# FACTORS INFLUENCING THE QUALITY OF ANTENATAL CARE IN PUBLIC MATERNAL AND CHILD HEALTH FACILITIES IN NAIROBI PROVINCE, KENYA

**By**

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## DECLARATION

This thesis is my original work and has not been presented for a degree in any other university or any other award.

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## SUPERVISORS APPROVAL

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## DEDICATION

To my dear parents Mr and Mrs Daniel K. Lelmet
Your positive outlook to education, hard-work and belief that everything is possible in God has been an inspiration to me.

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## ACRONYMNS AND ABREVIATIONS

| | |
|---|---|
| **AIDS** | Acquired Immune Deficiency Syndrome |
| **ANC** | Antenatal Care |
| **APHRC** | African Population and Health Research Centre |
| **CBS** | Central Bureau of Statistics |
| **DHMT** | District Health Management Team |
| **EmOC** | Emergency Obstetric Care |
| **FANC** | Focused Antenatal Care |
| **FGDs** | Focused Group Discussions |
| **GOK** | Government of Kenya |
| **HIV** | Human Immunodeficiency Virus |
| **IBP** | Individual Birth Plan |
| **IPT*p*** | Intermittent Preventive Treatment prophylaxis |
| **ITN** | Insecticide Treated Nets |
| **KDHS** | Kenya Demographic and Health Survey |
| **KNH** | Kenyatta National Hospital |
| **KSPAS** | Kenya Service Provision Assessment Survey |
| **MCH** | Maternal Child Health |
| **MDG** | Millennium Development Goals |
| **MMR** | Maternal Mortality Ratio |
| **MOH** | Ministry of Health |
| **NGOs** | Non-Governmental Organizations |
| **NHMB** | Nairobi Health Management Board |
| **PMH** | Pumwani Maternity Hospital |
| **PMTCT** | Prevention of Mother to Child Transmission |
| **PMR** | Perinatal Mortality Rates |
| **ROK** | Republic of Kenya |
| **SPSS** | Statistical Package for Social Sciences |
| **STI** | Sexually Transmitted Infections |
| **TBA** | Traditional Birth Attendant |
| **TT** | Tetanus Toxoid |
| **UNICEF** | United Nations International Children Education Foundation |
| **VCT** | Voluntary Counselling and Testing |
| **WHO** | World Health Organization |

## ABSTRACT

When implemented according to the set standards and guidelines, antenatal care (ANC) contributes greatly to better health outcomes for women and their infants. Despite the implementation of World Health Organisation (WHO) guidelines for focussed antenatal care (FANC) known to improve quality and high utilisation of antenatal care services in Kenya, maternal mortality rates remains unacceptably high at 414 per 100,000 live births. Only 42% of women deliver with a skilled provider indicating a deficiency in the quality of care provided. This descriptive-cross sectional study examined the factors influencing the quality of ANC in public maternal and child health facilities in Nairobi province of Kenya. Proportionate cluster sampling was used to identify facilities for study where 384 systematically sampled mothers meeting the inclusion criteria were interviewed to explore their views and experiences with care during pregnancy. Additional information was obtained using self-administered questionnaires with ANC providers, key informant interviews and focussed group discussions (FGDs). Univariate and bivariate analyses was done using excel and SPSS software and variables computed appropriately using chi-square tests. Content analysis was done for qualitative FGDs findings. Findings reveal missed opportunities in almost all items of care particularly in health education and promotion. Proximity to place of residence, affordability and perceived good services were the main reasons for ANC facility choice. Clients portray high level of satisfaction with care as shown by high overall rating of quality at 80.3% and overall satisfaction index being 82.7%. Dissatisfaction was shown on waiting time and client-provider interaction. Quality of care measured by client satisfaction was influenced by waiting time ($\chi^2_{df=1,}$ =9.980, p<0.002), responding to questions well ($\chi^2_{df=2}$=12.315, p<0.002), treating clients with respect ($\chi^2_{df=1}$=13.225, p<0.0001), number of ANC procedures received ($\chi^2_{df=2}$ =21.262, p<0.0001), facility cleanliness ($\chi^2_{(df=2)}$ =22.161, p<0.0001), and timing of entry to ANC ($\chi^2_{df=4}$=13.441, p<0.009). Over 79.5% of women delivered sought skilled attendance at birth. Seeking skilled care at delivery was associated with client satisfaction with care ($\chi^2_{df=12}$=28.204, p<0.005). Only 14.9% of women book for ANC during the WHO recommended first trimester of pregnancy. Influences to quality ANC were timing of first visits, frequency of visits, waiting time, patient load, adherence to standards, adequacy of laboratory services and provider training. A synergistic approach targeting facility, care providers, ANC mothers and the community at large is needed in order to improve the adequacy of public ANC services in Nairobi. Findings from this study will go along way in strengthening the credibility of public ANC thus ensuring that mothers reap maximum benefits from care resulting in a decline in MMR and sustained use of ANC and delivery services.

# CHAPTER ONE: INTRODUCTION

## 1.1 Background information

Reduction of maternal and neonatal mortality remains a major challenge to attaining global social and economic development. Worldwide, more than 515,000 women die each year from pregnancy and childbirth complications while four million babies die within the first week (neonatal period) of life. Almost all of the maternal deaths occur across all developing countries where 450 women per every 100,000 live births die during pregnancy, childbirth or at postpartum period (ROK, 2006; WHO, 2007).

The maternal mortality ratio (MMR) and proportion of births attended by skilled personnel are important indicators of quality maternal health (APHRC, 2002). While the utilization of ANC services in Kenya is one of the highest in sub-Saharan Africa with 88% of women reporting at least one ANC visit, maternal death is among the leading causes of death among women of reproductive age. The MMR is unacceptably high at 414 per 100,000 live births with 30 women suffering long-lasting injuries and illnesses per every woman who dies. Only 42% of women deliver with a skilled provider (CBS, 2004; ROK, 2006). In Nairobi province, close to 23% of women do not seek skilled care at delivery (MOH, 2004).

Direct causes of maternal deaths and disabilities are pregnancy related, such as haemorrhage, sepsis and hypertensive diseases (pre-eclampsia and eclampsia). Others are obstructed labour, unsafe abortion and sequelae in the postnatal period. Common indirect include problems of malaria, anaemia, STIs/HIV and AIDS, and tuberculosis (CBS, 2004; MOH, 2004; ROK, 2004; Lule *et al*., 2005).

There is proof that appropriate implementation of the evidence-based standards and guidelines in the provision of health care not only improve the process and outcomes of care, but also satisfy client needs (WHO/UNICEF, 2006; Birungi & Ouma, 2006; ROK, 2006). Of importance is the newly developed goal oriented ANC (WHO, 2006). Other than being an entry point to safe delivery and postnatal care, ANC enhance recognition and mitigation of health problems or diseases directly related to pregnancy, known to contribute to unfavourable outcomes. Through ANC, women are empowered to articulate health needs and concerns, which influence their health seeking behaviour and practices during pregnancy and thereafter. This leads to reduced delays in seeking, reaching and receiving adequate care (ROK, 2006; Abou-Zahr, Carla and Wardlaw, 2003).

Kenya has put in place interventions to promote health and survival of mothers and babies. In recognition of the significant role ANC plays in the reduction of maternal complications and deaths, it has adapted the WHO evidence-based guidelines popularly known as focused ANC (FANC) and incorporated into its national guidelines (ROK, 2006). The new model emphasises on quality of care rather than quantity. It focuses on identification, prevention and management of life threatening complications in pregnancy, birth preparedness and complication readiness (ROK, 2006; Saha and Kabir, 2006; Abou-Zahr, Carla and Wardlaw, 2003). In response to emerging health problems such as HIV/AIDS, malaria and TB, new components such as prevention of mother to child transmission (PMTCT) of HIV, intermittent presumptive treatment prophylaxis (IPT*p*) for malaria prevention and diagnosis of TB have been added in order to promote integrated ANC (ROK, 2006).

Studies clearly indicate that countries with high maternal, perinatal and neonatal mortality have inadequate and poor quality of health services. As such, increased emphasis is being placed on the need for standards of care as well as mechanisms which address the barriers to provision and use of quality care (WHO, 2006). Though there is high utilization of ANC in Kenya, an indication that women are willing to present themselves for care, ANC has not adequately influenced the use of skilled personnel at delivery. This, coupled with high MMR as well as preference for private care among urban women over the most affordable alternative in public facilities (CBS, 2004), suggests gaps in care provision and merits this study to examine the factors influencing the quality of ANC provided in public MCH facilities in Nairobi. While it is known what the content and quality of ANC should be, the providers' adherences to the set standards and national guidelines on ANC as well as client's experiences on care in public facilities have not been adequately investigated.

### 1.2 Problem statement and justification

There is evidence that the newly adapted WHO guidelines of FANC improves the quality of care and is quite acceptable among clients (Birungi and Ouma, 2006; Villar *et al.*, 2001; APHRC, 2002). It is therefore expected that ANC should go along way in reducing MMR and influencing the use of skilled delivery care among women. ANC use in Kenya is one of the highest in Africa, with 88% of women reporting at least one ANC visit, meaning that women are wiling to present themselves for care. In addition, Kenya has adopted the WHO recommended focussed ANC (FANC) model known to improve quality. Despite this, MMR remains unacceptably high at 414 per 100,000 live births with some 20 to 30 women sustaining lasting complications and injuries per every woman

who dies (CBS, 2004; ROK, 2006). Perinatal mortality rate (PMR) is equally high at 40 per 1,000 pregnancies and only 42% of women deliver with a skilled provider. The PMR is slightly higher in Nairobi at 49 per 1,000 pregnancies and close to 23% do not seek skilled delivery care (MOH, 2004; CBS, 2004). The above findings suggest a deficiency in quality given the indicators of quality maternal health as MMR and proportion of births with skilled personnel. With public MCH facilities being widely utilized by women of lower economic cadre who are often victims of high MMR, there is need to target interventions to such settings so as to ensure that women presenting themselves to ANC reap maximum benefits from the care. ANC is key in attainment of the MDG targets number 4, 5 and 6 of reducing by ⅔ the under-five mortality, by three-quarter the MMR, and reversing the spread of HIV/AIDS, incidences of malaria and other disease by 2015 (ROK, 2006; Lule *et al*., 2005). Little has been documented on client's experiences in using ANC as well as on the factors influencing ANC quality in resource limited settings, a characteristic of public ANC services in Nairobi.

### 1.3 Research questions

a) What is the quality of antenatal care provided in public MCH facilities in Nairobi in relation to the WHO standards and national guidelines?

b) What is the perception of mothers on the quality of care received and their practices on key elements of ANC?

c) What are the challenges faced by care providers in the provision of quality antenatal care?

## 1.4 Null hypotheses

There are no significant factors influencing the quality of antenatal care services in public MCH facilities in Nairobi province of Kenya.

## 1.5 Objectives of the study

### *1.5.1 General objective*

The general objective of the study was to examine the factors influencing the quality of antenatal care in public MCH facilities in Nairobi province of Kenya.

### *1.5.2 Specific objectives*

a) To assess the extent to which ANC care providers adhere to WHO set standards and national guidelines in the provision of care.
b) To assess the clients perception on quality of care received and their practices on key elements of ANC in order to achieve best pregnancy outcomes.
c) To establish the challenges faced by care providers in the provision of quality antenatal care.

## 1.6 Significance and anticipated output

Improvement of quality of ANC is a major strategy used by hospitals and health care facilities to reduce maternal death and morbidity. The study was aimed at identifying gaps and barriers in the provision of quality ANC in public MCH facilities, which when addressed will go along way in strengthening the capacity and credibility of public ANC. This will result in improved client satisfaction, sustained use of services and improved outcomes of care. Women presenting themselves for ANC services will be empowered to make informed decision on their health and that of their infants, and reap maximum benefits from care.

### 1.7 Delimitation and limitation

Findings from this study is limited to users of public ANC and do not represent views from those of non-public sources who are likely to have divergent views. It focused on obtaining views on ANC from mothers at postnatal clinics seeking child welfare and immunisation services for their infants rather than mothers at ANC clinics since mothers at postnatal clinics have gone through the ANC period and more likely to have received full ANC package. Women currently receiving ANC were not considered since they haven't completed antenatal period and not likely to give views that could fully reflect the ANC process. While public MCH facilities formed an ideal setting for the study because it is often faced by limited resources likely to compromise quality, most users of these facilities are of low socio-economic cadre seeking affordable services. Such women are often victims of high maternal morbidities and mortalities.

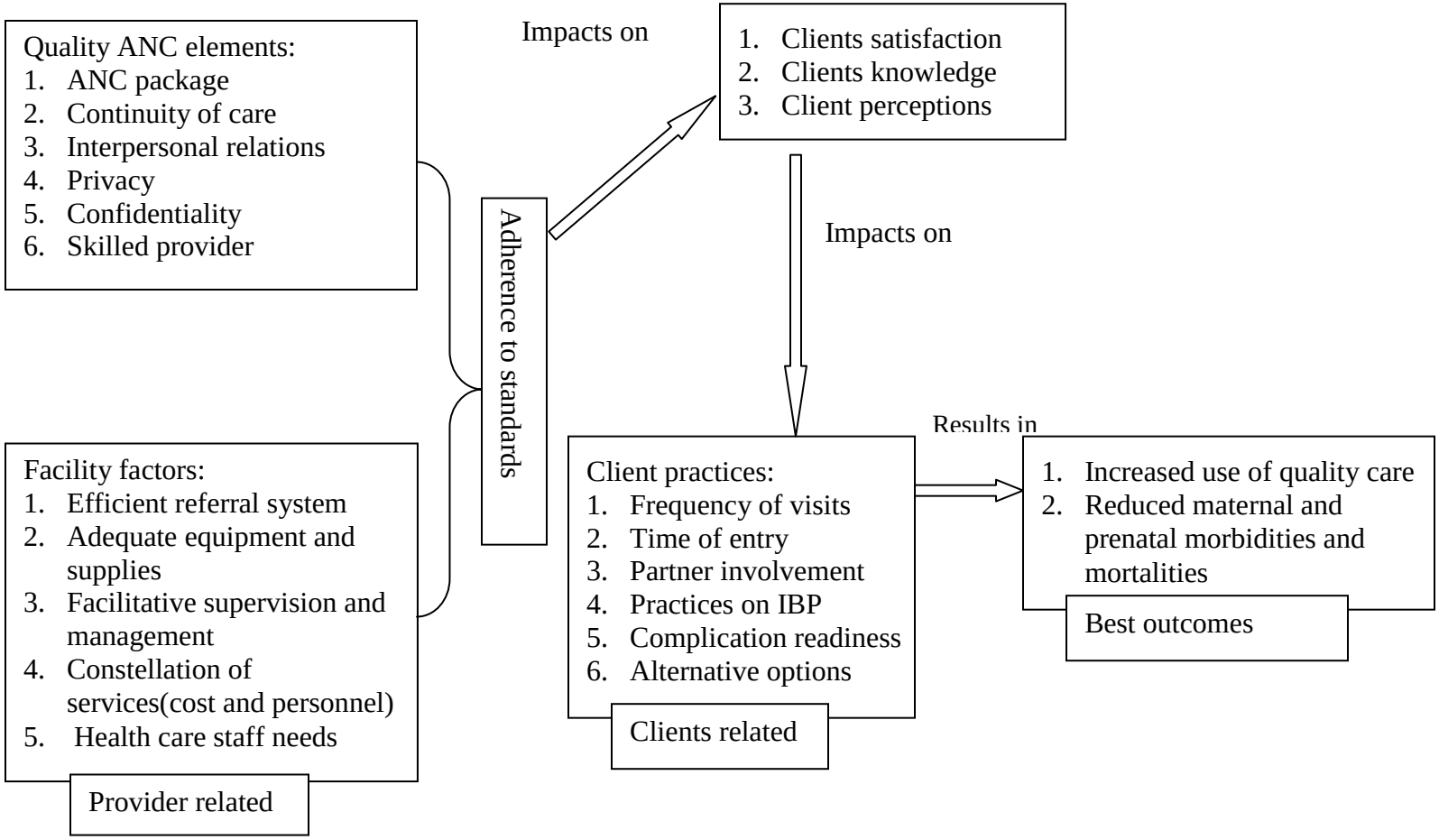
It is recognized that the burden of maternal mortality is spread through the antenatal, perinatal, and postnatal periods. This study however will focus on improving quality at the ANC period. This is in recognition of the importance of ANC both as a channel of relevant health education and an entry point to adequate delivery and post natal care for women. Emphasis was placed on the process of care, client's experiences and perceptions on quality rather than on the input or output components of quality. This was considered important in order to ascertain the provision of evidence-based components and the care available to public ANC users. Perceived quality of care is likely to dependent on clients' knowledge on what to expect from the health system.

### 1.8 Conceptual framework

Understanding the client's and provider perspectives on the factors influencing the quality of ANC is important in improving the quality of services provided. Proper constellation of services (facility factors) coupled with good provider and client behaviours are necessary to achieve better ANC outcomes.

When care is provided by motivated providers in well equipped health facilities, accessibility, acceptability and satisfaction among women is enhanced. Increased knowledge among women will promote better behaviours and practices regarding ANC which will ensure that services are sought in a frequent and timely manner. Delays in seeking and receiving care will be addressed enabling women to receive maximum benefits from care. Ultimately, pregnancy related morbidities and mortalities will be reduced leading to healthy mothers and society which can positively contribute to its development agenda.

Figure 1.0 below gives an illustration of the conceptual framework for this study.




*Source: Author, 2009*

***Figure 1.0 Conceptual framework***

### 1.9 Operational definitions

*Antenatal care:* Care given to a pregnant woman from the time of conception to the onset of labour.

*Quality of care:* Care provided according to the set WHO standards and national guidelines, based on Evidence-Based Medicine, and meeting client needs.

*Standards:* Statements or an expression that spells out the best practice and gives some idea on how the level of care is to be achieved.

*Guidelines:* Systematically developed statements, which assist in making decisions about appropriate health care for specific conditions based on evidence or research.

*Focused antenatal care (Targeted ANC):* Minimum number of four personalized clinic visits each of which has specific items of client assessment, education and care to ensure prevention or early detection and prompt management of complications.

*Mothers:* Women of reproductive age at postnatal clinics seeking immunization services for their infants who sought ANC care in public MCH facilities during pregnancy.

*Maternal Mortality:* Maternal deaths due to pregnancy and childbirth complications.

*Satisfaction:* Sensitive to and meeting the needs of clients in terms of quality, privacy and confidentiality, meeting clients needs in a culturally acceptable way.

*Skilled care/attendance:* Process by which a pregnant woman and her baby are provided with adequate care during pregnancy, labour, birth and postpartum, and immediate newborn periods.

*Comprehensive ANC:* Full ANC package with all assessment, examinations, laboratory tests, disease prevention and health promotion components.

*Missed opportunities***:** Proportion of respondents who were not administered with a given ANC procedure or did not recieve a specfied item of care under consideration

*Providers:* Health staff at selected public MCH facilities serving in ANC at the time of study or have served in the last one year preceding the study and available for interview.

# CHAPTER TWO: LITERATURE REVIEW

## 2.1 Introduction

This section presents the available literature reviewed related to antenatal care. The review covers a range of studies in Africa and the world due to scarcity of literature related to antenatal care in Kenya. There is need to carry out more studies related to quality of care in order to elucidate key interventions which will have targeted impact in the provision of care especially in resource constrained settings. The section touches on the transition of ANC to FANC, provision of ANC in Kenya, its components and benefits as well as issues surrounding its utilization and quality.

## 2.2 Goal oriented antenatal care

Antenatal care is the care given to a pregnant woman from the time of conception to onset of labour or delivery. It is important in helping to ensure that women and newborns survive pregnancy and childbirth and recognized as among the 'four pillars' of safe motherhood, along with clean and safe delivery, essential obstetric care and family planning (ROK, 2006). For a long time, the risk approach to antenatal care has been in use in many countries whereby women were classified by risk category to determine their chances of complications and the level of care they needed. It emphasized on frequent routine visits (Abou-Zahr, Carla and Wardlaw, 2003). Rigorous evaluations, however, revealed that frequent visits do not necessarily improve pregnancy outcomes and is often logistically and financially impossible for women in developing countries. In addition, many women who had risk factors never developed complications, while women without risk factors often did (JHPIEGO, 2004; Villar *et al*., 2001; WHO, 2001). A study in

Kasongo Zaire in 1984 showed that 71% of women who developed obstructed labour had not been identified to be “at risk” while 90% of the women who had been identified to be “at risk” did not develop obstructed labour (JHPIEGO, 2004). It was therefore concluded that planning ANC using the risk approach to ANC would result in spending of scarce healthcare resources unnecessarily to high-risk women who never develop complications leaving the low-risk unprepared to recognize or respond to signs of complications (Abou-Zahr, Carla and Wardlaw, 2003).

With the newly developed WHO goal-oriented ANC model (focused ANC), emphasis is placed on quality of care rather than quantity geared towards improving maternal health outcomes (Abou-Zahr, Carla and Wardlaw, 2003). It focuses on evidence-based interventions which address the most prevalent health issues that affect mothers and newborns and recognizes the fact that every pregnant woman is at risk of developing complications and must access early diagnosis and treatment, preventive interventions and emergency care when needed. FANC guideline is specific regarding the timing and content of ANC visits according to gestational age. Elements of care not effective in improving pregnancy outcomes such as routine monitoring of height and weight gain are not considered very important (ROK, 2006; Abou-Zahr, Carla and Wardlaw, 2003).

### 2.3 ANC Provision in Kenya

Maternal health services are provided by facilities at every level of Kenya’s health system. The MOH and the National Coordinating Agency for Population and Development (NCAPD) have identified maternal health as a priority health issue and put in place a strategy to reduce maternal morbidity and mortality. Kenya has adopted the

WHO goal oriented model of ANC, incorporated it to its national guidelines (ROK, 2004) and first piloted in Lugari and Busia districts (ROK, 2004; Birungi and Ouma, 2006). The content of the focused ANC package in Kenya is comprehensive as recommended by WHO. It places emphasis on early and timely interventions with a skilled provider, and on birth preparedness and complication readiness components of ANC. Components of prevention of mother to child transmission (PMTCT) of HIV and intermittent presumptive treatment (IPT) for malaria prevention were introduced in response to national health needs (ROK, 2006; Birungi and Ouma, 2006).

**2.4 Components of ANC**

Findings from a systematic review of randomized controlled trials on the effectiveness of different models of ANC led to a consensus on the elements of care that are likely to improve maternal and perinatal outcomes (Villar *et al.*, 2001; Carroli *et al., 2001*) which have been incorporated in the WHO guidelines (WHO, 2001). The guidelines emphasize only on examinations and tests that serve an immediate purpose and that have been proven beneficial. These examinations include measurement of blood pressure, testing of urine for bacteriuria and proteinuria, and blood tests to detect syphilis and severe anaemia. Routine weight and height measurement at each visit is considered optional (WHO, 2001; Abou-Zahr, Carla and Wardlaw, 2003). Examination for signs of chronic conditions and infectious diseases such as HIV, malaria, syphilis and other STIs, anemia, heart disease, diabetes, malnutrition, and TB is crucial since such conditions may affect the outcome of pregnancy and therefore requires immediate treatment, and intensive monitoring and follow-up throughout the course of pregnancy. All pregnant women should receive immunization against tetanus, and Iron and folate supplementation, while

those in high prevalent areas should receive presumptive treatment of hookworm, VCT for HIV, IPT and ITNs for malaria protection and protection against vitamin A and iodine deficiency (WHO, 2006). Since approximately 15 percent of all pregnant women will develop a life-threatening complication (Stephenson, 2005), improved education component especially on recognition of danger signs and appropriate responses (Langer *et al.*, 2002; Carroli *et al.*, 2001) is important. Other health education components include appropriate diet, infection prevention, breastfeeding and family planning.

## 2.5 Benefits of Antenatal Care

Epidemiological studies have demonstrated that high quality ANC is beneficial in reducing maternal and perinatal complications and adverse pregnancy related outcomes (APHRC, 2003; Carroli *et al.*, 2001). *Table 2.1* below shows some of the neonatal conditions that could be averted through ANC.

***Table 2.1 Newborn problems that could be averted by ANC action (source ROK, 2006)***

| **ANC action** | **Newborn problem that may be averted** |
|---|---|
| Tetanus toxoid immunization for the mother | Neonatal tetanus |
| Syphilis screening and treatment, if positive | Abortion, stillbirth, congenital syphilis |
| Screening and treatment of other STIs | Newborn gonococcil / Chlamydia, sepsis, eye infection |
| Malaria prevention by use of IPT and ITNs | Abortion, prematurity, low birth weight |
| Screening for HIV and ARV therapy in pregnancy and labour, if positive | HIV transmission to the fetus or newborn |
| Screening and treatment of anaemia and hookworms | Low birth weight |
| Vit A, Iron, folate and iodine supplementation | Low birth weight, prematurity, spinal cord defects, hypothyroidism |

ANC assessment and screening enables early detection and treatment of complications and provides women at risk with an opportunity for referral (ROK, 2004). It is an entry point to skilled care at delivery, adequate postpartum care, PMTCT for HIV and AIDS prevention, nutritional counselling, and health education, thus promoting integrated service delivery for women (Saha and Kabir, 2006; Birungi and Ouma, 2006; Bloom, Lippeveld and Wypij, 1999). The health-education and counselling empowers women to articulate health needs and concerns, thus enabling them to plan for delivery and prepare for any complications that may arise (Saha and Kabir, 2006). A rapport is also established between women, health care providers and the health system which will enhance continuity of care and the probability that women will seek timely care during an emergency (WHO, 2001).

## 2.6 Utilization of ANC

### 2.6.1 Trends in ANC use

Statistics shows that slightly over 70% of women worldwide have at least one antenatal visit with a skilled provider during pregnancy being (Abou-Zahr, Carla and Wardlaw, 2003). There is however, a discrepancy with coverage being extremely high, at 98% in the industrialized countries as compared to the developing world at 68%. South Asia experiences the lowest level of ANC utilization where only 54% of pregnant women have at least one antenatal care visit as compared to 68% in sub-Saharan Africa. The levels of ANC uptake in Kenya is one of the highest in Sub-Saharan Africa with at least 88% of women reporting one ANC visit with a skilled provider (WHO/UNICEF, 2003). These data show that efforts to extend the reach of ANC have been largely successful and that women are willing to present themselves for ANC, providing them with an opportunity to

receive information and services that can help improve their health and that of their infants. It does not however tell us anything about the quality of care offered.

Variations in use of antenatal care is greatly influenced by interrelationships between the different variables such as urban or rural residence, age, number of births, level of education and household wealth. Women living in urban areas are generally twice as likely as those living in rural areas to report four or more antenatal care visits (WHO/UNICEF, 2006; CBS, 2003; Fatmi and Avan, 2002). Similarly, women with secondary education are twice as likely to have antenatal care as women with no education; education has least effect in sub-Saharan Africa. Older (over 35 years) and higher-parity women report slightly lower number of ANC visits than women of lower parity except in sub-Saharan Africa, where differences are small. In all developing regions, the poorest 20% of the population are less likely to use antenatal care than the richest 20% (WHO/UNICEF, 2006; Abou-Zahr, Carla and Wardlaw, 2003). Factors underlying low level of seeking care by women at pregnancy include; perceived poor quality care, perceptions on the need for care and other social barriers. Poor provider-client interactions and perceived deficiencies of public facilities may cause women to stop using or switch facilities (Bloom, Lippeveld and Wypij, 1999; ROK, 2006).

Studies have shown that proximity to maternal health care facility, high socio-economic status, low parity, education and planned pregnancies are associated with frequent use and early entry to ANC (Magadi *et al.*, 2000). The association between low household socio-economic status and timing and frequency of ANC suggests that poverty is a major impediment to appropriate ANC.

### 2.6.2 Importance of frequency and Timing of ANC visits

Early entry of ANC is important for early detection and treatment of inherent disease conditions in pregnancy, thus averting adverse pregnancy outcomes. It is recommended that an expectant mother makes a minimum of four comprehensive visits for normal pregnancy, the first visit which should occur within the first trimester to allow for early recognition of danger signs (Carroli *et al.,* 2001; WHO, 2006; ROK, 2006).

In sub-Saharan Africa, women presenting for ANC are most likely to wait until the second trimester, a substantial proportion showing up in the third trimester (Abou-Zahr, Carla and Wardlaw, 2003). While characteristics such as age and enabling resources contributes to variation in timing of entry to ANC, the preference for more or fewer visits is associated with parity, marital status, age, education, obstetric history, previous birth experience and timing of pregnancy. Late entry into ANC is a risk factor for pregnancy outcomes. Attending ANC less than three times has been associated with increased risk for pre-term maturity and delivery of low birth weight babies and caesarean delivery (Trinh and Rubin, 2006; NCCWCH, 2003).

Low frequency or late timing of ANC visits limits the amount and quality of care that a pregnant woman receives (Magadi, Madise, and Rodrigues, 2000). Women reporting for at least four ANC visits have been shown to be 3.3 times on average more likely to deliver with a skilled provider than those who make less than three visits (WHO/UNICEF, 2003). More emphasis is therefore placed on timely visits and quality of ANC since adverse pregnancy outcomes could be avoided if women attend ANC in the first trimester.

## 2.7 Quality of ANC

### 2.7.1 Variation in quality of ANC

A review of the available results of the Demographic Health Survey from 14 countries, which asked questions on the elements of ANC, showed that countries differ significantly in the content of ANC (Abou-Zahr, Carla and Wardlaw, 2003). Among the countries with data on the content of care, the most common elements are measurement of weight and blood pressure, and the least common elements are blood and urine tests along with information on danger signs (Abou-Zahr, Carla and Wardlaw, 2003). Studies clearly indicate that countries with high maternal, perinatal and neonatal mortality have inadequate and poor quality health service, which can be associated with reduced utilization of health service. Reference on these studies show that the use of evidence-based guidelines leads to better process and outcomes of health, when appropriately implemented. Emphasis is therefore placed on the use of standards of care as a way of addressing barriers to quality care (WHO, 2006). Variation in ANC content received in less developed settings has been associated with the odds of skilled delivery, preterm births, perinatal mortality and birth-weight in grams suggesting that improving adherence to prenatal protocols may lead to important health implications (Bloom, Lippeveld and Wypij, 1999; Corio-Soto, Bobadila and Notzon, 1996; Barber, 2006). The WHO guidelines are specific as regards the timing and content of ANC visits according to gestational age (WHO, 2006).

### 2.7.2 Principles of provision of focused antenatal care

Improving quality of care for clients means understanding their cultural values, previous experiences and perceptions and the role of the health system. Services should be

accessible, affordable, effective, appropriate and acceptable to women (Graham and Murray, 1997; Gordis, 2004). Similarly, enhancing quality of care for providers requires identifying their motivations, addressing their needs and helping them to better understand and address client's concepts of quality. The quality of care a woman receives during pregnancy plays a vital role in ensuring the healthiest possible outcome for the mother and the baby. Hindrances to provision of quality care in developing countries include poor implementation of ANC programs, lack of supervision and support, poor client-provider interactions resulting from limited staff and funds (Abou-Zahr, Carla and Wardlaw, 2003). Such barriers need to be identified and addressed.

FANC uses a personalized approach in care, which demands that health care providers use excellent interpersonal skills in listening and giving advice to clients. Services should be friendly, culturally appropriate, individualized, integrated and inclusive of woman's partner or family member. Respect of client's rights to full and accurate information, dignity, privacy, confidentiality, comfort, safe services, expression of opinion and informed choice increases satisfaction and hence use and continuity of care (ROK, 2006; Engender Health, 2003).

### 2.7.3 Measures of quality of care

Services are said to be of good quality if providers adhere to the set standards designed by health professionals in providing care. Quality of care can be measured from the perspectives of clients or providers (perceived quality) or by measuring adherence levels to the set standards and guidelines. Donabedain gave the framework for assessing the quality of care based on the three attributes of structure (material, human, and financial

resources of the setting where care occurs), process (what is actually done in giving and receiving care) and outcome (effect of care on the status of the clients) (Boller *et al*., 2003). For ANC, quality care is based on the provision of full components or elements of care as recommended by the WHO and National guidelines in a manner that is friendly and acceptable to clients (Abou-Zahr, Carla and Wardlaw, 2003; ROK, 2006). Receiving fewer ANC procedures has been associated with increased perinatal deaths and low birth-weight, premature delivery and higher risk of intra-uterine growth retardation among women (Magadi, Madise, and Rodrigues, 2000; Coria-Soto, Bobadila and Notzon, 1996).

Client's perception on ANC is also important in assessing the quality of care provided. Perceived poor quality of care partly motivates the choices by women not to seek ANC and to deliver at home. When attention on patients' views on health services is increased and quality of services improved, satisfaction is enhanced and hence continuity and use of services (Langer *et al.*, 2002; Audo, Ferguson and Njoroge, 2005). Women are more likely to seek and return for services if they feel cared and respected by their providers, and receive the care they need in full measure. Satisfaction with ANC is associated with positive perceptions of staff, perceived quality, short waiting time, ease in contacting the doctor and privacy (Hotchkiss, 1998; Dennis *et al*., 1995; Matamala, 1998). Clients' expectations may depend on the type of service, socio-economic and demographic characteristics and hence intervention measures should be coined in relation to client needs. The assessment of the quality of ANC helps us to comprehend fully MCH issues, which will provide information that can guide new intervention measures.

### 2.7.4 Client satisfaction

Several studies have been conducted to measure patient satisfaction with care and provider caring behaviors during childbirth (Moore *et al*., 2002). Clients' perception on the quality of services and their satisfaction with care may influence patients' willingness to utilize skilled care, comply with treatment and referral recommendations and delivery seeking behaviours and ultimately the effectiveness of such care (Moore *et al.,* 2002). Patients' satisfaction with care is increasingly seen as essential element of quality care and can be used to measure the quality of care in the health system. FANC are designed to be simpler, safer, friendlier and more accessible to clients. The care providers ought to listen to clients concerns, give good advice, and give full and accurate information and respect clients' right to dignity, and maintain privacy and confidentiality since women are more likely to seek and return for services if they feel cared for and respected by the providers (Engender Health, 2003; ROK, 2006). Adherence to standards in the provision of care is paramount in realizing good quality since variation in content of care in less developed settings has been associated with pregnancy outcomes (Barber, 2006). Quality ANC measured by the content of care provided is important in increasing the use of care among women and minimizing missed opportunities (Rani, Bonu and Harvey, 2007).

### 2.7.5 Client related factors

Other than the structural or facility factors that affect quality, clients and society at large have an important role to play. According to the World Health Organization (WHO), the cost of providing basic maternal and newborn health services in developing countries averages about US$3 per person (WHO, 2007). Quite important in ensuring that women accesses quality care is ensuring adequate number of trained health workers, sufficient

equipment and supplies; and adequate referral or reliable transportation to a hospital or other health facilities in the event of an emergency. Care providers, household members, community health workers and society at large have a role in ensuring that women use this care, in practise when available. For example, if the antenatal period is used to inform women and families about danger signs and symptoms and about the risks of labour and delivery, and the awareness in the society of the importance of skilled care, it may provide the route for ensuring that pregnant women do, in practice, deliver with the assistance of a skilled health care provider. There is therefore need to empower women and community to demand for services in order to eliminate behaviours that influence women not to seek skilled care even when they know of the availability and importance of such care. All stakeholders need to be involved in order to address barriers to use of effective care when available.

**2.8 Role of ANC attendance in PNC**

Mothers' health has a direct bearing on the health of her newborn. About 15% of all pregnant women experience life threatening complications as a result of pregnancy. Many complications and subsequent poor outcomes of women and infants can be prevented or minimized by early detection of problems and appropriate interventions (MOH, 2004). ANC plays a crucial role in empowering women to seek postnatal care. During ANC visits, women are informed on signs of child birth complications as well as poor health in their infants. As a result they are able to recognize these danger signs and seek appropriate care in a timely manner. Mothers should be able to seek immunization for their children and monitor their growth via health providers.

# CHAPTER THREE: MATERIALS AND METHODS

## 3.1 Introduction

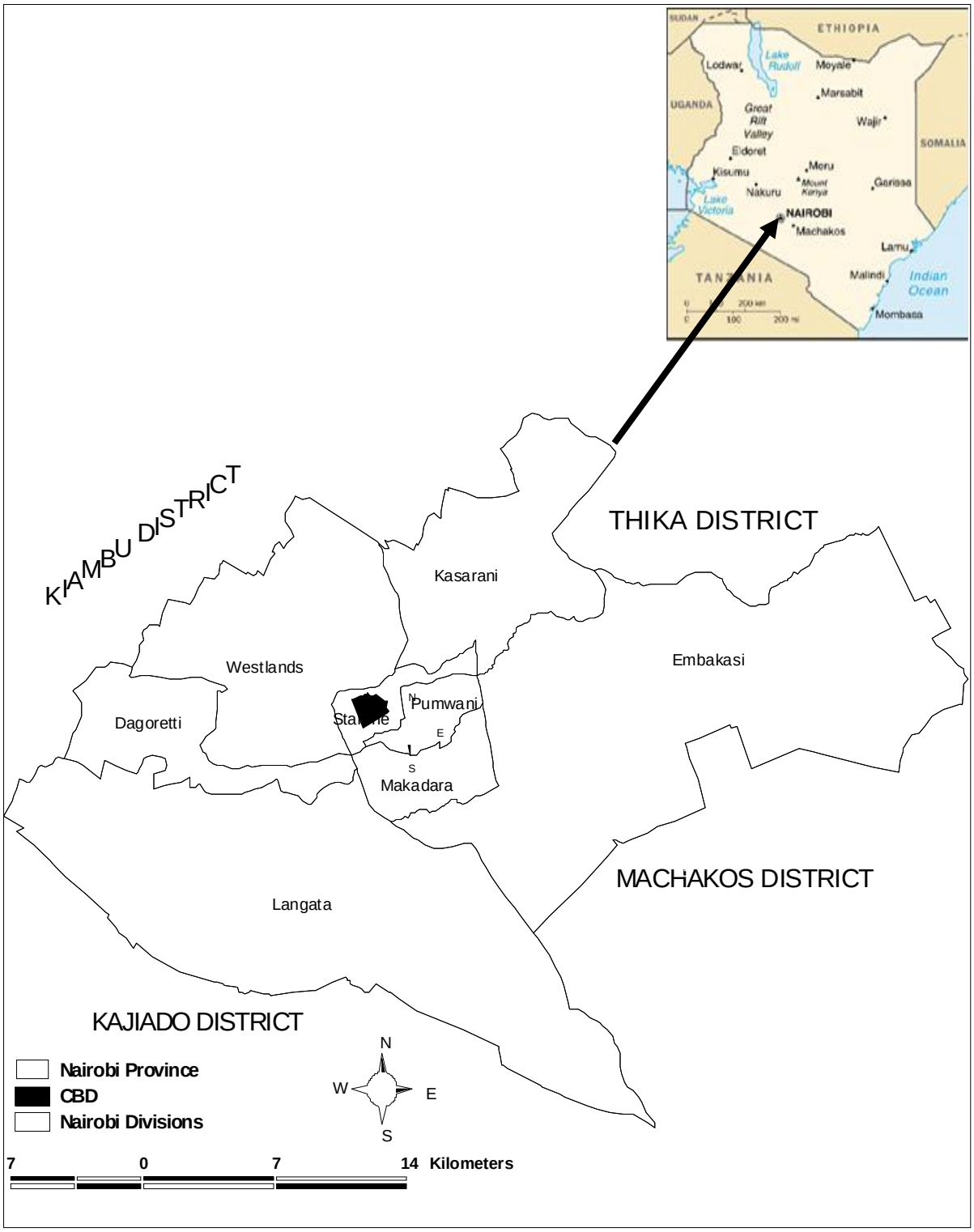
These chapter specifies the methodology used in assessing the factors influencing the quality of antenatal care services in public maternal health facilities. It describes the research design, location of study, sampling procedures and research tools used as well as the ethical consideration.

## 3.2 Location of the Study

The study was conducted in Nairobi province of Kenya (*Figure 3.1*). Nairobi province hosts Kenya's capital city and has a population of over 3.02 million people based on the 1999 census projections (ROK[b], 2005). It is estimated that 55% of the population lives in informal settlements, which have limited access to safe water, sanitation and essential services. These factors greatly contribute to poor health. The population of women at child bearing age is 861,210 and 111,391 get pregnant yearly which is approximately 30% of the total population (ROK[b], 2005). The HIV prevalence rate is 10% which is higher than the national prevalence of 6.7% (NASCOP/MOH, 2005). HIV has placed a huge burden on the health care system in Kenya with increasing rates of TB and HIV related illnesses. Nairobi province has a good concentration of government, private and missionary health facilities. It is divided into eight health administrative districts namely; Central, Embakasi, Westlands, Makadara, Pumwani, Dagoreti, Kasarani and Kibera. Each administrative district has one health centre being upgraded into district hospitals able to offer basic obstetric services (MOH, 2004: ROK[b], 2005). The health centres are equipped with necessary supplies and equipments to offer basic preventive health services such as antenatal care, PMTCT, VCT, family planning and immunization, nutritional education and routine outpatient services. Some dispensaries too within the

districts offer basic ANC services. Health centres also perform normal deliveries but not basic emergency obstetric care (EmOC). Patients requiring basic EmOC services are referred to Kenyatta National Hospital (KNH) or Pumwani Maternity Hospital (PMH). Nairobi province has the lowest proportion of facilities providing ANC services. Approximately 68% of facilities in Nairobi offer ANC services with 63% having essential equipment and supplies for basic ANC (MOH, 2004; ROK[a] 2005). Private facilities often lack ANC. The facilities are managed by Nairobi Health Management Board (NHMB) whose main objective is to offer affordable and quality health care to residence of Nairobi close to their doorsteps. This has however been a major challenge in the past given that the provision of services by the key players has been very loosely coordinated with no formal governing structures and limited resources.

Women utilizing public MCH services are often of lower social cadre who are mainly victims of high maternal morbidity and mortality burden owing to interaction of social and economic factors.




*(Source: Survey of Kenya, 1999)*

***Figure 3.1 Map of Nairobi province, its administrative divisions and location in Kenya***

### 3.3 Research Design

This study was a descriptive cross-sectional study design employing both quantitative and qualitative parameters. While a cross sectional study allowed information about the target population to be obtained at that point in time, a descriptive study allowed collection of data that would provide answers on the current status of care (Kothari, 2004). This design was suitable because it explored all the necessary information regarding the study objectives and covered a good number of the target population to allow generalization of the information.

### 3.4 The study population

The study population comprised of mothers between 0 – 6 months after delivery at post-natal clinics seeking immunization services for their infants at selected public MCH facilities in Nairobi and ANC care providers. Additional information was obtained from key informant interviews and a focused group discussion.

#### 3.4.1 Inclusion Criteria

(i) Mothers between 0 – 6 months after delivery

(ii) Mothers who sought public ANC services in Nairobi province during pregnancy.

(iii) Those who consented.

#### 3.4.2 Exclusion Criteria

(i) Mothers seeking ANC at the time of study or exceeded six months after delivery.

(ii) Mothers who received ANC from non-public facilities in Nairobi.

(iii) Mothers who received ANC outside Nairobi province.

(iv) Those who declined participation.

### 3.5 Sampling Technique

Cluster sampling proportionate to size was used in selecting the health facilities for the study. At least one MCH facility mostly providing post-natal care was sampled in each health administrative divisions making a total of eight facilities as shown in *Table 3.1* below (ROK[b], 2005). This enabled interviewing of mothers who used a wide spectrum of public ANC facilities during pregnancy in Nairobi province thus allowing collection of representative data. Data on ANC use for the month of July, for the year preceding the study was used to calculate the desired sample size per facility. Systematic sampling calculated by dividing the average daily number of women seeking services in the facilities with the desired sample size was used to randomly select the study respondents. Systematic sampling was considered appropriate for the study as it allowed simple randomization and was easier to implement.

### 3.6 Sample Size determination

Sample size was determined using the formula $n = \frac{z^2\, p\, q}{d^2}$ for populations greater than 10, 000 (Kothari, 2004). Where: $n$ = desired sample size

z = standard normal deviate (1.96)

$p$ = proportion of the target population which represented the proportion of women receiving ANC according to the set standards and guidelines in public MCH facilities in Nairobi. 50% was used for lack of a reasonable estimate.

$q = 1 - p$

$d$ = degree of accuracy (0.05) i.e. at 95% confidence limit

Therefore, the desired sample size was given by: $n = \frac{1.96^2 \times 0.50 \times 0.50}{0.50^2} = 384$

384 mothers meeting the inclusion criteria were interviewed.

***Table 3.1 Sampling framework***

| **Division** | **Facility** | **ANC utilization July 07** | **Sampled** |
|---|---|---|---|
| Pumwani | Pumwani H/C | 980 | 51 |
| Dagoreti | Riruta H/C | 1100 | 57 |
| Makadara | Makadara H/C | 830 | 43 |
| Embakasi | Kayole II H/C | 872 | 45 |
| Westlands | Kangemi H/C | 950 | 49 |
| Kamukunji (Central) | Ngara H/C | 770 | 40 |
| Kasarani | Kariobangi North H/C | 730 | 38 |
| Langata | Langata H/C | 1200 | 62 |
| | **Total** | **7432** | 384 |

## 3.7 Variables

### *3.7.1 Independent Variables*

Independent variables considered were age, education level, employment status, marital status, parity and gravida, facility type, and adherence to standards (measured by the number of items of care) and quality of care (measured by client satisfaction).

### *3.7.2 Dependent variables*

Dependent variables considered were perceived quality, partner involvement, timing of visits, and frequency of visits, complication readiness and birth preparedness.

## 3.8 Research Instruments

Structured and semi-structured questionnaires designed to enable collection of information on adherence to standards, client's perspectives and follow-up of care, and providers perceived barriers to quality ANC provision were used in data collection. Additional in-depth interviews with key facility administrators and one focused group discussion were held to obtain supplementary information on the study. The FGDs

comprised of one regional MCH in-charge, one health administrator, two ANC providers, two community health workers, one youth group leader, two ANC mothers and a village elder/opinion leader.

### 3.9 Validity and Reliability

The content and construct validity of study, which is based on the adequacy to which the statements, questions and indicators of the research instrument measures the attributes of the study, was ensured by subjecting the instruments to criticism from experts in the department of public health and ethical committee at Pumwani maternity hospital. The items were revised and improved according to advice and suggestions made. Reliability, which is the extent to which a measure contains variable errors, was improved through a pilot study and pre-testing of the research instruments.

### 3.10 Pilot Study

The pilot study was conducted at Pumwani maternity hospital prior to the commencement of the study to pre-test the questionnaires and check their validity and reliability. Sample size was calculated to include at least 20% of the actual number of subjects.

### 3.11 Data Collection Techniques

Data was collected for the period of July 2008. Three research assistants with medical background were recruited and trained in the use of research tools prior to the execution of data collection.

### 3.12 Data Analysis

Data was cleaned, coded, and analysed using the SPSS and Ms Excel package. A descriptive analysis was performed. Association between variables were obtained using

cross tabulation and hypothesis tested using chi-square. Frequency tables, pie charts and bar graphs were used to present findings. In assessing the quality of ANC, an index for the completion of minimum evaluation was developed, considering the major activities and tests recommended by the FANC procedure.

### 3.13 Logistical and Ethical Considerations

Prior to data collection, permission was obtained from Kenyatta University graduate school, ministry of education science and technology, ethical committee of Pumwani maternity hospital, Nairobi city council and relevant hospital authorities. Before fieldwork, meetings were arranged with health administrators of selected facilities in order to explain the purpose of the study. Potential participants were given oral explanations of the study in simple language and those willing to participate gave oral consent. The participants were assured of anonymity, confidentiality and informed of their ability to withdraw from the study at any time. There were no direct benefits for participating in the study.

# CHAPTER FOUR: RESULTS AND DISCUSSIONS

## 4.1 Introduction

This section presents the results for the data collected and analysed using SPSS and Excel packages. Data was collected from 384 systematically sampled women meeting the inclusion criteria in selected MCH facilities. Data analysis was subjected to 370 cases because of the completeness of the questionnaire representing 96.4% of the total case hence reliability of the study. Additional information was obtained from 24 ANC care providers, 6 key informant interviews and focus group discussions.

## 4.2 Respondent's characteristics

### *4.2.1 Age*

The respondent's age ranged between 16 and 43 years corresponding to the study in urban Uttar Pradesh in India (Bloom *et al.,* 1999). The mode was 23 years, median 24 and the mean age was 24.71 ± 4.548. The mean respondent's age corresponds to the mean reproductive age for Kenya women which have its peak at 20 – 24 years (CBS, 2004). While 10.5 % of the respondents were aged between 15 – 19 years, majority (75.4%) were between 20-29 years and the remaining 14.1% were women of 30 years and above as shown in *Table 4.1* below.

***Table 4.1 Percentage distribution by respondent's age***

| **Age** | **No. of respondents** | **Proportion (%)** |
|---|---|---|
| 15 – 19 | 39 | 10.5 |
| 20 - 24 | 168 | 45.4 |
| 25 – 29 | 111 | 30.0 |
| 30 – 34 | 38 | 10.3 |
| 35 and above | 16 | 3.8 |
| *Total* | *370* | *100.0* |

### *4.2.2 Marital status*

Approximately 85.1 % were married women, with 97.5% living with their spouses at the time of the study. Close to 13.5% were single and some 1.3% were either divorced or separated as shown in *Table 4.2* below. This, together with women not living with their spouses represent a proportion most likely to face delays in seeking care, since studies have shown that husbands play a crucial role in influencing women to seek skilled care during pregnancy and delivery (Jimoh, 2003; Van den Heuvel *et al.,* 1999). Such may be identified by care providers for support towards seeking timely care.

***Table 4.2 Distribution by marital status***

| **Age** | **No. of respondents** | **Proportion (%)** |
|---|---|---|
| Married | 315 | 85.1 |
| Single | 50 | 13.5 |
| Divorced/Separated | 5 | 1.4 |
| *Total* | *370* | *100.0* |

### *4.2.3 Level of schooling*

Most of the users of public ANC in Nairobi are women of low academic attainment given that majority of them (53.3%) had a primary level education and below. Some 38.1% had a secondary level education and only 8.6% had post secondary level of education as shown in *Table 4.3* below. Higher level of education has been shown to improve ANC use and especially early entry (Lule *et al.,* 2005; Jimoh, 2003), thus investing in women's education will have far-reaching benefits in improving maternal health.

***Table 4.3 Proportion of respondents by level of schooling***

| **Level of schooling** | **No. of respondents** | **Proportion (%)** |
|---|---|---|
| None | 4 | 1.1 |
| Pre-primary | 3 | 0.8 |
| Primary | 190 | 51.4 |
| Secondary | 141 | 38.1 |
| Post-secondary | 32 | 8.6 |
| *Total* | *370* | *100.0* |

### *4.2.4 Employment status*

Majority of the respondents (66.8%) were without employment at the time of study. Some 23.2% of the respondents were on informal or self-employment and only 9.5% were formally employed as shown in *Table 4.4* below. Women without employment and thus no financial independence lack the ability to make autonomous decisions on seeking care leading to delays in reaching and receiving adequate care even when such care is available in the health system (Lule *et al.*, 2005; JHPIEGO, 2004).

***Table 4.4 Proportion of respondents by employment status***

| **Employment status** | **No. of respondents** | **Proportion (%)** |
|---|---|---|
| None | 247 | 66.8 |
| Employed | 35 | 9.5 |
| Self-employed | 86 | 23.2 |
| Missing | 2 | 0.5 |
| *Total* | *370* | *100.0* |

### *4.2.5 Gravidity*

Gravida refers to being pregnant irrespective of the outcome (ROK, 2006). Approximately 59.5 % of women interviewed had been pregnant for two or more times (multigravida) while 40.5 % were pregnant for the 1$^{st}$ time (primigravida) when they visited ANC as illustrated in *Table 4.5* below.

***Table 4.5 Respondents distribution by gravidity***

| **No. of pregnancies (gravidity)** | | |
|---|---|---|
| 1st time | 150 | 40.5 |
| 2 or more times | 220 | 59.5 |
| ***Total*** | ***370*** | ***100*** |

### *4.2.6 Parity*

Parity refers to the number of pregnancies reaching viability i.e. number of live births (ROK, 2006). While 44.1 % of the respondents had delivered once (primipara), some 50.8 % had delivered two or more times (multipara). Others (3.5 %) had delivered 5 or more times (grand-multipara) as shown in *Table 4.6* below.

***Table 4.6 Respondents distribution by parity***

| No of deliveries (parity) | No. of respondents | Proportion (%) |
|---|---|---|
| Missing | 6 | 1.6 |
| Once | 163 | 44.1 |
| 2 – 4 | 188 | 50.8 |
| 5 or more | 13 | 3.5 |
| ***Total*** | ***370*** | ***100.0*** |

### *4.2.7 Facility type for ANC*

Major source of ANC was health centers (94.5 %), compared to hospitals (3.5%), dispensaries (1.1%) or clinics (0.8%) *(Figure 4.1).* Findings shows a substantial decline in use of hospitals and increased use of health centers suggesting that efforts by NHMB to decongest hospitals and promote use of health centers for ANC have borne fruits (CBS, 2004; ROK[b], 2005)

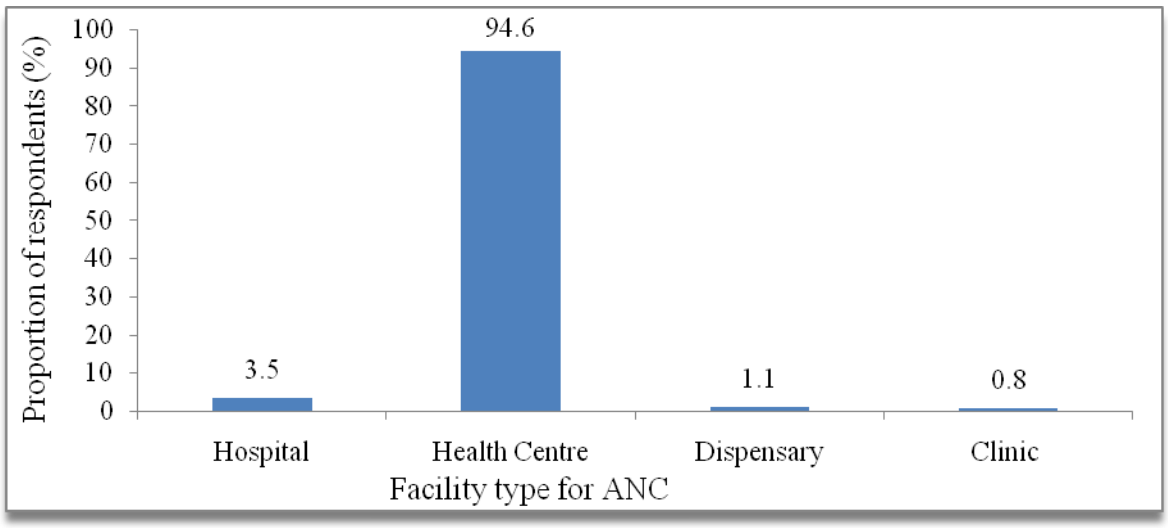



***Figure 4.1 Distribution by sources of ANC (facility type).***

As with other studies on utilization of ANC services (Mwaniki, Kabiru and Mbugua, 2002), proximity of the facility to place of residents (36.9%) was the major reason for ANC facility choice. Affordability (23.2%), perceived good services (20.3%) and availability of good medicines (5.8%) were also important. Others were: experienced providers, referrals by friends, referral by provider, proximity to place of work and availability of all services required as shown in *Figure 4.2* below.

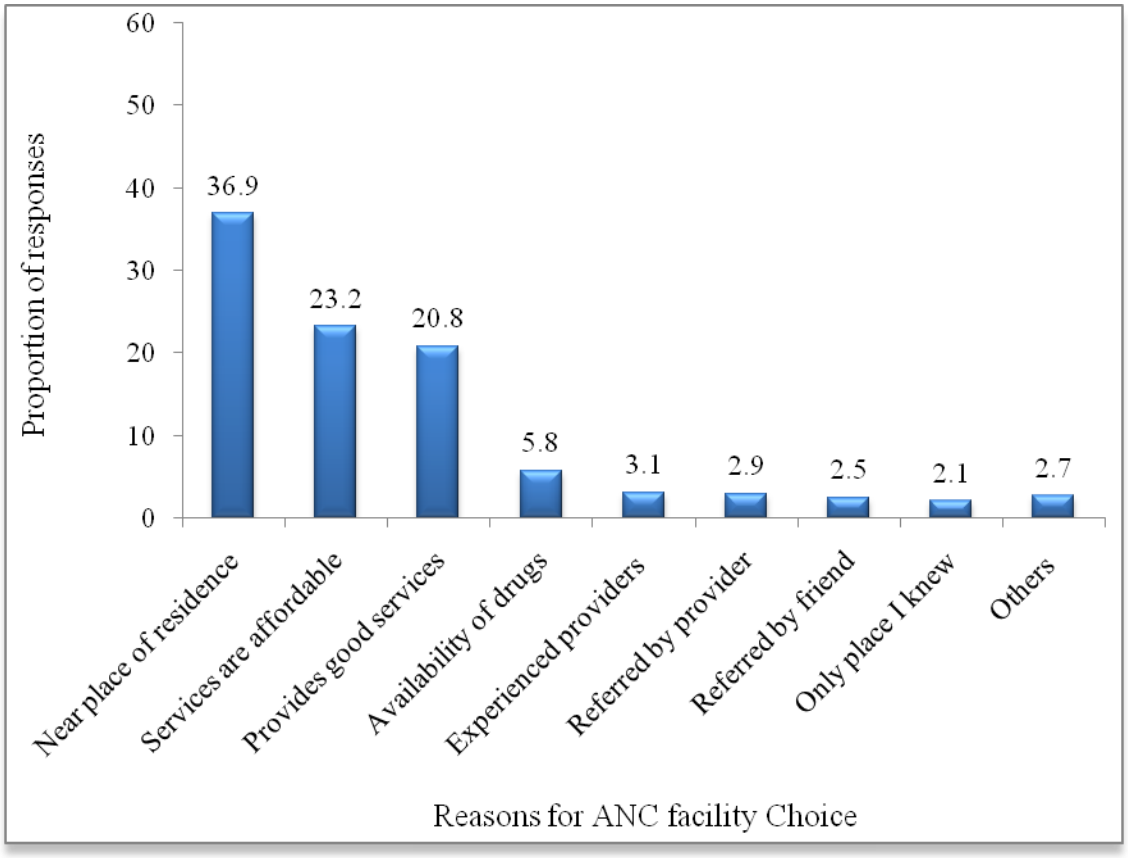



***Figure 4.2 Distribution by reasons for ANC facility choice (multiple response permitted; n=358)***

### 4.3 Components of ANC

The first objective of this study was to assess whether care providers performed some key ANC procedures as stipulated in the WHO standards and National Guidelines. Focused ANC refers to a minimum of four personalized clinic visits each with specific items or procedures of disease detection and prevention, health promotion, birth preparedness and complications readiness and continuity of care (ROK, 2006). Interviewed women were asked to state whether they received specific items of care based on elements of FANC.

#### 4.3.1 Disease detection and prevention components

According to FANC guidelines, women presenting themselves for ANC are taken through history assessment, head to toe examination and laboratory investigations in order to detect inherent disease conditions and risk factors which require closer monitoring, treatment or referral. Similarly, all pregnant women are given tetanus toxoid (TT) immunization, iron and folate supplementation to prevent anaemia, and IPTp for protection against malaria (CBS, 2004).

Respondents were asked if service providers performed key procedures related to disease detection and prevention during any of their ANC visits. Mostly performed procedures included: questions on current pregnancy history (94.3%), TT immunization (94.9%) and measuring of blood pressure (95.5%). Findings on blood pressure corresponds to Barber (2006) study findings which compared the quality of prenatal care in private and public facilities in Mexico, where coverage on blood pressure checks was 95.5%, but higher than the Kenya service provision assessment survey coverage of 90% for both first visits and follow-up clients (ROK[a], 2005). Procedures which had low coverage were: enquiries

on past medical and surgical history (74.9%), Iron or Folate supplementation (78.4%) and administration of IPT*p* (67.6%) which registered relatively high proportions of missed opportunities of 25.1%, 21.6% and 32.4% respectively (*Figure 4.3)*. Similar studies in Tanzania showed low coverage for prescription of malaria and anaemia prophylaxis to pregnant women in both private and public facilities (Boller, Mtasiwa and Tanner, 2003). Provider's perception on the prevalence of malaria in Nairobi could explain the missed opportunities and low regard of IPT*p* administration to ANC clients. TT immunization and blood pressure checks are likely to be highly regarded by public care providers in Nairobi and thus highly performed. It is crucial for protection against neonatal tetanus while blood pressure checks are important for continuity of care.

Approximately 95.1% of women interviewed reported to have given out blood samples while 85.1% of them gave out urine samples. This finding is slightly higher than KSPAS (2004) where coverage for urinalysis and blood tests were 74% and 78% respectively (ROK[a], 2005). However, the coverage for blood sample was mainly on VCT in ascertaining the HIV status for PMTCT since most of the facilities did not have the capacity to carry out ANC profile investigations due to limited laboratory equipment. ANC clients were mostly referred to other facilities mostly private, for ANC profile investigations. Findings showed that approximately 74.1% of the respondents were referred to other facilities for ANC profile investigations. On average coverage for procedures on disease detection and prevention was 86.7% and 13.3% for missed opportunities. Though this shows a high adherence level, the missed opportunities is a good reflection of weaknesses in quality and indicates room for improvement.

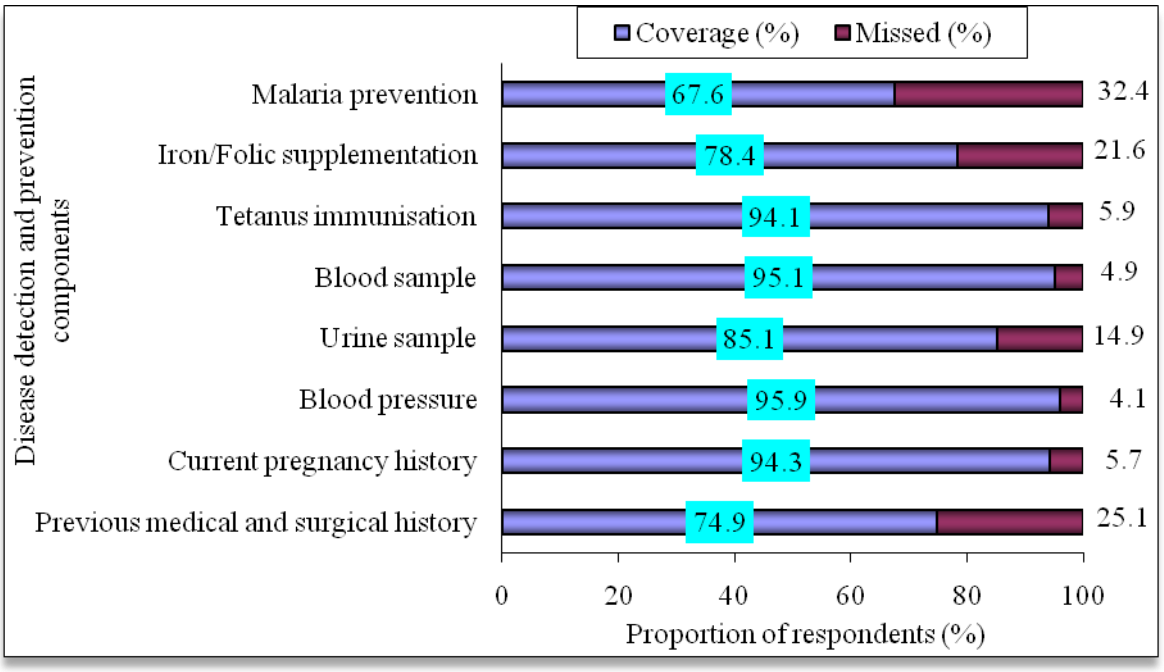



***Figure 4.3 Proportion of respondents by coverage on disease diagnostic and preventive components***

### 4.3.2 Continuity of care, health education and promotion components

Appropriate health education does not only empower women to recognize complications and hence seek prompt care, but also to demand for appropriate services to be put in place. In order to promote continuity of care, WHO and FANC guidelines recommend all pregnant seeking ANC services to be issued with ANC cards, be helped to know the expected dates of delivery, be told where to go in case of complications and given schedules for return visits (ROK, 2006). The adherence level for these items was quite high with coverage of over 90% except for informing women on where to go incase of complications (71.1%) which showed high level of missed opportunities *(Figure 4.4).* Respondents were more likely to be told to seek skilled care in heath facilities incase of complications or danger signs without being told the specific place and location of the facility with the capacity to handle cases of complications. Such information is important

since not all ANC seekers know the nearest facilities where they can obtain affordable and quality care during times of complications. Women need to be well informed in all aspects of care during pregnancy considering the unpredictability nature of most pregnancy complications.

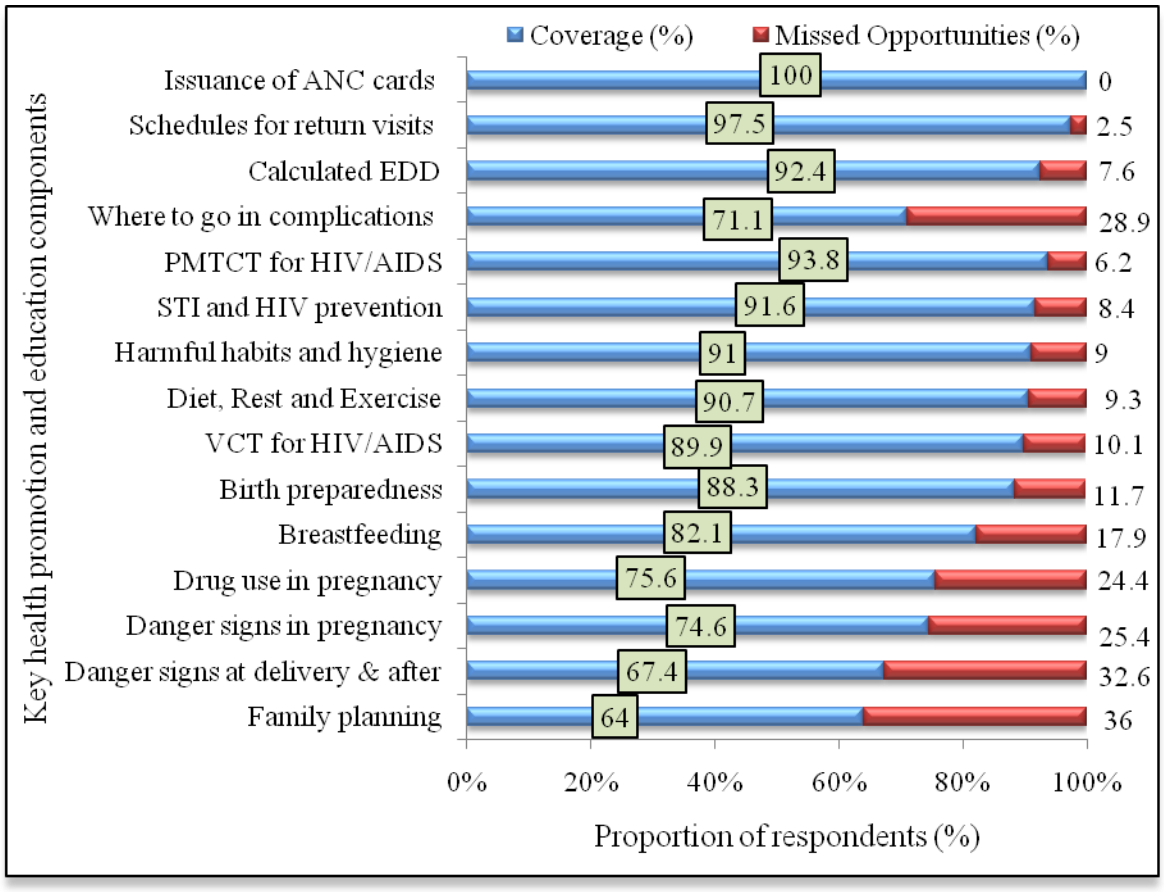



***Figure 4.4 Distribution by coverage on health education and promotion procedures***

Regarding the health education and promotion items, woman should be given personalized education and counseled on personal hygiene, rest, nutrition, breast feeding family planning, recognition of danger signs, STIs and HIV/AIDS prevention, PMTCT, drugs use in pregnancy and harmful habits(ROK, 2006). While the WHO aggregate coverage for all items of care is 75%, it is recommended that 100% of the ANC clients be informed of the danger signs during pregnancy and at delivery as well as on how to develop a birth plan.

Findings from this study showed that highly performed procedures with more than 90% coverage were: counseling on proper diet, rest and exercise (90.7%), VCT for HIV prevention (89.9 %), PMTCT for HIV/AIDS (93.8 %), STI and HIV prevention (91.6%) and harmful habits during pregnancy (91%). Procedures which showed high level missed opportunities included: counseling on family planning (64%), danger signs at delivery (67.4%), danger signs in pregnancy (74.6%) and drug use in pregnancy (75.6%) as shown in *Figure 4.4* above. These findings are in line with KSPAS (2004) data which showed a general lack of counseling of women on exclusive breastfeeding and family planning during ANC except for women who were nearing delivery (ROK[a], 2005). Missed opportunities on pregnancy danger signs, and birth preparedness means that women are not prepared to handle complications arising in pregnancy or at delivery and thus at risk of severe outcomes. Such missed opportunities can be reduced if MCH services are fully integrated into ANC, a factor still at its infancy in public MCH facilities in Nairobi.

*Table 4.7* gives a summary of the percentage coverage and missed opportunities on FANC procedures as provided in public MCH facilities in Nairobi. Aggregate coverage for all ANC procedures was high at 84.4% way above the WHO recommended coverage of 75% suggesting high adherence rate. There is need to put more emphasis on health education and promotion components especially in danger signs and family planning which show high proportion of missed opportunities. With Birungi and Ouma (2006) observations that, FANC significantly improves the quality of ANC, the presence of missed opportunities suggests low quality care and hence a good indicator for areas of improvement.

***Table 4.7 Proportion of respondents by coverage on ANC procedures received***

| Components of FANC | No. of respondents | Coverage (%) | Missed opportunities (%) |
|---|---|---|---|
| **A. Disease detection and prevention** | | | |
| Previous medical and surgical history | 355 | 74.9 | 25.1 |
| Current pregnancy history | 366 | 94.3 | 5.7 |
| Blood pressure | 366 | 95.9 | 4.1 |
| Urine sample | 368 | 85.1 | 14.9 |
| Blood sample | 368 | 95.1 | 4.9 |
| Tetanus immunisation | 370 | 94.1 | 5.9 |
| Iron/Folic supplementation | 364 | 78.4 | 21.6 |
| Malaria prevention | 367 | 67.6 | 32.4 |
| **B. Health education and promotion** | | | |
| Diet, Rest and Exercise | 367 | 90.7 | 9.3 |
| VCT for HIV/AIDS | 368 | 89.9 | 10.1 |
| PMTCT for HIV/AIDS | 369 | 93.8 | 6.2 |
| STI and HIV prevention | 369 | 91.6 | 8.4 |
| Family planning | 369 | 64.0 | 36.0 |
| Drug use in pregnancy | 365 | 75.6 | 24.4 |
| Breastfeeding | 369 | 82.1 | 17.9 |
| Danger signs in pregnancy | 366 | 74.6 | 25.4 |
| Danger signs at delivery and after | 365 | 67.4 | 32.6 |
| Birth preparedness | 367 | 88.3 | 11.7 |
| Harmful habits and hygiene | 368 | 91.0 | 9.0 |
| Calculate EDD | 368 | 92.4 | 7.6 |
| Return appointment given | 366 | 97.5 | 2.5 |
| Where to go in-case of complications | 364 | 72.3 | 27.7 |

### 4.5 Perception and practices

The second objective of the study was to assess women's perceived quality of care and their practices on key elements of ANC in order to achieve maximum pregnancy outcomes.

#### 4.5.1 Perceived quality of care

Clients' point of views on the services received (perceived quality) is a good element for assessing the quality of health care services (Boller, Mtasiwa and Tanner, 2003). Assessment of perceived quality in this study was made possible by affirmative answers derived from three questions to respondents. The questions were; "Would you seek ANC services in the same facility next time if you get pregnant?", "Could you recommend the facility to a relative or friend for antenatal checkups?" and "Can you rate the services you received during your ANC visits to that clinic; were they excellent, good, average or poor?". These questions to measure overall satisfaction of women with care were adopted from Langer *et al.,* (2002).

Approximately 89.5% of the respondents reported that they could use the same facility for ANC given another pregnancy and 88.9% could recommend the facility to a relative or a friend for ANC checkups. The proportion of women who could recommend the facility to a friend were comparable to Birungi and Ouma (2006) findings on acceptability of WHO FANC package in intervention and comparison clinics in western Kenya where 85% could recommend a friend or relative to use the facility. While most respondents (68.4%) rated services as good, 7.8% rating the services as excellent, making a total of 76.2% respondents who believe that the services are generally good. Some

18.4% and 0.8% rated services as average and poor respectively as shown in *Figure 4.5* below. Clients who rated services as good and excellent were more likely to seek skilled care at delivery ($X^2_{df=12}$=28.204, p<0.005) indicating that client satisfaction enhances better health seeking behavior among women.

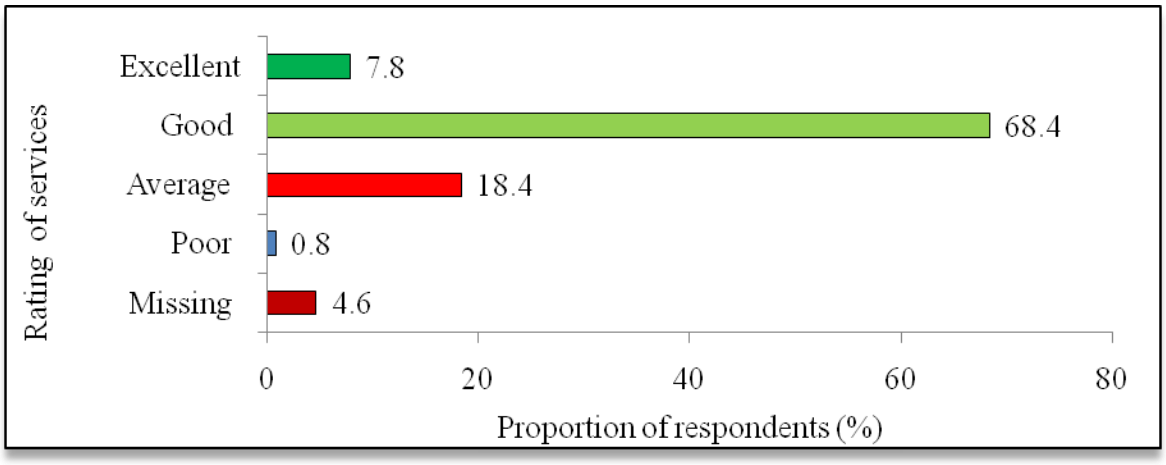



***Figure 4.5 Distribution by overall rating of ANC services***

How clients perceive quality is often an outcome of their values, experiences with care, and interactions with providers. Clients need to be treated in a friendly and respectful way and their privacy and confidentiality maintained. These will influence their satisfaction with and hence continued use of care. Encouraging clients to ask questions and seek clarification or repetition of instructions is an important aspect of client-provider interaction.

### 4.5.2 Reasons for rating of services

Major reasons for rating of services as excellent or good include: good treatment by staff (24.0%), good health education (20.3%), affordability of services (19.8%), availability of necessary medicine (18.4%), and short waiting time (10.8%) as shown in *Table 4.8* below. This indicates the areas of focus in improving client satisfaction with services in

public MCH facilities in Nairobi. Generally, women seeking ANC services in public facilities perceive the services they receive to be good. This may not however reflect the quality of care in the facilities since perceptions and rating of services is determined by client's knowledge on what to expect from the health care system.

***Table 4.8 Respondents reasons for rating services as good or excellent (multiple responses permitted; n=258)***

| **Reasons for rating of services** | **Number of responses** | **Proportion (%)** |
|---|---|---|
| Providers treat clients with respect | 137 | 24.0 |
| Good Health education | 116 | 20.3 |
| Services are affordable | 113 | 19.8 |
| Facility has necessary medicine | 105 | 18.4 |
| Not long waiting time | 62 | 10.8 |
| Providers are experienced | 27 | 4.7 |
| Had time to ask questions | 12 | 2.1 |
| *Total* | *572* | *100* |

The reasons given for the rating of services as average or poor were comparable to those given for by-pass of municipal council facilities by mothers in Kisumu (Audo, Ferguson and Njoroge, 2005). They were; long waiting time (40.0%), harassment by providers (26.5%), lack of necessary medicine (21.0%) and poor response to questions by providers (12.5%) (*Table 4.9).*

***Table 4.9 Respondents reasons for rating services as average or poor (multiple responds permitted: n=200)***

| **Respondent's reasons** | **Number of responses** | **Proportion (%)** |
|---|---|---|
| Long wait to be seen | 80 | 40.0 |
| Some bit of harassment by providers | 53 | 26.5 |
| Facility lack necessary medicine | 42 | 21.0 |
| Staff do not respond to my question well | 25 | 12.5 |
| *Total* | *200* | *100.0* |

These findings suggest that key to client satisfaction are waiting time, provider behaviour, and availability of necessary medicines in the facility. This agrees with findings for use of ANC and maternity services in Eastern province of Kenya (Mwaniki, Kabiru and Mbugua, 2002). Some respondents particularly those who come late during the appointment schedules said they were as expressed in the focused group discussion below, thus suggesting studies to explore client-provider interactions and attitudes towards ANC.

> *"Nurses should be more human, when you come late they will not attend to you and you don't get the health education provided, they should know that we also can get involved in other things which can also make us to delay" (FGD).*

Such women and those unable to make it for the appointment early in the morning often miss the early morning health education components of care which is a practice in public facilities in Nairobi. There is need to strengthen the facilities in Nairobi to be able to provide services at hours relatively flexible to the clients since competing demands on women's time such as child care, food preparation, household sanitation, and income-generation make it difficult for women to use services (Creel, Sass and Yinger, 2002).

### 4.5.3 Satisfaction with key components of care

To assess satisfaction with key components of FANC, respondents were asked whether they were satisfied or dissatisfied with various aspects of FANC that reflect quality selected from client oriented provider efficient (COPE) framework for client's needs (Engender Health, 2003) and as used by Langer *et al*. (2002) and Birungi and Ouma (2006). Respondents were more satisfied with the time spent with provider (91.4%), time

given to ask questions (89.9%) and way the provider answered their questions (88.4%) (*Figure 4.6*).

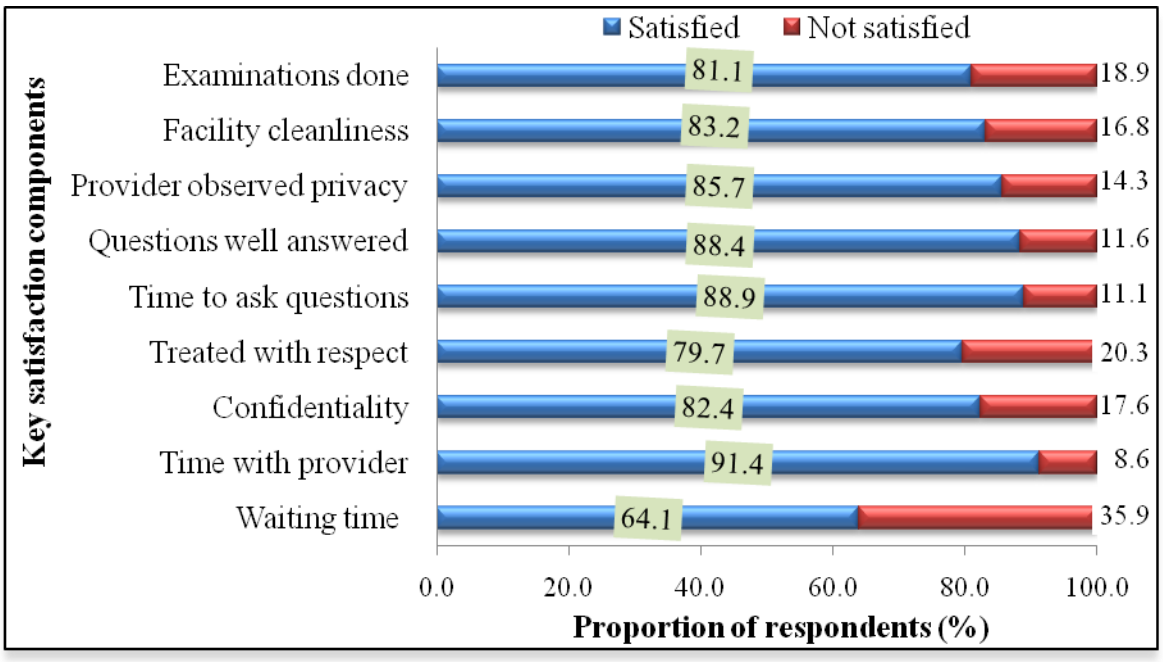


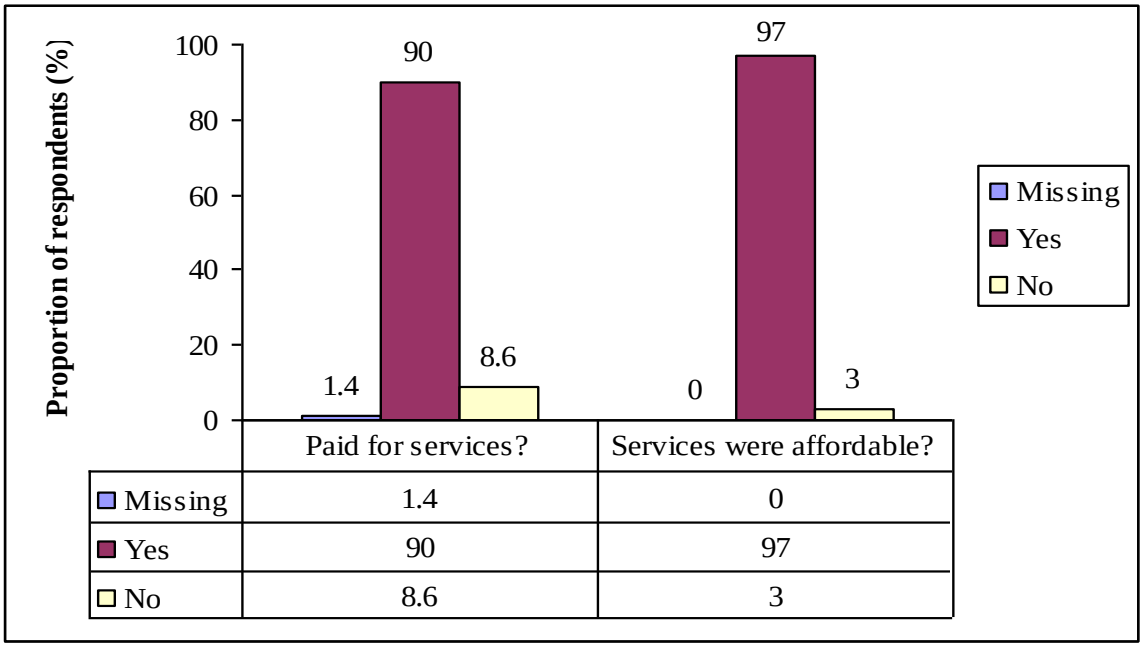

***Figure 4.6 Distribution by satisfaction with key components of quality ANC***

As shown above, clients expressed dissatisfaction with waiting time (35.9%) and the way handled by providers (20.3%) than in other aspects of satisfaction. Previous studies have also shown waiting time to be of concern to ANC clients than any other element of client satisfaction (Birungi and Ouma, 2006; ROK[a], 2005). The aggregate satisfaction ratings was high at 82.7%, which was higher than Birungi and Ouma (2006) findings which showed ratings to be more than 70% for various aspects of ANC in both intervention and comparison clinics. It was however lower than the overall satisfaction index of four developing countries found to be at 90% by Langer *et al.* (2002) and higher than the WHO recommended satisfaction rating of over 75% for all elements of care.

Proper integration of MCH services and employment of more staff will go along way in enhancing provider efficiency and minimise the waiting time thus enhancing client satisfaction with care.

### 4.5.4 Perception on cost of ANC services

Findings from this study showed that high proportion of clients perceive services in public MCH facilities to be affordable. Of the 90% respondents who paid for services, approximately 97% said that the services were affordable. Only 3% perceived services to be expensive and suggested that it be made absolutely free (*Figure 4.7)*.




| | Paid for services? | Services were affordable? |
|---|---|---|
| Missing | 1.4 | 0 |
| Yes | 90 | 97 |
| No | 8.6 | 3 |

***Figure 4.7 Proportion of respondents by payment of services and perceived affordability***

Previous studies have shown that health seeking behaviors among antenatal women were influenced by perceived high costs and inadequacy of services provided (Rogo *et al.*, 2001; Creel, Sass and Yinger, 2002). It is worth commending the Kenya's Ministry of

Health effort to remove access barriers due to ability to pay, by scrubbing the cost sharing method of health financing among women seeking public maternal health services. The policy which permits waiver for those who cannot afford to pay requires that, women seeking public MCH services pay Kenya shillings (KES) 20 (approximately USD 0.28) as user fees per every visit to the facility. Drugs and other services are provided free.

A major set-back to this policy however, is the inability of most facilities to offer comprehensive ANC package due to lack of equipments, or if available, frequent breakdowns or unreliable supply of its associated reagents. Study findings showed that over 74.1% of the respondents were referred to other facilities, mostly private, for investigations on ANC profile such as haemoglobin tests, STIs investigations, blood group test and hookworm infestation. Only two out of eight of the facilities selected could offer laboratory investigation for all ANC profile examination. This concern was expressed in the focused group discussions as shown in the excerpt below.

> *"We are told services are free, and we don't deny. But, when you are sent to a private facility to do tests of blood, and urine (ANC profile) or buy drugs from the chemist, it doesn't make much sense, because such tests are expensive and some of the women may not afford"(FGD).*

It was reported that women referred for laboratory investigations elsewhere could show up in next appointment having not taken the required tests or fail to show up completely fearing the reactions of providers. Given the rising poverty levels and the fact that most users of public MCH facilities are of lower socio-economic cadre, the limited capacity of these facilities to provide adequate laboratory services remains a major impediment to quality ANC delivery. This calls for an urgent measure in order to minimize missed

opportunities in detection of inherent disease conditions and to ensure that women availing themselves for skilled care reap maximum benefits from the care. A health facility audit on the requirements for quality ANC, especially laboratory investigations is necessary, followed by an effort to equip such facilities with the required infrastructure. There is also need to investigate the effect of free maternal health services on Kenya's health care delivery system and use of services among women.

### 4.5.5 Timing and frequency of ANC visits

Other than being helpful in timely identification and mitigation of potential pregnancy complications (APHRC, 2003), frequency and timing of ANC determines the effectiveness of interventions such as tetanus vaccination, IPT*p* for malaria, and PMTCT for HIV, which depends on repeated visits and trimester in which they occur. In order to avoid certain pregnancy and delivery complications WHO recommends a minimum of four visits, at least one ANC visit should be made before the end of 12 weeks (1$^{st}$ trimester) of pregnancy (WHO, 2001; ROK, 2006).

#### 4.5.5.1 Practice in timing and frequency of visits

In this study, late entry was defined as entering ANC after 12 weeks (after the first trimester) and early entry as visiting ANC at before 12 weeks of pregnancy (WHO, 2001; ROK, 2006). Findings showed that only 14.9% of the respondents booked for ANC during the first trimester depicting a slight improvement from the national levels of 11% (CBS, 2004). Majority (64.3%) booked for ANC during the second trimester higher than Trinh and Rubin (2006) findings first entry to ANC in Australia which was 41%. The remaining (20.3%) showed up during the third trimester as shown in *Figure 4.8*. The

median month for first visits was 5.0, a value which is slightly lower than the 2003 survey findings which was 5.9 (CBS, 2004).

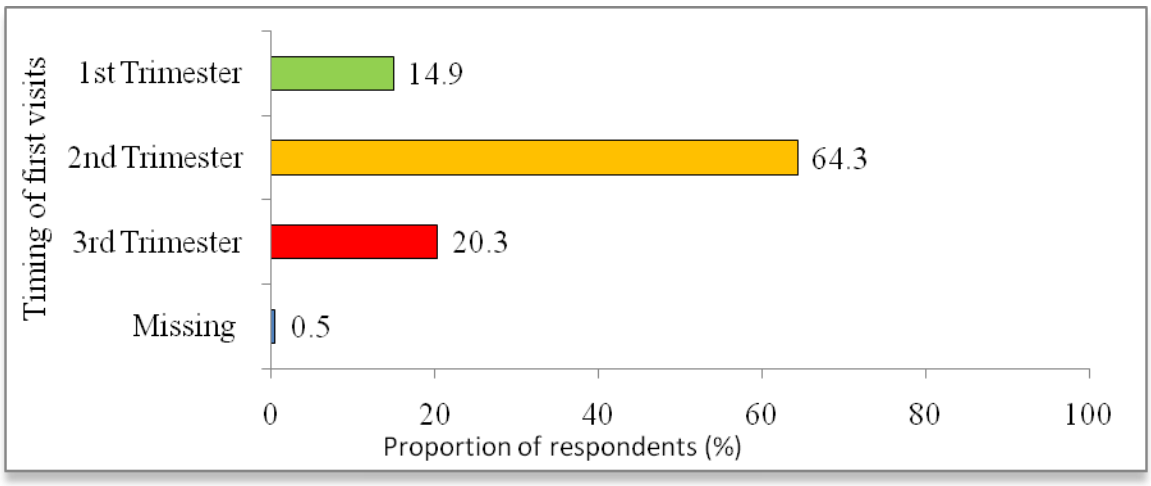



***Figure 4.8 Proportion of respondents by timing of first visit***

Regarding the frequency of visits, majority of the respondents (53%) made the WHO recommended 4 or more ANC visits while the remaining 44.6% made less than the recommended visits as illustrated in *Figure 4.9*. This varied slightly from the KDHS findings for urban estimates which showed that 66.7% of women reported at least 4 or more visits (CBS, 2004) and for developing countries urban settings of 61% (Abou-Zahr, Carla, and Wardlaw, 2003). It however corresponds to the national estimates of 52.3% (CBS, 2004). The variations in urban estimates could be because this study focused solely on women seeking public ANC services. The median number for frequency of visits is 4.0, which is slightly lower than the frequency of visits in urban slums of 4.2 (APHRC, 2003).

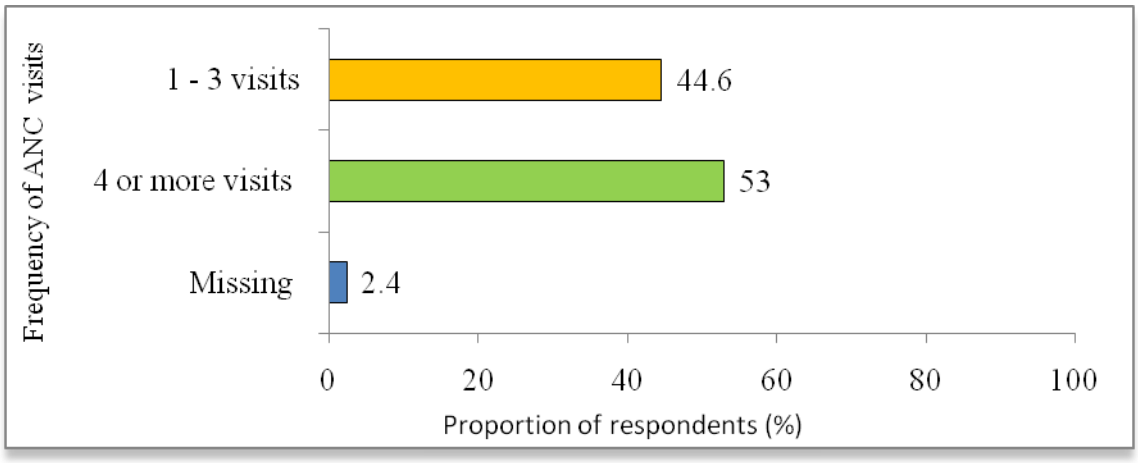



***Figure 4.9 Distribution by frequency of ANC visits***

Level of education and parity were key factors influencing the timing of entry to ANC. Higher parity women were more likely to book late for ANC late ($\chi^2_{(df=14)}$ =25.214, p < 0.033) and more likely to make fewer ANC visits ($\chi^2_{(df=18)}$ =29.211, p<0.049) while women of higher education levels ($\chi^2_{(df=8)}$ =20.392, p<0.009) were more likely to book for ANC in the first trimester of pregnancy and make more ANC visits. Women with higher level of schooling with early entry to ANC and making four or more visits and corresponds to findings from previous studies (Abou-Zahr, Carla, and Wardlaw, 2003; Jimoh, 2003).

*Table 4.10* gives a summary of the variation in frequency and timing of ANC with respondents' characteristics.

***Table 4.10 Variation in timing and frequency of visits with respondents characteristics***

| | **Timing of first visit (Trimester)** | | | | **Frequency of visits** | | |
|---|---|---|---|---|---|---|---|
| **Characteristics** | 1st (%) | 2nd (%) | 3rd (%) | *Total* | 1 – 3 visits (%) | 4 or more visits (%) | *Total* |
| **Age category** | | | | | | | |
| < 19 | 2.2 | 4.9 | 3.0 | *3.0* | 5.3 | 5.3 | *10.6* |
| 20 – 29 | 10.9 | 52.0 | 13.4 | *13.4* | 34.4 | 41.7 | *76.1* |
| 30 – 39 | 1.9 | 7.4 | 3.8 | *3.8* | 5.6 | 7.2 | *12.8* |
| > 40 | 0.0 | 0.3 | 0.3 | *0.3* | 0.3 | 0.3 | *0.6* |
| *Total* | *15.0* | *64.6* | *20.4* | *100.0* | *45.6* | *54.4* | *100.0* |
| $\chi^2$ value | $\chi^2$=9.483, df=6, p<0.148 | | | | $\chi^2$=0.409, df=3, p<0.938 | | |
| **Marital status** | | | | | | | |
| Single | 1.6 | 8.7 | 3.3 | *13.6* | 6.6 | 6.9 | *13.6* |
| Married | 12.5 | 55.7 | 16.8 | *85.1* | 38.8 | 46.3 | *85.0* |
| Divorced | 0.3 | 0.0 | 0.3 | *0.5* | 0.3 | 0.3 | *0.6* |
| Separated | 0.5 | 0.3 | 0.0 | *0.3* | 0.0 | 0.8 | *0.8* |
| *Total* | *14.9* | *64.7* | *20.4* | *100.0* | *45.7* | *54.3* | *100.0* |
| $\chi^2$ value | $\chi^2$=10.94, df=6, p<0.090 | | | | $\chi^2$=2.753, df=3, p<0.431 | | |
| **Level of Schooling** | | | | | | | |
| None | 0.0 | 1.1 | 0.0 | *1.1* | 0.8 | 0.3 | *1.1* |
| Pre-primary | 0.0 | 0.3 | 0.5 | *0.8* | 0.8 | 0.0 | *0.8* |
| Primary | 9.8 | 29.6 | 11.7 | *51.1* | 24.4 | 26.3 | *50.7* |
| Secondary | 3.0 | 28.5 | 6.8 | *38.3* | 16.9 | 21.9 | *38.8* |
| Post-secondary | 2.2 | 5.2 | 1.4 | *8.7* | 2.8 | 5.8 | *8.6* |
| *Total* | *14.9* | *64.7* | *20.4* | *100.0* | *45.7* | *54.3* | *100.0* |
| $\chi^2$ value | **$\chi^2$=20.392, *df=8*, p<0.009** | | | | $\chi^2$=7.881, df=4, p<0.096 | | |
| **Employment status** | | | | | | | |
| None | 9.0 | 43.5 | 14.4 | *66.8* | 33.0 | 33.5 | *66.5* |
| Self-employed | 4.3 | 14.2 | 4.6 | *23.1* | 9.1 | 14.5 | *23.6* |
| Employed | 1.7 | 7.0 | 1.4 | *10.1* | 3.6 | 6.3 | *9.9* |
| *Total* | *14.9* | *64.7* | *20.4* | *100.0* | *45.7* | *54.3* | *100.0* |
| $\chi^2$ value | $\chi^2$=4.590, df=6, p<0.597 | | | | $\chi^2$=5.567, df=3, p<0.135 | | |
| **No of deliveries (parity)** | | | | | | | |
| Once | 8.5 | 29.2 | 7.1 | *44.8* | 19.5 | 25.6 | *45.1* |
| 2 – 4 | 6.0 | 33.3 | 12.3 | *51.6* | 24.0 | 27.3 | *51.3* |
| 5 or more | 0.5 | 1.9 | 1.1 | *3.6* | 2.2 | 1.4 | *3.6* |
| *Total* | *15.0* | *64.5* | *20.5* | *100.0* | *45.7* | *54.3* | *100.0* |
| $\chi^2$ value | **$\chi^2$ = 25.214, df=14, p < 0.033** | | | | **$\chi^2$ = 29.211, df=18, p < 0.049** | | |
| **No. of Tetanus injections** | | | | | | | |
| None | 1.1 | 2.5 | 1.4 | *5.1* | 3.2 | 1.7 | *4.9* |
| One | 3.9 | 18.9 | 6.8 | *29.6* | 15.8 | 15.8 | *29.9* |
| Two or more | 10.1 | 43.4 | 11.8 | *65.3* | 27.3 | 37.9 | *65.2* |
| *Total* | *15.2* | *64.8* | *20.0* | *100.0* | *46.3* | *53.7* | *100.0* |
| $\chi^2$ value | $\chi^2$ = 10.465, df=8, p < 0.234 | | | | **$\chi^2$ = 13.441, df=4, p < 0.009** | | |

There was a significant association between protection from tetanus and the frequency of ANC visits ($\chi^2_{(df=4)}$ =13.441, p<0.009) showing the importance of adhering to the required number of visits in receiving quality ANC. Respondents who made more ANC visits were more likely to receive two or more TT injections and hence more likely to be protected from tetanus as shown in *Table 4.10* above. There was no association in the timing and frequency of visits with the number of ANC components received or respondent's perceived quality of care shown by their rating of services.

#### 4.5.5.2 Respondents' knowledge on frequency and timing of visits

In order to assess women knowledge on the frequency and timing of visits, respondents were asked to state their opinions on when a pregnant mother should begin seeking ANC services and the total number of visits she should make in the entire pregnancy period. It was encouraging to note that 58.4% of women knew that the first visit should occur in the first trimester of pregnancy. Another 32.2% and 2.7% of women thought that first ANC visits should be made during second and third trimester respectively depicting a knowledge gap. Others (1.1%) believes that the timing for first visit depended on presence or absence of complications or danger signs as shown in *Table 4.12* below. Knowledge on the timing of visit was significantly associated to early booking of ANC during the first trimester of pregnancy ($\chi^2_{(df=10)}$=40.452, p<0.0001).

Similarly, 38.9% of the respondents correctly mentioned the WHO recommended number of 4 or more ANC visits while some 22.4% and 26.5% thought that the number of visits should be once a month for the entire pregnancy period and as recommended by provider

respectively. Some 6.2% thought that the number of visits should be less than four (*Table 4.11).*

***Table 4.11 Distribution by knowledge on timing and frequency of visits***

| **Views on timing for 1st visit** | **No. of respondents** | **Proportion (%)** |
|---|---|---|
| Missing | 10 | 2.7 |
| 1 - 3 months | 216 | 58.4 |
| 4 - 6 months | 119 | 32.2 |
| 7 - 9 months | 10 | 2.7 |
| Depends on complications | 4 | 1.1 |
| Don't Know | 11 | 3.0 |
| ***Total*** | ***370*** | ***100.0*** |
| **Views on frequency of visits** | | |
| Missing | 12 | 3.2 |
| Less than 4 visits | 23 | 6.2 |
| 4 or more visits | 144 | 38.9 |
| As recommended by Provider | 98 | 26.5 |
| Once every month | 83 | 22.4 |
| Depends on complication | 2 | 2.2 |
| Don't know | 8 | 2.4 |
| ***Total*** | ***370*** | ***100.0*** |

Knowledge on the frequency and timing of ANC among mothers determines whether women will seek care early enough in pregnancy or make the required number of visits in order to reap maximum benefits from care. It is important for all women to know that they should book for ANC in the first trimester or before the end of 12 weeks, as this will facilitate timely detection and treatment of inherent conditions hence averting severe pregnancy outcomes. It was interesting to note that, though 58.4% knew the WHO recommended timing for first visit, only 14.9% in practice booked for ANC during the first trimester. This shows that lack of knowledge may not be the sole reason for late

entry to ANC among women seeking care in public facilities, expressing the need to further investigate women's reasons for late entry to ANC. Previous studies have shown women being disinterested in too many visits (Abou-Zahr, Carla, and Wardlaw, 2003), suggesting the need to enhance women education on the importance of early entry to ANC and making the recommended visits. The fact that high proportion of women could make the recommended number of visits despite late entry to ANC suggests need to inform women that it is not only the number of visits to ANC that is important but also the timing of entry.

### 4.5.6 Partner involvement

A prospective study in Guinea showed that in addition to hospital workers and parents, husbands were great influences to women's use of ANC services. The effect which is more visible among married women mainly affect breast feeding practices, susceptibility to HIV/AIDS, contraceptive choices and ANC utilization (Jimoh, 2003) and minimizes delays in seeking and receiving adequate care among women.

#### 4.5.6.1 Practices in partner involvement

Assessment of partner involvement in this study was done by asking women whether they were accompanied in ANC, or delivery and whether they discussed with their spouses key ANC issues. Approximately 81.7% of women discussed with their partners about being tested for HIV while 78.1% discussed about ANC showing that men were more likely to be involved on discussing HIV/AIDS compared to other ANC issues. Women were more likely to be accompanied on delivery (49.9%) than on ANC visits (35.7%) (*Figure 4.10)*.

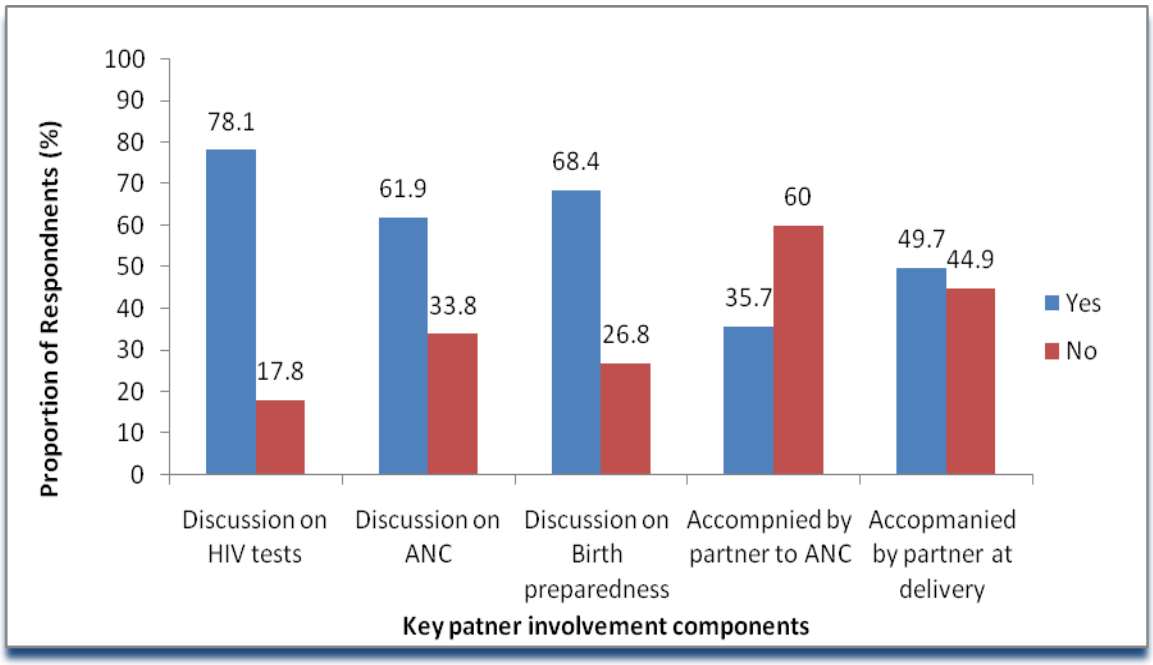



***Figure 4.10 Distribution by key partner involvement components***

These findings show that the extent of partner involvement in ANC issues is still minimal. The high proportion of discussions on HIV tests reflected in this study is a result of the fact that care providers stress the need for both partners to discuss and be tested for HIV showing that care providers can greatly influence partner involvement in ANC. Partner involvement will ensure success of PMTCT programs among pregnant women. The levels at which women are accompanied for ANC or delivery is reflection of the extent to which the community perceives good care for women in pregnancy. Innovative ways to scaling-up participation of men on ANC need to be explored.

**4.5.6.2 Perceptions in partner involvement**

This study found it necessary to look at what women think about involving their husbands or partners in ANC issues. While most of the women (96.2%) considered being accompanied and tested for HIV with partner as important, some 18.9% and 22.7% of

them do not consider being accompanied during ANC visits and on delivery respectively as important (*Figure 4.11)*. This emphasises the need for community education for all stakeholders to understand the importance of partner involvement on ANC eliminate the negative perceptions. Whether women perceive issues related to pregnancy as their own affairs or as a household affair will determine whether or not they will involve their partners/husbands. This is crucial in ensuring the success of interventions that promote maternal and newborn safety.

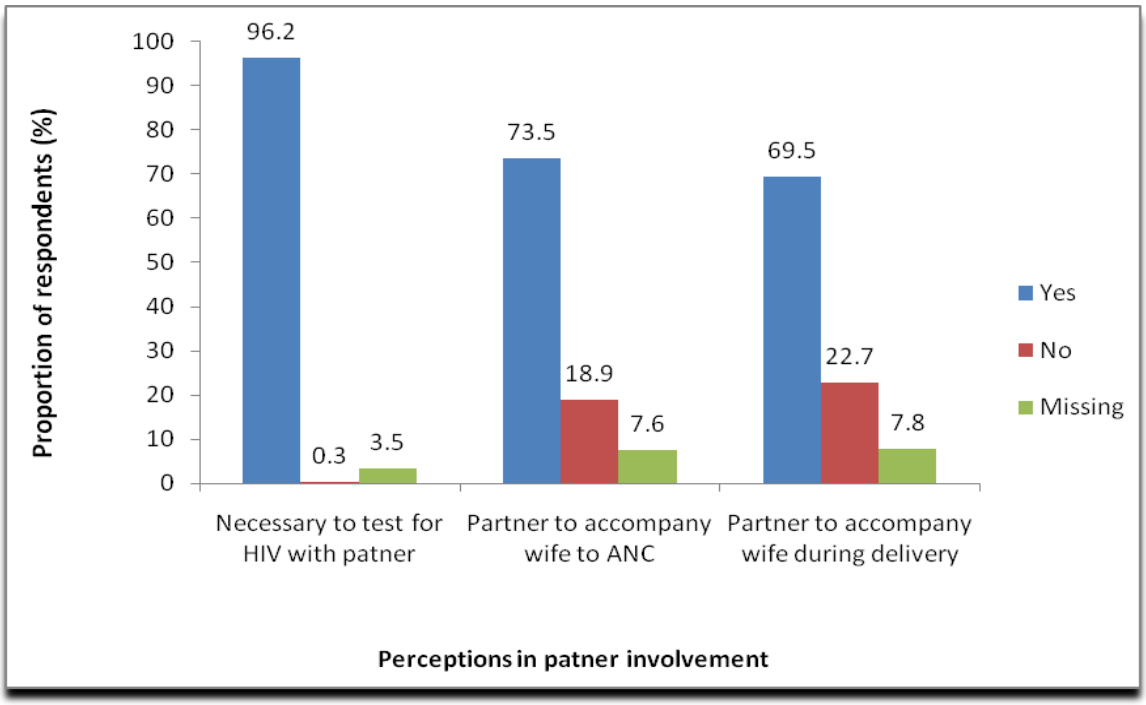



***Figure 4.11 Distribution by respondent's perceptions on partner involvement***

### 4.5.7 Birth Preparedness and Complication Readiness (BP/CR)

The need for every pregnant woman to be ready for complications and to plan for delivery is a result of the fact that approximately 15% of women in pregnancy will develop complications (WHO, 2006). Providers are expected to encourage women develop a birth and be ready for complications as this minimizes delays in obtaining care

(ROK, 2006, JHPIEGO, 2004). Respondents were asked questions about their practices and knowledge on components of birth preparedness and complication readiness.

#### 4.5.7.1 Knowledge and practices on birth preparedness

Regarding what a woman and her family can do to prepare for birth, the most mentioned items were; saving money (30.9%), buying items of birth (24.7%) and identifying mode of transport (14.6%). The least mentioned items were; identifying place for delivery (2.5%), identifying a skilled attendant (3.1%) and identifying a blood donor (0.9%) (*Table 4.12)*.

***Table 4.12 Distribution by knowledge of birth preparedness components (multiple responses permitted; n=334).***

| **Items of birth preparedness** | **Responses** | **Proportion (%)** |
|---|---|---|
| Save Money | 267 | 30.9 |
| Buying Clothes, usable and food | 214 | 24.7 |
| Identify mode of transport | 126 | 14.6 |
| Know EDD | 108 | 12.5 |
| Identify helper | 93 | 10.8 |
| Identify skilled attendant | 27 | 3.1 |
| Know place to deliver | 22 | 2.5 |
| Identify blood donor | 8 | 0.9 |
| *Total* | *865* | ***100.0*** |

When asked on what they actually did to prepare for delivery, it was clear that women mostly save money for emergency (82.9%), identified place for delivery (82.9%), identified an helper (80.5%), and organised money for transport (73.8% during pregnancy. Identifying financial support (55.0%), birth attendant (31.5%) and potential blood donor (11.2%) were least practiced (*Figure 4.12*). Aggregate rating for women unpreparedness for delivery for all items of birth preparedness was high at 38.1%. While

most of the women consider planning for delivery to be important, their knowledge in key elements of birth preparedness appears to be limited stressing the need for care providers to scale-up the birth preparedness component of health education and promotion during ANC.

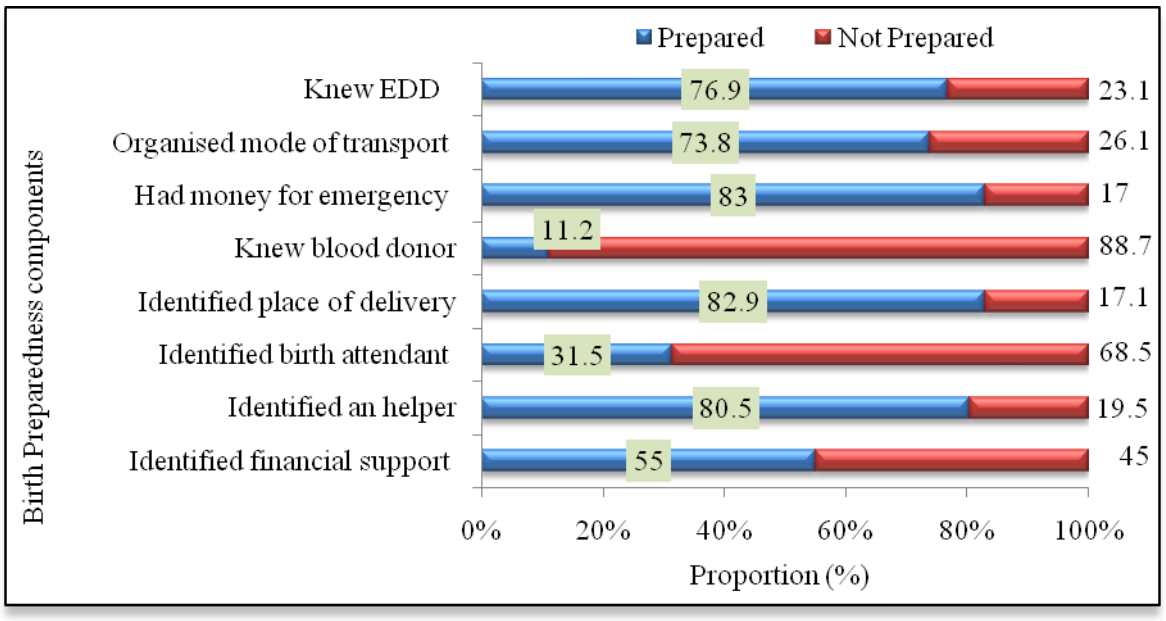



***Figure 4.12 Distribution by practices on birth preparedness***

#### 4.5.7.2 Knowledge and practices on complication readiness

The FANC guideline recommends that ANC women should be given information on how to recognize danger signs at pregnancy, delivery and thereafter (ROK, 2006). Women knowledge on complication readiness was assessed by asking mothers to name spontaneously any essential symptoms or danger signs that can easily be identified by non-clinical personnel, which can occur during pregnancy. Mostly mentioned were; virginal bleeding (22.5%), severe headache (13.7%), abdominal pains and cramps (11.3%), and severe weakness (11.0%). Others included; generalized body swelling

(8.1%), difficulty in breathing (7.6%), blurred vision (6.1%) and reduced foetal movements (5.5%) (*Table 4.13*).

***Table 4.13 Distribution by knowledge of pregnancy danger signs (multiple responses permitted; n=280)***

| | **Frequency** | **Proportion** |
|---|---|---|
| Heavy virginal bleeding | 139 | 22.5 |
| Severe headache | 85 | 13.7 |
| Abdominal pains and cramps | 70 | 11.3 |
| Severe weakness | 68 | 11.0 |
| Generalized body swelling | 50 | 8.1 |
| Difficulty in breathing | 47 | 7.6 |
| Blurred vision | 38 | 6.1 |
| Ectopic pregnancy | 37 | 6.0 |
| Water breaks without labour | 34 | 5.5 |
| Reduced movements of the foetus | 34 | 5.5 |
| High fever | 17 | 2.7 |
| ***Total*** | ***619*** | ***100.0*** |

Further assessment was based on the ability of the women to mention common danger signs in pregnancy namely; body swelling, virginal bleeding and blurred vision/headache, which are known to be associated with potentially severe problems in pregnancy. Of the 73.8% of the respondents who reported to have been given information on danger signs in pregnancy during the ANC visits, only 3.8% could name three danger signs and 11.3% could name two. Majority (43.1%) named only one danger sign while the remaining 41.8% could not name any danger signs as shown in *Table 4.14*. Respondents' age was closely associated to their knowledge on danger signs ($X^2_{df=21}$ =38.371, p<0.012).

***Table 4.14 Distribution by number of pregnancy danger signs mentioned (scale 0-3)***

| | **No. of danger signs mentioned** | | | | | | | | **Total** | |
|---|---|---|---|---|---|---|---|---|---|---|
| | 0 | | 1 | | 2 | | 3 | | | |
| **Age category** | Freq | % | Freq | % | Freq | % | Freq | **%** | **Freq** | **%** |
| < 19 | 18 | 4.9 | 13 | 3.6 | 6 | 1.6 | 0 | 0.0 | **37** | **10.2** |
| 20 - 29 | 115 | 31.6 | 126 | 34.6 | 28 | 7.7 | 8 | 2.2 | **277** | **76.1** |
| 30 - 39 | 18 | 4.9 | 17 | 4.7 | 7 | 1.9 | 6 | 1.6 | **48** | **13.2** |
| > 40 | 1 | 0.3 | 1 | 0.3 | 0 | 0.0 | 0 | 0.0 | **2** | **0.5** |
| ***Total*** | ***152*** | ***41.8*** | ***157*** | ***43.1*** | ***41*** | ***11.3*** | ***14*** | ***3.8*** | ***364*** | ***100.0*** |

Knowledge of danger signs among women, families and communities is the first essential step in seeking appropriate and timely care during complications (Lule *et al.*, 2005). Women, who can recognise the danger signs and perceive them as a risk, are more likely to seek prompt care. Findings from this suggests that women utilizing public MCH facilities may be limited in detecting complications due their low level awareness of the expected danger signs, a factor likely to contribute to delays in seeking adequate care during pregnancy. The close association between age and knowledge on danger signs is because women of higher age are more likely to have gained experience as a result of repeated use of care in previous pregnancies.

While knowledge of danger signs helps individuals to recognize a problem, how severe they consider the problem to be is important in determining when to act. This study established that 73.5% of women considered the danger signs as severe and could lead to severe outcomes if timely intervention is not sought. Close to 11.1% did not consider the problems to be a risk and 9.2% did not know indicating need to raise awareness on the pregnancy risks in the community.

To determine women practices during complication or danger sings, respondents were asked whether they experienced any unusual signs or symptoms during pregnancy and what they did. Of the 167 women (45.1%) who experienced some unusual signs, 72.4% sought care from public health centres, 11.7% from public hospitals and 9.5% from private clinics. Very few (1.8%) sought care from TBA and only 4.6% didn't seek any care. This shows that most women prefer seeking skilled care during complication given by a total of 87.8% women who sought care from facilities. The fact non mentioned self medication using the over the counter drugs from the chemists shows that women follow provider's instructions regarding use of drugs during pregnancy. A scale-up in health education and promotion components of ANC can be beneficial in influencing women's behaviours during pregnancy. Those who didn't seek care gave lack of money and the perception that the problem was not severe as reasons for not seeking skilled care. The need to empower women economically is expressed by those who cited lack of money as reasons for not seeking skilled care. Economically empowered women are likely to seek adequate care averting severe pregnancy outcomes. Common danger signs mentioned include: severe weakness, severe headache, vaginal bleeding, blurred vision and body swelling as shown in *Table 4.15*. Others were disease conditions such as STIs and malaria.

***Table 4.15 Distribution by danger signs or complications experienced (multiple responses permitted; n=139)***

| Common danger signs/complications | Responses | Proportion (%) |
|---|---|---|
| Severe abdominal pains | 38 | 20.9 |
| Severe weakness | 30 | 16.5 |
| Severe headaches | 24 | 13.2 |
| Body swelling | 18 | 9.9 |
| Heavy bleeding | 17 | 9.3 |
| Blurred vision | 16 | 8.8 |
| Water breaks without labour | 8 | 4.4 |
| Reduced foetal movements | 4 | 2.2 |
| Others (STDs, malaria) | 24 | 13.2 |
| High fever | 3 | 1.6 |
| *Total* | ***182*** | ***100.0*** |

## 4.6 Quality of care

According to Bloom (1999), information on healthcare received by clients can be used as a proxy for the quality of care. It reflects the availability of diagnostic tests, preventive procedures and health promotion procedures given to the population and can be assessed using the content or items of care received (Bloom, 1999; APHRC, 2003). Quality of care in this study was measured by rating respondents according to the number of FANC components of care received during ANC, provider adherence to standards in the provision of TT immunization and on client satisfaction.

### 4.6.1 Number of FANC components provided (Items of care)

To measure the quality of care, the total ANC procedures were obtained for every woman interviewed and compared with the ANC benchmark of 21 FANC items. Receiving between 18 – 21 items of FANC was rated as good quality care while receiving 15 – 17

items as fair and receiving less than 15 items as poor quality care. Close to 59.7% of the respondents received between 18-21 items rated good quality care while 24.6% and 15.7% received fair and poor quality care as illustrated in *Figure 4.13* below.

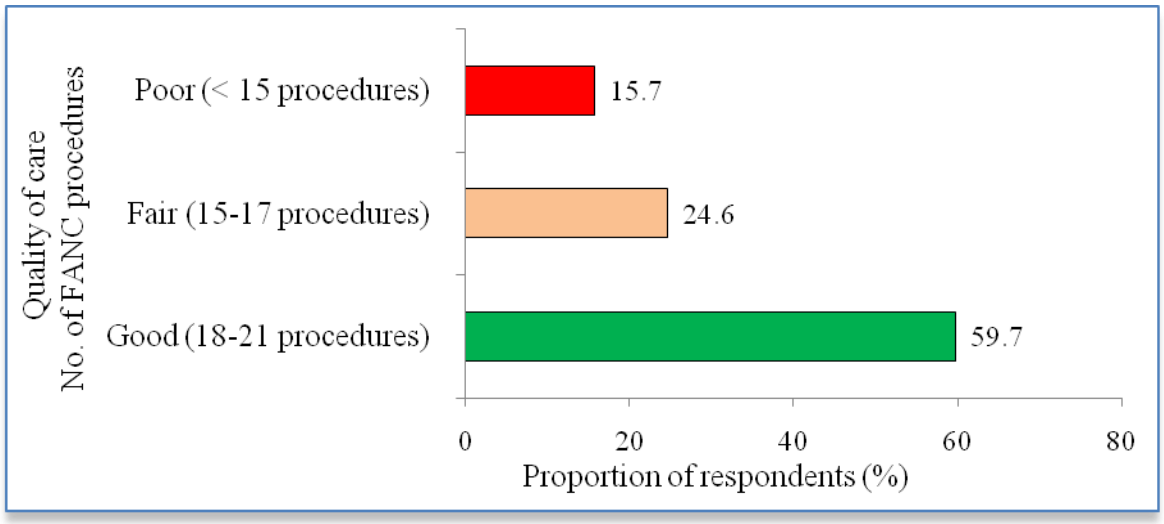



***Figure 4.13 Proportions of respondents by rating of services received***

There was no association between the quality of ANC measured by the number of FANC components or procedures with respondent's level of schooling, parity or employment status. Receiving more items of care was closely associated with clients' satisfaction ($X^2_{df=2}$ =21.262, p<0.0001). Respondents who received ANC from hospitals and health centers were more likely to receive more items of care than those who obtained care from dispensaries and clinics respectively (*Figure 4.14).* This is similar to findings in Mexico which showed significant differences in prenatal quality across clinical settings (Barber, 2006).

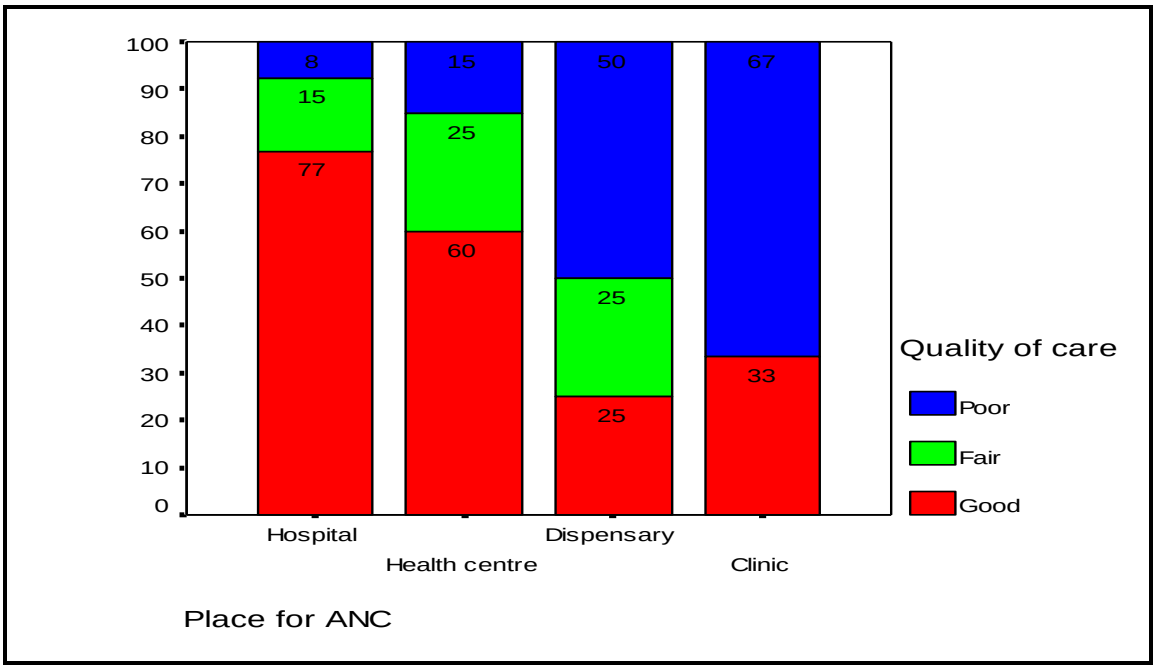



***Figure 4.14 Variation of quality of care with facility type***

### 4.6.2 Adherence to standards in tetanus toxoid (TT) immunization

One of the indicators of antenatal care is proportions of tetanus protection at birth (WHO, 2006). High level of adherence was seen in the provision of TT immunization with close to 94.9% of the respondents having received at least one dose of TT injection. This was higher comparable to the WHO recommended coverage for at least one dose of tetanus immunization of 95% comparable to Van Eijk *et al.* (2006) findings on the study on use of antenatal and delivery care in western Kenya which showed that 97% of women received at least one dose of TT injection. Information obtained from 355 women who could recall the number of times they received TT injection showed that over 65.2% received two or more doses a figure lower than the WHO recommendation of 80% coverage for TT2 in low risk areas. Missed opportunities were seen in close to 20.4% of the primipara received one dose of TT injection instead of the recommended two doses compared to 29% in western Kenya study (Van Eijk *et al*., 2006). Approximately 5.1%

did not receive any dose of TT injection. The findings show a significant improvement in adherence to standards and hence quality of care compared to the KDHS findings which showed 33.4% and 55.3% of women received one and two doses of TT injection respectively and 8.5% who did not receive any dose (CBS, 2004). Respondents of lower age groups ($X^2_{(df=12)}$ =35.529, p<0.0001) and lower parity ($X^2_{(df=8)}$ =81.822, p<0.0001) were more likely to receive two or more doses of TT injection and hence protected from tetanus**.** Generally, more missed opportunities was observed in the administration of IPT*p (25.8%)* compared to Iron/folate prophylaxis (15.1%) and TT immunization (5.1%) as shown in Table 4.16 below.

***Table 4.16 Distribution by coverage in disease prevention activities***

| | Iron/folate | | TT immunization | | IPT prophylaxis | |
|---|---|---|---|---|---|---|
| No. of times | No of respondents | % | No. of respondents | % | No of respondents | % |
| 0 | 48 | 15.1 | 18 | 5.1 | 79 | 25.8 |
| 1 | 120 | 37.9 | 106 | 29.7 | 127 | 41.5 |
| 2 | 102 | 32.2 | 179 | 50.1 | 78 | 25.5 |
| ≥ 3 | 47 | 14.8 | 54 | 15.1 | 22 | 7.2 |
| Total | 317 | 100 | 357 | 100 | 306 | 100 |

Protection from tetanus defined as receiving two or more TT injections was associated to frequency of visits ($X^2_{(df=4)}$ =13.44, p<0.009), lower age ($X^2_{(df=12)}$ =35.529, p<0.0001), lower parity ($X^2_{(df=8)}$ =81.822, p<0.0001 and timing of entry (($\chi^2_{(df=1)}$ =13.988, p<0.0001). Client related factors such as late entry and few ANC visits limit the provision of TT immunizations. Similarly perceived low prevalence of malaria in Nairobi among care providers could explain the missed opportunities in IPTp.

*Table 4.17* below gives a summary of variation in the frequency of TT immunization with respondent's characteristics.

***Table 4.17 Variation in number of TT immunization with respondent's characteristics***

| | **No. Tetanus injections** | | | | | **No. of respondents** |
|---|---|---|---|---|---|---|
| ***Age*** | **0** | **1** | **2** | **3** | **4** | |
| < 19 | 0.0 | 3.9 | 5.1 | 1.7 | 0.0 | 38 |
| 20 – 29 | 2.8 | 19.7 | 40.4 | 12.9 | 0.3 | 281 |
| 30 – 39 | 2.0 | 5.6 | 4.8 | 0.3 | 0.0 | 48 |
| > 40 | 0.3 | 0.3 | 0.0 | 0.0 | 0.0 | 2 |
| ***Level of Schooling*** | | | | | | |
| None | 0.8 | 0.0 | 0.0 | 0.3 | 0.0 | 4 |
| Pre-primary | 0.0 | 0.8 | 0.0 | 0.0 | 0.0 | 3 |
| Primary | 3.1 | 15.7 | 25.8 | 7.0 | 0.3 | 190 |
| Secondary | 1.1 | 11.8 | 19.6 | 5.6 | 0.0 | 141 |
| Post-secondary | 0.0 | 1.4 | 4.8 | 2.0 | 0.0 | 32 |
| ***Employment status*** | | | | | | |
| None | 3.1 | 20.0 | 35.8 | 8.2 | 0.3 | 247 |
| Self-employed | 1.7 | 6.8 | 11.3 | 3.7 | 0.0 | 86 |
| Employed | 0.3 | 3.1 | 3.4 | 2.5 | 0.0 | 35 |
| *Total* | *5.1* | *29.9* | *50.4* | *14.4* | *0.3* | *368* |
| ***No. of pregnancies*** | | | | | | |
| 1st time | 0.6 | 8.4 | 24.1 | 8.1 | 0.0 | 150 |
| 2 or more times | 4.5 | 21.3 | 26.1 | 6.7 | 0.3 | 220 |
| ***No of deliveries*** | | | | | | |
| Once | 1.4 | 9.3 | 26.5 | 8.5 | 0.0 | 165 |
| 2 – 4 | 1.7 | 19.2 | 23.1 | 6.5 | 0.3 | 190 |
| 5 or more | 2.0 | 0.8 | 0.8 | 0.0 | 0.0 | 13 |
| ***Timing of 1st visit*** | | | | | | |
| 1st trimester | 1.1 | 3.9 | 7.0 | 3.1 | 0.0 | 55 |
| 2nd trimester | 2.5 | 18.9 | 32.4 | 10.7 | 0.3 | 238 |
| 3rd trimester | 1.4 | 6.8 | 11.0 | 0.8 | 0.0 | 75 |
| ***No. of ANC visits*** | | | | | | |
| 1 - 3 visits | 3.2 | 15.8 | 23.3 | 4.0 | 0.0 | 165 |
| 4 or more visits | 1.7 | 14.1 | 26.4 | 11.2 | 0.3 | 196 |

### 4.6.3 Quality measured by client satisfaction

Patients' satisfaction with care is increasingly seen as essential element of quality of care in the health system (Creel, Sass and Yinger, 2002). To enable testing of significance between different variables and hence ascertain the factors influencing quality in this study, overall rating of services were classified into satisfied and dissatisfied. Women who rated services as excellent or good were considered satisfied while those who rated services as average or poor were considered dissatisfied. Approximately 76.2% were satisfied with care they received comparable to the WHO recommended proportion of clients reporting satisfaction with care. The remaining 19.2% were dissatisfied.

Satisfaction was significantly associated to receiving more items of ANC ($\chi^2_{(df=2)}$ =21.262, p<0.0001), receiving TT immunisation ($\chi^2_{(df=1)}$ =17.312, p<0.0001) and receiving information on breastfeeding ($\chi^2_{(df=1)}$ =15.311, p<0.0001) showing that adherence to standards by care providers is key to client satisfaction and quality ANC. Satisfaction was also significantly associated with waiting time ($\chi^2_{(df=1)}$ =9.980, p<0.002), cleanliness of the facility ($\chi^2_{(df=2)}$ =22.161, p<0.0001), using the facility again for ANC services ($\chi^2_{(df=1)}$ =13.988, p<0.0001) and recommending the facility to a friend or relative for ANC check-up ($\chi^2_{(df=1)}$ =15.476, p<0.0001) indicating that proper constitution of MCH services can also enhance client satisfaction and hence use of services in a timely and frequent manner (Boller *et al.*, 2003). Women who were more satisfaction with care ($X^2_{(df=12)}$ =28.204, p<0.005) were more likely to seek skilled care at delivery. Investing in quality ANC will improve client's satisfaction and enhance use of skilled delivery care thus reducing severe pregnancy outcomes.

### 4.6.4 Clients negative experiences with care and recommendations

Respondents were asked to state some of the negative experiences in the event of seeking care. Mostly mentioned were; inadequate laboratory services (26.4%), long waiting time (20.7%), limited time to ask questions (19.6%), and not being treated with respect(10.2%) (*Table 4.18)*. Findings are similar to those from Eastern province of Kenya on utilization of ANC and maternity services which showed essential ANC supplies, staff commitment and facility cleanliness as key elements of women dissatisfaction with care (Mwaniki, Kabiru and Mbugua, 2002). Clients desire respect, privacy and confidentiality, and require services which satisfy their needs provided by competent providers (ROK, 2006). This shows that adequacy of laboratory services, waiting time and provider behaviour as key influences to client satisfaction in public facilities in Nairobi. Long waiting time can be attributed to the comprehensiveness of the ANC package and shortage of ANC staff in the facilities.

***Table 4.18 Client negative experiences with care (multiple responses permitted; n=209)***

| **Negative experiences** | **Frequency** | **Proportion** |
|---|---|---|
| Inadequate laboratory services | 96 | 26.4 |
| Waiting time too long | 75 | 20.7 |
| No time to ask questions | 71 | 19.6 |
| Some providers do not treat people with respect | 37 | 10.2 |
| Referred to buy medicine elsewhere | 35 | 9.6 |
| ANC providers report late | 14 | 3.9 |
| Concerned with cleanliness of facility | 11 | 3.0 |
| Not well examined | 10 | 2.8 |
| Limited space for privacy | 5 | 1.4 |
| ***Total*** | ***363*** | ***100.0*** |

Respondents made useful recommendations for improvement **o**f ANC services as shown in *Table 4.19* below. These include improvement of laboratory services (24.9%), hiring more ANC staff (23.5%), ensured constant supply of drugs and equipments (19.0%), and change in provider behaviours (12.0%) *(Table 4.19).* These suggestions indicate that major reasons for inadequacy of services were understaffing and lack of adequate laboratory services. Client's satisfaction increases when they can find all the required services in one facility, thus equipping the facilities with necessary equipment and supplies that support ANC is a crucial step towards improvement of quality and scaling-up utilization of these services.

***Table 4.19 Client's recommendations on how to improve ANC services (multiple responses permitted; n=213)***

| **Clients recommendations** | **No. of respondents** | **Proportion (%)** |
|---|---|---|
| Improve laboratory services | 89 | 24.9 |
| Employ more staff | 84 | 23.5 |
| Ensure constant supply of drugs and equipments | 68 | 19.0 |
| Handle mothers with respect | 43 | 12.0 |
| Improve infrastructure and cleanliness of facilities | 30 | 8.4 |
| Enhance health education and counselling | 25 | 7.0 |
| Offer services also in weekends | 12 | 3.4 |
| Train staff | 5 | 1.4 |
| Remove charges | 2 | 0.6 |
| ***Total*** | ***358*** | ***100.0*** |

### 4.7 Delivery characteristics

#### 4.7.1 Place of delivery

ANC is an entry point to safe delivery care or use of a skilled attendant at birth (ROK, 2004). Access to proper medical attention under hygienic conditions during delivery by pregnant women can reduce the risk of complications and infections. When women were asked about their place of delivery on their recent pregnancy, 79.5% of women reported to have delivered in a health facility, which is slightly higher than KDHS findings of 77% for Nairobi province (CBS, 2004). Close to 16.2% delivered at home while 2.4 % recently delivered with a TBA *(Figure 4.15).* Since delivering without skilled attendant is a risk, much needs to be done to ensure that those who deliver at home or with a TBA seek skilled delivery care. Maximising opportunities for birth preparedness during ANC can go along way in ensuring safe delivery among women.

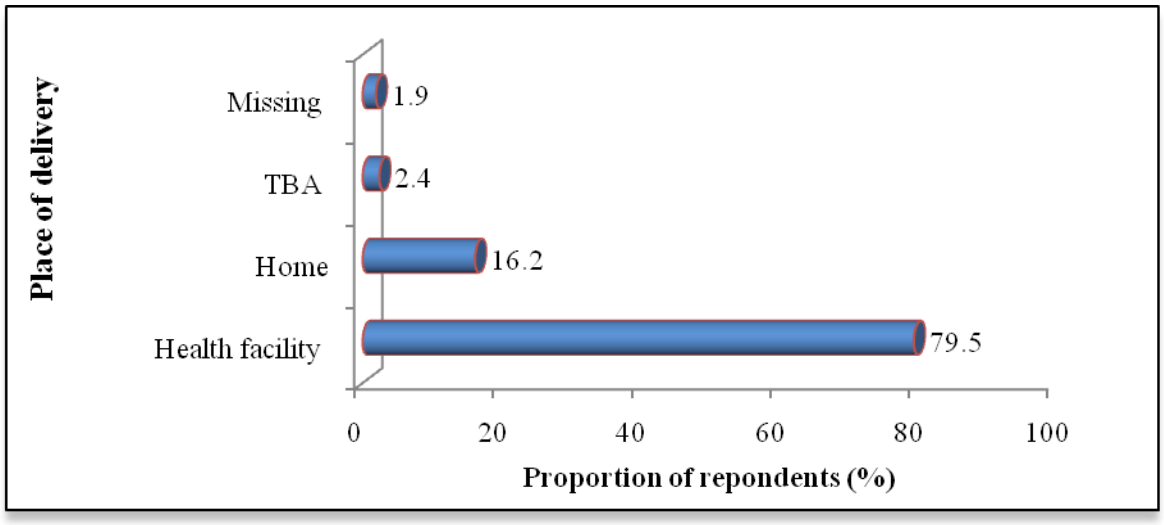



***Figure 4.15 Distribution by respondent place of delivery***

Of the deliveries which took place in health facilities, 40% occurred in public hospitals and 37.8% occurred in health centres. Only 22.1% of the women delivered in private clinics or hospitals suggesting that most users of public ANC services are more likely to

seek delivery services in public facilities as well. There seems to be an increase in the use of public health centres for delivery by women. This can be attributed to the fact that delivery services are provided free in public health centres and an extensive campaign by the NHMB to encourage use of tertiary facilities (hospitals) for referral cases only (MOH, 2004; ROK[b], 2005) so as to reduce congestion. Women in their first pregnancy (primigravida) were more likely to deliver in public hospitals than multigravida women. This could be a result of perceptions among providers that women at their first delivery are more likely to develop complications and thus referred to better equipped facilities. Better screening for women on possibilities of developing delivery complications is necessary in order to avoid unnecessary referrals. There was a significant correlation between the level of schooling and employment status of women with place of delivery confirming previous studies that education and employment status influence health seeking behaviours among women (Van Eijk *et al.,* 2006).

### 4.7.2 Mode of delivery

Caesarean deliveries can sometimes be used as a proxy indicator of women's access to good care for complicated deliveries (CBS, 2004). Approximately 81.1% of women delivered normally while 16.2 % delivered by caesarean section *(Figure 4.16).* This is slightly higher than the KDHS 2003 findings which showed the prevalence of caesarean deliveries in Nairobi to be 10.3 % suggesting an increase in the prevalence of caesarean deliveries or an improvement of care for complicated deliveries in public health facilities in Nairobi (CBS, 2004).

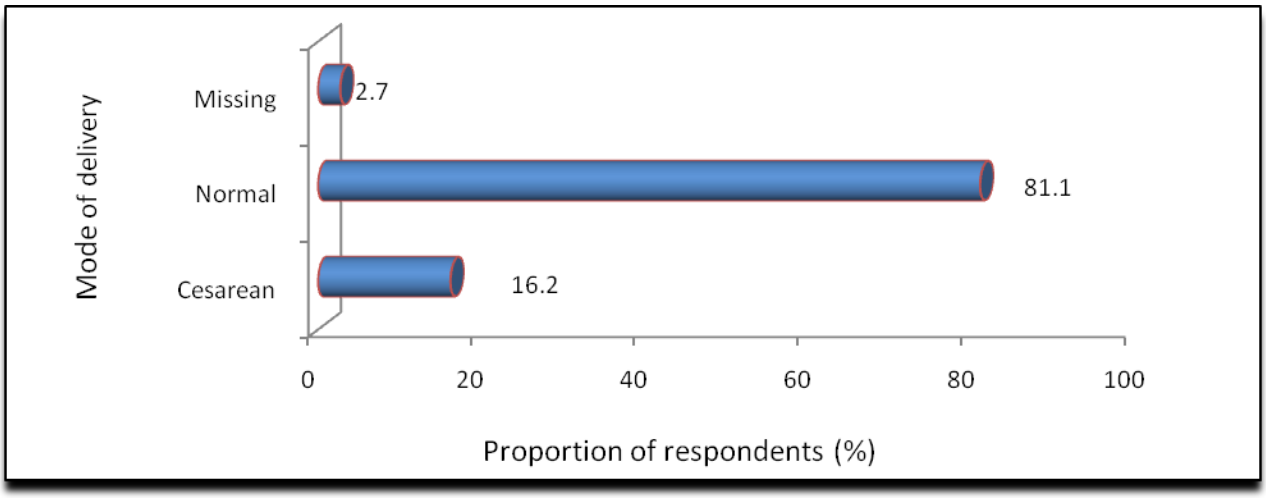



***Figure 4.16 Proportion of respondents by mode of delivery***

### 4.7.3 Child's weight at birth

Low birth weight is a strong predictor of infant mortality especially during the first weeks of life (APHRC, 2002). Findings from this study showed that the prevalence of low birth weight among women utilizing public ANC in Nairobi is 7.3%. Approximately 81.1% of the children were within the normal birth weight range of 2.5 Kg or more *(Figure 4.17).* There was a significant correlation between child's weight at birth ($p<0.05$) with facility type for ANC and the number of ANC procedures underscoring the role of adherence to standards in reducing prevalence of low birth weight babies. The correlation between mother's level of education and birth weight corresponds with other studies (APHRC, 2002) meaning that educated women are more likely to practice good nutrition which greatly contributes to reduction in the low birth weight infants. Any baby whose birth weight is below 2500gms at birth is a low birth weight infant. About 19% of all infants in the world are born with birth weight less than 2500g and between 60% and 80% of newborn deaths occur in infants with low birth weight (ROK, 2006). Enhancing antenatal education among women at ANC clinics can greatly reduce the percentage of low birth weight babies.

### 4.8 Challenges in the provision of effective ANC

The third objective of the study was to identify the challenges experienced by the care providers in the provision of effective ANC. Staff needs for quality care provision include; facilitative supervision and management, information and training, supplies, equipment, and supportive infrastructure (Engender health, 2003). Information was obtained from 24 ANC providers working at public ANC clinics at study period or had been working in the clinic at any time of the year preceding the study. This was done purposively to capture a wider view of providers considering that due to staff shortage, providers work on rotational basis on other units of MCH other than ANC. Additional information was obtained from six key informants.

#### 4.8.1 Characteristics of providers

Of the care providers interviewed, 22 them were female (91.7%) were female and the remaining 2 (8.3%) were male, which shows that ANC provision in Nairobi predominantly by females *(Table 4.20).*

***Table 4.20: Provider distribution by gender***

| Gender of provider | No. of providers | Proportion (%) |
|---|---|---|
| Male | 22 | 91.7 |
| Female | 2 | 8.3 |

The mean years of experience in service were 14.1 years. This can be explained by the government reduction in employment of civil servants in times of economic recession. The providers do not work on ANC clinic alone, but also on other units of MCH such as immunization, child welfare, maternity, family planning and PMTCT. Most of them

attend to between 25 – 35 ANC clients per day indicating a high patient load and likeliness of provider burnouts. With the findings that implementation of FANC require more time (Birungi and Ouma, 2006), the observation poses challenge to provision of quality ANC to clients needing individual attention and counselling. However, 62.5% (15) of the care providers reported that they were able to provide comprehensive ANC services in their facility while some 37.5% (9) said they were unable.

### 4.8.2 Provider training and awareness on FANC

Awareness of FANC was quite high with all the care providers having heard of it. Close to 41.9% reported to have been trained on FANC components and some 58.1% had not been trained probably because FANC implementation in Nairobi was still at its early stages. Sources of awareness included training of PMTCT, briefings from health administrators, trained colleagues and seminars held on related health issues. The extent of training on key ANC components is shown in *Figure 4.17* below.

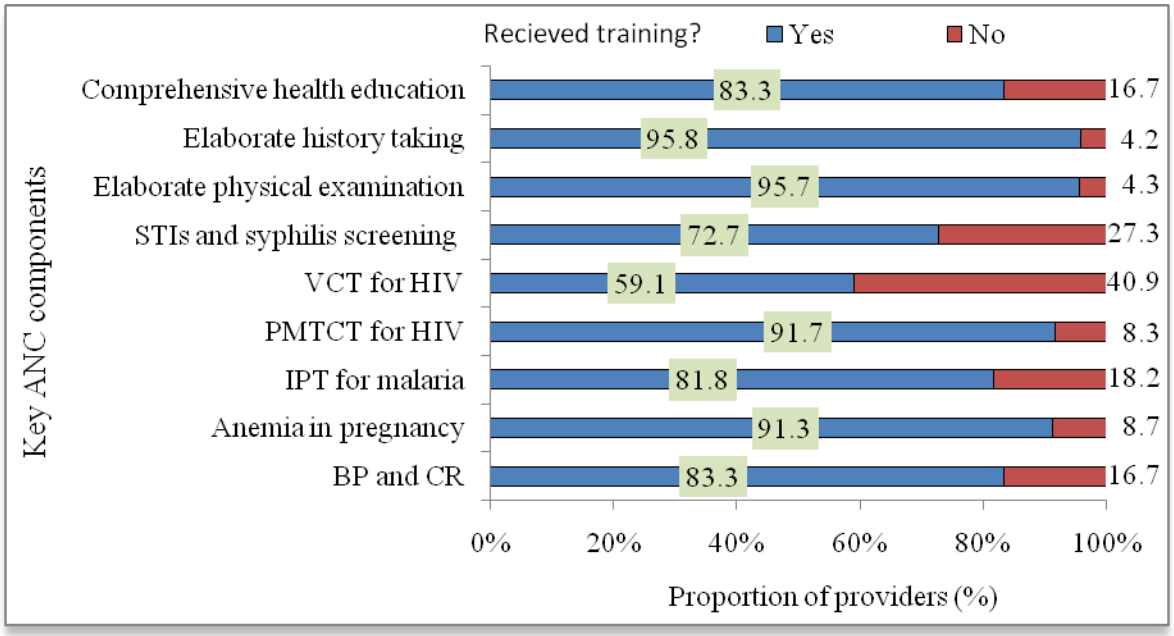



***Figure 4.17: Distribution by provider training in key ANC components (n=24)***

The figure shows a high training coverage for key ANC except for VCT (59.1%) and STI screening (72.7) probably because VCT counsellors and those involved in laboratory investigation are not normally involved in ANC. Comprehensive education (83.3%), IPTp for malaria (81.8%) and birth preparedness and complication readiness (83.3%) show relatively lower coverage suggesting need to scale-up training in these areas. The fact that almost all the providers (95.7%) give their clients the WHO recommended minimum of four ANC appointments is a good indicator of provider awareness of FANC (WHO, 2006). A refresher course for the trained providers as well as identification and training of untrained providers is necessary in order to address missed opportunities in the provision of ANC. Integration of ANC with other services such as STI and HIV prevention, requires that care providers be trained in all aspects of FANC.

### 4.8.3 Provider perceived barriers to provision of adequate ANC

Provider perceived challenges in the provision of FANC are not limited to ANC but cuts across the entire health care delivery system especially in limited resource settings. Top on the challenges was heavy work (50.0%), a contribution of few ANC staff and high number of clients as shown in *Figure 4.18* below.

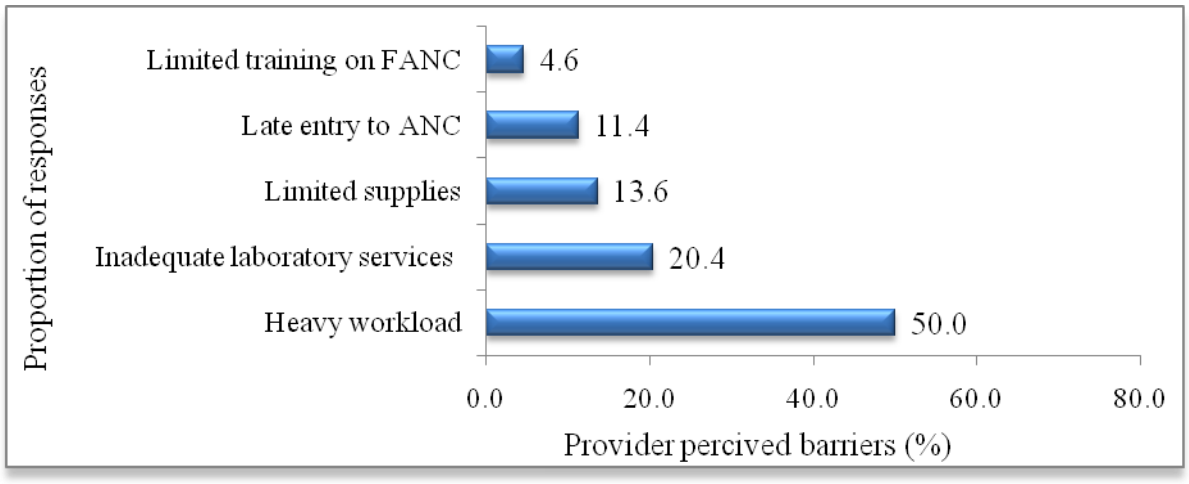



***Figure 4.18 Provider barriers to adequate ANC provision (multiple responses; n=24)***

Other perceived barriers were inadequate laboratory services (20.4%), limited ANC supplies (13.6%), late entry to ANC (11.4%) and limited training on FANC (4.6%). When few ANC staff attend to a large number of women needing ANC services, their capacity to give maximum attention to clients is hampered due to provider burnouts, leading to low quality care as seen in the FGD excerpt below.

> *"Work is sometimes a lot due to high number of clients. Care providers are few leading to burnouts. It is even worse when some providers are absent or attending to other issues or on leave. You will have to attend to clients in other units such as child immunization, family planning, or dispensing drugs in addition to the ANC. Clients will have to wait longer to be served and you will not be able to give them quality time".*

This explains the missed opportunities seen in the provision of health education, and complication readiness, and birth preparedness components of care. Proper integration of MCH services, delegation of non-technical tasks to junior staff and employment of more staff can contribute to provider efficiency hence quality of ANC. Introduction of incentives to staff will enhance staff motivation and reduce provider turn over rates due providers reigning and taking up well paying jobs in other countries.

Inadequacy of laboratory services is often a result of shortage of skilled laboratory technicians, limited ANC supplies and reagents and/or failure or lack necessary equipment. Service provision assessment of 2004 showed that 63% of the health facilities in Nairobi had essential equipments and supplies that support basic ANC (ROK[a], 2005). Such limits provider capacity to provide quality care (Lincetto *et al.*, 2006), and explains the referral of clients to other facilities, often private, for laboratory examinations. This

poses a challenge to women of low economic cadre who may not afford to pay for services in private facilities leading to delays in seeking and obtaining care as indicated in FGDs passage below.

> *"When an ANC mother has been told by the provider to meet some requirements e.g. of hygiene or buy some items or carry on some laboratory tests and come with the results on the next appointment, they would prefer to remain home during the appointment date because of fear of the providers follow-up if they were unable to do as told" (Community health worker at the FGD).*

This calls for urgent effort to strengthen the capacity of public MCH facilities to provide full laboratory examinations for their clients.

Finally, late entry to ANC or non-adherence to providers' recommendations regarding the schedules of visits among women, limits provision of disease prevention components such as IPT prophylaxis and TT immunization which depends on early entry to ANC (WHO, 2006). Study findings showed that majority of the women show up for ANC services during the second trimester instead of the WHO recommended first trimester. This limits the adequacy of care they receive even when such care is available in the facilities. There is need for concerted effort towards addressing late entry to ANC among women in pregnancy.

In order to determine how often the providers experience the challenges occur and explore other challenges likely to be experienced by providers, they were asked to state whether given challenges or barriers occurred always, sometimes, rarely or not at all in their facilities. Though this varies largely with facilities, it reflects challenges widely

experienced in public MCH facilities in Nairobi. Mostly mentioned to occur always by a large proportion of providers were limited equipment (31.7%), shortage of supplies (22%), and limited time to offer comprehensive health education (21.7%) *(Table 4.21).* The challenge of limited space for examination (17.6%) and small waiting area (21.7%) indicate that some facilities require infrastructural adjustments. These findings support the report that introduction of focused ANC in Kenya may not have been accompanied by strengthening clinic preparedness (Birungi and Ouma, 2006). It shows that different facilities require different inputs and therefore necessary to carry out a facility audit to uncover and mitigate on these needs for adequate FANC provision.

***Table 4.21 Frequency of provider perceived challenges in public facilities***

| | Always (1) | Sometimes (2) | Rarely (3) | Not at all (4) |
|---|---|---|---|---|
| Shortages of essential ANC supplies and IEC materials | 22 | 62.5 | 5.3 | 10.2 |
| Inadequate laboratory equipment for ANC | 31.7 | 50.9 | 17.4 | 0.0 |
| Small ANC waiting area | 21.7 | 43.5 | 0.0 | 34.8 |
| Limited space for private examination | 17.6 | 41.3 | 17.6 | 23.5 |
| Limited staff knowledge and skill | 9.1 | 40.9 | 4.5 | 45.5 |
| Clients do not cooperative | 4.3 | 47.9 | 26.1 | 21.7 |
| Lack of enough time for comprehensive education | 21.7 | 52.2 | 8.7 | 17.4 |
| Limited provider capacity to refer women with complications | 0.0 | 33.3 | 19 | 47.7 |
| No community health education activities to promote ANC | 4.5 | 27.3 | 22.7 | 45.5 |

### 4.8.4 Referral services for women with complications

Findings from this study showed that close to 12 (54.1%) providers believe that referral services for women with complications were adequate while 10 (46.9%) thought that the

services were inadequate. Reasons given for inadequacy include lack of stand-by vehicle (ambulance) (35.7%), lack of equipment to detect complications (28.6%) and women's inability to pay (17.9%) *(Table 4.22).* While limited equipment in facilities lead to unnecessary referrals, lack of a stand-by vehicle or ambulance denies women in need of emergency care, the opportunity for quick and affordable means of transport to tertiary facilities for urgent attention.

***Table 4.22 Distribution by challenges in dealing with complications (multiple responses permitted; n=20)***

| | Responses | Proportion (%) |
|---|---|---|
| Inadequate means of transport | 10 | 35.7 |
| Limited equipment to detect complication | 8 | 28.6 |
| Women's inability to pay | 5 | 17.9 |
| Women come un-accompanied | 2 | 7.1 |
| Women do not do ANC profile when referred | 2 | 7.1 |
| No feedback after referral | 1 | 3.6 |
| ***Total*** | ***28*** | ***100.0*** |

Women factors such as ignorance, coming to facility unaccompanied and lack of continuity of care due to unavailability of ANC profile examinations as well as provider factors contributes to delays in referral. A study from Pakistan found out that social and cultural factors of women and providers played a significant role in preventing timely referral to the hospital (Lule *et al.,* 2005). Effective ANC is therefore dependent on competent provider in a functioning health system with referral services and adequate laboratory supplies and facilities (Lincetto *et al.*, 2006).

### 4.8.5 Provider suggestions for improvement of services

Providers gave useful recommendations for improving the adequacy of ANC services in public facilities namely; recruitment of more staff and training on FANC, improvement of facility infrastructure, expansion of laboratory services, addressing supply factors, and community education on benefits of ANC (*Figure 4.19)*. The recommendations appear to address the gaps as they include factors affecting performances. Once addressed an improvement in the quality of ANC services can be realised. Care providers also must be able to work together as a team to be able to provide services efficiently.

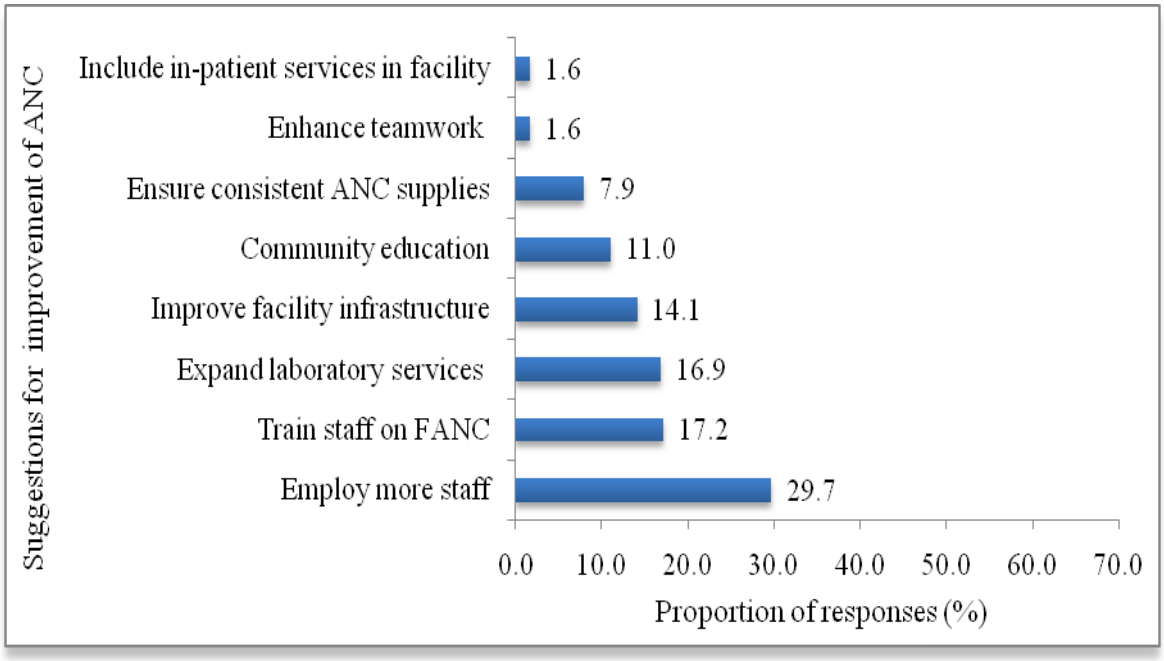



***Figure 4.19 Provider suggestions for improving ANC services (multiple responses permitted; n=24).***

These suggestions were similar to those for improving the adequacy of referral services (*Table 4.23*). Additional suggestions however were having a standby vehicle for referral (36.5%), giving feedback after referral (5.8) and more drivers for ambulances (3.8%) *(Table 4.23).* This presents very important suggestions and shows the need to reorganise

referral services so as to enhance continuity of care. Women should also be educated on readiness for complications to minimize delays in seeking care.

***Table 4.23 Providers suggestions to improve care for women with complications (multiple responses permitted; n=23)***

| *Suggestions* | *No. of responses* | *Proportion (%)* |
|---|---|---|
| Have a stand-by vehicle for referral | 19 | 36.5 |
| Have qualified doctor to handle complication | 16 | 30.8 |
| Improve laboratory facilities to enable early diagnosis | 10 | 19.2 |
| Get feedback after referral | 3 | 5.8 |
| More drivers for the ambulance | 2 | 3.8 |
| Educate women on complication readiness | 2 | 3.8 |
| *Total* | *52* | *100.0* |

Suggestions to improve staff performance and efficiency are shown in *Table 4.24* below. Better working environment, incentives and better remuneration should be looked at to ensure that care providers remain motivated as this will minimize turn-over rates. Coupled with demand for accountability and feedback, facilitative supervision can enhance the ability to provide adequate care (Lincetto *et al.*, 2006).

***Table 4.24 Suggestions to improve provider efficiency (multiple responses permitted; n=23)***

| *Suggestions* | *No. of responses* | *Proportion (%)* |
|---|---|---|
| Recruit more ANC staff | 21 | 17.1 |
| More training | 20 | 16.3 |
| More feedback on performance | 19 | 15.4 |
| More pay | 16 | 13.0 |
| Better physical environment | 16 | 13.0 |
| Better job security | 16 | 13.0 |
| More facilitative supervision | 15 | 12.2 |
| ***Total*** | ***123*** | ***100*** |

# CHAPTER FIVE: SUMMARY, CONCLUSION AND RECOMMENDATIONS

This chapter gives a summary of the findings on factors influencing the quality of ANC services in public MCH facilities in Nairobi and provides a conclusion for the research study. It also gives recommendations on what could be done to improve the quality of ANC services in Nairobi.

## 5.1 Summary of findings

### *(i) Socio-demographic characteristics*

Findings show that majority of the women who seek ANC services in public MCH facilities in Nairobi are of low socio-economic status as reflected by their employment status and level of schooling. Majority of them were aged between 20-24 years with the mean of 24.7 ± 4.55, which corresponds to mean reproductive age for Kenyan women which picks at 20 - 24 years. Women mostly obtain ANC services from health centres, depicting a decline in use of hospitals and clinics. Proximity of the facility to place of residence, affordability and perceived good quality services were major reasons for ANC facility choice. The high unemployment rates means that women depend on spouses or close relatives for financial support, a factor likely to cause delays in seeking care.

### *(ii) Components of ANC*

Items of ANC provided in public MCH facilities in Nairobi are in line with WHO standards and National guidelines except for missed opportunities. Aggregate coverage for all ANC procedures was high at 84.4% higher than the WHO recommended coverage of 75% for all ANC procedures thus depicting a high adherence rate. Mostly performed procedures include blood pressure checks and tetanus toxoid immunization while the

least performed were provision of IPT prophylaxis, iron/folate supplementation, counselling on danger signs during pregnancy, family planning and breast feeding. Such missed opportunities suggest weaknesses in adherence to standards in care provision indicate room for improvement.

***(iii) Clients' perception and practices***

Client perception on quality was found to be good as shown by an aggregated rating score of 76.2% for all the services received. The fact that 89.5% of the respondents could use the same facility for ANC given another pregnancy and 88.9% could recommend the facility to a relative or friend shows that women perceive services to be good. The overall satisfaction index with key ANC components was high at 82.7% indicating a high level of client satisfaction. Reasons for rating services as good or excellent include good treatment from providers, good health education, affordable services, and availability of quality drugs while those given for rating services as average or poor were long waiting time, harassment by providers, lack of necessary medicine and poor response to questions by providers. This shows that keys to client satisfaction are provider behaviour, waiting time, affordability of services and availability of drugs.

The prevalence of late entry to ANC is high with only 14.9% of women booking for ANC during the first trimester of pregnancy. This occurs even though a greater proportion of women knew the WHO recommended timing for first visit suggesting that other reasons exist for late entry to ANC among women. Level of schooling and parity was significantly associated with timing of ANC visits. Though awareness on the WHO recommended number of ANC visits was low, it was encouraging to note that more than

half (53%) of the respondents made four or more visits during pregnancy. Some respondents however seem to stick to the older model of monthly visits indicating a knowledge gap and need for awareness programs. Knowledge on when the first visits should occur was associated with the timing of first entry to ANC among women.

On partner involvement, it was clear that women involve their spouses more on discussions on knowing their HIV status as compared to other ANC issues. This was more influenced by the provider. Husbands were more likely to accompany their wives during child birth than during ANC visits. Involving partners or husbands more on ANC issues will minimize delays in seeking and receiving adequate care during complications and ensure success of interventions such as PMTCT.

Though most women consider planning for delivery essential, they do less in practice to actually plan for delivery. Most of the women plan by saving money, identifying place of birth and identifying a house help. A very small proportion practices other birth planning components such as identifying financial support, identifying potential blood donor or organizing mode of transport. Almost all of the 45.1% respondents who experienced unusual signs or complications in pregnancy (87.8%) sought skilled care, majority from public health centres. This suggests that public facilities should be prepared to deal with complications and provide adequate referral services so as to avert severe outcomes.

Even though 73.8% reported to have been told of pregnancy danger signs during ANC visits, only 43% could mention one danger signs. Majority (43.0%) could not mention any danger signs indicating that women’s knowledge on danger signs is limited. Most of

the respondents (73.5%) however, perceive pregnancy as a risk and that danger signs during this period could lead to severe outcomes if adequate care is not sought. Mostly mentioned danger signs were virginal bleeding, severe headache, abdominal pains and cramps, and severe weakness. Knowledge on danger signs was significantly associated with respondent's age suggesting the likelihood of women's knowledge building up with continual use of services in previous pregnancies. Similarly, knowledge on components of birth preparedness was also limited, with most women mentioning saving money, identifying mode of transport and buying birth items as key to woman's birth preparedness.

***(iv) Quality of care***

Quality of care in this study was measured by provider adherence to standards in terms of the number of ANC procedures performed, TT immunisation and client satisfaction. Good quality care is one which is in line with WHO set standards and meets client needs. Close to 59.7% of the clients received between 18-21 procedures which is close to 85% of the FANC procedures and were categorised as good quality care. Another 24.6% received between 15 – 17 procedures which are over 70% of procedures. Other than the missed opportunities, these findings indicate that care providers adhere to set standards in the provision of care. The missed opportunities indicate gaps in quality and gives direction improvement. Missed opportunities in health education and counselling could explain the limited knowledge of clients in danger signs and birth preparedness, and is a contribution of high patient load, poor integration of services, limited provider training, provider perceptions and client factors.

High adherence was observed for TT immunization with close to 94.9% of women receiving at least one dose of TT injection. However, with 20.4% of the primipara received one dose of TT injection instead of the required two doses reveals gaps in quality. While obtaining services from hospitals and health centers was associated with receiving more ANC procedures, protection from tetanus was significantly associated to respondent's age, parity and frequency of visits.

Women's rating of services was coded into satisfaction and dissatisfaction in order to assess the association between satisfaction and associated variables. Satisfaction was associated with receiving more items of care, receiving TT immunization, receiving information on breastfeeding, using the facility again for ANC services and recommending facility to a friend or relative for ANC check-up. This indicates the importance of provider adherence to standards in client satisfaction and thus quality of services. Satisfaction was also associated to facility cleanliness, waiting time and examinations done indicating the importance of proper constellation of services in provision of quality care. Women suggested scaling up of laboratory services, employment of more staff, consistent supply of drugs and improved client-provider interactions as key to improving the quality of ANC in public MCH facilities.

***(v) Provider challenges***

Provider perceived barriers to provision of quality care are not unique to ANC but cuts across all other sectors of health care delivery system. They include; heavy workload, inadequate laboratory services, shortage of supplies and late entry to ANC by women. Inadequate means of transport, limited equipment to detect complications and women's

unpreparedness for referral featured as key challenges faced in dealing with cases of complications. Suggestions to improve the adequacy of ANC services in public MCH facilities were similar to client's suggestions and include staff training, employment of more staff, expansion of laboratory services, improvement of facility infrastructure, community education and addressing ANC supply factors.

### 5.2 Implications of the findings

Achieving the MDG goal of reducing by three quarter maternal morbidity and mortality by 2015 (MDG, 2003) can be realized to a larger extent through provision of quality ANC in public facilities since such facilities are utilized mostly by women of low socio-economic backgrounds, who are often victims of high morbidity and mortality burden.

Addressing gaps in the provision of quality care and community mobilisation to enhance understanding on the importance of quality care during pregnancy will address missed opportunities and minimize delays in seeking and receiving adequate care. ANC providers will be fully facilitated to provide quality care and women will be more satisfied with care. Sustained use of adequate care will thus lead to reduction in severe pregnancy outcomes and hence attainment of the MDG and health sector goals.

### 5.2 Conclusion

Influences to quality of ANC in public MCH facilities in Nairobi province of Kenya is a contribution of client, provider and facility factors and include timing and frequency of

visits, waiting time, adherence to standard, patient load, adequacy of laboratory services and facility type.

A concerted effort involving care providers, health system and in the social and economic development of the community at large need to be put in place to address barriers in to quality ANC in public facilities. Empowerment of women economically and raising community awareness levels on ANC issues will lead to a society empowered to take responsibility on their health. “An empowered woman is a health woman, able to give birth to a health society which can positively contribute to its development agendas”.

### 5.3 “Operational” recommendations

The following are key recommendations which can contribute greatly in improvement of the quality of antenatal care services in public MCH facilities and hence reduction in perinatal morbidities and mortalities upon implementation.

a. The ministry of health in collaboration with NHMB should look into of full integrating MCH services to improve on provider efficiency in a manner that will allow participation of men. Non-technical ANC tasks such as registration, weighing and measuring of blood pressure can be delegated to junior staff to allow more time of ANC providers with their clients.
b. The MOH and the NHMB should employ more care providers to reinforce the existing workforce and ensure that they are all trained in FANC components. Refresher courses or in-service trainings can be beneficial to the already existing providers. This will address missed opportunities in ANC provision.
c. There is need for the NHMB equip laboratories in order to increase its capacity to provide laboratory investigations. Supply factors should be addressed to minimize

frequent shortages that result in referral of women to other facilities for care thus minimizing missed opportunities.

d. A concerted effort among all stakeholders is needed to sensitize the community on the importance of obtaining timely and adequate care during pregnancy. Since being poor is in itself a barrier to seeking adequate care, a multi-sectoral approach to fight poverty among women in the society is recommended.

e. This will address issues related to frequency and timing of visits and partner involvement thus minimizing delays in seeking adequate care.

f. The NHMB should work towards enhancing facility preparedness for quality care for women with complications as this will improve access to adequate care during complications and ease congestion in tertiary facilities. All areas of delays in referral for women with complications should be addressed.

g. Finally the NHMB should work towards enhancing staff motivation through introduction of incentives and better working environment as this will address staff turn over rates. An environment of responsibility in delivering quality care among providers should be emphasized and a system of monitoring delivery of quality services established.

## 5.4 Suggestions for further research

a) Given the prevalence of late entry to ANC, there is need to investigate the factors that contribute to late entry to ANC among women.

b) There is need to carry a study to explore client-provider interactions in provision of ANC services in public MCH facilities. Such study will elucidate useful suggestions on improving, address provider needs and enhance client satisfaction

c) Though women generally feel that services in public facilities are affordable, it is not clear whether this has improved on client utilization of MCH services. There is need to examine the impact of removal of the user fees in public MCH facilities in Kenya.

d) Little is not known on the quality of care received by HIV positive women utilizing ANC in public facilities. Studies in line to this will identify gaps in PMTCT interventions and ensure that HIV infected women receive quality care during pregnancy.

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# APPENDICES

## Appendix 1: Ministry of higher education science and technology authorization

REPUBLIC OF KENYA

**MINISTRY OF HIGHER EDUCATION SCIENCE & TECHNOLOGY**

Telegrams: "SCIENCE TEC", Nairobi
Telephone: 02-318581
E-Mail:ps@scienceandtechnology.go.ke

JOGOO HOUSE "B"
HARAMBEE AVENUE,
P.O. Box 9583-00200
NAIROBI

When Replying please quote

**Ref. MOST 13/001/ 38C 402/2** **9th July 2008**

Kiplagat Micah Kiprono
Kenyatta University
P.O. Box 43844
**NAIROBI**

**RE: RESEARCH AUTHORIZATION**

Following your application for authority to carry out research on, ***'An Assessment of Factors Affecting the Quality of Antenatal Care Services in Public Maternal Health Facilities in Nairobi,***

I am pleased to inform you that you have been authorized to carry out research in various Hospitals and Health Centres in Nairobi for a period ending 30th August, 2008.

You are advised to report to the Provincial Medical Officer of Health Nairobi and the Medical Officers of the respective Health Centres you intend to visit before embarking on your research.

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

**M. O.ONDIEKI**
**FOR: PERMANENT SECRETARY**

Copy to:

The Provincial Medical Officer of Health
**NAIROBI**

The Medical Officers
Health Centres/Clinics
**NAIROBI PROVINCE**

## Appendix 2: City council of Nairobi data collection consent

CITY COUNCIL OF NAIROBI

SHAURI KWA UAMINIFU

MEDICAL OFFICER OF HEALTH
TEL: 224281 EXT. 2390
TEL: 248316

P.O.BOX 30108
CITY HALL
NAIROBI

PUBLIC HEALTH DEPARTMENT

PHD/MOH/R.I VOL.I (77)/08

17th June, 2008

Michah K. Kiplagat,
Kenyatta University,
Public Health Department,
P.O. Box 43844,
**NAIROBI.**

**RE: REQUEST FOR CONSENT TO COLLECT DATA FOR FULFILMENT OF MY MPH COURSE AT KENYATTA UNIVERSITY**

I acknowledge receipt of your letter dated 17th June, 2008 on the above subject matter.

Permission is granted to you to carry out a research in Pumwani Maternity Hospital, Riruta, Makadara, Kayole II, Kangemi, Ngara, Kariobangi North and Langata Health Centres on "**Assessment of Factors Affecting the Quality of Antenatal Care Services in Public Maternal Health Facilities in Nairobi**." The following shall apply during the period of research.

- Payment of KShs.1200 (One thousand two hundred) research fee.
- You will be expected to adhere to the rules and regulations pertaining to the City Council of Nairobi.
- That during your research there will be no cost devolving to the Council.
- That you undertake to indemnify the Council against any claim that may arise from the research.
- A copy of the research findings must be submitted to the office of the undersigned.

By a copy of this letter the Medical Superintendent – PMH and the District Medical Officers of Health in Nairobi East, West and North Districts are requested to accord you the necessary assistance.

**DR. D.M. NGUKU**
**MEDICAL OFFICER OF HEALTH**

c.c. *D.M.O.H. – Nairobi East District*
*D.M.O.H. – Nairobi West District*
*D.M.O.H. - Nairobi North District*
*D.M.O.H. - PMH*

NAIROBI HEALTH MANAGEMENT BOARD
NAIROBI EAST DISTRICT OFFICE
SIGN:
DATE:

**Appendix 3: Mother's questionnaires**

***Introduction***

*I am a public health student at Kenyatta University. I would like to spend 40 minutes to ask you about the care you received during pregnancy with this child. Your views will help improve antenatal care for yourself and other women in Nairobi. Whatever information you provide will be kept strictly confidential, and will not be shown to any other person or used for any other purpose other than for analysis. You are free to stop answering questions at any point if you don't feel like. Do you have any questions? May I ask you questions that relates to the study?*

*Yes [ ] No [ ]* ***(confirm that the mother utilized public ANC before proceeding)***

***Section A: Maternal characteristics***

1. How old are you? (years) _____
2. What is your **current** marital status?

   Single [ ] Married [ ] Widowed [ ] Divorced [ ] Separated [ ]
3. Are you currently living with a partner? Yes[ ] No[ ]
4. What is the highest level of schooling you completed?

   Below primary [ ] Primary [ ] Secondary [ ] College/University [ ] none [ ]
5. In addition to housework, what else do you do for a leaving?

   Employed [ ] Self employed [ ] none [ ] others (specify) ……..
6. Was the pregnancy with this baby your first pregnancy?

   Yes [ ] No [ ]
7. a). How many times in total have you been pregnant (whether the child was born death or alive) including for this child? Once [ ] Twice [ ] Thrice [ ] Four times [ ] Others (specify) _____

   b). How many of these pregnancies have resulted in a baby that was born alive? [___]
8. Where did you deliver during your last delivery (Not of this child)

   Public facility [ ] Private facility [ ] Home [ ] TBA [ ]

   Others (specify) ……

**Section B:** ***Questions related to the content of ANC provided***

9. During pregnancy with this child where did you go for ANC?

   (Name of facility) …… (Facility type) Hospital [ ]

   Health Centre [ ] Dispensary [ ] Clinic [ ] others (specify) ……

10. Why did you go to this clinic/facility rather than elsewhere? ……....

    ……..

11. How many months pregnant were you when you first received ANC

    1-3 months [ ] 4-6 months [ ] 7-9 months [ ]

12. **(If first visits in Qn 11 above is > 3 months ask …)** Why didn't you go earlier?

    (Circle as appropriate).

| | |
|---|---|
| Lack of money for transport ……...…01 | I chose to attend at that time ……07 |
| Lacked money to pay for services …...…02 | Others (specify)…… |
| Preferred TBA ……....03 | ……..97 |
| Too busy ……..04 | Don't Know ……98 |
| Facility is far from my place of residence.05 | None ……99 |
| Didn't think necessary to go that early …06 | |

13. During the ANC visits, were any of the following done to you at least once?

| | **Yes(01)** | **No(02)** | **DK(98)** |
|---|---|---|---|
| a). Asked history of previous delivery, complications and health condition? | | | |
| b). Asked history of current pregnancy? | | | |
| c). Was your blood pressure measured? | | | |
| d). Did you give urine sample? | | | |
| e). Did you give blood sample? | | | |
| f). Were you given an injection in the arm to prevent the baby from getting **tetanus** (convulsions) after birth? **If yes, how many times?** | **[ _ _ ]** | | |
| g). Were you given or told to buy **Iron/Folic** tablets or iron syrup? **How many times did you take the syrup?** | **[ _ _ ]** | | |
| h). Did you take any drugs to prevent you from getting malaria? **How many times did you take anti-malarial tablets?** | **[ _ _ ]** | | |
| i). Were you given an appointment for a return ANC visit? | | | |
| j). Were you assisted to calculate the expected date of delivery? | | | |
| k). Were you advised on diet, rest and exercise? | | | |
| m). Were you counselled or given information on VCT for HIV/AIDS? | | | |

| | | | |
|---|---|---|---|
| n). Were you counselled on PMTCT for HIV/AIDS? | | | |
| o). Were you counselled on prevention of STIs and HIV? | | | |
| p). Were you counselled on family planning methods? | | | |
| q). Were you counselled on the use of drugs during pregnancy? | | | |
| r). Were you given information or counselled about breastfeeding? | | | |
| s). Were you told about danger signs/complications in pregnancy? | | | |
| t). Were you told where to go in-case of these complications? | | | |
| u). Were you told of complications/danger signs during delivery or child birth or soon after? | | | |
| v). Were you told how to plan for childbirth and where to deliver? | | | |
| w). Were you advised on practices of personal hygiene and on harmful habits such as smoking, alcoholism or drug abuse? | | | |

14. How many times in total did you receive ANC in the entire pregnancy period? {……}
15. Did you pay for ANC services? Yes [ ] No [ ]
16. (If answer Qn 13 above is yes,) Was it affordable to you? Yes [ ] No [ ]

**B. Perceptions and practices**

17. During ANC visits with this child, were you Very Satisfied-**VS**, Satisfied-**S**, Dissatisfied-**D,** Very Dissatisfied-**VD** and Don't Know-**DK** with the following components of care?

| | VS 01 | S 02 | D 03 | VD 04 | DK 98 |
|---|---|---|---|---|---|
| a). Waiting before seen by the provider? | | | | | |
| b). Time taken with the provider? | | | | | |
| c). Treatment by provider? (With respect?) | | | | | |
| d). Way provider handled my information (confidentiality) | | | | | |
| e). Time given by provider to ask questions? | | | | | |
| f). Way provider answered my questions? (understood) | | | | | |
| g). Privacy? (Met with the health provider privately) | | | | | |
| h). Examination services and information provided? | | | | | |
| i). Cleanliness of the facility | | | | | |

18. Can you rate the overall services including treatment by provider during pregnancy? Were they excellent, good, average or poor?

Excellent [ ] Good [ ] Average [ ] Poor [ ] Don't know [ ]

19. What did you like about the services? ……
……..……
20. Would you go back to that clinic when there is need next time? Yes [ ] No [ ]
21. What didn't you like about the services you received during pregnancy? …….
……..
22. Would you recommend that clinic/facility to a relative/friend in need of antenatal care services? Yes [ ] No [ ]
23. In your opinion, what should be done to improve the quality of antenatal care services in public health facilities? ……...
…..…….....
24. In your opinion, how many months pregnant should an expectant mother **first** visit ANC clinic? 1-3 months [ ] 4-6 months [ ] 7-9 months[ ]
As early as possible [ ]
25. In your opinion, how many times in total should a pregnant woman attend ANC in the entire pregnancy period? Once [ ] Three or less [ ] Four or more [ ]
As many as possible [ ] as recommendation by provider [ ] others …….…
26. Do you think there could be unforeseen problems related to pregnancy that could endanger the life of a pregnant woman? Yes [ ] No [ ] Don't Know [ ]
27. (If answer to 26 above is Yes…) what are some of the danger signs which can occur in pregnancy that could endanger the life of the pregnant woman if immediate care is not sought? (probe and tick all that apply)

| | |
|---|---|
| Heavy bleeding.……..……01 | Severe weakness ……..……...09 |
| Severe headache ……...…02 | Severe abdominal pain ……..……..10 |
| Blurred vision ……..…....03 | Accelerated/reduced fetal movement……...11 |
| Convulsions ……..……....04 | Water breaks without labour …….....12 |
| Swollen Hands and feet ……....05 | Other (specify) …….……..…. |
| High fever …….....…06 | ……..97 |
| Loss of consciousness ……..…07 | Don't Know ...……..…98 |
| Difficulty in breathing ……..08 | None ……...…99 |

28. (If answer to 26 above is yes…) Can a woman die from any of these problems if prompt care is not sought? Yes [ ] No [ ] Don't know [ ]

29. In your opinion, what are some of the danger signs or complication that can occur during labour or childbirth?

| | | | |
|---|---|---|---|
| Severe bleeding | | Severe headache / High fever | |
| Convulsions during labour | | Prolonged labour (Lasting >12 hours). | |
| Loss of consciousness | | Retained placenta | |
| Ruptured membranes without labour | | Cold, arm or leg pro-lapse | |
| Others | | | |

30. Can a woman die from any of these problems if prompt care is not sought?

Yes [ ] No [ ] Don't know [ ]

**Practices during complications**

31. During pregnancy with this child, did you have any health problems or complications? Yes [ ] No [ ]

32. If yes to Qn 29, what was/were the problems? **(circle all that apply)**

| | |
|---|---|
| Heavy virginal bleeding ……....(1) | High fever ……....(9) |
| Severe headaches ……..……(2) | Blurred vision ……..(10) |
| Severe abdominal pain ……...…(3) | Severe weakness ……..(11) |
| Generalized body swelling ……..…..(4) | Difficulty in breathing……...12) |
| Water breaks without labour.....……(5) | DK ……. ……98 |
| Accelerated /Reduced foetal movements ...(6) | None ……...……99 |
| | Other ……. |
| Loss of consciousness ……..….(7) | |
| Convulsions ……..…….(8) | |

33. If yes to Qn 29, what did you do? **(tick one that apply)**

| | | | |
|---|---|---|---|
| Went to public clinic/hospital | 1 | Stayed –No money | 5 |
| Went to private clinic/hospital | 2 | Stayed – busy at work | 6 |
| Visited TBA | 3 | Chemist to buy drugs | 7 |
| Visited an herbalist | 4 | Bought drugs at kiosk | 8 |
| Others | | | |
| | | | |

34. Were you referred to another clinic/hospital for treatment? Yes [ ] No [ ]

35. **(If yes to qn 29**) What problems did you experience in seeking care?

| | | | |
|---|---|---|---|
| Not well attended to by provider | 1 | No vehicle at facility to ferry me | 5 |
| Husband not supportive | 2 | Provider took too long to refer me | 6 |
| Lack of money for transport | 3 | No drugs at facility | 7 |
| Lack of money to seek medication | 4 | Care provider was absent | 8 |
| **Others** | | | |
| | | | |

36. Did you discuss with your husband or partner about being tested for HIV during pregnancy? Yes [ ] No [ ]
37. Did you discussed or planned with your partner about ANC visits? Yes [ ] No [ ]
38. Do you think it is necessary to for one to know their HIV status during pregnancy? Yes [ ] No [ ]

**Birth preparedness**

39. In your opinion, what are some of the things a woman can do to prepare for birth?

**(probe and tick all apply)**

| | | | |
|---|---|---|---|
| Identify mode of transport | 1 | Know the EDD | 4 |
| Saved money | 2 | Identify blood donor | 5 |
| Identify skilled attendant | 3 | Identify helper | 7 |
| Identify decision maker | 4 | Prepare the items of Birth | 8 |
| Others | | | |
| | | | |

40. When you were preparing for the delivery of this baby;

| | **Yes** | **No** |
|---|---|---|
| a). Did you know the EDD? | | |
| b). Had you organized for means of transport? | | |
| c). Had you saved money for emergency? | | |
| d). Had you identified a blood donor in case of need of blood? | | |
| e). Had you identified place to deliver? | | |
| e). Had you identified a skilled birth-attendant? | | |
| f). Had you identified a helper at home? | | |
| g). Had you identified financial support? | | |

41. Did you discuss/planned with your partner about what to do to prepare for child birth? Yes [ ] No [ ]

42. I would like to know whether you Strongly agree-**SA**, Agree-**A**, Disagree-**D** or Strongly disagree-**SD** and Don't know-**DK** with the following statements

| | **SA** | **A** | **D** | **SD** | **DK** |
|---|---|---|---|---|---|
| A woman should plan ahead of time where she will give birth to her baby | | | | | |
| A woman should plan ahead of time how she will get to the place where she will give birth | | | | | |
| A husband/partner should to accompany his wife to ANC | | | | | |
| A husband/partner should accompany his wife when she is giving birth | | | | | |

43. Where did you deliver your baby?

    Public hospital [ ] Public health centre [ ] Private hospital /clinic [ ]

    Home [ ] TBA [ ] others ……..

44. Can you tell me the reasons why you chose to delivery there and not elsewhere?

| | |
|---|---|
| Had planned to deliver there | 1 |
| My partner (husband) decided so | 2 |
| Services are good there | 3 |
| Nurses treat people well there | 4 |
| My family made arrangements | 5 |
| Could not afford services in clinic | 6 |
| Services are affordable | 7 |
| Was directed/referred by the health worker | 8 |
| Is nearer to my place of residence | 9 |
| Others (specify) | |
| | |

45. Was the child born by caesarean section, vacuum extraction or normally?

    Caesarean [ ] Vacuum extraction [ ] Normal [ ] Don't Know [ ]

46. What was the weight of the baby at birth?

    <1500gms [ ] 1500-2500 gms [ ] >2500gms [ ]

47. Do you have any other comments regarding ANC in the public health facilities that we have not mentioned earlier? ……..

    ……..……

    ……..……

**Appendix 4: Self-administered questionnaires for ANC providers**

***Questionnaire No: _____***

***Introduction:***

I am Public Health Student at Kenyatta University and carrying out a study on ANC care in Nairobi. I would appreciate if you would contribute by answering the following questions. Thank you in advance.

***Facility Name_____***
***Facility Type_____***
***District _____***

1. Gender [ ] Male [ ] Female
2. What is your qualification? Doctor [ ] Nurse [ ] other (specify)……..……
3. How many years have you worked since your graduation year? **[……] years**
4. Other than provision of ANC services, which other additional services do you provide in this facility? ……
   ……...
5. Have you heard of FANC? Yes [ ] No [ ]
   If yes, how did you hear? ……
   ……...
6. Have you been trained on FANC components? Yes [ ] No [ ]
7. (a). When a pregnant woman comes to this facility for ANC, are you able to provide all the care she needs? [ ] Yes [ ] No
   (b). If No, What are the reasons? ----------
   ---

   © Do you have enough time to give comprehensive health education?
   [ ] Yes [ ] No
   Give reasons …….....

8. How many appointments do you give your ANC mothers for ANC? **[……..]**

9. What is the average number of clients do you see for ANC in a days?
   [ ] <4 [ ] 4 – 8 [ ] 8 – 16 [ ] >16

10. Do you often refer women with complications in this facility? Yes [ ] No [ ]
    Do you think the referral services are adequate? Give reasons ……
    ……

11. What challenges do you encounter in the provision of ANC services in this facility?
    (a) Challenges in provision of comprehensive care?
    …….....
    .....
    (b) Challenges in handling women with complications?
    ……
    ……
    (c) Other challenges?
    ……
    …….

12. What do you think can be done to improve the quality of services in this facility?
    (a) Referral services/dealing with complications? ……..
    ……
    ……
    (b)Provision of comprehensive care? ……..
    ……..
    ……..
    © Others? ……..……...

13. In your opinion, what hinder mothers from receiving adequate ANC even when such care is available in MCH facilities? ……..
    ……..
    ……..

    b). What suggestions do you give to ensure that mothers receive adequate care without delays? ……..…

14. Indicate whether you have been trained or orientated on the following:-

| | **Yes** | **No** | | **Yes** | **No** |
|---|---|---|---|---|---|
| Birth preparedness | | | Anaemia in pregnancy | | |
| IPT for malaria | | | PMTCT for HIV/AIDS | | |
| VCT for HIV/AIDS | | | VDRL test for syphilis | | |
| Elaborate physical examination | | | Elaborate history taking | | |

15. Indicate the challenges you face/often faced by care providers in the provision of ANC (tick where appropriate).

| **Challenge faced** | **Not at all** | **Rarely** | **Sometimes** | **Always / Frequently** |
|---|---|---|---|---|
| Shortages of essential ANC supplies and IEC materials | | | | |
| Limited laboratory equipment for ANC | | | | |
| Small ANC waiting area | | | | |
| Limited space for private examination | | | | |
| Limited staff knowledge and skill | | | | |
| Clients do not cooperative | | | | |
| Lack of enough time for comprehensive education | | | | |
| Limited provider capacity to refer women with complications | | | | |

16. What suggestions do you have that can be done to improve your work?

……

……

17. Is there any other information you would wish to share with us that has not been mentioned above? (Please write them down).

……

……

**Appendix 5: Key informant interviews questions**

1. How is the provision of ANC organised in this facility? What is the sequence of services?

2. Has FANC components been put in place?

3. How many ANC providers are there in this facility?

4. What challenges did you face during transition from the old ANC model to FANC?

5. What are some of the limitations of the new model of ANC?

6. Are there specific challenges that arise from the integration of ANC i.e. with VCT, PMTCT, TB prevention and other diseases?

7. What facility factors hinder the provision of comprehensive or adequate care to ANC clients?

8. What client's related factors hinder them or contributes to delays in receiving adequate care from providers even when such care is available?

9. How do you handle cases with complications? How is referral organised in this facility?

10. What can be done to improve the care mothers receive during pregnancy?

**Appendix 6: Focused groups discussion questions**

1. Do all women who attend MCH facilities for ANC in Nairobi receive comprehensive ANC package?

2. Do clients have access to antenatal services at times that are convenient? For example, for clients who have difficulty getting to the facility on weekdays, are services available in the evening and on weekends?

3. What limits access to ANC services among women in the community or those already utilizing care in public MCH facilities?

4. What are the challenges / barriers / hindrances most experienced in the provision of adequate ANC in public MCH facilities in Nairobi?

5. Do you consider referral services for women with complications effective? Explain.

6. What challenges are often experienced in dealing with women with complications including referral for severe cases?

7. Are there some client related factors that hinder them from receiving adequate care even when such care is available in the facilities?

8. Are there some provider related or facility based factors that contribute to inability to provide adequate care to women in pregnancy?

9. What do the women in the community say ANC services in public facilities? What aspects of services are they happy about? What aspects are they unhappy about?

10. What can be done to scale-up or improve the quality of antenatal care provided in public maternal and child health facilities in Nairobi?

11. Are there activities promoting ANC in the community around here? How better can we encourage community participation in ANC issues?

**Appendix 7: Goal oriented ANC checklist (FANC)**

| **ANC components** | **Time provided** | | | |
|---|---|---|---|---|
| | 1st Visit Or 16 wks | 2nd Visit (20-24wks) | 3rd Visit 28-32wks | 4th Visit 36wks |
| Registration | X | | | |
| • Comprehensive History taking | X | | | |
| • Personal history | X | | | |
| • Family history | X | | | |
| • Social history | X | | | |
| • Comprehensive history taking | X | | | |
| • Past medical surgical history | X | | | |
| • History of current pregnancy | X | | | |
| • History of complaints in current pregnancy | X | X | X | X |
| Physical examination | | | | |
| • General appearance (head to toe) | X | X | X | X |
| • Lungs and heart | X | | | |
| Clinical investigations | | | | |
| • Temperature and Pulse | X | | | |
| • Height and gait | X | | | |
| • Blood pressure | X | X | X | X |
| • Weight | X | X | X | X |
| Pelvic (vaginal examinations) | | | | |
| • Genital ulcers | X | | | X |
| • Vaginal discharge | X | | | X |
| • Cervix uterine enlargement | X | | | X |
| • Pelvis assessment | | | | X |
| Laboratory investigations | | | | |
| • Blood | | | | |
| ▪ Haemoglobin level | X | | | X |
| ▪ ABO grouping and Rhesus factor | X | | | |
| ▪ VDRL | X | | | |
| ▪ HIV | X | | | X |
| • Urine | | | | |
| ▪ Protein (Proteinuria) | X | X | X | X |
| ▪ Sugar (Diabetes) | X | X | X | X |
| ▪ Acetone | X | X | X | X |
| Prophylactic treatment | | | | |
| • Iron | X | X | X | X |
| • Folic acid | X | | | |
| • Anti-malarials (IPT) SP | X*[1] | | | |
| • Tetanus toxoid | | X | X | |

| | | | | |
|---|---|---|---|---|
| Client education and counselling | | | | |
| • Process of pregnancy and complications | X | X | X | X |
| • Diet and nutrition | X | X | X | X |
| • Rest and exercise | X | X | X | X |
| • Personal hygiene | X | X | X | X |
| • Danger signs | X | X | X | X |
| • Use of drugs | X | X | X | X |
| • Effects of STI/HIV/AIDS | X | X | X | X |
| • VCT for HIV | X | X | X | X |
| • PMTCT of HIV | X | X | X | X |
| • Delivery plans | X | X | X | X |
| • Emergency preparedness | X | X | X | X |
| • Postpartum care plans | X | X | X | X |
| • Family planning | X | X | X | X |
| • Harmful habits | X | X | X | X |
| • Schedule of returns | X | X | X | X |

*1 For IPT 1st dose is given to all mothers at 16 weeks; and 2nd dose at 4 weeks later.

*(Adapted from ROK, 2004)*