

**QUALITY AND ACCEPTABILITY OF ROUTINE “OPT-OUT” HIV TESTING
IN ANTENATAL SERVICES IN THE KASSENA-NANKANA DISTRICT OF
NORTHERN GHANA**

JOHN E. O. WILLIAMS



Mini-thesis submitted in partial fulfillment of the requirements for the degree of Master of Public Health in the School of Public Health of the University of the Western Cape

Supervisor: Dr. Vera Scott

Co-supervisor: Dr. Feroza Amien

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KEY WORDS

Acquired Immune Deficiency Syndrome

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Opt-in testing

Quality of counselling

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ABSTRACT

Since the advent of the HIV pandemic, efforts have been made to find and implement interventions to reduce the risk of transmission of the infection in various risk groups. Mother to child transmission is responsible for a great majority of childhood HIV infections. Interventions have been developed which reduce considerably the risk of mother to child transmission to babies born to women who are infected. To be able to access these interventions, pregnant women first have to know their status by being tested at antenatal clinics. Initial testing protocols in most countries were based on the opt-in, client-initiated approach. However, in many countries, this did not result in many women getting tested and being able to access interventions. Accordingly, many countries have now adopted the routine opt-out approach as a way of increasing testing rates among women attending antenatal clinics. Ghana has had a PMTCT programme since 2004 initially based on opt-in testing. In 2007, there was a change in this testing regimen to the opt-out approach.

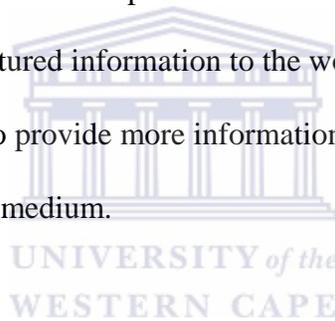
The aim of this study was to assess the quality, acceptability and factors influencing the acceptability of the use of routine verbal opt-out strategy for HIV testing during pregnancy for women attending antenatal clinics in the Kassena-Nankana district of northern Ghana.

A cross-sectional analytical study design was used in this study. The study was conducted in the Kassena-Nankana district of northern Ghana using a structured questionnaire in face to face exit interviews with pregnant women after they had completed their first antenatal clinic visit. A total of 251 women aged between 15-49 years were interviewed after informed consent had been obtained from them. Data was captured with Epidata and analysed with EpiInfo. Cross-tabulations and logistic regression analyses were done.

Of the 251 respondents who were interviewed in this survey, 85% of them were aware of MTCT, 82% knew at least one PMTCT strategy, 92% felt they had experienced good quality counselling that day at the ANC and 81% thought that the opt-out testing was acceptable. The perception of the women in the study about the quality of counselling they were given, their exposure to radio and their ethnicity were significantly associated with their acceptability of opt-out testing for HIV.

While majority of the respondents felt that the quality of the counselling they received was good and a majority also felt that the opt-out strategy was acceptable, there were concerns about the quality of counselling provided.

Recommendations include the need to improve counselling practices in the antenatal clinics by providing more structured information to the women. The District Health Management Team also need to provide more information to people in the communities about PMTCT using radio as a medium.



DECLARATION

I declare that “Quality and Acceptability of Routine ‘Opt-out HIV Testing in Antenatal Services in the Kassena-Nankana District of Northern Ghana” is my own work, that it has not been submitted for any degree or examination in any other university, and that all sources I have used or quoted have been indicated and acknowledged by complete references.

John E. O. Williams

Signed
Date November 2011



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First of all, I would like to thank the Almighty God for sustaining me through this course of study. It is only by His Grace that I have reached this point in my career.

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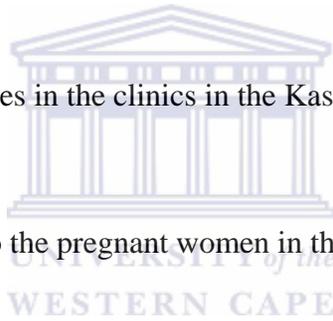
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LIST OF ABBREVIATIONS

AIDS	Acquired Immune Deficiency Syndrome
ANC	Antenatal Care
ART	Antiretroviral Therapy
GDHS	Ghana Demographic and Health Survey
HIV	Human Immuno-deficiency Virus
MTCT	Mother-to-child Transmission of HIV
PMTCT	Prevention of Mother-to-Child Transmission of HIV
UNAIDS	Joint United Nations Programme on HIV/AIDS
VCT	Voluntary Counselling and Testing for HIV
UNICEF	United Nations Children's Fund
WHO	World Health Organization

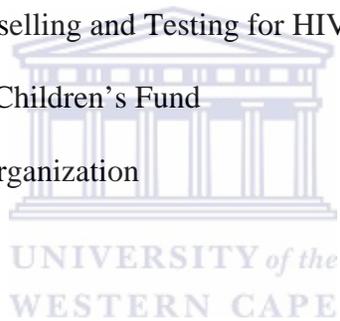


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CHAPTER 1

INTRODUCTION

This chapter provides an introduction to the study, giving a background to the study, the purpose of the study as well as the setting within which the study was carried out.

1.1 Background to the study

The Human Immunodeficiency Virus (HIV) infection pandemic has affected virtually every part of the world since it was first discovered in the early 1980s, however the greatest burden is in sub-Saharan Africa (UNAIDS, 2007). West Africa has had a smaller epidemic compared with southern Africa. The prevalence of HIV among adults in Ghana in 2008 was estimated to be 1.7% (Ghana Health Service, 2009). The median HIV prevalence for pregnant women attending antenatal clinics in 2008 was 2.2%. However, of the forty sites which took part in the sentinel serosurveillance of pregnant women in 2008, comprising 23 urban sites and 17 rural sites, the HIV prevalence ranged from 0.0% in North Tongu (a rural district) in the Volta Region to 8.0% at Agormanya, an urban area in the Eastern Region, indicating that some areas in the country may have much higher prevalence than the national average (Ghana Health Service, 2009). Agormanya in particular, has had persistently high but declining HIV prevalence since the onset of sentinel serosurveillance in Ghana in 1992 ranging from 19.2% in that year to 8.0% in 2008. Even at this relatively low prevalence, many children are at risk of being infected by their mothers as the most significant source of HIV infection in children and infants is transmission from mother to child during pregnancy, breastfeeding or labour and delivery (UNICEF, 2004). The Ministry of Health, Ghana estimates mother to child transmission

(MTCT) to account for 15 % of all new HIV infections in the country (Ghana Health Service, 2006).

To reduce the risk of MTCT of HIV, which hitherto had been neglected, a programme of comprehensive MTCT prevention interventions was implemented across the country in 2004. The four prongs of the PMTCT strategy in Ghana are: prevention of HIV infection, prevention of unintended pregnancies in HIV positive women, prevention of mother to child transmission and provision of treatment, care and support for women and their babies (Ghana Health Service, 2006). Testing for HIV in the initial PMTCT programme was based on an opt-in testing policy which required that women could only be tested after they had been told about the availability of the test and had agreed during an individual pre-test counseling session to be tested. While the opt-in policy was in place, it became obvious that many women were not availing themselves to HIV testing facilities provided for PMTCT resulting in low coverage figures. Accordingly, in 2007, a new PMTCT direction was introduced with a shift in the policy from an Opt-in testing policy to an Opt-out testing policy. Opt-out testing is the practice of providing HIV counselling and testing to all women attending antenatal clinics unless they specifically decline it. Within the opt-out testing policy, women are given pre-test counseling in groups, usually no more than 15 at a time where they are provided with all the necessary information about the test and how it will be conducted. At this point, the women are informed that testing will be done unless they decline it (opt-out). Testing is carried out if the woman doesn't explicitly decline it and results are provided to women in an individual post-test counselling session, with the emphasis on counselling care and support for those who test positive for HIV.

There are clear indications that HIV testing coverage rates in Ghana have improved with the adoption of the opt-out testing strategy. There have been remarkable increases in PMTCT coverage in antenatal clinics offering PMTCT across the country: the number of women who were tested at antenatal clinics for HIV in Ghana increased from 20, 296 and 36,155 in 2005 and 2006 respectively, to 101,334 in the first nine months of 2007 when the new policy was in place (Ghana AIDS Commission, 2008). Beyond increasing the numbers of women getting tested at the antenatal clinics across the country, the quality of counseling being provided and the acceptability of the opt-out testing procedure from the perspective of the clients, are issues that need to be monitored and researched.

1.2 Purpose of study

With the adoption of the opt-out policy for HIV testing in the Ghana PMTCT programme, testing rates have increased compared to when the opt-in policy was in place. Even though increased uptake of testing is welcomed, some programme managers have raised concerns that the efforts of health workers to increase testing coverage and attain set targets may lead them to ignore basic ethical issues associated with testing during their PMTCT interaction with their antenatal clients.

This has raised concerns about whether women are receiving adequate counselling before and after the test is done.

The purpose of this study therefore, was to assess the quality and acceptability of the use of routine verbal opt-out strategy for HIV testing during pregnancy for women attending antenatal clinics in the Kassena-Nankana district of northern Ghana, with a view to determining if the increased numbers of women being tested are willingly consenting to be tested and whether they are receiving good quality counselling.

1.3 Study Setting

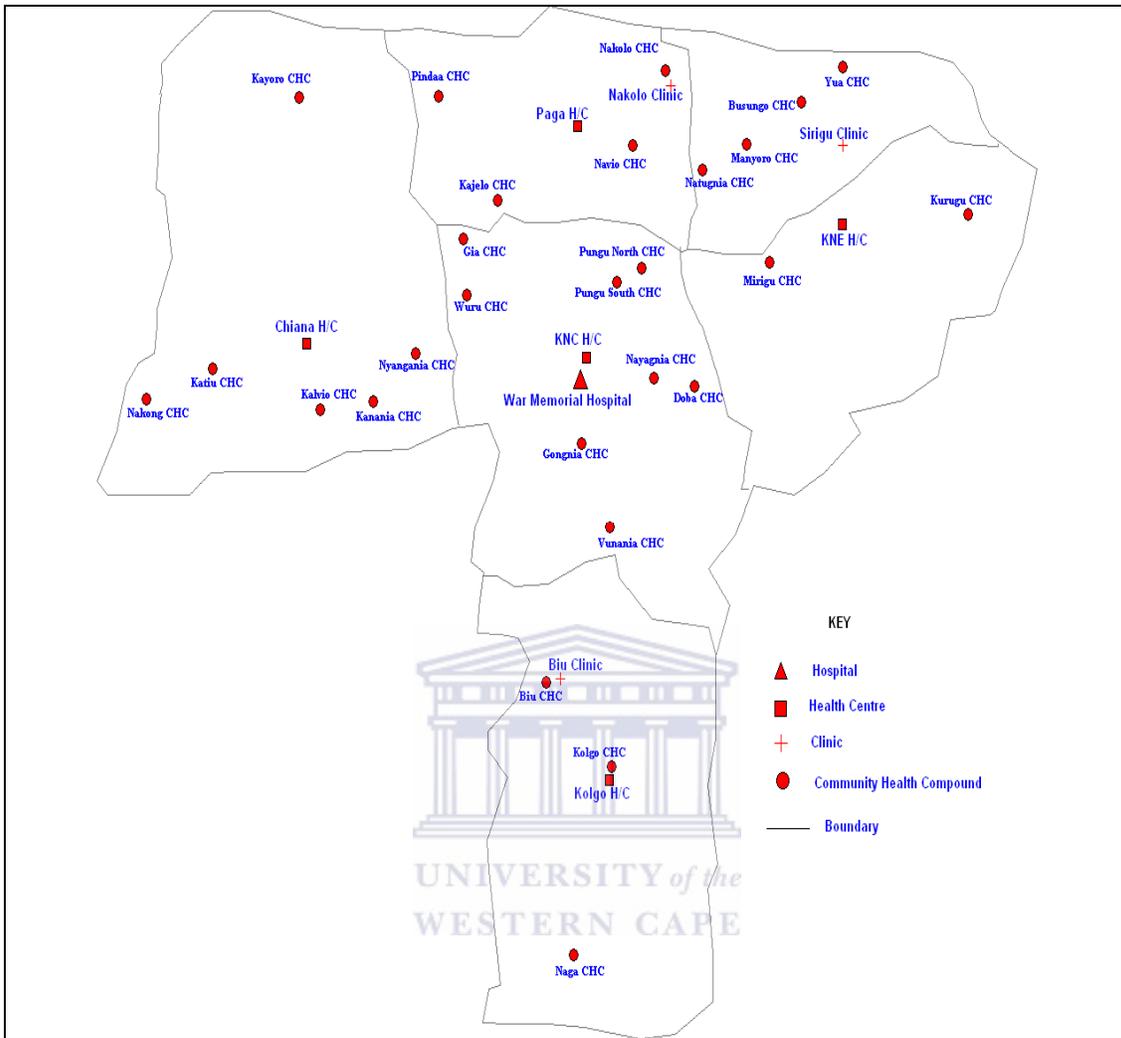
The study was conducted in Kassena-Nankana district in northern Ghana, which is one of eight administrative districts in the Upper East region of Ghana. The latter is a largely rural, sparsely-populated region and is one of ten regions in the country. The Upper East Region shares boundaries with the Northern region to the south, Upper West Region to the west and the Republics of Togo and Burkina Faso to the east and north respectively. The Kassena-Nankana district has a population of approximately 147,000 people, maintained under surveillance by the Navrongo Health Research Centre as the Navrongo Demographic Surveillance System (NDSS). Health service delivery in the district is managed by the District Health Management Team (DHMT). Kassena-Nankana district is divided into six health sub districts: the North, South, East, West, Central and the North-East sub districts. The district hospital, the War Memorial Hospital, is located in Navrongo, the district capital. This is the only public health facility in the district which is staffed by medical doctors and therefore, in addition to providing primary care for people in its catchment area, also serves as a referral centre for other health facilities in the district. There are four public health centres and four other clinics, three of which are operated jointly by the Ghana Health Service and the Catholic Church. These are headed by a medical assistant, who is a nurse with additional training in clinical care. HIV counseling and testing is available in the hospital, the four health centres and the four other clinics. Antenatal care including PMTCT services are also offered at all of these facilities. However, at the time this study was conducted, PMTCT services were not available at two sites either because a new midwife at one site had not been trained in

PMTCT procedures or because the resident midwife had travelled. This suggested that there may be such service interruptions at other sites for similar reasons at other times.

There are over 20 community health compounds staffed primarily by community health officers, scattered all over the district which provide basic primary health care services at community level. Community Health Officers are front-line health workers with high school education and two years of nursing training who work mainly at the lowest level of health care in Ghana, the community health compound. A few of the community health compounds also have community health nurse midwives who provide limited antenatal care services including testing pregnant women for HIV. There is also one privately-owned clinic located in Navrongo.



Figure 1.1 Map of Kassenan-Nankana District showing Health Facilities



CHAPTER 2

LITERATURE REVIEW

This chapter presents a review of relevant literature related to this study. This review covers the following areas: prevalence of HIV (global and local); mother to child transmission of HIV and its prevention; rationale of opt-out testing; effectiveness and acceptance of opt-out testing for HIV; factors associated with uptake of antenatal HIV testing and ethical issues in opt-out testing.

2.1 The global and local prevalence of HIV

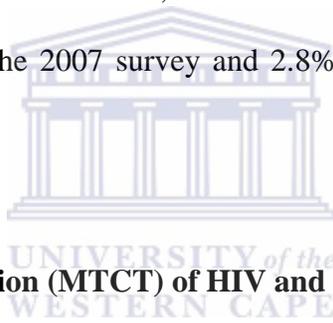
At the end of 2009, UNAIDS estimated that 33.3 million people were living with HIV in the world, of which 2.5 million were children under 15 years old, 90 percent of them living in sub-Saharan Africa. They also estimated that 2.6 million people were newly infected with HIV in 2009 alone, with 400,000 of those new infections being in children (UNAIDS, 2010). UNAIDS also estimated that 370,000 of these new infections in children were contracted through MTCT, accounting for more than 90% of all new infections in children.

However, there are wide variations in HIV prevalence in sub-Saharan Africa (SSA) with the highest prevalence being found in countries in Southern Africa, with 35 % of all persons living with HIV globally residing there. Countries in West and Central Africa have had relatively smaller epidemics compared with countries in Southern Africa (UNAIDS, 2009).

In Ghana, although the spread of the disease has been slow, it is still firmly established within the society. The most recent nationally-representative population-based survey on HIV prevalence in Ghana was conducted in 2003 (Ghana Statistical Service, Noguchi Memorial Institute for Medical Research and ORC Macro, 2004) and showed that the

prevalence of HIV among adults 15 to 49 years old was 2.2 %. The median national HIV prevalence in Ghana obtained from annual sentinel surveys among women attending antenatal clinics rose from 2.3 % in 2000 to a peak of 3.6 % in 2006. Since then, it has declined to 2.7% in 2005, peaked again at 3.2% in 2006 followed by declines in the subsequent years to 2.2% in 2008 (Ghana Health Service, 2010). In 2009, the national median prevalence was estimated to be 2.9%. Despite these fluctuations from year to year, it is quite apparent that there has been a downward trend in HIV prevalence between 2000 and 2009.

The prevalence of HIV among women attending antenatal clinics in Navrongo, which is the capital of the Kassena-Nankana district, was 3.3 % during the HIV Sentinel Survey conducted in 2006, 2.0 % in the 2007 survey and 2.8% in the 2008 and 2009 surveys (Ghana Health Service, 2010).



2.2 Mother to child transmission (MTCT) of HIV and its prevention

Mother to child transmission of HIV remains a major public health problem in Africa in spite of advances made in North America and Europe to reduce its occurrence. This is related to the fact that transmission of HIV in sub-Saharan Africa is largely through heterosexual transmission and disproportionately affects women. It is estimated that women account for 60% of HIV infections in this region (UNAIDS, 2008; Garcia-Calleja, Gouws and Ghys, 2006). With a great majority of these women being in their reproductive ages, the potential for mother to child transmission remains high. In 2008, it was estimated that 1.4 million pregnant women were HIV positive (WHO, 2009). In the absence of any interventions, a good proportion of these women would have transmitted the infection to their children.

Studies have so far shown that the risk of transmission from mother to child is not absolute.

In industrialized countries, it was estimated that 13-33 per cent of non-breastfeeding HIV positive women were transmitting the infection to their infants without anti-retroviral therapy (ART). In breastfeeding populations, the transmission rate may range between 20-43 percent (International Perinatal HIV Group, 1999). Breastfeeding approximately doubles the risk of MTCT. In populations where children are breastfed into the second year of life, the additional risk of transmission through breastfeeding is approximately 15-20 percent (Newell, 2006).

With the advent of ARTs, the situation has improved remarkably with MTCT rates having declined considerably to 4-6 percent in the USA and other developed countries (Mofenson and McIntyre, 2000).

In one of the earlier PMTCT studies using ARTs, the AIDS Clinical Trials Group (ACTG) protocol 076 had shown that when Zidovudine is given to women starting early in pregnancy through delivery and to the newborns for the first six weeks of life, MTCT could be decreased by two-thirds in developed countries (Connor et al, 1994). Owing to the late presentation at antenatal clinics by many pregnant women in developing countries and the high cost of this regimen, it was hardly used in those countries.

The HIVNET 012 study conducted in Uganda in 1999 demonstrated the effectiveness of Nevirapine in preventing mother to child transmission of HIV at a cost that was quite affordable to less developed countries (Guay et al, 1999).

This intervention study followed up 626 HIV-1 infected pregnant women in Uganda almost all of whom went on to breastfeed their babies. The study showed that a single

dose of nevirapine given to the woman at the onset of labour and another single dose (2mg/kg body weight) given to the infant within 72 hours of birth reduced MTCT by 47% up to age 14-16 weeks.

A study by Marseille et al, (1999) of the cost effectiveness of the HIVNET 012 study was also carried out. This assessed the cost effectiveness of the HIVNET 012 nevirapine regimen in a hypothetical cohort of 20,000 pregnant women in sub-Saharan Africa with the main outcome measures being programme cost, paediatric HIV-1 cases averted, cost per case averted and cost per disability-adjusted life-year (DALY). The study concluded that the single dose Nevirapine regimen can be highly cost-effective in high seroprevalence settings and could have a major public health impact at reasonable cost in low seroprevalence areas.

As a result of these findings many countries in the developing world were able to begin to establish prevention of mother to child transmission of HIV programmes.

Prevention of mother to child transmission programmes are currently receiving high priority in many health systems. Approaches currently being used to reduce the risk of MTCT include antiretroviral prophylaxis during pregnancy, labour and in the early neonatal period, Caesarian delivery before the onset of labour and rupture of membranes, and avoidance of breastfeeding, shortening of the breastfeeding period and/or encouraging exclusive breastfeeding (Newell, 2006).

To be able to access PMTCT programmes, pregnant women first need to be tested for HIV, to identify those who have the infection and are therefore at risk of transmitting the infection to their infants. Two main approaches have been used in getting women attending antenatal clinics to get tested. In the “opt-in” approach, HIV testing is conducted after individual pre-test counseling with clients explicitly choosing whether to

be tested or not. This is also often referred to as the client-initiated approach to testing. The other approach to testing is the “opt-out” or provider initiated approach to testing with the right of refusal of testing. This second approach is presently the standard of care in the USA and other developed countries (CDC, 2001; CDC, 2002; Simpson, Johnstone, Goldhert, Gormley and Hart, 1999).

2.3 Rationale for opt-out testing for HIV

Before implementing strategies to prevent MTCT women who are HIV positive first need to be identified through testing. Ever since testing for HIV became available, it has been treated quite differently compared to testing that is carried out for other medical conditions. Efforts are made to ensure that the social rights and privacy of those who are most at risk are not compromised. This led to the coining of the term ‘HIV exceptionalism’ to differentiate the approach to dealing with HIV from conventional public health approaches (Bayer, 1999). At the time when this debate began, HIV exceptionalism was considered by many to be justified on the grounds that available treatments at the time had only limited benefits (Fields and Kaplan, 2011). With the increasing use of highly active antiretroviral therapy (HAART) for treatment and prophylaxis, HIV infection has become less threatening and the proponents of HIV exceptionalism have begun to back down. The trend therefore around the world is to attempt to normalize the gap between HIV and other diseases, so that testing could be done without extensive informed consent criteria.

Research has shown that even in populations with low HIV prevalence, screening of pregnant women for HIV is cost effective from a pharmaco-economic point of view (Postma *et al*, 2000). However, under the opt-in approach the uptake rates for testing

have been low, resulting in limited utilization and impact of effective public health interventions (UNICEF, 2003). Several reasons have been advanced for the rather low uptake of testing under the opt-in approach. These include absence of antenatal care services, fear of stigma and inadequate counseling experiences (Medley, Garcia-Moreno, McGill and Maman, 2004). Other reasons given include a lack of perceived risk, previous testing or lack of provider mention of the availability of the test (Carusi, Learman and Posner, 1998).

2.4 Effectiveness and acceptance of opt-out testing for HIV

A number of studies have been conducted in recent times, particularly in countries with a high burden of HIV disease, to assess the acceptability of routine opt-out testing policies. So far it has been shown to be socially acceptable and to increase uptake rates, thereby identifying a greater proportion of those infected (Nyuzaghl, Ohene and Odoi-Agyarko, 2011; Creek et al, 2007, Chandisarewa et al, 2007).

Botswana started Africa's first national PMTCT programme in 1999 based initially on the opt-in policy of testing. However, uptake of PMTCT services was low from 1999 to 2003 and so following a high profile Presidential declaration in 2004 that HIV testing should be "routine but not compulsory" in medical settings, the policy changed.

Subsequently, Creek et al (2007) conducted an evaluation of the PMTCT programme in 4 clinics and the regional hospital in Francistown, Botswana in 2004. They used the antenatal clinic logbooks containing data on women's antenatal clinic attendance and HIV counseling and testing as the primary source of data for this study. The 5 month period before the implementation of routine testing were used as the control period and

the eight month period after routine testing started as the intervention (routine testing) period.

The study showed that after routine testing was implemented, the proportion of all HIV positive women delivering in the regional hospital who knew their HIV status increased from 47% to 78% and also found that ANC clients supported the routine testing policy. They concluded that routine testing was more accepted than voluntary testing.

An exploratory cross-sectional survey was conducted in six PMTCT sites in two districts in rural Zimbabwe to assess the acceptability of routine opt-out HIV testing. The respondents in the survey were recruited during the post-natal period. Both qualitative and quantitative methods of data collection were used in this study. Out of 520 women who were sampled, 55 % had been tested for HIV during their last pregnancy. Among the total population interviewed, 89 % of them would accept the opt-out strategy if it was implemented. The study also found that certain factors were associated with increased acceptance of the opt-out testing approach. These include women who were less than 20 years old, having secondary education or more, living with a partner and the existence of a PMTCT service where the untested woman delivered (Perez, Zvandaziva, Engelsmann and Dabis, 2006).

A cross-sectional survey aimed at evaluating the impact of routine antenatal HIV testing was conducted at four antenatal clinics in urban Zimbabwe following the implementation of routine provider initiated HIV testing at those sites between June 2005 and November 2005. To assess the acceptability of the routine HIV testing policy, self-administered exit questionnaires were administered to 2,011 women completing their first antenatal clinic attendance during the first three months of implementation of the new policy. Further, to determine if there were any negative effects related to the new testing policy, 221 women

attending those four antenatal and postnatal clinics who had been tested under the new routine HIV testing policy were interviewed individually regardless of their HIV status during the fifth month of implementation of the new policy. The study found that 98 % of the women in the exit survey said that the information given to them by community counselors had adequately prepared them for the test outcome while 99% said they clearly understood why their blood was being drawn. Overall, 89% of the women in the follow-up survey stated that the offer of routine HIV testing like other blood tests during pregnancy was helpful (Chandisarewa *et al*, 2007).

An earlier cohort study, carried out in Malawi which reviewed antenatal, VCT and PMTCT registers concluded that at least 9 out of every 10 women attending antenatal clinics accepted the opt-out voluntary counseling and testing being offered (Manzi *et al*, 2005).

In the 4 studies reviewed in this section, it was found that opt-out testing was acceptable to the majority of the women who were interviewed or whose data in the ANC registers or logbooks were reviewed. The Malawi study was a cohort study which reviewed existing registers while the Botswana study also evaluated the PMTCT programme by reviewing ANC clinic logbooks. This allowed the study to assess the PMTCT programme before and after the introduction of the opt-out HIV testing policy.

The study in rural Zimbabwe used a combination of quantitative and qualitative methods of data collection to assess the acceptability of routine opt-out testing while that in urban Zimbabwe conducted two cross-sectional surveys, one among women attending antenatal clinics using self-administered questionnaires in an exit survey and the other a follow-up survey among women who had been tested under the new opt-out testing regime.

These studies were conducted in relatively higher prevalence settings compared to our setting in this study. However, all of these studies showed that routine opt-out testing is acceptable to women attending ANC and has resulted in increased numbers of women getting tested for HIV in pregnancy.

2.5 Factors associated with uptake of antenatal HIV testing

Several factors have been associated with the successful uptake of antenatal HIV testing. These have often been grouped as health provider characteristics, health service characteristics and client characteristics.

2.5.1 Health service and health provider factors

In most rural clinics and health centres in the developing world, staff shortages are very common. It is not unusual to find a single midwife manning a health centre's maternity unit, sometimes supported by auxiliaries. In Ghana, most of the antenatal HIV counselling and testing for PMTCT is conducted by midwives using the opt-out strategy and rapid HIV testing. Staff shortages may therefore affect the PMTCT programme directly as the system can hardly run without midwives. This phenomenon has been observed in some countries. Homsy et al (2006), in a study conducted in a government hospital in Uganda found that the main reasons for not providing counselling for women in labour for routine intrapartum HIV testing were staff shortages, especially of laboratory technicians, work overload and admission of women during non-office hours. Dahl, Mellhammar, Bajunirwe and Bjorkman (2008), working in three antenatal clinics in the Mbarara district in south-western Uganda found that testing sites which had been in operation for longer durations had higher test acceptance rates. Recruitment site was also

found to be the most significant predictor of acceptance of antenatal HIV testing in a study of 14,235 pregnant women in Tanzania between 2001 and 2002 (Westheimer et al, 2004). The authors found that the site covariates that were influencing test uptake among their study population were individual counsellor effects, length of waiting time and length of time that the site had been operational.

A study conducted much earlier in England had examined the uptake rates for HIV testing for 12 midwives working for the Riverside Health Authority. The authors found that uptake rates varied considerably between midwives ranging from 3% to 82%. This variation was also related to some extent to the ethnicity of the midwife, ranging from 36% for Afro-Caribbean and 11% for others (Meadows, Jenkinson, Catalan and Gazzard, 1990). The authors suggested that other factors such as individual characteristics of the clients and midwives could be associated with test uptake rates.

Wang, Larke, Gabos, Hanrahan and Schopflocher (2005) working in Alberta, Canada also reported that the sex and training of health providers were significant determinants of uptake of testing in an opt-out routine antenatal HIV screening programme.

After examining the records of over 13,000 women who had attended ANC in 43 clinics in Kenya, Anand et al (2009) found initially that participant factors were significantly determinants of PMTCT acceptance. However, after adjusting for the site, the participant level factors lost their significance. This led them to conclude that site factors may be more important than participant factors in explaining HIV test acceptance in the PMTCT programme in Kenya even though they did not characterize the exact factors at play.

Owing to the stigma associated with HIV and its consequent effects such as discrimination against people living with HIV, many people in traditional societies, where misconceptions about HIV are rife are justifiably concerned about the

confidentiality of counselling and testing procedures. A qualitative study conducted by Pool, Nyanzi and Whitworth (2001) in south-western Uganda found that pregnant women were worried about accepting voluntary counselling and testing due to concerns about confidentiality and the fear that maternity staff may refuse to attend to them when they come in labour, if they are known to be HIV positive. This applied more to traditional birth attendants than biomedical health staff. There were also rumours about medical staff intentionally killing HIV positive patients as a way of reducing the spread of the epidemic.

Low confidence in the confidentiality of HIV testing was also prevalent among a group of women attending ANC in northern Tanzania (Urassa, Gosling, Pool and Reyburn, 2005).

There is even emerging evidence that some women may be avoiding delivering in health facilities because of fears of HIV testing, fears of involuntary disclosure of their HIV status to others including spouses, and stigma (Turan, Miller, Bukusi, sande and Cohen, 2008).

Service factors such as staff availability and accessibility of services and the site where services are provided have also been found to affect acceptability of HIV testing. Many women have also expressed anxiety about the confidentiality of testing procedures and the potential for disclosure of test results to others including their spouses and the risks posed to them in terms of stigma and discrimination by such disclosures.

2.5.2 Client factors

Several individual level characteristics have been found by many authors working in different parts of the world, to be associated with acceptance or acceptability of antenatal HIV testing.

A survey of 333 pregnant women receiving antenatal care at health centres in the Sagamu Area of Ogun State in south-western Nigeria conducted in 2005, found that being married, having a self perception of no risk of HIV infection, awareness of benefits of prenatal HIV testing and Christianity were independent predictors of the acceptance of prenatal HIV testing in this population (Daniel and Oladapo, 2006).

Another study conducted in Tanzania between 2001 and 2002 offered screening for HIV as part of routine prenatal care to 14,235 pregnant women. Of those offered screening for HIV, 70% accepted. While site factors were found to be significantly associated with screening acceptance, individual level factors such as the age of the woman, her education, marital status and her partner's occupation were found to be significant predictors of testing acceptance (Westheimer et al, 2004).

Other factors that have been associated with the successful uptake of antenatal testing for HIV include the woman's perceptions of the risks associated with testing and knowing her serostatus (Martin-Herz et al, 2006). Even though many women, particularly in high prevalence areas recognize the benefits associated with antenatal HIV testing, the identified risks may appear daunting and therefore dissuade them from accepting it.

The fear of stigma and discrimination may also inhibit some women from accepting testing for HIV (Cartoux et al, 1998a). Other women have declined testing because they felt the need to obtain permission from their male partners before consenting to be tested

or fear some negative or violent reaction from their partners to their test results (Homsy et al, 2007).

2.6 Ethical issues in opt-out testing

Following the development and subsequent trials of anti-retroviral regimens for PMTCT, national governments and their development partners have committed themselves to reducing infant and child HIV infections through prevention of mother-to-child transmission by 50% by 2010 (United Nations, 2001 and 2006). More recently, UNAIDS and partners have called for the virtual elimination of MTCT of HIV by 2015 (UNAIDS, 2011). However, as these efforts to increase testing rates have gained currency in many parts of the world, particularly in areas of high prevalence, controversy has been generated largely because the focus of these programmes have primarily been the prevention of infections among newborns with scant or no attention to the women who are found to be infected (Gruskin, Ahmed and Ferguson, 2008). By the time a woman decides to undergo HIV testing, she should have considered not just issues relating to PMTCT, but also issues concerning her own health, the implications of a potential positive test and her chances of accessing treatment, care and support beyond the test.

While the routine opt-out approach appears acceptable to many women (Perez, Zvandaziva, Engelsmann and Dabis, 2006; Chandisarewa *et al*, 2007; Manzi *et al*, 2005), some researchers have raised ethical concerns such as ensuring that testing is not done without the woman's knowledge or does not become so routine that patients do not realise that they can decline to be tested (Lo, Wolf and Sengupta, 2000). There is however, a paucity of data demonstrating that this is actually happening. Indeed some researchers raise concerns. For example, a qualitative cross-sectional survey undertaken

in antenatal booking clinics in central London found that although routine testing combined with professional recommendation may increase uptake of testing, standard criteria for informed consent were not met leading the authors to conclude that increasing uptake could be eroding informed consent (De Zulueta and Boulton, 2007).

2.7 Conclusion

This chapter has examined current literature on some of the factors which affect antenatal HIV testing in pregnant women in general and factors associated with routine-opt-out antenatal HIV testing in particular. Efforts have also been made to examine some of the ethical issues that have emerged following the institution of the opt-out testing strategy by some countries.

The literature shows that client, provider or health service factors may affect the acceptability of antenatal HIV testing. Many of the women attending antenatal clinics who were interviewed in the studies cited also found the opt-out testing policy acceptable. This was demonstrated by their being tested or by their agreeing that it was good to test pregnant women for HIV. The main ethical concern relates to informed consent being eroded by focusing more on obtaining high testing rates more than concerns of the individuals being tested thereby overlooking standard criteria for informed consent.

CHAPTER 3 METHODOLOGY

This chapter essentially discusses how the study was conducted. The aims and objectives driving the study are first discussed followed by definitions of key terms used in this report. This is followed by descriptions of the study design, study population, sample size, the sampling method, and data collection. A description of how the data was processed and analysed is also given as well as the limitations of the study and ethical considerations.

3.1 Aim and Objectives

3.1.1 Aim

To assess the quality, acceptability and factors influencing the acceptability of the use of routine verbal opt-out strategy for HIV testing during pregnancy for women attending antenatal clinics in the Kassena-Nankana district of northern Ghana.

3.1.2 Objectives

- i. To describe whether women attending antenatal clinics in the Kassena-Nankana district are knowledgeable about the risk of mother to child transmission of HIV and its prevention and determine the influence of background characteristics on this awareness.
- ii. To describe whether women attending antenatal clinics in the Kassena-Nankana district are adequately counselled before testing for HIV is carried out.
- iii. To assess if the routine opt-out HIV testing strategy among women attending antenatal clinics in the district is acceptable to them.

- iv. To determine the influence of background characteristics, awareness of mother-to-child HIV transmission, knowledge of prevention of mother-to-child HIV transmission strategies, and quality of counselling on the acceptability of routine opt-out testing for HIV, accounting for socio-demographic factors.

3.2 Definition of terms

- 1. Acquired Immune Deficiency Syndrome (AIDS)** is the stage of advanced HIV disease characterized by low immune state with opportunistic infections and/or malignancies.
- 2. Antenatal care** is the preventive, promotive and curative care given to a woman who is pregnant until the pregnancy terminates in delivery or abortion.
- 3. Confidentiality** is ensured when personal and sensitive information about an individual is protected from being accessed by individuals who have no right to such information.
- 4. Human Immunodeficiency Virus (HIV)** is the virus which causes HIV infection in humans which ultimately results in AIDS.
- 5. Mother to child transmission (MTCT) of HIV** is transmission of HIV from an infected woman to her unborn baby during pregnancy or delivery, or through breastfeeding.
- 6. Prevention of mother to child transmission (PMTCT) of HIV** involves the use of various strategies to reduce the risk or abolish the transmission of HIV from an infected woman to her child before and after delivery.

7. Opt-in testing for HIV is the practice where antenatal clinic clients are told about the availability and usefulness of the HIV test and invited to agree to have the test done.

8. Opt-out testing for HIV is the practice of providing HIV counselling and testing to all antenatal clinic clients unless they specifically decline it.

9. Post-test counselling is counselling provided to an individual after he/she has consented to undergo a test (usually for HIV), during which the results of the test are declared and the implications of the results are discussed.

10. Pre-test counselling is counselling provided to an individual to discuss why a test (usually for HIV) must be conducted on him/her and to seek his/her consent for such a test.

11. Parity is the total number of children a woman has ever borne, whether dead or alive.

12. Quality counselling session is a session which follows the opt-out counselling protocol and includes: being provided basic information about HIV/AIDS before testing including how HIV is transmitted, modes of MTCT, control measures including PMTCT, as well as informed consent, the right to refuse testing, being given an opportunity to ask questions before being tested, being told the results of the test, being given an opportunity to ask questions during post-test counselling, assurance of confidentiality and being informed about the need for future testing in subsequent pregnancies.

13. Acceptability of Opt-out testing in this study is defined from the perspective of the respondents and explores their level of satisfaction with their experience of counseling and testing on the day that they were interviewed in this survey.

14. Exit interviews in this study refer to interviews which were conducted with respondents after they had completed all the expected procedures at the antenatal clinic, including counselling and testing for HIV.

3.3 Study Design

The study was an analytical cross-sectional study using a quantitative data collection method. Quantitative data was collected by surveying pregnant women who had completed their first antenatal clinic visit, using a structured questionnaire during exit interviews. This study design was used because it allowed a fast, efficient and fairly inexpensive way of collecting data from women shortly after they have completed their first antenatal clinic visit. The quantitative data obtained from a representative sample of antenatal clinic attendees could be used to represent the perception of women experiencing the current opt-out testing policy in place.

3.4 Study Population

All pregnant women who lived in the Kassena-Nankana district, who attended public antenatal clinics for the first time during the study period, from January 22, 2009 to February 20, 2009 were eligible to be included in the study. Only women attending their first antenatal clinic visit during the current pregnancy were eligible for inclusion in the study because counselling and testing is usually done at the first clinic attendance except on the rare occasion when logistics or personnel issues makes this impossible. Occasionally a client may decline testing at the first visit so that she can consult with her husband before testing at a subsequent visit. However, during the duration of this study, there were no logistic problems at the testing sites and therefore all of the respondents enrolled into the study were counselled and tested on the day of their first attendance.

The public health institutions offering antenatal care (and PMTCT) at the time of the study were the War Memorial Hospital, Paga Health Centre, Navrongo Maternal and

Child Health Clinic (MCH), Chiana Health Centre, Kologo Health Centre and Sirigu Clinic. Antenatal care was also available at the Kassena-Nankana East Health Centre and the Nakolo Clinic.

Data collection took place at six clinics instead of the eight clinics originally planned. This was due to unexpected developments at two of the sites. At the Kassena-Nankana East Health Centre, the midwife who conducted the antenatal clinics and performed HIV testing had been transferred to another clinic in the district. Her replacement was not trained to do HIV testing and counselling. As a result, women who were attending that clinic were not provided PMTCT services. Accordingly, we could not conduct the survey at that clinic. At Nakolo Clinic, the only midwife working at the clinic had travelled to attend an official training workshop at the regional capital town and was therefore absent at the time of the study and therefore antenatal clinic clients were being directed to the nearby Paga Health Centre. As a result, that clinic also had to be excluded from the study.



3.5 Sampling and Sample size

All the women who attended the various antenatal clinics during the study period in the Kassena-Nankana district for the first time during the current pregnancy, who consented to participate in the study were interviewed until the sample size was obtained. The sample size of 213 was determined based on the following information:

In 2007, a total of 5,904 women attended antenatal clinics in the district with a monthly average of 492 new attendants. Out of this number a total of 1,965 representing 33.3 percent of the antenatal clinic attendees were given pre-test counseling. However, only 835 representing 14.1 % of the pregnant women were tested for HIV (Kassena-Nankana District health Administration, 2008).

Therefore, an expected population size of 492 women attending antenatal clinics per month in 2008 with an expected frequency of acceptability of testing of 14.1% with a precision (alpha) of 5% gives a sample size of 194 at a 99% confidence interval. Adjusting this sample size for a non-response of 10 percent gave a sample size estimate of 194 plus 19. Therefore the sample size was 213 women. This sample size was calculated using the Statcalc utility on EpiInfo Version 6 (CDC, Atlanta) which is based on the formula:

$S = Z^2 * P(1-P) / (D^2 * D)$, where S is the sample size for a very large (infinite) population, in which D is one half of the width of the desired sample confidence interval, Z is a percentile of the standard normal distribution determined by the specified confidence level. S is then adjusted by a finite population correction factor to obtain the final estimate of the sample size: $Sample\ Size = S / [1 + (S / Population)]$.

The sampling frame consisted of all women who were offered HIV testing during the current pregnancy reporting at the antenatal clinics mentioned earlier during the period of the study. They were consecutively enrolled into the study after they had granted consent upon being approached by a research assistant and being informed about the study.

Table 3.1: Number of participants recruited per facility

Health Facility	Number recruited	%
War Memorial Hospital	68	27.1
MCH Clinic, Navrongo	68	27.1
Chiana Health Centre	57	22.7
Paga Health Centre	34	13.5
Kologo Health Centre	8	3.2
Sirigu Health Centre	14	5.6
Missing information	2	0.8
Total	251	100

3.6 Data Collection Methods

A structured interviewer-administered questionnaire was used to conduct exit interviews with pregnant women who had just completed their first antenatal clinic visit at the War Memorial Hospital, Kologo Health Centre, Chiana Health Centre, Paga Health Centre Maternal and Child Health Clinic, Navrongo and the Sirigu Clinic. Six experienced female research assistants, who are non-health workers with high (secondary) school education, were trained to obtain informed consent and then conduct face-to-face interviews with these women, after they had completed clinic procedures and were about to leave the premises of the clinic (a more detailed discussion regarding this training is included in the section 'ensuring research rigour'). The research assistants were recruited from the various communities where the clinics are located. Research assistants who were fluent in English and the two main local languages were selected for this study to obviate the need for translators.

In view of the fact that most of the study participants were illiterate and could not speak English, most of the interviews were conducted in the two main local languages, Kasem and Nankam.

The questionnaire for this study was largely developed by the researcher with some of the questions being selected and adapted from the Tanzania Integrated PMTCT Baseline Survey Questionnaire (Linkages Project Tanzania, 2005).

The questionnaire contained closed questions only and was designed to collect the following information: background characteristics of the study participants such as age, educational attainment, occupation, religious background, marital status, parity, ethnicity and husband's occupation. These were included because they have been shown in some studies to be related to women's perceptions of opt-out HIV testing (Perez *et al*, 2006).

Other sections of the questionnaire explored the level of awareness of participants about modes of transmission of HIV, particularly mother-to-child transmission. The questionnaire also determined whether study participants are knowledgeable about the ways to prevent mother-to-child transmission of HIV. They were also asked about the depth of counseling that was given to them and whether they were told that they could decline to be tested. Finally they were asked whether they thought they had been adequately given a chance to make a decision whether they wanted to get tested for HIV. In the analyses, question 41 of the questionnaire was used as a proxy variable of acceptability of opt-out testing. The question asks whether respondents thought they had been adequately given a chance to make a decision whether they wanted to get tested for HIV. Ideally, the question should have asked whether the respondents thought they had been given the chance to decide not to be tested as opt-out testing is more about exercising the right to decline testing rather than agreeing to be tested, hence its use as a proxy. Acceptability in this study was examined from the perspective of the women based on their experience of counseling and testing on the day of the interview. It was therefore measured by the perception of the women of their experience of counseling and testing in the clinic.

3.7 Data Management and Analysis

The completed questionnaires were checked by the researcher to ensure that all the required fields had been filled in. Unfortunately because interviews were occurring simultaneously in all clinics there was always a delay in checking the forms for completeness and so when omissions were discovered it was not possible to address them

as the participants were no longer available to fill in the gaps. However, as the study proceeded, these omissions were reduced to the barest minimum.

EpiData version 3.1 (www.epidata.dk) was used for data entry. Data entry screens were prepared by an experienced data manager. An experienced data entry assistant was engaged and trained to capture the data as soon as the completed forms started coming in. Epi Info version 3.4.3 (CDC, Atlanta) was used for data analyses.

Univariate analysis was done involving the generation of frequencies of the socio-demographic variables such as age, marital status, educational attainment, religious affiliation, ethnicity, occupation, parity, time taken to get to health facility and whether respondent listens to radio. Bivariate analyses involved cross-tabulations with Chi-square tests of significance of the socio demographic variables with two outcomes of interest: awareness of mother to child transmission of HIV and its prevention and acceptability of opt-out testing. The background variables used in these analyses were age, marital status, educational attainment, religious affiliation, ethnicity, occupation, parity, and whether respondent listens to radio.

Bivariate analyses were also conducted on awareness of MTCT, knowledge of PMTCT strategies and perception of quality of counselling with acceptability of opt-out testing as the outcome of interest. Awareness of MTCT was determined by question 15 of the questionnaire which asked respondents whether it was possible for an infected pregnant woman to transmit HIV to her unborn baby. Women who answered “yes” were determined to be aware of MTCT while those who said “no” or “don’t know” were determined to be unaware. The women who also said they had never heard of a condition called AIDS or HIV in question 12 had “not applicable” coded for them for question 15 and were also coded as being unaware of MTCT.

Question 17 of the questionnaire asked respondents what could be done to reduce the risk of mother to child transmission of HIV. The options included taking anti-HIV medicine, not breastfeeding, caesarean operation for delivery and getting tested for HIV. Multiple responses were allowed for this question. Accordingly, a score was constructed such that women were given one point for each correct response given. Women who knew one or two correct responses were put together as having some knowledge of PMTCT while those who knew three or four responses were also grouped as having good knowledge of PMTCT. Women who said they didn't know any PMTCT strategies as well as those who had been classified as not applicable for question 17 because they were not aware of MTCT were classified as having no knowledge of PMTCT.

A score was also constructed for quality of counselling using questions 19, 20, 21, 22, 28, 33, 35 and 37. Question 19 asked respondents whether the clinic midwives/nurses discussed HIV/AIDS with them on the day they were tested while question 20 asked them if they were told they would be tested for HIV that day. Question 21 sought to find out if they were told that they could refuse to be tested for HIV that day while question 22 asked if they were given the opportunity to ask questions about the test. Question 28 asked respondents if they were told the result of their test. Question 33 asked the respondents whether they were given the opportunity to ask questions when their results were being disclosed to them. Question 35 asked the respondents whether they were told that they would require another HIV test in the future while question 37 asked respondents if they thought that the counselling and testing procedure assured their privacy. A maximum score of 8 was given to respondents who gave "Yes" answers to all 8 questions while 0 was given to those who had "No" answers for all the five questions. A score of up to 4 was re-classified low quality while 5 to 8 was classified high quality.

The significance level was set at $p < 0.05$. In cases where the expected cell value was less than five, such as the cross-tabulation of Occupational status by awareness of MTCT, the Fisher Exact p-value was used instead of the Chi-square test as the Chi-square test in such cases is invalid.

Bivariate analyses were also carried out between background variables of the respondents and acceptability of opt-out testing. Question 41 was used as a proxy for acceptability of opt-out testing as it sought to determine if respondents thought they were adequately given the chance to make a decision whether they wanted to get tested. Multivariate logistic regression analysis was done to determine respondent factors which are associated with acceptability of routine opt-out testing for HIV. Awareness of MTCT, knowledge of PMTCT strategy score, perception of quality of counselling score, educational attainment, ethnicity and radio listening which were found to be significantly associated with acceptability of opt-out testing during bivariate analysis were included in the multivariate logistic regression model.

3.8 Validity

The validity of a research instrument is the degree to which it measures what it is intended to measure (Denise *et al*, 2001) or the degree to which an account truthfully represents the social phenomena to which it refers (Silverman, 2000).

To check the content validity of the instrument used in this study, it was first reviewed by my supervisor at the UWC, who made critical comments which led to a revision of the instrument. The questionnaire was then pilot-tested at the Paga Health Centre antenatal clinic before the main study began. This brought to the fore unanticipated difficulties in questionnaire administration. The pilot-test made it clear that the study could not be

conducted in clinics where PMTCT activities were not being held even if just temporarily.

Even though no changes were made to the questionnaire after the pilot test, it allowed for any remaining ambiguities about some of the questions to be clarified with the research assistants.

Also, to ensure that study participants felt comfortable enough to give responses of their free volition, they were reassured that their names were not going to be written on the forms and their responses were not going to be shared directly with clinic staff. The interviews were also conducted at private locations approximately 50 metres away from the clinic venue.

Before the study got underway, clinic staff were informed about the study and told what the objectives of the study were. However, they were not informed of the specific questions that were going to be asked concerning their counselling practices. This was to ensure that they would not adjust their way of doing things while the study was on-going and lead to the measurement of artificial counselling practices.

3.9 Reliability

The reliability of an instrument refers to the degree of consistency with which it measures the attributes it is supposed to measure (Bless & Higson-Smith, 2000).

To ensure reliability in this study, the research assistants were carefully selected and trained together for two days by the student researcher. During the training, the research assistants were taught about how to conduct interviews generally and specifically, how to ensure that there was consistency in the way they asked the various questions on the questionnaire. Role plays were conducted by the interviewers among themselves to

practice how to conduct the interviews in the presence of the student researcher. In view of the fact that most of the study participants were illiterate, the questionnaire was administered by the research assistants mainly in the two dominant local languages, Kasem and Nankam. During the training of the research assistants, they translated the questionnaire from English into Kasem and Nankam and then back into English. This was to ensure that there was harmony in the interpretation of questions administered in the local languages.

3.10 Ethical Considerations

This protocol was submitted to the UWC Ethics Committee for ethical approval before fieldwork began. Permission was also sought from the Regional and District Directors of Health Services of the Upper East Region and the Kassena-Nankana District respectively before fieldwork began. Before data collection commenced in each facility, the Superintendent in charge of the facility was briefed about the study, its purpose and how it would be carried out, to obtain his/her consent before data collection commenced. The clinic nurses were informed that the study was being conducted to elicit the perceptions of their clients about HIV testing and that this was for academic purposes and also to improve their service delivery. They were assured that their names would not be mentioned in the interviews.

Participants were informed of the study when they attended the antenatal clinics and were told that they had the right to refuse to be involved in the study without it affecting their subsequent visits to the clinic. Participants were informed about the purpose of the study, its anticipated benefits and any potential risks. They were also told that the study was entirely voluntary and they had the right to withdraw from the study at any time without

suffering any consequences. They were also informed that information collected from them will be kept strictly confidential and will not bear their names and will be securely kept. This was particularly important as the research assistants were selected from the various communities where the clinics are located, where most of the clients came from. During the training session, the research assistants were made to discuss the need for confidentiality and the consequences of breaching it. They were then taught about the importance of confidentiality and consequently, the need to adopt a professional approach in conducting surveys of this nature in order to inspire confidence in the respondents who have volunteered to take part in the study.

Participants were informed that they would spend a maximum of 30 minutes answering questions. Written consent was obtained from participants in the form of a signature or thumbprint from literate and illiterate respondents respectively. To ensure confidentiality, a vacant room in the facility, but not close to the antenatal clinic, was obtained and used for the interviews. This provided the needed privacy for the interviews to be conducted and ensured that other people did not hear the interaction between the interviewer and the study participant.

Ghanaian law recognizes age 18 years as the age of adulthood and therefore the age of consent for most purposes. However, the law also recognises age 16 years as the age of consent for sexual activity and marriage. In the case of a child being under the age of 16 years, it is possible that their parents may not yet be aware that they are pregnant, and therefore getting consent from the parents may have done more harm than good. It was also necessary to obtain the perceptions of these younger women if any as they tend to be rather vulnerable and could easily have their autonomy eroded by the older women who staff these antenatal clinics. For these reasons, any pregnant woman who attended the

antenatal clinic in the district was presumed competent to give consent and therefore eligible to be included in the study.



CHAPTER 4

RESULTS

This chapter presents the findings from this study obtained from analyses of the survey data collected.

The results of this study are presented in the following sections: background characteristics of respondents, awareness of mother to child transmission of HIV and knowledge of its prevention, perceptions of clients about adequacy of counseling in antenatal clinics in the district, and acceptability of routine opt-out HIV testing strategy and factors associated with it.

4.1 Background Characteristics of respondents

The sample was made up of a total of 251 women attending six antenatal clinics in the Kassen-Nankana district for the first time during their current pregnancies. Even though the calculated sample size was 213 women, a total of 267 women were approached during the study period and 251 women agreed to be interviewed, giving a response rate of 94 %.

Table 4.1. Distribution of background characteristics of participants (N=251)

Background characteristic	Number of women	Percentage
Age Group (years)		
15-19	29	11.5
20-24	84	33.5
25-29	63	25.1
30-34	45	17.9
35+	26	10.4
Missing	4	1.6
Marital status		
Married/Has partner	228	90.8
Previously married	6	2.4
Never married	15	6.0
Missing	2	0.8
Education		
Primary or less	185	73.7
Secondary +	66	26.3
Religion		
Christian	189	75.3
Muslim	31	12.4
Traditional	31	12.4
Ethnicity		
Kassena	178	70.9
Nankana	58	23.1
Other	15	6.0
Occupation		
Subsistence farming/No work	112	44.6
Trading/Selling	79	31.5
Craftsmanship	49	19.5
White collar	9	3.6
Other	1	0.4
Missing	1	0.4
Parity		
0	84	33.5
1+	166	66.1
Missing	1	0.4
Time to Health Facility		
Less than 30 mins	62	24.7
Up to 1 hour	73	29.1
More than 1 hour	47	18.7
Don't know	68	27.1
Missing	1	0.4
Listens to radio		
Listens to radio	211	84.1
Never	39	15.5

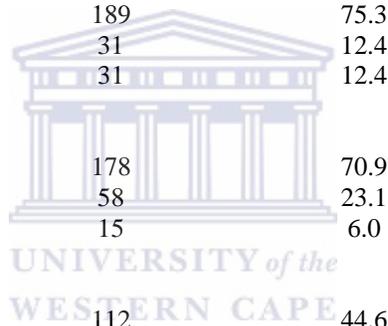


Table 4.1 shows the distribution of the 251 study participants by some selected background characteristics.

The table shows that most of the respondents were aged <25 years with the highest proportion of 45 % in that category. The average age of the women in the sample was 26.0 years.

Ninety-one percent of the respondents were either married or were co-habiting with a man, while 6 % had never married. Most of the women (73%) have had little (primary) or no formal education at all whilst only 26 % of the respondents have had some secondary education or more.

Most of the respondents in the study sample were Christians. Muslims and adherents of Traditional African Religion constituted 12 % each of the respondents.

There are two main ethnic groups in the Kassenan-Nankana district; the Kassenan and the Nankana people. Seventy-one percent of the respondents were Kassenan people while 23 % were Nankana people. Majority of the respondents do not work or are engaged in subsistence farming.

The mean parity of the respondents was 1.6. Majority of the women (66 %) already had one or more children while 34 % had no children.

Fifty-four percent of the respondents estimated that on the average, it took them an hour or less to get to the health facility where they were interviewed while 19 % estimated that it took them more than an hour to get there.

Majority of the respondents (84 %) said they listen to radio at least some of the time while 16 % never listen to the radio.

4.2 Awareness of the risk of mother to child transmission of HIV and knowledge of prevention of mother to child transmission of HIV strategies

4.2.1 Awareness of mother to child transmission of HIV

Overall, 84.7 % of the respondents were aware of the risk of mother to child transmission of HIV.



Table 4.2 shows the distribution of the awareness of mother to child transmission of HIV among the respondents by selected background characteristics, with p-values calculated for Chi-square tests to determine associations between the variables.

Table 4.2 Cross-tabulations of background characteristics against awareness of MTCT (N=248)

Background Characteristic	Awareness of MTCT		P-value
	Yes	No	
Age group (years)	n (%)	n (%)	0.858
<25	93(83.0)	19(17.0)	
25-29	53(85.5)	9(14.5)	
30+	60(85.7)	10(14.3)	
Marital status			0.596
Married/Has partner	190(84.4)	35(15.6)	
Previously married	6(100)	0(0.0)	
Never married	12(80)	3(20)	
Education			0.148
Primary or less	151(83.0)	31(17.0)	
Secondary+	59(89.4)	7(10.6)	
Religion			0.008
Christian	164(87.7)	23(12.3)	
Muslim	26(86.7)	4(13.3)	
Traditional	20(64.5)	11(35.5)	
Other			
Ethnicity			0.122
Kassena	149(85.1)	26(14.9)	
Nankana	46(79.3)	12(20.7)	
Other	15(100)	0(0.0)	
Occupation			0.288
Subsistence farming/No work	88(79.3)	23(20.7)	
Trading/Selling	68(87.2)	10(12.8)	
Craftsmanship	44(91.7)	4(8.3)	
White collar	8(88.9)	1(11.1)	
Other	1(100)	0(0.0)	
Parity			0.238
0	67(81.7)	15(18.3)	
1+	142(86.1)	23(13.9)	
Listens to Radio			0.101
Listens to radio	180(86.1)	29(13.9)	
Never	29(76.3)	9(23.7)	

Awareness of MTCT is lowest among the younger respondents who were less than 25 year old. The relationship between age group and awareness of MTCT was however, not statistically significant.

Even though majority of the married women in the study were aware of MTCT compared to unmarried women, this was not statistically significant. It must be noted though, that most of the women in the sample were married hence very few women remained in the other categories under marital status. However, all the women who had been married previously (separated or divorced or widowed), were aware of MTCT.

The educational level of the women was associated with their awareness of MTCT. More women with secondary or higher education were aware of MTCT than those with only primary or no education. This relationship was also not statistically significant.

More Christians and Muslims were aware of MTCT than adherents of Traditional African Religion. This relationship between awareness of MTCT and the religious background of the respondents was statistically significant with a p-value of 0.008.

More women of Kasseka ethnic origin were aware of MTCT compared to Nankana women.

More women in craftsmanship were aware of MTCT compared to respondents who were farmers or who were not working. However, this relationship was not significant.

Eighty-six percent of the respondents who already had one or more children were aware of MTCT compared to 82 % of women with no children.

Respondents who listen to radio some of the time were more likely to be aware of MTCT compared to those who never listen to radio at all. This relationship was not statistically significant.

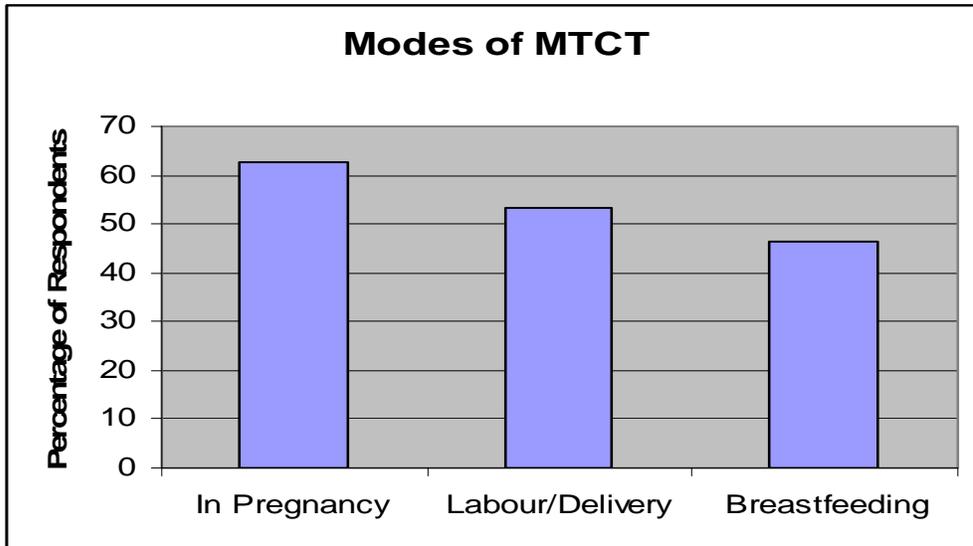


Figure 4.1. Respondents awareness of modes of MTCT (N=251)

The bar chart above shows the percentage of respondents who knew one mode of transmission of HIV from mother to child. Sixty three percent of the respondents in the study knew of transmission during pregnancy, 53 % knew of transmission during labour and delivery while 46 % knew of transmission during breastfeeding.

4.2.2 Knowledge of Prevention of Mother to Child Transmission of HIV Strategies

Table 4.3 below shows the knowledge of PMTCT strategies among respondents in the study.

Table 4.3 Knowledge of PMTCT Strategies (N=251)

Strategy	No. of women	Percentage
Getting tested for HIV		
Yes	46	18.3
No	205	81.7
Taking anti-HIV medicine		
Yes	173	68.9
No	78	31.1
Not breastfeeding		
Yes	99	39.4
No	152	60.6
Caesarean operation for delivery		
Yes	16	6.4
No	235	93.6

This section explored the knowledge of women in the study about PMTCT strategies being used in Ghana. Most of the women knew that taking anti-HIV medicine was a PMTCT strategy. However, very few of them knew that a caesarian operation could be used as a PMTCT strategy. Fourteen percent of the women did not know any PMTCT strategy.

Table 4.4 PMTCT Knowledge Score

PMTCT Score	No. of women	Percentage
None (0)	45	18.3
Some (1-2)	178	72.4
Good (3-4)	23	9.3
Total	246	100

For the purposes of conducting further analyses of PMTCT knowledge, a score was constructed which gave a point each to any respondent who mentioned one of four strategies for PMTCT. Therefore, the maximum potential score for each respondent was four points and the minimum was zero. These scores were further grouped into three

categories as shown in table 4.4. The table shows that 72 % of respondents had some knowledge of PMTCT, mentioning 1 or 2 of the four strategies expected of them.

4.3 Quality of counselling received

Table 4.5 shows the distribution of the respondents by various questions they were asked concerning their counselling experiences on the days that they were counseled at the various antenatal clinics and subsequently interviewed.

The majority of the respondents agreed that clinic nurses, who are the ones who provide counselling and testing, had had a discussion with them on HIV/AIDS that day.

Ninety-eight percent of the women also said that they were told they would be tested for HIV that day. However, 21 % of the respondents said they were not informed about their right to refuse the test if they so chose. Thirty-one percent of the respondents also said that they were not given any opportunity to ask questions before the tests were conducted on them. However, most of them were told the results of the tests conducted on them.

Ninety-four percent of the respondents were of the opinion that information provided to them before the test was adequate. However, more women thought that the information provided them after the test was inadequate compared with those who thought the information provided before the test was inadequate.

Only 42 % of the respondents said they were given that opportunity to ask questions during post-test counselling sessions when results were being declared to them.

It is expected that respondents would be told that they may require future testing during future pregnancies or for other reasons. However, 40 % of the women were not told that they would require future testing.

Thirteen percent of the women were concerned that other people could get access to their test result. In spite of this, almost 93 % of the respondents said that the way the testing procedure was carried out assured their privacy.

Table 4.5 Respondents' perception of quality of counselling

Characteristic	No. of women	Percentage
Discussion on HIV/AIDS*		
Yes	237	94.4
No	14	5.6
Told she would be tested for HIV*		
Yes	246	98.0
No	5	2.0
Informed about right to refuse test*		
Yes	198	79.2
No	52	20.8
Given opportunity to ask questions before test *		
Yes	172	68.8
No	78	31.2
Told result of test*		
Yes	237	95.2
No	12	4.8
Information before test adequate		
Yes	234	93.6
No	16	6.4
Information after test adequate		
Yes	214	86.6
No	33	13.4
Told she may require future testing*		
Yes	143	60.3
No	94	39.7
Worried about others knowing test result		
Yes	33	13.3
No	216	86.7
Assured of privacy*		
Yes	227	92.7
No	18	7.3
Given opportunity to ask questions at post-test session*		
Yes	102	41.5
No	144	58.5

* Variables used for Perception of Quality of Counselling Score

A perception of quality of counselling score was constructed using eight of the variables in table 4.5. Respondents were given one point for a yes answer to each of those questions, giving a potential maximum of eight points and a potential minimum of zero. These were then grouped into low quality for those obtaining zero to four points and high quality for those obtaining five to eight points. Table 4.6 below shows that 91% of the respondents perceived the quality of counselling to be high.

Table 4.6 Perception of quality of counselling score

Perception of quality of counselling score	No. of women	Percentage
Low (1-4)	23	9.2
High (5-8)	227	90.8
Total	250	100

4.4 Acceptability of opt-out HIV testing of pregnant women

Overall, 81% of the respondents in the study found the opt-out testing procedure acceptable.

Table 4.7 shows the distribution of the respondents in the study by acceptability of opt-out HIV testing by respondent characteristics.

The table shows that more of the respondents aged less than 25 years found opt-out testing acceptable compared to older women. The relationship between age group and acceptability of opt-out testing was however, not statistically significant. Also, more of the respondents who had never married thought that opt-out testing was acceptable compared to respondents who were married.

Ninety-two percent of women who had had secondary or more education thought that opt-out testing was acceptable compared to 77 % of women with primary or no education. This relationship between education and acceptability of opt-out testing which

indicates increased acceptability with increasing level of education was statistically significant with a p-value of 0.004.

A slightly greater proportion of Muslim women thought that opt-out testing was acceptable compared to Christian women or adherents of Traditional African Religion. Respondents who were of Nankana ethnic origin were also more likely to find opt-out testing acceptable compared to women of Kassena extraction. Ninety-three percent of Nankana women thought that testing was acceptable compared with 76 % of Kassena women. This observation was statistically significant with a p-value of 0.006.

Respondents who were classified in this study as white collar workers (essentially government or office workers) even though very few in this study sample had the highest proportion of those who found opt-out testing acceptable. More of them found opt-out acceptable compared with farmers and respondents who do not work.

A larger proportion of women of zero parity in this study thought opt-out testing to be acceptable compared to women of parity one or more. This difference was statistically significant with a p-value of 0.026.

Table 4.7 also shows that respondents who do not listen to radio at all were least likely to find opt-out testing acceptable compared to women who listen to radio some of the time. These differences in levels of acceptability among the respondents by exposure to radio was statistically significant with a p-value of 0.001.

Analyses also showed that respondents who were not aware of MTCT were more likely to find opt-out testing acceptable (p=0.002) Also, respondents who either had no knowledge or had very good knowledge of PMTCT were more likely to find opt-out testing acceptable compared to those who had some knowledge (p=0.001).

Respondents who scored the quality of counselling high found opt-out testing to be acceptable compared to those who gave a low score to counselling quality ($p=0.004$).



Table 4.7 Cross-tabulations of respondent characteristics against acceptability of opt-out testing

Background Characteristic	Acceptability of Opt-out testing		P-value
	Yes	No	
Age group (years)			0.342
<25	96(85.0)	17(15.0)	
25-29	49(77.8)	14(22.2)	
30+	55(77.5)	16(22.5)	
Marital status			0.320
Married/Has partner	186(81.6)	42(18.4)	
Previously married	4(66.7)	2(33.3)	
Never married	14(93.3)	1(6.7)	
Education			0.004
None/Primary	143(77.3)	42(22.7)	
Secondary+	61(92.4)	5(7.6)	
Religion			0.287
Christian	156(82.5)	33(18.5)	
Muslim	26(83.9)	5(16.1)	
Traditional	22(71.0)	9(29.0)	
Ethnicity			0.006
Kassena	136(76.4)	42(23.6)	
Nankana	54(93.1)	4(6.9)	
Other	14(93.3)	1(6.7)	
Occupation			0.244
Subsistence farming/No work	84(75.0)	28(25.0)	
Trading/Selling	67(84.8)	12(15.2)	
Craftsmanship	43(87.8)	6(12.2)	
White collar	8(88.9)	1(11.1)	
Other	1(100.0)	0(0.0)	
Parity			0.026
0	75(89.3)	9(10.7)	
1+	129(77.7)	37(22.3)	
Listens to Radio			0.001
Listens to radio	179(84.8)	32(15.2)	
Never listens to radio	24(61.5)	15(38.5)	
Awareness of MTCT			0.002
Yes	164(78.1)	46(21.9)	
No	37(97.4)	1(2.6)	
PMTCT Knowledge Score			0.001
None	43(95.6)	2(4.4)	
Some	134(75.3)	44(24.7)	
Good	22(95.7)	1(4.3)	
Perception of quality score			0.004
Low	13(56.5)	10(43.5)	
High	190(83.7)	37(16.3)	

4.5 Factors associated with opt-out testing for HIV among pregnant women

Table 4.8 shows results of logistic regression analysis conducted with acceptability of opt-out testing as the dependent variable. Unadjusted odds ratios as well as adjusted odds ratios from a multivariate model are presented.

Table 4.8 Logistic regression analysis: Unadjusted and Adjusted Odds Ratios of Acceptability of Opt-out testing

Characteristic	Unadjusted Odds Ratios	95% Confidence Intervals	P-value	Adjusted Odds Ratios	95% Confidence Intervals	P-value
Education						
None/Primary	1.000			1.000		
Secondary +	3.583	1.352-9.493	0.010	2.841	0.993-8.126	0.052
Ethnicity						
Kassena	1.000			1.000		
Nankana	4.169	1.426-12.186	0.009	3.949	1.236-12.619	0.021*
Other	4.324	0.553-33.820	0.163	4.201	0.484-36.455	0.193
Listens to Radio						
Never listens	1.000			1.000		
Listens to radio	3.496	1.657-7.377	0.001	4.210	1.625-10.906	0.003*
Parity						
1+	1.000			1.000		
0	2.390	1.093-5.225	0.029	1.615	0.670-3.900	0.286
Awareness of MTCT						
No	1.000			1.000		
Yes	10.378	1.389-77.550	0.023	4.245	0.362-49.724	0.250
PMTCT Knowledge Score						
Some	1.000			1.000		
Good	7.224	0.946-55.151	0.057	5.241	0.628-43.756	0.126
None	7.060	1.643-30.340	0.009	5.915	0.845-41.431	0.074
Perception of Quality Score						
Low	1.000			1.000		
High	3.950	1.612-9.682	0.003	4.626	1.229-17.404	0.024*

* Statistically significant

In the previous section which looked at the acceptability of opt-out testing for HIV, bivariate analyses were conducted with cross-tabulations of the various background variables against acceptability of opt-out testing. In the analyses, question 41 of the

questionnaire was used as a proxy variable of acceptability of opt-out testing. The question asks whether respondents thought they had been adequately given a chance to make a decision whether they wanted to get tested for HIV.

The bivariate analyses with the same variables showed that seven independent variables were likely to be significantly associated with acceptability of opt-out testing. These were: the level of education of respondents, their ethnicity, parity, whether respondents listened to radio, awareness of MTCT, knowledge of PMTCT score and quality of counselling score.

Logistic regression was first conducted with acceptability of opt-out testing as the dependent variable and each of the seven independent variables mentioned above individually to yield unadjusted odds ratios.

These independent variables were then entered into a multivariate logistic regression model with acceptability of opt-out testing as the dependent variable yielding adjusted odds ratios.

Logistic regression analyses showed that women with secondary or more education were 3.6 times more likely to find opt-out testing acceptable compared to women with primary or no education (unadjusted OR 3.583, p-value= 0.010). However, upon controlling for the other variables in the multivariate model, the effect of education is attenuated (adjusted OR 2.841, p-value=0.052).

Women belonging to the Nankana ethnic group were 4 times more likely than the Kassena women to find opt-out testing acceptable (unadjusted OR 4.169, p-value=0.009).

Upon controlling for the other variables in the multivariate model, this effect persisted (adjusted OR 3.949, p-value=0.021).

Women who have some exposure to radio were 3.5 times more likely to find opt-out testing acceptable, compared to women who never listen to radio (unadjusted OR 3.496, p-value=0.001). This effect was slightly accentuated in the multivariate model (adjusted OR 4.210, p-value=0.003).

Women who had had no children were 2.4 times more likely to find opt-out testing acceptable compared to women who had had one or more children (unadjusted OR 2.390, p-value=0.029). Upon controlling for the other factors in the multivariate model the statistical significance of this effect is lost (adjusted OR 1.615, p-value=0.286).

Women who were aware of MTCT were 10 times more likely to find opt-out testing acceptable compared to those who were not aware (unadjusted OR 10.378, p-value=0.023). This effect was attenuated in the multivariate logistic regression model and was also no longer statistically significant (adjusted OR 4.245, p-value=0.250).

Women who had no knowledge of PMTCT were 7 times more likely to find opt-out testing acceptable compared with women who had some knowledge (unadjusted OR 7.060, p-value=0.009). In the multivariate regression model, this effect is reduced and also loses its statistical significance (adjusted OR 5.915, p-value=0.074).

Women who perceived the quality of counseling to be high were 4 times more likely to find opt-out testing acceptable compared to women who felt the quality of counseling was low (unadjusted OR 3.950, p-value=0.003). This effect was slightly accentuated when the other variables were controlled for in the multivariate model (adjusted OR 4.626, p-value=0.024).

In summary, 251 respondents were interviewed in this survey; 85% of them were aware of MTCT, 82% knew at least one PMTCT strategy, 92% felt they had experienced good quality counselling that day at the ANC and 81% thought that the opt-out testing was

acceptable. The perception of the women in the study about the quality of counselling they were given, their exposure to radio and their ethnicity were significantly associated with their acceptability of opt-out testing for HIV.



CHAPTER 5

DISCUSSION, CONCLUSIONS AND RECOMMENDATIONS

This chapter discusses the results of the study presented in the previous chapter and situates them in current literature. At the end conclusions are drawn and recommendations made from the key issues arising out of the study. The generalisability of the findings and limitations of the study are then presented.

5.1 Discussion

5.1.1. Respondent Characteristics

A total of 251 pregnant women attending six antenatal clinics in the Kassena-Nankana district of northern Ghana took part in this study.

Majority of the participants (70%) in the study were less than 30 years old.

In many parts of Africa marriage tends to be universal. In consonance with this, 91 % of the women in the study sample were married, consistent with findings by other researchers in the district (Mills et al, 2008) who found that of 91 % of all women who delivered in the district in 2004 to be married.

Almost three-quarters of all the women in the sample had had just primary education or no education at all. Kassena-Nankana district is largely a rural district where educational attainment particularly among females is low. Formal education is known to play an important role in the lives of people, helping to shape their beliefs, attitudes and behaviour. Women in the northern part of Ghana (Northern, Upper East and Upper West regions) have been noted to be seriously disadvantaged educationally. The Ghana Demographic and Health Survey 2003 (GDHS 2003) Report showed that 71% of women

in the Upper East Region of Ghana where the Kassena-Nankana district is located have had no education compared to 37% for the whole country.

The Kassena-Nankana Demographic and Health Survey conducted in the district in 2003 also found that 50% of the women in the district had never been to school (Doctor et al, 2004). The findings from this study though with a smaller sample, therefore reaffirm the low educational attainment of women in this district. However, this is hardly surprising as in many developing countries, most women are illiterate, compromising their understanding of health issues.

There are two main ethno-linguistic groups in the Kassena-Nankana district. These are the Kassena people, who speak the Kasem language and the Nankana people who speak the Nankani language. Previous studies in the district indicate that about 50% of the female population in the district is made up of women of the Kassena extraction with the Nankana women constituting 44% (Binka, Nazzar and Phillips, 1995).

In this study however, there was a preponderance of Kassena women (71%) in the sample. This was largely due to our inability to enroll women from the Kassena-Nankana East Health Centre into the study because PMTCT services had been suspended at the site at the time of the study. This Health Centre is located in the heart of the Nankana area of the district and is therefore patronized largely by women from that ethnic group.

There is increasing evidence in scientific literature, on the influence of religion on reproductive behaviour of individuals (Takyi, 2003; Garenne, 2004; Gillum, 2005). Takyi, (2003) suggests that religious beliefs and practices could influence individual behaviour in ways that may affect HIV preventive strategies. Earlier research in northern Ghana also found that religion could be a major constraining factor in the utilization of health services (Kirby, 1997).

This study asked the respondents what their religious affiliation was. Seventy-five percent of the women said they were Christians compared to 12% who said they were Muslims and another 12% who said they were adherents of African Traditional Religion. The religious affiliation provided by the respondents is only a reflection of what the individual professes and not necessarily the level of their religiosity. A longitudinal study in the same district found that between 1995 and 2003, the proportion of women aged 15-49 years stating their religious affiliation to be Christianity increased from 35% to 64% (Doctor, Phillips and Sakeah, 2009). In the same study, the proportion of Muslim women increased from 5% in 1995 to 7% in 2003 while African Traditional Religion decreased from 61% in 1995 to 29% in 2003. Clearly, the proportions of women professing Christianity and Islam have been increasing at the expense of African Traditional religion in the district and the findings on religion in this study are a reflection of this.

The Kassena-Nankana district is a remote rural district on Ghana's border with Burkina Faso. The mainstay of the local economy is subsistence agriculture (Binka, Ngom, Phillips, Adazu and MacLeod, 1999). In view of the fact that most of the women have had no education, it is hardly surprising that most of them (96%) either do not work at all or only work in the informal (non-governmental) sector i.e. farming, trading and craftsmanship.

5.1.2. Awareness of Mother to Child Transmission of HIV

Considering that almost all the women in the study were supposed to have received counselling and testing on the day they were interviewed, it is hardly surprising that most were aware of HIV/AIDS. However, it is quite disturbing that 15% of those interviewed

were not aware of MTCT. This suggests counselling was either not done or was ineffective.

This lends credence to concerns that have been expressed by some that if adequate safeguards are not instituted, opt-out testing becomes mandatory testing where virtually all the women will be tested without necessarily being given any information about the test or their right to refuse it (Lo, Wolf and Sengupta, 2000). This concern is clearly at play in the clinics where these women were seen as it appears that many were either tested without being told they were being tested or efforts were not made to ensure that they had understood what they had been told. This brings into focus, the quality of counselling that was provided to those women. Even though opt-out testing tends to de-emphasize pre-test counselling, it is still expected that some basic information should be provided, such as fundamental information about HIV, how it is transmitted, especially by MTCT, measures that could be used for PMTCT, the fact that testing would be carried out unless the client explicitly declines it as well as the result of the test. The client also needs to be told how to maintain a negative status or what she will need to do in case she is positive. Those who are negative also need to be told that they may require further testing during future pregnancies.

If patients are not aware of these basic facts either because they were not told or they didn't understand what they were told, then any consent they have given for testing to proceed is questionable and probably not valid.

There is increasing body of scientific literature examining the relationship between religion and various aspects of social life in Africa and Ghana in particular (Yirenkyi, 2000; Addai, 2000; Adongo, Phillips and Binka, 1998).

Several authors have argued that religion has emerged as a potent force in both private and public life (Noretta, 2002; Yirenyki, 2000). However, few studies have explored the relationship between religion and HIV. Agadjanian, 2001 argues that church participation in contemporary Africa is important for the analysis of overall reproductive health and more as an indicator of social exposure and interaction than as a direct measure of religiosity.

The significance of religion in the analysis of MTCT in this study may reflect this argument as various religious groups have targeted their congregations with HIV/AIDS prevention education since the onset of the pandemic. Also since sexual transmission is the main mode of HIV transmission in Africa, the religious groups have had more than a passing interest in HIV matters as sexual behaviour is often related to morality which is influenced a lot by one's religious affiliation. These factors may account for the higher proportions of Christians and Muslim women being aware of MTCT than adherents of African Traditional Religion. The former groups also tend to be organized in congregations which can easily be reached with educational messages compared to adherents of African Traditional Religion who are usually not organized in congregations. Christian and Islamic groups in Ghana have been purposely targeted in major HIV educational campaigns funded by the Ghana AIDS Commission in the past. These programmes have involved prominent religious leaders from these groups often appearing on TV commercials seeking to help reduce stigmatisation of persons infected or affected by HIV.

The study also showed that women who had some exposure to radio were significantly more likely to be aware of MTCT compared to those who had no exposure at all to radio.

Radio remains a powerful medium through which educational messages are often disseminated, particularly in communities where the levels of literacy are low. Even though the women were not asked about radio ownership, their access to one to listen to may reflect a better socio-economic status than those with no access.

In a study by Kominami, Kawata, Ali, Meena and Ushijima, (2007) in Dar Es Salaam, Tanzania 68% of pregnant women attending the antenatal clinic said they obtained their information on MTCT from the clinic while 44% said they got their information from radio. Significantly most of these women (90%) had only primary schooling or less. This illustrates the importance of radios in transmitting education messages in poorly educated communities.

5.1.3. Knowledge of PMTCT Strategies

This section assessed the knowledge of the respondents about existing strategies for PMTCT generally and specifically in Ghana. Multiple responses were allowed for the questions in this section.

Fourteen percent of the respondents were not aware of any method of PMTCT with 86% being able to mention correctly at least one or more PMTCT strategy.

Knowledge of PMTCT strategies has improved with the increasing availability of such measures implemented in many countries in the world. Before the advent of widespread implementation, particularly of ARV programmes, knowledge of measures that could reduce MTCT was quite low in many countries. A study conducted in Kumasi, Ghana among pregnant women attending antenatal clinic in the main hospital in August 2003 found that 93% of the women had no idea of PMTCT while almost 2% said that drugs given to pregnant women could prevent MTCT and another 5% said that not

breastfeeding could prevent MTCT (Addo, 2005). At the time of that study, there was no PMTCT programme in the country and ARV medication were not generally available to pregnant women even though those drugs were beginning to filter into the country.

A similar study conducted in Arba Minch Hospital in Ethiopia among a similar population before the integration of counselling and testing for HIV into antenatal care in Ethiopia also found that 80% of the women did not know that ARV medication could be used for PMTCT (Haddis and Jerene, 2006). In contrast in this study 69% of respondents were knowledgeable of PMTCT strategies.

5.1.4 Perceptions of quality of counselling

Counselling plays a crucial role in the decision of clients of antenatal clinics to agree to HIV testing. While it is necessary to obtain high testing coverage in such programmes to identify women who are positive so that they can be offered interventions to reduce the risk of MTCT, it is also necessary to ensure that the women are adequately counseled before testing is done. Counsellors must ensure that the women understand the issues at stake and know the implications of both positive and negative tests and most importantly, they should also know about their right to refuse to be tested even in programmes using the opt-out approach to counselling and testing.

As a result of the stigma attached to HIV in Africa, women who are infected may not want to be identified (Sherr et al, 1999) and may refuse to be tested for this reason. Many women in Africa may be unwilling to test for HIV because of fears of discrimination and physical violence (Temmerman et al, 1995; Van der Straten et al, 1995; Kiarie et al, 2006). Counsellors in antenatal clinics should be aware of some of these risks and take

measures to ensure that those women who consent to undergo testing for HIV are not put at any undue risk as they take decisions to protect their unborn babies.

This study examined the quality of counselling from the perspective of the women who experienced it. It must be stated here that even though this approach may be subjective, it gives an impression about whether the expectations of the women were being met in their counselling sessions. However, given that many of the women appeared not to have received any education of the basic facts about HIV during the counselling session, they may have low expectations of the counselling process and therefore would end up being satisfied with a mediocre service.

Other authors have used other methods to assess the quality of counselling provided to women attending antenatal clinics as part of PMTCT programmes. Delva, Mutunga, Quaghebeur and Temmerman (2006) assessed a PMTCT implementation study in Mombasa, Kenya using UNAIDS Tools for Evaluating HIV Voluntary Counselling and Testing (UNAIDS, 2000) and found that even though the counsellors' social and communication skills obtained high ratings, some critical information topics were covered haphazardly.

While most women had had a discussion on HIV with the midwife and knew that they were to be tested, 21% had not been told that they had a right to refuse the test. This raises ethical issues about the respect for the autonomy of the clients as they were probably left with the impression that they had no choice but to be tested.

Many women are also not being given the opportunity to ask questions during the pre- and post-test counselling sessions. This is of serious concern as it results in missed opportunities that could have been used to address pertinent issues of concern to the

women. The opportunity could also have been used to educate the women properly on some misconceptions they may have.

The women also need to be informed that their status could change in future and therefore, there would be the need to repeat the test in future pregnancies. This information was not provided to all the women and could leave some of them thinking that once they have been tested, future tests may not be necessary.

5.1.5 Acceptability of Opt-out HIV Testing

This study may be one of the first in Ghana to look at the acceptability of the routine opt-out testing policy since it was implemented in the country a few years ago by conducting a survey among women who experienced counselling and testing at various antenatal clinics in a rural district in the country.

Most authors have examined acceptability of routine opt-out testing for HIV by determining the proportions of women who accepted testing (Perez et al, 2006; Chandisarewa et al, 2007; Westheimer et al, 2004) or theoretically intend to accept testing (Shankar et al, 2003).

Almost all (99%) the women in the study sample had agreed to be tested for HIV on the day of the interview through the routine offer of HIV testing. However, the fact that virtually all of these women consented to be tested, while remarkable and good for PMTCT programme management, does not necessarily mean that they were satisfied with the way things were done.

In many parts of sub-Saharan Africa, many people hold health workers in high esteem and are likely to believe that whatever is offered them by health workers is in their best interest to accept. It is likely that some of the women attending antenatal clinics may get

tested because the opt-out policy diminishes their decision-making rights such that they may end up with mandatory testing, instead of opt-out testing with the right of refusal. This may occur when the whole process becomes so routine that women are not told of their rights to refuse testing if they so decided. This study therefore used the question which asked the women whether they thought they had adequately been given a chance to make a decision whether to get tested for HIV to reflect their acceptability of the opt-out testing regimen they had just experienced. This was chosen because the main difference between opt-in and opt-out as far as the client is concerned is about decision-making; with opt-in, you decide to get tested after you are told of the availability of the test and its usefulness, while with opt-out you have to decide not to get tested otherwise testing will be done. A relatively high percentage of women found the opt-out counselling acceptable (81%) but this needs to be interpreted in context. When the new opt-out policy was introduced, health workers were trained to implement it but there hasn't been any public education whatsoever on what women attending antenatal clinics should expect, in the new scheme of things. Accordingly, public knowledge on its existence, particularly among rural women is likely to be very limited or even non-existent.

Also since 34% of the respondents were pregnant with their first child and were probably being tested for HIV in antenatal clinics for the first time, they wouldn't have any experience of the previous opt-in testing regime and therefore have nothing to compare their current experience with. From an ethical point of view, the finding that almost one fifth of the women did not find the opt-out procedure used acceptable, is disturbing as it suggests that they feel they haven't been properly treated and could influence other women negatively about antenatal HIV testing. In view of the fact that a woman has to

undergo testing before she can know her status and be able to access interventions for PMTCT, this would be a major set-back for the programme.

This study did not find that education influenced acceptability. Education has been found by some authors to be related to testing refusal (Westheimer et al, 2004; Cartoux et al, 1998b). It has been suggested that more highly educated women are probably able to assess their levels of risk better and also more likely to be aware of the consequences of being positive and therefore less inclined to agree to test for HIV. However, among our respondents who virtually all agreed to testing for HIV, education may have played a role in their decisions as the more educated women are likely to be aware of the risk of MTCT and the availability of interventions to reduce this risk. Other authors have however, found a positive association between education and acceptance of the opt-out approach. Perez et al, 2006 found in a rural Zimbabwe population that having secondary education or more was associated with acceptance of the opt-out approach.

Ethnicity appeared to have a significant association with acceptability of opt-out testing for HIV with a p value of 0.021 in the logistic regression model. The exact role ethnicity plays in the acceptability of opt-out testing is not clear. There is no information in the literature about the role of ethnicity in HIV opt-out testing acceptability in Africa. However, in the USA, there is conflicting evidence about the effect of Hispanic ethnicity in HIV test acceptance (Cunningham et al, 2009; Yudin, Moravac and Shah, 2007; Tan et al, 2011). It is possible that my finding may be a reflection of some confounding factors which have were not controlled for in this analysis.

Multivariate logistic regression analysis also showed that women who listen to radio are more likely to find the opt-out testing acceptable. This is probably due to the fact that radio remains a powerful medium through which all kinds of information are

disseminated. In rural areas, this may be the only way through which people become aware of health problems and their interventions. There are two radio stations (URA Radio and Nabina Radio) which are accessible all over the district, often broadcasting in the local languages and these serve to keep the people informed on a broad range of issues. There are often programmes on the radio where various health issues are discussed and HIV remains one of the topical issues which attracts a lot of attention on the airwaves. For those who listen to radio, it therefore serves as a major health education medium.

Awareness of MTCT and knowledge of PMTCT did not influence the perceptions of the respondents regarding acceptability of opt-out testing. However, their perception of the quality of counseling was significantly associated with acceptability of opt-out counseling. Women who perceived the quality of counseling to be high were 4.6 times more likely to find opt-out testing acceptable (p-value=0.024). This suggests that the value the women gave to their counselling experience was more important to them than their awareness of MTCT or their knowledge of PMTCT.

In summary, the factors which were significantly associated with acceptability of opt-out testing in this study were the exposure to radio, the perception of the quality of counselling provided and the ethnicity of the women.

5.2 Conclusion

This study set out to assess the acceptability and quality of the use of routine verbal opt-out strategy for HIV testing during pregnancy for women attending antenatal clinics in the Kassena-Nankana district of northern Ghana.

The study found that awareness of MTCT among women attending antenatal clinics in the district was fairly high with about 85% of the respondents being aware of this mode of HIV transmission. The study found also that awareness of MTCT was significantly associated with those women who have the chance to listen to radio. This reinforces the role of radio as a crucial medium for spreading health messages to people living in rural communities who often do not have any other access to information.

Overall, majority of the women could mention at least one strategy to prevent MTCT. The most common strategy mentioned was the use of anti-retroviral therapy to reduce transmission from mother to child. Others also knew that stopping breastfeeding could help to reduce the risk of MTCT. At the time of this survey, anti-retroviral medication had only just started becoming available in the district and health workers had been using this to encourage people to get tested for HIV. It is not surprising therefore that more women knew of this PMTCT strategy than others. Given that this is a virtually universal breastfeeding community, it would have been desirable if more of the women knew about how stopping breastfeeding by an HIV positive mother could reduce the risk of transmission to her child.

There were several issues which need to be addressed concerning the quality of counselling provided to the women. First of all, not all the women remember having a discussion that day about HIV. Even though many of the women would have spent some considerable time at the clinic and would be anxious to go home once they had finished their consultation, one would still have expected that they would have remembered a discussion on HIV that they held with the midwife. Considering that the interviews were held shortly after the women had completed their first antenatal clinic visit and virtually all of them agreed to be tested, there is the possibility that some of them may have been

tested without any significant counselling. A fifth of the women said that they were not told of their right to refuse the test for HIV. As a result they may have received mandatory testing rather than opt-out testing with the right of refusal. The key issue differentiating opt-out testing from mandatory testing is the right of refusal in opt-out testing which could be exercised by the client if she so decided. Many women were also not given the opportunity to ask questions during their counselling sessions denying them the right to have their fears and anxieties about HIV testing addressed. About 40% of the respondents also said that they were not told that they would require future testing. This also raises questions about the quality of counselling as it is necessary to draw the attention of women going in for antenatal HIV tests that their status could change with time and therefore they may need to have future testing if they got pregnant again.

Even though almost all the women in the sample were tested for HIV, many still felt that they had not been given adequate opportunity to make decisions on whether they wanted to get tested for HIV. This is indicative of their dissatisfaction with the counselling and testing process they had just experienced and reflects their level of acceptability of the opt-out testing approach being used. Also, the women who rated the quality of counselling highly were more likely to find the testing regime acceptable, indicating that improvements in the quality of counselling could improve the level of acceptability of opt-out testing as it is being implemented now.

The study also found that to some extent, women who had secondary or more education were more likely to find the opt-out testing acceptable compared to women with no education.

5.3 Recommendations

1. Counselling practices need to be improved. All the women who attend antenatal clinics should be aware that they could be tested for HIV but only if they do not refuse to have the test done. This would require refresher training of counsellors and the provision of visual aids to assist them deliver their sessions better. This is necessary because most of their clients are illiterate and have very little knowledge about HIV before they come to the clinic.
2. Information provided at counselling sessions need to be structured and consistent and must cover key topic areas. This is in view of the fact that some of the women were given some information that others were not provided. In highly literate populations, there is the tendency to use pamphlets and other written information to convey messages to clients. However, in largely illiterate communities such as in the Kassenana-Nankana district, this is not possible. Therefore the verbal communication between the health workers and their clients must be reinforced.
3. Efforts should be made to inform women in the communities about MTCT and PMTCT, so that they would come into the antenatal clinics expecting that there would be discussions on HIV testing followed by an offer of testing. Information could be channeled through women's groups and other social organisations targeting women specifically.
4. The district health management teams need to utilize the radio stations more to disseminate information on MTCT and PMTCT to people in the communities.
5. Community meetings should also be utilized to provide information to rural people on current opt-out policy for HIV testing in antenatal clinics.

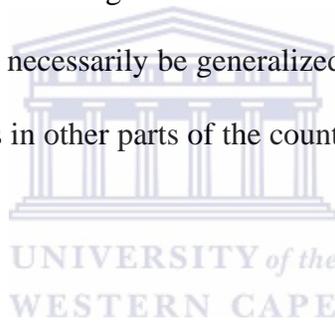
5.4 Generalisability

Generalisability of a research relates to the extent to which the findings can be generalized to larger populations and settings.

To ensure the generalisability of this study's findings, a representative sample of pregnant women undergoing testing for HIV for PMTCT, was chosen from all the women attending antenatal clinics in the district.

Burns and Grove (2001) assert that to infer generalisability of a sample to a population, the response rate of the sample should be greater than 50%. The response rate in this study was 94%, suggesting that findings from this study could be generalized to the population of pregnant women accessing PMTCT services in the district.

However, the findings may not necessarily be generalized to the whole of Ghana as there may be other contextual factors in other parts of the country which may result in different findings.



5.5 Limitations of this study

Because this study was conducted within the premises of health facilities, there is the possibility of information bias in that some of the respondents may not have expressed their true feelings due to their fear that clinic staff may victimize them later if they discovered their responses to certain questions. However, efforts were made to reassure the respondents that confidentiality would be ensured and that any information collected would only be available to the researcher. They were assured that the interviewers will not share any information they collect with clinic staff.

The process of translating questions and answers from English into the local languages and vice versa was also a limitation of this study as it may have resulted in differences in interpretation of questions and answers. However, efforts were made to reduce this to the barest minimum by providing adequate training to the research assistants who conducted the interviews.

In social surveys, respondents often answer questions based on what they think the interviewer wants to hear (obsequiousness bias) and this study was not exempt from this type of bias. However, efforts were made to assure the respondents that there are no correct answers for this study and they should feel free to express their views.

In the analyses, question 41 of the questionnaire was used as a proxy variable of acceptability of opt-out testing. The question asks whether respondents thought they had been adequately given a chance to make a decision whether they wanted to get tested for HIV. Ideally, the question should have asked whether the respondents thought they had been given the chance to decide not to be tested as opt-out testing is more about exercising the right to decline testing rather than agreeing to be tested, hence its use as a proxy.

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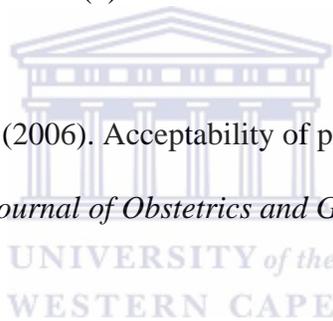
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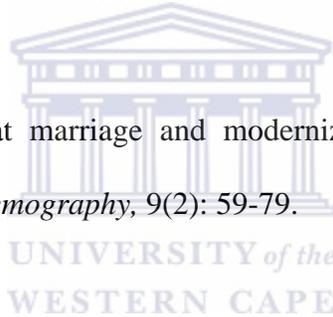
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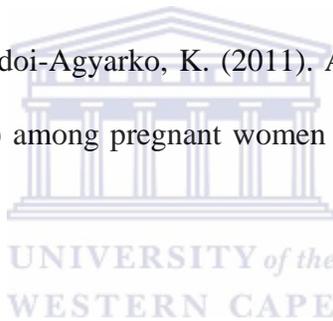
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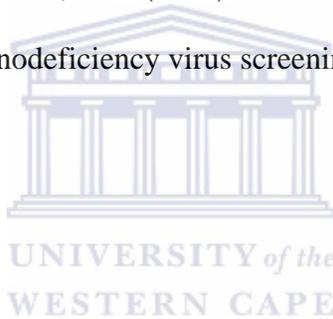
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APPENDIX 1: CONSENT FORM



UNIVERSITY OF THE WESTERN CAPE



School of Public Health

Private Bag X17 • BELLVILLE • 7535 • South Africa
Tel: 021- 959 2809, Fax: 021- 959 2872

CONSENT FORM

TITLE OF RESEARCH:

Acceptability of Routine “Opt-Out” HIV Testing in Antenatal Services in the Kassena-Nankana District of Northern Ghana.

Having described the proposed research and the role you could play in it, I wish to now invite you to participate in it. I wish to emphasize that your participation in this study is entirely voluntary i.e. you may choose not to participate. If you choose not to take part in this study, I assure you that you will not suffer any consequences nor lose any benefits to which you are otherwise entitled.

Should you agree to take part, you may decide to withdraw at any time. You also have the right to refuse to answer any question that you do not feel like answering. If there are issues that you feel uncomfortable about, please feel free to say so.

All the information collected in this study will be kept strictly confidential.

If you choose to take part in this study, I will require you to sign or thumb print this form before we proceed.

I have read the information about this research on the participant information sheet or it has been read to me. I have had the opportunity to ask questions and any questions I have asked have been satisfactorily answered.

I consent to voluntarily participate in this study and understand that I can withdraw at any time or choose not to answer any questions asked in the interview.

My signature/ thumb print indicates that I am willing to participate in this study.

Participant's name (IN BLOCK LETTERS)

Participant signature/ Right Thumbprint

Consent date

Name of Research Assistant seeking consent

Signature of Research Assistant

Date



APPENDIX 2: QUESTIONNAIRE

ACCEPTABILITY OF ROUTINE “OPT-OUT” HIV TESTING IN ANTENATAL SERVICES IN THE KASSENA-NANKANA DISTRICT OF NORTHERN GHANA

ANC registration number of client:

Form Number:

Name of Research Assistant:

Date of interview:

Name of clinic:

Language of interview:

Time interview began:

Background Information

	QUESTIONS	RESPONSES/CODING CATEGORIES	
1.	How old are you? (Age at last birthday)	Record Age in completed years.....	
2.	What is your marital status?	Married/Co-habiting...1 Separated/Divorced...2 Widowed.....3 Never married.....4	
3.	What level of education have you had?	None.....1 Primary.....2 Secondary.....3 Tertiary+.....4	
4.	What is your religion?	Christian.....1 Muslim.....2 Traditional African...3 Other.....4	
5.	Which ethnic group do you belong to?	Kassena.....1 Nankana.....2 Other(specify).....3	
6.	What work do you do?	No work.....1 Farming.....2 Trading/Selling.....3 Craftsmanship.....4 White collar job.....5 Other.....6	
7.	How many children have you given birth to including those who were not born alive and those who are not living with you? *Please cross-check with ANC Card	Record Parity.....	
8.	What work does your husband/partner do?	No work.....1 Farming.....2 Trading/Selling.....3 Craftsmanship.....4 White collar job.....5 Other.....6	
9.	Do you listen to the radio almost every day, at least once a week, less than once a week or not at all?	Almost every day.....1 At least once a week.....2 Less than once a week.....3 Not at all.....4	
10.	Does your husband/partner stay with you in the same house or he stays elsewhere?	Stays with me.....1 Stays elsewhere.....2 Not applicable.....3	

11.	How long did it take you to get to the health facility from your house?	Less than 30 minutes.....1 Up to 1 hour.....2 More than one hour.....3 Don't know.....4	
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Awareness of HIV, MTCT and PMTCT

	QUESTIONS	RESPONSES/CODING CATEGORIES	
12.	Have you heard of a condition called HIV or AIDS?	Yes.....1 No.....2 Don't know.....9	
13.	How is HIV/AIDS transmitted? Circle all mentioned	Unprotected sexual intercourse.....1 Used needles/syringes/razors.....2 Blood transfusion.....3 Mother to child.....4 Breastmilk.....5 Mosquitoes.....6 Other (specify).....	
14.	How can one prevent transmission of HIV/AIDS?	Abstinence.....1 Use condoms.....2 Be faithful to one partner.....3 Avoid casual sex.....4 Eat good foods.....5 Not breastfeed.....6 Other (specify).....7	
15.	Is it possible for an infected pregnant woman to transmit HIV to her unborn baby?	Yes.....1 No.....2 Don't know.....3	
16.	How can an infected woman transmit HIV to her baby? Circle all mentioned	During pregnancy.....1 During Labour/Delivery.....2 During breastfeeding.....3 Other (specify).....4 Not applicable.....5	
17.	What can be done to reduce the risk of mother to child transmission of HIV/AIDS? Circle all mentioned	Take anti-HIV medicine.....1 Do not breastfeed.....2 Caesarian operation for delivery.....3 Getting tested for HIV.....4 Others (specify).....5 Not applicable.....6 Don't know.....7	
18.	Where do you normally obtain information on HIV/AIDS?	Health workers/Clinic staff.....1 Friends/family.....2 Radio.....3 Other (specify).....4 No source.....5	

PMTCT Service at Antenatal Clinic

	QUESTIONS	RESPONSES/CODING CATEGORIES	
19.	Did the midwives/clinic staff discuss anything about HIV/AIDS with you today?	Yes.....1 No.....2	
20.	Were you told that you would be tested for HIV today by the clinic staff?	Yes.....1 No.....2	

21.	Did the clinic staff inform you that you could refuse to be tested for HIV today?	Yes.....1 No.....2	
22.	Were you given the opportunity to ask questions about the test?	Yes.....1 No.....2	
23.	Did you agree to be tested?	Yes.....1 No.....2	
24.	Why did you decline to be tested?	Afraid to be tested.....1 Wanted to wait till later.....2 Wanted to ask permission from partner....3 Didn't think I needed it.....4 Not applicable.....5 Other (specify).....6	
25.	Were you tested for HIV today?	Yes.....1 No.....2	
26.	Were you told why you had to be tested for HIV at the clinic?	Yes.....1 No.....2	
27.	What reason did the nurse give you for taking the test? Circle all mentioned	To detect if I have HIV infection.....1 To be able to prevent infection of baby...2 To know if baby is healthy.....3 Other (specify).....4	
28.	Were you told the result of the test? (You don't have to tell me the result!)	Yes.....1 No.....2	
29.	Are you happy that you were tested for HIV?	Yes.....1 No.....2	
30.	Would you have preferred to go home to ask permission from your partner or someone else before being tested?	Yes.....1 No.....2	
31.	Do you think the information given to you before the test was done was adequate?	Yes.....1 No.....2	
32.	Do you think the information given to you after the test result was available was adequate?	Yes.....1 No.....2	
33.	Were you given the opportunity to ask questions when the results were being disclosed to you?	Yes.....1 No.....2	
34.	Was this your first HIV test?	Yes.....1 No.....2	
35.	Were you told that you may require another HIV test in future?	Yes.....1 No.....2	
36.	Are you worried that other people apart from the clinic staff will get to know your test result?	Yes.....1 No.....2	
37.	Do you think that the way the counseling and testing procedure was carried out assures your privacy?	Yes.....1 No.....2 Not applicable.....3	
38.	Do you think it is acceptable to test all pregnant women for HIV?	Yes.....1 No.....2	
39.	Would you like to have the test done in future if you were offered it?	Yes.....1 No.....2	
40.	Based on your experience today, would you recommend counseling and testing for HIV to another pregnant woman you know?	Yes.....1 No.....2	
41.	Do you think you were adequately given the chance to make a decision whether you wanted to get tested for HIV?	Yes.....1 No.....2	



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