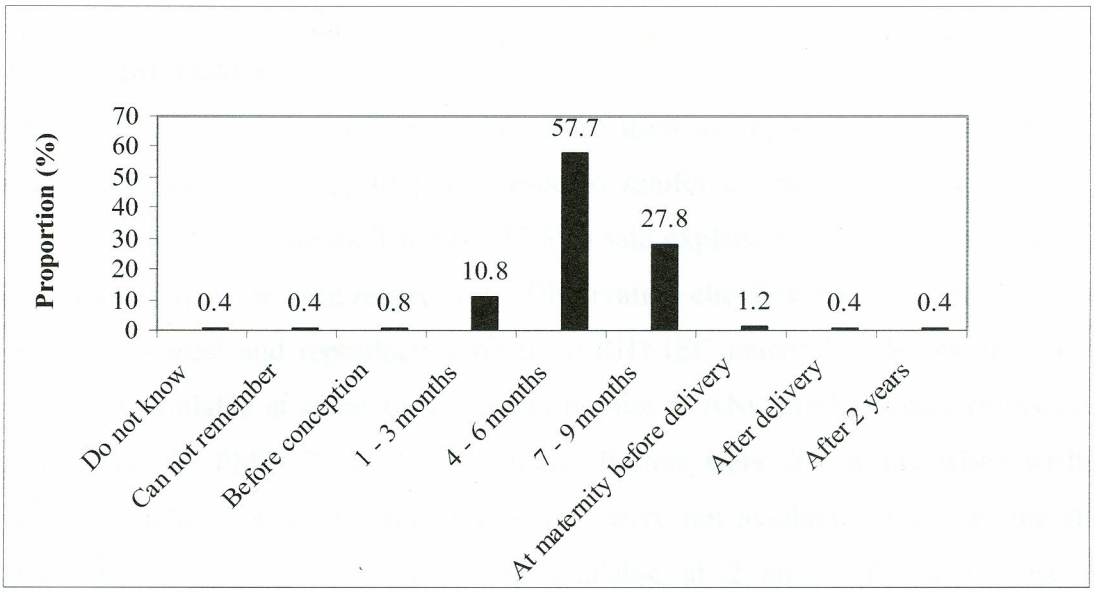


Figure 4.7: Distribution of respondents by the timing of counselling.

4.6.2 Privacy and confidentiality

More than half, i.e. 131 of 237 (55.3%) of ANC respondents said there was no privacy and confidentiality during counselling and testing as indicated in table 4.6. However, some respondents had no problem with group counselling since post test counselling and disclosure of test results were done individually.

Table 4.6 Reasons advanced by respondents associating services with lack of privacy and confidentiality.

Reason	Frequency	Proportion (%)
Group counselling	129	99.2
Other health services going on at the same time	1	0.8
A constraint (HCPs)	5	19.2

From qualitative data, FGDs revealed that confidentiality was generally maintained but fears were expressed that information would leak to others due to shared villages and neighbourhoods by respondents and HCPs. Stigma was said to be high in the

community and also in at least two study sites. This was collaborated by KIIs, one of whom quoted some clients comments thus: "would rather breastfeed rather than give commercial infant formulae".

4.6.3 Information

The study revealed that IEC materials were used as reported by 61.5% of HCP respondents and if not, nothing was used to reinforce counselling as reported by 62.5% of HCP respondents. The rest (12.5%) said explanations and health education, and discussions were used respectively. Observation checklist showed that some sites had some sexual and reproductive health (SRH) IEC materials. Tele-video shows were also available at some VCT Centers but not at ANC clinics where counselling and testing for PMTCT mainly took place. Posters were few if any while written policy guidelines on counselling and testing were not available except at one site. However, posters on ARV use were available at 2 sites only, and those on breastfeeding were not available except at one site but in the nutritionists room. HCPs were noted to have poor communication skills while offering services through FGDs.

4.6.4 Identification of test protocol by HCPs

Results in Figure 4.8 indicate that a majority of HCPs 9 (52.9%) identified the test protocol correctly as Determine, Bioline, and Unigold. 3 (17.6%) said Determine and Bioline were used while 2 (11.8%) said that Determine and Unigold were used. The following were each identified by 1 (5.9%) HCP as being in use: - Bioline and Unigold, Determine, Bioline and referral, and Determine only. 19 of 22 (86.4%) HCPs said that the test protocol was used consistently. Anybody trained in PMTCT of HIV could do the testing regardless of other qualifications, as reported by 6 of 25 (24%) of HCP respondents.

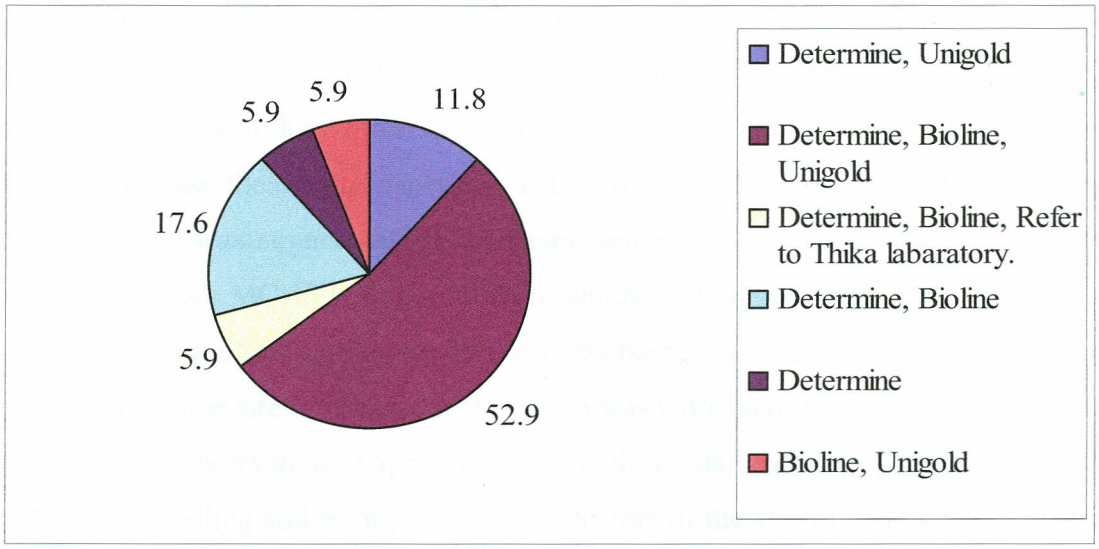


Figure 4.8: Distribution of HCP respondents by correct identification of the test protocol.

Key to the legend: Determine is used as the first HIV rapid test, Bioline the confirmatory test and Unigold the tie-breaker.

4.6.5 HCPs knowledge of existence of a written hospital policy on testing unless client "opts out"

Results in Figure 4.9 below indicate that 13 (56.5%) of HCP respondents were not aware of the existence of a written hospital policy on HIV testing unless one "opts out" while 9 (39.1%) knew of its existence and 1 (4.3%) did not know whether it existed or not.

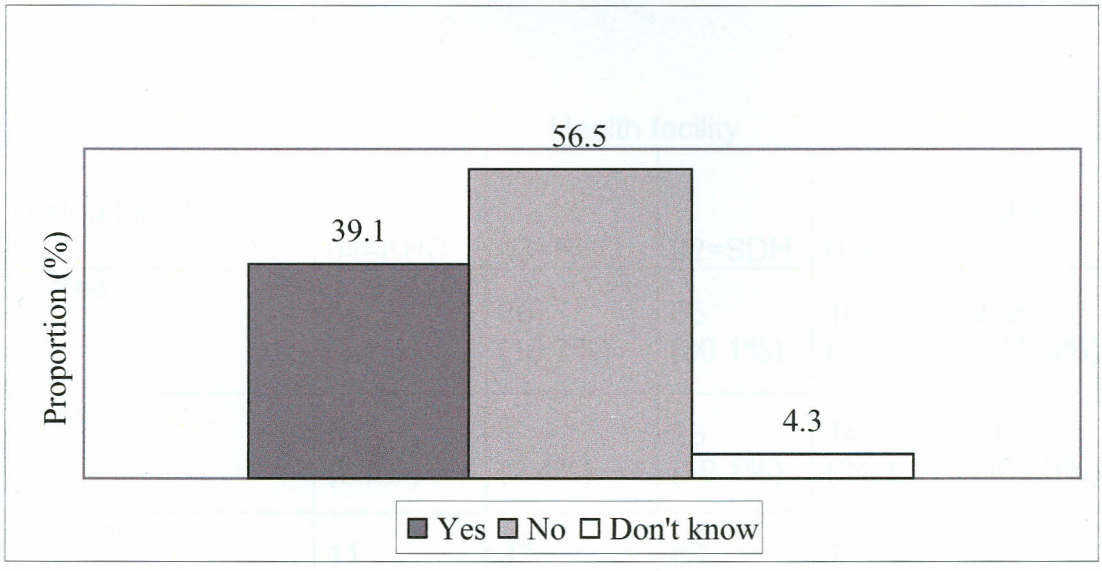


Figure 4.9: Distribution of HCP respondents by knowledge of the existence of a written hospital policy on testing unless client "opts out".

The following was deduced from qualitative data from FGDs: that PMTCT of HIV services were acceptable and helped clients to know their status but sited fear of stigma as a problem. Key Informant Interviews showed that some mothers were not ready to disclose their status especially if positive to anyone including their spouses and that there was stigma within healthcare settings. Clients were said to want to move away from MCH/FP waiting area to another site to avoid other clients seeing them. Setting up of group therapy sessions was being organized but had not taken up well except at one site where one such session was witnessed. A checklist was used at each site for observations (Appendix 5) and these showed that all the sites were offering counselling and testing. An NGO (Doctors of the World) was at one site and was assisting to organize group therapy sessions. Elizabeth Glaser Paediatric AIDS Foundation Kenya, another NGO, had also shown interest in promoting PMTCT of HIV Programme at another site. Through a high index of suspicion, mothers and their children seeking attention for other medical conditions were counselled and tested for HIV in a concept referred to as diagnostic testing and counselling (DTC).

4.6.6 Health facility and testing for HIV

Uptake of testing was higher in urban than in rural health facilities as shown in Table 4.7 below ($\chi^2 = 14.436$; df = 3; $p<0.05$).

Table 4.7 Health facility and Testing for HIV

Tested for HIV	Health facility				Total
	04=KHC	03=RHC	02=SDH	01=DH	
Yes	8 (3.7%)	36 (16.7%)	65 (30.1%)	107 (49.5%)	216 (100.0%)
No	3 (7.3%)	1 (2.4%)	23 (56.1%)	14 (34.1%)	41 (100.0%)
Total	11 (4.3%)	37 (14.4%)	88 (34.2%)	121 (47.1%)	257 (100.0%)

4.6.7 Relationship of age and testing for HIV

The results as shown in Table 4.8 indicate that there was a significant association between age and testing for HIV. Younger clients were more receptive to testing than older clients ($\chi^2 = 8.546$; df = 2; $p<0.05$). Religion, level of education, and marital status were not significant.

Table 4.8 Age of respondents and testing for HIV.

Age of the respondent in years	Tested for HIV		Total
	Yes	No	
15-24	85 (91.4%)	8 (8.6%)	93 (100.0%)
25-34	112 (81.8%)	25 (18.2%)	137 (100.0%)
35-44	19 (73.1%)	7 (26.9%)	26 (100.0%)
45 and above	0 (.0%)	1 (100.0%)	1 (100.0%)
Total	216 (84.0%)	41 (16.0%)	257 (100.0%)

4.6.8 Testing for HIV and sero-status

Uptake of testing was higher in those who were not infected than those who were infected ($\chi^2 = 8.555$; df =1; $p<0.05$) as shown in Table 4.9.

Table 4.9 Testing for HIV and sero-status

Tested for HIV	Sero-status		Total
	Positive	Negative	
Yes	38 (17.8%)	176 (82.2%)	214 (100.0%)
No	0 (.0%)	41 (100.0%)	41 (100.0%)
Total	38 (14.9%)	217 (85.1%)	255 (100.0%)

4.6.9 Response of spouse/husband on involvement in VCT

Involvement of the spouse in VCT was highly significant. The proportion of spouses who went for VCT was significantly higher for those who were asked by respondents to go than in those who were not ($\chi^2 = 67.156$; df = 2; $p<0.05$) as indicated in Table 4.10. However, there was no association between spouses who went for VCT and babies being given ARVs immediately after delivery, continuation on ARVs for both mother and infant including whether other family members were on ARVs or not, or whether respondents knew where to go for ARVs and treatment for opportunistic infections, food and material support, income generating activities, and PLWHA support groups.

Table 4.10 Spousal response to involvement in VCT

He went for VCT	Asked spouse to go for VCT		Total
	Yes	No	
Yes	73 (100.0%)	0 (.0%)	73 (100.0%)
No	78 (100.0%)	0 (.0%)	78 (100.0%)
Do not know	8 (57.1%)	6 (42.9%)	14 (100.0%)
Total	159 (96.4%)	6 (3.6%)	165 (100.0%)

4.7 ARV prophylaxis and counselling

Only 38 of 265 (14.3%) of the respondents said they were counselled on ARV treatment after testing for HIV, i.e., were infected with HIV.

4.7.1 Drug given to prevent MTCT of HIV

Results in Figure 4.10 indicate that 231 of 264 (88%) of the respondents were not given any drug to prevent MTCT of HIV and only 14 of 264 (5%) of the respondents were given Nevirapine. The proportion of respondents who did not know what they were given to prevent MTCT of HIV was 19 of 264 (7%). AZT was not available at the study sites for use by infected respondents at the time of the study (see Plate 5 on page 69 showing ARVs and some drugs for OIs currently in use).

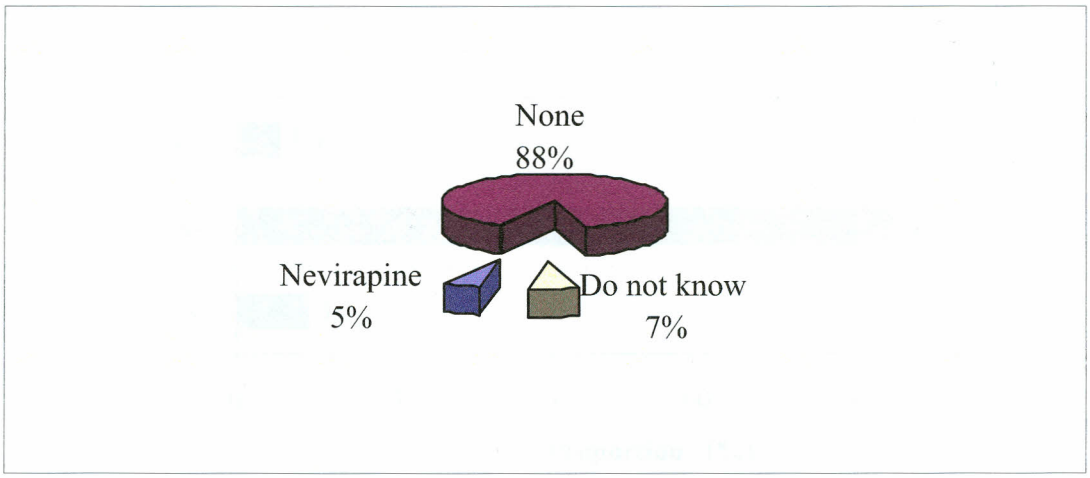


Figure 4.10: Distribution of respondents by knowledge of the drug given to prevent MTCT of HIV.

4.7.2 Time when the drug was taken

The results in Figure 4.11 show that 4 of 46 (8.7%) of the respondents took Nevirapine immediately, 23 of 46 (50%) during labour, and 19 of 46 (41.3%) after delivery.

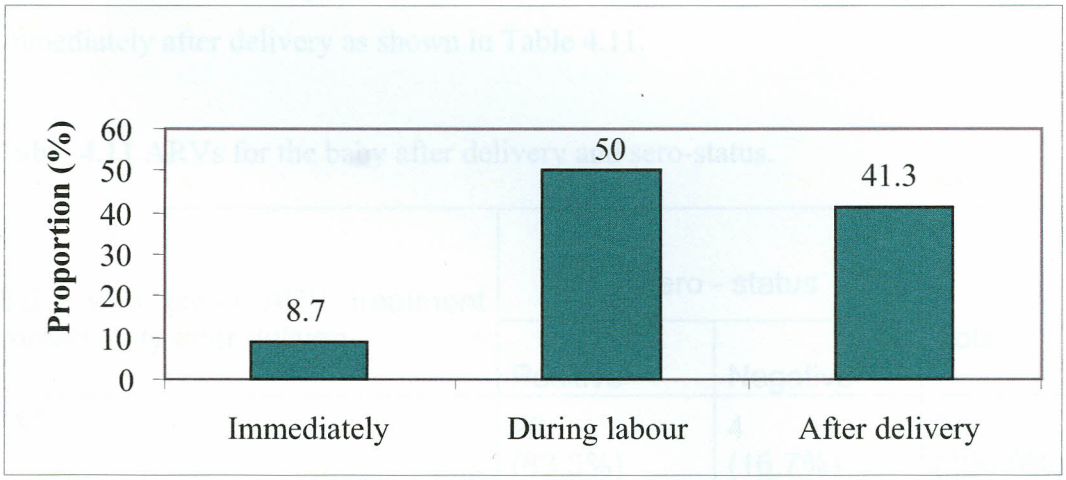


Figure 4.11: Distribution of respondents by time they took ARV prophylaxis.

4.7.3 Proportion of babies given ARVs immediately after delivery

Results indicate that 24 of 261 (9.2%) of respondents' babies were given ARVs immediately after delivery, 223 of 261 (85.4%) were not given ARVs while 14 of 261 (5.4%) did not know whether their babies were given ARVs immediately after delivery or not (Figure 4.12)

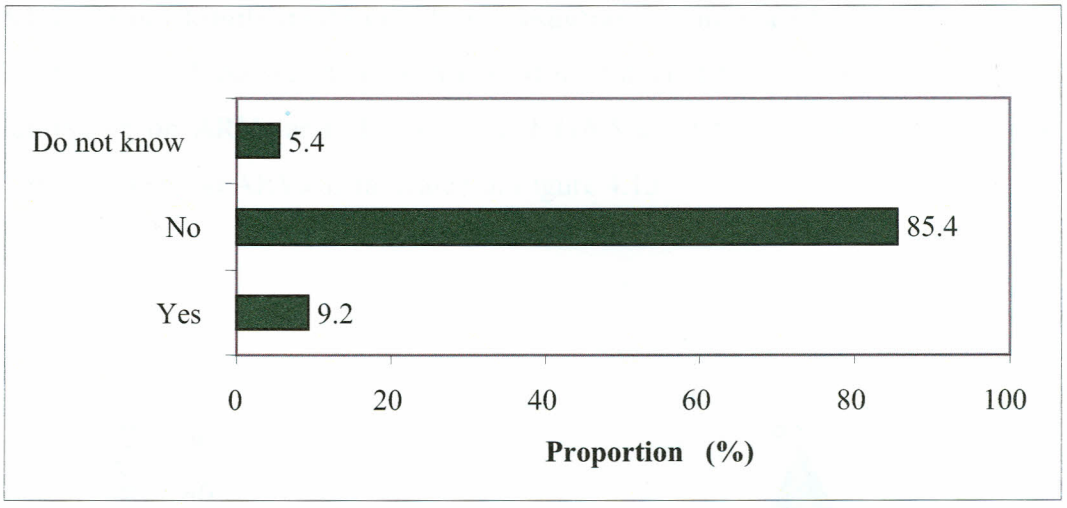


Figure 4.12: Distribution of respondents by babies being given ARVs or not immediately after delivery.

4.7.3.1 ARVs for the baby after delivery and mother's sero - status

Among the infected mothers, those whose babies were given ARVs immediately after delivery were significantly more than those whose babies were not given or those who did not know whether their babies were given or not ($\chi^2 = 113.355$; df = 2; $p<0.05$). There was a relationship between the mother's sero-status and giving babies ARVs immediately after delivery as shown in Table 4.11.

Table 4.11 ARVs for the baby after delivery and sero-status.

Baby was given ARV treatment immediately after delivery	Sero - status		Total
	Positive	Negative	
Yes	20 (83.3%)	4 (16.7%)	24 (100.0%)
No	12 (5.4%)	210 (94.6%)	222 (100.0%)
Do not know	5 (35.7%)	9 (64.3%)	14 (100.0%)
Total	37 (14.2%)	223 (85.8%)	260 (100.0%)

4.7.4 Other family members of the respondents and use of ARVs

Results showed that 42 of 261 (16.1%) of the infected mothers and their babies were continuing on ARVs and also 43 of 261 (16.5%) of the respondents' other family members were on ARVs as indicated in Figure 4.13

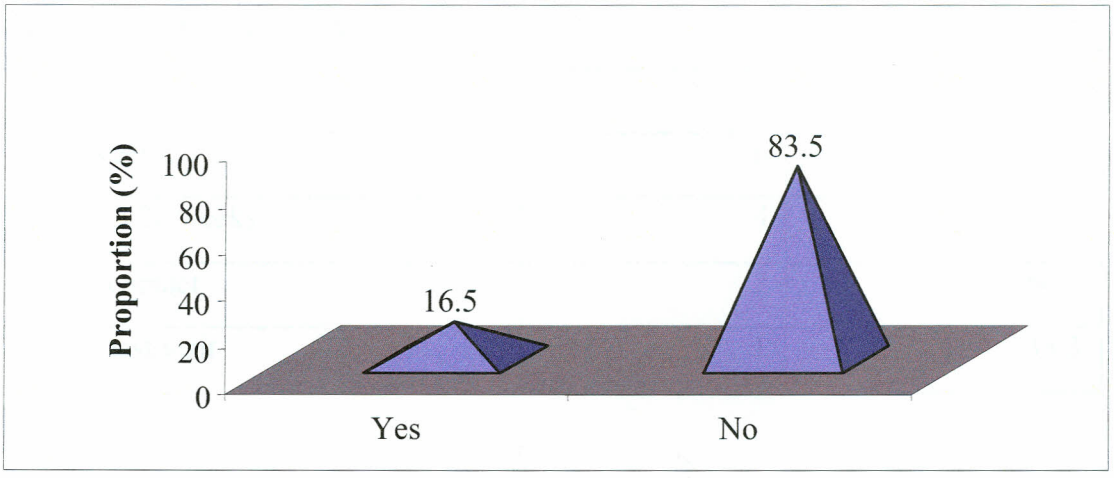


Figure 4.13: Other members of respondent's family on ARVs.

4.7.5 Knowledge of where to go for ARVs and treatment for OIs

Results further indicated that 206 of 263 (78.3%) of the respondents knew where to go for ARVs and treatment for opportunistic infections (Figure 4.14).

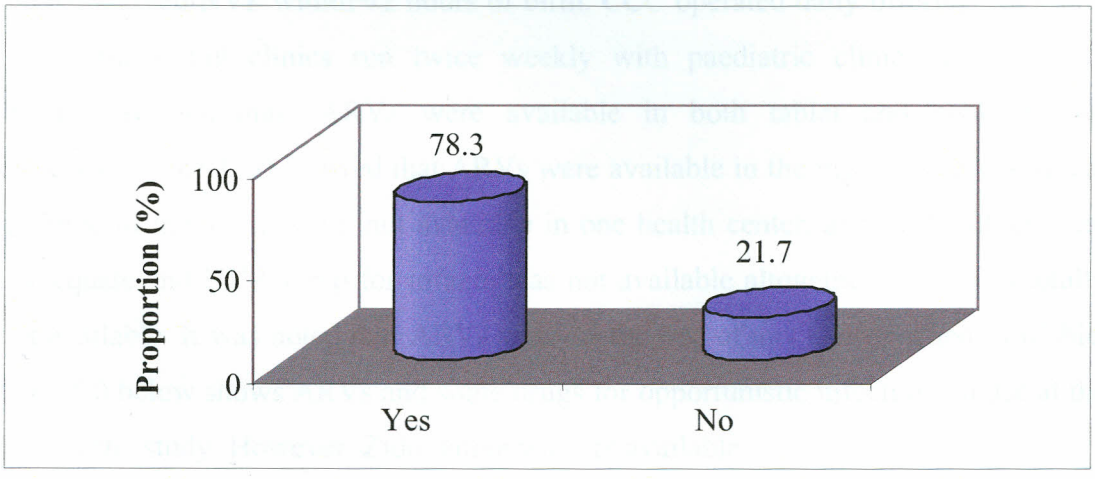


Figure 4.14: Knowledge of where to go for ARVs and treatment for OIs.

Four of 26 (57.7%) of HCP respondents revealed that ARV prophylaxis was offered at all sites, 22 of 25 (88%) said Nevirapine was offered, while 3 of 25 (12%) said

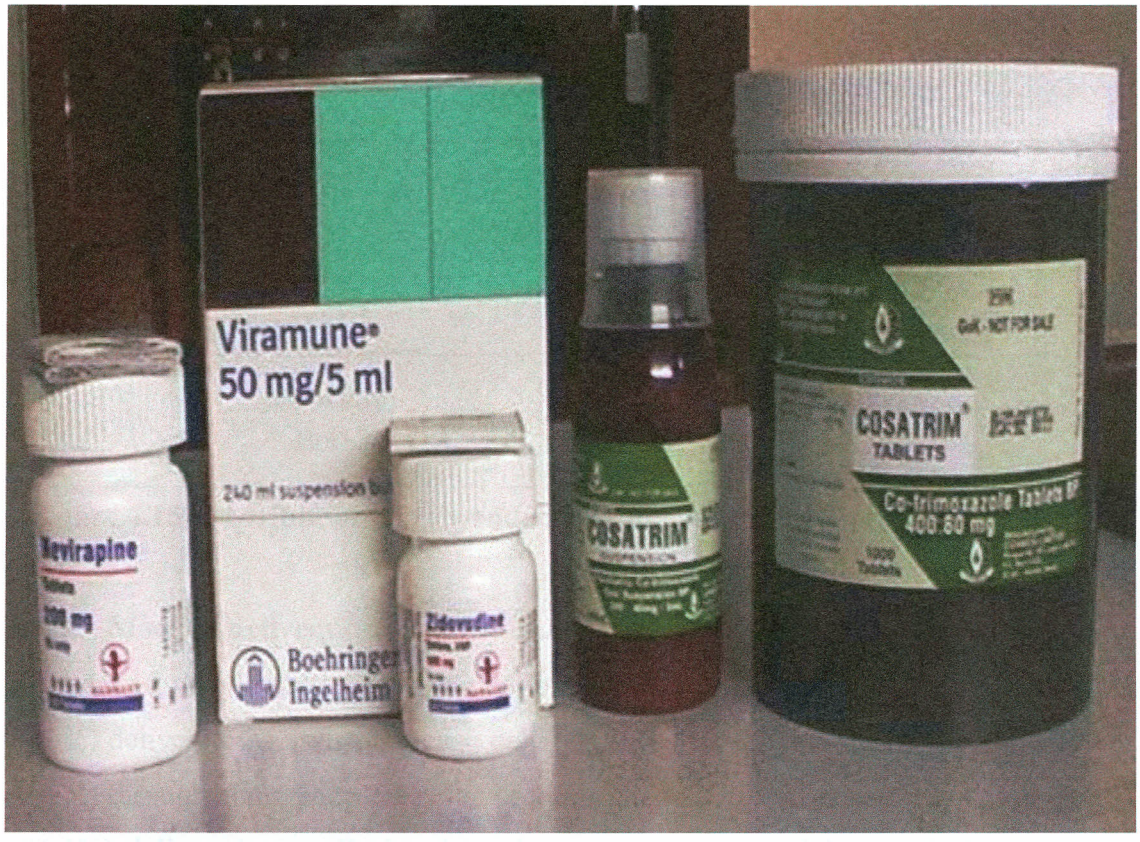
NVP and AZT were offered. Table 4.12 shows responses by HCPs on when ARVs were supposed to be given to infected mothers.

Table 4.12 When ARVs were supposed to be given to infected mothers

Timing	Frequency	Proportion (%)
During labour at maternity	12	46.2
At 36 weeks	7	26.9
At 28 weeks	6	23.1
Less than 28 weeks	4	15.4
At first contact	2	66.7
At post test visit	1	33.3

To ensure that ARVs were taken when delivery took place outside the health facility, the drug was packed and advice given on when to be taken as reported by 4 of 22 (18.2%) of the respondents. ARVs were available except at one site where it was said they were not easily available. Qualitative data showed that NVP for both mother and infant were given to carry home and to be taken when in labour at 34 weeks and after; and if it was AZT, mothers were to take them from 34 weeks until delivery and the baby given NVP within 72 hours of birth. CCC operated daily offering ARV and OI treatment but clinics run twice weekly with paediatric clinic being run on Wednesday mornings. ARVs were available in both tablet and syrup forms. Observation checklist showed that ARVs were available in the bigger hospitals and at the time of the study, were not available in one health center, and in the other were inadequate and NVP syrup for infants was not available altogether. AZT was totally not available. It was noted that ARVs were so far free of any charge when available. Plate 5.0 below shows ARVs and some drugs for opportunistic infections in use at the time of the study. However, Zidovudine was not available.

Plate 5.0 ARVs and some drugs for opportunistic infections currently in use



4.8 Safer obstetric practices and elective caesarian section as an option

Besides ARV prophylaxis, safer obstetric practices and elective caesarian section were important aspects of PMTCT of HIV. Such issues as avoidance of excessive vaginal examinations, avoidance of early rupture of membranes, and induction of labour, and elective caesarian section contributed to reduced rates of MTCT of HIV as revealed by KIIs and FGDs during this study.

4.8.1 Place of last delivery

The results shown in Figure 4.15 indicate that 198 of 266 (74.4%) of the respondents delivered at a health facility. Those who delivered at home were 64 of 266 (24%) while 4 of 266 (1.5%) delivered on way to hospital. For those who delivered at health facilities, deliveries in rural facilities were significantly less than those in urban facilities. Deliveries took place as follows: Thika district hospital-83 of 197 (42.1%),

Gatundu sub-district hospital-74 of 197 (37.6%), Ruiru health center-7 of 197 (3.6%), Kirwara health center-1 of 197 (0.5%) and others 32 of 197 (16.2%).

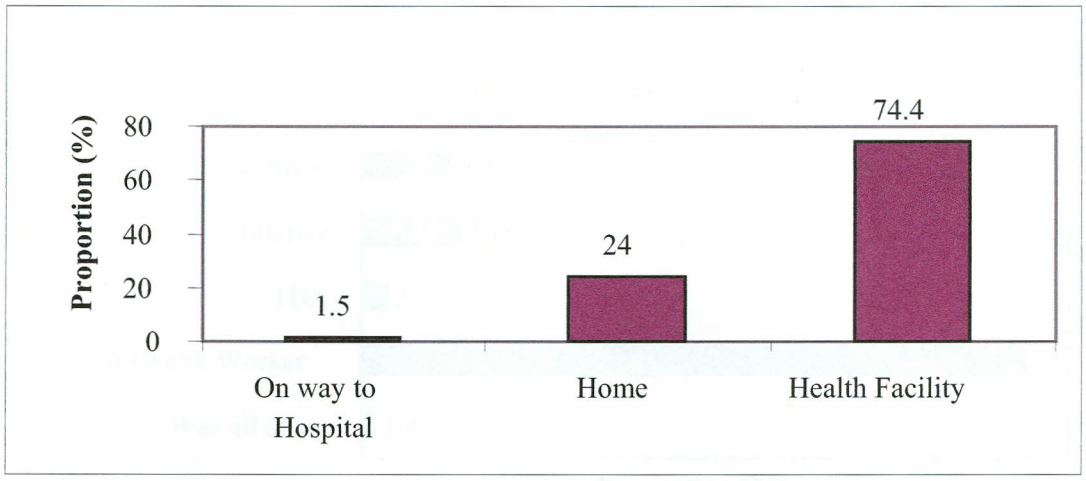


Figure 4.15: Distribution of respondents by place last of delivery

4.8.2 Mode of delivery

Figure 4.16 show results on respondent's mode of delivery. It indicates that 1 of 267 (0.4%) delivered via assisted breach delivery, 2 (0.8%) by vacuum extraction, and 12 (4.5%) through emergency caesarian section. The majority of respondents 230 of 267 (86.1%) delivered normally i.e. through spontaneous vatex delivery (SVD) followed by 22 of 267 (8.2%) who delivered through elective caesarian section.

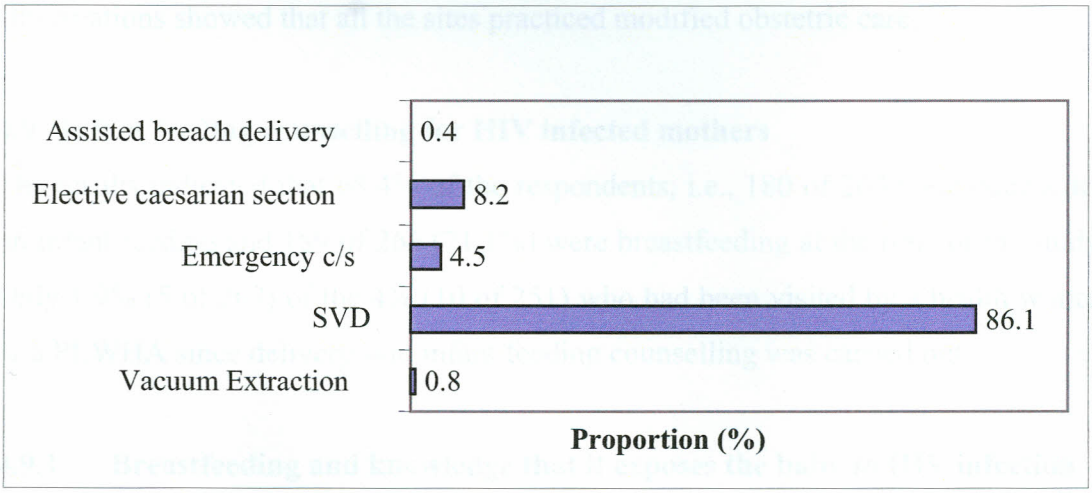


Figure 4.16: Distribution of respondents by mode of delivery.

4.8.3 Person who conducted the delivery

Results as shown in Figure 4.17 indicate that 200 of 267 (75%) of respondents were assisted during delivery by a trained health worker followed by relatives in 10.9%

(29) of the respondents. The rest were assisted by neighbours, TBAs or were all alone at 9.7% (26), 3% (8) and 1.4% (4) respectively.

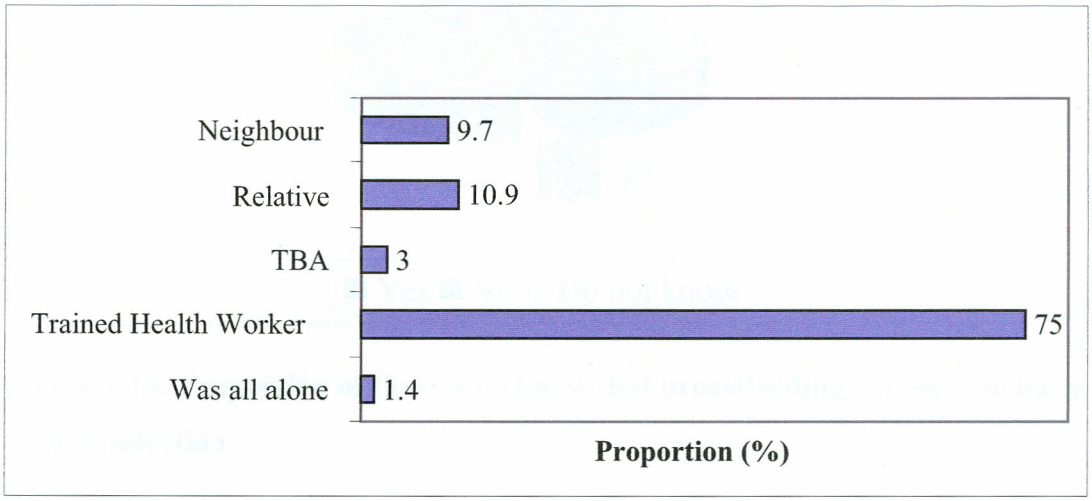


Figure 4.17: Distribution of respondents by the persons who conducted delivery.

From qualitative data, it was revealed that safe obstetric practices were offered to those who delivered at health facilities. They were also referred to the CCC on discharge from maternity. Work load and stage of labour at which pregnant women presented (noted mostly late) were sited as dictating the mode of delivery used, i.e., whether elective or emergency caesarean section. Elective caesarean section was noted to be rare with approximately ¾ of mothers being diagnosed at maternity. Observations showed that all the sites practiced modified obstetric care.

4.9 Infant feeding counselling for HIV infected mothers

The results indicated that 68.4% of the respondents, i.e., 180 of 263 were counselled on infant feeding and 189 of 266 (71.1%) were breastfeeding at the time of the study. Only 1.9% (5 of 267) of the 4% (10 of 251) who had been visited by a health worker or a PLWHA since delivery said infant feeding counselling was carried out.

4.9.1 Breastfeeding and knowledge that it exposes the baby to HIV infection

Results in Figure 4.18 show that 256 (96%) of the respondents knew that breastfeeding exposes the baby to HIV infection while 8 (3%) thought it did not, and 2 (1%) did not know.

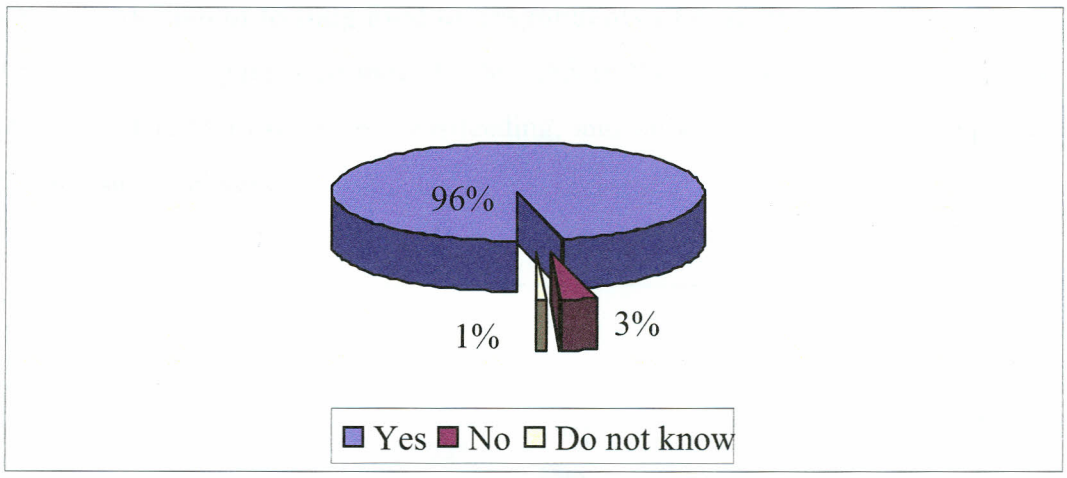


Figure 4.18: Proportion of those who knew that breastfeeding exposes the baby to HIV infection.

4.9.2 Age when ANC clients stopped breastfeeding

The results as shown in Figure 4.19 indicate that 13 (17.3%) had not breastfed at all and 9 (12%) had stopped breastfeeding within 4 months after delivery while 8 (10.7%) had stopped breastfeeding between 4 and 6 months, and between 7 months and one year, respectively. Respondents who had stopped breastfeeding between 1 and 2 years were 30 (40%), while those who had stopped breastfeeding after 2 years were 7 (9.3%).

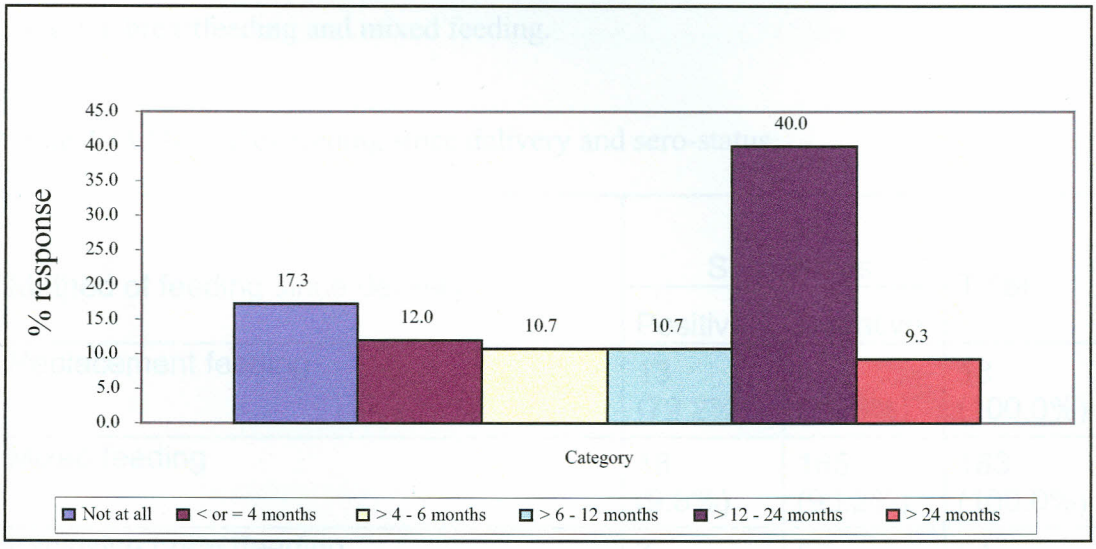


Figure 4.19: Distribution of respondents by age they stopped breastfeeding.

4.9.3 Method of feeding used by respondents since delivery

The results in Figure 4.20 indicate that 185 (69%) of respondents practiced mixed feeding, 64 (24%) exclusive breastfeeding, and only 18 (7%) were on replacement feeding since delivery.

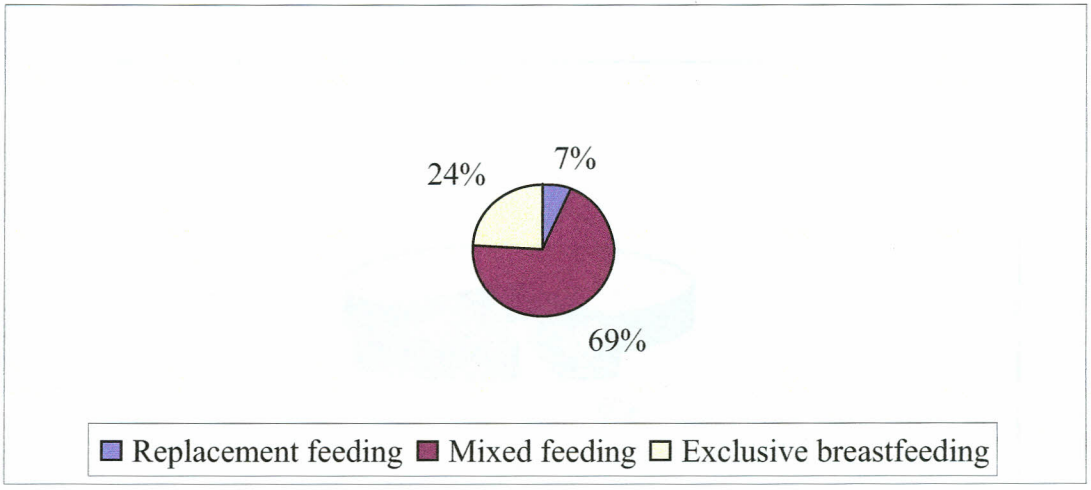


Figure 4.20: Distribution of respondents by method of feeding since delivery.

4.9.3.1 Relationship between method of feeding since delivery and sero-status

The method of feeding since delivery was significantly associated with sero-status as shown in Table 4.13 ($\chi^2 = 52.721$; df = 2; $p<0.05$). Those on replacement feeding and were infected were significantly more than those who were infected and were on exclusive breastfeeding and mixed feeding.

Table 4.13 Method of feeding since delivery and sero-status

Method of feeding since delivery	Sero-status		Total
	Positive	Negative	
Replacement feeding	13 (72.2%)	5 (27.8%)	18 (100.0%)
Mixed feeding	18 (9.8%)	165 (90.2%)	183 (100.0%)
Exclusive breastfeeding	7 (10.9%)	57 (89.1%)	64 (100.0%)
Total	38 (14.3%)	227 (85.7%)	265 (100.0%)

4.9.4 Infants' age at which mothers begun replacement feeding

The age at which replacement feeding was began by respondents is shown in Figure 4.21 below. It indicates that 14 (77%) had began replacement feeding immediately after birth, 3 (17%) at 1 - 2 months, while 1 (6%) had began at between 3 and 4 months after birth.

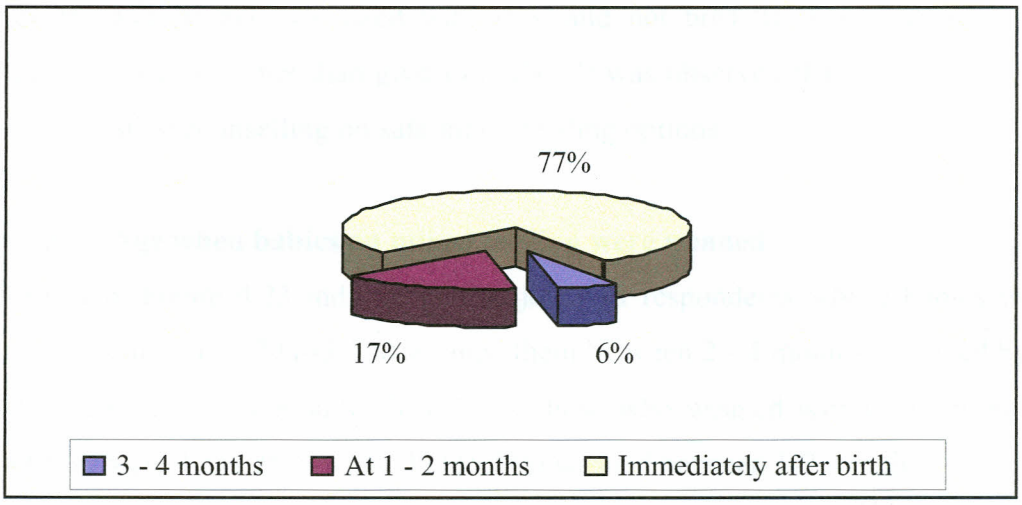


Figure 4.21: Distribution of respondents by age when replacement feeding was begun.

4.9.4.1 Type of formula used by those on replacement feeding

Figure 4.22 indicates that 14 (77.8%) of the respondents used home modified formula prepared from animal milk while 4 (22.2%) used commercial infant formula.

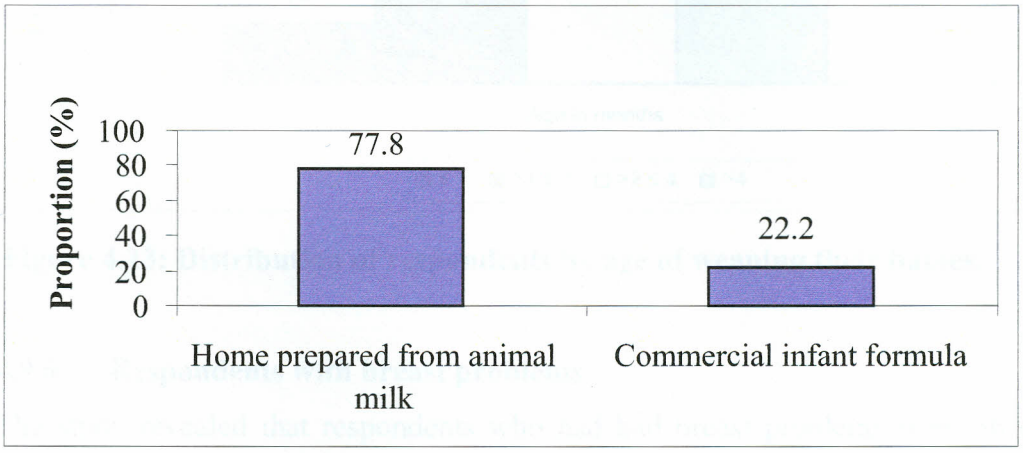


Figure 4.22: Distribution of respondents by the type of formula used.

From qualitative data, cow's milk and porridge and in some cases goats' milk were the commonest infants feeding alternatives which were available and accepted and also commercial infant formula for those who could afford. The duration of breastfeeding was generally between 1 and 2 years. The sites were unable to provide nutritional support to HIV infected mothers and their families and most could not afford commercial infant formulae including those ready not to breastfeed due to poverty and stigma associated with HIV and not breastfeeding, therefore "would rather breastfeed rather than give formula". It was observed that all the sites offered infant feeding counselling on safe infant feeding options.

4.9.5 Age when babies on mixed feeding were weaned

Results in Figure 4.23 indicate that majority of respondents whose babies were on mixed feeding, i.e., 79 (43.4%) weaned them between 2 - 4 months followed by those who weaned after 4 months 56 (31%). Those who weaned within one month after delivery were 17 (9.2%), while 30 (16.5%) weaned between 1-2 months.

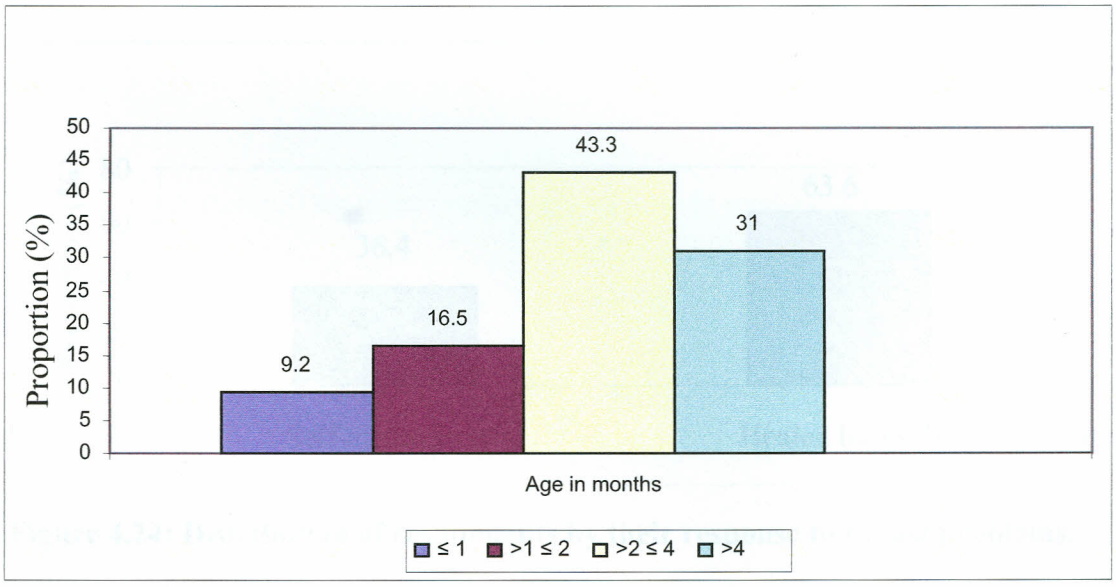


Figure 4.23: Distribution of respondents by age of weaning their babies.

4.9.6 Respondents with breast problems

The study revealed that respondents who had had breast problems were 36 of 266 (13.5%). The types and frequency of breast problems are shown in Table 4.14 below.

Table 4.14 Type of breast problems

Breast problem	Frequency	Proportion (%)
Breast engorgement	23	8.6
Breast abscess	8	3.0
Cracked nipples	6	2.2
Bleeding from the nipples	0	0
Other breast problems	4	1.5

4.9.6.1 Respondents response to breast problems

Results indicate that 11 of 34 (32.4%) of the respondents with breast problems did not seek for medical treatment out of whom 4 of 11 (36.4%) were on self medication and the rest said breast problems healed by themselves (Figure 4.24).

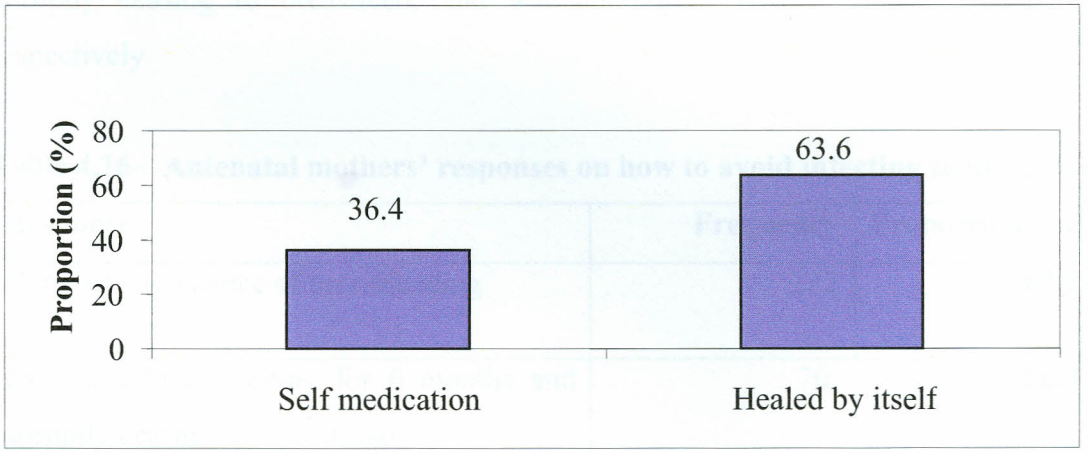


Figure 4.24: Distribution of respondents by their response to breast problems.

4.9.7 Breastfeeding and sero-status

There was a significant association between breastfeeding and sero-status (Table 4.15). Those who were infected and were breastfeeding were significantly less than those who were infected and were not breastfeeding ($\chi^2 = 34.942$; df = 1; $p<0.05$).

Table 4.15 Breastfeeding and sero-status

Breastfeeding now	Sero - status		Total
	Positive	Negative	
Yes	12 (6.3%)	177 (93.7%)	189 (100.0%)
No	26 (34.7%)	49 (65.3%)	75 (100.0%)
Total	38 (14.4%)	226 (85.6%)	264 (100.0%)

4.9.7.1 Responses on how to avoid infecting the baby

Results in Table 4.16 below shows responses on how to avoid infecting babies as complete avoidance of breastfeeding, exclusive breastfeeding for 6 months and abruptly ceasing to breastfeed, and wet nursing at 83.1%, 26.2% and 10.9% respectively.

Table 4.16 Antenatal mothers' responses on how to avoid infecting their babies

Response	Frequency	Proportion (%)
Complete avoidance of breastfeeding	222	**83.1**
Exclusive breastfeeding for 6 months and abruptly ceasing to breastfeed	70	**26.2**
Wet nursing (only if the other party is not infected with HIV) -uncommon.	29	**10.9**

4.9.7.2 Who, where and to whom infant feeding counselling was provided

The results in Tables 4.17, 4.18, 4.19 and 4.20 indicates who provided infant feeding counselling, where it was provided, to whom it was provided and when it was provided. Table 4.17 indicates that infant feeding counselling was provided by MCH

staff trained in PMTCT of HIV, nutritionist and PMTCT project counsellor at 88.5%, 38.5% and 11.5% respectively.

Table 4.17 Infant feeding counselling provider

Provider	Frequency	Proportion (%)
MCH staff trained in PMTCT of HIV	23	**88.5**
Nutritionist	10	**38.5**
PMTCT project counsellor	3	**11.5**

Table 4.18 indicates where infant feeding counselling was provided as follows: Maternity at 57.7%, waiting bay at 50%, child welfare clinic at 42.3%, comprehensive care clinic at 38.5%, and others at 7.7%.

Table 4.18 Where infant feeding counselling was provided

Where	Frequency	Proportion (%)
At the waiting bay	13	**50.0**
Child welfare clinic	11	**42.3**
Maternity	15	**57.7**
Comprehensive care clinic	10	**38.5**
Other	2	**7.7**

Table 4.19 shows that infant feeding counselling was provided to all women regardless of their sero-status at 65.4% followed by all sero-positive women only at 23.1%, and sero-positive women and their spouses at 15.4%. The least was (3.8%), a healthcare respondent who said infant feeding counselling was provided to some sero-positive women.

Table 4.19 To whom infant feeding counselling was provided

Who	Frequency	Proportion (%)
All women regardless of their sero-status	17	**65.4**
All sero-positive women only	6	**23.1**
Some sero-positive women	1	**3.8**
Sero-positive women and their spouses	4	**15.4**

Table 4.20 indicates that infant feeding counselling was provided before delivery at 92.3% and after delivery at 15.4% of HCP respondents.

Table 4.20: When infant feeding counselling was provided

When	Frequency	Proportion (%)
Before delivery	24	92.3
After delivery	4	15.4

4.9.8 Knowledge of existence of a written infant feeding counselling policy

Results on knowledge of existence of a written infant feeding counselling policy by HCP respondents indicated that only 8 (44.4%) of 18 HCP respondents knew it existed.

4.10 Family planning counselling and services

Respondents counselled on FP during ANC or at maternity were 170 of 267 (63.7%) while 4 of 267 (1.5%) of the 10 of 251 (4%) visited by a health worker or a PLWHA at home since delivery said family planning counselling was carried out. 24 of 25 (96%) of HCP respondents said family planning counselling was offered during ANC visits and after delivery and 20 of 25 (80%) reported that all infected women received family planning counselling and services. However, only 15 of 24 (62.5%) of FP staffs had training or orientation on PMTCT of HIV and only 1 of 26 (3.8%) said FP

support was provided during follow up. Observations showed that all sites offered Family Planning Counselling and Services. Results indicate that respondents using a FP method were 128 of 265 (48.3%).

4.10.1 Family planning methods used by the respondents

Results as shown in Figure 4.25 indicate that among family planning method users, the injectable contraceptive was the most commonly used method by 57 of 126 (45.2%) of the respondents, followed by the pill (oral contraceptive) used by 43 of 126 (34.1%) of the respondents. The condom was the third commonest method of FP used by 12 of 126 (9.5%) of the respondents followed by BTL (bilateral tubal ligation) which was used by 5 of 126 (4%) of the respondents. The results showed that the least used method of family planning was IUCD with 2 of 126 (1.6%) users followed by Natural Family Planning, which was used by 3 of 126 (2.4%), and Norplant used by 4 of 126 (3.2%) of the respondents.

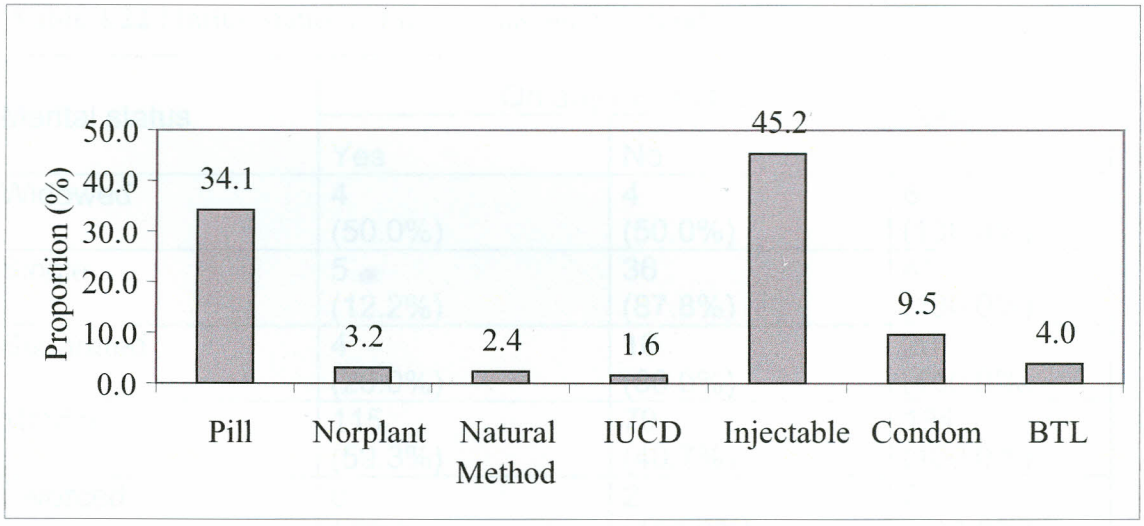


Figure 4.25: Distribution of respondents by choice of FP method

4.10.1.1 Main reasons for not using FP method by some respondents

Results shown in table 4.21 indicate that the main reasons as to why respondents were not on any method were varied but mainly:-Breastfeeding 44 of 134 (32.8%), No reason at all 32 of 134 (23.9%), and fear of side effects 16 of 134 (11.9%).

Table 4.21 Main reasons why not on a FP method

Reason	Frequency	Proportion (%)
Breastfeeding	44	32.8
None at all	32	23.9
Fear of side effects	16	11.9

4.10.2 FP method use and marital status

Those who were married and were on FP method were significantly more than those who were not ($\chi^2 = 39.059$; df = 4; $p<0.05$) as indicated in Table 4.22. It was therefore concluded that marriage highly and positively influenced uptake of FP methods with 89.8% of those married being on a FP method.

Table 4.22 Marital status and family planning method use.

Marital status	On any FP method		Total
	Yes	No	
Widowed	4 (50.0%)	4 (50.0%)	8 (100.0%)
Single	5 (12.2%)	36 (87.8%)	41 (100.0%)
Separated	4 (20.0%)	16 (80.0%)	20 (100.0%)
Married	115 (59.3%)	79 (40.7%)	194 (100.0%)
Divorced	0 (.0%)	2 (100.0%)	2 (100.0%)
Total	128 (48.3%)	137 (51.7%)	265 (100.0%)

4.10.3 Family planning method use and occupation

Occupation appeared to significantly influence uptake of FP methods. Those on more stable jobs were on a method unlike others ($\chi^2 = 10.078$; df = 4; $p<0.05$) as shown in Table 4.23 below. Age, although those between 25 – 29 were more than those who were younger or older; religion, although more protestants were on a method than

others; place of delivery, although those who delivered in a health facility (51.3%) were more than those who either delivered at home or on way to hospital, and sero-status (36.8%), were all not significant.

Table 4.23 Occupation and FP method use.

Occupation	On any FP method		Total
	Yes	No	
Professionals	13 (65.0%)	7 (35.0%)	20 (100.0%)
Self employed	24 (45.3%)	29 (54.7%)	53 (100.0%)
Students	0 (.0%)	5 (100.0%)	5 (100.0%)
Housewives/Farmers	82 (51.3%)	78 (48.8%)	160 (100.0%)
Casuals	9 (33.3%)	18 (66.7%)	27 (100.0%)
Total	128 (48.3%)	137 (51.7%)	265 (100.0%

4.11 Referral, follow up and involvement of other family members

The study through HCP respondents revealed that referrals were received mainly from other health centers and dispensaries in the district, and PLWHA support groups at 50% and 38% respectively, followed by TBAs and youth groups at 15.4% each. They were also referred from CHWs and interdepartmentally. Clients were referred by HCPs to PLWHA support groups and for emotional support at 61.5% and 53.8% respectively, followed by food and material support, and income generating activity support at 34.6% and 15.4% respectively as indicated in Table 4.24

Table 4.24 Referrals within PMTCT of HIV system in the study area.

Received from	Frequency	Proportion (%)
Other health centers and dispensaries in the district	13	50.0
PLWHA support groups	10	38.0
TBAs	4	15.4
Youth groups	4	15.4
Other: (From qualitative data) Community health workers and Interdepartmental(ANC-Maternity-CCC-PLWHA groups)		
Referred by HCPs for	**Frequency**	**Proportion (%)**
Emotional/psychological support	14	53.8
Food and material support	9	34.6
Income generating activities support	4	15.4
PLWHA groups	16	61.5

4.11.1 Visit by a health worker or PLWHA since delivery

The results shown in Figure 4.26 indicate that only 10 of 251 (4%) of the respondents were visited by a health worker or a PLWHA since delivery.

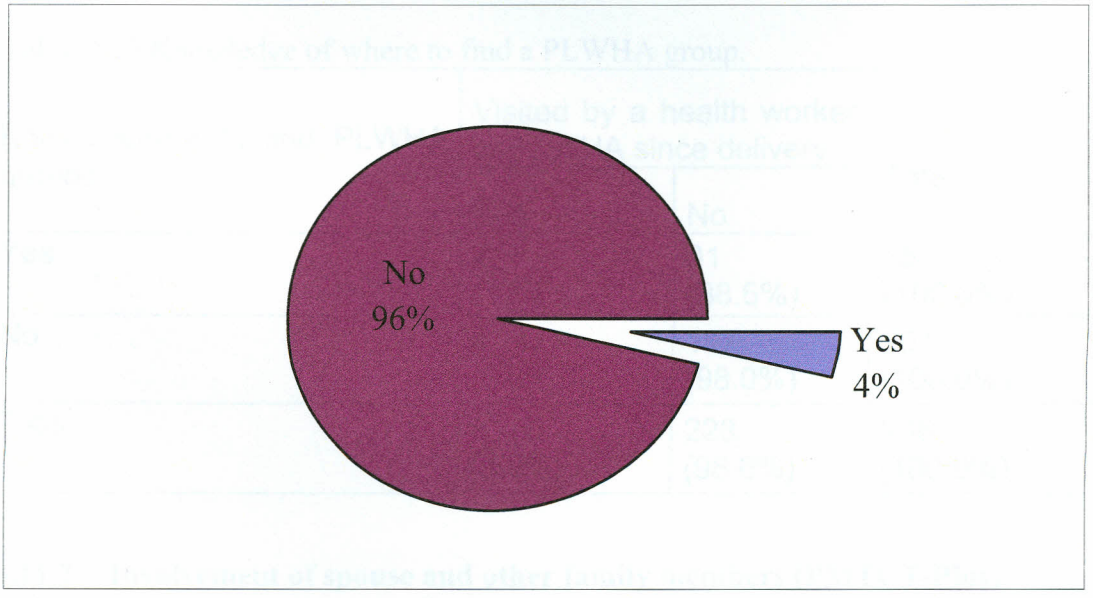


Figure 4.26: Distribution of respondents visited by a health worker or a PLWHA since delivery.

From qualitative data, HCPs respondents revealed that follow up for HIV positive women was done (19 of 23 or 82.6%). A return to clinic type of follow-up schedule for PMTCT of HIV existed (22 of 26 or 84.6%) with 3 of 26 (11.5%) of HCPs saying it was a home visit type of schedule. Return rate to the clinics for follow up was very low and that some defaulters on ARV treatment were being followed up by public health officers. However, no care givers followed up mothers at home in spite of need.

4.11.1.1 Knowledge of where to find a PLWHA support group

Further tests showed that 9 (4.6%) of those visited by a health worker or a PLWHA since delivery knew where to go for ARVs and treatment of opportunistic infections while 1 (1.8%) did not know. These visits appeared to be associated with such knowledge but were statistically insignificant. Likewise, they were not significantly associated with knowledge of where to go for food and material support, income generating activities, and or support, and emotional/psychological support. However, there was a highly significant association between such visits and knowledge of where to find a PLWHA support group, i.e., those who were visited by a health worker or a PLWHA and knew of PLWHA support groups were significantly more than those who were visited and did not know (χ^2 = 8.109; df =1; $p<0.05$). This is shown in Table 4.25.

Table 4.25 Knowledge of where to find a PLWHA group.

Knows where to find PLWHA groups	Visited by a health worker or PLWHA since delivery		Total
	Yes	No	
Yes	4 (11.4%)	31 (88.6%)	35 (100.0%)
No	4 (2.0%)	197 (98.0%)	201 (100.0%)
Total	8 (3.4%)	228 (96.6%)	236 (100.0%)

4.11.2 Involvement of spouse and other family members (PMTCT-Plus).

ANC respondent interviews revealed that 43 of 261 (16.5%) of spouses and other family members were on ARVs. This was very low compared to 21 of 23 (91.3%) of

HCPs who said that the spouse/husband and other family members were involved. KIIs showed that spouse/husband was involved through a requirement to come for review together. Observations however confirmed that this was minimal if any, virtually not done.

4.11.2.1 Knowledge of where to go for emotional support and involvement of spouse/husband

A significant association was established between asking the spouse to go for VCT and knowledge of where to go for emotional/psychological support. Those who involved their spouses knew where to go for emotional/physiological support significantly more than those who did not (χ^2 = 4.846 df =1; $p<0.05$) as shown in Table 4.26.

Table 4.26 Knowledge of where to go for emotional/psychological support

Knows where to go for emotional/psychological support	Asked spouse to go for VCT		Total
	Yes	No	
Yes	55 (64.0%)	31 (36.0%)	86 (100.0%)
No	89 (78.1%)	25 (21.9%)	114 (100.0%)
Total	144 (72.0%)	56 (28.0%)	200 (100.0%)

4.12 Social support

ANC respondent interviews revealed that certain groups existed within the district that helped in supporting those infected and the affected. They could be divided into three main groups namely:- Community Based Organizations (CBOs), Faith Based Organizations (FBOs), and Non-governmental Organizations (NGOs). These groups mainly offered food and clothing, school fees for orphans and vulnerable children (OVCs), creation of awareness, drugs and others unknown support services. Constituency HIV and AIDS committees were no longer in existence but individuals offered assistance to organized groups. When ANC respondents were asked whether they knew where to go for these services, they responded as shown in figure 4.27-4.30.

4.12.1 Knowledge of where to go for emotional support

Those who knew where to go for emotional support were 105 of 241 (43.6%) as indicated in Figure 4.27.

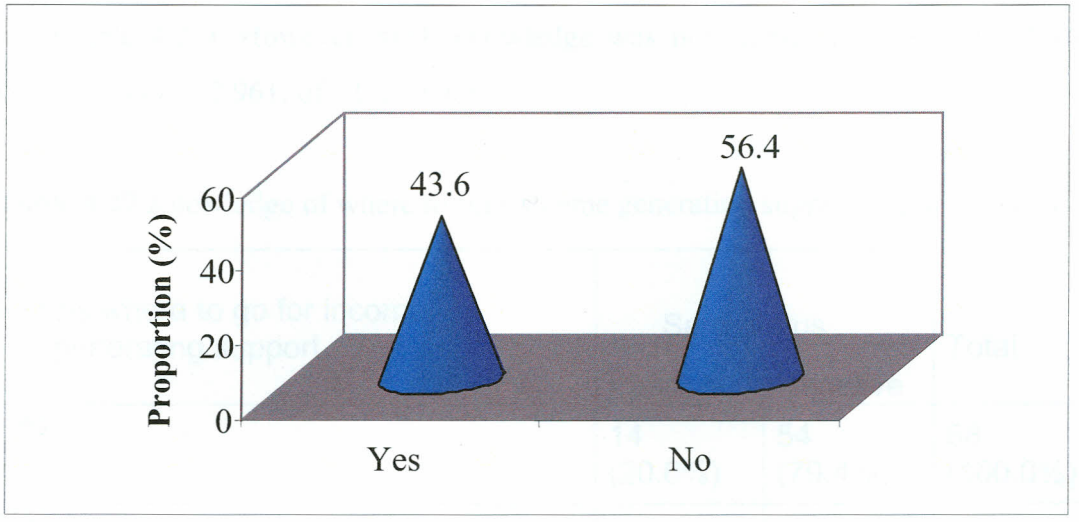


Figure 4.27: Distribution of respondents by knowledge of where to go for emotional support.

4.12.2 Knowledge of where to go for food and material support

Respondents who knew where to go for food and material support were 111 of 255 (43.5%) as shown in Figure 4.28.

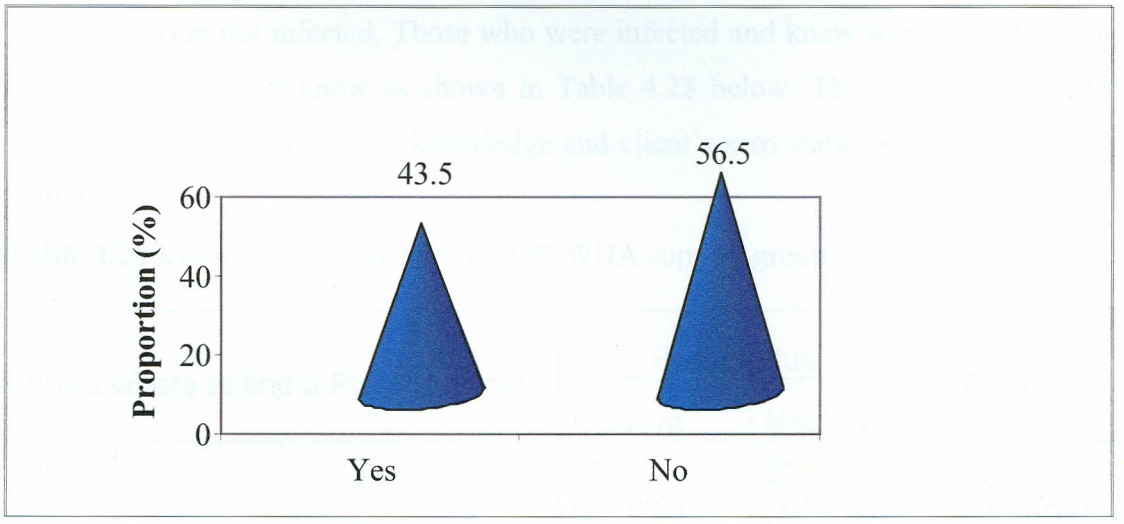


Figure 4.28: Distribution of respondents by knowledge of where to go for food and material support.

4.12.3 Knowledge of where to find income generating support and sero-status

Results showed that 105 of 241 (43.6%) of ANC respondents knew where to find income generating support for self and family sustenance during illness. Lack of such knowledge was significantly higher in those who were infected than those who were not (Table 4.27). However, such knowledge was not significantly associated with sero-status ($\chi^2 = 2.961$; df =1; $p>0.05$).

Table 4.27 Knowledge of where to find income generating support and sero-status

Knows where to go for income generating support	Sero-status		Total
	Positive	Negative	
Yes	14 (20.6%)	54 (79.4%)	68 (100.0%)
No	22 (12.0%)	161 (88.0%)	183 (100.0%)
Total	36 (14.3%)	215 (85.7%)	251 (100.0%)

4.12.4. Knowledge of where to find PLWHA groups and sero-status

Results indicated that only 36 of 243 (14.8%) of the respondents knew where to find PLWHA support groups. Such knowledge was less in those who were infected than in those who were not infected. Those who were infected and knew were more than the infected who did not know as shown in Table 4.28 below. There was however no significant association of such knowledge and client's sero-status ($\chi^2 = 6.132$; df =1; $p>0.05$).

Table 4.28 Knowledge of where to find PLWHA support groups and sero-status

Knows where to find a PLWHA group	Sero-status		Total
	Positive	Negative	
Yes	10 (27.8%)	26 (72.2%)	36 (100.0%)
No	25 (12.1%)	182 (87.9%)	207 (100.0%)
Total	35 (14.4%)	208 (85.6%)	243 (100.0%)

Knowledge of where to go for ARVs and treatment for opportunistic infections, food and material support, and emotional support were not significantly associated with sero-status. Clinic attendance and sero-status were not associated, i.e., one's sero-status did not determine ANC clinic attendance. Counselling for HIV during ANC visits or at maternity and the mode of delivery were also not associated with one's sero-status.

4.13 Monitoring and Evaluation of PMTCT of HIV Programme

In Thika District, data was collected and compiled by healthcare providers on the prescribed forms at the facility level and forwarded to NASCOP data clerks at the district hospital. They in turn received and summarized these data for onward transmission to Provincial AIDS and STI coordinator (PASCO) and NASCOP head office. Tools for monitoring and evaluation were observed to be generally available but in some cases inadequate. However, due to infrastructural and reporting system reasons, some study sites improvised books for registers and entries combined with those on specifically designed tools in another department for summary and onward transmission to the central registry at the district hospital. It was noted that entries on summary sheets by HCPs were not always correctly done and not always transmitted to the district hospital in a timely manner as all data was required by 5th of the next month. NASCOP data clerks stationed at the district hospital also collected data pertaining to HIV directly from all sites without involving hospital records staff in HMIS and did not share with them or the administration.

4.14 Summaries of access to and quality of PMTCT of HIV services

4.14.1 Summary of access to PMTCT of HIV services

Table 4.29 shows selected access to PMTCT of HIV services and the overall percentage score. Most respondents had access to testing for HIV at 70.6%, followed by counselling on infant feeding at 10.5%. Infected mothers who involved their spouses were 8.5%, followed by 4.6% of infected mothers who were on a FP method, and 4.2% who had received ARV prophylaxis. The least were infected mothers who had been followed up at 1.6%.

Table 4.29 Percentage score on access

Service	Frequency	Proportion (%)
Number tested after counselling	216	70.6
Infected mothers counselled on infant feeding	32	10.5
Infected mothers who involved spouses	26	8.5
Infected mothers on family planning	14	4.6
Number that received ARV prophylaxis	13	4.2
Infected mothers followed up	5	1.6
Total	**306**	**100/6=16.7**
Overall average	**306/6=51**	

4.14.2 Summary of quality of services ingredients of PMTCT of HIV

Table 4.30 below shows selected quality of services ingredients and gives an overall average score. Clients who said privacy and confidentiality was present were 52.2% followed by 13.8 % who were first counselled late in pregnancy or after delivery. Trained providers of PMTCT of HIV services (all) were 12.8%. 5.4% of the infected mothers had taken ARVs after delivery while HCPs who knew the correct use of test protocol, those who knew of the existence of a testing policy and those who said that time spent on counselling was 30 minutes and above were 4.4% respectively. The least were HCPs who said space was inadequate at 2.5%.

Table 4.30 Percentage score on quality

Ingredient	Frequency	Proportion (%)
Clients who said Privacy/confidentiality present	106	52.2
Stage clients were first counselled	28	13.8
Staff trained in PMTCT of HIV	26	12.8
Time ARVs were taken (after delivery)	11	5.4
knowledge of existence of testing policy	9	4.4
Time spent on couselling clients (≥30 min.)	9	4.4
Number that knew correct use of test protocol	9	4.4
HCPs who said space was inadequate	5	2.5
Total	**203**	**100/8=12.5**
Overall average	**203/8=25.4**	

4.14.3 Other factors that influenced uptake and quality of PMTCT of HIV services

Results as shown in Table 4.31 below indicate that other factors influenced uptake and quality of PMTCT of HIV services. They included shortage of resources (96%), inadequate IEC materials (61.5%), failure of spouses to seek for VCT services (47%) and consistency in the correct use of test protocol (34.6%).

Table 4.31 Other factors that influenced uptake and quality of services

Factor	Frequency	Proportion (%)
Shortage of resources (HCPs)	25	96.2
Inadequate IEC materials	16	61.5
Failure to seek for VCT services (spouses)	78	47
Consistency in correct use of test protocol	9	34.6

CHAPTER FIVE

DISCUSSION

5.1 Introduction

The Government of Kenya declared HIV and AIDS a national disaster in 1999 in its response to challenges posed by the pandemic. Since then, strategies have been put in place in public health facilities in response to the pandemic. Related services are either highly subsidized or free of charge altogether to make these interventions immediately available. This study found that PMTCT of HIV services in Thika district were integrated and mainstreamed within the sexual and reproductive health services. In this chapter, discussions are presented on areas of specific interventions and internal inconsistencies in such areas pointed out.

5.2 Levels of access and quality of PMTCT of HIV services

The overall average percentage of access to PMTCT of HIV services in Thika district was 16.7% and that of quality stood at 12.5%. This is not acceptable and calls for scaling up of services by addressing factors that influence access and quality of services at the various levels of intervention below:-

5.2.1 Counselling and Testing for HIV

This is a core intervention besides ARV prophylaxis for the mother and infant, optimal obstetric care, and counselling and support for safer infant feeding practices (WHO, 2001). In this study as shown in table 4.2 and Figure 4.5, 83.9% of ANC clinic attendees were counselled for HIV and AIDS prevention to self and their babies at ANC or maternity and 84% tested. This finding agrees with a survey of ANC clinics offering PMTCT services in 14 African countries where on average, 90% of women were counselled and 80% accepted testing (UN Millennium Project, 2005). Counselling and testing was significantly associated with the place of last delivery, i.e., those, who delivered at a health facility and were counselled and tested were significantly more than those who delivered elsewhere. It is therefore important to encourage antenatal mothers to attend ANC clinics and to deliver at a health facility where safer obstetric practices are employed unlike when delivery takes place elsewhere. Other stakeholders should be involved e.g. TBAs and CBOs as much as possible. All the study sites generally practiced group counselling. Blood samples

were taken together and clients then waited outside and were called in one at a time and results disclosed after post-test counselling. A relationship was established between lack of privacy during counselling and testing or not being tested. 55.3% of respondents said there was no privacy and confidentiality during counselling. This means that the perception that there is privacy and confidentiality or not should be considered in choosing the method of counselling. Group counselling in its present form where clients are served on a first come first served basis without considering factors such as age group contributes to this perception though it appears to assist in serving many clients. This is complicated by the culture of women from the same villages or neighborhoods attending ANC clinics together on market days and commonly sharing information, with the attendant stigma in the community. Msellati *et al* (2001) says that testing in PMTCT of HIV cannot be synonymous, but must always be confidential, that overstressing confidentiality aspect of HIV and AIDS has led to increased stigma and discrimination. There was a significant association between age and testing for HIV (P=.014). The younger mothers were more responsive to testing than the older mothers. This was however not associated with the level of education. Women who involved their spouses by asking them to go for VCT positively influenced them and were likely to know where to seek for emotional support (CAPGAN and CAMHADD for Para 55 working group, 2002; NASCOP, 2002).

5.2.2 ARV prophylaxis for the mother and infant in PMTCT of HIV

Nevirapine (NVP) which is recommended as the best available option for resource constrained nations (NASCOP, 2002; UN Millennium Project, 2005) is provided free of charge in public health facilities. However, viral replication is less likely to be suppressed by very low levels after 6 months of ARV therapy for those on single dose NVP only where resistance appears but no effect is observed on CD_4 count or clinical outcomes (UN Millennium Project, 2005). NVP is given at 28 weeks and any time after (Manual for health workers, General guidelines for health service delivery, Thika district, 1st edition). Normally, those counselled for ARVs are those who test positive for HIV. The proportion of ANC respondents who were sero-positive was 14.3%. Nevirapine was identified by 5.3% of respondents as the drug given to prevent MTCT of HIV. However, 7.2% were not aware of what drug had been given. Those who took the drug immediately were 8.7% while 50% took during labour and 41.3%

after delivery. 78.5% knew where to go for ARVs and treatment for opportunistic infections. This means that the majority actually took their drugs during labour (Petra trial, HIVNET 012 trial and SAINT trials). This is important considering that most mothers delivered normally, i.e., via spontaneous vatex delivery (SVD) which is associated with higher MTCT rates. However, in this study, the mode of delivery was not significantly associated with sero-status and therefore ARV use ($P > 0.05$). The proportion of those who took ARVs after delivery was 41.3%. This means that these women came to know their status long after delivery and had therefore not taken ARVs themselves or their babies given ARVs. It also means that the babies were fully and most likely breastfed for long therefore exposing them further and denying them the benefit of ARV regimens maintained in infants exposed to HIV through breastfeeding up to 24 months of age (Nduati *et al.,* 2000). Mothers take NVP during labour and babies dose given within 72 hours after delivery with an appropriate choice of infant feeding option (Guay *et al* 1999; NASCOP, 2002). ANC respondents who said ARVs and or treatment for opportunistic infections for both were continuing were 16.1%. There is a 50% risk reduction with postnatal prophylaxis in the baby (NASCOP, 2002). The ultimate goal is to provide all infected pregnant women with the more effective three-drug regimens used in the developed world (United Nations Millennium project, 2005).

5.2.3 Optimal Obstetric Care

An infected pregnant woman who gives birth at a place other than a health facility is unlikely to benefit from modified obstetric care offered by trained health workers. In this study, about 26% delivered at home or on their way to a health facility and 25% were assisted during delivery by relatives and neighbours. Such a high proportion can not be ignored in PMTCT of HIV. Under such conditions, chances of MTCT of HIV are increased and safer practices as a routine part of managing labour for all women in high HIV sero-prevalence areas not met (WHO, 1999) and neither is handling of the newborn infants. Elective caesarian section was noted rare with about 75% of diagnoses being made at the maternity. Such late diagnosis for those who are not tested at ANC clinics but deliver at a health facility with surgical facilities makes it impossible to plan for elective caesarian section. There is also a possible cost factor even where surgical facilities are available besides the attendant risks of complications (Preble and Piwoz, 2001). Surgical facilities and expertise lacked in

rural health facilities. Through qualitative data, the study found that safer obstetric practices were observed e.g. minimum vaginal examinations, avoidance of early rapture of membranes, etc. Close monitoring of procedures and HCPs' observance of safety at all times, training and discussions at health facility level would help in this area in the district.

5.2.4 Infant feeding for HIV infected women

Breastfeeding provides adequate nutrients, protective immune factors and stimulation necessary for good development and contributes to natural birth spacing. It also provides protection from death due to diarrhea and respiratory and other infections, particularly in the first months of life. The risk of a mother infecting her baby through breastfeeding and the danger of the baby developing other problems if not breastfed presents a mother living with HIV and AIDS with a serious dilemma (www.unicef.org/aids- A fact sheet, New York, February 2002). This is compounded by poverty and stigma associated with HIV and not breastfeeding as was revealed by FGDs. This makes it easier for a majority to disregard their status and choose to breastfeed instead of taking other breast milk options which are expensive or not available while prolonged breastfeeding is cultural especially in the rural areas (Nduati *et al.,* 2000). Weaning is mainly done between 2–3 months. This agrees with KDHS, 1998 findings (NCPD/CBS, 1999). Even with the early evidence that mixed feeding increases the risk of breast milk transmission of HIV, mixed feeding is widely practiced (Coutsoudis *et al.,* 1999). There was a significant relationship between the method of feeding since delivery and sero-status ($p<0.05$). Women who were infected and on replacement feeding were significantly more than those on either exclusive breastfeeding or on mixed feeding ($p<0.05$) although exclusively breastfeeding for 6 months with abrupt cessation is also recommended (NASCOP, 2002). Breastfeeding - a continuing challenge to preventing vertical transmission could be eliminated as a MTCT component by replacement feeding but formula feeding is highly stigmatized in some settings (Mbori-Ngacha *et al.,* 2001). Those who were infected and not breastfeeding at the time of the study were also significantly more than those breastfeeding and were infected ($p<0.05$). This means that in spite of the associated problems including having had breast problems, the strategy is working. Prevention and treatment of breast problems associated with breastfeeding is important in this strategy (John *et al.*, 2001). 67.6% of those who had breast problems went for

treatment while 32.4% said they self medicated or problems healed by themselves. It is therefore necessary to introduce or reinforce preventive intervention through education on breast care and infant feeding. The fact that some women are unwilling to disclose their status to their spouses who are also not adequately involved increases the risk of HIV infection during breastfeeding due to re-exposure or infection during breastfeeding. Spouses should therefore be actively involved in order that decision made on options are better upheld (NASCOP, 2002). Presently, no proven strategies for reducing post partum transmission exists but studies are underway for providing ARVs to either the mother or infant through out breastfeeding period (UN Millennium Project, 2005).

5.2.5 Family planning for HIV infected women

All health facilities offered FP services. A referral type of VCT had just been integrated within family planning services on a pilot basis in the district during the study period. If this move is implemented, it will serve those mothers who may not have attended ANC and who delivered at home apart from those who attend the clinic for family planning service per se and who do not know their status. In practice, women were advised to go for family planning services at 6 weeks after delivery. It was recommended that HIV infected women should initiate any of the reliable contraceptive methods earlier, i.e., by 2 to 4 weeks after delivery together with condom use to protect themselves from STIs and HIV infection (NASCOP, 2002; Preble and Piwoz, 2001). The varied reasons given as to why not on any method gives a clue as to what could be happening given that only 48.3% were on a method of FP although the national contraceptive prevalence stands at 32% (KDHS, 2003). More married women in the study were on a FP method than those who were not in a marriage relationship. This perhaps underscores the influence of spouses in their effort to have the desired and manageable family size. FP was however not significantly associated with sero-status and religion ($P>0.05$). A deliberate move to encourage infected women to use any of the effective FP methods available, in spite perhaps of their own desires not to give birth to infected children, should be put in place (Preble and Piwoz, 2000). Adding FP in PMTCT of HIV services doubles their impact in averting HIV infection among infants and is cost-effective (UN Millennium Project, 2005)).

5.2.6 Social support for the HIV infected and the affected

Only 4% of the respondents had been visited by a health worker or a PLWHA since delivery. Such visits made no difference in the knowledge of where to seek for support in various areas e.g. ARVs and treatment for OIs, food and material support, income generating support, and emotional/psychological support. However, those visited were significantly more likely to know where to find a PLWHA support group ($p<0.05$). This is an important referral link between those infected and such groups which also provides emotional besides other forms of support. It is there important to encourage and enhance such visits and equip HCPs and PLWHA with information on where such support is available which appears low in the district. This translates into even fewer people being reached. William (2003) notes that the same grassroots initiatives should be encouraged and supported especially for PLWHA who understand their circumstances better. Women also need social, economic and cultural empowerment by improving their living standards through, e.g., having inheritance rights like their male counterparts, extending financial loans on easy terms or initiation of microeconomic activities to reduce poverty and be provided with negotiating skills in condom use through education.

5.2.7 Monitoring and evaluation in PMTCT of HIV programme

Monitoring and evaluation tools were generally available. However, there were some inconsistencies in data entries in summary sheets and reporting was not always timely. Regular in-house training on use of such tools is recommended. Data collected by NASCOP clerks should be shared with at least the district hospital's management and should be easily translated and used locally to facilitate awareness and planning for better service delivery.

CHAPTER SIX

SUMMARY, CONCLUSIONS AND RECOMMENDATIONS

6.1 Summary

The research involved women of child bearing age attending MCH clinics in public health facilities in Thika district during the period of the study. The study sought to answer two questions namely whether PMTCT of HIV programme is accessible as an intervention in HIV and AIDS and the quality of service ingredients in place. The objective of the study was to determine accessibility and quality of PMTCT of HIV services. This was attained through study objectives formulated for this purpose as follows:-

(i) To determine the level of access to PMTCT of HIV in Thika district,

(ii) To identify factors that influence access to PMTCT of HIV services in the study area,

(iii) To establish the quality of PMTCT of HIV services in the health institutions, and

(iv) To establish factors that affect quality of these services in the health institutions.

Chi-square test of significance and descriptive statistics were computed to measure associations between various variables. The ages of ANC respondents ranged from 16- 46 years, and the mean age was 26.7 years. All study subjects met the inclusion criteria. Proximity, availability and affordability of services were assessed. Distance from home to health facilities did not significantly influence access and services were free of charge to clients altogether. Various constraints and factors that influenced availability of services were identified. Some of these factors also influenced the quality of PMTCT of HIV services in the district and contributed to the high prevalence of HIV and AIDS in children.

6.2 Conclusions

From the results of the study conclusions were as follows:

i) That PMTCT of HIV services were generally available and were free of charge to clients and therefore affordable in Thika district. Distance from home to health facilities and the frequency of clinic attendance were insignificant in determining whether to be tested or not. Overall access to

services was about 16.7% but was especially low on follow up, ARV prophylaxis, FP for the infected mothers, and involvement of spouses.

ii) Factors that influenced access were:- shortage of resources (financial, material, and human), inadequate, aggressive and focused antenatal clients' education on HIV infection prevention, inadequate involvement of stakeholders in the community e.g. CBOs, FBOs and TBAs, high level of stigma, and poverty in the community, and age.

iii) Quality of services was low at an overall average of about 12.5%.

iv) Quality of services was affected by:- shortage or inadequacy of resources, lack of privacy and confidentiality (perceived or otherwise), low usage of IEC materials and audio-visual aids, and lack of or inadequate PMTCT of HIV policy guidelines in the district and HCP issues, e.g. poor communication skills, poor recall and interdepartmental transfers.

6.3 Operational recommendations

Based on the findings of the study, the following recommendations are made in order to increase the level of utilization and quality of PMTCT of HIV services namely:

a) Government to scale up access to PMTCT of HIV services at all levels of intervention and particularly on follow up of infected mothers and their infants, ARV prophylaxis, FP counselling and services for the infected mothers and strategize on male/partner involvement.

b) Government should provide adequate financial, material, and human resources including adequate space, reduce or remove maternity fees to encourage hospital deliveries, provide a policy framework aimed at uplifting living standards through a multi-sectoral approach while programme managers and HCPs should target pre-pregnancy period and early pregnancy to initiate intervention, intensify education on HIV infection prevention, target older clients in encouraging testing for HIV without ignoring younger ones. They should also encourage HIV infected mothers to seek for FP services, strategize

on community stakeholders involvement, and make deliberate and coordinated efforts to link the infected and the affected with other care and support givers in the community.

c) Programme managers and HCPs should improve the quality of PMTCT of HIV services to above average rate.

d) Programme managers and HCPs need to address factors that affect quality of services at the health institutions such as providing resources and facilitative supervision, training more staff besides refresher courses on PMTCT of HIV service delivery, training in customer care and prevention of stigma and discrimination in health settings, in practical and good communication skills and correct use of monitoring and evaluation tools and record cards for purposes of informed surveillance.

6.4 Recommendations for further research

i. Factors that influence low return rate for follow up at health facilities.

ii. A study on HCP knowledge, attitudes and practices on optimum obstetric care in relation to PMTCT of HIV.

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APPENDICES

Appendix 1a **Research Authorization Permit**

MINISTRY OF SCIENCE & TECHNOLOGY

Telegrams: "SCIENCE TEC", Nairobi

Fax No.
Telephone No: 318581
When replying please quote
MOS&T 13/001/36C/268/2

REPUBLIC OF KENYA

JOGOO HOUSE "B"
HARAMBEE AVENUE
P.O. Box 60209-00200
NAIROBI
KENYA

3rd May 2006

David K. Gitau
Kenyatta University
P.O. Box 43844
NAIROBI

Dear Sir

RE: RESEARCH AUTHORIZATION

Following your application for authority to carry out research on '***Access and Quality of Prevention of Mother to Child Transmission (PMTCT) of HIV/AIDS Services in Government Health Institutions in Thika District***'

I am pleased to inform you that you have been authorized to carry out research in Thika District for a period ending 30th May 2007.

You are advised to report to the District Commissioner and the District Education Officer Thika District before commencing your research project.

On completion of your research, you are expected to submit two copies of your research report to this office.

Yours faithfully

B. O. ADEWA
FOR: PERMANENT SECRETARY

Copy to: The District Commissioner – **Thika District**

The District Education Officer – **Thika District**

Appendix 1b **Research Authorization Permit**

MINISTRY OF HEALTH

Telephone: Thika, (0151) 21621/2 FAX: 21778

All correspondence should be addressed

To the MOH
When replying please quote
MOH/TKA/ST/29/
Ref. No. .....

THIKA DISTRICT HOSPITAL
P.O. BOX 227
THIKA

9th May 2006

TO WHOM IT MAY CONCERN

RE: RESEARCH AUTHORIZATION

Please assist David K. Gitau to conduct his research Ácess and Quality of Prevention of Mother to Child Transmission (PMTCT) of HIV/AIDS services in Government health institutions in Thika District.

Thank you.

DR. KARIUKI M. W.
DISTRICT MEDICAL OFFICER OF HEALTH
THIKA DISTRICT

Appendix 2 INTERVIEW GUIDE FOR ANC

Introduction

My name is David Gitau, a Master of Public Health student at Kenyatta University. I would like to ask you questions about mother to child transmission of HIV/AIDS and would be grateful for your truthful/sincere responses, if you are willing to participate in the study. This information will be useful in planning and policy formulation in HIV prevention programmes and will be treated with strict confidentiality. Are you willing to participate in the study?

Yes……1

No……..2

Thank you.

1. **Name of facility……..**

2. **Code of facility/site ……..(01=DH; 02=SDH; 03=HC-R;04=HC-K)**

3. **Residence of respondent - Location…….**
   - **Sub-location ……..**
   - **Specific village ……..**

Instructions

(a) Please circle the number that corresponds to your response

(b) Where indicated for multiple responses, circle all applicable responses

(c) Use translation to Kiswahili or Kikuyu for mothers who do not speak or understand English.

1.0 SOCIO-ECONOMIC BACKGROUND

No.	Question	Responses	Code
1.1	Respondent's age	… Years	
1.2	Marital status	Single	1
		Married	2
		Widowed	3

		Separated	4
		Divorced	5
1.3	Highest level of education	None	1
		Primary	2
		Secondary	3
		Mid-level college	4
		University	5
1.4	Partner's highest level of education	None	1
		Primary	2
		Secondary	3
		Mid-level college	4
		University	5
1.5	What is your occupation?	Housewife	1
		Self employed	2
		Teacher	3
		Civil servant	4
		Casual labourer	5
		Other (specify)……	6
1.6	What is your spouse's occupation?	Businessman	1
		Self employed	2
		Teacher	3
		Civil servant	4
		Casual labourer	5
		Unemployed	6
		Other (specify)……	7
1.7	What is your religion or denomination?	Protestant	1
		Catholic	2
		Muslim	3
		Other (specify)…..	4
2.0	REPRODUCTIVE HEALTH HISTORY		
2.1	Number of children	……	
2.2	Age of the youngest child	……	

2.3	Number of deliveries	.....	
2.4	Place of last delivery	Home	1
		Health facility.....	2
		On way to hospital	3
		Other (specify).....	4
2.5	Who conducted the delivery?	TBA	1
		Relative	2
		Neighbour	3
		Trained health worker	4
2.6	Are you on any FP method currently?	Yes	1
		No	2 go to2.8
2.7	If yes, which one?	Natural method	1
		IUCD	2
		Pill	3
		Injectable	4
		Other (specify).....	5
2.8	Why are you not using any method now?	Breastfeeding	1
		Husband objects	2
		I want more children	3
		I fear side effects	4
		No reason	5
		Other (specify)	6

3.0 ANTE NATAL CARE, DELIVERY AND POST NATAL CARE

3.1	What is the approximate distance from your home to the hospital?	.....	
3.2	Did you attend ANC clinic	Yes	1
		No	2 go to 3.4
3.3	If yes, how many times did you visit?	One	1
		Two or more	2
3.4	What was the mode of delivery?	SVD	1
		Elective caesarian	2

		section		
		Vacuum extraction	3	
		Other (specify) ……..	4	
3.5	Have you had any breast problems?	Yes	1	
		No	2	
3.6	If yes, which one (Circle all applicable)	Breast engorgement	1	
		Breast abscess	2	
		Cracked nipples	3	
		Bleeding from nipple	4	
		Other (specify) …….	5	
3.7	Did you go for treatment?	Yes	1	go to 4.1
		No	2	
3.8	If no, why did you not go for treatment? (Circle all applicable, no prompting respondent)	Health worker harsh	1	
		Healed by itself	2	
		Self medication	3	
		Other (specify) …….	4	
4.0	INFANT FEEDING PRACTICES			
4.1	Were you counselled on infant feeding?	Yes	1	
		No	2	
4.2	Are you now breastfeeding?	Yes	1	
		No	2	
4.3	If no, at what age did you stop breastfeeding?	Below 4 months	1	
		4-6 months	2	
		After 6 months	3	
		Other (specify)……	4	
4.4	What method of feeding have you been using since delivery? (Explain method to respondent)	Exclusive breastfeeding	1	
		Replacement feeding	2	
		Mixed feeding	3	
		Other (specify) ……	4	
4.5	If replacement feeding, what infant formula are you using?	Home prepared from animal milk	1	

		Commercial infant formula	2
		Other (specify)…….	3
4.6	At what age did you begin replacement feeding?	Immediately after birth	1
		At 1-2 months	2
		3-4 months	3
4.7	If mixed feeding, at what age did you introduce supplementary foods?	After 1 month	1
		2-3 months	2
		After 4 months	3
		Other (specify) …….	4
5.0	COUNSELLLING AND TESTING FOR HIV		
5.1	Did you receive counselling during ANC visits or at maternity?	Yes	1
		No	2
5.2	If yes, were you counselled on the following?	HIV/AIDS prevention to self and baby	1
	(Read options to respondent)	Infant feeding	2
		Family planning	3
		Other (specify) ……	4
5.3	At what stage were you first counselled?	1 - 3 months	1
		4 - 6 months	2
		7 - 9 months	3
		At maternity before delivery	4
		Other (specify) ……	5
5.4	Do you think there was privacy and confidentiality in the room during counselling?	Yes	1
		No	2
5.5	If no, give the reasons	Group counselling done	1

		Other health services going on in the same room	2	
		Other (specify) …….	3	
5.6	Were you tested for HIV after counselling?	Yes	1	
		No	2	go to5.10
5.7	When did you receive the results after testing?	Same day	1	
		After a few days	2	
		At next ANC visit	3	
		Did not receive results	4	
5.8	Did you receive counselling before being told the test results?	Yes	1	
		No	2	
5.9	Who did you share with the results of the test?	No one	1	
		Husband/spouse	2	
		Relative	3	
		Other (specify) …….	4	
5.10	Did you ask your spouse/husband also to go for counselling and testing (VCT)?	Yes	1	
		No	2	
5.11	If yes, did he go for VCT?	Yes	1	
		No	2	
		Do not know	3	
5.12	What precautions in your understanding should an expectant mother take to protect the baby from being HIV infected?	Practice safe sex, condom use	1	
	(Circle all applicable, no prompting respondent)	Take ARVs for prevention	2	
		Deliver in a recognized health facility	3	
		Other (specify) ……	4	
5.13	Does breast feeding expose the baby to HIV infection?	Yes	1	

		No	2 go to 5.15
		Do not know	3
5.14	If yes, what should a breastfeeding mother do to avoid infecting the baby? (Circle all applicable, no prompting respondent)	Avoid breastfeeding completely	1
		Give ARV drugs prophylaxis to infant	2
		Exclusively breastfeed for 6 months and abruptly wean baby	3
		Wet nursing	4
		Other (specify) ……..	5
5.15	Do you take any of these precautions to protect the baby from HIV infection? (Explain options and circle all applicable)	Absolute avoidance of breastfeeding	1
		ARV treatment	2
		Wet nursing	3
		Other (specify) ……	4
6.0	ARV DRUGS TREATMENT FOR MOTHER AND INFANT		
6.1	Did you receive counselling on ARV treatment after testing for HIV?	Yes	1
		No	2
6.2	What drug were you given to prevent MTCT?	NVP	1
		AZT	2
		None	3
		Do not know	4
		Other (specify)…….	5
6.3	When did you take the drug?	Immediately	1
		During labour	2
		After delivery	3
6.4	Was the baby given ARV treatment immediately after delivery?	Yes	1
		No	2

		Do not know		3
6.5	Is ARV and or OIs treatment for both baby and mother continuing?	Yes		1
		No		2
6.6	Are other members of the family including spouse on ARVs?	Yes		1
		No		2
7.0	FOLLOW UP AND SUPPORT			
	Do you know where to go for the following support?	Yes	No	Name place
7.1	ARVs and treatment for opportunistic infections	1	2	------
7.2	Food and other material support	1	2	------
7.3	Income generating support	1	2	------
7.4	Emotional support	1	2	-----
7.5	PLWHA support groups	1	2	-----
7.6	Have you been visited by a health worker or PLWHA at home since delivery?	Yes		1
		No		2
7.7	If yes, what activities did he/she carry out?	On-going counselling		1
		Family planning		2
		Infant feeding		3
		Other (specify) ……		4

END

Thank you very much

Appendix 3 QUESTIONNAIRES FOR HEALTHCARE PROVIDER

Introduction

Hello, my name is David Gitau, a Master of Public Health student at Kenyatta University. I would like to ask you questions about mother to child transmission of HIV/AIDS and would be grateful for your truthful/sincere responses, if you are willing to participate in the study. This information will be useful in planning and policy formulation in HIV prevention programmes and will be treated with strict confidentiality. Are you willing to participate in this study?

Yes…..1

No…..2

Thank you.

1. **Name of facility ……**
2. **Code of facility/site ……(01=DH;02=SDH; 03=HC-R;04=HC-K)**
3. **Residence of respondent - Location ……..**
   - **Sub-location ……**
   - **Specific village ……**

Instructions

(a) Please circle the most appropriate response or fill in the provided spaces

(b) Circle all or the most appropriate responses where applicable

(c) For relevant information or remarks, please use blank paper and attach

1.0 PMTCT SERVICES OFFERED

No.	Question	Responses	Code
1.1	Which of the following PMTCT-related services are offered at your site?	On-going counselling	1
		VCT	2
		Infant feeding counselling	3
		ARV prophylaxis	4
		Elective Caesarian Section as an option	5

		Safer obstetric practices	6
		Other (specify)	7
1.2	If ARVs are offered, please state which one?	NVP	1
		AZT	2
		Other (specify).....	3
1.3	When is ARV prophylaxis provided to the mother?	Before 28 weeks	1
		At 28 weeks	2
		At 36 weeks	3
		During labour at maternity	4
		Others (specify).....	5
1.4	If delivery takes place outside the health facility, how do you ensure ARVs for women and children are taken?	....	
1.5	What is being done to encourage HIV positive women to deliver at the maternity on site?	Nothing	1
		Counselling at ANC visits	2
		Use of TBAs	3
		Involvement of CBOs	4
		Other (specify)	5
1.6	Have you been trained on PMTCT?	Yes	1
		No	2
1.7	If yes, what are your constraints?	Work overload	1
		No privacy in counselling due to lack of space	2
		Other (specify).....	3

2.0	VOLUNTARY COUNSELLING AND TESTING AT ANC		
2.1	Is counselling and testing offered to all ANC clients routinely (to each client) as part of service)?	Yes	1
		No	2 go to 2.2
	Briefly explain how.....		
	.....		
	.....		
2.2	To whom is counselling and testing being offered at ANC	First visits only	1
		ANC clients accompanied by their spouses	2
	(Circle all applicable)	Other (specify).....	3
2.3	Where is counselling and testing for HIV provided?	At MCH/FP	1
		At VCT Unit	2
		In a different building specific for MTCT	3
		Other (specify)	4
2.4	What type of HIV counselling for pregnant women do you offer at this site?	Individual counselling	1
	(Circle appropriately)	Couple counselling	2
		Group counselling	3
		Other (specify).....	4
2.5	Do you offer pre-test and post-test counselling	Yes	1
		No	2
2.6	Approximately how long do you take to counsel on average per client /group for HIV testing?	15 minutes	1
		½ hour	2
		¾ hour	3

		1 hour	4
		Over 1 hour	5
2.7	Do you have or use Information Education and Communication materials?	Yes	1
		No	2
2.8	If no, what do you use to re-inforce counselling?	Nothing	1
		Drama/folk media	2
		Models	3
		Other (specify).....	4
2.9	Do guidelines on PMTCT exist as far as you are aware?	Yes	1
		No	2
3.0	HIV TESTING		
3.1	Where does HIV testing for PMTCT actually take place?	At MCH Clinic at PMTCT room	1
		Preliminary tests done at site, confirmatory test sent to other lab.	2
		Blood drawn at MCH/ANC clinic and testing done in other lab	3
		Patient referred to other lab. for testing after counselling	4
		At designated VCT Unit	5
		Other (specify).....	6
3.2	What HIV tests are performed for pregnant women and infants for PMTCT within the hospital? (Circle all applicable)	HIV rapid tests	1
		ELISA	2
		Western blot	3
		PCR	4

		Other (specify)……	5
3.3	When do women receive their results?	Same day	1
		At scheduled next visit	2
		Other (specify)……..	3
3.4	Describe your testing procedures or protocol (i.e. first test, confirmatory test, tie-breaker). Please include brand names of HIV test kits used (use extra piece of paper if necessary).....	……	
	……	……	
	……...	……	
3.5	Is the protocol used consistently?	Yes	1
		No	2
3.6	If no, give reasons.		
	……	……..	
	……	……..	
3.7	Who performs the HIV test? (Specify qualifications: Cert, Dip, Degree)		
	……..….....		
	.....…….....		
3.8	Is there a written hospital policy that proposes HIV testing for all clients presenting for ANC unless patient opts out?	Yes	1
		No	2
4.0	INFANT FEEDING COUNSELLING		
4.1	Who **mainly** provides infant feeding counselling?	MCH staff trained in MTCT	1
		Nutritionist	2
		PMTCT project counselor	3
		Other (specify)……	4
4.2	Where is infant feeding counselling in MTCT done at the hospital?	At waiting bay during health talks	1

		One on one in child welfare clinic during vaccinations	2
		In maternity after delivery	3
		In comprehensive care clinic	4
		Other (specify).....	6
4.3	To whom is infant feeding counselling done in your hospital?	All women regardless of status	1
		All sero-positive women only	2
		Some sero-positive women	3
		Sero-positive women and their spouses	4
		Other (specify).....	5
4.4	When is infant feeding counselling first offered?	Before delivery	1
		After delivery	2
4.5	What is the most common infant feeding method of choice for HIV positive women?	Exclusive breastfeeding for 6 months with abrupt cessation	1
		Home modified formula from animal milk	2
		Commercial infant feeding formula	3
		Other (specify).....	4
4.6	Do you have a written policy on infant feeding counselling and HIV?	Yes	1
			copy seen/not seen
		No	2
5.0	FAMILY PLANNING COUNSELLING		
5.1	Is family planning counselling offered during ANC and after delivery?	Yes	1
		No	2

5.2	Do all sero-positive women receive family planning counselling and services?	Yes No	1 2
5.3	If no, give reason(s)		
5.4	Have family planning staffs received training or orientation on PMTCT of HIV?	Yes – all Yes – some No	1 2 3
5.5	Which is the **most common** method offered to HIV positive women? (Circle most applicable, no prompting respondent)	Condom Pill Injectable Other (specify).....	1 2 3 4

6.0 REFERRALS AND FOLLOW-UP

6.1	Do you refer HIV positive women for any of the following? (Circle all applicable)	Food and material support Emotional/psychological support PLWHA support group Income generating activities Other (specify).....	1 2 3 4 5
6.2	Do you receive referrals from the following? (Circle all applicable)	TBAs PLWHA support groups Youth groups Other health centers and dispensaries in the district Other (specify).....	1 2 3 4 5
6.3	Do you do follow-up for HIV positive women?	Yes No	1 2
6.4	What type of support is provided during follow-up? (Circle all applicable)	Partner/family counselling Infant feeding counselling Other (specify).....	1 2 3
6.5	Are spouses/husbands and other family	Yes	1

	members involved?	No	2
6.6	Do you have a follow-up schedule for PMTCT of HIV?	Yes	1
		No	2
6.7	If yes, which type of follow-up schedule?	Return to clinic	1
		Home visit	2
		Both of the above	3
		Copy seen/not seen	

END

Thank you very much

Appendix 4 **FOCUS GROUP DISCUSSION GUIDE**

- What is the general response of clients and the community to issues of MTCT of HIV?

- What factors are likely to affect access to PMTCT of HIV services within:-
  (a) The hospital?
  (b) Community?

- Is ARV prophylaxis and treatment easily accessible, available and affordable?

- What infant feeding alternatives are available and acceptable in the community?
- How long do mothers generally breastfeed?

- What is the general view of ANC clients on issues of confidentiality and stigma at PMTCT of HIV clinics?

- Are PMTCT of HIV services well-integrated and mainstreamed for greater accesses?
- What care and support organizations are operating within the District?

- What kind of support do they provide especially to HIV infected women?

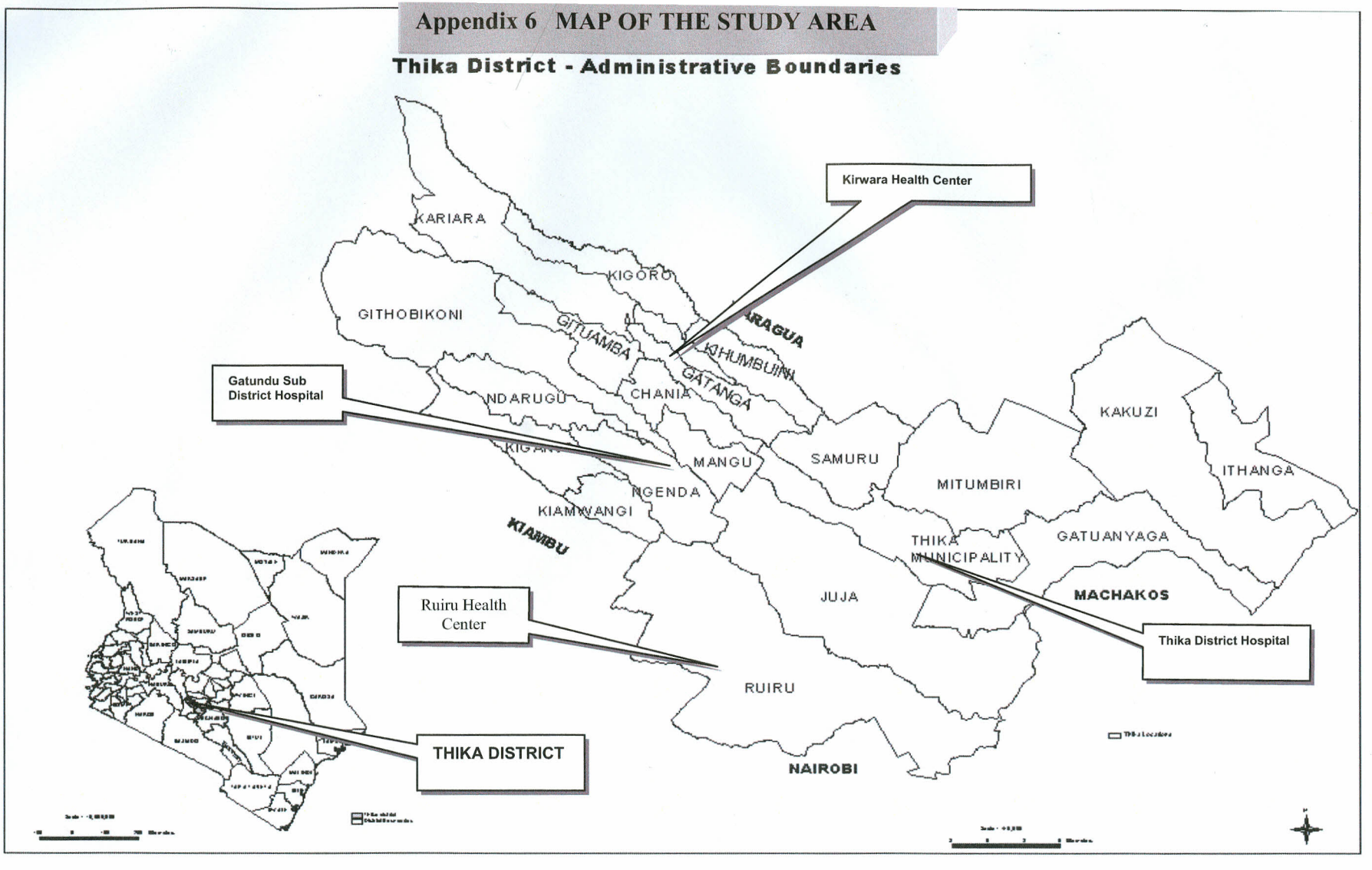
- In your opinion, how can PMTCT of HIV services be improved in the hospital?

Appendix 5 **OBSERVATION GUIDE**

CHECK LIST

ACCESS		
1.PMTCT SERVICES OFFERED	**AVAILABLE**	**NOT AVAILABLE**
Counselling		
Testing		
ARVs		
Breastfeeding and safe options available		
Family Planning		
PMTCT Plus		
Modified Obstetric Care-ANC, Delivery & PNC		
Treatment of opportunistic infections		
2. INFORMATION/IEC MATERIALS		
Sexual & Reproductive Health		
Policy guidelines on: - Breastfeeding		
-Testing		
-ARV use		
Tele-video shows		
Display of posters		
Folk media/drama etc		
3. INFRASTRUCTURE		
Client flow & reception (?friendly)		
Confidentiality		
4. PMTCT Plus (family involvement, social support and referral)		
QUALITY		
1.Training of staff		
Counselling and Testing (PMTCT)		
Laboratory staff		
Counsellors		
2. Time spent on each client		
1/4Hr		
1/2Hr		
1Hr		
Over 1Hr		
3. Test Kits and Testing Protocol		
-Type		
-Availability		
-Tie breaker		
4. Monitoring and Evaluation in PMTCT		
Availability of tools used		
Adequacy		
Correct entry and summary		
Timely dissemination		

Appendix 6 MAP OF THE STUDY AREA



The administrative boundaries above are for locations in Thika District.
The above health facilities were the study sites.