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# Differences in characteristics of women who initiate antenatal care early and late in two slums of Nairobi, Kenya

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# DIFFERENCES IN CHARACTERISTICS OF WOMEN WHO INITIATE ANTENATAL CARE EARLY AND LATE IN TWO SLUMS OF NAIROBI, KENYA.

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A research report submitted to the Faculty of Health Sciences, University of the Witwatersrand, Johannesburg, in partial fulfilment of the requirements for the degree of

Master of Science in Public Health

Johannesburg, 2008

DECLARATION

I, Nkeonyere Francisca Ezeh declare that this research report is my own work. It is being submitted for the degree of Master of Science in Public Health in the University of the Witwatersrand, Johannesburg. It has not been submitted before for any degree or examination at this or any other University.

…….. [Signature]

Nkeonyere Francisca Ezeh

……day of ……., 2008

DEDICATION

To

Alex, Ebube, Dire, Zite and Chigo:

Gaining higher grounds through knowledge.

ABSTRACT

**Background**: About 90% of women in Kenya report at least one antenatal care (ANC) visit yet maternal mortality rate remains high at 414 per 100,000 live births. Only 40% of childbirths occur in health facilities. A previous study of Nairobi slums in 2000 indicated that only 10.3% of women initiated ANC visits in the first trimester. High incidence of maternal deaths in Kenya especially among the very poor has been attributed to inadequate emergency obstetrical care. Decreasing numbers of women are initiating ANC within the first trimester and this may be affecting the ability of the health system to identify and cater for women whose health conditions can be effectively managed through ANC.

This study aimed to determine the proportion of women initiating ANC in the first and last trimesters and the background characteristics associated with these women in two slums of Nairobi, Kenya. It also sought to determine if timing of initial ANC visit was associated with number of visits and choice of place of delivery in a slum setting.

**Materials and methods**: This research report is a secondary data analysis of the World Bank funded Maternal Health Project conducted between 1st April and 30th June, 2006 by the African Population and Health Research Center. Participants were women 12 to 54 years, enumerated in the Nairobi Urban Health Demographic Surveillance System living in two slums of Nairobi, who had a pregnancy outcome between January 2004 and December 2005. Women 15 to 49 years were included in this analysis. Analysis of the data was done using STATA 9.2.

**Findings:** Only 7.3% of women initiated ANC in the first trimester, with 52% making four or more visits. In the third trimester 22% of women initiated ANC. Although 97% of women

reported receiving their first ANC from a skilled health professional, only 48.4% delivered in well equipped health care facilities. The median number of months pregnant at first ANC was six and median number of visits was four. Women who were most likely to initiate early ANC had secondary school or higher level of education (p=0.055) and were in a union (p=0.008). The least likely to initiate care in the first trimester were of minority ethnicity (0.011) and high parity (p=0.019). As educational level and wealth status rise, the likelihood of late ANC initiation declines. Women living with unemployed partners were less likely to initiate care in the first trimester compared to those living with employed partners (OR 0.2, p=0.046). Only women with educated partners initiated care during the first trimester. Women who initiated ANC in the first trimester were more likely to have ≥4 visits and more likely to deliver in appropriate facilities than those who initiated care in the third trimester. Those who initiated care to obtain an ANC card were less likely to have ≥4 visits than those who initiated care to verify that pregnancy was normal (OR 0.5, p=0.000). Women who initiated care in first trimester were 1.5 and 5.0 times more likely to deliver in good health facilities than those who initiated care in third trimester (p=0.040) and those who had no ANC (p=0.000), respectively.

**Conclusion**: Women in Korogocho and Viwandani may have better chances of delivering in appropriate facilities if they have low parity and secondary level education. The presence of a partner with a means of steady income may also make it easier for women to access delivery care in good facilities. Interventions to improve the level of educational attainment among women and provide affordable family planning are necessary to increase early ANC attendance and subsequently delivery in well equipped facilities.

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NOMENCLATURE

**Antenatal care** (ANC): Pregnancy-related care received by women from skilled health care professionals during pregnancy. Care received from traditional birth attendants (TBA) does not qualify as ANC in this study.

**Appropriate health facility:** Able to provide basic emergency obstetric care, as defined by the following procedures: administration of parenteral anticonvulsants (for pre-eclampsia), antibiotics and oxytocic drugs; manual removal of retained placenta and products of conception; and assisted vaginal delivery (vacuum extraction). In this study they are typically run or owned by government, religious and missionary groups or Faith-based Organisations, and large Non-Governmental Organisations.

**Early ANC:** Refers to pregnancy-related care received from a skilled health care professional within the first three months of pregnancy.

**Inappropriate health facility:** Unable to offer many of the signal functions of basic emergency obstetric care, as defined by the following procedures: administration of parenteral anticonvulsants (for pre-eclampsia), antibiotics and oxytocic drugs; manual removal of retained placenta and products of conception; and assisted vaginal delivery (vacuum extraction). They are ramshackle, privately-owned and unlicensed clinics or maternity homes.

**Late ANC:** Refers to pregnancy-related care received from a skilled health care professional but initiated in the third trimester of pregnancy.

**Pregnancy outcome:** Conclusion of a known pregnancy that results in either abortion (induced or spontaneous), still or live born infant.

ABBREVIATIONS

| | |
|---|---|
| AIDS: | Acquired Immune Deficiency Syndrome |
| ANC: | Antenatal Care |
| APHRC: | African Population and Health Research Center |
| CIA: | Central Intelligence Agency |
| DHS: | Demographic and Health Survey |
| FGD: | Focus Group Discussion |
| HIV: | Human Immunodeficiency Virus |
| IDI: | In-Depth Interview |
| IGA: | Income Generating Activity |
| KDHS: | Kenya Demographic and Health Survey |
| KEMRI: | Kenya Medical Research Institute |
| MDG: | Millennium Development Goal |
| MHP: | Maternal Health Project |
| MMR: | Maternal Mortality Ratio |
| NCAPD: | National Coordinating Agency for Population and Development |
| NGO: | Non-Governmental Organisation |
| NUHDSS: | Nairobi Urban Health Demographic Surveillance System |
| OR: | Odds Ratio |
| RH-OBA: | Reproductive Health – Output Based Approach |
| STATA: | Statistical Analysis Software |
| STI: | Sexually Transmitted Infection |
| TB: | Tuberculosis |

UN HABITAT: United Nations Human Settlement Programme

VA: Verbal Autopsy

WHO: World Health Organisation

# CHAPTER 1 **INTRODUCTION**

## 1.1 Background

Maternal mortality is an important health indicator for every country: it varies greatly between the developed and developing world. The fifth Millennium Development Goal (MDG) set by the World Health Organisation (WHO) is to reduce these maternal deaths by three quarters by the year 2015. Abou-Zahr and Wardlaw estimated that about 529,000 maternal deaths occurred in the year 2000 with 251,000 (47%) accounted for in Africa, of which 247,000 occurred in sub-Saharan Africa. In their ranking, Kenya came in ninth place with Angola and China at 11,000 maternal deaths each. However, the number of maternal deaths per 100,000 live births or the maternal mortality ratios (MMRs) varied widely in these three countries, being 1000, 1700 and 56, respectively. Furthermore, they noted that MMRs range from two in a developed country like Sweden, to 2000 per 100,000 live births in Sierra Leone.[1] The Kenya Demographic and Health Survey (KDHS) estimated a MMR of 590 in 1998 and 414 in 2003 per 100,000 live births. These estimates were based on only 115 maternal deaths; hence, the Central Bureau of Statistics advises caution in the interpretation of the data.[2]

Maternal death refers to the death of a woman while pregnant or within 42 days of termination of pregnancy, regardless of its site or duration, from any cause related to or aggravated by the pregnancy, or its management but not from accidental or incidental causes.[3] The causes of maternal deaths are subdivided into direct and indirect causes. The single most common direct cause of maternal death is postpartum haemorrhage. Other direct causes include sepsis, prolonged or obstructed labour, unsafe abortion and eclampsia.[3] Although the direct causes of maternal deaths, most of which require emergency care, account for the

greater part of these statistics in sub-Saharan Africa, about 20% arise from indirect causes that are possible to manage and prevent through proper antenatal care (ANC) services.

Inequities in maternal health outcomes are worst in Africa where the health systems are experiencing greater challenges due to insufficient and poorly maintained infrastructure, inadequate financing, lack of human resources, increased burden of disease due to the HIV epidemic, poor governance, lack of political will and political instability.[4, 5, 6] The successful provision of ANC requires a functioning health care system with the necessary infrastructure, including transport between the primary level of health care and referral clinics and hospitals.[7]

The ANC-seeking behaviour of pregnant women has received much attention in recent years. Several studies looking at individual and household characteristics together with perception of access to and quality of care have concluded that there are relationships between these and health-seeking behaviour related to ANC.[8, 9, 10, 11, 12] Furthermore, extensive analysis by Abou-Zahr and Wardlaw examined the characteristics of women that are related to ANC usage, and provided interesting insights on trends in ANC usage in developing countries. They noted that 68% of women in sub-Saharan Africa report at least one ANC visit, reaching as high as 76% in Kenya.[13] The 2003 KDHS reported an even higher finding of 90%, showing a great improvement in uptake of ANC services for the three years preceding the survey.[14] Despite this improvement, the fact still remains that women of childbearing age are dying from preventable causes related to childbirth in Kenya.

### 1.2 Statement of Problem

MMR in Kenya has remained high despite increased ANC usage and this has been attributed to inadequate emergency obstetric care. Efficiency in resource utilisation is necessary in

every economy – developed and developing. However, the limitation of resources in sub-Saharan Africa magnifies the need to ensure efficiency in the use of available resources.[4, 5] Funds allocated for the improvement of all aspects of maternal health must be judiciously distributed and effectively administered.

Maternal health care involves the medical care, nutrition and well-being of women before, during, and after pregnancy and childbirth.[15] ANC is therefore just one – albeit important aspect of pregnancy-related care, which if not properly harnessed could lead to poor pregnancy outcomes. Late ANC initiation may increase the total cost of caring for a pregnant woman. A cost which arises from missed opportunities to prevent or treat problems early in pregnancy. The ensuing cost of treating these preventable complications is much higher not just because of the need for advanced technological interventions, but also an increased use of highly skilled health care professionals, increased length of stay in hospital and longer recovery time. This and overuse of ANC services (where applicable) take funds away from the general provision of effective obstetrical care, including emergency care.[16]

Therefore, early initiation of ANC and maintaining the recommended number of visits provides opportunity to identify, prevent or treat problems early in pregnancy, which in turn, aids in reduction of complications during labour, thereby improving maternal health outcomes.

### 1.3 Justification for Study

When women initiate ANC late, they miss out on opportunities for interventions crucial to improvement of their health and also to better pregnancy outcomes. Opportunities to provide information and other interventions pertaining to their reproductive health and the health of

their unborn child are missed. Furthermore, following the articulation of the reduction of maternal mortality as a global goal, maternal health care is now considered a woman's right and the establishment of this right has the potential to aid the attainment of the first seven of the eight MDGs.[16, 17] If ANC is initiated early, it provides an immediate avenue to reach out to women and help them take control of their fertility, an intervention that will enable developing nations take control their population growth. Population control, though unmentioned, is implicit in the achievement of the development goals. It is therefore necessary to understand the characteristics of slum-dwelling women who initiate ANC early and late, since a large proportion of the population in developing countries live in slum settlements.[17, 18]

### 1.4 Study Aims

This study aims to determine, through secondary data analysis, factors associated with timing of first ANC visit in pregnant women in two slums of Nairobi, Kenya. This study will also seek to determine if timing of initial ANC visit is associated with reason for initial visit, total number of visits and choice of place of delivery in these slum settings.

### 1.5 Specific Objectives

The specific objectives of this study are:

In two informal settlements of Nairobi, Kenya:

- To determine the proportion of women (with a pregnancy outcome between 1 January 2004 and 31 December 2005) who initiated ANC within the first trimester, after the first trimester, or did not attend at all.

- To examine factors associated with timing of initiation of ANC, with a focus on ethnicity, religion, educational level, marital status, type of employment, household wealth, parity, age, partner's educational level and type of employment.
- To determine any association between timing of and reason for initial ANC visit and total number of ANC visits.
- To investigate the association between timing of first ANC visit and place of delivery.

### 1.6 Literature Review

In childbearing, women need a continuum of care to ensure the best possible health outcome not just for them, but also their newborns.[7] Reducing child mortality and improving maternal health, the fourth and fifth MDGs, were the motivations behind declaring ANC services free in government facilities in Kenya. With about 90% ANC coverage nationwide and highs of 96% in Nairobi's informal settlements, Kenya is yet to experience corresponding reduction in maternal and infant deaths.[2, 19, 20]

According to the World Health Organisation (WHO), 20% of all maternal deaths which are due to pre-existing conditions and other indirect causes like malaria, HIV/AIDS, tuberculosis, anaemia, hepatitis and heart disease, are preventable through antenatal care.[3] Early ANC as recommended by WHO is initial ANC within the first 12 weeks of pregnancy (1 – 3 months), and the second, third and fourth visits by $26^{th}$, $32^{nd}$ and $36^{th}$ weeks respectively, for a minimum of four antenatal visits in low risk pregnancies. WHO has also provided guidelines to regulate the content of care to be received during each visit to ensure effectiveness.[13, 21]

KDHS reports indicate that an increasing proportion of women are initiating ANC at later stages in their pregnancy. In 1993, 56.3% of pregnant women initiated care in the first five

months of pregnancy and median month pregnant at first ANC was 5.6 months. In 1998 the figures were 53.7% and 5.7 months. Within the same period in 2003, 47.8% initiated care and the median month of first ANC was 5.9 months. The KDHS also found that 64%, 61% and 52% of women attended four or more ANC visits in 1993, 1998, and 2003, respectively. Only 34%, 42% and 40% of births occurred in health facilities in those three years, respectively.[14, 20, 22] Previous studies in Nairobi slums indicate that 85% of women initiate ANC visits later than the first trimester.[19] Similar trends have been noted in studies conducted in other sub-Saharan African countries.[13, 23, 24]

Given this trend of reduction in and late uptake of ANC, it is important to understand the association between a woman's and her partner's characteristics to the timing of first ANC, and whether this timing is associated with total number of visits or choice of place of delivery.

More than 52% of pregnant women in Nairobi and about 38% nationally, reported five or more ANC visits in 1998.[19] In order to receive ANC, many of these women travel long distances, wait long hours, spend limited resources on transportation, and incur frequent disruption of family and employment responsibilities.[23, 24] However, pregnant women in many sub-Saharan African countries have the tendency to either under-attend or not attend antenatal clinics. This carries a substantially elevated risk of severe adverse pregnancy outcomes even when delivery takes place in a health facility.[25] The barriers which women face in accessing early care during pregnancy, and inadequate number and content of visits, do in effect place them at risk for morbidity and mortality. As portrayed elsewhere, delivery of obstetrical care is a process that requires the harnessing and integration of human, financial, and physical resources to address not just health needs but also barriers that keep women from seeking pregnancy-related care.[12]

An estimated 10 - 20 million women develop physical or mental disabilities every year as a result of complications or poor management of the pregnancy process. This indicates that though maternal deaths are very high at over half a million annually, it may only be the tip of the iceberg as far as problems surrounding pregnancy and childbirth are concerned. Long-term consequences of inadequate care provided to pregnant women before, during and after delivery are not only physical, but also psychological, social and economic in nature. These adverse outcomes impact not just individual families, but also communities, healthy systems and entire economies.[26, 27]

The issue of goal-oriented ANC has reverberated through several studies where it has been shown that women who receive inadequate assessments during ANC visits are at higher risk of adverse pregnancy outcomes. The specific focus of ANC has to be on improving maternal health and ultimately infant survival.[13, 28] An assessment of the acceptability of WHO's ANC protocol was undertaken by Nigenda, Langer and Kuchaisit, et al in Cuba, Thailand, Saudi Arabia and Argentina in 2003. Their assessment which focused on frequency of visits but not timing of first visit found that majority of the women were satisfied with the new regimen, provided they received adequate information regarding their condition and a detailed physical assessment was conducted at each visit.[29]

For the promotion of maternal and child health, women need to initiate ANC visits early in pregnancy, as this makes it possible to provide necessary supplements like iron, iodine, and folic acid; screen and treat syphilis; treat hookworm; and initiate an appropriate management plan for those with medical complications.[3, 13, 30] Early initiation of such care in pregnancy coupled with provision of adequate information and proper assessment, has the potential to improve pregnancy outcomes and reduce the need for any unnecessary ANC visits. WHO

provides detailed guidelines regarding the number, timing and content of these ANC visits.[30] Effective management of the ANC process will make it possible to redirect funds to other aspects of maternal health, especially emergency obstetric care services, which requires skilled medical personnel and necessary equipment during complications and delivery. Such interventions are known to improve pregnancy and birth outcomes but absence of these most often results in poor birth outcomes.[7, 31] These services are generally available in good health care facilities and ANC attendees have been shown as most likely to deliver in such facilities.[51]

Studies in Uganda and Nigeria examining the reasons why women seek ANC have concluded that they do so for several reasons. However, these reasons do not always predict delivery in a health care facility.[8, 12] Reasons documented as motivations for seeking care include: to obtain an ANC card, to ascertain if pregnancy is normal, to ascertain if both mother and baby are fine, to learn the probable date of delivery, and to receive a tetanus toxoid injection.[8, 32] However, literature regarding the association of timing of first visit with total number of visits and choice of place of delivery in a slum setting is lacking.

Magadi, Madise and Rodrigues have stated that timing and frequency of antenatal visits are associated with a range of socio-economic and demographic factors like ethnicity, employment status of the woman, income level, marital status, birth interval and age. Their work suggests that to a great extent, poverty is an impediment to seeking ANC and that the circumstances surrounding a specific pregnancy (i.e. timing and desirability), are important in predicting a woman's usage of ANC in Kenya. The study also found that use of ANC was infrequent for unwanted and mistimed pregnancies, and is also significantly influenced by accessibility of ANC services within a community. Women with short birth intervals, high

parity, teenage and unmarried were less likely to use ANC and more likely to initiate care later than other women. In conclusion, they suggested that the likelihood of a woman to use ANC services which she considers easy-to-reach may be a reflection of personal beliefs and efficacy in managing health.[33]

Some researchers have suggested that a woman's reasons for reduced or non-attendance of ANC lie mostly in the quality of care or her perception of it. The proponents of the perception theory insist that a woman's usage of ANC will be determined by her interpretation of the care she has received (i.e., what one woman ranks as good quality care may differ from that of another woman). A woman gives meaning to her experience of prenatal care based on her culture, socioeconomic level, education, prior encounter with the health care system and entire socialisation. Therefore, her interpretation of quality originates from both objective and subjective input, and based on this reality she makes a decision whether or not to access ANC.[13, 23, 24, 32, 34]

The employed have been found to use more health care services than their unemployed counterparts and this has become obvious as researchers critically assess pregnancy outcomes in relation to the employment status of women. This is because employment is a marker of socioeconomic status, which in turn has a direct relationship with quality and amount of care received during pregnancy and a pregnancy's final outcome. Raatikainen, Heiskanen and Heinonen put forward that unemployment is associated largely with social disadvantage and thus results in increased risks when pregnant or in labour.[35] Employment status, in the above mentioned work conducted in Finland and in that of others, has been used as a predictor of pregnancy outcome, but not of ANC usage.[35, 36] The Kenyan Ministry of Planning and National Development reported the Kenyan unemployment rate at 14.6% in the general

population in1998/99, reaching a high of 25.1% in urban areas, with the majority of the affected being women and youth.[37, 38] Unemployment estimates by the United States Central Intelligence Agency (CIA) in 2001 for Kenya was as high as 40%,[39] and as Magadi, et al suggested, a woman's use of ANC services may be affected by her employment status.

Partner employment increases the income of the household and provides finances a woman needs in order to access ANC. The relationship between a husband's employment status and a woman's usage of ANC services was illustrated in a Turk study which showed that women with unemployed husbands were more likely to have inadequate care during pregnancy.[40] Husbands influence and sometimes make decisions on whether a woman can access ANC. In Nigeria women reported that the reason for not using ANC was due to their husbands' refusal.[41] Nepalese husbands were reported as not willing to allow their wives to be seen by male doctors.[42] In a study conducted in the Philippines, husband's education was found to be a more reliable predictor of a woman's ANC usage than a woman's education. Contrary to this, another study in Karnataka, found no significant relationship between husband's education and ANC usage.[43, 44]

Furthermore, 50% to 70% of Nairobi residents and urban Kenyans in general are estimated to be living in urban slums comparable to the two slums considered in this study, Korogocho and Viwandani.[18, 45] Urban slums according to UN-HABITAT, challenges the existing paradigm of human settlements which regards cities as rich and rural areas as poor. The existing perception bars the inclusion of areas synonymous with corruption, infrastructural mismanagement, high crime and disease as parts of the city. This is the reason, according to UN-HABITAT, why such areas are usually enclosed in colourful walls or even sometimes omitted in city maps. The new classification is meant to acknowledge the undeniable

presence of slums in urban areas. Urban slums are characterised by: a) rapid, unregulated and informal forms of urbanisation amid poverty; b) negative depiction of overall urbanisation; and c) urban poor health and environmental conditions.[18] Acknowledging that these settlements exist in cities will enable city administration as well as donor agencies to pursue solutions to problems of unemployment, poor housing and sanitation, and the absence of adequate social amenities like schools, health facilities, roads and open spaces, coupled with overcrowded conditions.

Residence in Korogoch Viwandani may be equated with social disadvantage but maternal health outcomes can still be improved in slum settings with the development of interventions that employ a holistic understanding of the factors associated with women's ANC usage.

# CHAPTER 2 **METHODOLOGY**

This chapter will describe the setting of the African Population and Health Research Center's (APHRC) Maternal Health Project (MHP) from which the data used in this analysis was obtained. This will provide a context for understanding the findings of this analysis and their subsequent interpretation. There will be a description of the study design, study population, pilot study and measurement tool. The data management and methods used in the current analysis will also be discussed together with the variables of interest and steps taken to ensure quality control and data reliability. In conclusion, the chapter will briefly touch on ethical approvals obtained for the original study and the present analysis.

## 2.1 Study Setting

This research report is a secondary analysis of a World Bank funded Maternal Health Project conducted between 1st April and 30th June 2006 by APHRC. The original study was part of a multi-country event involving Kassena-Nankana District in northern Ghana, Uttar Pradesh State in India, and Korogocho and Viwandani in Nairobi, Kenya. It hoped to identify effective strategies for increasing the utilisation of such care, with the target of reducing maternal mortality in such settings.

Korogocho is located 12km east of Nairobi city centre and covers an area of 0.45km$^2$ with a population density of 63,318 inhabitants per km$^2$. This settlement developed on a property formerly owned by an individual named Baba Dogo and is smaller than Viwandani, which covers an area of 0.52km$^2$. Viwandani is located about seven kilometres southeast of the city centre and is bordered by Nairobi Industrial Area and Nairobi River, with a population density of 52,583 persons per km$^2$. Presently, both settlements are on land considered as reserve land

belonging to Nairobi City Council. These two densely populated settlements have very poor health indicators as well as high levels of unemployment, poverty, crime, inadequate housing and social amenities, and poor sanitation. APHRC's study of Nairobi's informal settlements reported an infant mortality rate (IMR) of 91 deaths per 1,000 live births in 2000. The IMR for Nairobi was 38.7 and 67 per 1,000 live births in 1998 and 2003.[19, 46 47]

### 2.2 Study Design

The purpose of the MHP was to provide better understanding of the delays and barriers to emergency obstetrical care utilisation in low-resource urban settings in Nairobi. To achieve this goal the project carried out household and health facility surveys, as well as qualitative data collection i.e. focus group discussions (FGDs), in-depth interview (IDIs) and verbal autopsies (VAs). This original study was carried out in Korogocho and Viwandani, Nairobi, two slum settlements where APHRC operates a Demographic Surveillance System – referred to as the Nairobi Urban Health and Demographic Surveillance System (NUHDSS) - in which about 60,000 inhabitants have been registered and followed up since 2002. Therefore, site selection for the study was based on convenience since APHRC was already undertaking a longitudinal study in the two slum locations. This report consists of analysis of the data from this nested MHP based on responses to questions in the original household questionnaire and the facility survey.

### 2.3 Study Population and Sample

The study population in the MHP comprised of all women aged 12 to 54 years living in Korogocho and Viwandani informal settlements, who had a pregnancy outcome between 1st January 2004 and 31st December 2005. There were 2,482 women who met these criteria and all 1,927 who consented to take part in the study were interviewed. However, visitors (i.e.,

women who were not registered in the NUHDSS), and those whose pregnancy outcome was uncertain, were excluded from the study. A pregnancy outcome was regarded as uncertain if a woman recorded in the NUHDSS as having been pregnant between 1st January 2004 and 31st December 2005 was unavailable for interview during the period of the survey. For the purposes of this analysis, there has been no sampling, rather all women 15 to 49 years have been selected, as this is considered to be the normal reproductive age range used in mainstream data and censuses. This reduced the number of observations to 1,915.

### 2.4 Pilot Study and Measurement Tool

The original MHP recruited 24 fieldworkers to conduct household surveys and another six to carry out FGDs and IDIs. One nurse conducted the facility audits, while two doctors were recruited to review VAs. Fieldworkers were trained for one week before the start of pilot testing for the instruments. Prior to the actual survey, the questionnaire was translated to Kiswahili (the national language) and piloted between 3rd and 9th February 2006 with 72 slum-dwelling women who delivered in 2004 and 2005 but resided outside the study area. This was to ensure accuracy in skip patterns and consistency in meaning with language change. Revisions were then effected between 10th February and 26th March 2006.[45]

Household interviews were conducted in Kiswahili utilising semi-structured questionnaires administered by the fieldworkers. The areas measured in the household survey are: 1) respondents background; 2) reproduction history; 3) antenatal care; 4) delivery care; 5) complications; 6) ANC, delivery and postnatal expenditure; 7) postnatal care; and 8) household characteristics. All fieldworkers spoke both English and Kiswahili. A total of 25 interviews were conducted in public and private facilities to determine whether equipment, supplies and other essentials for safe delivery were available and functioning. Two facilities

declined to take part in the survey. The household and facility survey questionnaires, attached as Appendix A, provided data for the secondary data analysis presented in this research report.

### 2.5 Data Processing Methods and Analysis

STATA 9.2 for Windows was used to analyse household and facility survey data for this report. Since the needed data was part of a larger data set, the required information was extracted from the main data set and stored in a smaller flat file for analysis. Univariate, bivariate and multivariate analyses were done on a sample size of 1,915. There were four outcome variables in the analysis: 1) use of ANC; 2) timing of first ANC visit; 3) frequency of ANC visits; and 4) place of delivery. Data for the first three was obtained from the household survey, while the fourth derived from both the household and facility surveys.

Independent variables selected for the analysis were ethnicity, religion, level of education, marital status, employment status, household wealth, parity and age. Partner education and employment status were also included for the married women. These variables were chosen because they have been used in other maternal health studies as factors affecting service utilisation and maternal health outcomes.[12, 13, 19, 24, 29] These variables were assessed using univariate frequency distributions and appropriate categorical variables created for use in the analysis. Except for the variables listed here, other confounders were not controlled for in the logistic regression models, but were acknowledged as possible limitations of the study.

Women, who sought pregnancy-related care from community heath workers, trained or untrained traditional birth attendants, traditional healers or indicated any other pregnancy-

related care apart from doctors, nurses, midwives and clinical or medical officers were regarded as not having received ANC.

The second outcome variable - timing of first ANC visit, was grouped into three to represent three trimesters, however, in trying to understand the pattern of initiation in the second trimester (66% initiated care at that time), ANC initiation in that trimester was disaggregated (in some parts of the analysis) into "4-5" and "6" months. The logistic regression was done using first trimester and third trimester initiations. The first former separated the sample into first trimester and others, while the latter split the sample into third trimester and others. The independent variables listed above where controlled for in the models.

The third outcome variable – frequency of visits - was grouped into "1-3", "4" and "5+" visits. Initially, those who made four visits were grouped differently because they had the greatest number of respondents (473). However, in line with the WHO recommendation of at least four visits, two categories were used – "1-3" and "4+" visits. It was expected that those who initiated ANC in the first 3 months would have more visits since they had more time to make increased number of visits than those who started later.

The Health Facility Survey used for the fourth outcome variable, revealed differences in standard of care provided, leading to categorisation of facilities into "appropriate" and "inappropriate" using the terms of Fotso, Ezeh and Oronje in their analysis of the same data set.[48] The "inappropriate" facilities were described as ramshackle, private-owned and unlicensed clinics and maternity homes which are considered unable to deliver services required for basic emergency obstetric care i.e. administer parenteral antibiotics, anti-convulsants and oxytocic drugs; conduct manual extraction of retained placenta and products

of conception; and carry out assisted vaginal delivery.[48] Women who delivered outside a facility were categorised as "no facility".

Ethnicity was categorised to list four major ethnic groups and the rest were grouped as "other". Religious affiliations outside the two main religions noted among the respondents - Christianity and Islam - were grouped as "other". However, "Muslim" (203) and "other" (31) were few compared to the Christians and were therefore combined into the same category for the multivariate analysis.

The educational level of the women and their partners were categorised into "no education" "primary" and "secondary+". Marital status was broken down into two groups "never/formerly married" and "married/living together". In order to see the effect of a partner's education and his employment on both timing of first ANC visit and place of delivery, further analysis was done which excluded women living without male partners (306 observations), and women who did not know their partner's educational attainment (116 observations). However, due to the lack of observations in the "no education" category for partners of women who initiated ANC in the first trimester, STATA 9.2 dropped 78 other observations leaving a total of 1,415 observations for the analysis. Primary level of education was used as reference group for both women and their partners.

Employment status of women and their partners were categorised into two groups – "employed" or "not employed" due to few observations in finer groupings by type of employment. There were only 108 women who reported their partners as unemployed. When this group was used as the reference group, STATA 9.2 reported very high confidence intervals necessitating the use of the "employed" as a reference group. Every partner who

was reported as having some form of employment was categorised as employed since there was no provision in the data for intermittent employment.

Household wealth was coded in tertiles based on household possessions, source of drinking water, presence of electricity, type of material used on floor of dwelling, type of cooking fuel and type of toilet used. The categories used were "poorest", "middle" and "least poor" because Korogocho and Viwandani are characterised by generalised poverty.

Parity was grouped into "0-1", "2-3" and "4+" children. Women below the age of 15 were dropped from the sample. The age of the women was grouped into four "15-19", "20-24", "25-29" and "30+"

Data on the selected variables were checked for completeness, recoded and relabeled as appropriate. Univariate and bivariate tables were run to check the accuracy and plausibility of the data set. The frequencies and proportions of these variables are presented here in tables and charts to summarize findings and odds ratios (OR) have been calculated for association and Chi-squared test for significance.

### 2.6 Ethical Considerations

Permission was obtained from the Director of Research at APHRC to allow the use of the data (Appendix B). Ethical clearance was been obtained from the University of the Witwatersrand Committee for Research on Human Subjects (Medical) – (M071146) (Appendix C). A copy of the original ethical clearance (Appendix D) obtained from the Ethical Review Board of Kenya Medical Research Institute (KEMRI), Nairobi, is also attached. A copy of the informed consent signed by each participant is attached as Appendix E. Participants below the age of 18 years who were living alone were considered "emancipated minors" because

they had already given birth to a child. These also signed consent forms. However, where such a participant resided with an adult, the verbal consent of the adult/head of household was also sought before interviews were conducted. All identifying markers were removed from the data to protect the identity of respondents.

# CHAPTER 3 **RESULTS**

This chapter presents findings from this analysis under five areas of interest: 1) background characteristics of women; 2) timing of initial ANC visit; 3) association between background characteristics and timing of first ANC visit; 4) association between timing, frequency and reason for first ANC visit; and 5) relationship between timing of first ANC visit and place of delivery. The chapter will close with a comparison of findings with other available Kenyan data.

## 3.1 Background Characteristics of Women

Table 1 presents the characteristics of 1,915 women included in the analysis. As can be seen, the major ethnic groups – Kikuyu, Luo, Kamba and Luhya were 26%, 23%, 19% and 15% respectively. The representation of women in these ethnic groups nationally in 2003 KDHS was 23%, 12%, 11% and 15% respectively.[49] The differences noted for the Luos and Kambas could be explained by the fact that the study area may not be nationally representative, as ethnic groups usually congregate in neighbourhoods with available social networks. More than 17% of the sample was from minority ethnic groups. Christians constituted a majority of the respondents at 88%, a finding which is close to KDHS estimate of 90% in 2003.[49] Women living with a partner either in a marriage or non-marriage union accounted for 84% of the respondents, while the remaining were not in any type of union. Eight percent of the women indicated that they had had no formal education, while four percent reported the same of their partners. Over 63% of the women were unemployed, with 20% engaged in petty trading. Reported unemployment ranged from 55% among Kikuyus to 75% among women from minority ethnic groups. The average parity in the sample was 2.9 births per woman with 29% reporting four or more children. Almost nine percent of the women included were under 20 years of age while 28% were 30 years or more, with the mean age at 26.5 years.

**Table 1: Characteristics of women included in the Maternal Health Project, 2006 in Korogocho and Viwandani, Nairobi, Kenya**

| | Frequency | Percent |
|---|---|---|
| **Respondent ethnicity** | | |
| Kikuyu | 497 | 25.9 |
| Luo | 431 | 22.5 |
| Kamba | 365 | 19.1 |
| Luhya | 285 | 14.9 |
| Other | 337 | 17.6 |
| **Respondent religion** | | |
| Christian | 1,681 | 87.8 |
| Muslim | 203 | 10.6 |
| Other | 31 | 1.6 |
| **Respondent education** | | |
| No Education | 158 | 8.3 |
| Primary | 1,268 | 66.2 |
| Secondary + | 489 | 25.5 |
| **Marital status** | | |
| Never/formerly married | 306 | 16.0 |
| Married/living together | 1,609 | 84.0 |
| **Respondent employment** | | |
| Not employed | 1,212 | 63.3 |
| Employed | 703 | 36.7 |
| **Partner education** | | |
| No education | 78 | 4.1 |
| Primary | 742 | 38.7 |
| Secondary+ | 673 | 35.1 |
| Don't know | 116 | 6.1 |
| No partner | 306 | 16.0 |
| **Partner employment** | | |
| Casual labourer | 656 | 34.3 |
| Petty trading | 384 | 20.0 |
| Crafts | 340 | 17.8 |
| Other | 121 | 6.3 |
| Not employed | 108 | 5.6 |
| No partner | 306 | 16.0 |
| **Wealth status** (Tertiles**)** | | |
| Poorest | 639 | 33.3 |
| Middle | 650 | 33.9 |
| Least poor | 626 | 32.7 |
| **Parity** (mean parity 2.9 children) | | |
| 0 – 1 child | 482 | 25.2 |
| 2 – 3 | 887 | 46.3 |
| 4 + | 546 | 28.5 |
| **Age** (mean age 26.5 years) | | |
| 15 - 19 | 167 | 8.7 |
| 20 – 24 | 677 | 35.4 |
| 25 - 29 | 530 | 27.7 |
| 30 + | 541 | 28.2 |
| **Total** | **1,915** | **100** |

### 3.2 Timing of Initial ANC Visit

There were 1,915 women included in this analysis and 97% of these reported at least one episode of pregnancy-related care from a health care professional during the pregnancy in question. This was slightly higher than the 95% reported for Nairobi by the 2003 KDHS. Only 7.3% of respondents (or nearly one in 14 women) initiated ANC in the first trimester, while over 88% sought care in the second and third trimesters combined (Figure 1). The remaining women were either uncertain of the timing of their first ANC visit or had no ANC. Over 30% of the women initiated care in the sixth month alone. The median month of initiation of ANC was six months, and the median number of visits was four.

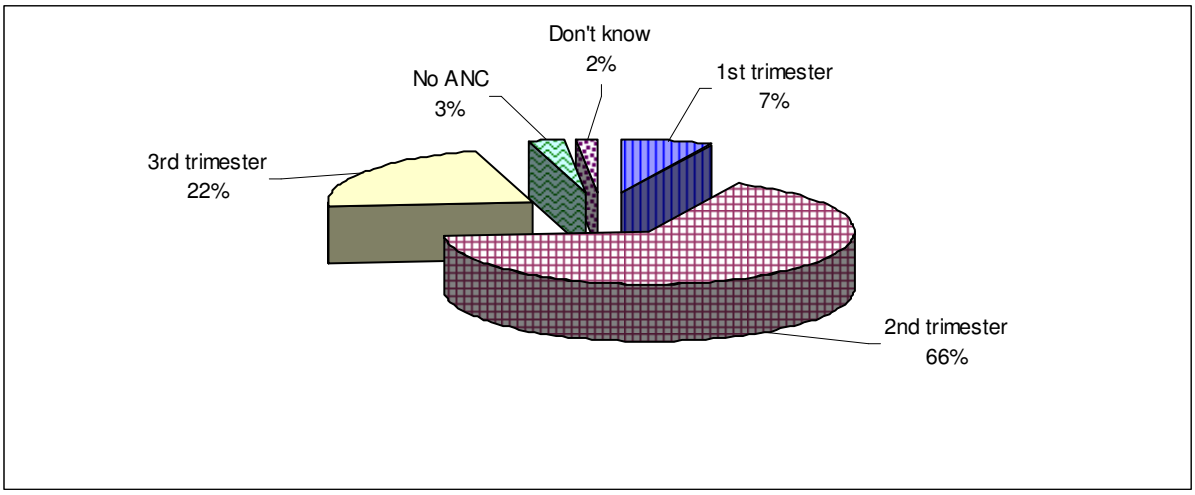


**Figure 1: Timing of 1st ANC visit in 2004 - 2005 in Korogocho and Viwandani, Nairobi, Kenya**

### 3.3 Association between Background Characteristics and Timing of First ANC

Kambas made up the highest proportion of women who initiated care in the first trimester (30%), however, there was not much difference among ethnic groups in the proportion that went through pregnancy without ANC. Among women living with a partner however, Kikuyus were most likely to initiate care in the first trimester. Women from the minority ethnic groups, both in the full sample and among those living with a partner were the least

likely to initiate care in the first trimester in Korogocho and Viwandani (all women – OR 0.4, p = 0.011, CI 0.18 - 0.80; Married – OR 0.40, p = 0.029, CI 0.18 - 0.91).

Women from "Other" religions had appeared more likely to initiate care earlier than Christians (OR 2.9, p=0.023, ), while Muslims appeared to be least likely to initiate care in the first trimester (OR 0.2, p=0.005). When Muslims and "Other" were merged due to the few observations ( N=234), the "Muslim/other" group appeared less likely to initiate care in the first trimester than the Christians with marginal significance (OR 0.5, p=0.061). However, the direction of the association changed and the significance disappeared when other variables of interest were controlled for (Table 3).

With marginal significance, women with secondary or higher education were most likely to initiate care in the first trimester and least likely to have had no ANC. As expected, increase in educational attainment was associated with a corresponding decrease in the proportion of women reporting late ANC initiation (Figure 2). Women who could not recall the timing of their first ANC (N=32) are not shown here. Women with no education were found to be 5.5 times more likely to have received no ANC than those with secondary or more education (p=0.003, table not shown).

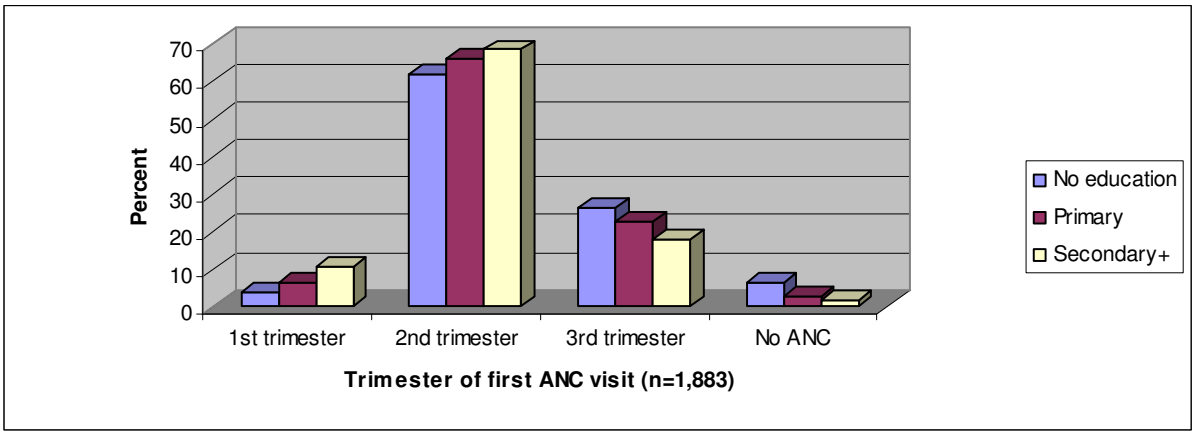


**Figure 2: Timing of 1st ANC visit by woman's education in 2004 - 2005 in Korogocho and Viwandani, Nairobi, Kenya**

With regards to marital status, women living with a partner were 2.3 times more likely than those who lived without one to seek ANC in the first trimester. This was statistically significant at p=0.008 (Table 3). There was no difference between the employed and unemployed women with regards to likelihood for first trimester initiation.

In the total sample, increased wealth status was significantly associated with decreased likelihood of late ANC initiation. though marginally (OR 0.8, p=0.071) (Table 3). The proportion of women who initiated care within the recommended first trimester increased with increasing wealth and conversely, increased in the last trimester with decreasing wealth (Figure 3 and Table 2).

**Table 2: Timing of 1st ANC visit by background characteristics of women in Korogocho and Viwandani, Nairobi, Kenya in 2004 - 2005(%) (n=1,915)**

| | Months pregnant at first ANC | | | | |
|---|---|---|---|---|---|
| | 1st trimester | 2nd trimester | 3rd trimester | No ANC | Don't know |
| **Ethnicity** | | | | | |
| Kamba | 10.7 | 62.7 | 21.7 | 1.9 | 3.0 |
| Kikuyu | 6.9 | 64.8 | 22.9 | 3.4 | 2.0 |
| Luhya | 9.5 | 66.6 | 19.7 | 3.5 | 0.7 |
| Luo | 6.0 | 71.0 | 19.0 | 3.3 | 0.7 |
| Other | 4.1 | 67.1 | 24.9 | 2.1 | 1.8 |
| **Religion** | | | | | |
| Christian | 7.7 | 66.6 | 21.1 | 3.0 | 1.6 |
| Muslim | 2.0 | 68.4 | 25.6 | 2.5 | 1.5 |
| Other religion | 19.4 | 48.4 | 25.8 | 0 | 6.4 |
| **Education** | | | | | |
| No Education | 3.8 | 62.0 | 26.6 | 6.3 | 1.3 |
| Primary | 6.5 | 66.3 | 22.6 | 2.9 | 1.7 |
| Secondary+ | 10.5 | 68.5 | 17.8 | 1.6 | 1.6 |
| **Marital Status** | | | | | |
| Never/formerly married | 4.3 | 67.6 | 22.2 | 3.9 | 2.0 |
| Married/living together | 7.9 | 66.2 | 21.6 | 2.7 | 1.6 |
| **Employment** | | | | | |
| Not working | 6.8 | 66.7 | 22.1 | 2.7 | 1.7 |
| Working | 8.2 | 66.2 | 20.9 | 3.1 | 1.6 |
| **Partner Education** | | | | | |
| No education | 0 | 66.7 | 29.5 | 3.8 | 0 |
| Primary | 7.1 | 65.1 | 23.1 | 3.6 | 1.1 |
| Secondary+ | 9.4 | 68.2 | 19.0 | 1.9 | 1.5 |
| Don't know | 9.5 | 62.1 | 21.5 | 0 | 6.9 |
| NA | 4.3 | 67.6 | 22.2 | 3.9 | 2.0 |
| **Partner Employment** | | | | | |
| Not employed | 2.8 | 63.0 | 25.9 | 4.6 | 3.7 |
| Employed | 8.3 | 66.5 | 21.2 | 2.5 | 1.5 |
| No partner | 4.3 | 67.6 | 22.2 | 3.9 | 2.0 |
| **Wealth** | | | | | |
| Poorest | 5.5 | 64.3 | 24.4 | 4.7 | 1.1 |
| Middle | 7.2 | 66.6 | 21.4 | 2.5 | 2.3 |
| Least poor | 9.3 | 68.5 | 19.2 | 1.5 | 1.6 |
| **Number of children** | | | | | |
| 0 – 1 child | 10.8 | 67.6 | 16.6 | 2.1 | 2.9 |
| 2 – 3 | 7.0 | 67.1 | 22.1 | 2.1 | 1.7 |
| 4+ | 4.8 | 64.4 | 25.5 | 4.8 | 0.5 |
| **Age** | | | | | |
| 15 – 19 | 7.8 | 67.0 | 20.9 | 2.4 | 1.8 |
| 20 – 24 | 8.1 | 67.2 | 19.6 | 3.0 | 2.1 |
| 25 – 29 | 7.9 | 66.9 | 21.7 | 1.9 | 1.5 |
| 30+ | 5.5 | 64.9 | 24.4 | 3.9 | 1.3 |
| **Total % of ANC seekers (N)** | **7.3(140)** | **66.4(1,273)** | **21.7(415)** | **2.9(55)** | **1.7(32)** |

Women from the poorest households were 2.7 times more likely than those from the least poor households to have had no ANC (p=0.011; CI 95%). Among those living with a partner, the effect of wealth was only marginal with regards to first trimester initiation (Table 4).

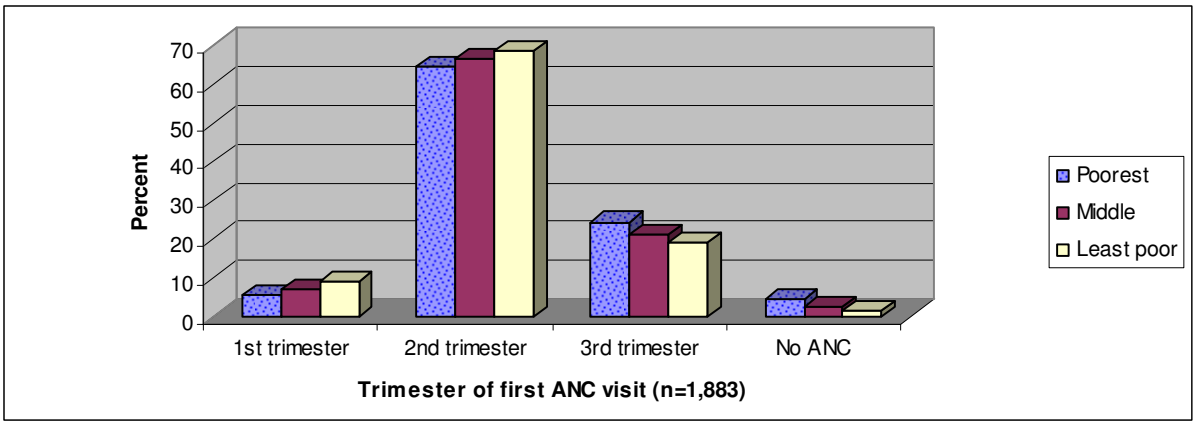


**Figure 3: Timing of 1st ANC visit by household wealth in 2004 - 2005 in Korogocho and Viwandani, Nairobi, Kenya**

The link between parity and timing of initial ANC visit was consistently significant. Women of lowest parity were 2.2 times more likely than those with four or more children to initiate ANC in the first trimester (p=0.009; CI 0.18 - 0.78) and least likely to have had no ANC (p=0.048, CI 1.00 – 8.23). Conversely, women with the highest parity were least likely to initiate care in the first trimester and most likely to initiate ANC in the last trimester or to have had no ANC. This relationship is portrayed in Figure 4 and Table 3. Among those living with a partner, the association of parity with first trimester initiation of ANC was much stronger. Women of the highest parity among this group were less likely to initiate care when compared with those of the least parity (OR 0.4; p=0.009; CI 0.18 - 0.78).

**Table 3: Multivariate analysis of women initiating ANC in 1st and 3rd trimester in 2004 - 2005 in two slums of Nairobi, Kenya (n=1,915)**

| | ANC initiation in 1st trimester | | ANC initiation in 3rd trimester | |
|---|---|---|---|---|
| Variables | OR (95% CI) | P | OR (95% CI) | P |
| **Respondent ethnicity** | | | | |
| Kikuyu | 0.68 (0.41-1.11) | 0.128 | 1.03 (0.74-1.43) | 0.877 |
| Luo | 0.69 (0.40-1.20) | 0.185 | 0.73 (0.51-1.05) | **0.088** |
| Kamba (Reference) | 1.00 | - | 1.00 | - |
| Luhya | 0.99 (0.58-1.69) | 0.985 | 0.81 (0.55-1.20) | 0.290 |
| Other | 0.37 (0.18-0.80) | **0.011** | 1.12 (0.73-1.73) | 0.606 |
| **Respondent religion** | | | | |
| Christian (Reference) | 1.00 | - | 1.00 | - |
| Muslim/other | 1.18 (0.50-2.79) | 0.702 | 0.95 (0.60-1.52) | 0.843 |
| **Respondent education** | | | | |
| None | 0.99 (0.37-2.64) | 0.988 | 0.98 (0.62-1.37) | 0.949 |
| Primary (Reference) | 1.00 | - | - | - |
| Secondary+ | 1.47 (0.99-2.19) | **0.055** | 0.78 (0.59-1.04) | **0.085** |
| **Marital status** | | | | |
| Never/formerly married (Reference) | 1.00 | - | 1.00 | - |
| Married/living together | 2.29 (1.23-4.24) | **0.008** | 0.90 (0.65-1.23) | 0.503 |
| **Respondent employment** | | | | |
| Not employed (Reference) | 1.00 | - | 1.00 | - |
| Employed | 1.30 (0.89-1.89) | 0.173 | 0.92 (0.72-1.17) | 0.482 |
| **Wealth status** | | | | |
| Poorest (Reference) | 1.00 | - | 1.00 | - |
| Middle | 1.15 (0.72-1.83) | 0.558 | 0.86 (0.66-1.13) | 0.281 |
| Least poor | 1.44 (0.92-2.26) | 0.114 | 0.77 (0.59-1.02) | **0.071** |
| **Parity** | | | | |
| 0 – 1 child (Reference) | 1.00 | - | 1.00 | - |
| 2 – 3 children | 0.59 (0.38-0.92) | **0.020** | 1.50 (1.08-2.08) | **0.015** |
| 4+ children | 0.45 (0.23-0.88) | **0.019** | 1.77 (1.16-2.70) | **0.009** |
| **Respondent age** | | | | |
| 15 – 19 (Reference) | 1.00 | - | 1.00 | - |
| 20 – 24 | 0.89 (0.45-1.75) | 0.735 | 0.82 (0.52-1.28) | 0.384 |
| 25 – 29 | 0.95 (0.44-2.02) | 0.885 | 0.84 (0.51-1.38) | 0.483 |
| 30+ | 0.82 (0.35-1.93) | 0.645 | 0.85 (0.50-1.45) | 0.541 |

No significant association was found between age and timing of first ANC visit in both the full sample and among women in a union. The likelihood of initiating care in the last trimester both in the full sample and among those living with a partner appeared to increase with age.

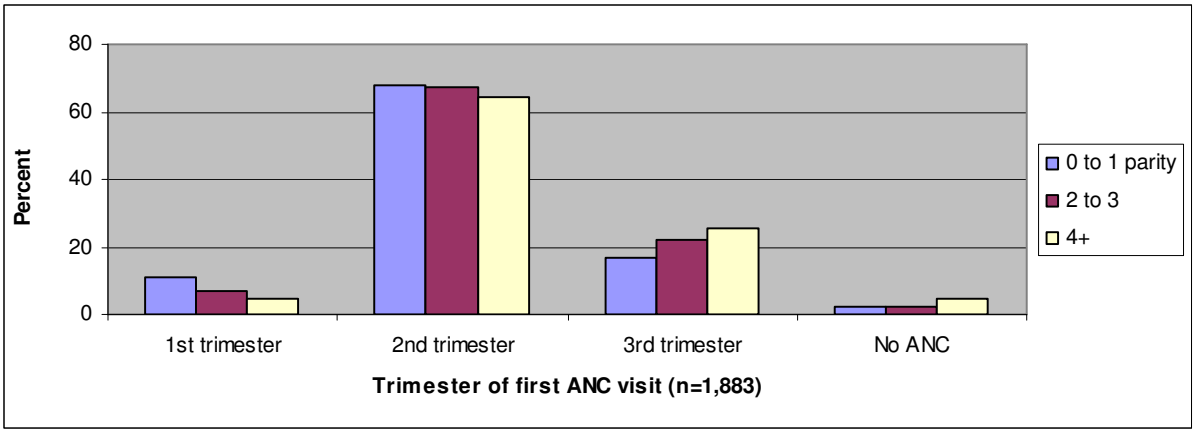


**Figure 4: Timing of 1st ANC visit by parity in 2004 - 2005 in Korogocho and Viwandani, Nairobi, Kenya**

All women living with a partner who initiated care in the first trimester reported that their partner had some form of education. Since no woman with an uneducated partner initiated care in the first trimester, partner education appears to be a good predictor for early ANC initiation. Women whose partners had secondary or more education were least likely to initiate care in the third trimester (Figure 5, Tables 2 and 4).

Women with unemployed partners were less likely to initiate care in the first trimester compared to those whose partners were employed (OR 0.2, p=0.046, CI 0.06 - 0.98). Table 4 summarises some of the findings regarding association of a married or cohabiting woman's background characteristics and timing of her first ANC visit.

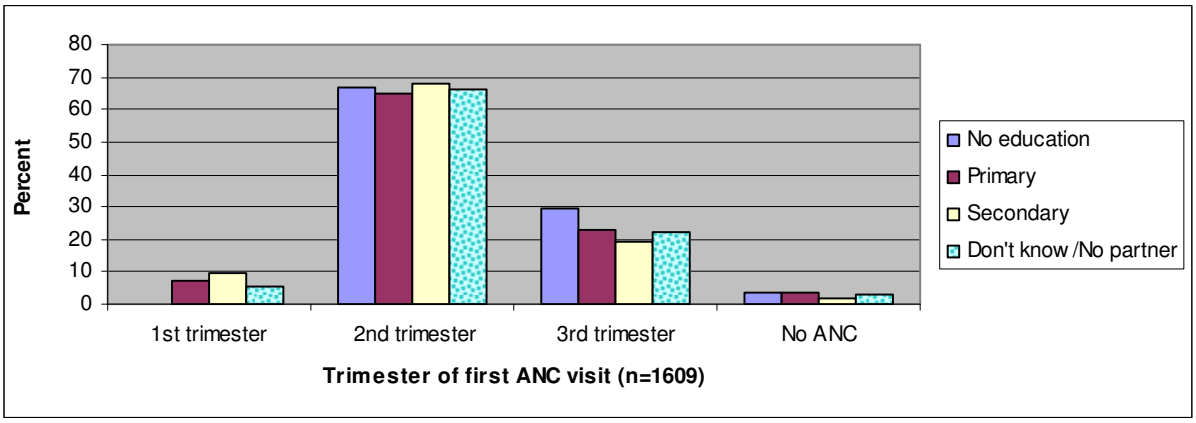


**Figure 5: Timing of 1st ANC visit by partner's education in 2004 - 2005 in Korogocho and Viwandani, Nairobi, Kenya**

In Table 4, only women who knew their partners educational attainment were included. STATA automatically dropped 78 others who reported that their partners had no education and this brought down the total number observations included from 1,609 to 1,415.

**Table 4: Multivariate analysis of married and cohabiting women initiating ANC in 1st and 3rd trimesters in 2004 - 2005 in two slums of Nairobi, Kenya (n=1,415)**

| | ANC initiation in 1st trimester | | ANC initiation in 3rd trimester | |
|---|---|---|---|---|
| Variables | OR (95% CI) | P | OR (95% CI) | P |
| **Respondent ethnicity** | | | | |
| Kikuyu | 0.74 (0.43 1.28) | 0.284 | 0.94 (0.63-1.39) | 0.752 |
| Luo | 0.71 (0.39-1.32) | 0.282 | 0.85 (0.56-1.27) | 0.427 |
| Kamba (Reference) | 1.00 | - | 1.00 | - |
| Luhya | 1.02 (0.56-1.84) | 0.953 | 0.85 (0.55-1.31) | 0.461 |
| Other | 0.40 (0.18-0.91) | **0.029** | 1.14 (0.70-1.86) | 0.594 |
| **Respondent religion** | | | | |
| Christian (Reference) | 1.00 | - | 1.00 | - |
| Muslim/other | 1.52 (0.60-3.87) | 0.380 | 0.96 (0.56-1.64) | 0.886 |
| **Respondent education** | | | | |
| None | 2.07 (0.76-5.66) | 0.156 | 0.76 (0.44-1.31) | 0.322 |
| Primary (Reference) | 1.00 | - | - | - |
| Secondary+ | 1.58 (0.99-2.54) | **0.056** | 0.64 (0.45-0.91) | **0.013** |
| **Respondent employment** | | | | |
| Not employed (Reference) | 1.00 | - | 1.00 | - |
| Employed | 1.26 (0.83-1.93) | 0.277 | 0.87 (0.66-1.16) | 0.343 |
| **Partner education** | | | | |
| None | No observations | - | 1.23 (0.66-2.28) | 0.516 |
| Primary (Reference) | 1.00 | - | 1.00 | - |
| Secondary+ | 1.03 (0.67-1.59) | 0.880 | 0.94 (0.71-1.25) | 0.675 |
| **Partner employment** | | | | |
| Not employed | 0.23 (0.06-0.98) | **0.046** | 1.22 (0.75-2.00) | 0.441 |
| Employed (Reference) | 1.00 | - | 1.00 | - |
| **Wealth status** | | | | |
| Poorest (Reference) | 1.00 | - | 1.00 | - |
| Middle | 1.33 (0.77-2.32) | 0.310 | 0.97 (0.71-1.32) | 0.841 |
| Least poor | 1.67 (0.98-2.85) | **0.060** | 0.88 (0.64-1.21) | 0.423 |
| **Parity** | | | | |
| 0 – 1 child (Reference) | 1.00 | - | 1.00 | - |
| 2 – 3 children | 0.52 (0.32-0.84) | **0.005** | 1.51 (1.02-2.22) | **0.039** |
| 4+ children | 0.37 (0.18-0.78) | **0.009** | 1.98 (1.21-3.23) | **0.006** |
| **Respondent age** | | | | |
| 15 – 19 (Reference) | 1.00 | - | 1.00 | - |
| 20 – 24 | 0.88 (0.40-1.95) | 0.753 | 0.87 (0.49-1.54) | 0.631 |
| 25 – 29 | 1.09 (0.45-2.63) | 0.847 | 0.94 (0.51-1.75) | 0.483 |
| 30+ | 0.80 (0.29-2.16) | 0.656 | 1.02 (0.53-1.97) | 0.948 |

### 3.4 Association between Timing, Frequency and Reason for First ANC Visit

This section will present results of the association between timing of initial ANC visit, total number of ANC visits and reason for initial visit. There were three main reasons for which women made their first ANC visits. In order of popularity, these were: 1) to check if pregnancy was normal (88%); 2) to get an ANC card (5%); and 3) due to a problem (4%). Only three respondents made their first ANC visit due to other reasons. Fifty five percent and 34% of those who initiated care to establish a normal pregnancy and to obtain an ANC card respectively, had four or more visits. Figure 6 illustrates the relationship between reason for first ANC visit and frequency of visits. ANC cards are used by health care systems in many sub-Saharan African countries to document information regarding a woman's health and care received during pregnancy. The card is presented by the woman at every ANC visit to ensure continuity of care. It is also used by facilities to aid in the location of a pregnant woman's facility records.[32, 50, 51]

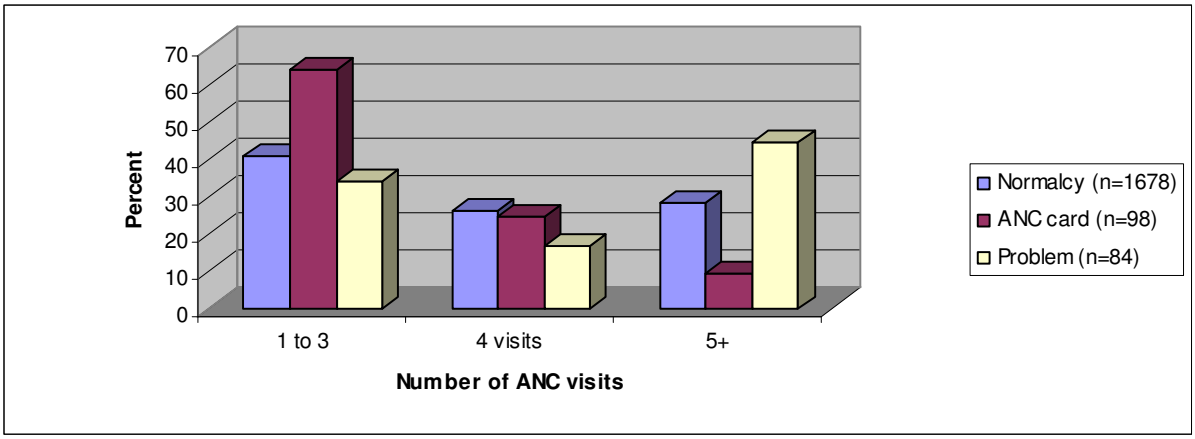


**Figure 6: Main reasons for 1st ANC visit by frequency of visits in 2004 - 2005 in Korogocho and Viwandani, Nairobi, Kenya**

Women who initiated ANC because they wanted to obtain an ANC card were 2.4 times more likely to have three or less visits than those who initiated ANC to check if pregnancy was normal (p=0.000, CI 1.57 – 3.76). These ANC card-seekers were least likely to have had four

or more visits (Table 5). Table 5 controlled for respondents ethnicity, religion, education, age and parity, plus marital, employment and wealth status.

**Table 5: Multivariate analysis of women making <=3 visits and >=4 visits by main reason for 1st ANC in Korogocho and Viwandani, Nairobi, Kenya in 2004 - 2005**

| | 1 – 3 ANC visits | | 4+ ANC visits | |
|---|---|---|---|---|
| | OR (95% CI) | P | OR (95% CI) | P |
| **Main reason for 1st ANC** (n = 1863) | | | | |
| Check if pregnancy is normal (Reference) | 1.00 | - | 1.00 | - |
| ANC card | 2.43 (1.57-3.76) | **0.000** | 0.45 (0.29-0.70) | **0.000** |
| Problem | 0.72 (0.44-1.16) | 0.173 | 1.33 (0.84-2.11) | 0.224 |
| Other reason | 0.66 (0.06-7.42) | 0.733 | 0.47 (0.04-5.24) | 0.536 |

When the frequency of visits was considered by trimester of ANC initiation, as expected, the later the trimester of ANC initiation the fewer the number of ANC visits. Women who began care in the first trimester were most likely to have four or more visits. The WHO recommended minimum number of visits (four) was most likely to happen among women who began care in the second trimester. When women who sought care in the second trimester (n = 1,273) were broken down to two different groups – "4 to 5 months" and "6 months", results revealed that in the first part of the second trimester, women were more likely to make four or more visits. By the sixth month, the proportion of women making three visits or less was 3.6 times higher than in "4 to 5 months" (Figure 7). In the third trimester almost eight out of every ten women who initiated care had one to three visits. Women who did not know their number of ANC visits or the timing of their initial ANC and those who did not have ANC (9%) are not shown in Figure 7.

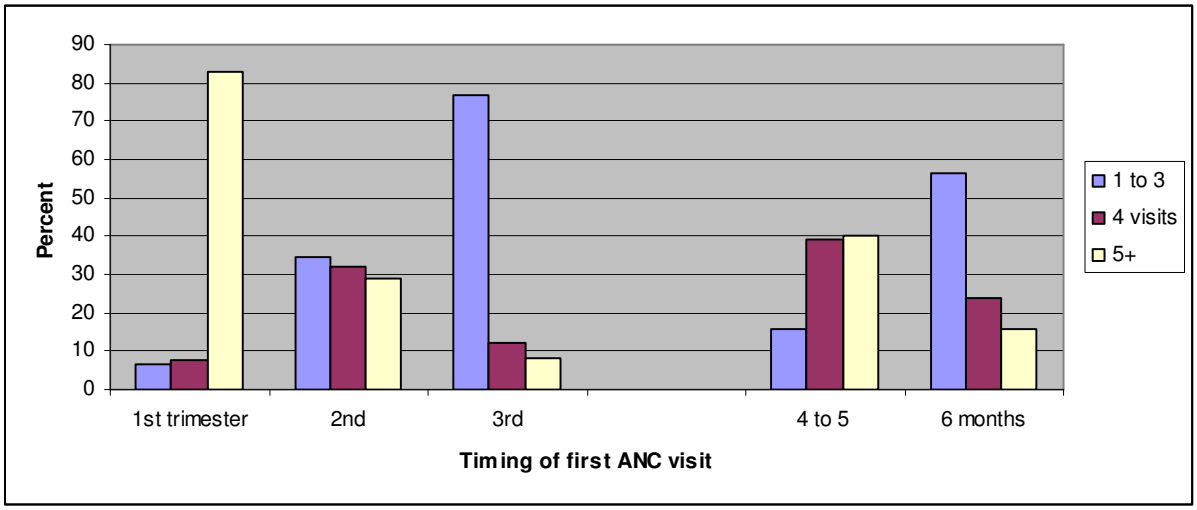


**Figure 7: Relationship between timing of 1st ANC and frequency of visits in 2004 - 2005 in Korogocho and Viwandani, Nairobi, Kenya**

Majority of the women (97%) reported at least one ANC visit with 52% of those who attended ANC reporting four or more visits. Table 6 gives a breakdown of the overall proportions of Korogocho and Viwandani women making different numbers of visits.

**Table 6: Women with different frequencies of ANC visits in 2004 - 2005 in Korogocho and Viwandani, Nairobi, Kenya**

| Number of visits | Frequency | Percent |
|---|---|---|
| 1 to 3 | 773 | 40.4 |
| 4 | 473 | 24.7 |
| 5+ | 522 | 27.2 |
| Don't know | 92 | 4.8 |
| No ANC | 55 | 2.9 |
| **Total** | **1,915** | **100** |

Almost nine out of every ten women initiated ANC to check if pregnancy was normal, with 69% of these women initiating care in the second trimester and having an average of 4.0 ANC visits. Figure 8 is a bar graph showing reasons for which women sought care in different trimesters.

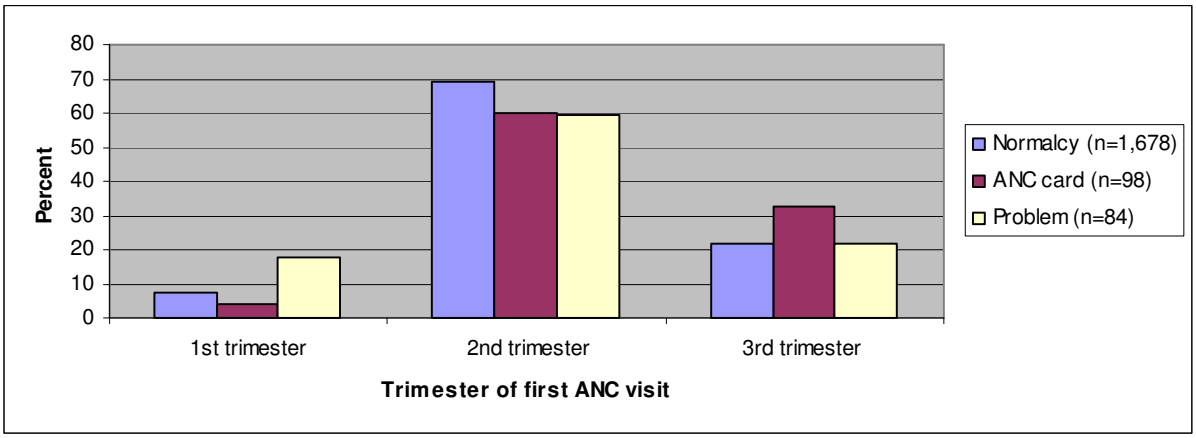


**Figure 8: Relationship between reason for 1st ANC visit and trimester of 1st ANC in Korogocho and Viwandani, Nairobi, Kenya, in 2004 - 2005**

### 3.5 Relationship between Timing of First ANC Visit and Place of Delivery

Of all women surveyed, 30% delivered outside any type of health facility, with an additional 22% delivering in sub-standard or "inappropriate" facilities. These sub-standard facilities were described by Fotso et al. as unable to deliver services required for basic emergency obstetric care.[48] Only 48% of the women in this study delivered in facilities providing basic emergency obstetric care. This proportion, though low, was better than the 20% reported by van Ejik et al. in their survey of rural western Kenya.[51]

Of women who had no ANC, 80% delivered outside an appropriate health facility. Women who initiated care in the first trimester were 1.5 and 5.0 times more likely to deliver in appropriate health facilities than those who initiated care in the third trimester (p=0.040; CI 0.43 – 0.98) and those who had no ANC (p=0.000; CI 0.09 - 0.44), respectively.

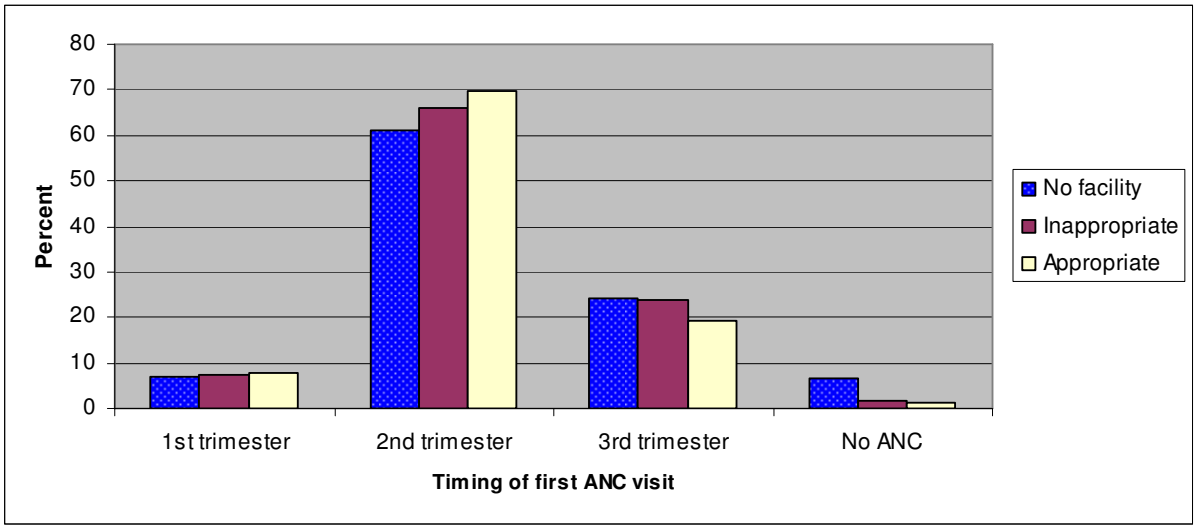


**Figure 9: Relationship between timing of 1st ANC visit and place of delivery in Korogocho and Viwandani, Nairobi, Kenya, in 2004 - 2005**

Women who initiated care in the first trimester were more likely to make four or more visits than those who initiated care in the second and third trimesters as illustrated in Figure 10.

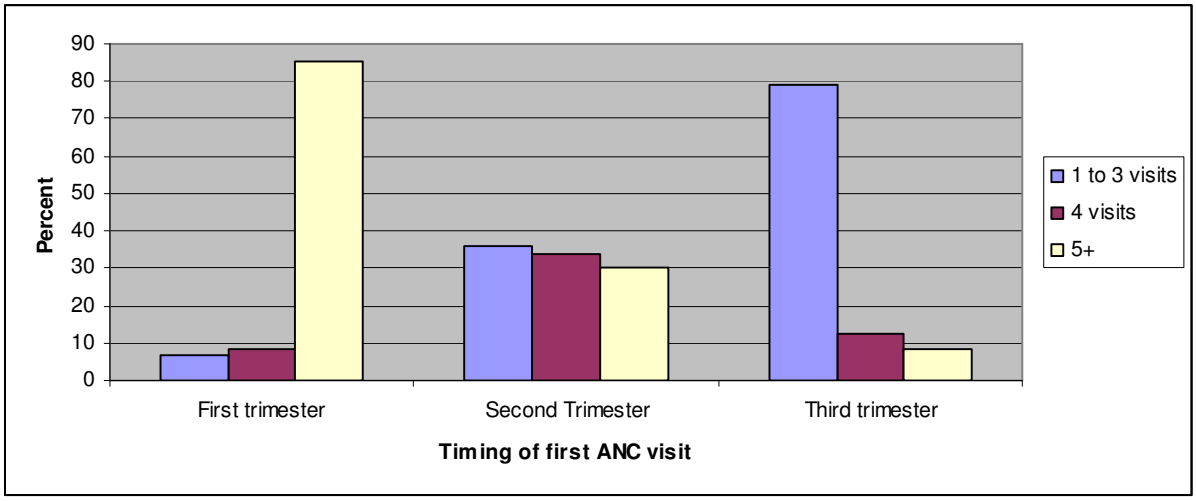


**Figure 10: Relationship between timing of first ANC and number of ANC visits in Korogocho and Viwandani, Nairobi, Kenya, in 2004 - 2005.**

The distribution of women by frequency of ANC visits and places of delivery is illustrated in Figure 11. As the frequency of visits increased, the likelihood of appropriate facility delivery increased and that of delivery outside any facility decreased.

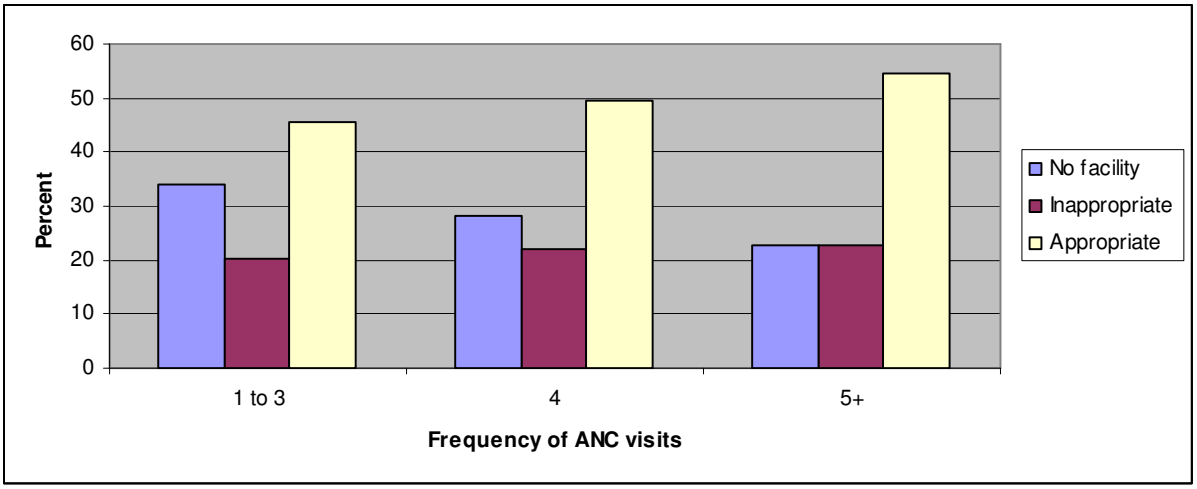


**Figure 11: Relationship between frequency of ANC visits and place of delivery in Korogocho and Viwandani, Nairobi, Kenya, in 2004 - 2005**

Of those who made one to three visits 56% delivered outside appropriate health facilities, while 48% of those who had four or more visits delivered outside a properly equipped facility. Multivariate analysis controlling for all the variables of interest also revealed that those who made four or more visits were more likely to deliver in appropriate health facilities (OR 1.35, $p = 0.003$). Fifty one percent of those who saw a doctor as the first ANC provider delivered in appropriate health facilities, and 48% of those who received their first care from a nurse, midwife, clinical officer or a medical assistant delivered in good health facilities. Nurses and midwives were the most popular antenatal care providers (74%).

### 3.6 Comparism of Korogocho and Viwandani with Other Kenyan Data

The proportion of women who received at least one episode of ANC from a qualified health professional in the two informal settlements was very high (97%), however only 7.3% initiated care in the first trimester. Majority of the women (66%) had their first visit during the second trimester, while a very small percentage (2.9%) received no ANC.

The proportion of women accessing appropriate pregnancy-related care in Korogocho and Viwandani appears to be at par with that reported for Nairobi slums in general by Magadi in 2000.[19] With regards to timing of initial ANC visit, these findings suggest that the proportion of slum resident women who initiate ANC in the first trimester may have dropped between 2000 and 2004-05. Table 7 compares this study's findings with those from the 2000 study of all Nairobi slums and the 2003 KDHS.

According to 2003 KDHS, almost a fifth of pregnant women in Nairobi as a whole initiated ANC in the first trimester, compared to a proportion of 11% nationally.[14] In 2000, the proportion among women living in all Nairobi slums was 10.3%, and four-five years later, only 7.3% of Korogocho and Viwandani women initiated ANC in the first trimester, with almost 31% of women in this study initiating care in the sixth month alone.[19] When Korogocho and Viwandani are compared to Nairobi as a whole (from the 2003 KDHS), slum-dwelling women are found to start care later, with a higher proportion of them having less than the optimal number of visits and a higher proportion delivering outside well equipped health facilities. These findings illustrate the gap between the urban poor and the urban non-poor in access to health services.

**Table 7: Study findings compared with findings from all Nairobi slums in 2000 and 2003 KDHS**

| Findings | Study findings | Nairobi slums 2000[19] | Nairobi 2003[14] | Kenya 2003[14] |
|---|---|---|---|---|
| ANC in 1st trimester (%) | 7.3 | 10.3 | 19.8 | 11 |
| ANC after 1st trimester (%) | 88.1 | 85.5 | 80.2 | 85 |
| 4 or more ANC (%) | 52.0 | 71.9 | 73.3 | 52 |
| ANC by health professional (%) | 97.1 | 96.0 | 95.4 | 88 |
| Births in appropriate facilities (%) | 48.4 | 52.3 | 77.2 | 40 |
| Median month pregnant at 1st ANC | 6.0 | 5.9 | 5.0 | 5.9 |
| Median number of visits | 4.0 | 3.9 | 5.0 | 4.0 |

# CHAPTER 4 **DISCUSSION**

Antenatal care is regarded as the service where pregnant women access pregnancy-related care from qualified health care practitioners in the bid to achieve a positive pregnancy outcome for themselves and their babies. When care is sought late or not at all, women and their babies are exposed to higher risks of complication during pregnancy, at delivery and after delivery. Individual characteristics along with perception, culture, health beliefs, social structure and the health care system itself (to name a few) have been presented by researchers and theorists as influencing health care-seeking behaviour within and between population groups.[9, 12, 24, 52, 53]

This chapter will attempt to situate the findings in the context of the study area and existing literature, according to the four objectives of the study. It will conclude with a discussion on the limitations of the analysis.

As stated previously, a large proportion of Nairobi residents dwell in slum settlements.[18] A better understanding of the characteristics that influence women's ANC–seeking behaviour may have broader implications for, and inform the development of suitable programmes of intervention implemented in the milieu of pregnancy-related care and targeted towards the reduction of adverse pregnancy outcomes and ultimately the reversal of maternal morbidity and mortality in Kenya. To achieve the goal, this understanding should positively affect efforts towards equitable distribution of health care resources, as well as lead to development of interventions sensitive to these differences between categories of ANC-seeking women.

As noted in the conclusion of the previous chapter, there is an increasing trend towards late ANC initiation by pregnant women in the Korogocho and Viwandani. This pattern reduces

the window of opportunity for early pregnancy interventions such as the provision of iron, iodine and folic acid supplements necessary for the prevention of birth defects and reduction of anaemia in expectant mothers.[13] There is also a loss of opportunity to carry out assessments that identify health problems, effectively manage health conditions and provide information necessary for the involvement of women in managing their own health.

Even though the proportion of slum-dwelling women receiving pregnancy-related care has increased slightly, this gain is being undermined by the timing of initial ANC. Much has been reported on the connection between sexually transmitted infections (STIs), tuberculosis (TB) and HIV/AIDS[54, 55, 56] and the efforts being made to treat them. In Kenya for example, 9% of women compared to 5% of men live with the AIDS virus.[57] This disproportionate prevalence rate is not unique to Kenya. Infections have substantial impact on maternal health outcomes especially in sub-Saharan Africa. It is therefore inequitable that Korogocho and Viwandani women, who have heightened risk of contracting infections, end up initiating ANC late. The current pattern of ANC access invariably continues their exclusion from effective intervention opportunities with regards to HIV/AIDS, STI and TB and other health conditions that result in adverse maternal outcomes e.g. malaria, anaemia, hepatitis and heart disease.[3]

### 4.1 Background Characteristics and Timing of Initial ANC Visit

Women who attained a secondary school or higher level of education, women of the least poor wealth status, those living with a partner, and women of lowest parity were most likely to initiate care in the first trimester. Women living with an employed partner or one with secondary school or higher level of education were also very likely to initiate early ANC in

Korogocho and Viwandani. Those from minority ethnic groups were significantly less likely than other ethnic groups to initiate care in the first trimester of pregnancy.

Many studies examining maternal health-seeking behaviour and service utilisation in developing countries have found an association between the appropriate outcome and women's higher level of education.[13, 26, 58] Based on this finding, many programmes geared towards the improvement of maternal health outcomes have a strong focus on education and empowerment of the girl child.[3] The rationale is that by educating girls especially to secondary school or higher level, they are equipped not just with the right tools to make proper health care decisions, but also with skills that enhance their future financial independence thereby elevating their status in the communities where they live. Earlier ANC initiation by the more educated in this study may be explained by the fact that women with secondary school or higher education were most likely to be employed, and since employment ensures a steady flow of income, they also tend to be in the least poor category. Though Magadi, et al found no association between use of maternal services and women's education in their analysis of the 1993 KDHS, they did confirm that lack of finances was a major hindrance to a woman's use of maternal health care services.[33] Higher educational attainment also implies that girls stay in school longer and this may delay the onset of child bearing, thereby reducing the number of births they have.

The finding that women of two or more parity delay seeking ANC confirms findings from other studies that concluded that the more the children a woman has, the less likely she is to initiate ANC early in subsequent pregnancies.[8, 12, 30] Her likelihood of not receiving ANC at all also goes up with increased parity. As Fotso et al. explained, this pattern of behaviour may indicate that women with two or more children rely on their previous pregnancy and

childbirth experiences to get them through subsequent pregnancy, and so feel that they can get by with initiating ANC late and having fewer visits.[48]

Another possible explanation for this pattern of behaviour may be the difficulty and financial cost of arranging childcare for older children. In order to receive care at an ANC clinic women have to be away from their homes for the greater part of the day. Therefore, childcare arrangements have to be made which add to the cost of ANC.[23] Furthermore, the women of Korogocho and Viwandani live in conditions of extreme poverty which may make the presence of another child a financial burden on a family, and because funds are very limited, women opt for late ANC initiation with reduced frequency of visits or no ANC at all. Therefore, every additional child appears to make it more difficult for women to initiate pregnancy-related care. This pattern also held true and was even more significant among women living with a partner. The relationship between age and timing of first ANC visit may have showed no significance possibly because age and parity were controlled for in the same model. Since parity increases with age, this may have created a collinearity that overshadowed the effect of age.

The finding that minority ethnic groups in these settlements were significantly least likely to initiate early ANC was in contrast to Mberu, Pongou and Taiwo's idea that minority ethnic groups residing within high-achieving majority groups may improve their level of achievement. However, they argued in terms of educational attainment.[59] Minority groups elsewhere (e.g. South Africa) have been shown to have better access to health care specifically due to social policies.[5] Several issues might give an insight into why women from minority ethnic groups were least likely to initiate care in the first trimester compared to

others. These women were most likely to have no education, have the highest parity and be unemployed. They were also most likely to have uneducated and unemployed partners.

The clear association between marital status and early initiation, where women living with a partner were more likely to initiate early care, bears some similarity to findings from another study conducted in Finland that noted better health-promoting behaviours and pregnancy outcomes in women cohabiting with a male partner.[60] The Finish study found that women who were pregnant within a marriage union had less risky behaviour than those who were pregnant outside such unions, with the former having better pregnancy outcomes. It may be that even in Korogocho and Viwandani, the presence of a male partner acts as an encouragement and support for women to initiate early ANC, thereby enabling them to gain access to further care opportunities in the community.

Among those in a union, all women who came in the first trimester had educated partners and women with unemployed partners were significantly less likely to have early ANC. The argument on the possible effect of education on a woman's decision to initiate early care may also hold true for the partners who have attained secondary school education or higher. These partners may have influenced and supported the women to seek early care, support which may have been expressed through financial commitments since 93% of male partners were employed. In another study in The Gambia, partners' financial support was found to enable many women to access ANC services.[50] Worthy of note is that a higher proportion of males (45%) were reported as having secondary or higher education than women (25%). As noted in another Kenyan study, the educated are more likely to be employed.[61] Only 34% of married women were employed. This disparity in proportions of employed may have created a financial dependence of women on their male partners, resulting in a significant association

of male partner employment with timing of ANC initiation but not female employment. In the general sample, the average income of respondents was less than $0.50/day. Even in this condition of dire poverty, women in the least poor bracket had fewer children (2.7) than the poorest (3.2) and initiated care earlier (5.3 months) than the poorest (5.7 months).

Lack of funds continues to be cast as a major barrier for women in accessing health care.[33, 62, 63] Even when care is free, accessing it requires finances and the scenario depicted by the results may suggest that a woman's employment is not significant in the bid for early ANC initiation, while her partner's employment is. Women in Kenya live in a context where men are still key decision-makers with regards to finances. Analysis of micro-financing schemes in 10 African countries (Kenya included) revealed that women's success in micro-financing schemes was limited due to the exclusion of male partners. Some of the women involved in the financing scheme gave their loans to their partners and were therefore unable to repay the loans or start the businesses that were expected. These women did not have the authority in their cultural context to make decisions on how to use the loans they received.[64, 65] Our results suggest that in this study community, men who earn income tend to aid their female partners to access health care.

Though not significant, Christians appeared to initiate care later than their "Muslim/other" counterparts. The non-significance of the effect of religion on early ANC in the sample was not surprising due to the prevalence of Christianity as a religion in these communities. At 87%, this was not very different from 2003 KDHS finding of 90%.[49] Almost half of the women categorised as "Muslim/other" reported having no formal education and among those in a union, more than a third of the partners had no formal education. It was therefore surprising that they tended to initiate care earlier than the Christians who had higher

proportions of formally educated women and partners. Though formal education has been found to be desirable for improved maternal health outcomes, further research is required to understand why the "Muslim/other" group which has lower levels of educational attainment, higher parity and a higher proportion of the unemployed appears to have better ANC-seeking behaviour.

### 4.2 Timing, Frequency and Main Reason for Initial ANC Visit

Concerning frequency of visits, the findings indicate that the later the month of initiation, the greater the proportion with three visits or less visits. Before the analysis was conducted, it was questioned as to whether women living in Korogocho and Viwandani where playing "catch up" subsequent to late ANC initiation. It was thought that the average number of visits would not vary much (up to mid second trimester), with those who started early spreading out their visits while the late starters would have shorter intervals between visits in order to obtain all the required pregnancy-related care. Those who started in the second month had the highest average number of visits (7.58), but it dropped steadily to 4.26 by the fifth month and 1.0 by the ninth month. Those who initiated care in the first trimester were more likely to have four or more visits than the rest of the women. If they were playing "catch up", their likelihood to make these numbers of visits would have been similar.

Women who received ANC from well equipped government, religious or large NGO facilities may have had to settle for fewer visits because these facilities were often at the periphery or outside the boundaries of the informal settlements. Therefore, women who accessed ANC in these types of facilities may have had to walk long distances or the cost of transportation may have been too high for frequent visits. Distance and cost of transportation are barriers to

accessing ANC which have been noted in other studies.[32, 34, 51] This could not be verified since women were asked the type of ANC provider used, not where they received ANC.

Most women (88%) initiated care to verify that their pregnancy was normal. This reason for the initiation of ANC portrays women as proactive in seeking care during their pregnancy. These expectant mothers show up for care even in the absence of a problem. Many women who initiate care to obtain an ANC card claim to do so in order to register the pregnancy so as to receive necessary attention from the nurses in an emergency or during labour.[32] It appears then that this group of women initiate ANC with intentions of using the card only if a problem arises in the course of the pregnancy or during labour. It was therefore not surprising that the ANC card-seekers were most likely to initiate ANC late and to have less than four visits. These main reasons given for the initiation of ANC in this study have also been reported as main reasons for seeking ANC in other studies.[8, 32, 51] These other studies also found that the administration of tetanus toxoid injection was a strong incentive for women to seek ANC, they could not speak to any possible association between these reasons for ANC initiation and either timing or frequency of visits.

### 4.3 Antenatal Care and Place of Delivery

Women who initiated care early and had four or more visits were most likely to deliver in well equipped facilities. The association between timing of first ANC and place of delivery may be explained by the fact that those who initiated care early were more likely to have had four or more visits and therefore had ample opportunity to receive health education and necessary assessment from their ANC provider. Such care may have encouraged delivery in appropriate facilities. The increased number of visits may also have given them time to

develop rapport with the nurses and midwives and such relationships will put women in the "good books" of ANC providers, thereby avoiding embarrassment and mistreatment when they show up for delivery without prior visits to the facility.[32] The expectant mothers with knowledge of the way the facilities work, having acquired the knowledge of where to obtain assistance (during ANC), may be more likely to go to the facility for childbirth.[34] Other studies report poor patient/nurse relationship as a major impediment to the uptake of maternal services.[12, 26, 32, 34]

The connection between timing of first ANC and place of delivery may also be explained by the fact that women who delivered in the well equipped facilities have similar characteristics to those who initiated care early in their pregnancy. It is therefore possible to argue that the characteristics that enabled these women to seek care early may also support them to deliver in well equipped facilities. In the general sample, those who delivered in the appropriate facilities were likely to have secondary school or higher level of education, be of low parity and be in the "Muslim/other" category.

Women from the Kamba ethnic group who showed a tendency to seek early care turned out to be the most likely to deliver outside good facilities. This ethnic group however, had the highest proportion of secondary school level educated women and had the highest proportion of women with the least parity. With regards to the other variables of interest, the Kambas were not different from the other ethnic groups. On the other hand, women from minority ethnic groups who were significantly less likely to initiate early ANC turned out to be 1.8 times more likely than the Kambas to deliver in the desired facilities. Their characteristics have previously been discussed. Since this appears to be a contradiction, more research is

needed to understand how ethnicity affects ANC-seeking behaviour and health care decisions in these informal settlements.

Though marital status was associated with early ANC initiation, there was no significant association between marital status and place of delivery. However, partner characteristics were significantly associated with delivery in appropriate facilities among women living with partners. Women living with partners who have secondary school or higher education were more likely to deliver in good facilities than those whose partners had primary education or no education. Women whose partners were employed were 1.6 times more likely to deliver in proper facilities than women whose partners were not employed. These two characteristics were also important in early ANC initiation among those living with a partner. The educational attainment of married women was not significantly associated with place of delivery. This analysis has shown that in the context of a union, a woman's education appears to be less important in the decision about place of delivery, even though it was important in the general sample. As mentioned before, it is possible that childbirth decisions with major financial implications are left to the partners in line with acceptable norms in these informal settlements. Therefore, the woman's education may not come into play. This may also be a reflection of the lower levels of educational attainment and women's status in the study area. Despite these possibilities, these findings provide insight into the possible connection between a partner's educational level and steady income, and the choice of place of delivery. This finding is important because a large proportion of the women (84%) in this study were in a union.

It is surprising to find that women with primary school-level educated partners were the most likely to deliver outside any type of facility. A possible explanation could be that primary

education does not usually equip individuals to be financially independent and also takes them away from learning traditionally tested ways of income earning. Hence these people may end up worse than those with no education. Further research is required to fully understand this finding.

Age had no significant association with place of delivery. This finding differs from that of van Eijk, Bles and Odhiambo, et al who reported that women 30 years and over were more likely to deliver outside a health facility.[51] Age did not have any significant association with either timing of first ANC visit or choice of place of delivery. However, with regards to number of visits, women aged 25 to 29 years were least likely to have less than optimal number of visits.

### 4.4 Limitations of the Study

In considering the results, it is necessary to bear in mind varying levels of recall bias due to the fact that some pregnancy outcomes occurred 2.5 years before data collection, and some as recently as three months prior. Analysis to check the effect of this was not conducted. All women meeting the required criteria for inclusion in the original study were given equal opportunity to participate in the study, but the possibility remains that women who did not use ANC may have declined to participate. Of the 2,482 women who met the criteria for inclusion in the original study, 22% declined to participate. Furthermore, those women who had negative ANC experiences or adverse pregnancy outcomes may have declined to participate due to continued distrust of formal systems. There was no way of knowing what the responses of women who had died or moved away would have been. This means that there was already some form of selection in place even before the original survey.

Owing to the fact that the original data was collected through interviewer administered questionnaires, interviewer bias cannot be ruled out. It is also not possible to rule out the fact that results obtained in this study may have been affected by confounders which were not controlled for or for which data is not available.

Korogocho and Viwandani are densely populated slums with high levels of unemployment, poverty, crime, poor sanitation and generally poorer health indicators than the rest of Nairobi. Conclusions arrived at here may only be generalisable to settlements similar to these areas. Furthermore, the homogeneity of the sample with regards to characteristics like religion, marital status, educational attainment and wealth status may have reduced the variability of results. This analysis is restricted to the use of available data only. It is important to note that some women may not have known the qualification of their ANC provider i.e. they may have reported anyone wearing a white coat as doctor or nurse. This would in effect increase the proportion reporting at least one ANC visit. Also, the data did not separate partners with intermittent employment from the rest and this may have led to high reporting of partner employment.

The original study elicited information regarding several exposures and outcomes. This analysis gives insight to an aspect of a vulnerable group of Nairobi residents – poor pregnant women.

# CHAPTER 5 CONCLUSION AND RECOMMENDATIONS

This analysis has revealed that in Korogocho and Viwandani informal settlements of Nairobi, low parity, secondary school or higher level education of women and their partners, as well as male employment are associated with early ANC and delivery in a good facility. Increased wealth status is also associated with higher frequency of ANC visits. Women who began ANC early were more likely to have increased frequency of visits and subsequent delivery in good facilities.

The ANC arena presents an incredible platform for the provision of comprehensive maternal health care including anti-retroviral therapy (ART), and an avenue to tackle the problem of fragmentation of care provided to women. The multiplicity of programmes designed to care for different aspects of a woman's health can be consolidated through the opportunity provided by ANC, hence facilitating more effective and efficient use of available resources.

Provision of emergency obstetric care is paramount to the reduction of maternal deaths which have been known to cluster around delivery.[3, 66, 67] In Korogocho and Viwandani, as revealed by this analysis, women delivering in facilities that provide the desired emergency care were most likely to have initiated ANC in the first trimester or to have had four or more visits; and the higher the number of visits, the greater the likelihood of appropriate facility delivery. These results suggest that it may be necessary to develop programmes that encourage women to initiate care early and have a minimum of four visits before delivery. Though it may be valid to argue (in developed countries) that increased number of visits is a waste of resources, it is crucial to consider the cost for developing economies, of disabilities or loss of lives arising from delivery in sub-standard facilities, or delivery outside health facilities.[26, 27]

The interventions in a slum setting should push for more than four visits. This is in line with WHO's recommendation of "at least" four visits. The recommendation does not restrict women who have other health problems during their pregnancy from receiving appropriate care. The slum-dwelling women of Korogocho and Viwandani are yet to have access to the type of focused care given to the women who participated in the Organisation's randomised control trial.[21, 29] Another possibility would be to direct funds towards the improvement of the quality of care provided to pregnant women. In this way ANC can be focused to effectively utilise the visits that pregnant women make and the number of visits can be kept to a minimum.

As shown in this study, male/female disparities in educational attainment still exist in Korogocho and Viwandani, and educational attainment is associated with improved maternal health care-seeking behaviour. Therefore, the justification to focus on ways of reducing school dropout among females will need to be integrated to the educational programme. The Kenyan government has instituted free secondary education since January 2008, removing some of the financial barriers experienced by girls in accessing secondary education in Kenya. In Korogocho and Viwandani there may be other hurdles to tackle in order to keep girls is school long enough to complete this level of education. Increase in the proportion of women attaining this level of education will be a boost not just for the slum dwellers, but also for the ministries of both health and education as well as the City of Nairobi in the collective and commendable bid towards female empowerment and improvement in the standards of living. Hence the urgent need to conduct studies to obtain results that will inform the development of holistic and integrated educational programmes of action that will aim to improve maternal health outcomes in the study area.

Since APHRC is already working with these ministries and other arms of the government it would be feasible to seek a forum at which to make the findings of this report known to key members of these ministries. This will provide an opportunity to engage with them towards the development of comprehensive programmes that integrate reproductive health interventions with education and the provision of income-generating activities for both females and males living in Korogocho and Viwandani.

Many Kenyan women, as shown in the 2003 KDHS, desire to stop or delay child bearing but are unable to do so due to reduced access to family planning services. Reduction in access seems to have been imposed by financial, religious and cultural constraints among others.[68] Since increased parity was strongly associated with timing of first ANC, frequency of visits and choice of place of delivery, it may be that when women are empowered through affordable family planning programmes and greater awareness of the connection between high parity and adverse maternal health outcomes, they will be able to take control of their fertility. This will then be a strong step towards better maternal health outcomes.

In line with this idea, the National Coordinating Agency for Population and Development (NCAPD), which oversees the piloting of the Reproductive Health – Output Base Approach (RH-OBA) project in Korogocho and Viwandani, provides benefit vouchers for care in facilities which it has certified as able to provide proper maternal care. This intervention was initiated in June 2006 after the collection of the data used in this analysis. Many of the facilities meeting the required standards for this intervention are outside or at the periphery of the settlements. These vouchers cover four ANC visits; birth by either normal delivery or Caesarean section; and a post natal visit within 6 weeks after delivery. They also cover

family planning (i.e. birth control implants insertion, intra-uterine contraceptive device insertion, vasectomy, and tubal ligation).[69]

APHRC should collaborate with NCAPD to evaluate the impact of this intervention on timing first ANC visit, choice of place of delivery and maternal health outcome. This collaboration should seek ways to roll out this intervention to all pregnant women in the study area for better maternal health outcomes and should have the support of male partners, community leaders and faith-based organisations in Korogocho and Viwandani without whose support even the best intervention may very likely fail. A better handle on the population factor may enable Kenya take a much needed step towards achievement of the first seven of the eight Millennium Development Goals.

These study findings should be made known to the community leaders, male partners, mothers and mothers-in-law of and women of child bearing age in these informal settlements. As female empowerment is sought in the study area, it will be necessary to keep in mind the contributions of the partners towards women's access to maternal care. Interventions should therefore, have some focus on continued improvement of male educational attainment with a bid to enhancing men's ability to earn regular income.[64]

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# APPENDICES

## Appendix A: Household and Health Facility Questionnaire

### Part 1: Household questionnaire

SECTION 1. RESPONDENT'S BACKGROUND

| NO. | QUESTIONS AND FILTERS | CODING CATEGORIES | SKIP |
|---|---|---|---|
| 100 | RECORD THE TIME | HOUR …… ☐☐<br>MINUTES …….. ☐☐ | |
| 101 | **COLLECT DELIVERY DOCUMENTS DURING LAST DELIVERY AND ANY RELEVANT DOCUMENTS THAT MAY HAVE INFORMATION ON THE RESPONDENT'S AGE AND HER CHILDREN'S AGE AND IMMUNIZATION.** | | |
| 102 | How old were you at your last birthday?<br><br>**COMPARE AND CORRECT 102 AND/OR 103 IF INCONSISTENT**. | AGE IN COMPLETED YEARS ☐☐ | |
| 103 | In what month and year were you born? | MONTH …… ☐☐<br>DON'T KNOW MONTH ……98<br>YEAR …….. ☐☐☐☐<br>DON'T KNOW YEAR ……9998 | |
| 104 | Have you ever attended school? | YES ……..1<br>NO ……2 ➔ | **107** |
| **IF NO IN Q104 ASK: Can you read a newspaper? IF ANSWER IS YES, GO TO Q 107** | | | |
| 105 | What is the highest level of school you attended: primary, secondary, or higher? | PRIMARY ……1<br>SECONDARY……..…….2<br>HIGHER ……...3 | |
| 106 | What is the highest year/grade you completed at that level? | YEAR/GRADE …… ☐ | |
| 107 | Do you read a newspaper or magazine almost every day, at least once a week, less than once a week or not at all? | ALMOST EVERY DAY ……...1<br>AT LEAST ONCE A WEEK ……..…..2<br>LESS THAN ONCE A WEEK ……..3<br>NOT AT ALL ……4<br>CAN'T READ……5 | |
| 108 | Do you listen to the radio almost every day, at least once a week, less than once a week or not at all? | ALMOST EVERY DAY ……..1<br>AT LEAST ONCE A WEEK ……..…2<br>LESS THAN ONCE A WEEK ……3<br>NOT AT ALL...……4 | |

| | | | |
|---|---|---|---|
| 109 | Do you watch television almost every day, at least once a week, less than once a week or not at all? | ALMOST EVERY DAY……..1<br>AT LEAST ONCE A WEEK ……..…..2<br>LESS THAN ONCE A WEEK……..3<br>NOT AT ALL..……4 | |
| 110 | What is your religion? | TRADITIONAL ……1<br>CHRISTIAN ……..2<br>MUSLIM ……..…..3<br>NO RELIGION ……..……4<br>OTHER _____ 6<br>**(SPECIFY)** | |
| 111 | To which ethnic group do you belong? | EMBU…….……..…...1<br>KALENJIN……..2<br>KAMBA..……..…..3<br>KIKUYU……4<br>KISII……..5<br>LUHYA……..6<br>LUO……7<br>MASAI……8<br>MERU……9<br>MJIKENDA/SWAHILI……10<br>SOMALI……11<br>TAITA/TAVETA……...12<br>NON-KENYAN……..13<br>OTHER (**SPECIFY**)_____96 | |
| 112 | What is your marital status: are you now married, living with a man, widowed, separated or divorced? | CURRENTLY MARRIED ……..……1<br>LIVING TOGETHER ……..2<br>SEPARATED ……..3<br>DIVORCED ……4<br>WIDOWED ……..5<br>NEVER MARRIED ……..6 | |
| 113 | Was your husband(or partner or child's father) staying with you at the time of your last delivery or staying elsewhere? | STAYING WITH ME ……..……1<br>STAYING ELSEWHERE ……2 | |
| 114 | What kind of work do you <u>mainly</u> do?<br><br>**RECORD ONLY ONE RESPONSE** | NO WORK ……11➔<br>FARMING ……12<br>TRADING/SELLING ……..13<br>CRAFTSMANSHIP..……14<br>WHITE COLLAR/OFFICE WORKER……15<br><br>STUDENT……..16➔<br>LABOURER/CASUAL WORKER……..17<br>OTHER _____ 96<br>**(SPECIFY)** | **118**<br><br><br><br><br>**118** |
| 115 | Do you earn cash from this work?<br><br>**PROBE**: Do you earn money for working? | YES ……..1<br>NO ……2 ➔<br><br>REFUSE TO ANSWER ……...7 ➔ | **118**<br><br>**118** |
| 116 | How much money do you usually earn for this work per month? | SHILLINGS……☐☐☐☐☐☐☐<br><br>NOTHING……..…..…… 0000000<br>DON'T KNOW……..9999998 | |
| 117 | Who decides how the money you earn is spent?<br><br>**RECORD ONLY ONE RESPONSE** | MYSELF ……..……..11<br>HUSBAND/PARTNER ……..……..12<br>MY HUSBAND AND MYSELF ……..…13<br>MOTHER……..……..14<br>FATHER……15<br>MOTHER-IN-LAW ……..16<br>FATHER-IN-LAW ……17<br>OTHER _____ 96<br>**(SPECIFY)** | |

| | | | |
|---|---|---|---|
| 118 | **NOTE: IF ANSWER TO 112 IS 3,4,5, OR 6, SKIP TO 122**<br><br>What kind of work does your husband or partner mainly do?<br><br>**RECORD ONLY ONE RESPONSE** | NO WORK……11 ➔<br>FARMING……12<br>TRADING/SELLING ……..13<br>CRAFTSMANSHIP ……14<br>WHITE COLLAR/OFFICE WORKER……15<br><br>STUDENT……16➔<br>LABOURER/CASUAL WORKER ……..17<br>OTHER _____ 96<br>**(SPECIFY)** | **121**<br><br>**121** |
| 119 | Does he earn cash from this work?<br><br>**PROBE**: Does he make money for working? | YES ……..1<br>NO …… …2 ➔<br>REFUSE TO ANSWER ……..…….7 ➔<br>DON'T KNOW ……..8 ➔ | ➔**121** |
| 120 | How much money does he usually earn for this work per month? | SHILLINGS…… \| \| \| \| \| \| \|<br><br>NOTHING…… 0000000<br>DON'T KNOW…….9999998 | |
| 121 | What is the highest level of school he attended: primary, secondary, or higher? | NO EDUCATION ……0<br>PRIMARY……..1<br>SECONDARY……..……2<br>HIGHER ……..……3<br>DON'T KNOW ……..8 | |
| 122 | Who in your household usually has the final say on the following decisions:<br><br>**A.** Your own health care?<br>**B.** Making large household purchases?<br>**C.** Making household purchases for daily needs?<br>**D.** Visits to family or relatives?<br>**E.** What food should be cooked each day?<br>**F.** You should do work to earn money?<br>**G.** What to do if a child falls sick?<br>**H.** Having another child? | **RESPONDENT = 1**<br>**HUSBAND/PARTNER = 2**<br>**RESPONDENT & HUSBAND/PARTNER JOINTLY = 3**<br>**SOMEONE ELSE = 4**<br>**RESPONDENT AND SOMEONE ELSE JOINTLY = 5**<br>**DECISION NOT MADE/NOT APPLICABLE = 9**<br><br>1 2 3 4 5 9<br>1 2 3 4 5 9<br>1 2 3 4 5 9<br>1 2 3 4 5 9<br>1 2 3 4 5 9<br>1 2 3 4 5 9<br>1 2 3 4 5 9<br>1 2 3 4 5 9 | |
| 123 | If you are ill and need to see a doctor, do you first have to ask someone's permission? | YES ……..1<br><br>NO ……2 ➔ | **125** |
| 124 | Whose permission do you need? | HUSBAND/PARTNER…..……11<br>MOTHER……..12<br>FATHER……...13<br>MOTHER-IN-LAW...……...14<br>FATHER-IN-LAW……15<br>OTHER MALE RELATIVE……16<br>OTHER FEMALE RELATIVE……17<br>OTHER _____ 96<br>**(SPECIFY)** | |

| | | | | | |
|---|---|---|---|---|---|
| 125 | Are you usually allowed to go to the following places on your own, only with children, only with another adult, or not at all? | ALONE | CHILD | ADULT | NOT AT ALL |
| | **A.** Just outside your house or compound? | OUTSIDE HOUSE… .. .1 | 2 | 3 | 4 |
| | **B.** Local market to buy things? | MARKET…… ……. 1 | 2 | 3 | 4 |
| | **C.** Local health center or doctor? | HEALTH CENTE… . 1 | 2 | 3 | 4 |
| | **D.** In the neighborhood for recreation? | RECREATION…… … 1 | 2 | 3 | 4 |
| | **E.** Home of relatives or friends in the neighborhood? | RELATIVES/FRIENDS. 1 | 2 | 3 | 4 |

SECTION 2. REPRODUCTION

| NO. | QUESTIONS AND FILTERS | CODING CATEGORIES | SKIP |
|---|---|---|---|
| | Now I would like to ask you questions about all the births you have had during your life. | | |
| 201 | Do you have any sons or daughters to whom you have given birth who are now living with you? | YES ……..1<br>NO ……2 ➔ | **203** |
| 202 | How many sons live with you?<br>And how many daughters live with you?<br>**IF NONE, RECORD "00".** | SONS AT HOME……<br>DAUGTHERS AT HOME…… | |
| 203 | Do you have any sons or daughters to whom you have given birth who are alive but do not live with you? | YES ……..1<br>NO ……2 ➔ | **205** |
| 204 | How many sons are alive but do not live with you?<br>And how many daughters are alive but do not live with you?<br>**IF NONE, RECORD "00".** | SONS ELSEWHERE……<br>DAUGTHERS ELSEWHERE.. | |
| 205 | Have you ever given birth to a boy or girl who was born alive but later died?<br>**IF NO, PROBE**: Any baby who cried or showed signs of life but survived only a few hours or days? | YES ……..1<br>NO ……2 ➔ | **207** |
| 206 | In all, how many boys have died?<br>And how many girls have died?<br>**IF NONE, RECORD "00".** | BOYS DEAD……..…<br>GIRLS DEAD…… | |
| 207 | **SUM ANSWERS TO 202, 204 AND 206, AND ENTER TOTAL**<br>**IF NONE, RECORD "00".** | TOTAL……..……..…….. | |
| 208 | **CHECK 207:**<br>Just to make sure that I have this right: you have had in TOTAL _____ births during your life. Is that correct?<br>**PLEASE TICK THE APPROPRIATE BOX**<br>YES ☐ NO ☐ ➔ **PROBE AND CORRECT 201-207 AS NECESSARY** | | |
| 209 | Women sometimes have pregnancies that do not result in a live born child. That is, a pregnancy can end early, in a miscarriage, or the child can be born dead. Have you had any such pregnancy that did not result in a live birth? | YES ……..1<br>NO ……2➔ | **212** |
| 210 | In all, how many of the pregnancies did not end in a live born child?<br>**IF NONE, RECORD "00".** | TOTAL……..…… | |
| 211 | In all, how many of the pregnancies that did not end in a live born child lasted more than 6 months?<br>**IF NONE, RECORD "00".** | TOTAL……..……..…… | |

| | | | |
|---|---|---|---|
| 212 | **SUM ANSWERS 207 AND 211 AND ENTER TOTAL (PARITY)** | TOTAL……..……..…… ☐☐ | |

SECTION 3. PERCEIVED ACCESS AND QUALITY OF CARE

| | | |
|---|---|---|
| | Now I would like to ask you some questions about the nearest hospital/health centre/clinic. | |
| 301 | What are the names of the hospitals/health centres/clinics in this community or closest to this community that provides **delivery care services? (If Don't know, SKIP TO 401)**<br><br>**(PLEASE RECORD AS MANY RESPONSES AS POSSIBLE)**<br><br>**PLEASE RECORD NAME IN FULL AND ITS LOCATION** | _____<br>_____<br>_____<br>_____ |
| 302 | Which of the hospitals/health centres/clinics you have mentioned is closest to you? | _____ |
| 303 | Have you ever been treated at, not been treated but know someone who has, or has no knowledge about (NAME OF NEAREST HEALTH FACILITY) | BEEN TREATED…… …….1<br>NOT TREATED BUT KNOW SOMEONE……...2<br>NO KNOWLEDGE…… ……..3 **➔401** |
| | I will like to know your opinion on the services provided at (NAME OF NEAREST HEALTH FACILITY)<br><br>Now I am going to read aloud several statements about (NAME OF NEAREST HEALTH FACILITY) and the doctors and midwives who work there. Please consider the statements carefully and tell me your opinion. Remember there are no right or wrong answers. I am simply interested in your opinions.<br><br>**READ OUT THE RESPONSE OPTIONS IN EACH QUESTION TO COMPLETE THE SENTENCE IN EACH QUESTION**. | |

**PERCEIVED ACCESS**

| | | | | | | |
|---|---|---|---|---|---|---|
| 304. | In your opinion, the distance from your home to (NAME OF NEAREST HEALTH FACILITY) is … | 1<br>Long | 2<br>Somewhat long | 3<br>Short | 9<br>NA | 8<br>Don't know |
| 305 | In your opinion, the travel time from your home to (NAME OF NEAREST HEALTH FACILITY) is … | 1<br>Long | 2<br>Somewhat long | 3<br>Short | 9<br>NA | 8<br>Don't know |
| 306 | In your opinion, it is … to get transport from your home to (NAME OF NEAREST HEALTH FACILITY). | 1<br>Difficult | 2<br>Somewhat difficult | 3<br>Not at all difficult | 9<br>NA | 8<br>Don't know |
| 307. | In your opinion, the cost of transportation from your home to (NAME OF NEAREST HEALTH FACILITY) is | 1<br>Affordable | 2<br>Somewhat affordable | 3<br>Not affordable | 9<br>NA | 8<br>Don't know |

| | | | | | | |
|---|---|---|---|---|---|---|
| 308. | In your opinion, the fees that pregnant women are charged at (NAME OF NEAREST HEALTH FACILITY) are … | 1 Affordable | 2 Somewhat affordable | 3 Not affordable | 9 NA | 8 Don't know |
| 309. | In your opinion, the opening hours at (NAME OF NEAREST HEALTH FACILITY) is … | 1 Suitable | 2 Somewhat suitable | 3 Not very suitable | 9 NA | 8 Don't know |
| 310. | In your opinion, the doctors and midwives are… | 1 Available | 2 Somewhat available | 3 Not available | 9 NA | 8 Don't know |
| 311. | In your opinion, the people who work in this hospitals/clinics are … | 1 Honest | 2 Somewhat honest | 3 Not very honest | 9 NA | 8 Don't know |
| **PERCEIVED QUALITY OF CARE** | | | | | | |
| 312. | In your opinion, are the doctors and midwives …….. of finding out the problem with a pregnancy? | 1 Capable | 2 Somewhat capable | 3 Not capable | 9 NA | 8 Don't know |
| 313. | In your opinion, patients can obtain drugs from this hospitals/clinics … | 1 Easily | 2 With relative ease | 3 With difficulty | 9 NA | 8 Don't know |
| 314. | In your opinion, the effectiveness of the medicine supplied by hospitals/clinics are… | 1 Good | 2 Fair | 3 Not good | 9 NA | 8 Don't know |
| 315. | In your opinion, the equipments in the hospitals/clinics are … for detecting diseases related to pregnancy. | 1 Adequate | 2 More or less adequate | 3 Inadequate | 9 NA | 8 Don't know |
| 316. | In your opinion, the waiting rooms, examination rooms, and delivery rooms are | 1 Adequate | 2 More or less adequate | 3 Inadequate | 9 NA | 8 Don't know |
| 317. | In your opinion, the pregnant women cared for in hospitals/clinics … | 1 Recover well | 2 Recover relatively well | 3 Do not recover well | 9 NA | 8 Don't know |
| 318. | In your opinion, the doctors and midwives in the hospitals/clinics examine their patients… | 1 Well | 2 Somewhat well | 3 Not very well | 9 NA | 8 Don't know |
| 319. | In your opinion, the doctors and midwives in the hospitals/clinics are … with the pregnant women | 1 Open | 2 Somewhat open | 3 Not very open | 9 NA | 8 Don't know |
| 320. | In your opinion, the doctors and midwives in the hospitals/clinics are … towards pregnant women. | 1 Compassionate | 2 Somewhat compassionate | 3 Not very compassionate | 9 NA | 8 Don't know |
| 321. | In your opinion, the doctors and midwives are … towards the pregnant women. | 1 Respectful | 2 Somewhat respectful | 3 Not at all respectful | 9 NA | 8 Don't know |
| 322. | In your opinion, the doctors and midwives in the hospitals/clinics are … towards pregnant women if another person (such as husband) accompanies the pregnant women at the visit. | 1 More Respectful | 2 Equally respectful | 3 Less respectful | 9 NA | 8 Don't know |
| 323. | In your opinion, the time that the doctors and midwives devote to their patients is … | 1 Adequate | 2 More or less adequate | 3 Inadequate | 9 NA | 8 Don't know |
| 324. | In your opinion, are patients given … during examination by the nurse/doctor? | 1 Adequate privacy | 2 Somewhat adequate privacy | 3 Inadequate privacy | 9 NA | 8 Don't know |
| 325. | In your opinion, the number of doctors and midwives in this hospitals/clinics are … | 1 Adequate | 2 More or less adequate | 3 Inadequate | 9 NA | 8 Don't know |
| 326. | In your opinion, the doctors and midwives in the hospitals/clinics are … to deliver pregnant women | 1 Well suited | 2 Relatively well suited | 3 Not well suited | 9 NA | 8 Don't know |

SECTION 4. ANTENATAL CARE

| | | |
|---|---|---|
| | Now I would like to ask you some questions about your last pregnancy outcome. | |
| 401 | At the time you became pregnant did you want to become pregnant then, did you want to wait until later, or did you not want to have any (more) children at all? | THEN ……1<br>LATER ……2<br>NOT AT ALL ……3 |
| 402 | Was the baby born alive, born alive but later died, or born dead?<br><br>**IF IMMEDIATELY THEN WRITE 00 IN HOURS, IF LESS THAN 1 DAY THEN WRITE IN HOURS, IF LESS THAN 30 DAYS THEN WRITE IN DAYS, IF MORE THAN 30 DAYS WRITE IN MONTHS** | BORN ALIVE……1<br>BORN ALIVE BUT LATER DIED ……2<br><br>SPECIFY THE PERIOD HOURS ☐☐<br>DAYS ☐☐<br>MONTHS ☐☐<br><br>BORN DEAD (Still born) ……3<br>MISCARRIAGE ……4<br>ABORTION……5 |
| 403 | When you were pregnant with (USE NAME IF ALIVE), did you see anyone for antenatal care?<br><br>**IF YES**: whom did you see?<br>Anyone else?<br><br>**PROBE FOR THE TYPE OF PERSONS AND RECORD ONLY THE PERSON WITH THE HIGHEST QUALIFICATION.** | **HEALTH PROFESSIONAL**<br>DOCTOR……11<br>NURSE……12<br>MIDWIFE…… 13<br>CLINICAL OFFICER/ MEDICAL ASSISTANT……14<br><br>**NON HEALTH PROFESSIONAL**<br>COMMUNITY HEALTH WORKER……15<br>TRAINED TRADITIONAL BIRTH ATTENDANT……16<br>UNTRAINED TRADITIONAL BIRTH ATTENDANT……17<br>TRADITIONAL HEALER ……18<br><br>OTHER _____ 96<br>**(SPECIFY)**<br>NO ONE……19➔ **412** |
| 404 | What was your **main** reason for going to your first antenatal care? | TO CHECK PREGNANCY WAS NORMAL…… …..1 ➔ **406**<br>WANTED TO GET ANC CARD ……2➔ **406**<br><br>BECAUSE OF A PROBLEM ……3<br>OTHER_____6<br>**(SPECIFY)** |
| 405 | For what problem did you first go for antenatal care?<br><br>**DO NOT PROBE BUT ALLOW MULTIPLE RESPONSES**. | FEVER ……11<br>EXCESSIVE VOMITING ……12<br>ABDOMINAL PAIN ……13<br>SEVERE HEADACHE ……14<br>BLURRY VISION……15<br>VAGINAL BLEEDING……16<br>VIGINAL DISCHARGE ……17<br>FITS/CONVULSION……18<br>BABY MOVEMENT WAS LOW……19<br>SWELLING OF FEET……20<br>OTHER _____ 96<br>**(SPECIFY)** |
| 406 | **PLEASE TICK THE APPROPRIATE BOX**<br>CHECK 403: HEALTH PROFESSIONAL ☐ ▼ NOT HEALTH PROFESSIONAL ☐ | ➔ 501 |

| | | |
|---|---|---|
| 407 | PROBE TO FIND OUT THE NAME OF THE FACILITY (**VISITED FIRST**) AND CIRCLE THE APPROPRIATE CODE.<br><br>**RECORD ONLY ONE RESPONSE**<br><br>**PLEASE RECORD NAME IN FULL AND ITS LOCATION** | **CHECK AND RECORD THE CODE FOR THE HEALTH FACILITY** ☐☐☐<br><br>DRUG STORE……..11<br><br>OTHER _____ 96<br>**(SPECIFY)** |
| 408A | How many months pregnant were you when you first received antenatal care? | MONTHS…….. ☐☐<br><br>DON'T KNOW……..98 |
| 408B | How many times did you receive antenatal care during this pregnancy? | NO. OF TIMES..……. ☐☐<br><br>DON'T KNOW……..98 |
| 408C | Who accompanied you to health centre/hospital/health professional on your first visit?<br><br>**RECORD ALL MENTIONED.** | NO ONE…..……..11<br>HUSBAND/PARTNER……..……12<br>HEAD OF HOUSEHOLD…….…..13<br>MOTHER……14<br>FATHER……15<br>MOTHER-IN-LAW……..……..16<br>FATHER-IN-LAW...……..…17<br>SISTER-IN-LAW…….……..18<br>TBA……19<br>TRADITIONAL HEALER……20<br>NEIGHBOUR……..21<br>OTHER _____ 96<br>**(SPECIFY)**<br>DON'T KNOW……98 |
| 409 | During any of your antenatal visits, did the doctor/nurse or service provider tell you about any of the following?<br><br>A. The need to plan for the delivery?<br>B. The need to deliver with a nurse/midwife/doctor?<br>C. Danger signs of pregnancy?<br>D. Where to go if you have complications?<br>E. The need to arrange for transport in case of complications?<br>F. The need to arrange for money for the delivery or complications? | YES NO<br>A. BIRTH PLAN 1 2<br>B. DELIVER WITH NURSE/DOCTOR 1 2<br>C. DANGER SIGNS 1 2<br>D. COMPLICATIONS PLACE 1 2<br>E. TRANSPORT 1 2<br>F. MONEY 1 2 |
| 410 | During this pregnancy, did you have any of the following performed at least once during any of your antenatal visits?<br><br>A. Weight measured?<br>B. Height measured?<br>C. Blood pressure measured?<br>D. Blood test?<br>E. Urine test?<br>F. Abdomen examined?<br>G. Ultrasound or video of the baby?<br>H. Injection in arm to prevent baby from getting tetanus?<br>I. Tablets to prevent malaria | YES NO DON'T KNOW<br>A. WEIGHT……....1 2 8<br>B. HEIG……....1 2 8<br>C. BLOOD PRESSURE …..1 2 8<br>D. BLOOD TEST ……1 2 8<br>E. URINE TEST ……..1 2 8<br>F. ABDOMEN EXAMINED 1 2 8<br>G. ULTRASOUND ……..1 2 8<br>H. TETANUS TOXOID INJECTION ..<br>……...1 2 8<br>I. TABLETS FOR MALARIA ...1 2 8 |

**QUALITY OF ANTENATAL IN LAST PREGNANCY**

Now I would like to ask you about your overall experience with antenatal care. Please indicate how much you agree or disagree with the following statements. The responses are "Strongly Agree", "Agree", "Disagree", and "Strongly Disagree".

| 411 | *Overall, in ante-natal care…* | *Strongly Agree* | *Agree* | *Disagree* | *Strongly Disagree* | *Don't Know* | *Not Applicable* |
|---|---|---|---|---|---|---|---|
| 411A | The providers explained your health condition with terms that were understandable. | 1 | 2 | 3 | 4 | 8 | 9 |
| 411B | The providers explained what to expect during labor and delivery. | 1 | 2 | 3 | 4 | 8 | 9 |
| 411C | The providers listened to your questions or concerns. | 1 | 2 | 3 | 4 | 8 | 9 |
| 411D | The providers were respectful of you. | 1 | 2 | 3 | 4 | 8 | 9 |
| 411E | The providers scolded or shouted at you. | 1 | 2 | 3 | 4 | 8 | 9 |

| | | |
|---|---|---|
| 412 | What are the reasons you decided not to attend Antenatal clinic (ANC)? | IT WAS NOT NECESSARY ……..…..…11<br>TRADITIONAL BELIEFS ...……..……12<br>COST OF ANC TOO MUCH ...……..…..13<br>COST OF TRANSPORTATION ...……..……14<br>TOO FAR ...……..15<br>NOT EASY TO GET TRANSPORT ...……..…..16<br>NO ONE AVAILABLE TO ACCOMPANY ……..……..17<br>POOR SERVICE AT HEALTH FACILITY ……....…18<br>FAMILY DID NOT ALLOW ...……..……19<br>DID NOT KNOW HOW TO GO THERE ...……..…..20<br>THERE WAS NO TIME TO GO HEALTH FACILITY .....21<br>DID NOT WANT TO BE ATTENED TO BY A MALE DOCTOR ……..…..……22<br>SUCCESSFUL PREVIOUS CHILDBIRTH WITHOUT ATTENDING ANC ……....23<br>WAS NOT AWARE OF ANC ……..…24<br><br>OTHER _____96<br>**(SPECIFY)**<br>DON'T KNOW …..……..……98 |
| 413 | What is the main reason that made you decide not to attend ANC clinics?<br><br>**WRITE DOWN THE RESPONSE NUMBER IN Q 412 CORRESPONDING TO THE MAIN REASON** | RECORD MAIN REASON……☐☐ |
| 414 | Who were the main people involved in making the decision that you should not attend Antenatal clinic?<br><br>**RECORD ALL MENTIONED.** | NO ONE…..……..11<br>HUSBAND/PARTNER……..……12<br>HEAD OF HOUSEHOLD…….…..…13<br>MOTHER……14<br>FATHER……..……15<br>MOTHER-IN-LAW……...……..16<br>FATHER-IN-LAW...……..…17<br>SISTER-IN-LAW……...……..18<br>TBA……19<br>TRADITIONAL HEALER……..20<br>NEIGHBOUR……..21<br><br>OTHER _____ 96<br>**(SPECIFY)**<br><br>DON'T KNOW……98 |

SECTION 5. DELIVERY CARE

| | | |
|---|---|---|
| | Now I would like to ask you some questions about your last delivery or pregnancy outcome. | |
| 501 | Where did you go to give birth to (NAME)?<br><br>**CHECK AND RECORD THE CODE FOR THE HEALTH FACILITY**<br><br>**PLEASE RECORD NAME IN FULL AND ITS LOCATION** | HEALTH FACILITY CODE ☐☐<br><br>HEALTH PROFESSION'S HOME……..11<br><br>OTHER _____ 96<br>**(SPECIFY)** |
| 502 | Who assisted with the delivery of (NAME)?<br><br>Anyone else?<br><br>**PROBE FOR THE TYPE OF PERSONS AND RECORD <u>ONLY</u> THE PERSON WITH <u>THE HIGHEST QUALIFICATION</u>.** | **HEALTH PROFESSIONAL**<br>DOCTOR……...11<br>NURSE……..12<br>MIDWIFE……..…… 13<br>CLINICAL OFFICER……..…….14<br><br>**NON HEALTH PROFESSIONAL**<br>COMMUNITY HEALTH WORKER...……..15 ➔↓<br>TRAINED TRADITIONAL BIRTH ATTENDANT….16 ↓<br>UNTRAINED TRADITIONAL BIRTH ATTENDANT……..17 ➔**514**<br>TRADITIONAL HEALER...…… ….18 ↑<br>NO ONE…… 19 ↑<br><br>OTHER _____ 96 ➔ ↑<br>**(SPECIFY)** |
| 503 | What are the reasons you decided to deliver at (NAME OF FACILITY)?<br><br>**RECORD ALL MENTIONED.**<br><br>**NOTE: PREVIOUS PREGNANCY REFERS TO THE PREGNANCY BEFORE THIS LAST ONE** | NURSE/DOCTOR TOLD YOU TO ……11<br>FOR SAFE DELIVERY……12<br>HAD COMPLICATIONS DURING THIS PREGNANCY…13<br>HAD COMPLICATIONS IN PREVIOUS PREGNANCY…..14<br>HAS EVER HAD CAESAREAN SECTION ……..…..15<br>BABY OVERDUE ..……...……..……16<br>MULTIPLE PREGNANCY ..……..……17<br>WAS REFERRED DURING LABOUR ……..……18<br>MY HUSBAND/RELATIVE ASKED ME TO ……..…19<br>GOOD QUALITY OF SERVICE ..……..……20<br><br>OTHER _____ .96<br>**(SPECIFY)** |
| 504 | What is the **<u>main</u>** reason you decided to deliver at (NAME OF FACILITY)?<br><br>**RECORD ONLY ONE RESPONSE** | **WRITE DOWN THE RESPONSE NUMBER IN Q503 CORRESPONDING TO THE MAIN REASON** ☐☐ |
| 505 | Who were the main people involved in making the decision that you should deliver at a health centre or hospital?<br><br>**RECORD ALL MENTIONED**. | MYSELF……..…..11<br>HUSBAND/PARTNER……..……12<br>HEAD OF HOUSEHOLD……..……13<br>MOTHER……..,14<br>FATHER……..……15<br>MOTHER-IN-LAW……..……..16<br>FATHER-IN-LAW……..…17<br>SISTER-IN-LAW……..……..18<br>TBA……19<br>TRADITIONAL HEALER……20<br>NEIGHBOUR……..21<br><br>OTHER_____96<br>**(SPECIFY)**<br>DON'T KNOW……98 |

| | | |
|---|---|---|
| 506 | Who accompanied you to health centre/hospital/health professional?<br><br>**RECORD ALL MENTIONED**. | NO ONE ..……..……11<br>HUSBAND……..12<br>HEAD OF HOUSEHOLD……..13<br>MOTHER……14<br>FATHER……15<br>MOTHER-IN-LAW……..…..16<br>FATHER-IN-LAW……17<br>SISTER-IN-LAW……18<br>TBA……19<br>TRADITIONAL HEALER……20<br>NEIGHBOUR...……..21<br><br>OTHER _____ 96<br>**(SPECIFY)**<br>DON'T KNOW……98 |
| 507 | How far is the hospital/health centre/clinic/health professional from where you were staying during delivery?<br><br>**(IF LESS THAN 1 KM THEN WRITE 00)** | KILOMETERS…….. ☐☐<br><br>DON'T KNOW……..98 |
| 508 | How much time did it take to go there?<br><br>**(IF LESS THAN 1 HOUR, WRITE IN MINUTES)** | MINUTES ☐☐<br>HOURS ☐☐<br><br>DON'T KNOW …….. ……98 |
| 509 | How did you go to the hospital/health centre? | PRIVATE CAR……..……..…11<br>TAXI……12<br>MATATU……13<br>BICYCLE……14<br>MOTORCYCLE……15<br>AMBULANCE ……..16<br>ON FOOT……..17<br><br>OTHER _____96<br>**(SPECIFY)**<br>NA……99 |
| 510 | Did you obtain transport easily, with difficulty, or did not get transport? | EASILY …….....1<br>WITH DIFFICULTY….....2<br>DID NOT GET TRANSPORT….....3<br>NA……..9 |
| 511 | How long did you wait between the time you first arrived at the hospital/clinic/care provider and the time you were examined by a health care provider/doctor?<br><br>**(IF LESS THAN 1 HOUR, WRITE IN MINUTES)** | MINUTES ☐☐<br>HOURS ☐☐<br><br>DON'T KNOW …….. ……98 |
| 512 | Were any of the following procedures performed for the delivery?<br><br>**READ EACH PROCEDURE ALOUD AND RECORD RESPONSE BEFORE PROCEEDING TO THE NEXT ITEM**.<br>A. Received blood transfusion<br>B. Received intravenous fluid (drips)<br>C. The doctor/nurse used a suction machine to get baby out (vacuum extraction)<br>D. You had an abdominal operation to get baby out (C-SECTION)<br>E. Episiotomy (cutting of vulva) | YES NO NA DON'T KNOW<br>**A**.BLOOD TRANSFUSION..1 2 9 8<br>**B.**INTEVENOUS FLUID.....1 . 2 9 8<br>**C.**VACUUM EXTRACTION..1 2 9 8<br>**D.**C-SECTION…….....1 2 9 8<br>**E.**EPISIOTOMY……..…..1 2 9 8 |

| | | |
|---|---|---|
| 513 | Did you obtain all the prescribed medicines at the health facility? | YES……..1<br>NO……2 → 517<br>NA…..……..9 |
| 514 | What are the reasons you decided not to deliver at a health centre or hospital?<br><br>**RECORD ALL MENTIONED**. | PREGNANCY WAS NORMAL ……....11<br>TRADITIONAL BELIEFS ……..…….……12<br>COST OF DELIVERY CARE TOO MUCH ..…13<br>COST OF TRANSPORTATION …….……..14<br>TOO FAR ……15<br>NOT EASY TO GET TRANSPORT ..…….....16<br>NO ONE AVAILABLE TO ACCOMPANY …...17<br>POOR SERVICE AT HEALTH FACILITY …….18<br>FAMILY DID NOT A LLOW ..……..…...19<br>DID NOT KNOW HOW TO GO THERE ……...20<br>THERE WAS NO TIME TO GO HEALTH FACILITY .21<br>DID NOT WANT TO BE DELIVERED BY A MALE DOCTOR ……..22<br>SUCCESSFUL PREVIOUS CHILDBIRTH AT HOME ..23<br><br>OTHER _____ 96<br>(**SPECIFY**)<br><br>DON'T KNOW ……..……98 |
| 515 | What is the **main** reason you decided not to deliver at a health centre or hospital?<br><br>**WRITE DOWN THE RESPONSE NUMBER IN Q514 CORRESPONDING TO THE MAIN REASON** | RECORD MAIN REASON……... ☐☐ |
| 516 | Who were the main people involved in making the decision that you should not deliver at a health centre or hospital?<br><br>**RECORD ALL MENTIONED.** | MYSELF…..……..…..11<br>HUSBAND/PARTNER..……..……12<br>HEAD OF HOUSEHOLD……..…….……13<br>MOTHER……14<br>FATHER…….15<br>MOTHER-IN-LAW……..……..16<br>FATHER-IN-LAW…… ……..17<br>SISTER-IN-LAW……..……..18<br>TBA…….19<br>TRADITIONAL HEALER…….20<br>NEIGHBOUR……..21<br><br>OTHER _____ 96<br>(**SPECIFY**)<br><br>DON'T KNOW……98 |

OBSTETRIC COMPLICATIONS

| | | |
|---|---|---|
| | Now I would like to ask you some questions about complications during your last delivery or pregnancy outcome. | |
| 517 | Did you experience any of the following complications during pregnancy, at the time of delivery of (NAME), or immediately after delivery?<br><br>A. Headache<br>B. Swelling of the feet<br>C. Fits/convulsions<br>D. Blurry vision<br>E. High blood pressure<br>F. Excessive vaginal bleeding<br>G. High fever<br>H. Bad smelling vaginal discharge<br>I. Prolonged labour (more than 24 hours)<br>J. Retained placenta/afterbirth<br>K. Torn uterus (womb)<br>L. Abdominal pain/stomach pain<br>M. Problem in controlling urine<br>N. Problem in controlling stool<br>O. Problem in controlling **BOTH** Urine and Stool<br>P. Other | **FOR EACH RESPONSE**,<br><br>**WRITE 1 IF YES SHE HAD THE COMPLICATION**<br>**WRITE 2 IF NO SHE DID NOT HAVE THE COMPLICATION**<br><br>… PREGNANCY DELIVERY AFTER DELIVERY<br>**A.** HEADACHE……..… ____ ____ ____<br>**B.** SWELLING OF FEET….. ____ ____ ____<br>**C.** FITS/CONVULSIONS.… ____ ____ ____<br>**D.** BLURRY VISION……... ____ ____ ____<br>**E.** HIGH BLOOD PRESSURE ____ ____ ____<br>**F.** VAGINAL BLEEDING…..… ____ ____ ____<br>**G.** HIGH FEVER……... ____ ____ ____<br>**H.** VAGINAL DISCHARGE…. ____ ____ ____<br>**I.** PROLONGED LABOUR…… NA ____ NA<br>**J.** RETAINED PLACENTA…… NA NA ____<br>**K.** TORN UTERUS……..…… NA ____ ____<br>**L.** ABDOMINAL PAIN……. ____ ____ ____<br>**M.** URINE CONTROL…….. ____ ____ ____<br>**N**. STOOL CONTROL…….. ____ ____ ____<br>**O.** BOTH URINE & STOOL CONT'L ____ ____ ____<br>**P.** OTHER _____ ____ ____ ____ |
| 518 | **CHECK 517:**<br><br>IF SHE HAD NO COMPLICATION<br><br>IF SHE HAD COMPLICATION(S) | …….. **SKIP TO** 601<br><br>……..…… 519A |
| 519A | Which of the complications in Q517 occurred **last**?<br><br>WRITE DOWN THE LETTER INDICATING STAGE OF COMPLICATION IN THE FIRST BOX ( **i.e. P for Preg; D for Delivery and A for After Delivery)**<br><br>**WRITE DOWN THE LETTER OF THE COMPLICATION IN SECOND BOX** | **P = PREGNANCY; D = DELIVERY**<br>**A = AFTER DELIVERY** ☐<br><br>**RECORD LAST COMPLICATION** ☐ |
| 519B | Did you consider (NAME OF COMPLICATION in 519A) as not severe, somewhat severe, or very severe?<br><br>**CHECK 518: IF WOMAN HAD ONLY ONE COMPLICATION** | NOT SEVERE……..1<br>SOMEWHAT SEVERE……...2<br>VERY SEVERE……3<br><br>→ **SKIP TO 522A** |

| | | |
|---|---|---|
| 520A | Which of the complications in Q517 occurred second last?<br><br>WRITE DOWN THE LETTER INDICATING STAGE OF COMPLICATION IN THE FIRST BOX **( i.e. P for Preg; D for Delivery and A for After Delivery)**<br><br>**WRITE DOWN THE LETTER OF THE COMPLICATION IN SECOND BOX** | **P = PREGNANCY; D = DELIVERY**<br>**A = AFTER DELIVERY**<br><br>**SECOND LAST COMPLICATION** ☐ |
| 520B | Did you consider (NAME OF COMPLICATION in 520A) as not severe, somewhat severe, or very severe? | NOT SEVERE……..1<br>SOMEWHAT SEVERE……..2<br>VERY SEVERE……3 |
| 521 | Of all the complications that you told me about earlier, which one did you consider as most severe?<br><br>WRITE DOWN THE LETTER INDICATING STAGE OF COMPLICATION IN THE FIRST BOX **( i.e. P for Preg; D for Delivery and A for After Delivery)**<br><br>**WRITE DOWN THE LETTER OF THE COMPLICATION IN SECOND BOX** | **P = PREGNANCY; D = DELIVERY**<br>**A = AFTER DELIVERY**<br>☐ **SKIP TO 522B**<br>**SEVERE COMPLICATION** ☐<br><br>DON'T KNOW……Z<br>NONE..……...X |
| 522A | Did you seek any assistance for……. (**NAME OF COMPLICATION MENTIONED IN 519B)** | YES……..…1 → 523<br>NO……..2 → 530 |
| 522B | Did you seek any assistance for ……. (**NAME OF MOST SEVERE COMPLICATION MENTIONED IN 521)** | YES……..…1<br>NO……..2 → 530 |
| 523 | Who were the main people involved in making the decision that you should seek care for this complication?<br><br>**RECORD ALL MENTIONED**. | MYSELF…..……..…11<br>HUSBAND……..……...12<br>HEAD OF HOUSEHOLD…….……13<br>MOTHER……14<br>FATHER……15<br>MOTHER-IN-LAW……..……...16<br>FATHER-IN-LAW……17<br>SISTER-IN-LAW…….……..18<br>TBA……19<br>TRADITIONAL HEALER……20<br>NEIGHBOUR……..21<br><br>OTHER _____ 96<br>**(SPECIFY)**<br><br>DON'T KNOW……98 |
| 524 | How much time after the complication began did you realize that it was serious?<br><br>**(IF IMMEDIATELY THEN WRITE 00 IN HOURS, IF LESS THAN 1 DAY THEN WRITE IN HOURS, IF LESS THAN 30 DAYS THEN WRITE IN DAYS, IF MORE THAN 30 DAYS WRITE IN MONTHS)** | HOURS ☐☐<br>DAYS ☐☐<br>MONTHS ☐☐<br><br>DON'T KNOW …….. ……98 |

| | | | |
|---|---|---|---|
| 525A | How much time after you recognized the complication as serious, was it decided that you should go for care?<br><br>(**IF IMMEDIATELY THEN WRITE 00 IN HOURS, IF LESS THAN 1 DAY THEN WRITE IN HOURS, IF LESS THAN 30 DAYS THEN WRITE IN DAYS, IF MORE THAN 30 DAYS WRITE IN MONTHS**) | HOURS ☐☐<br>DAYS ☐☐<br>MONTHS ☐☐<br>DON'T KNOW ……..……98<br>NA ……..99 | |
| 525B | Once you decided to go for care, did you go for treatment immediately? | YES……..….1 → | 526 |
| | | NO, WENT LATER ……..…….…2 | |
| 525C | Why did you not obtain treatment immediately?<br><br>**RECORD ALL MENTIONED**. | DID NOT REALIZE IT WAS SERIOUS ……...…11<br>TRADITIONAL BELIEFS ……..…12<br>COST OF TREATMENT/CARE TOO MUCH ….....13<br>COST OF TRANSPORTATION ….……...14<br>TOO FAR ……...15<br>NOT EASY TO GET TRANSPORT ……..16<br>NO ONE AVAILABLE TO ACCOMPANY ……17<br>POOR SERVICE AT HEALTH FACILITY ……..…18<br>FAMILY DID NOT ALLOW ……19<br>DID NOT KNOW HOW TO GO THERE ……20<br>THERE WAS NO TIME TO GO FOR CARE/ADVICE …. 21<br>DID NOT WANT TO BE DELIVERED<br>BY A MALE DOCTOR ……..……..…22<br>SUCCESSFUL PREVIOUS CHILDBIRTH AT HOME…..23<br><br>OTHER _____ 96<br>**(SPECIFY)**<br><br>DON'T KNOW ……..……98 | |
| 525D | How long after the decision did you actually go for treatment?<br><br>(IF IMMEDIATELY THEN WRITE 00 IN HOURS, IF LESS THAN 1 DAY THEN WRITE IN HOURS, IF LESS THAN 30 DAYS THEN WRITE IN DAYS, IF MORE THAN 30 DAYS WRITE IN MONTHS) | HOURS ☐☐<br>DAYS ☐☐<br>MONTHS ☐☐<br>DON'T KNOW ……..……98 | |
| 526 | Where did you first receive treatment for this complication?<br><br>**CHECK AND RECORD THE CODE FOR THE HEALTH FACILITY**<br><br>**PLEASE RECORD NAME IN FULL AND ITS LOCATION** | **HEALTH FACILITY CODE** ☐☐<br><br>HEALTH PROFESSION'S HOME ……11<br>RESPONDENT'S HOME ……..……12<br>TBA'S HOME ……13<br>TRADITIONAL HEALER'S HOME ...……14<br>PHARMACY(DRUG STORE) ……..……15<br><br>OTHER_____ 96<br>**(SPECIFY)** | |
| 527A | Who first treated the complication? | **HEALTH PROFESSIONAL**<br>DOCTOR ……..……..…11<br>NURSE ……..……...…12<br>MIDWIFE……..…… 13<br>CLINICAL OFFICER/ MEDICAL ASSISTANT .....14<br><br>**NON HEALTH PROFESSIONAL**<br>COMMUNITY HEALTH OFFICER ……....20<br>TRAINED TRADITIONAL BIRTH ATTENDANT ...21<br>UNTRAINED TRADITIONAL BIRTH ATTENDANT 22<br>TRADITIONAL HEALER ….……...……23<br>DISPENSER ……..……24<br>DRUG VENDOR ……..……25<br>NO ONE ……26<br>OTHER _____ 96<br>**(SPECIFY)** | |

| | | | |
|---|---|---|---|
| 527B | In your opinion, was the complication treated adequately? | YES ……1<br>NO ……2<br>DON'T KNOW……..8 | |
| 528A | Did the person who first treated you refer you to a hospital/clinic for care? | YES ……...1 → 529A<br>NO ……..…2 | |
| 528B | What did you do next? | NOTHING……..1<br>SOUGHT CARE ELSEWHERE……2<br>601<br>OTHER……...6<br>**(SPECIFY)** | |
| 529A | What was the reason given for the referral?<br>(Any other reason?)<br>RECORD ALL MENTIONED. | NO DOCTOR/NURSE AVAILABLE……..11<br>NO EQUIPMENT FOR OPERATION…..…12<br>NO DRUGS AVAILABLE..……..……13<br>NO BLOOD AVAILABLE…..……14<br>HIGH BLOOD PRESSURE……15<br>BABY POSITION NOT NORMAL……16<br>BABY PASSED STOOL INSIDE UTERUS…..17<br>PROLONGED LABOR…..……..18<br>OTHER _____ 96<br>(SPECIFY)<br>DON'T KNOW……98 | |
| 529B | Where were you referred to?<br>**CHECK THE CODE SHEET AND RECORD THE CODE FOR THE HEALTH FACILITY**<br>**PLEASE RECORD NAME IN FULL AND ITS LOCATION** | **HEALTH FACILITY CODE** ☐☐<br>HEALTH PROFESSION'S HOME ……..11<br>OTHER _____ 96<br>**(SPECIFY)** | |
| 529C | Did you go to the place referred? | YES……1 → 532<br>NO …..……2 | |
| 530 | Why did you not seek treatment from a hospital/health centre/clinic/health professional?<br>**RECORD ALL MENTIONED**. | TREATMENT NOT NECESSARY…… ……..…11<br>TRADITIONAL BELIEFS……...…..……12<br>COST OF TREATMENT TOO MUCH……13<br>COST OF TRANSPORTATION……14<br>TOO FAR……15<br>NOT EASY TO GET TRANSPORT……..16<br>NO ONE AVAILABLE TO ACCOMPANY……17<br>POOR SERVICE AT HEALTH FACILITY ……18<br>FAMILY DID NOT ALLOW……19<br>DID NOT KNOW HOW TO GO THERE……..20<br>THERE WAS NO TIME TO GO HEALTH FACILITY....21<br>DID NOT WANT TO BE DELIVERED<br>BY A MALE DOCTOR…..……22<br>SUCCESSFUL PREVIOUS CHILDBIRTH AT HOME ...23<br>OTHER _____96<br>**(SPECIFY)**<br>DON'T KNOW……..……98 | |

| | | |
|---|---|---|
| 531 | Who was involved in making the decision that you should NOT seek treatment from hospital/health centre/clinic/health professional?<br><br>**RECORD ALL MENTIONED**. | MYSELF……...……...…..11<br>HUSBAND……..……12<br>HEAD OF HOUSEHOLD…….……..…13<br>MOTHER……14<br>FATHER……..15<br>MOTHER-IN-LAW……..……...16<br>FATHER-IN-LAW…….……17<br>SISTER-IN-LAW…….……...18<br>TBA……..19<br>TRADITIONAL HEALER……..20<br>NEIGHBOUR……...21<br><br>OTHER (**SPECIFY**)_____96<br><br>DON'T KNOW……98 |
| 532 | Who accompanied you to health centre/hospital/health professional?<br><br>**RECORD ALL MENTIONED**. | NO ONE ..…….…11<br>HUSBAND……..……..…….12<br>HEAD OF HOUSEHOLD…..……..…..13<br>MOTHER……..……..……14<br>FATHER……...……..….15<br>MOTHER-IN-LAW…….……..…..16<br>FATHER-IN-LAW…….……17<br>SISTER-IN-LAW……18<br>TBA……...…..19<br>TRADITIONAL HEALER…….20<br>NEIGHBOUR....……..21<br>OTHER _____ 96<br>**(SPECIFY)**<br>DON'T KNOW……98 |
| 533 | How far is the hospital/health centre/clinic/health professional from where you were staying during the time you had the complication?<br><br>**(IF LESS THAN 1 KM THEN WRITE 00)** | KILOMETERS…….. ☐☐<br><br>DON'T KNOW……..98 |
| 534 | How much time did it take to go there?<br><br>**(IF LESS THAN 1 HOUR, WRITE IN MINUTES)** | MINUTES ☐☐<br>HOURS ☐☐<br>DON'T KNOW …….. ……98 |
| 535 | How did you go to the hospital/health centre? | PRIVATE CAR…….……..…11<br>TAXI……12<br>MATATU……13<br>BICYCLE……14<br>MOTORCYCLE……15<br>AMBULANCE ……..16<br>ON FOOT……...17<br><br>OTHER _____96<br>**(SPECIFY)**<br>NA……99 |
| 536 | Did you obtain transport easily, with difficulty, or did not get transport? | EASILY …….....1<br>WITH DIFFICULTY….....2<br>DID NOT GET TRANSPORT….....3<br>NA……..9 |
| 537 | How long did you wait between the time you first arrived at the hospital/clinic/care provider and the time you were examined by a health care provider/doctor?<br><br>**(IF LESS THAN 1 HOUR, WRITE IN MINUTES)** | MINUTES ☐☐<br>HOURS ☐☐<br>DON'T KNOW …….. ……98 |

| | | | |
|---|---|---|---|
| 538 | Were any of the following done for the treatment of complication?<br><br>**READ EACH PROCEDURE ALOUD AND RECORD RESPONSE BEFORE PROCEEDING TO THE NEXT ITEM**.<br>A Received blood transfusion<br>B Received intravenous fluid (drips)<br>C The doctor/nurse used a suction machine to get baby out (vacuum extraction)<br>D You had an abdominal operation to get baby out (C-SECTION)<br>E Episiotomy (cutting of vulva)<br>F. Other | YES NO NA DON'T KNOW<br>**A**. BLOOD TRANSFUSION…..1 2 9 8<br>**B.** INTEVENOUS FLUID……..1 2 9 8<br>**C.** VACUUM EXTRACTION…1 2 9 8<br>**D.** C-SECTION……1 2 9 8<br>**E.** EPISIOTOMY……..1 2 9 8<br>**F.** OTHER……..……..1 2 9 8 | |
| 539 | Did you obtain all the prescribed medicines at the health facility? | YES ……1<br>NO ……..….2<br>NA……9 | |
| 540 | **PLEASE TICK THE APPROPRIATE BOX** **CHECK 528A RESPONSE**:<br>IF 528A RESPONSE IS YES ☐ → → → 541<br>IF 528A RESPONSE IS NO ☐ → → → 601 | | |
| 541 | Did the hospital/clinic/service provider refer you to **another** hospital/clinic/service provider for care? | YES ……..1<br>NO ……2 → 601 | |
| 542 | What was the reason given for the referral?<br><br>(Any other reason?)<br><br>**RECORD ALL MENTIONED**. | NO DOCTOR/NURSE AVAILABLE……..11<br>NO EQUIPMENT FOR OPERATION……..…12<br>NO DRUGS AVAILABLE..……..……13<br>NO BLOOD AVAILABLE…..……14<br>HIGH BLOOD PRESSURE……..…15<br>BABY POSITION NOT NORMAL……16<br>BABY PASSED STOOL INSIDE UTERUS…..17<br>PROLONGED LABOR…..……..18<br>OTHER _____ 96<br>**(SPECIFY)**<br>DON'T KNOW……98 | |
| 543 | Where were you referred to?<br><br>**CHECK CODE SHEET AND RECORD THE CODE FOR THE HEALTH FACILITY**<br><br>**PLEASE RECORD NAME IN FULL AND ITS LOCATION** | **HEALTH FACILITY CODE** ☐☐<br>HEALTH PROFESSION'S HOME……..11<br>OTHER _____ 96<br>**(SPECIFY)** | |
| 544 | Did you go to the place referred? | YES……1<br>NO……2 → 546 | |
| 545 | How long after you arrived at…….. **(NAME OF HOSPITAL/CLINIC/SERVICE PROVIDER)** IN 544 were you treated?<br><br>**IF TIME IS LESS THAN 1 DAY, WRITE IN HOURS. IF TIME IS LESS THAN 1 MONTH THEN WRITE IN COMPLETED DAYS & IF TIME IS MORE THAN 30 DAYS THEN WRITE IN MONTHS**. | HOURS ☐☐<br>DAYS ☐☐<br>MONTHS ☐☐<br>DON'T KNOW …….. ……98 | |

| | | |
|---|---|---|
| 546 | In your opinion, was the complication treated adequately? | YES ……1<br>NO ……..…2<br>DON'T KNOW……...8 |
| 547 | Why did you not seek treatment from (NAME OF REFERRED HEALTH FACILITY in 543)?<br><br>**RECORD ALL MENTIONED**. | TREATMENT NOT NECESSARY…….……..…11<br>TRADITIONAL BELIEFS…….…..…..…12<br>COST OF TREATMENT TOO MUCH…….13<br>COST OF TRANSPORTATION……14<br>TOO FAR……..……..15<br>NOT EASY TO GET TRANSPORT……..16<br>NO ONE AVAILABLE TO ACCOMPANY……..17<br>POOR SERVICE AT HEALTH FACILITY ……..18<br>FAMILY DID NOT ALLOW……19<br>DID NOT KNOW HOW TO GO THERE……..20<br>THERE WAS NO TIME TO GO HEALTH FACILITY…...21<br>DID NOT WANT TO BE DELIVERED<br>BY A MALE DOCTOR……..…..22<br>SUCCESSFUL PREVIOUS CHILDBIRTH AT HOME…..23<br><br>OTHER _____ 96<br>**(SPECIFY)**<br>DON'T KNOW……..……98 |
| 548 | Who were the main people involved in making the decision that you should **NOT** seek treatment from (NAME OF REFERRED HEALTH FACILITY in or 536)?<br><br>**RECORD ALL MENTIONED**. | MYSELF……...……..…..11<br>HUSBAND/PARTNER……..……12<br>HEAD OF HOUSEHOLD……..……..13<br>MOTHER……..14<br>FATHER……15<br>MOTHER-IN-LAW……..……..16<br>FATHER-IN-LAW……..…17<br>SISTER-IN-LAW……..……..18<br>TBA……19<br>TRADITIONAL HEALER……20<br>NEIGHBOUR……..21<br><br>OTHER _____96<br>(**SPECIFY**)<br>DON'T KNOW……98 |

SECTION 6. ANTENATAL, DELIVERY AND POSTNATAL EXPENDITURE

| | | |
|---|---|---|
| | Now I would like to ask you some questions about how much you or your family paid for all the services you received during the pregnancy, delivery and after delivery (postnatal)? | |
| 601 | During your pregnancy, did you pay any money for any of the following?<br>a) Antenatal care<br>b) Delivery<br>c) Post Natal care<br><br>**RECORD Y FOR YES OR N FOR NO TO THE ANSWERS MENTIONED** | **Y / N**<br>**A**. DURING ANTENATAL CARE VISITS ☐<br>**B**. DURING DELIVERY ☐<br>**C**. DURING POST NATAL CARE ☐ |
| 602 | During your pregnancy, did you give anything in kind for any of the following<br>a) Antenatal care<br>b) Delivery<br>c) Post Natal care<br><br>**RECORD Y FOR YES OR N FOR NO TO THE ANSWERS MENTIONED** | **Y / N**<br>**A**. DURING ANTENATAL CARE VISITS ☐<br>**B**. DURING DELIVERY ☐<br>**C**. DURING POST NATAL CARE ☐ |
| 603 | Did you give any bribe to the health worker? | **Y / N** ☐ |

SECTION 6. ANTENATAL, DELIVERY AND POSTNATAL EXPENDITURE

| | |
|---|---|
| | Now I would like to ask you some questions about how much you or your family paid for all the services you received during the pregnancy, delivery and after delivery (postnatal)? |

| | | DURING PREGNANCY | DELIVERY | POST-NATAL (AFTER DELIVERY) |
|---|---|---|---|---|
| 604 | How much did you give to the health worker(s) apart from the hospital charges – that is any bribe?<br><br>**RECORD TO THE NEAREST TEN**<br>***HOSPITAL RELATED CHARGES*** | SHs ☐☐☐☐☐☐☐<br>NOTHING…… 0000000<br>DON'T KNOW…….9999998<br>NA……..9999999 | SHs ☐☐☐☐☐☐☐<br>NOTHING…… 0000000<br>DON'T KNOW…….9999998<br>NA……..9999999 | SHs ☐☐☐☐☐☐☐<br>NOTHING…… 0000000<br>DON'T KNOW…….9999998<br>NA……..9999999 |
| 605 | How much did you pay for laboratory tests?<br><br>**RECORD TO THE NEAREST TEN**<br>***HOSPITAL RELATED CHARGES*** | SHs ☐☐☐☐☐☐☐<br>NOTHING…… 0000000<br>NA……..9999999<br>DON'T KNOW…….9999998 | SHs ☐☐☐☐☐☐☐<br>NOTHING…… 0000000<br>NA……..9999999<br>DON'T KNOW…….9999998 | SHs ☐☐☐☐☐☐☐<br>NOTHING…… 0000000<br>NA……..9999999<br>DON'T KNOW…….9999998 |
| 606 | How much did you pay to the health worker(s) or hospital/health center?<br><br>**RECORD TO THE NEAREST TEN**<br>***HOSPITAL RELATED CHARGES*** | SHs ☐☐☐☐☐☐☐<br>NOTHING…… 0000000<br>NA……..9999999<br>DON'T KNOW…….9999998 | SHs ☐☐☐☐☐☐☐<br>NOTHING…… 0000000<br>NA……..9999999<br>DON'T KNOW…….9999998 | SHs ☐☐☐☐☐☐☐<br>NOTHING…… 0000000<br>NA……..9999999<br>DON'T KNOW…….9999998 |
| 607 | How much did you pay to the traditional birth attendant or healer?<br><br>**RECORD TO THE NEAREST TEN** | SHs ☐☐☐☐☐☐☐<br>NOTHING…… 0000000<br>NA……..9999999<br>DON'T KNOW…….9999998 | SHs ☐☐☐☐☐☐☐<br>NOTHING…… 0000000<br>NA……..9999999<br>DON'T KNOW…….9999998 | SHs ☐☐☐☐☐☐☐<br>NOTHING…… 0000000<br>NA……..9999999<br>DON'T KNOW…….9999998 |
| 608 | How much did you pay for medicines and medical supplies **at the health facility**?<br><br>**RECORD TO THE NEAREST TEN**<br>***HOSPITAL RELATED CHARGES*** | SHs ☐☐☐☐☐☐☐<br>NOTHING…… 0000000<br>NA……..9999999<br>DON'T KNOW…….9999998 | SHs ☐☐☐☐☐☐☐<br>NOTHING…… 0000000<br>NA……..9999999<br>DON'T KNOW…….9999998 | SHs ☐☐☐☐☐☐☐<br>NOTHING…… 0000000<br>NA……..9999999<br>DON'T KNOW…….9999998 |
| 609 | How much did you pay for medicines and medical supplies **outside the health facility**?<br><br>**RECORD TO THE NEAREST TEN**<br>***OTHER FEES/CHARGES*** | SHs ☐☐☐☐☐☐☐<br>NOTHING…… 0000000<br>NA……..9999999<br>DON'T KNOW…….9999998 | SHs ☐☐☐☐☐☐☐<br>NOTHING…… 0000000<br>NA……..9999999<br>DON'T KNOW…….9999998 | SHs ☐☐☐☐☐☐☐<br>NOTHING…… 0000000<br>NA……..9999999<br>DON'T KNOW…….9999998 |

| | | | | |
|---|---|---|---|---|
| 610 | How much did you pay to travel to the health facility and return and/or for the persons who accompanied you?<br><br>**RECORD TO THE NEAREST TEN**<br>***OTHER FEES/CHARGES*** | SHs ☐☐☐☐☐☐☐<br><br>NOTHING…… 0000000<br>NA……..9999999<br>DON'T KNOW…….9999998 | SHs ☐☐☐☐☐☐☐<br><br>NOTHING…… 0000000<br>NA……..9999999<br>DON'T KNOW…….9999998 | SHs ☐☐☐☐☐☐☐<br><br>NOTHING…… 0000000<br>NA……..9999999<br>DON'T KNOW…….9999998 |
| 611 | How much did you pay for food and lodging for yourself and/or the persons who accompanied you?<br><br>**RECORD TO THE NEAREST TEN**<br>***OTHER FEES/CHARGES*** | SHs ☐☐☐☐☐☐☐<br><br>NOTHING…… 0000000<br>NA……..9999999<br>DON'T KNOW…….9999998 | SHs ☐☐☐☐☐☐☐<br><br>NOTHING…… 0000000<br>NA……..9999999<br>DON'T KNOW…….9999998 | SHs ☐☐☐☐☐☐☐<br><br>NOTHING…… 0000000<br>NA……..9999999<br>DON'T KNOW…….9999998 |
| 612 | How much did you pay for other expenses?<br><br>_____<br>**SPECIFY**<br>**RECORD TO THE NEAREST TEN** | SHs ☐☐☐☐☐☐☐<br><br>NOTHING…… 0000000<br>NA……..9999999<br>DON'T KNOW…….9999998 | SHs ☐☐☐☐☐☐☐<br><br>NOTHING…… 0000000<br>NA……..9999999<br>DON'T KNOW…….9999998 | SHs ☐☐☐☐☐☐☐<br><br>NOTHING…… 0000000<br>NA……..9999999<br>DON'T KNOW…….9999998 |
| 613 | How much did you pay for other expenses?<br><br>_____<br>**SPECIFY**<br>**RECORD TO THE NEAREST TEN** | SHs ☐☐☐☐☐☐☐<br><br>NOTHING…… 0000000<br>NA……..9999999<br>DON'T KNOW…….9999998 | SHs ☐☐☐☐☐☐☐<br><br>NOTHING…… 0000000<br>NA……..9999999<br>DON'T KNOW…….9999998 | SHs ☐☐☐☐☐☐☐<br><br>NOTHING…… 0000000<br>NA……..9999999<br>DON'T KNOW…….9999998 |
| 614 | How much did you pay for other expenses?<br><br>_____<br>**SPECIFY**<br>**RECORD TO THE NEAREST TEN** | SHs ☐☐☐☐☐☐☐<br><br>NOTHING…… 0000000<br>NA……..9999999<br>DON'T KNOW…….9999998 | SHs ☐☐☐☐☐☐☐<br><br>NOTHING…… 0000000<br>NA……..9999999<br>DON'T KNOW…….9999998 | SHs ☐☐☐☐☐☐☐<br><br>NOTHING…… 0000000<br>NA……..9999999<br>DON'T KNOW…….9999998 |
| 615 | **SUM ANSWERS 604 – 614 AND ENTER TOTAL** | TOTAL…<br>☐☐☐☐☐☐☐☐ | TOTAL…<br>☐☐☐☐☐☐☐☐ | TOTAL…<br>☐☐☐☐☐☐☐☐ |
| 616 | **PLEASE TICK THE APPROPRIATE BOX**<br>**CHECK 615 RESPONSE FOR TOTAL DELIVERY EXPENDITURE** :<br><br>IF SUM IS NOT 0000000 ☐<br><br>IF SUM IS 0000000 ☐ → 619 | | | |

| | | | |
|---|---|---|---|
| 617 | Who paid for the costs associated with your last delivery? | MYSELF……11<br>HUSBAND……..12<br>HEAD OF HOUSEHOLD……13<br>OTHER RELATIVE……..14<br>OTHER COMMUNITY MEMBERS….15<br><br>WAS FREE OF CHARGE..……16<br>HEALTH INSURANCE SCHEME……17<br>EMPLOYER……18<br>OTHER _____ 96<br>**(SPECIFY)**<br>NA……99 | → 619 |
| 618 | How was the delivery paid for? | AVAILABLE CASH……..…11<br>SOLD ASSETS……..……12<br>BORROWED FROM RELATIVES…..…..13<br>BORROWED FROM OTHERS……14<br><br>OTHER _____ 96<br>**(SPECIFY)** | |
| 619 | Is delivery free of charge at the public hospital or health centers in this community? | YES ……..1<br>NO ……2<br>DON'T KNOW……8 | |
| 620 | Is there any health insurance scheme or any pre-pay plan available in this Community? | YES ……..1<br>NO ……2<br>DON'T KNOW……8 | |
| 621 | Do you participate in any pre-pay plan such as insurance or other program or an institutional arrangement that provides some of the payment for health services in this community? | YES ……..1<br>NO ……2 | |
| 622 | **PLEASE TICK THE APPROPRIATE BOX**<br>**CHECK 522A / 522B:**<br>OBTAINED<br>TREATMENT FOR COMPLICATION ☐ ↓ | ☐ → 624<br>DID NOT OBTAIN<br>TREATMENT FOR COMPLICATION | |
| 623 | How much did you pay in total for the treatment of (NAME OF COMPLICATION)?<br><br>**RECORD TO THE NEAREST TEN** | SHS…… ☐☐☐☐☐☐☐<br><br>NOTHING…… 0000000<br>NA……9999999<br>DON'T KNOW……9999998 | |

**QUALITY OF DELIVERY CARE IN LAST PREGNANCY: IF YOU DID NOT DELIVER AT HEALTH FACILITY <u>SKIP TO 701</u>** Now I would like to ask you about your overall experience with delivery care. Please indicate how much you agree or disagree with the following statements. The responses are "Strongly Agree", "Agree", "Disagree", and "Strongly Disagree".

| | ***During your labor and delivery in the health facility…*** | ***Strongly Agree*** | ***Agree*** | ***Disagree*** | ***Strongly Disagree*** | ***Don't Know*** | *Not Applicable* |
|---|---|---|---|---|---|---|---|
| 624 | You were given adequate privacy during the examinations by the nurse or doctor. | 1 | 2 | 3 | 4 | 8 | 9 |
| 625 | The providers explained your health status with terms that were understandable. | 1 | 2 | 3 | 4 | 8 | 9 |
| 626 | The providers listened to your questions or concerns. | 1 | 2 | 3 | 4 | 8 | 9 |
| 627 | The providers asked for your agreement before doing clinical procedures. | 1 | 2 | 3 | 4 | 8 | 9 |
| 628 | The providers left you alone for long periods of time. | 1 | 2 | 3 | 4 | 8 | 9 |
| 629 | Overall, the providers offered compassionate care. | 1 | 2 | 3 | 4 | 8 | 9 |
| 630 | The providers showed a genuine interest in your well-being. | 1 | 2 | 3 | 4 | 8 | 9 |
| 631 | The providers scolded or shouted at you. | 1 | 2 | 3 | 4 | 8 | 9 |
| 632 | The providers commented on your sexual behavior in a way that offended or embarrassed you. | 1 | 2 | 3 | 4 | 8 | 9 |
| 633 | The provider slapped you during labor. | 1 | 2 | 3 | 4 | 8 | 9 |

| | ***Future Delivery Intentions:*** | ***Very Likely*** | ***Somewhat Likely*** | ***Somewhat Unlikely*** | ***Very Unlikely*** | *Don't Know* | *Not Applicable* |
|---|---|---|---|---|---|---|---|
| 634 | Thinking about your experience, how likely are you to recommend this facility for delivery care to your family or friends? | 1 | 2 | 3 | 4 | 8 | 9 |
| 635 | Thinking about your experience, how likely would you be to deliver in this same facility again? | 1 | 2 | 3 | 4 | 8 | 9 |

SECTION 7. POSTNATAL CARE

| NO. | QUESTIONS AND FILTERS | CODING CATEGORIES | SKIP |
|---|---|---|---|
| | Now I would like to ask you some questions about the period after your last delivery. | | |
| 701 | In the six weeks after (NAME) was born, did a doctor or nurse check on your health or the health of your baby? | BABY ONLY……1<br>MOTHER ONLY……..2<br>BOTH……..……..3<br>NEITHER BABY NOR MOTHER……..4 → | 801 |
| 702 | How many days or weeks after the delivery did the first visit take place?<br><br>**RECORD '00' DAYS IF SAME DAY**<br><br>**NB: THIS REFERS TO MOTHER'S HEALTH** | DAYS ☐☐<br>WEEKS ☐☐<br><br>DON'T KNOW …….. ……98 | |

SECTION 8. HOUSEHOLD CHARACTERISTICS

| NO. | QUESTIONS AND FILTERS | CODING CATEGORIES | SKIP |
|---|---|---|---|
| | Now I would like to ask you some questions about your household. | | |
| 801 | MAIN MATERIAL OF THE DWELLING FLOOR<br><br>**RECORD YOUR OBSERVATION** | **NATURAL FLOOR**<br>EARTH/SAND ……..11<br>DUNG ……12<br>**RUDIMENTARY FLOOR**<br>WOOD PLANKS ……..13<br>PALM/BAMBOO ……14<br>**FINISHED FLOOR**<br>PARQUET OR POLISHED WOOD…..15<br>VINYL OF ASPHALT STRIPS ……16<br>CERAMIC TILES ……..17<br>CEMENT ……18<br>CARPET ……19<br><br>**OTHER** _____96<br>**(SPECIFY)** | |
| 802 | How many rooms in your household are used for sleeping? | ROOMS …… …….. ☐☐ | |
| 803 | Does your household own any mosquito nets that can be used to protect against mosquitoes while sleeping? | YES ……..1<br><br>NO ……2 →<br>DON'T KNOW ……8 | 805 |
| 804 | Did you sleep under a mosquito net during your last pregnancy? | YES……1<br>NO……..2 | |
| 805 | What is the main source of drinking water for members of your household?<br><br>**IF MORE THAN ONE SOURCE IS GIVEN, RECORD THE MOST USUAL SOURCE** | PIPED INTO DWELLING ……11<br>PIPED INTO YARD OR COMPOUND....12<br>PUBLIC TAP ……13<br>TUBEWELL/BOREHOLE WITH PUMP.14<br>PROTECTED DUG WELL ……..15<br>PROTECTED SPRING ……16<br>RAINWATER COLLECTION ……17<br>BOTTLED WATER ……..18<br>UNPROTECTED DUGWELL ……..19<br>UNPROTECTED SPRING ……...20<br>POND, RIVER OR STREAM ……...21<br>TANKER-TRUCK VENDOR ……...22<br><br>OTHER _____ 96<br>**(SPECIFY)** | |
| 806 | What kind of toilet facility does your household have? | FLUSH TO SEWAGE SYSTEM OR SEPTIC TANK<br>…….……11<br>POUR FLUSH LATRINE<br>(WATER SEAL TYPE) …..……12<br>IMPROVED PIT LATRINE (e.g. VIP)…….....13<br>TRADITIONAL PIT LATRINE ……..……14<br>OPEN PIT ……..……..15<br>BUCKET…….……..16<br>NO FACILITIES OR BUSH OR FIELD……..17<br><br>OTHER _____ 96<br>**(SPECIFY)** | |
| 807 | Does your household have: | YES NO | |

| | | | |
|---|---|---|---|
| | **READ EACH ITEM ALOUD AND RECORD RESPONSE BEFORE PROCEEDING TO THE NEXT ITEM.**<br>A. Electricity?<br>B. Solar Power?<br>C. A radio?<br>D. A television?<br>E. A refrigerator? | A. ELECTRICITY…….1 2<br>B. SOLAR……..1 2<br>C. RADIO ……..1 2<br>D. TELEVISION ……..1 2<br>E. REFRIGERATOR …...1 2 | |
| 808 | Does any member of your household own:<br><br>**READ EACH ITEM ALOUD AND RECORD RESPONSE BEFORE PROCEEDING TO THE NEXT ITEM**.<br>A. A bicycle?<br>B. A motorcycle or scooter?<br>C. A car or truck?<br>D. A mobile phone? | YES NO<br>A. BICYCLE……. 1 2<br>B. MOTORCYCLE/SCOOTER…1 2<br>C. CAR OR TRUCK…….. 1 2<br>D. MOBILE PHONE……..1 2 | |
| 809 | What type of fuel does your household mainly use for cooking? | ELECTRICITY……..11<br>LPG/NATURAL GAS …….. 12<br>BIOGAS ……13<br>KEROSENE ……..14<br>COAL, LIGNITE ……..15<br>CHARCOAL ……16<br>FIREWOOD, STRAW……..17<br>DUNG ……..18<br>OTHER _____ 96<br>(SPECIFY) | |
| 810 | **RECORD THE TIME** | **END TME** ☐☐☐☐<br>. | |

Thank you for taking time to answer these questions. I appreciate your time and effort.

**COMMENTS**

THE END

Part 2: Health facility questionnaire

**AFRICAN POPULATION AND HEALTH RESEARCH CENTER**
**MATERNAL HEALTH SERVICES SURVEY 2006**

**FACILITY SURVEY QUESTIONNAIRE**

| FACILITY IDENTIFICATION | |
|---|---|
| NAME OF THE FACILITY_____ | |
| FACILITY LOCATION_____ | |
| FACILITY ID_____ | ☐☐ |
| A.01 What is your designation? 1 = MATERNITY WARD IN-CHARGE; 2 = NEXT IN-CHARGE | ☐ |
| A.02 What type of health facility is this? 11 = NATIONAL REFERAL HOSPITAL; 12 = DISTRICT HOSPITAL; 13 = HEALTH CENTRE; 14 =HEALTH POST; 15 = PRIVATE MATERNITY; 16 = PRIVATE CLINIC; 96 = OTHER _____ | ☐☐ |
| A.03 Which of the following services does this facility offer? (CIRCLE ALL MENTIONED) PARENTERAL ANTIBIOTICS=**1**, PARENTERAL OXYTOCICS=**2**, PARENTERAL SEDATIVES FOR ECLAMPSIA=**3**, MANUAL REMOVAL OF PLACENTA=**4**, MANUAL REMOVAL OF RETAINED PRODUCTS=**5**, SURGERY=**6**, ANAESTHESIA=**7**, BLOOD TRANSFUSION=**8** | |
| A.04 Who is the operating authority of this facility?<br>11= GOVERNMENT 12 = PRIVATE 13 = RELIGIOUS MISSION<br>14 = NGO 15 = COMMUNITY OWNED 96 = OTHER _____ | ☐☐ |
| A.05 Which year was this facility established? (yyyy) | ☐☐☐☐ |
| A.06 Which year did this facility start offering obstetric services? (yyyy) | ☐☐☐☐ |

| INTERVIEWER VISITS | | | | |
|---|---|---|---|---|
| | 1 | 2 | 3 | FINAL VISIT |
| DATE | _____ | _____ | _____ | DAY ☐☐<br>MONTH ☐☐<br>YEAR ☐☐ |
| INTERVIEWER'S CODE | _____ | _____ | _____ | INTERVIEWER ☐☐ |
| *RESULT | _____ | _____ | _____ | RESULT ☐☐ |
| NEXT VISIT **DATE:** | _____ | _____ | | TOTAL NO. OF VISITS ☐ |
| **TIME:** | _____ | _____ | | |

*RESULT CODES:

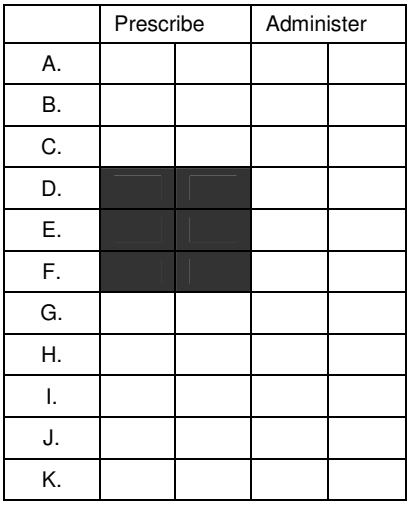
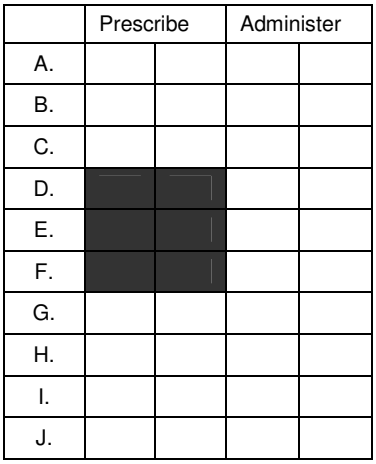
01 COMPLETED
02 INCHARGE AND ASSISTANT NOT AT HEALTH FACILITY
03 POSTPONED
04 REFUSED
05 PARTLY COMPLETED
06 OTHER: _____ SPECIFY

SECTION 1. RESPONDENT'S BACKGROUND

| NO. | QUESTIONS AND FILTERS | CODING CATEGORIES | SKIP |
|---|---|---|---|
| 100 | RECORD THE TIME | HOUR …… ☐☐<br>MINUTES …… ☐☐ | |
| 101 | What is your current technical qualification? | GYNAECOLOGIST/OBSTETRICIAN ……1<br>MEDICAL DOCTOR ……2<br>CLINICAL OFFICER.....3<br>KENYA ENROLLED NURSE..……4<br>KENYA ENROLLED COMMUNITY NURSE…….5<br>KENYA REGISTERED NURSE..……6<br>KENYA REGISTERED NURSE/MIDWIFE..……..7<br>KENYA REGISTERED COMMUNITY HEALTH NURSE…8<br>DIPLOMA IN ADVANCED NURSING……....9<br>BACHELOR IN NURSING…….……10<br>AUXILIARY NURSE/NURSE AIDE..……11<br>OTHER _____96<br>(SPECIFY) | |
| 102 | In what year did you graduate with this qualification? | YEAR ☐☐☐☐ | |
| 103 | In what year did you start working here? | YEAR…… ☐☐☐☐ | |
| 104 | RECORD GENDER | MALE……..…….……1<br>FEMALE……...2 | |
| 105 | How old were you at your last birthday? | AGE IN COMPLETED YEARS …….. ☐☐<br>REFUSED TO REVEAL……..97<br>DON'T KNOW……98 | |
| 106 | To which ethnic group do you belong?<br><br>(CIRCLE CORRECT RESPONSE) | EMBU……11<br>KALENJIN……12<br>KAMBA……..13<br>KIKUYU……14<br>KISII……...15<br>LUHYA……..16<br>LUO……17<br>MASAI……18<br>MERU……19<br>MIJIKENDA……..20<br>SOMALI…..……..21<br>SWAHILI……22<br>TAITA……23<br>TAVETA……24<br>OTHER (SPECIFY)..……..25<br>OTHER _____ 96<br>(SPECIFY) | |

SECTION 2. OBSTETRIC CARE STAFF

| | | |
|---|---|---|
| 201 | Now I am going to ask you some questions about the **highest** technical qualifications and the **number of the staff** with midwifery skills who were routinely assigned for obstetric care in the **last 3 months**. | |
| 201A | Obstetrician-gynecologist | OBSTETRICIAN-GYNECOLOGIST…. ☐☐ |
| 201B | Medical doctors | MEDICAL DOCTORS ……. ☐☐ |
| 201C | Clinical officers | CLINICAL OFFICERS …….. ☐☐ |
| 201D | Kenya enrolled nurse | KENYA ENROLLED NURSE……. ☐☐ |
| 201E | Kenya enrolled community nurse | KENYA ENROLLED COMMUNITY NURSE… ☐☐ |
| 201F | Kenya registered nurse | KENYA REGISTERED NURSE……... ☐☐ |
| 201G | Kenya registered nurse/midwife | KENYA REGISTERED NURSE/MIDWIFE ☐☐ |
| 201H | Kenya registered community health nurse | KENYA REGISTERED COMMUNITY HEALTH NURSE ☐☐ |
| 201I | Diploma in advanced nursing | DIPLOMA IN ADVANCED NURSING ☐☐ |
| 201J | Bachelor in nursing | BACHELOR IN NURSING ☐☐ |
| 201K | Midwives assistants | MIDWIVES ASSISTANTS……... ☐☐ |
| 201L | Auxiliary nurses/Nurse Aides | AUXILIARY NURSES/NURSE AIDES ……. ☐☐ |
| 201M | SUM THE NUMBER OF STAFF REPORTED IN 201A-L AND CHECK: "You have told me that you have _____ (NUMBER OF STAFF) who provide obstetric services. Is this correct? PROBE AND CORRECT IF NECESSARY | TOTAL 201A-J……. ☐☐<br>TOTAL 201A-L……. ☐☐ |

| | | |
|---|---|---|
| 202A | CHECK 201M:<br><br>How many of the staff (201A-J), that is **excluding the midwives assistants and auxiliary nurses**, are able prescribe/administer the following:<br><br>A. Parenteral antibiotics<br>B. Parenteral oxytocics<br>C. Parenteral anticonvulsants<br>D. Removal of retained placenta<br>E. D&C for removal of retained products<br>F. Manual vacuum aspiration<br>G. Assisted vaginal delivery (vacuum or forceps)<br>H. Blood transfusion<br>I. Intravenous fluids<br>J. Surgery (caesarean delivery)<br>K. Resuscitate newborn |  |
| 202B | How many **midwives assistants and auxiliary nurses/nurse aides**, are able to prescribe/ administer the following:<br>PUT 99 IF NOT APPLICABLE<br><br>A. Parenteral antibiotics<br>B. Parenteral oxytocics<br>C. Parenteral anticonvulsants<br>D. Removal of retained placenta<br>E. D&C for removal of retained products<br>F. Manual vacuum aspiration<br>G. Assisted vaginal delivery<br>H. Blood transfusion<br>I. Intravenous fluids<br>J. Resuscitate newborn |  |
| 203A | Is there an anesthetist in this facility? | YES……..1<br>NO……2 |
| 203B | Is there a laboratory technician in this facility? | YES……..1<br>NO……2 |
| 204 | Is HIV post-exposure prophylaxis offered to: all staff who accidentally get exposed to HIV-infected blood (eg. through needle prick) or to only those whose HIV | YES, ALL STAFF ……..……..…1<br>YES, ONLY THOSE HIV STATUS KNOWN ….2<br><br>NOT OFFERED AT ALL ……..…..3 |

| | | |
|---|---|---|
| | serostatus are known (to facility management)? | |
| 205 | When was the last time a supervisor from outside this facility came for a supervisory visit? | LESS THAN 6 MONTHS AGO……1<br>6 MONTHS – 12 MONTHS……..2<br>MORE THAN 12 MONTHS……..…3<br>NEVER……4 |

206 How many of the staff in this health facility had training in the following areas in calendar year 2005? (This could have been in a Continuing Medical Education (CME) session or short course) DON'T KNOW=98

| | | |
|---|---|---|
| 206A | Training in emergency obstetric care | TOTAL …….…… ☐☐ |
| 206B | Training in post-abortion care | TOTAL …….…… ☐☐ |
| 206C | Training in counseling and communication | TOTAL …….…… ☐☐ |
| 206D | Infection prevention (IP) | TOTAL …….…… ☐☐ |
| 206E | Prevention of mother to child transmission of HIV | TOTAL …….…… ☐☐ |
| 206F | Post-partum care | TOTAL …….…… ☐☐ |
| 206G | Neonatal care | TOTAL …….…… ☐☐ |
| 206H | Focused antenatal care | TOTAL …….…… ☐☐ |
| 206I | Intermittent preventive treatment of Malaria in pregnancy | TOTAL …….…… ☐☐ |
| 206J | Management skills | TOTAL …….…… ☐☐ |
| 206K | Other refresher courses in Safe Motherhood (specify _____) | TOTAL …….…… ☐☐ |

SECTION 3. SERVICE AND PROCEDURE

| | | | |
|---|---|---|---|
| 301 | Do you have an estimate of the size of the catchment population that this facility serves, that is, the target population or total population living in the area served by this facility?<br><br>IF YES, ASK "How many people is that?" | CATCHMENT POPULATION<br>☐☐☐☐☐☐☐<br>DON'T KNOW……9999998 | |
| 302 | Routinely, how many days each week is the facility open for obstetric services? | NUMBER OF DAYS…….. ☐<br>DON'T KNOW ……..… 8 | |
| 303 | Is there a nurse/midwife/doctor present at the labor ward at all times? (24 hours/day) | YES, ALWAYS PRESENT ……1➔<br>NO …… 2 | 305 |
| 304 | Is there a nurse/midwife/doctor available on call at all times after the official working hours? IF YES, ASK TO SEE DUTY SCHEDULE | YES, DUTY SCHEDULE SEEN …. 1<br>YES, NO DUTY SCHEDULE …….. 2<br>NO …… 3 | |
| 305 | Does this facility routinely charge for normal deliveries? | YES ……... 1<br>NO ……..…. 2 ➔ | 307A |
| 306 | What is the fee for normal delivery?<br><br>RECORD TO THE NEAREST HUNDRED IN Kshs | NORMAL DELIVERY<br>☐☐☐☐☐☐☐<br>DON'T KNOW…….9999998 | |
| 307A | What is the fee for antenatal care **(exclusive of lab tests)**?<br><br>RECORD TO THE NEAREST HUNDRED IN Kshs | ANTENATAL CARE ……..<br>First visit<br>☐☐☐☐☐☐☐<br>Other visit<br>☐☐☐☐☐☐☐<br>NOTHING…… 0000000<br>DON'T KNOW…….9999998 | |
| 307B | How much do you charge for laboratory test on the first visit?<br><br>RECORD TO THE NEAREST HUNDRED IN Kshs | 1st Visit<br>☐☐☐☐☐☐☐<br>NOTHING…… 0000000<br>DON'T KNOW…….9999998 | |
| 308 | What is the fee for caesarean section?<br><br>RECORD TO THE NEAREST HUNDRED IN Kshs<br><br>IF CAESARIAN SECTION NOT DONE AT FACILITY, RECORD '9999999' | CAESAREAN SECTION.<br>☐☐☐☐☐☐☐<br>NOTHING…… 0000000<br>DON'T KNOW…….9999998<br>NO C-SECTION…..…….9999999 | |
| 309 | Do midwives/doctors routinely provide home-deliveries or attend to obstetric emergencies at home? | YES, ROUTINELY ……1<br>YES, EMERGENCY ONLY …….2<br>NO ……3 | |

| | | | |
|---|---|---|---|
| 310A | How far is the nearest blood bank from Health facility? | WITHIN FACILITY…….1<br>LESS THAN 10 KM……...2<br>10 – 30 KM…….3<br>MORE THAN 30 KM…….4<br>DON'T KNOW …8 → | 311 |
| 310B | What is the actual distance in KM?<br>RECORD ACTUAL DISTANCE IF MENTIONED | ACTUAL DISTANCE MENTIONED<br>☐☐ | |
| 311 | Is active management of 3rd stage of labor (immediate use of oxytocin after delivery, cutting and clamping of the cord, and controlled cord traction) performed at this facility? | YES…….1<br>NO……...2 → | 313 |
| 312 | If active management of 3rd stage of labor is performed, which of the components of the intervention are routinely used:<br>**A.** Immediate oxytocin<br>**B.** Immediate misoprostol<br>**C.** Immediate ergometrine<br>**D.** Controlled cord traction<br>**E.** Cutting and clamping of the cord<br>**F.** Uterine massage<br>**G.** Other | YES NO NA<br>IMMEDIATE OXYTOCIN……. 1 2 9<br>IMMEDIATE MISOPROSTOL……. 1 2 9<br>IMMEDIATE ERGOMETRINE….. .1 2 9<br>CONTROLLED CORD TRACTION..1 2 9<br>CUTTING AND CLAMPING…….. 1 2 9<br>UTERINE MASSAGE…… 1 2 9<br>OTHER _____ …..6<br>(SPECIFY) | |
| 313 | Are relatives of a woman in labor allowed to be with her during labor? | YES……..…….1<br>NO……..…….....2 | |
| 314 | Is there an internal formal system of inquiry (audit) into all maternal deaths? | YES…….…….1<br>NO…….…….....2 | |
| 315 | Does this facility have a formal system for reviewing management or administrative issues? | YES……..…… 1<br>NO …….. 2<br>DON'T KNOW ……..8 → | 318 |
| 316 | How often do formal meetings to discuss this obstetric facility's management/administrative issues take place? | WEEKLY……1<br>MONTHLY …… 2<br>QUARTERLY …….... 3<br>SEMI-ANNUALLY …… 4<br>OTHER_____ 6<br>(SPECIFY) | |
| 317 | Do community members routinely take part in any of the management or administrative meetings? | YES …… 1<br>NO …… 2<br>DON'T KNOW …… 8 | |
| 318 | In the past 3 months have any changes been made in the service delivery because of client opinion? IF YES, DESCRIBE THE CHANGES MADE. | YES _____1<br>(SPECIFY)<br>NO …… 2<br>DON'T KNOW …… 8 | |
| | | | |

| | | | |
|---|---|---|---|
| 319 | Is there a waiting area for clients, where they are protected from sun and rain? | YES ……1<br>NO ……..2 | |
| 320 | In the last six months of calendar year 2005, how many times did (NAME OF HEALTH FACILITY) carry out health education in the community concerning delivery care? | TOTAL ……..…… ☐☐ | |
| 321 | Is induced abortion legal in Kenya? | YES ……....1 →<br>NO …….....2<br>YES, UNDER CERTAIN CONDITIONS . 3<br>DON'T KNOW ……....8 → | 323<br><br>323 |
| 322 | Under what conditions is induced abortion legal?<br><br>RECORD ALL RESPONSES MENTIONED SPONTANEIOUSLY | TO SAVE THE LIFE OF THE WOMAN ...1<br><br>IF THE PREGNANCY POSES RISK TO THE PHYSICAL OR MENTAL HEALTH OF THE WOMAN ……2<br><br>RAPE OR INCEST ……..3<br>FETAL ABNORMALITY……..4<br>OTHER _____ 6<br>(SPECIFY)<br>DON'T KNOW ..……..8 | |

| | | |
|---|---|---|
| 323 | RECORD THE ADMISSION-TO-TREATMENT INTERVAL (FROM THE TIME A WOMAN IN LABOUR ARRIVES AT HEALTH FACILITY TO THE TIME SHE IS ATTENDED TO).THIS WILL BE DONE ON A SAMPLE OF ARRIVING AT THE FACILITY. IF NOT DETERMINED RECORD '999'.<br>IF SHE WAS SEEN IMMEDIATELY, RECORD '000'.<br>MANAGEMENT SHOULD NOT BE ALERTED OF THIS OBSERVATION. MAKE ATLEAST 3 OBSERVATIONS PER HEALTH FACILITY. | 1ST Observation:<br>MINUTES ☐☐☐<br><br>2nd Observation:<br>MINUTES ☐☐☐<br><br>3rd Observation:<br>MINUTES ☐☐☐ |

GENERAL COMMENTS:

SECTION 4. REFERRAL AND COMMUNICATION SYSTEM

| NO. | QUESTIONS AND FILTERS | CODING CATEGORIES | SKIP |
|---|---|---|---|
| 401 | Is there a printed referral form that is sent with referrals from this facility?<br><br>RECORD "NOT APPLICABLE" IF FACILITY DOESN'T REFER TO OTHER FACILITIES. | YES.....1<br>NO.....2<br>NOT APPLICABLE……9 | |
| 402 | Does this facility have a **working phone** or short-wave radio transmitter? | YES……...1 → 404<br><br>NO…….....2 | |
| 403 | Is there a phone or short-wave radio transmitter within five minutes walking time from the facility that staff can use in an emergency?<br>IF YES: Is that phone or short-wave radio available 24 hours a day? | YES, AVAILABLE 24 HOURS……1<br>YES, NOT AVAILABLE<br>24 HOURS……2<br>NO, NONE WITHIN 5 MINUTES……3 | |
| 404 | Does this facility have a formal relationship with traditional birth attendants, in which training or other types of support are provided to the TBAs? | YES ……1<br>NO ……2 → 406 | |
| 405 | Is there any documentation available on the TBA program, (e.g. lists of affiliated TBAs or TBA training records, supervisory notes)? [ASK TO SEE DOCUMENTATION] | YES, DOCUMENT SEEN..... 1<br>YES, DOCUMENT NOT SEEN ..... 2<br>NO DOCUMENTATION ..... 3<br>NA……9 | |
| 406 | What is the **most** common means by which women are transported from home to this facility for help during obstetric emergencies? | PRIVATE CAR……..……11<br>TAXI……...12<br>MATATU……13<br>BICYCLE……...14<br>MOTORBIKE……15<br>ON FOOT……..16<br>HEALTH FACILITY VEHICLE ..……17<br>OTHER _____ 96<br>(SPECIFY | |
| 407 | Does this facility have a procedure/plan for transporting women to another facility if necessary in an obstetric emergency?<br><br>RECORD "NOT APPLICABLE" IF FACILITY DOESN'T REFER TO OTHER FACILITIES. | YES.....1<br>NO.....2<br>NOT APPLICABLE.....9 → 414 | |
| 408 | Which of the following means of emergency transport is available for emergency referral:<br><br>a. Emergency vehicle onsite at facility<br>b. Multi-use vehicle available at facility. May be used for emergency transfer.<br>c. Call other facility to send emergency vehicle<br>d. Relatives make vehicle arrangement when needed | AVAILABLE 24 HRS / AVAILABLE <24 HRS / NOT AVAILABLE / NOT APPLICABLE<br>A 1 2 3 9<br>B 1 2 3 9<br>C 1 2 3 9<br>D 1 2 3 9 | |

| | | | |
|---|---|---|---|
| 409 | On an average, how long does a woman wait | 0 – 14 MINS……..1 | |

| | | | |
|---|---|---|---|
| | before she leaves this facility to a referral facility? (DURATION FROM TIME A DECISION IS MADE TO TIME THE PATIENT IS TRANSFERED) | 15 – 29 MINS……2<br>30 – 44 MINS……3<br>45 – 59 MINS……4<br>MORE THAN 1 HOUR……5 | |
| 410 | What is the name of the nearest referral facility? | _____<br>(NAME OF FACILITY)<br>☐☐ | |
| 411 | How long does it take to get to the (NAME OF NEAREST REFERRAL FACILITY)? | 0 – 14 MINS……..1<br>15 – 29 MINS……2<br>30 – 44 MINS……3<br>45 – 59 MINS……4<br>MORE THAN 1 HOUR……5 | |
| 412a | How far is the (NAME OF NEAREST REFERRAL FACILITY)? | LESS THAN 10 KM…….....1<br>10 – 30 KM……2<br>MORE THAN 30 KM……3<br>DON'T KNOW……..8 → | 413 |
| 412B | What is the actual distance?<br>RECORD ACTUAL DISTANCE IF MENTIONED | ACTUAL DISTANCE MENTIONED ☐☐ | |
| 413 | WRITE DOWN THE DISTANCE TO THE NEAREST REFERRAL FACILITY IN KILOMETERS IF AVAILABLE FROM OTHER SOURCES SUCH AS THE ADMINISTRATION OR DISTRICT HEALTH MANAGEMENT TEAM | ☐☐<br>DON'T KNOW……..…98<br>NOT APPLICABLE……..99 | |
| 414 | How many obstetric emergencies were referred **to** this health facility in calendar year 2005? | ☐☐<br>REFERRALS RECEIVED<br>DON'T KNOW……98<br>NOT APPLICABLE...…….99 | |
| 415 | How many obstetric emergencies were referred **from** this health facility in calendar year 2005? | ☐☐<br>REFERRALS SENT……<br>DON'T KNOW……..98<br>NOT APPLICABLE……99 | |

SECTION 5. EQUIPMENT AND SUPPLIES

| NO. | QUESTIONS AND FILTERS | CODING CATEGORIES | SKIP |
|---|---|---|---|
| 501 | Does this facility have electricity? | YES ……1<br>NO ……2 → | 503 |
| 502 | Is the electricity always available during times when the facility is providing services or is it sometimes interrupted? If sometimes interrupted: on how many days during the past week was the electricity not available for two (2) or more hours? | ALWAYS AVAILABLE……...1<br>DAYS NOT AVAILABLE PAST WEEK …… ☐ | |
| 503 | What is the main source of water for use in the labor ward? | PIPED INTO WARD……. ……11<br>PIPED INTO YARD OR COMPOUND...12<br>PUBLIC TAP ……..……..13<br>BOREHOLE WITH PUMP……14<br>PROTECTED DUG WELL ……..15<br>PROTECTED SPRING ……16<br>RAINWATER COLLECTION ……..17<br>BOTTLED WATER ……..18<br>UNPROTECTED DUGWELL ……19<br>UNPROTECTED SPRING ……..20<br>POND, RIVER OR STREAM ……..21<br>TANKER-TRUCK VENDOR ……...22<br>OTHER _____ 96<br>(SPECIFY) | |
| 504 | Does staff wear protective gear/clothing (such as long arm gloves for manual removal of placenta) while conducting procedures in the operating surgical units or labor ward? | YES……..……..1<br>NO……..……2 | |
| 505 | After decontaminating and cleaning, what is the method most commonly used for sterilizing syringes and needles? | AUTOCLAVE……..11<br>DRY HEAT STERILIZATION ……..12<br>STEAM STERILIZATION……13<br>BOILING ONLY……..14<br>CHEMICAL ONLY……15<br>BOIL AND CHEMICAL……16<br>USE DISPOSABLES ONLY……17<br>NONE……..18<br>OTHER_____ 96<br>(SPECIFY) | |
| 506 | After decontaminating and cleaning, what is the **most** commonly used method for sterilizing other medical equipment (e.g., surgical instruments)? | AUTOCLAVE……..11<br>DRY HEAT STERILIZATION ……..12<br>STEAM STERILIZATION……13<br>BOILING ONLY……..14<br>CHEMICAL ONLY……15<br>BOIL AND CHEMICAL……16<br>USE DISPOSABLES ONLY……17<br>NONE……..18<br>OTHER_____ 96<br>(SPECIFY) | |
| 507 | Does your unit have guidelines **(Displayed in maternity ward)** on infection control? IF YES, ASK TO SEE THE GUIDELINES. | YES, GUIDELINES SEEN……...1<br>YES, BUT GUIDELINES NOT SEEN....2<br>NO ..... …3 | |

| | | | |
|---|---|---|---|
| 508 | ASSESS GENERAL CLEANLINESS OF FACILITY **(Maternity section):**<br>■A FACILITY IS CLEAN IF THE FLOORS ARE SWEPT, COUNTERS/TABLES ARE WIPED AND FREE FROM OBVIOUS DIRT OR WASTE.<br>■A FACILITY IS NOT CLEAN IF THERE IS OBVIOUS DIRT/WASTE/BROKEN OBJECTS ON FLOORS OR COUNTERS | FACILITY CLEAN ……..1<br>FACILITY NOT CLEAN ……2 | |

ASK TO SEE THE ROOM WHERE NORMAL DELIVERIES ARE CONDUCTED. FOR THE FOLLOWING ITEMS, CHECK TO SEE IF THE ITEM IS IN THE ROOM WHERE THE DELIVERY IS CONDUCTED OR IN AN IMMEDIATELY ADJACENT ROOM.

| | | | |
|---|---|---|---|
| 509 | DESCRIBE THE SETTING FOR THE DELIVERY ROOM | PRIVATE ROOM …….1<br>ROOM WITH OTHER PEOPLE WITH SEPARATING BARRIER ……2<br>ROOM WITH OTHER PEOPLE AND NO VISUAL BARRIER ……..3 | |
| 510 | Are different beds used for different stages of labor? | YES……..1<br>NO…….2 | |

| 511 | ITEMS REQUIRED FOR DELIVERY SERVICES | (a) Is item present? **IF NOT AVAILABLE OR DON'T KNOW SKIP TO NEXT ITEM OF Q511. FILL IN THE SPACES THE CORRESPONDING NUMBERS FOR THE ANSWERS** | | | | (b) Is item in working order? | | |
|---|---|---|---|---|---|---|---|---|
| | | OBSERVED | REPORTED AVAILABLE | NOT AVAILABLE | DONT KNOW | YES | NO | DONT KNOW |
| | | 1 | 2 | 3 | 8 | 1 | 2 | 8 |
| 511A | 24-hour functioning light source? (Lantern acceptable) | | | | | | | |
| 511B | Blood pressure gauge | | | | | | | |
| 511C | Stethoscope | | | | | | | |
| 511D | Bag and mask (or tube and mask) for resuscitation of newborn. | | | | | | | |
| 511E | Vacuum extractor | | | | | | | |
| 511F | General anesthetic equipment | | | | | | | |
| 511G | Manual vacuum aspirator | | | | | | | |
| 511H | Speculum and | | | | | | | |

| | | | | | | | | |
|---|---|---|---|---|---|---|---|---|
| | curettes | | | | | | | |
| 511I | Clean hand gloves | | | | | | | |
| 511J | Long arm gloves | | | | | | | |
| 511K | Water for hand washing | | | | | | | |
| 511L | Hand-washing items (soap and towel) | | | | | | | |

| 511 | ITEMS REQUIRED FOR DELIVERY SERVICES | (a) Is item Present? | | | | (b) Is item in working order? | | |
|---|---|---|---|---|---|---|---|---|
| | | OBSERVED | REPORTED AVAILABLE | NOT AVAILABLE | DONT KNOW | YES | NO | DON'T KNOW |
| | | 1 | 2 | 3 | 8 | 1 | 2 | 8 |
| 511M | Sharps container | | | | | | | |
| 511N | IV infusion set | | | | | | | |
| 511O | Intravenous fluids | | | | | | | |
| 511P | Parenteral antibiotics | | | | | | | |
| 511Q | Parenteral magnesium sulphate | | | | | | | |
| 511R | Parenteral antihypertensives | | | | | | | |
| 511S | Parenteral sedatives | | | | | | | |
| 511T | Blood bank | | | | | | | |
| 511U | National reproductive health policy documents | | | | | | | |
| 511V | National reproductive health service protocols | | | | | | | |
| 511W | Other protocols for delivery care | | | | | | | |
| 511X | Sutures | | | | | | | |
| 511Y | Blank partograph | | | | | | | |

| | | | |
|---|---|---|---|
| 512 | CHECK 511Y:<br>IF PARTOGRAPH IS NOT AVAILABLE, SKIP TO …….<br><br>Was a partograph used for the last vaginal delivery?<br><br>IF THE LAST DELIVERY ARRIVED IN SECOND STAGE OF LABOR, ASK ABOUT THE DELIVERY BEORE THE LAST ONE. | …➔……➔…….. ➔ ……. ➔.<br><br>YES ……..1<br>NO ……..2 | 601 |

SECTION 6. MANAGEMENT INFORMATION SYSTEM

| NO. | QUESTIONS AND FILTERS | CODING CATEGORIES | SKIP |
|---|---|---|---|
| 601 | Is there a register where client information from attended births is recorded? IF YES, ASK TO SEE REGISTER.<br>YOU MAY HAVE TO CHECK OTHER REGISTERS SUCH AS FEMALE WARD REGISTER, GYNECOLOGY REGISTER, OR OPERATING THEATRE REGISTER IN ORDER TO COMPLETE THE QUESTIONS BELOW | YES, REGISTER SEEN……..1<br>YES, REGISTER NOT SEEN…….2<br>NO……..3 → | 701A |
| 602 | How recent is the date of the most recent entry for an attended birth?<br>THE DAY OF THE INTERVIEW IS DAY 1 | WITHIN A DAY .....1<br>2 – 7 DAYS .....2<br>8 – 30 DAYS……..3<br>MORE THAN 30 DAYS……4<br>N0 ENTRY……5 | |
| 603 | How many women registered at this facility for their first antenatal visit during calendar year 2005?<br>NOTE: THIS IS NOT THE TOTAL NUMBER OF ENTRIES RECORDED IN THE ANTENATAL REGISTER | ANTENATAL CARE…. ☐☐☐☐☐<br>DON'T KNOW……99998 | |
| 604 | How many women were delivered at this facility during the calendar year 2005? | NUMBER OF BIRTHS.. ☐☐☐☐☐<br>DON'T KNOW……99998 | |
| 605 | How many of the deliveries in 2005 were normal vaginal deliveries? | NORMAL VAGINAL DELIVERIES. ☐☐☐☐☐<br>DON'T KNOW……99998 | |
| 606 | How many of the deliveries in 2005 were assisted vaginal deliveries (vacuum extraction or forceps)?<br>IF NOT APPLICABLE, RECORD '99999' | ASSISTED VAGINAL DELIVERIES ☐☐☐☐☐<br>NOT APPLICABLE……99999<br>DON'T KNOW……99998 | |
| 607 | How many of the deliveries in 2005 were caesarean deliveries?<br>IF CAESARIAN SECTION NOT DONE AT FACILITY, RECORD AS NOT APPLICABLE | NUMBER OF CAESAREAN SECTIONS ☐☐☐☐☐<br>NA……99999<br>DON'T KNOW……99998 | |
| 608 | What percentage of deliveries in your catchment area is conducted by this facility? (e.g. your annual coverage rate)<br>RECORD PERCENTAGE COVERAGE IF IT WAS DOCUMENTED | % COVERAGE…… ☐☐<br>CATCHMENT AREA UNKNOWN..... 00<br>DON'T KNOW ..... 98 | |
| 609 | How many facility-based maternal death inquiries were carried out in 2005? | FACILITY-BASED INQUIRIES……. ☐☐☐<br>NA……..999<br>DON'T KNOW……998 | |

| | | | |
|---|---|---|---|
| 610 | How many community-based maternal death inquiries were carried out in 2005? | COMMUNITY-BASED INQUIRIES… ☐☐<br>NA……999<br>DON'T KNOW……998 | ☐ |

| | | | |
|---|---|---|---|
| 611 | How many of the following services were performed in calendar year 2005?<br>RECORD 'XXXX' IF THE SERVICE WAS NOT AVAILABLE; RECORD YYYY IF THE SERVICE IS ROUTINELY PROVIDED BUT NUMBER NOT READILY KNOWN; RECORD 9999 IF SERVICE IS PROVIDED BUT RECORDS ARE NOT AVAILABLE. | | |
| 611A | Parenteral antibiotics | PARENTERAL ANTIBIOTICS | ☐☐☐☐ |
| 611B | Parenteral oxytocics | PARENTERAL OXYTOCICS | ☐☐☐☐ |
| 611C | Parenteral sedatives | PARENTERAL SEDATIVES | ☐☐☐☐ |
| 611D | Parenteral anticonvulsants | PARENTERAL ANTICONVULSANTS | ☐☐☐☐ |
| 611E | Manual removal of placenta | MANUAL REMOVAL OF PLACENTA | ☐☐☐☐ |
| 611F | Assisted vaginal delivery | ASSISTED VAGINAL DELIVERY | ☐☐☐☐ |
| 611G | Blood transfusion | BLOOD TRANSFUSION | ☐☐☐☐ |
| 611H | Partograph | PARTOGRAPH | ☐☐☐☐ |
| 611I | Manual vacuum aspiration for miscarriage | MANUAL VACUUM ASPIRATION FOR MISCARRIAGE | ☐☐☐☐ |
| 611J | Manual vacuum aspiration for induced abortion | MANUAL VACUUM ASPIRATION FOR INDUCED ABORTION | ☐☐☐☐ |
| 611K | Dilatation and curettage for miscarriage | DILATATION AND CURRETAGE FOR MISCARRIAGE | ☐☐☐☐ |
| 611L | Dilatation and curettage for Induced abortion | DILATATION AND CURRETAGE FOR INDUCED ABORTION | ☐☐☐☐ |
| 611M | Operation for ectopic pregnancy | ECTOPIC PREGNANCY OPERATION | ☐☐☐☐ |
| 611N | Neonatal resuscitation with Bag and mask (or tube and mask) | NEONATAL RESUSCITATION | ☐☐☐☐ |

612 CHECK THE DELIVERY REGISTER TO FIND OUT WHETHER IT IS POSSIBLE TO GET INFORMATION ON THE FOLLOWING IN CALENDAR YEAR 2005

**CHECK 601** YES ↓ NO or YES, REGISTER NOT SEEN → 616C

| | | YES | NO | NA |
|---|---|---|---|---|
| 612A | HAVE ALL THE COLUMNS IN THE REGISTER BEEN FILLED | 1 | 2 | 9 |
| 612B | REASON FOR ADMISSION | 1 | 2 | 9 |
| 612C | COMPLICATIONS OF DELIVERY | 1 | 2 | 9 |
| 612D | DURATION OF PREGNANCY | 1 | 2 | 9 |
| 612E | AGE | 1 | 2 | 9 |
| 612F | PARITY | 1 | 2 | 9 |
| 612G | TYPE OF DELIVERY | 1 | 2 | 9 |
| 612H | OUTCOME OF DELIVERY . | 1 | 2 | 9 |
| 612I | REASON FOR REFERRAL EITHER TO OR FROM THE HEALTH FACILTIY | 1 | 2 | 9 |

YEAR 2004. COMPLICATED OBSTETRIC CASES

| 613A<br>COMPLICATION<br><br>*IF A WOMAN HAD MORE THAN ONE COMPLICATION, SELECT THE MOST LIFE THREATENING. BUT IF ABORTION WITH ANOTHER COMPLICATION SUCH AS HEMORRHAGE, SELECT ABORTION* | CALENDAR YEAR 2004<br><br>MONTH | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 | 10 | 11 | 12 | TOTAL |
| HEMORRHAGE (ANTE PARTUM) | | | | | | | | | | | | | |
| HEMORRHAGE (POST PARTUM) | | | | | | | | | | | | | |
| PROLONGED/OBSTRUCTED LABOR | | | | | | | | | | | | | |
| POST PARTUM SEPSIS | | | | | | | | | | | | | |
| COMPLICATIONS OF ABORTION | | | | | | | | | | | | | |
| PRE-ECLAMPSIA /ECLAMPSIA | | | | | | | | | | | | | |
| ECTOPIC PREGNANCY | | | | | | | | | | | | | |
| RUPTURED UTERUS | | | | | | | | | | | | | |
| RETAINED PLACENTA | | | | | | | | | | | | | |
| MALARIA | | | | | | | | | | | | | |
| ANEMIA | | | | | | | | | | | | | |
| OTHER COMPLICATION<br>_____<br>SPECIFY | | | | | | | | | | | | | |
| OTHER COMPLICATION<br>_____<br>SPECIFY | | | | | | | | | | | | | |
| OTHER COMPLICATION<br>_____<br>SPECIFY | | | | | | | | | | | | | |
| ALL OTHER COMPLICATIONS NOT CATEGORIZED ABOVE | | | | | | | | | | | | | |
| MONTHLY TOTAL | | | | | | | | | | | | | |

| 613B | CHECK GRAND TOTAL IN 613A:<br><br>RECORD THE TOTAL NUMBER OF COMPLICATED OBSTETRIC CASES IN 2004 | TOTAL COMPLICATIONS. ☐☐☐☐<br><br>DON'T KNOW ……99998 | |
|---|---|---|---|

YEAR 2005. COMPLICATED OBSTETRIC CASES

| 614A COMPLICATION<br>*IF A WOMAN HAD MORE THAN ONE COMPLICATION, SELECT THE MOST LIFE THREATENING. BUT IF ABORTION WITH ANOTHER COMPLICATION SUCH AS HEMORRHAGE, SELECT ABORTION* | CALENDAR YEAR 2005<br>MONTH | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 | 10 | 11 | 12 | TOTAL |
| HEMORRHAGE (ANTE PARTUM) | | | | | | | | | | | | | |
| HEMORRHAGE (POST PARTUM) | | | | | | | | | | | | | |
| PROLONGED/OBSTRUCTED LABOR | | | | | | | | | | | | | |
| POST PARTUM SEPSIS | | | | | | | | | | | | | |
| COMPLICATIONS OF ABORTION | | | | | | | | | | | | | |
| PRE-ECLAMPSIA /ECLAMPSIA | | | | | | | | | | | | | |
| ECTOPIC PREGNANCY | | | | | | | | | | | | | |
| RUPTURED UTERUS | | | | | | | | | | | | | |
| RETAINED PLACENTA | | | | | | | | | | | | | |
| MALARIA | | | | | | | | | | | | | |
| ANEMIA | | | | | | | | | | | | | |
| OTHER COMPLICATION<br>_____<br>SPECIFY | | | | | | | | | | | | | |
| OTHER COMPLICATION<br>_____<br>SPECIFY | | | | | | | | | | | | | |
| OTHER COMPLICATION<br>_____<br>SPECIFY | | | | | | | | | | | | | |
| ALL OTHER COMPLICATIONS NOT CATEGORIZED ABOVE | | | | | | | | | | | | | |
| MONTHLY TOTAL | | | | | | | | | | | | | |

| 614B | CHECK GRAND TOTAL IN 614A:<br><br>RECORD THE TOTAL NUMBER OF COMPLICATED OBSTETRIC CASES IN 2005 | TOTAL COMPLICATIONS..<br><br>DON'T KNOW……99998 | |
|---|---|---|---|

YEAR 2004. FACILITY-BASED MATERNAL DEATHS

| 615A<br>CAUSE OF DEATH<br>*IF MORE THAN ONE CAUSE OF DEATH, USE THE MOST LIFE THREATENING.* | CALENDAR YEAR 2004<br>MONTH | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 | 10 | 11 | 12 | TOTAL |
| HEMORRHAGE (ANTEPARTUM) | | | | | | | | | | | | | |
| HEMORRHAGE (POSTPARTUM | | | | | | | | | | | | | |
| PROLONGED/OBSTRUCTED LABOR | | | | | | | | | | | | | |
| POST PARTUM SEPSIS | | | | | | | | | | | | | |
| COMPLICATIONS OF ABORTION | | | | | | | | | | | | | |
| PRE-ECLAMPSIA /ECLAMPSIA | | | | | | | | | | | | | |
| ECTOPIC PREGNANCY | | | | | | | | | | | | | |
| RUPTURED UTERUS | | | | | | | | | | | | | |
| HIV/AIDS | | | | | | | | | | | | | |
| RETAINED PLACENTA | | | | | | | | | | | | | |
| MALARIA | | | | | | | | | | | | | |
| ANEMIA | | | | | | | | | | | | | |
| OTHER CAUSE<br>_____<br>SPECIFY | | | | | | | | | | | | | |
| OTHER CAUSE<br>_____<br>SPECIFY | | | | | | | | | | | | | |
| OTHER CAUSE<br>_____<br>SPECIFY | | | | | | | | | | | | | |
| ALL OTHER CAUSES OF DEATH NOT CATEGORIZED ABOVE | | | | | | | | | | | | | |
| TOTAL MATERNAL DEATHS | | | | | | | | | | | | | |

| 615B | CHECK GRAND TOTAL IN 615A:<br><br>RECORD THE TOTAL NUMBER OF MATERNAL DEATHS IN 2004 | TOTAL MATERNAL DEATHS<br><br>DON'T KNOW ……99998 | |
|---|---|---|---|

YEAR 2005. FACILITY-BASED MATERNAL DEATHS

| 616A CAUSE OF DEATH *IF MORE THAN ONE CAUSE OF DEATH, USE THE MOST LIFE THREATENING.* | CALENDAR YEAR 2005 MONTH | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 | 10 | 11 | 12 | TOTAL |
| HEMORRHAGE (ANTEPARTUM) | | | | | | | | | | | | | |
| HEMORRHAGE (POSTPARTUM | | | | | | | | | | | | | |
| PROLONGED/OBSTRUCTED LABOR | | | | | | | | | | | | | |
| POST PARTUM SEPSIS | | | | | | | | | | | | | |
| COMPLICATIONS OF ABORTION | | | | | | | | | | | | | |
| PRE-ECLAMPSIA /ECLAMPSIA | | | | | | | | | | | | | |
| ECTOPIC PREGNANCY | | | | | | | | | | | | | |
| RUPTURED UTERUS | | | | | | | | | | | | | |
| HIV/AIDS | | | | | | | | | | | | | |
| RETAINED PLACENTA | | | | | | | | | | | | | |
| MALARIA | | | | | | | | | | | | | |
| ANEMIA | | | | | | | | | | | | | |
| OTHER CAUSE _____ SPECIFY | | | | | | | | | | | | | |
| OTHER CAUSE _____ SPECIFY | | | | | | | | | | | | | |
| OTHER CAUSE _____ SPECIFY | | | | | | | | | | | | | |
| ALL OTHER CAUSES OF DEATH NOT CATEGORIZED ABOVE | | | | | | | | | | | | | |
| TOTAL MATERNAL DEATHS | | | | | | | | | | | | | |

| | | | |
|---|---|---|---|
| 616B | CHECK GRAND TOTAL IN 616A:<br>RECORD THE TOTAL NUMBER OF MATERNAL DEATHS IN 2005 | TOTAL MATERNAL DEATHS ☐☐☐☐☐<br>DON'T KNOW ……99998 | |
| 616C | How many of the maternal deaths in (NAME OF HEALTH FACILITY) IN YEAR 2005 received death certificates? | DEATH CERTIFICATE.. ☐☐<br>DON'T KNOW……98<br>NA……99 | |
| 616D | How many maternal deaths occurred in the communities in your catchment area (that is deaths outside your health facility) in year 2005 was noted in your records? | COMMUNITY DEATHS. ☐☐<br>DON'T KNOW……98<br>NA……99 | |

## SECTION 7. DESCRIPTIVE REPORT

701A. In your opinion how can obstetric care in (NAME HEALTH FACILITY) be improved? How about obstetric care in this district?

RECORD THE RESPONSES VERBATIM. DO NOT PROMPT EXCEPT FOR ASKING WHETHER THERE WAS ANYTHING ELSE AFTER THE RESPONDENT FINISHES.

701B. In your opinion how can staffing in this (NAME HEALTH FACILITY) be improved? How can the staff be motivated?

RECORD THE RESPONSES VERBATIM. DO NOT PROMPT EXCEPT FOR ASKING WHETHER THERE WAS ANYTHING ELSE AFTER THE RESPONDENT FINISHES.

| | | | |
|---|---|---|---|
| 800 | RECORD THE TIME | HOUR ……<br>MINUTES …… | ☐☐<br>☐☐ |

Thank you for taking time to answer these questions. I appreciate your time and effort.

THE END.

## Appendix B: Authorisation for data use

### Data Use Agreement Guidelines

The African Population and Health Research Center (APHRC) strives to conduct research that is ethically sound, and in line with this, the Center aims to protect participants from any harm, by ensuring that participants' privacy and confidentiality are not violated throughout the research process.

Since our respondents provide enormous amounts of personal information, the Center takes the promise of respondent anonymity very seriously. We have tried to ensure we keep the identity of our respondents and therefore the information they provide confidential by stripping analytical data of all identifiers. We have also set guidelines that will govern data sharing with researchers based in other institutions/organizations to ensure that data are released only to persons who are committed to protecting the rights of respondents.

The Data Request Form has been developed in an effort to permit responsible sharing of data to the maximum number of responsible researchers while ensuring that respondents' rights are respected. By entering into this agreement, the undersigned agrees to use these data only for the purpose for which they were obtained. Each application for access to data will be reviewed to ensure that the person requesting data agrees to the conditions of use and has provided specific contact information and plans for use of the data requested. No data will be distributed without such approval.

Please read the guidelines below and fill the Data Request Form and send it by e-mail or mail it to:

Dr Eliya Zulu
Director of Research
The African Population and Health Research Center
P.O. Box 10787
GPO-00100
Nairobi
E-mail: ezulu@aphrc.org

All researchers seeking to use the Center's data need to note the following guidelines:

**1. Purpose:** The provided data must be used for the purpose specified in the Data Request Form; any other use not specified in the form must receive authorization.

**2. Confidentiality:** You will not attempt to use nor permit others to use the data to learn the identity of any individual, household or community included in any data set. You will also not use nor permit others to use the data to report information that could identify, directly or by inference, individuals or households.

**3. Acknowledgement:** Any work/reports from this data must include an appropriate acknowledgement of the source of these data. Suggested acknowledgement:

This research uses data from the Nairobi Cross-sectional Slums Survey (NCSS) conducted by The African Population and Health Research Center (Nairobi).

**4. Access to others:** You will not release nor permit others to release the data sets or any part of them to any person who is not a member of your research team. Other individuals who are part of your research team will be required to read these guidelines and sign the data use agreement form.

**5. Errors:** You will promptly notify the African Population and Health Research Center of any errors discovered in the data.

**6. Security:** You will ensure that the data are used in a secure environment where access to the storage medium used is password protected.

**7. Loss of privilege to use data:** In the event that the African Population and Health Research Center determines that you are in violation of the conditions for using the data, or if you wish to cancel this agreement, you will agree to destroy the data files upon request. APHRC retains the right to revoke this agreement or withhold publication of any work based wholly or in part on the data in this agreement.

**8. Data Ownership:** The data remain the property of APHRC; reproduction of the data and sharing the data with unauthorized individuals/institutions are not permitted.

**9. Reports/Papers:** At the conclusion of the proposed research, or at any other time as may be requested by the African Population and Health Research Center, you will submit at least one copy of any report or published work based in whole or in part on the data to the contact person whose details are given on the first page.

**10. Change of contact details:** You will promptly inform the contact person named above (page 1) of any change in your personal details as contained on this data request form.

**Data Request Form:**

Please provide a description of the data requested and how you plan to use the data as well as the expected duration of use:_

I wish to request the use of the World Bank funded Maternal Health Survey of Korogocho and Viwandani conducted in 2006. I wish to specifically use the Household and Health Facility Questionnaire data.

I wish to use the data to prepare a research report in partial fulfillment of the requirements for the completion of a Masters in Public Health at the University of the Witwatersrand, Johannesburg, South Africa. I expect to complete the research report by December, 2008.

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By signing this document, the individual indicates willingness to comply with the above terms.

Name of person
entering agreement (print)___Nkeonyere Ezeh_____

Title:__Mrs_____

Organization/institution:_School of Public Health, University of the Witwatersrand, Parktown, Johannesburg.
Postal address:_____

E-mail (Print):_nezeh@yahoo.com_____

Signature:_____

Date:_26th April, 2007_____

**To be filled by the authorizing research staff at APHRC.**

**Name (print)** ELIYA ZULU

**Signature** [signature]

**E-mail (print)** ezulu@aphrc.org

**Date** 30-04-07

## Appendix C: Ethical Clearance – University of the Witwatersrand

**UNIVERSITY OF THE WITWATERSRAND, JOHANNESBURG**

Division of the Deputy Registrar (Research)

**HUMAN RESEARCH ETHICS COMMITTEE (MEDICAL)**
R14/49 Ezeh

| | |
|---|---|
| **CLEARANCE CERTIFICATE** | **PROTOCOL NUMBER M071146** |
| **PROJECT** | Differences in Characteristics of Women Who Initiate Antenatal Care Early and Late in Two Slums of Nairobi, Kenya |
| **INVESTIGATORS** | Ms NF Ezeh |
| **DEPARTMENT** | School of Public Health |
| **DATE CONSIDERED** | 07.11.30 |
| **DECISION OF THE COMMITTEE*** | APPROVED UNCONDITIONALLY |

**Unless otherwise specified this ethical clearance is valid for 5 years and may be renewed upon application.**

**DATE** 07.12.07 **CHAIRPERSON** .....
(Professors PE Cleaton-Jones, A Dhai, M Vorster, C Feldman, A Woodiwiss)

*Guidelines for written 'informed consent' attached where applicable

cc: Supervisor : Prof K Kahn

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**DECLARATION OF INVESTIGATOR(S)**

To be completed in duplicate and **ONE COPY** returned to the Secretary at Room 10005, 10th Floor, Senate House, University.
I/We fully understand the conditions under which I am/we are authorized to carry out the abovementioned research and I/we guarantee to ensure compliance with these conditions. Should any departure to be contemplated from the research procedure as approved I/we undertake to resubmit the protocol to the Committee. **I agree to a completion of a yearly progress report.**

PLEASE QUOTE THE PROTOCOL NUMBER IN ALL ENQUIRIES

**Appendix D: Ethical Clearance for the Maternal Health Project - KEMRI**

# KENYA MEDICAL RESEARCH INSTITUTE

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KEMRI/RES/7/3/1

14th February 2006

Dr. Nyovani J. Madise
African Population and Health Research Center,
**NAIROBI**

Dear Sir,

Re: NON SSC Protocol – Averting preventable maternal mortality: Delays and barriers to the utilization of emergency obstetric care, by N. J. Madise et al (African Population and Health Research Center)

During the 129th Meeting of the KEMRI/National Ethical Review Committee held on 14th February 2006 the above protocol was discussed.

The Committee noted that you would like to provide an understanding of the delays and barriers to emergency obstetric care utilization, to identify the maternal health intervention strategies to improve emergency obstetric care utilization and ultimately to reduce maternal mortality and morbidity levels

It was agreed that the protocol be granted approval.

C. L. Wasunna,
For: Secretary,
**KEMRI/NATIONAL ETHICAL REVIEW COMMITTEE**

## Appendix E: Consent Form for the Maternal Health Project

**Africa Population and Health Research Center**
**Institution Review Board**

**CONSENT FORM**
**Household Interview (Women who delivered in 2004-2005)**

**Averting Preventable Maternal Mortality: Delays and barriers to the Utilization of Emergency Obstetric Care in urban poor areas of Nairobi City, Kenya**

Explanation of Research Project:

**PURPOSE OF STUDY:**
Hello, my name is _____ and I work with the Africa Population and Health Research Center. The purpose of this interview is to gain an understanding of the experiences of women in this community during childbirth and the expenses involved. The Africa Population and Health Research Center, with assistance from the World Bank, is undertaking this study. All women who have delivered in Korogocho and Viwandani in 2004 and 2005 have been selected.

**PROCEDURES:**
You are among 2300 women who will be interviewed. If you agree to take part in this study, you will be asked questions about yourself, your experiences and the care you received during your last childbirth. This interview will take about thirty minutes of your time. You will be interviewed only once. You will not be paid any money by taking part in this study.

**RISKS/DISCOMFORTS:**
This interview is not expected to cause you any harm but if you feel uncomfortable with some of the questions you can choose not to answer any question(s) but can decide to continue with the interview.

**BENEFITS:**
The results of the study may help the Ministry of Health in Kenya to improve health services in this and other districts. The chiefs and the community will be informed of the findings when the study is completed.

**CONFIDENTIALITY:**
Your responses will be private and confidential. Your name will not be written on the answers. It will not be made available to other persons in this district. The information you give will be kept under lock for three years at the African Population and Health Research Center after which the forms will be destroyed.

**VOLUNTARINESS:**
Your participation is voluntary and you have the right to stop the interview at any time without any problem.

**WHOM TO CONTACT:**
If you want to talk to anyone about this research study, or if you think you have been treated unfairly or joining this study has hurt you, contact Dr. Alex Ezeh, Director, Africa Population and Health Research Center at telephone number 2720400/1/2. I will leave a copy of this form with you for future reference.

*If you agree to participate in this study please sign your name below.*

_____
*Subject's signature or fingerprint*

_____

*Witness to Consent Procedure*

_____

*Signature of Investigator*

_____

*Date*

***Note:*** *Signed copies of this consent form must be a) retained on file by the Principal Investigator and b) given to the participant*