RESEARCH THESIS

TITLE: UPTAKE OF INTERVENTIONS IN PREVENTION OF MOTHER TO CHILD TRANSMISSION OF HIV AMONG HIV POSITIVE MOTHERS DELIVERING IN KENYATTA NATIONAL HOSPITAL.

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DEDICATION

This book is dedicated to my lovely wife Cecilia, our precious children, Carol, Stella and Dennis whose inspiration, love, support and endurance have made my studies enjoyable. To my late father John and mum Damaris for their inspiration and prayers.

ACKNOWLEDGEMENT

Iam very grateful to my wife Cecilia and our children Caroline, Stella and Dennis for their sponsorship in my postgraduate studies, inspiration, love, support and endurance of long hours away from home. May you be blessed abundantly.

Much appreciation and gratitude goes to Consolata Mathari hospital for enabling me do my elective term in the institution.

Special thanks go to my supervisors, Dr.Omondi Ogutu, Dr.W.Khisa and Dr.J.N.Kiarie for their guidance, mentorship and support in the undertaking of the research. Am most grateful to Dr.Wanyoike and all my senior colleagues in the department of Obstetrics and Gynecology for their dedication and commitment in ensuring that I acquire the necessary knowledge and skills.

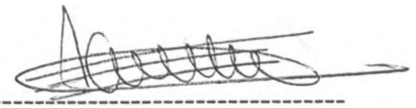
To my colleagues and friends for their understanding and support. Special thanks to Alex for the Data analysis.

To my parents, brothers and sisters I thank you very much for your support.

To the almighty God I give thanks and praise.

DECLARATION

This is to certify that the dissertation herein is my original work and no other similar study has been done in the same institution.

Signature  ----------

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LIST OF ABBREVIATION

AIDS	-	Acquired Immunodeficiency Syndrome
ANC	-	Antenatal clinic
ARV	-	Antiretroviral
AZT	-	Azidovudine
BTL	-	Bilateral Tubal Ligation
CDC	-	Center for Disease Control and Prevention
ECS	-	Elective Caesarian Section
EMCS	-	Emergency caesarian section
EFV	-	Efavirenz
FhI	-	Family health international
GAP	-	Global AIDS Program
GOK	-	Government of Kenya
HAART	-	Highly Active Antiretroviral Therapy
HIV	-	Human Immunodeficiency Virus
IUCD	-	Intrauterine Contraceptive Device
KDHS	-	Kenya Demographic Health Survey
KNH	-	Kenyatta National Hospital
LW	-	Labor Ward
MTCT	-	Maternal to Child Transmission
M&E	-	Monitoring and evaluation
NASCOP	-	National AIDS and STD Control Programme
COC	-	Combined oral Contraceptive Pill
NVP	-	Nevirapine
PCR	-	Polymerase Chain Reaction
PEP	-	Post Exposure Prophylaxis
PEPFAR	-	Presidents Emergency Plan For AIDS Relief
PMTCT	-	Prevention of Mother to Child Transmission
PNW	-	Postnatal Ward
SB	-	Still Birth
SSPS	-	Statistical Package for Social Sciences

STD	-	Sexually Transmitted Disease
STI	-	Sexually Transmitted Infection
SVD	-	Spontaneous Vaginal Delivery
3TC	-	Lamivudine
UNAIDS	-	United Nation Programme on Aids
UNICEF	-	United Nations Children Education Fund
UON	-	University of Nairobi
VCT	-	Voluntary Counseling and Testing

ABSTRACT

BACKGROUND:

Perinatal human immunodeficiency virus transmission has been shown to be a major route of Human Immunodeficiency virus(HIV)transmission in children and it accounts for 90% of new HIV infection in Kenya (2, 6). Prevention of perinatal HIV transmission is a major goal in care of HIV pregnant women. Awareness on perinatal HIV transmission has been shown here to be high but this has not translated into decrease in pediatric HIV infection from perinatal HIV transmission. In Kenya, VCT services, provision of ARVs and condoms (male) are free. By determining the Uptake of interventions to prevention of mother to child transmission of HIV 1 (PMTCT), the gaps can be identified to allow effective interventions to be adopted.

OBJECTIVE:

To determine the uptake of interventions to prevent mother to child transmission of human immunodeficiency virus (PMTCT) among HIV positive women delivering in Kenyatta National Hospital.

Design: Analytic cross-sectional study.

Setting: Kenyatta National Hospital maternity wards.

Participants: All consenting HIV positive postnatal women in the maternity wards of Kenyatta National Hospital.

Materials and methods: A structured questionnaire was administered through face to face interviews to the eligible and consenting post delivery mothers in the maternity wards. More information was obtained from the patient's file. Data was analyzed using SPSS software.

Main outcome measure: Uptake of interventions in PMTCT of HIV.

Results: This was a cross sectional survey where 280 respondents were recruited and participated in the study. Majority were unbooked (56.5%) and had attained secondary school education and above. Over 90% of clients had received counseling on various aspects of PMTCT of HIV.CD4 testing was low (58.6%) while the disclosure rate high (83.2%) with the major reason for non-disclosure being fear of stigma. Only 43.9% of the clients had their partners testing positive and 46.1% did not know their partners HIV status. The uptakes for interventions were low for elective caesarian Section (36.8%) &formula feeding (41.4%) but high for Post-Exposure Prophylaxis (98.2%) and antiretroviral for prevention of mother to child transmission of HIV (70%).Intention to use family planning methods was 94.6% (dual-20.4%, condoms-26.1%). Replacement feeding and elective caesarian section uptakes were higher in the booked than unbooked clients. Antenatal clinic attendance at Kenyatta National Hospital was associated with higher chances of using ARVs for PMTCT($p<0.001$),ECS($p<0.001$)and PEP($p=0.048$).Disclosure of HIV status was associated with increased chances of taking ARVs for PMTCT ($p<0.001$) , ECS($p<0.001$) and replacement feeding ($p=0.002$).Counseling was associated with higher chances of taking ARVs($p<0.001$),ECS($p<0.001$)and replacement feeding($p=0.002$).

Conclusions: PMTCT interventions uptake still low in unbooked clients and clients who do not disclose their HIV status. Safe delivery and infant feeding counseling also needs emphasis.

INTRODUCTION AND LITERATURE REVIEW

Globally Human Immunodeficiency Virus (HIV) infection is a major cause of morbidity and mortality amongst women and children. The worst affected region by the HIV/AIDS epidemic is Sub-Saharan Africa, which is home to 70% of the world's HIV infected people (1) Eighty percent (80%) of all HIV infection in Sub-Saharan Africa and 90% in Kenya are due to heterosexual transmission (2,6). Globally, approximately 2 million HIV infected women give birth each year to about 800,000 infected infants (31).

Perinatally acquired transmission accounts for more than 90% of pediatric HIV infections (2, 6). Mother to child transmission rates differ considerably between the developed and developing countries (1, 4). Rates are higher in the developing countries.

In Africa, seroprevalence of HIV infection in pregnant women exceeds 20% in many areas. Perinatal HIV transmission rates have been reported to be 20-42% (2, 3). In Kenya HIV prevalence among pregnant women in 2003 was 9.4%(6.1%in2006) and ranged between 1-41% (2,3) while it ranges from 0.3-1% in North America, 1-5% in South America, 10% in Caribbean countries and <1% in Europe (31). The epidemic in women translates into a parallel epidemic in children the majority of who acquire their infection from their mothers during pregnancy, labor and delivery or through breast-feeding (2, 6).

The Aids epidemic is eroding advances made over the past 50 years in maternal child health survival. In Kenya the United Nations Programme on Aids (UNAIDS) estimates the number of adults and children with HIV infection and Aids to be 1.6 million with 50% being women. These statistics point to HIV/AIDS as being one of the most serious reproductive health problems facing sub-Saharan Africa in general. The disease has negative effects on life expectancy, infant's mortality, adult mortality and dependency ratio (3, 2).

Mother to Child Transmission of HIV (MTCT)

Perinatal transmission is responsible for 90% of HIV infection in children (2, 6). MTCT Can take place during the intrauterine period, intrapartum period (labor and delivery) And in the post partum period by breast-feeding from the milk of a woman who has HIV infection (9). A number of studies using early diagnostic techniques of viral culture and polymerase chain reaction (PCR) suggest that over half of MTCT occurs in the intrapartum period.

Table 1: Rates of transmission

Timing	**Rate**
During pregnancy	5 – 10%
During labor + delivery	10 – 20%
During breast-feeding	5 – 20%
Overall without breast-feeding	15 – 30%
Overall with breast-feeding < 2 months	25 – 35%
Overall with breast-feeding > 2 months	30 – 45%

Source: De Cock KM(12)

The vertical transmission is associated with high HIV RNA viral load in blood and genetic variation, breast-feeding(8,9,10,11,13,27), sexually transmitted infections/chorioamnionitis(30), cigarette smoking during pregnancy, older maternal age, prematurity and obstetric practices like instrumental deliveries, amniocentesis, external cephalic version, use of scalp electrodes, episiotomy, rupture of membranes for more than 4 hours (2% risk per hour of ruptured membranes), repeated vaginal examinations and routine nasogastic suction of the new born.

Prevention of mother to child transmission of HIV (PMTCT) is a major goal in the care of HIV positive pregnant women. There are three elements of PMTCT viz, primary prevention of HIV, provide care and support to HIV infected women, their infants and families and prevention of unintended pregnancies in HIV infected women.

There have been many scientific and operational advances in PMTCT of HIV. These include HIV testing during pregnancy, modified obstetric practices, preventive ARV drug Regimens and safe infant feeding options. With effective interventions MTCT rates have gone down to as low as 2% in developed countries (31).

Despite a high awareness on perinatal HIV transmission (17) HIV is still a major cause of infant and child mortality in Africa. Its therefore imperative to scale up PMTCT services as this could have a number of benefits; Decrease the number of HIV infected children, increase child health and survival, decrease load on the health systems and allows opportunity to improve and expand health services and strengthen health infrastructure.

To achieve this objective of scaling up PMTCT services it's therefore important to increase funding, build capacities and carry out continuous monitoring and evaluation of PMTCT programs. It is in this perspective that this study aims at determining the coverage and access to interventions in prevention of MTCT of HIV.

The WHO estimates that the number of people requiring treatment by the end of 2005 in Kenya was 220,000. The government declared ARV target by 2005 as 95,000 against the 3 by 5 initiatives target of 110,000. By September 2004, the number of people receiving ARVs (15-49 yrs) was 20,000 (22). Recent data estimates the figure at about 44,000 (June 2005) and 140,812 (43% NASCOP-Nov2007).At the UN general assembly high level meeting in Kampala Uganda on 22 September 2003,WHO declared lack of access to HIV treatment as a global emergency. Currently <5% in developing countries who need ART have access to it. Globally out of 40.3million people living with HIV/AIDS only 2024 %(UNAIDS-2006) are on ARVs.

In 2003 financial year, Global Aids Program Kenya chapter partnered with Ministry Of Health to develop policies, testing and counseling guidelines and training standards for national VCT program. This resulted in expansion from 3 sites in the year 2000 to 220 sites in 2003.

About 118 PMTCT facilities country wide are now currently being supported by GAP and MOH and about 40% of HIV infected women have received complete course of ARV prophylaxis in PMTCT setting.

It has now been demonstrated that PMTCT interventions are cost effective and that the drug costs and the negative effects of drug resistance are unlikely to outweigh the social benefits of reducing HIV transmission.

According to Dr.Mbori Ngacha D. in her key note address at the implementers meeting of PEPFAR in Durban,South Africa in 2006 (41) ,the on going focus of research has been to identify more efficacious pmtct interventions particularly in breastfeeding population. She presented a table showing sequential improvements that have been made in the regimen over the past several years.

Table 1: Observed transmission rates according to intervention in Africa, 1995-2004

No intervention	22%
AZT monotherapy	13%
Single dose -NVP	12%
Short course AZT +3TC	9.3%
Short course AZT + sd - NVP	6.5%
Short course AZT +3TC+ sd-NVP	4.7%
Triple ART	<1%

The conclusion is that combination regimens are more efficacious.

The current guidelines on PMTCT interventions in Kenya (Kenya National PMTCT Curriculum, pocket guide 1st edition 2005) are;

1) **Standard ARV regimens for PMTCT**

   a) Tested before 36 weeks – AZT 300mg bd from 28 weeks and 3 hourly In labor plus Nevirapine 200mg at onset on Labor.
   - AZT 300mg bd from 28 weeks and sd NVP + AZT 600mg at onset of labor

   b) Women requiring HAART – Combivir plus NVP throughout pregnancy and after delivery.

   c) Tested after 36 weeks or in labor – NVP 200mg stat

   d) Tested after delivery – (post exposure prophylaxis to the infant) – NVP syrup 2mg/kg stat within 72 hours of birth plus AZT syrup for four weeks.

   e) All infants born to HIV positive women receive NVP within 72 hours of birth plus AZT syrup for four weeks.

2) **Modified obstetric practices**

   a) Vaginal cleansing with hibitane

   b) Avoid artificial rupture of membranes and reduce time between rupture of membranes and delivery (<4hours), multiple vaginal examinations, unnecessary episiotomies, milking of cord, suctioning of baby and invasive procedures.

   c) Elective caesarean section (6, 21, 34).

3) **Safe infant feeding practices**

   Recommendations;

   i) Exclusive breastfeeding for 6 months with rapid cessation.

   ii) Replacement feeding formula provided for 6 months where feasible, acceptable, affordable, sustainable and safe.

4) Improving maternal and child health services

i) Provision of MCH and ANC services

ii) HIV voluntary counseling and testing

- PMTCT interventions have their greatest impact when women are encouraged to take a HIV test regardless of when they present for services (ante partum, intrapartum or postpartum) (19, 33).

iii) Screening and treatment of syphilis and other STIs. (30)

iv) Multivitamin and haematinic supplementation.

- Good nutrition is integrally linked to healthy living for people with HIV infection and nutrients are required for immune system. Results from observational studies suggest that micro-nutrition status is a determinant of the progression of HIV disease (20).

5) Post Pregnancy Care

i) Postnatal clinic follow up

ii) Pediatric clinic follow up

iii) Ensuring the availability and affordability of contraceptives for dual protection against unwanted pregnancies and STIs by use of male and female condoms are a vital component of every HIV prevention program.

iv) Linkage to post test club and comprehensive care centre. Kenyatta National Hospital started a comprehensive care centre (CCC) in 2002 to provide comprehensive care and support to HIV patients.

In 1998, UNICEF carried out pilot PMTCT program and by year 2000, PMTCT was introduced by WHO as a standard MCH care after issuing recommendations on use of ARV drugs for PMTCT of HIV (26, 36).

Kenyatta National Hospital has had a PMTCT program from 2000. The current programme as from September 2003 is supported by CDC through the UON and includes antenatal, intrapartum, postpartum HIV counseling and testing with provision of antenatal, intrapartum and infant post exposure antiretroviral for PMTCT. All HIV infected women are offered multivitamins and haematinics and are supported in their infant feeding choices including provision of infant formula for 6 months at no cost. When indicated the program supports septrin prophylaxis and HAART for mothers, to their partners and children. HIV infected women are followed up in a post pregnancy care clinic where they receive continued counseling, medical care and contraception (PMTCT plus).

In Kenya, the PMTCT programme is supported by NASCOP, CDC and other organizations like United States Agency for International Development and Department for International Development (USAID).

The program has faced various challenges namely; sustainability, adherence to PMTCT interventions (ARVs, replacement feeding), loss to follow up probably due to lack of good community linkage and coverage.

PMTCT plus initiative was conceived in the year 2001 as a response to the 5 point call for action on HIV/AIDS issue by the United Nations secretary general. It was designed to increase access to HIV/AIDS care and treatment in resource poor setting. Since inception of PMTCT plus program in January 2004, a total of 7,343 women have so far been counseled at KNH as at 31.12.2005. 99.7% accepted the test and 935(12.7% tested positive. Among the HIV positive women, 646 (69%) have been put on ARVs for PMTCT and 89 (9.5%) on HAART in 2005. 587 (62.8%) of the HIV positive women have opted for replacement feeding and 35% have delivered by C/S in 2005. 62.8% of the HIV positive women who have delivered are on follow-up in the postnatal clinic by the end of 2005 and 60% are on FP methods (BTL-49%, DMPA-18%, IUCD-9%, OCP-16%, Condoms-9% and dual method-56% (source: KNH PMTCT database,Feb 2006).Mutiso SM et al (43) in a study on contraceptive use among HIV positive women attending CCC in KNH found FP uptake of 44.2%(condoms-81.5%,dual-13.5%,norplant-2.6%) and an unmet need of 30%.

RATIONALE

Given the high seroprevalence of HIV among women of child bearing age which translates into a parallel epidemic in children, the majority of who acquire their infection from their mother during pregnancy, delivery or breast feeding, the prevention of mother to child transmission of HIV is important for primary prevention and clinical care. The PMTCT program in KNH was started in 2000 and has met many challenges like sustainability, adherence to PMTCT interventions, loss of follow up and lack of systemic monitoring and evaluation.VCT services, provision of ARVs and male condoms in Kenya are free and no evaluative studies have been done on the PMTCT program in KNH since scaling up. It is for this reason that this study will determine the current uptake of interventions to PMTCT of HIV.

RESEARCH QUESTION

What is the uptake of PMTCT interventions in KNH?

STUDY OBJECTIVE

Broad objective

To determine the uptake of interventions to prevent mother to child transmission of human immunodeficiency virus (PMTCT) among HIV positive mothers delivering in KNH

Specific Objectives

1. To determine the social demographic characteristics of the HIV infected postnatal mothers.
2. To determine the proportion of mothers that have received antiretroviral for PMTCT.
3. To determine the proportion of babies that received post exposure prophylaxis.
4. To determine the proportion counseled and received safe delivery, safe infant feeding and family planning / safe sex practices.
5. To determine the predictors of PMTCT uptake

METHODS AND MATERIALS

Study design:

Analytical cross – sectional study collecting information on social demographic characteristics and receipt of PMTCT interventions at the same time among HIV positive mothers.

Study Area

The study was done at the postnatal wards of KNH which serves as a national referral as well as a teaching hospital. It is about 3km from the central business district of Nairobi and has a bed capacity of 2,000. There are 3 maternity wards which double as antenatal and postnatal wards too (GFA, GFB&Ward 1A) with a bed capacity of 116.

Study Population

This comprised of postnatal mothers admitted in the maternity wards at KNH.

The women were informed about the study and gave informed consent prior to participation after meeting the eligibility criteria for the study.

Sampling method

A sequential sampling method was used whereby HIV positive patients admitted in the maternity wards (KNH) after delivery were recruited sequentially in the study until sample size was attained.

Sample size.

Sample size was calculated using the formula:

$$n = 2Z^2_{\alpha/2} P (1-P)/D^2$$

Where n = desired sample size

P = Prevalence of uptake of C&T at the postnatal wards. Taken to be 90% from previous estimates at the unit, hence p was taken As 0.90

D = Precision with which to measure prevalence, set at plus or minus 5% (0.05).

The $Z_{\alpha/2}$ is the cut off points along the x-axis of the standard normal probability distribution that represents probability matching the 95% confidence interval (1.96).

Substituting the above in the formulae we get;

$$n = 2x1.96x1.96x0.90x0.1/ (0.05)^2$$

$$= 276.5952$$

$$= 277$$

A sample of 277 participants was required to obtain a 95% confidence interval of +/- 5%. In total 280 participants were recruited in the study.

Inclusion Criteria

All consenting HIV positive postnatal women admitted in the Kenyatta National Hospital maternity wards (GFA, GFB&1A) during the period of study were eligible to participate.

Exclusion criteria

- Those who declined to participate in the study by not consenting.
- Those who were too sick to answer to the questionnaire.
- Those who were HIV seronegative.

Study procedures;

The HIV seropositive postnatal mothers were identified by use of the admitting ward patient's register and a sequential sampling used to select participants on a first come basis until sample size attained. After the daily ward routines and following an informed written consent, the participants were invited one at a time into a private room in the maternity wards to participate in the study. At each stage, trained research assistants under the supervision of the principal investigator administered a detailed structured questionnaire and this involved face-to-face interviews. Postnatal women were interviewed at least 72 hours post delivery. Some of the information was obtained from the participants file. The questionnaire contains 3 sections:

- Social – demographic characteristics
- Obstetric characteristics
- PMTCT interventions

The filled questionnaires were kept in a safe place ready for data entry and for the confidentiality of the patient's details. A check list system using inpatient numbers was Used to avoid repetition.

Data management and analysis.

After cross checking the questionnaires for any missing entries, a data base was designed in micro soft (MS) access which allowed the researcher to set controls and validation of the variables. On completion of data entry and data cleaning the data was exported in a statistical package (SPSS-version12.0) for analysis. The data is presented in tables and figures. Parametric tests are used to examine whether there is any significant association

between the continuous variables while chi-square is used to establish the significant association between the categorical variables. The dependent variables are taken as the PMTCT interventions which include disclosure of HIV status, mode on delivery, ARV usage, infant feeding, infant PEP and family planning. Value of $p<0.05$ considered statistically significant.

Ethical considerations

1. Permission to carry out the study was sought through the department of Obstetrics and Gynecology of the University of Nairobi from the Kenyatta National Hospital ethics and research committee.
2. Informed written consent was sought from each woman and only those who consent were included in the study.
3. Participation in the study was voluntary and no inducements were offered.
4. The questionnaire did not contain the participants name or ethnicity but a number only.
5. The study did not interfere with service provision in the post natal ward and where a shortfall was identified it was corrected.
6. Data and information obtained was solely used for the official intended purpose.

Study Limitations anticipated

- Since participation in the study is purely voluntary, refusal to participate is anticipated.
- Cross sectional study where information on counseling and other services is reported (recall bias) but this shall be minimized by obtaining some of the information from the patient's file.
- The family planning methods are an intention to use which may never be fulfilled
- The haematinics and multivitamins were prescribed and one may not be sure whether they were bought and taken or not.

RESULTS

Table 1: Socio-Demographic characteristics (n = 280)

Factor	Frequency	Percent
Age (in years)		
• ≤20	20	7.1
• 21 – 30	185	66.1
• 31 – 40	73	26.1
• > 40	2	0.7
Religion		
• Christian	271	96.8
• Muslim	9	3.2
8Marital Status		
• Single	65	23.2
• Married	193	68.9
• Others	22	7.9
Education Level		
• None	7	2.5
• Primary	86	30.7
• Secondary	144	51.4
• College/University	43	15.4
Occupation		
• House Wife	100	35.7
• Self Employed	56	20.0
• Formal Employed	85	30.4
• Unemployed	39	13.9

Most participants were between 21 and 30 years of age (66.1%). The mean age was 27.9 years, median age 28.0 years, with the range being 17 to 42 years. Majority (51.4 %) had achieved secondary education while only 2.5% had no education, 68.9% were married and 50.4% were employed. The study population was predominantly of Christian faith (96.8%).

Table 2: Obstetric and Gynecologic characteristics (n = 280)

Factor	Frequency	Percent
Parity		
• 1	106	37.9
• 2 & 3	160	57.1
• ≥ 4	14	5.0
ANC Attendance		
KNH	120	43.5
Others	156	56.5
None	4	1.4
Place of HIV Counseling & testing		
• ANC (knh+others)	267	95.4
• KNH Labor ward	9	3.2
• KNH Post Natal Ward	4	1.4
Counseled & provided information on ARV		
• Ante partum	252	90.0
• Intrapartum	7	2.5
• Postpartum	1	0.4
• None	20	7.1
Provided with information on Safe mode of Delivery.		
• Yes	256	91.4
• No	24	8.6
Provided with information on Safe infant feeding options		
Ante partum	225	80.3
Intra-partum	24	8.6
Postpartum	22	7.9
• No	9	3.2
Provided with information on Safe Sex Practices and Family Planning		
Ante partum	177	63.2
Intrapartum	0	0.0
Postpartum	16	5.7
• No	87	31.1

ANC attendance in the previous pregnancy was 98.6% with most participants being Unbooked clients (56.5%) and the majority were multiparous (62.1%).

Counseling was high with most clients receiving it during the antenatal period(95.4%).The overall counseling on various PMTCT interventions was high eg.ARVs(92.9%),safe mode of delivery(91.4%),safe infant feeding options(96.8%) and safe sex practices and FP(68.9%).

Table 3: Disclosure of HIV status (n = 280)

Intervention	Frequency	Percent
Have you disclosed your HIV Status		
• Yes	233	83.2
• No	47	16.8
If yes, to Whom (n = 233)		
• Partner	199	85.4
• Parent	15	6.4
• Brother/Sister	5	2.1
• Friend	14	6.0
If no (n=47)		
Reason for non-disclosure		
• Fear of stigma	25	53.2
• Fear of husbands reaction	11	23.4
• Just tested positive	11	23.4
HIV status of partner		
• positive	123	43.9
• negative	28	10.0
• Unknown	129	46.1

Majority of clients (83.2%) had disclosed their HIV status. Fear of stigma was the main reason for non-disclosure at 53.2%. For those who disclosed, majority had done so to their partners (71.1 %.) However, 46.1% did not know their partner's HIV status, 43.9% said their partners were positive and 10% said their partners were negative (discordance).

Table 4: PMTCT Interventions (n-280)

Intervention	Frequency	Percentage
ARVs usage		
• Antenatal AZT/NVP	148	52.9
• Intrapartum NVP	48	17.1
• HAART	34	12.1
• None	50	17.9
Mode of delivery		
○ Elective C/S	103	36.8
○ Emergency C/S	64	22.9
○ SVD	113	40.4
Infant feeding options		
• Exclusive breastfeeding	152	54.3
• Replacement feeding	116	41.4
• Not decided	12	4.3
Post exposure prophylaxis		
• **NVP**	1	0.3
• **AZT/NVP**	274	97.9
• **None**	5	1.8
FP intended to use		
• Yes	265	94.6
• No	15	5.4
Haematinics prescribed		
• Yes	246	87.9
• No	34	12.1
Multivitamins prescribed		
• Yes	164	58.6
• No	116	41.4

ARV prophylaxis for PMTCT was given to 70% of the respondents with AZT/NVP being the most popular regime at 52.9% while those on HAART were only 12.1%, 17.5% used none and 98.2% of the newborns received PEP. Only 5(1.8%) babies did not receive PEP because the maternal HIV status was known postnatal more than 72hours.

Figure 1: CD4 counts

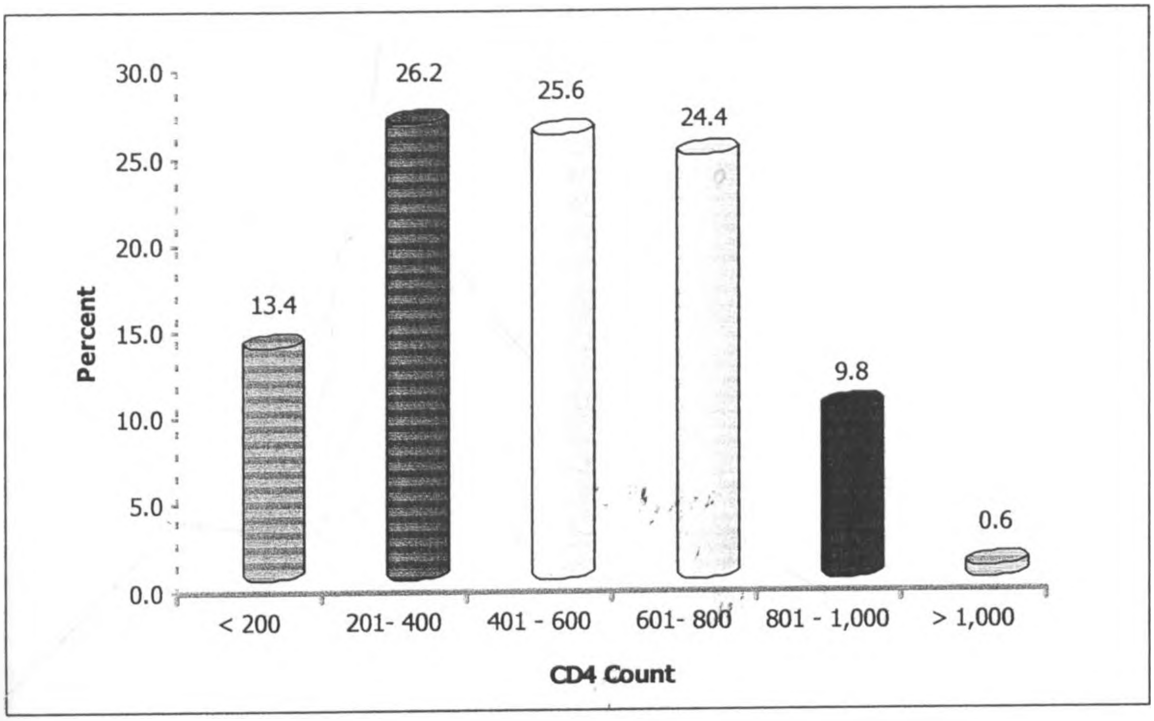


Figure 1 above shows the most recent CD4 counts done in antenatal period.

CD4 testing was average at 58.6 %(164/280) with the majority (76.2%) having CD4 counts between 200-800cells/mm3.

Majority of the participants delivered by C/S (59.7%) with elective caesarian section (ECS) being 36.8%while 40.3% delivered by SVD.Participants opting for exclusive breastfeeding were 54.3%, 41.4% opted for replacement feeding and 4.3% were not decided.

Figure2: FP method Planned

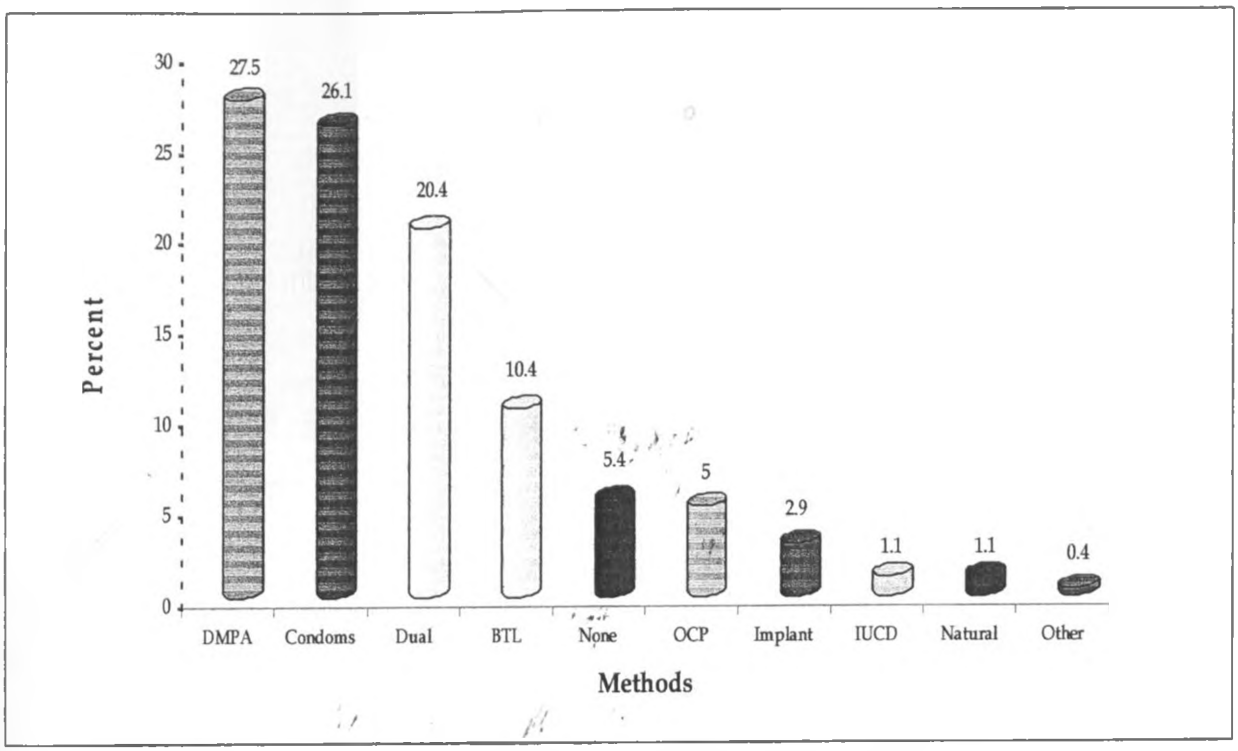
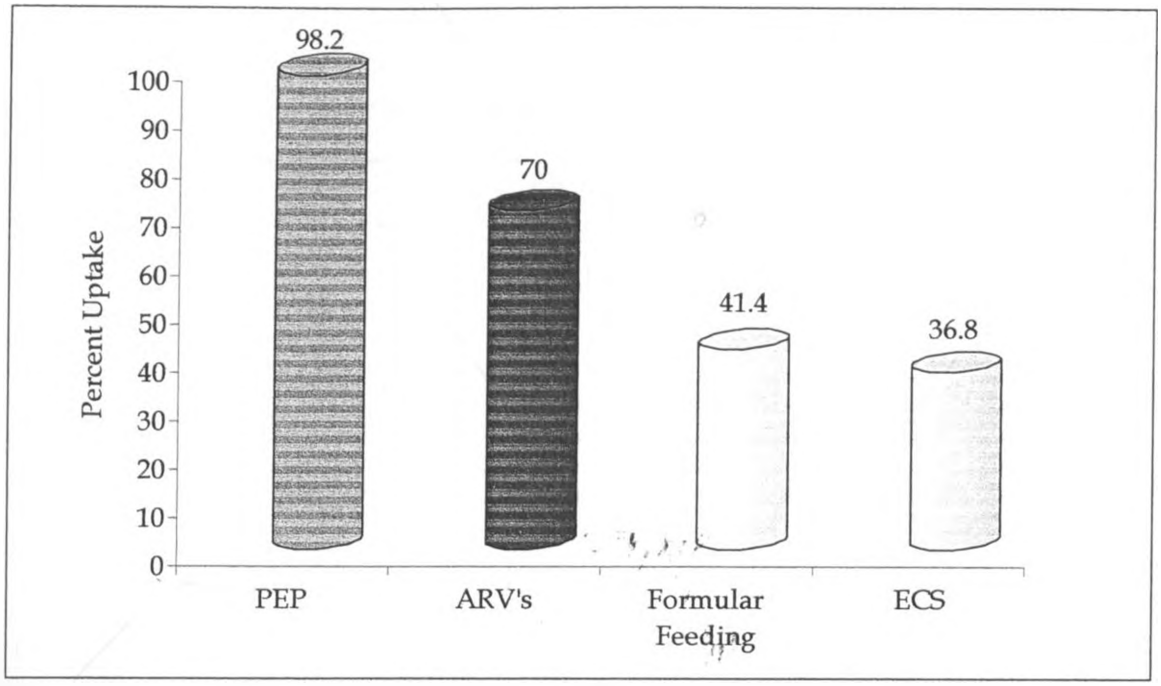


Figure 2 above illustrates the intended use of family planning method

FP counseling uptake was high (68.9%) with 46.5% of the mothers intending to use barrier methods / dual method but injectables (DMPA) being the predominant method (27.5%)while 5.4% intending to use none.

Multivitamins as immunomodulators and haematinics were prescribed for use to 58.6% and 87.9% respectively.

Figure3: uptake of PMTCT interventions



The uptakes of ARVs for prophylaxis and PEP were high (over 70%) while that of replacement feeding and ECS was low (<50%).However, the uptakes for multivitamin, Haematinics and FP could not be determined as they were inform of prescriptions and intentions to use respectively.

Table 5: Summary of Uptakes for PMTCT interventions

No of Pmtct intervention	Frequency	Percent
0 (none)	3	1.1
1 (any one)	42	15.0
2 (any two)	106	37.8
3 (any three)	80	28.6
4 (all four as a package)	49	17.5

Above is a summary of the uptake for PMTCT interventions (ARVs for PMTCT, ECS, Replacement feeding and infant PEP) when taken singly, in combination or as a package. 3 (1.1%) clients used none of the interventions, 80(28.6%) used any 3 of the interventions while only 49 (17.5%) received the whole package (all four) of the interventions.

The three participants who had no intervention had used exclusive breast feeding(3),HAART(1),no ARVs(2),EMCS(2),SVD(1) and PEP(0). Majority (46.1%) of the clients had used at least four (i.e.3 or 4) of the interventions for PMTCT.This however has limitation of the possible computations of the interventions.

Table6 Association between Predictors of Use of ARV for Prophylaxis for PMTCT

Predictors	ARV for Prophylaxis		P-value
	Yes	No	
Age			
< 30	164 (71.3)	41 (82.0)	0.122
≥ 30	66 (28.7)	9 (18.0)	
ANC Attendance			
KNH	113 (50.0)	7 (14.0)	<0.001
Other	113 (50.0)	43 (86.0)	
Marital Status			
Married	179 (77.8)	36 (72.0)	0.377
Unmarried	51 (22.2)	14 (28.0)	
Education			
Secondary & Above	158 (68.7)	29 (58.0)	0.146
Primary & Below	72 (31.3)	21 (42.0)	
Counseling			
Yes	220 (95.7)	40 (80.0)	<0.001
No	10 (4.3)	10 (20.0)	
Disclosure			
Yes	202 (87.8)	30 (60.0)	<0.001
No	28 (12.2)	20 (40.0)	

ARVs for PMTCT of HIV are more likely to be used by those less than 30 years of age (p =0.122), married women (p =0.377), clients attained secondary education and above (p=0.146), clients counseled of ARVs for PMTCT (p<0.001) and clients who disclose their HIV status (p<0.001).The association between KNH antenatal clinic attendance, counseling of ARVs for PMTCT, disclosure of HIV status and usage of ARVs for PMTCT of HIV was statistically significant.

The unbooked clients were associated with a higher chance of not using ARVs for PMTCT of HIV. This aspect of unbooked clients requires to be addressed further by provision of more skilled personnel to the sites, continuous medical education and scaling up of counseling.

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ARVs for PMTCT of HIV are more likely to be used by those less than 30 years of age (p =0.122), married women (p =0.377), clients attained secondary education and above (p=0.146), clients counseled of ARVs for PMTCT (p<0.001) and clients who disclose their HIV status (p<0.001).The association between KNH antenatal clinic attendance, counseling of ARVs for PMTCT, disclosure of HIV status and usage of ARVs for PMTCT of HIV was statistically significant.

The unbooked clients were associated with a higher chance of not using ARVs for PMTCT of HIV. This aspect of unbooked clients requires to be addressed further by provision of more skilled personnel to the sites, continuous medical education and scaling up of counseling.

Table 7 Association between Predictors of EC/S for PMTCT

Predictors	EC/S		P-value
	Yes	No	
Age			
< 30	64 (62.1)	141 (79.7)	0.001
≥ 30	39 (37.9)	36 (28.3)	
ANC Attendance			
KNH	76 (74.5)	44 (25.3)	<0.001
Other	26 (25.5)	130 (74.3)	
Marital Status			
Married	88 (85.4)	127 (71.8)	0.009
Unmarried	15 (14.6)	50 (28.2)	
Education			
Secondary & Above	76 (73.8)	111 (62.7)	0.058
Primary & Below	27 (26.2)	66 (37.3)	
Counseling			
Yes	102 (99.0)	158 (89.3)	0.002
No	1(1.0)	19 (10.7)	
Disclosure			
Yes	99 (96.1)	133 (75.1)	<0.001
No	4 (3.9)	44 (24.9)	
Parity			
≥ 2	70 (68.0)	104 (58.8)	0.126
< 2	33 (32.0)	73 (41.2)	
Occupation			
Employed	63 (61.2)	78 (44.1)	0.006
Unemployed	40 (38.8)	99 (55.9)	

The association between EC/S for PMTCT and clients of age< 30years (p=0.001), employment (p=0.006), KNH antenatal clinic attendance (p<0.001), counseling on safe mode of delivery (p=0.002) and disclosure of HIV status (p<0.001) was statistically significant. Clients of secondary school education and above (p=0.058) and multiparous clients (p=0.126) were associated with higher chances of choosing EC/S.
Despite high counseling uptakes of ECS (91.4%), the choice between ECS and non-ECS remained difficult with 99% of ECS clients counseled while 89.3% of non ECS also counseled. This may be attributed to lack of adequate and timely information on safe mode of delivery and their socioeconomics.

Table 8: Association between Predictors of PEP for PMTCT

Predictors	Post exposure prophylaxis		P-value
	Yes	No	
ANC Attendance			
KNH	120 (44.3)	0.0	0.048
Other	151 (55.7)	5 (100.0)	
Marital Status			
Married	211 (76.7)	4 (80.0)	0.864
Unmarried	64 (23.3)	1 (20.0)	
Education			
Secondary & Above	186 (67.6)	1 (20.0)	0.025
Primary & Below	89 (32.4)	4 (80.0)	
Counseling			
Yes	257 (93.5)	3 (60.0)	0.004
No	18 (6.5)	2 (40.0)	
Disclosure			
Yes	229 (83.3)	3 (60.0)	0.171
No	46 (16.7)	2 (40.0)	
Occupation			
Employed	141 (51.3)	0	0.023
Unemployed	134 (48.7)	5 (100.0)	

The uptake of PEP for the newborn was high in the booked clients (p=0.048), married women p=0.864, clients with secondary education and above (p=0.025), clients counseled on ARVs (p=0.004), disclosure of HIV (p=0.171) and employed p=0.023. All the infants who did not receive PEP were from unbooked mothers. The association between counseling of ARVs and PEP was statistically significant. This can be attributed to high counseling uptake, skilled personnel and hospital delivery.

Table 9: Association between Predictors of Formula feeding for PMTCT

Predictors	Formula feeding		P-value
	Yes	No	
Age			
< 30	196 (73.1)	9 (75.0)	0.886
≥ 30	72 (26.9)	3 (25.9)	
ANC Attendance			
KNH	118 (44.5)	2 (18.2)	0.084
Other	147 (55.5)	9 (81.8)	
Marital Status			
Married	207 (77.2)	8 (66.7)	0.396
Unmarried	61 (22.8)	4 (33.3)	
Education			
Secondary & Above	182 (67.9)	5 (41.7)	0.059
Primary & Below	86 (31.1)	7 (58.3)	
Counseling			
Yes	261 (87.4)	10 (83.3)	0.007
No	7 (2.6)	2 (16.7)	
Disclosure			
Yes	226 (84.3)	6 (50.0)	0.002
No	42 (15.7)	6 (50.0)	
Occupation			
Employed	139 (51.9)	2 (16.7)	0.017
Unemployed	129 (48.1)	10 (83.3)	
Religion			
Christian	261 (97.4)	10 (83.3)	0.007
No Christian	7 (2.6)	2 (16.7)	

The uptake for formula feeding as a safe method of infant feeding was high in clients of age ≤30 years(p=0.886),married clients(p=0.396),clients with secondary education and above(p=0.059),those counseled on safe infant feeding(p=0.007),those who disclosed their HIV status(p=0.002)and being of Christian faith(p=0.007).The association between counseling on infant feeding, disclosure of HIV status, religion and formula feeding was statistically significant. Majority (83.3%) of mothers opting to use non-formula feeds were unemployed.

Discussion

In Kenya perinatal transmission of HIV is responsible for 90% of HIV infection in children (2,6). MTCT can take place during the antenatal, intrapartum and postpartum period. PMTCT is a major goal in the care of HIV positive pregnant women and refers to a comprehensive family centered spectrum of clinical and supportive services, provided in conjunction with public health initiative to prevent the transmission of HIV from a woman to her infant.

This was a cross-sectional analytical study to determine the uptake of interventions for PMTCT in KNH.

The study population consisted of HIV positive postnatal mothers in KNH. Majority (66.1%) were between 21-30 years of age, 84.6% had achieved an educational level of secondary and below. They were predominantly of Christian faith (96.8%), 68.9%were married and 86.1% had a form of economic base ranging from being a housewives, self employed and formally employed.

ANC attendance in the last pregnancy was high (98.6%).This is commendable given that the ANC coverage was 90% according to KDHS 2003.The scenario of home delivery not only misses out ARVs administration to the mother intrapartum and PEP to the newborn within 72 hours of delivery but also exposes the child to intrapartum vertical transmission.

Access to counseling on various interventions in PMTCT of HIV ranging from HIV testing, ARVs usage, mode of delivery, infant feeding and family planning to nutrition was over 90%.This is commendable given that 90% of HIV infection in children is due to vertical transmission (2, 6).Counseling plays an integral role in the implementation and uptake of interventions in PMTCT of HIV in HIV positive pregnant women. According to studies done in Cameroon the HIV counseling uptake ranged 16-95 %(39) while a similar study in Kampala, Uganda found an uptake of 94.6 %.(40).

HIV disclosure was 83.2% with ANC attendance and married couples being associated with a greater degree of disclosure as compared to those who did not attend ANC(95.8%versus 73.7% $p<0.001$) or were not married (87.9%versus 66.2% $p<0.001$).Annette et al(38) in a study to assess perceptions of HIV positive persons regarding disclosure of their serostatus to others showed that HIV is still a fearful and stigmatizing disease, and disclosure of HIV status is a complex phenomenon embedded in various types of social relationships. Risks of telling are also fueled by societal and experienced stigma associated with HIV, whereas the benefits were primarily fueled by personal needs. Studies done elsewhere have shown that among pregnant women who test positive up to 70% choose not to disclose and are generally less likely to accept ARVs for PMTCT and also practice unsafe infant feeding for fear of revealing that she is infected. The calculus of disclosure is recursive process, with decisions made and remade over time.

Stigma in this study accounted for 53.2% of the reasons for non disclosure of ones HIV status. Since the 2000 international AIDS conference in Durban, South Africa, titled" Break the silence", stigma has been recognized as a major confounding problem in the HIV/AIDS pandemic. Studies have shown that continued HIV/AIDS education may be one of the strategies in the eradication of HIV/AIDS stigma and demystifying traditional beliefs and changing practices. This study showed a very high level of patient counseling and hence commendable.

ARV drugs decrease viral replication and viral load in the mother and protect the infant against HIV exposure. They effectively reduce maternal HIV infection and prevent MTCT especially when used in conjunction with the other interventions for PMTCT of HIV (23).

The uptake for ARVs for prophylaxis was 70% in the study with the most popular regime being AZT/NVP. Clinical staging was not done and CD4 testing was 58.6%.This compared well with other studies done earlier and elsewhere. Sirengo M.C in his study on PMTCT plus in KNH (42) demonstrated 79.8% ARV uptake with Nevirapine being the most popular regime (58.6%) and CD4 testing at 70.4%. Earlier studies done elsewhere in pumwani by Govedi (14) found ARV uptake of 69%, KNH by Ongech etal

(37) found uptake of 70%.UNICEF in another study found low acceptance rate of ARV drugs intervention on their PMTCT pilot sites in Kenya with only 43.4%.This implies that women still do not have access to ARVs for PMTCT. However, a lot of improvement noted but far below our national targets. The government of Kenya declared total war on Aids and set national targets of introducing PMTCT services in 80% of facilities offering ANC by 2007. With the high ANC attendance and counseling rates on various interventions in PMTCT cited above plus free provision of antiretroviral drugs by the GOK, a lot remains to be done to scale up the ARV drugs uptake by way of continuous medical education to care givers nationally to equip them with up to date Knowledge on ARV drugs usage& monitoring, clinical staging in the absence of CD4 testing and also conducting anti-stigma campaigns plus running of support groups. Notably 90% of non-users of ARV drugs in our study were attending ANC elsewhere (unbooked) and the factors that positively correlated with administration of arvs were antenatal clinic attendance, counseling and disclosure of HIV status.

On mode of delivery and PMTCT, 36.8% opted to deliver by ECS and 40.3% by SVD. Studies done have shown that elective caesarian section is a safe and efficacious intervention for PMTCT in women taking ARVs or taking AZT alone (21, 34).This compares well with an earlier study done in KNH by Ongech etal (37) which found an uptake for ECS as 35% but studies elsewhere in western Europe give ECS rates as 66%.In our study, majority of those who.delivered by ECS were booked clients (73.8%) and majority delivering by SVD were unbooked (78.8%). The low uptakes means that the program has not internalized the importance of ECS as far as PMTCT is concerned. This can be addressed by increasing the number of pregnant mothers attended to by skilled care givers as entrenched in safe motherhood and also in keeping with achieving the target of millennium development goal 5.Clients who attended ANC, married, counseled on safe mode of delivery, disclosed their HIV status and were employed had a higher chance of delivering by ECS.

In our study, the uptake for replacement feeding as a safe infant feeding method was low (41.4%). Studies have shown that replacement feeding abolishes the absolute transmission rate of 5-20 % through breastfeeding to zero. A survey on the update of PMTCT interventions on pilot project in Africa (UNICEF/UNAIDS PMTCT pilot project) done by UNICEF found that only 33% of HIV positive would accept replacement feeding in Kenya (botswana90%, coted'ivore 72%, Rwanda 86%, Tanzania 25%, Uganda 44%, Zambia 60%, Zimbabwe 25%). A study done by Govedi etal (14) in pumwani found that the uptake for replacement feeding was 50% while one done in KNH by Ongech etal (37) got 60%. Notably in our study majority of unbooked opted for EBF (60.3%) while the booked opted for replacement feeding(50.8%).

In KNH replacement feeding is provided free but only to those in our PMTCT program and had started attending clinic before 28 weeks gestation. However, exclusive Breastfeeding or replacement feeding may not be the practice among women who chose it in the strict sense of the word. The factors positively correlated with replacement feeding were counseling of safe infant options and disclosure of HIV status.Kiarie etal in a study on infant feeding practices of women in a perinatal HIV-1 preventive study in Nairobi, Kenya found that partner testing favored formula feeding and women opted for breastfeeding due to financial constraints, patner influence and fear of losing confidentiality.

Counseling to Family planning and safe sex practices was 68.9% with an intention to use FPof 94.6%.Ongech etal(37) in a study in KNH found the uptake of FP as 66% (dual 54%,condoms 14%) while Govedi etal(14) in a study in pumwani got the uptake of FP as 20%.Mutiso SM ET et al(43) in a study on contraceptive use among HIV infected women attending comprehensive care centre at KNH got uptake of FP as 44.2%(condoms-81.5%,dual-13.5%,norplant-2.6%) with an unmet contraceptive need of 30%. According to KDHS (2003) only 41% of married women in Kenya use contraceptives. Recent studies suggest that adding FP services to PMTCT programs can have marked effect and could double the effect of PMTCT programs in reducing HIV positive births by 2007 (35). In Kenya, a program run by Family health international combines HIV testing and FP services to address the common needs and concerns of the clients. Despite the counseling uptake of FP being high and there being free provision of male condoms by

the government of Kenya, safe FP methods are practiced by a few which reflects lack of internalization of the importance of safe FP in the context of PMTCT of HIV.

In this study, 58.6% and 87.9%of the women were prescribed multivitamins and haematinics respectively. Studies have shown that good nutrition is integrally linked to healthy living for people with HIV infection and nutrients are required for immune systems. Results from observational studies suggest that micronutrients status is a determinant of the progression of HIV disease (20).

In our study the uptakes for interventions in PMTCT of HIV were; ARV for PMTCT (70%), ECS (36.8%), replacement feeding (41.4%)and PEP for infant (98.6%).However, the uptake for the whole package of four interventions was 17.5% and 46.1% for at least 3 of the interventions .According to Mbori Ngacha(41), we still have a long way to go in terms of broad coverage of PMTCT programmes because in most PEPFAR countries only less than 10% of HIV infected pregnant women deliver having received PMTCT services. The acceptability of a comprehensive peripartum and postpartum PMTCT package remains insufficient in a context of high HIV prevalence despite the availability of rapid HIV testing on site. In order to succeed, women and their partners must be active participants in PMTCT through sensitization and mobilization of communities (41).The low coverage for PMTCT program may be associated with individual health seeking behavior, health infrastructure issues or quality of service.

In the 26th United Nations General Assembly Special Session on AIDS (UNGASS) declaration on HIV/AIDS 2001, monitoring and evaluation (M&E) of PMTCT programmes was emphasized. Majority (75%) of countries reported that monitoring and evaluation of national activities and progress remain major challenges with countries frequently citing their limited information systems and M&E capacity as an impediment to their ability to provide information relevant to national indicators. Only 43% of countries reported having a national M&E plan, and only 24% reported M&E budget to carry out these activities. Although most countries have a dedicated M&E unit (85%) and/or a formal health information system (88%), more than 33% do not have a health system operational at the sub-national level. The low uptake of PMTCT programs in Africa emphasizes the indispensability of community mobilization prior to implementation

Conclusion

1. Most of the participants were unbooked clients who were young (21-30yrs), multiparous, married, had achieved secondary education and were associated with low uptakes for PMTCT e.g. mode of delivery, infant feeding, ARV usage, CD4 Testing and disclosure of partners HIV status.
2. The overall counseling uptake on various PMTCT interventions (ARVs for prophylaxis, Safe mode of delivery, infant feeding options, PEP and safe FPmethod and sex practices)was high(>90%)
3. The uptake of PMTCT interventions as a broad package was low at 17.5% (ARVs for prophylaxis (70%), ECS (36.8%), PEP (98.2%), Formula feeding (41.4%)}.
4. Disclosure rate was high (83.2%) and had an influence on the uptake of ARVs, ECS and Formula feeding.
5. The predictors for PMTCT are ANC attendance, counseling of HIV and disclosure of HIV status.
6. HIV serostatus of the partners was unknown in average (46.1%).
7. Clinical staging of HIV disease was not done and CD4 testing average (58.6%).
8. Fear of stigma was prevalent and was the main reason for non disclosure

Recommendations

1. To maximize effectiveness and uptake of PMTCT of HIV, the program has to reach the unbooked women delivering in the hospital through partnership with Nairobi city council and MOH.
2. Continuous medical education should be provided regularly to care givers (both KNH and outside) to furnish them with up-to-date knowledge of HIV, pharmacology, counseling skills and interventions for PMTCT. This shall not only ease the burden but also eliminate case scenario of unbooked..
3. Scaling up of PMTCT programmes through counseling of HIV/AIDS, sensitization and Mobilization of communities.
4. Encourage partner recruitment in counseling for all aspects of PMTCT.

5. CD4 testing and/or clinical HIV staging be incorporated in the routine antenatal care
6. Provision of micronutrients (iron,folate &multivitamin) to all antenatal HIV positive clients to enhance nutrition and immune system.

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Informed consent form

INVESTIGATOR

1. Dr Gatembura K.E. MBchB, Registrar, department of obstetrics and gynecology, school of medicine, University of Nairobi.

INVESTIGATORS STATEMENT:

I am asking you to be in a research study. The purpose of this consent form is to give you the information you will need to help you decide whether to be in the study. Please read this form carefully. You may ask questions about what you will be asked, the risks, benefits and your rights as a volunteer or anything about the research in this form that is not clear. When all your questions have been answered, you can decide if you want to be in this study or not

Contact address:Dr.Gatembura K.E. tel.0722-313427.

PURPOSE AND BENEFITS

The aim of this study is to determine the coverage and access to interventions in PMTCT in KNH. By participating in this study you will help in gathering research information about the uptake of interventions to PMTCT of HIV. The results of the study will be useful in improving and scaling up of PMTCT services and HIV care and development of policies at KNH.In the process of gathering the information we will offer you free medical consultations and education about HIV care. There will be no direct material benefit to you for participating in the study.

PROCEDURE:

This will happen if you decide to participate in this study. A study assistant will ask you questions regarding counseling and testing during pregnancy, counseling on mode of delivery, safe infant feeding options, and provision of ARV's during pregnancy, labour and delivery and to the new born.

The study will not interfere with the postnatal care and any shortfall noted will be corrected.

RISKS, STRESS OR DISCOMFORT

Participation in the study will require you to commit your time. Completing the questions will take less than 15 minutes. However, we will try to serve you as quickly as possible. The interview will be conducted as a more or less routine procedure to avoid stigma.

OTHER INFORMATION

All the information obtained will be treated with utmost confidentiality and identification will be by a study number and will not be linked to your name in any records. You may withdraw from the study; refuse to answer any of the questions asked at any time without loss of benefits or penalty.

Signature of investigator_____ Date_____

Name of investigator_____

SUBJECTS STATEMENT

I have understood the nature and purpose of this study and hereby voluntarily consent to participate.

Signature of participant_____ Date_____

OR

Left thumbprint of participant_____Date_____

Name of participant_____

Signature of witness (if thumbprint used) _____

Name of witness_____

STUDY QUESTIONNAIRE

Section 1: Socio-demographic characteristics

Study number: ----------

1. Patient's Hospital Number ----------
2. Date of first visit to KNH ----------
3. Date of admission to KNH ----------
4. Date of delivery ----------

5. Age in years ☐
6. Religion
   - (i) Christian ☐
   - (ii) Muslim ☐
   - (iii) Others ☐
   - (iv) None ☐
7. Marital status (current)
   - (i) Single ☐
   - (ii) Married ☐
   - (iii) Separated / divorced ☐
   - (iv) Windowed ☐
   - (v) Other ----------
8. Education level
   - (i) None ☐
   - (ii) Primary ☐
   - (iii) Secondary ☐
   - (iv) College / University ☐
   - (v) Others ----------
9. Occupation
   - (i) Housewife ☐
   - (ii) Self employed ☐
   - ☐

(iii) Formal employment

(iv) Unemployed ☐

(v) Others ----------

Section 2: Obstetric characteristics

10. Parity ☐ + ☐

11. Did you attend ANC?

Yes ( )

No ( )

If yes where?----------

12. Place of HIV counseling and testing

(i) KNH ANC ☐

(ii) KNH Labour Ward ☐

(iii) KNH Post natal ward ☐

(iv) Other ANC ----------

13. Have you been counseled and provided information on ARV.

Yes ( ) No ( )

(i) If yes, when?

a) Antenatally ☐

b) Intrapartum ☐

c) Postpartum ☐

(ii) If no, state reason.

a) Never attended ANC ☐

b) Not offered ☐

c) Other (specify) ----------

14. Have you been counseled and provided information on safe mode of delivery

Yes ( ) No ( )

15. Have you been counseled and provided information on safe infant feeding options.

Yes ( ) No ( )

(i) If Yes, when?

a) Antenatally ☐

b) Intrapartum ☐

c) Postpartum ☐

(ii) If No, state reason

a) Never attended ANC ☐

b) Not offered ☐

c) Others (specify)----------

16. Have you been counseled and provided information on safe sex practices and family planning.

Yes { } No { }

(i) If yes, when

a) Antenatally ☐

b) Intrapartum ☐

c) Postpartum ☐

(ii) If No, state reason

a) Never attended ANC ☐

b) Not offered ☐

c) Others (specify) ----------

Section 3: PMTCT Interventions

17. Have you disclosed your HIV status?

Yes ( ) No ( )

18. If yes in 17 above, to who have you disclosed to?

a) Partner ☐

b) Parents ☐

c) Brother /Sister ☐

d) Friend ☐

e) Other (specify)----------

19. If no in No. 17 give reasons

a) _____

b) _____

c) _____

20. HIV status of partner

(i) Positive ☐

(ii) Negative ☐

(iii) Unknown ☐

21. How did you deliver your baby?

(i) Elective c/s ☐

(ii) Emergency c/s ☐

(iii) Spontaneous vaginal delivery ☐

(iv) Vacuum / forceps delivery ☐

If ;

(a) Elective c/s, Indication : obstetrical ( ) PMTCT ( )

(b) Emergency c/s, Indication: obstetrical ( ) PMTCT ( )

(c) SVD with episiotomy ( ) without episiotomy ( )

22. Pregnancy outcome

(i) Live term infant ☐

(ii) Premature live infant ☐

(iii) Still birth ☐

(iv) Abortion ☐

23. ARV's used by the participant.

(i) Antenatal AZT / NVP ☐

(ii) Intrapartum NVP ☐

(iii) HAART ☐

(iv) Not indicated ☐

(v) None ☐

24. ARV's given to the infant

(i) NVP ☐

(ii) AZT / NVP ☐

(iii) Not indicated ☐

(iv) None ☐

25. Infant feeding options selected

(i) Exclusive breast feeding ☐

(ii) Replacement feeding ☐

(iii) Not decided ☐

(iv) Others----------

26. Did you use Multivitamins?

Yes ( ) No ( )

27. Did you use iron and folate?

Yes ( ) No ( )

28. Has the CD4 test been done?

Yes ( ) No ( )

If yes, what was it?----------

29. Do you know when the baby will be tested for HIV?

Yes ( ) No ( )

30. Where will you go for follow-up?

KNH ( ) Others(specify)----------

31. Which method of family planning do you intend to use?

i) None ☐

ii) Male/Female condom ☐

iii) BTL ☐

iv) Depo-Provera ☐

v) IUCD ☐

vi) OCP ☐

vii) Implant ☐

viii) Dual method ☐

ix) Natural methods ☐

x) Others (specify)----------

32. Do you wish to have another child?

Yes ( ) No ( )

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Ref: KNH-ERC/ 01/ 191

20th February 2008

Dr. Gatembura Eustace Kerruh
Dept. of Obs/Gynae
School of Medicine
University of Nairobi

Dear Dr. Gatembura

RESEARCH PROPOSAL: "TO DETERMINE THE COVERAGE AND ACCESS TO INTERVENTIONS IN PREVENTION OF MOTHER TO CHILD TRANSMISSION OF HIV IN K.N.H" (P263/9/2007)

This is to inform you that the Kenyatta National Hospital Ethics and Research Committee has reviewed and **approved** your revised research proposal for the period 20th February 2008 – 19th February 2009.

You will be required to request for a renewal of the approval if you intend to continue with the study beyond the deadline given. Clearance for export of biological specimen must also be obtained from KNH-ERC for each batch.

On behalf of the Committee, I wish you fruitful research and look forward to receiving a summary of the research findings upon completion of the study.

This information will form part of database that will be consulted in future when processing related research study so as to minimize chances of study duplication.

Yours sincerely

PROF A N GUANTAI
SECRETARY, KNH-ERC

c.c. Prof. K.M. Bhatt, Chairperson, KNH-ERC
The Deputy Director CS, KNH
The Dean, School of Medicine, UON
The Chairman, Dept. of Obs/Gynae, UON
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