PERINATAL OUTCOMES OF FREE MATERNITY SERVICES IN MAMA LUCY KIBAKI HOSPITAL, NAIROBI COUNTY, KENYA

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A THESIS SUBMITTED IN PARTIAL FULFILLMENT OF THE REQUIREMENTS FOR THE AWARD OF THE DEGREE OF MASTER OF PUBLIC HEALTH (REPRODUCTIVE HEALTH) OF KENYATTA UNIVERSITY

APRIL, 2019
DECLARATION

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

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DEDICATION
To all expectant and immediate postnatal women as you carry out the noble task of reproduction the safe and healthy way.
ACKNOWLEDGEMENT

I take this opportunity to give thanks to God Almighty for his care, guidance, protection and mercies for having enabled me to come this far. Special thanks go to my supervisors Prof. Margaret Keraka and Dr. Olivia Wesula for their relentless support, encouragement and timely advice during this work. I further want to thank everyone who supported me and contributed towards my writing of this thesis. Without your continued support and guidance, this work would not have been completed.

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## ABBREVIATIONS AND ACRONYMS

<table>
<thead>
<tr>
<th>AIDs</th>
<th>Acquired Immunodeficiency Disease Syndrome</th>
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<tbody>
<tr>
<td>ANC</td>
<td>Antenatal Clinic</td>
</tr>
<tr>
<td>DHS</td>
<td>Demographic Health Survey</td>
</tr>
<tr>
<td>DM</td>
<td>Diabetes Mellitus</td>
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<tr>
<td>ENMR</td>
<td>Early Neonatal Mortality rate</td>
</tr>
<tr>
<td>FMSI</td>
<td>Free maternity services implementation</td>
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<tr>
<td>FSB</td>
<td>Fresh Still Birth</td>
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<tr>
<td>HCWs</td>
<td>Health Care Workers</td>
</tr>
<tr>
<td>HIV</td>
<td>Human Immunodeficiency</td>
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<td>IPT</td>
<td>Intermittent Preventive Therapy</td>
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<tr>
<td>ITNs</td>
<td>Insecticide Treated Nets</td>
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<td>KDHS</td>
<td>Kenya Demographic Health Survey</td>
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<tr>
<td>LB</td>
<td>Live Births</td>
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<tr>
<td>LBWT</td>
<td>Low Birth Weight</td>
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<tr>
<td>MCH</td>
<td>Maternal and Child Health</td>
</tr>
<tr>
<td>MCHC</td>
<td>Maternal and Child Health Clinic</td>
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<tr>
<td>MDG</td>
<td>Millennium Development Goals</td>
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<tr>
<td>MLKH</td>
<td>Mama Lucy Kibaki Hospital</td>
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<tr>
<td>MSB</td>
<td>Macerated Still Birth</td>
</tr>
<tr>
<td>NACOSTI</td>
<td>National Commission for Science, Technology and Innovation</td>
</tr>
<tr>
<td>OBA</td>
<td>Outreach Based Approach</td>
</tr>
<tr>
<td>OECD</td>
<td>Organization for Economic Cooperation and Development</td>
</tr>
<tr>
<td>PNMR</td>
<td>Perinatal Mortality Rate</td>
</tr>
<tr>
<td>PPH</td>
<td>Post-Partum Haemorrhage</td>
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<tr>
<td>SB</td>
<td>Still Births</td>
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<tr>
<td>SBA</td>
<td>Skilled Birth Attendant</td>
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<tr>
<td>STIs</td>
<td>Sexually Transmitted Infections</td>
</tr>
<tr>
<td>SPSS</td>
<td>Statistical Package for Social Sciences</td>
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<tr>
<td>WHO</td>
<td>World Health Organization</td>
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DEFINITIONS OF OPERATIONAL TERMS

**Birth asphyxia:** Failure to initiate or sustain spontaneous breathing at birth.

**Fresh stillbirth:** A stillborn that has intact skin and has no signs of disintegration in uterus. Such death is assumed to have occurred within 12 hours before delivery and was most likely due to intrapartum hypoxic events.

**Grand-multiparity:** A woman delivering after 28 weeks gestation who has had five or more previous viable pregnancies.

**Health Facility:** A structure/building or institution where medicine is practiced.

**Immediate postnatal period:** The time just after birth and covers first 24 hours.

**Live birth:** Refers to a baby born with signs of life and include breathing, heartbeat and muscle movement among others.

**Low birth weight:** Weight at birth of less than 2500 grams (WHO 2010).

**Macerated stillbirth:** Refers to a stillborn that has skin disintegration at birth. It can be foul smelling and this means the fetal death occurred some days before delivery.

**Multipara:** This refers to a woman of low parity, a woman who has had one to three previous viable pregnancies delivering at 28 weeks and above.

**Neonatal death:** Death of an infant born alive occurring within 28 days of life.

**Perinatal Death:** This term refers to all fetal deaths occurring in late pregnancy (After 28 weeks pregnancy gestation) and includes deaths of babies occurring within one week after delivery.
Perinatal outcome: Baby’s condition at birth. It includes life births, stillbirths, and birth asphyxia among others.

Postnatal period: The first six weeks after birth.

Post-partum and postnatal care: The term post-partum period and postnatal period are often used interchangeably but sometimes separately when post-partum pertains the mother and postnatal (pertains the baby).

Prematurity: Babies alive before 37 weeks of pregnancy are complete.

Primigravidae: This refers to a woman pregnant for the first time.

Resuscitation: Restoration of life or consciousness of one partly dead or whose respirations had ceased.

Standard operating procedures: They are guidelines that define expected practice in all areas where quality standards are needed.

Still Birth: This is a baby born with no signs of life after 28 completed weeks of pregnancy gestation or an equivalent of the foetal weight of 1000 grams or more.
ABSTRACT

The introduction of free maternity services in all public healthcare facilities in Kenya was the government’s initiative to decrease maternal morbidity and mortality and promote sustainable health for both the mother and infant. It has been a major step in the achievement of vision 2030 that aims at ensuring women from resource poor settings have access to maternal care. Objectives of the study included a comparison of the perinatal outcomes before and after implementation of the free maternity services, determine both health facility and staff factors contributing to perinatal outcomes and also determine the maternal characteristics of women seeking free delivery services at MLKH. There is evidence of stagnation in addressing perinatal health in Kenya. The study adopted a cross-sectional descriptive survey design involving all women seeking free delivery services at Mama Lucy Kibaki hospital. Data was collected using both open-ended and closed-ended questions. Questionnaires were researcher administered where face-to-face standardized interviews with the respondents was conducted. Pretesting was done to ensure that the research tools tested what they intended to (validity) and that they consistently measure the variables in the study (reliability). Data was analyzed using SPSS software version 20. Chi-square test was used to test for the association between independent and dependent variables. The average monthly patient delivering at Mama Lucy Kibaki hospital at the time of the study was 630. From this population a study sample of 228 participants was obtained calculated using Fishers formulae 2003 and sample adjusted using Cochran’s formulae (1977). 23 nurses (10%) of the study population were also interviewed to represent the key informants. Simple random sampling was used to get the study participants and convenient sampling used for the key informants. Data obtained from the study participants was analyzed, and the summary was written for the necessary explanation. The study findings showed that there was an increase in the number of women seeking FMS, and resultant increase in the number of good perinatal outcomes as well as a decrease in the number of poor perinatal outcomes. Further, the study showed that despite the FMS 60.2% of the mothers sought ANC services in the second semester with the majority not meeting the WHO recommended ANC visits. The study also showed that 88.5% of the women did not suffer any disease in pregnancy. 65.4% of the diseases suffered was anaemia with 80% of those who suffered being primigravidae. A correlation between the number of ANC visits and the perinatal outcomes was significant ($\chi^2=8.125$, df-3, $P=0.003$). The trimester of ANC booking was also significant ($\chi^2=3.615$, df-2, $P=0.001$). Despite the increased work load, the number of nurse’s supplies and equipment remained constant. The supplies and equipment’s inadequacy was reported by 100% of the key informants, while 87% of the study respondents perceived that the supplies and equipment’s were inadequate. The study concluded that FMS has contributed to improved perinatal outcome and it recommended that pregnant women be sensitized on the importance of seeking ANC services immediately they are diagnosed pregnant, and further that the county government of Nairobi should boost the hospitals with supplies, equipment and human resource specifically nurses, so as to cope with the increased workload.
CHAPTER ONE: INTRODUCTION

1.1 Background to the Study

Perinatal outcome refers to the product of a pregnancy at term and extends to a baby's condition up to one week post-delivery. Poor outcomes cause pain and suffering to the affected mothers and their families, they remain common pregnancy outcomes especially in developing countries (Lawn et al., 2011; Lawn, Cousens, Zupan, & Team, 2005; Liu et al., 2012). Approximately, 97 - 99% of the estimated 4 million stillbirths and 3 million neonatal deaths that occur each year globally, occur in low- and middle-income countries (Liu et al., 2012; Stanton, Lawn, Rahman, Wilczynska-Ketende, & Hill, 2006). Some risk factors associated with poor perinatal outcomes include; intra-partum complications, maternal infection in pregnancy and maternal disorders (such as hypertension and diabetes). Fetal risk factors associated with perinatal death include; preterm birth, low birth weight, intra-partum complications and neonatal infection(Bhutta et al., 2011; Gardosi, Madurasinhe, Williams, Malik, & Francis, 2013)

In order to improve maternal, infant and perinatal outcomes in Kenya, the first lady of Kenya Margret Kenyatta launched beyond Zero campaign on 24\textsuperscript{th} January 2014 in Nairobi, with the aim of promoting the access to quality maternal and neonatal health care. Following the launch health facilities in Kenya were overwhelmed by patients seeking free maternity service (Sunday standard January 2014). Sub Saharan Africa as a whole lags behind other developing regions in the address of perinatal health. For instance, in Nigeria, there is lack of sufficient data on perinatal mortality. A report by Oti & Odimegwu (2011) indicates that out of 5,783 live births between
2006 and 2011, 194 deaths occurred in less than seven days after delivery (Oti & Odimegwu, 2011).

Kenya national perinatal mortality rate in 2003 was 40/1000 LB. The rates decreased to 37 per 1000 live births according to (KDHS 2008/2009). There has been stagnation of the perinatal mortality since then with the same rate reported by KDHS 2014. This is an indication that Kenya has not progressed much in addressing perinatal health.

The introduction of free maternity services in all public healthcare facilities has been as a step for the achievement of vision 2030 with the aim to ensure that women from resource poor settings are accommodated together with their newborns.

The achievement of vision 2030 can only be realized by addressing perinatal outcomes such as still births and perinatal deaths which have continued to be a major challenge not only to the Kenyan nation but also to the world at large (KNBS, 2010).

Whereas poor perinatal outcomes can be caused by a number of issues, they can be prevented if pregnant women can have access to healthcare facilities. This ensures that the essential obstetrics and newborn care which are critical for good perinatal and maternal outcomes are provided by skilled attendants during the pregnancy and childbirth.

In Kenya, maternal and newborn health especially in rural areas and resource poor settings is faced with challenges due to lack of proper public health infrastructure and the proximity of communities from health care facilities (Hilder essedndi et al. 2015). Mama Lucy Kibaki Hospital is the leading maternal healthcare facility in Nairobi’s Eastland area. The Hospital handles more than 650 maternity cases per month. The recent zero rating of maternity fees by the government has seen the
number of pregnant women seeking services grow at a high rate. This is an indication of the fact that maternity fees were a major hindrance for women from poor household and therefore a contributor to the high poor maternal and perinatal outcomes as the women seek alternative methods of delivery from unskilled midwives.

The proposed study aimed at determining whether implementation of free maternity services had improved perinatal outcomes in Mama Lucy Kibaki Hospital and in turn to the entire Embakasi sub-county since it had been known to be the leading sub county with the highest number of major poor perinatal outcomes in Nairobi county one year after the implementation of free maternity services (DHIS 2014). Mama Lucy Kibaki hospital located in the Eastland’s area of Nairobi and which is the major referral hospital in Embakasi sub-county and attends to patients of diverse backgrounds mainly those residing in Kayole slum, a resource poor setting recorded large numbers of mothers who sought the free maternity services. The hospital had also recorded the highest number of women seeking free maternity services in Embakasi Sub County. The findings from the proposed study will be published and applied in public sector to develop or inform the hospital, the sub county and the entire county on the current state of perinatal outcomes after the introduction and implementation of free maternity services in Kenya. The study enabled the researcher to know and understand the positive or negative factors associated with the introduction of free maternity services in relation to perinatal outcomes.
1.2 Problem Statement

Perinatal deaths and especially intra-partum perinatal deaths are the leading causes of child mortality globally outnumbering the deaths caused by malaria and other causes (Lawn et al., 2010). Globally more than 3 million neonatal deaths occur each year with 70% occurring in the perinatal period (Lawn et al., 2011). Sub Saharan Africa leads with the number of poor perinatal outcomes in the world owing to the fact that most deliveries occur at home and are conducted by unskilled birth attendants (Essenti et al., 2011). Poor perinatal outcomes in Kenya have remained constantly high especially perinatal deaths (40/1000 LB, 37/1000LB and 37/1000 LB) KDHS 2003, 2008, 2014 respectively. The large numbers are as a result of a combination of the maternal factors, poor quality of ANC and delivery services and also poor hospital infrastructure (Lawn et al., 2010). The perinatal deaths which are mainly caused by poor baby’s condition at birth has stagnated in a period of ten years in Kenya. Nairobi County in Kenya has the highest number of deliveries conducted by skilled birth attendants (DHIS 2014). Surprisingly, Nairobi County is among the top five counties that lead with the number of poor perinatal outcomes in Kenya. One year after implementation of free maternity services a total of 108,821 - deliveries were reported in Nairobi. The Outcomes were 1550 still births, 5520 under weight and 4400 pre-term babies. These translated to 23, 50, 40/1000 LB, still births, low birth weight, preterm babies respectively. Among the outcome above Embakasi Sub County which has Mama Lucy Kibaki Hospital as its only main referral Hospital contributed to 56%, 23%, and 14% SB, LBWt and preterm babies respectively (DHIS 2014).
Perinatal health is an important indicator and a marker of the quality of antenatal care and obstetric care provided to mothers from conception, though pregnancy, during labour and even up to six weeks post-delivery. Identifying the factors associated with perinatal deaths is very helpful in building strategies to improve the care provided to mothers and their babies.

Research on perinatal outcomes after the implementation of the free maternity services in Kenya is scanty. Limited studies that have previously focused on perinatal outcomes do not provide a clear deduction on the actual implication of implementing free maternity services in public health care facilities in Kenya. Therefore they do not clearly report whether these services have had a positive or negative impact on both maternal and perinatal health.

1.3 Justification

According to the constitution of Kenya (2010) article 26 in the bill of rights speaks of the right to health and life. It states that “Every person has a right to life” it is in this contest that we must look at the perinatal health beyond free maternity services and address the issues of poor perinatal outcomes The advancement towards the achievement of this right has been slow due to a number of challenges affecting perinatal health including birth asphyxia, prematurity and infections contributing to perinatal deaths. Kenya’s progress in perinatal survival has been stagnant at 37/1000 LB perinatal deaths for a period of ten years. To meet every newborn target of 10 or fewer neonatal deaths, and 10 or fewer still births per 1000 LB in every country by 2035, it would necessitate many studies targeting the causes of perinatal deaths and accelerating
the scale up of the most effective care targeting major causes of poor perinatal outcomes. In June 2013, the free maternity service policy was implemented in Kenya by all public health facilities. The policy was accompanied by an overflow of clients seeking the free maternity services, and since then there has been an overflow of the clients. After implementation of any strategy aimed at improving the lives of people in health care, it is expected that a follow up be done inform of researches to evaluate the outcomes of the strategy on the expected outcome but No studies have been done at Mama Lucy Kibaki Hospital to evaluate the effectiveness of the implementation of free maternity services on perinatal outcomes

1.4 Research Questions

i) What are the statistics of perinatal outcomes before and after implementation of free maternity services at MLKH?

ii) What are the maternal characteristics that contribute to perinatal outcomes among women seeking maternity services at MLKH?

iii) What are the both health facility and health provider factors contributing to perinatal outcomes at MLKH?

1.5 Research Hypothesis

\( H_0 \) Implementing free maternity services in Kenya has not contributed to improved perinatal outcomes at Mama Lucy Kibaki hospital

\( H_1 \): Implementing free maternity services in Kenya has contributed to improved perinatal outcomes at Mama Lucy Kibaki hospital
1.6 Objectives

1.6.1 Broad Objective

To determine perinatal outcomes following implementation of free maternity services at Mama Lucy Kibaki hospital in Nairobi county, Kenya

1.6.2 Specific Objectives

i) To compare perinatal outcomes statistics before and after implementation of free maternity services at Mama Lucy Kibaki Hospital

ii) To determine the maternal characteristics of women seeking free maternity services at mama Lucy Kibaki hospital.

iii) To investigate health provider factors that contributes to perinatal outcomes at MLKH.

iv) To investigate health facility factors that contributes to perinatal outcomes at MLKH.

1.7 Significance and Anticipated Output

This research aimed at determining perinatal outcomes of the implementation of free maternal services in Kenya. The findings would be published and be used in the public sector mainly the government through the Ministry of Health to develop or inform policies on the perinatal outcomes of implementing free maternity services. This study therefore enabled the health researchers, practitioners and policy makers to be able to understand the positive or negative effects that are associated with the introduction of free maternity services in relation to perinatal outcomes. The research identified the factors that cause failures or success in the implementation of free maternity services. The study findings provided baseline information on the actual perinatal outcomes that
result from implementation of free maternity services at Mama Lucy Kibaki hospital. The findings from this study also have implications for future planning and implementing interventions that are relevant for perinatal outcomes improvement and perinatal mortality reduction.

1.8 Delimitations and Limitations

1.8.1 Limitations

Data obtained from the study only represented the state of free maternity services in Mama Lucy Kibaki Hospital; therefore the findings cannot be generalized for all public hospitals across the county and even across the country. The study concentrated on data obtained from the DHIS, although it is regarded as the most outstanding and easily accessible data base for maternal and neonatal health information. My inability to get the data for outcomes occurring in the community especially the perinatal deaths may have resulted in additional missing information. Mama Lucy Kibaki hospital is a public health facility thus other health facilities mainly, public health centers private hospitals, dispensaries and clinics were excluded.

1.8.2 Delimitations

The study concentrated on mothers who delivered in the hospital where as many more outcomes could have occurred at the community. The study also was delimited by some questions that may affect the study participants emotionally and psychologically considering that some participants may have had poor perinatal outcomes to include perinatal deaths.
1.9 Conceptual Framework

INDEPENDENT VARIABLE

Maternal Characteristics
Age, parity marital Status, Occupation, Education Level and preexisting disease, maternal health seeking behavior

Health Facility Factors
Accessibility, Availability of Supplies, Equipment’s, SOPs

Health Provider Factors
Attitude, Experience, Nurse Patient Ratio, Level of Training (Specialization)

DEPENDENT VARIABLE

Perinatal Outcome of Free Maternity Services
Live Birth, Still Birth, Birth weight, Apgar score and Perinatal Death

Figure 1.1 Conceptual Framework showing the relationship between variables
CHAPTER TWO: LITERATURE REVIEW

2.1 Introduction
This chapter outlines the perinatal outcomes associated with access and utilization of maternity services, maternal characteristics of women that contribute to perinatal outcomes, health care facility factors that contribute to perinatal outcomes and also health provider factors that contribute to perinatal outcomes.

2.2 Perinatal Outcomes Associated with Access and Utilization of Maternity Services

Historically perinatal and maternal mortality outcomes have been used as indicators for comparison of health of mothers and children across the globe (Beck et al., 2010). Mortality outcomes are now relatively rare in developed countries as compared to developing countries and this is attributed to lack of proper infrastructure for access to both maternal and neonatal health care services. Other critical barriers to maternal and perinatal health care in Kenya on a national scale are insufficient number of facilities, distance to facilities and also inadequate transportation infrastructure (Nicole, 2013).

2.2.1 Antenatal care visits schedules

Antenatal care saves the life’s of both mother and their babies by providing and establishing good health before child birth and the early post natal period which is the time for the highest risk of perinatal deaths. According to WHO an antenatal model based on four goals oriented visits are established which saves on both time and cost for the client and also time for the health workers. The visits enable a health care provider
to distinguish pregnant women who require standard care such as the four visits model from those requiring attention and more visits (Lincetto, 2013).

In the four visit model, essential elements of ANC are factored and they include identification and surveillance of pregnant woman and her expected child, recognition and management of pregnant related complications such as eclampsia, anemia, malaria, diabetes and HIV. Other services include provision of preventive measures that is TT, deworming, iron and folate supplementation IPT and ITNs. Promotion of healthy behavior including healthy diet, healthy lifestyle, and adherence to supportive treatment, and danger signs recognition for both the mother and the new born are also emphasized.

Antenatal care enables the health care worker to screen for infections like HIV, syphilis and other sexually transmitted infections so as to diagnose them early and ensure early management. The same time is also an opportunity to promote the use of skilled birth and healthy behaviors such as breastfeeding and early post natal care. Generally good ANC and maternal screening improve the survival and health of babies directly by reducing still births, low birth weight babies, premature babies and perinatal deaths. Indirectly provides an entry point for healthy contact with the woman a key point in the continuum of care.

2.2.2 Utilization of Antenatal Care Services

Kenyan government has rolled out many invention and policies to ensure that all pregnant mothers are cared for antenatally and every child birth is in a health facility and attended by skilled birth attendant. These policies include, the free maternal care in
public health facilities since 2013, putting up maternity shelters, output based approach and the beyond Zero campaign spear headed by the first lady, to stop the preventable maternal and perinatal deaths and also providing fully equipped mobile clinics (Rodgers et al, 2016). Despite these efforts, there is still a challenge of poor utilization of facility-based antenatal and delivery care services. Many reproductive health programs do not involve men yet studies suggest that the participation of men is associated with better health care seeking behavior (Kwambai et al., 2013).

In Africa, most cultures regard pregnancy and delivery as a female domain. Men are therefore not expected to accompany their wives to the antenatal clinics leave alone during delivering (Kwambai et al., 2013) not forgetting that in most of the household in Africa, men are the decision makers. It is therefore of much essence for them to be involved in the antenatal care so as to ensure that the advice given come to pass. Service utilization is also affected by many other factors. For instance, in Kenya, provision of the ANC normally takes place at the Maternal and Child Health Clinic (MCHC), which in most cases have limited space and may have several activities taking place in the same room. Often, it is one health care worker offering ANC postnatal and immunization services. In most facilities, the labour wards do not have barriers or separate rooms for every delivering mother. Several health centers’ in Kenya also do not have ambulance for emergencies and those in the rural areas only open during the day and may not be open during holidays and weekends since there is shortage of health care workers (HCWs) (Kwambai et al., 2013). These issues directly reduce the rate of antenatal care services utilization, and contribute to perinatal outcome.
2.2.3 Antenatal routine tests.

Antenatally a number of blood tests and other types of disease screening tests are offered to pregnant women. The tests are designed to pick up certain illness or other possible problems such as anaemia. The antenatal visits are a combination of both maternal examination and blood testing. The blood screening also helps to determine the risk of fetus having certain birth defects. Glucose screening tests are significant in the identification of gestational DM which poses a great risk of still birth and big babies. Anaemia in pregnancy causes fatigue, reduced energy levels, reduced mental performance and in case severe is associated with still births, preterm births and low birth weights. In addition, iron deficiency causes maternal increased susceptibility to infections, physical weaknesses, fatigue, preterm labor and increased PPH. Sexually transmitted infections have been implicated in perinatal outcomes. They have been associated with a number of adverse pregnancy outcomes including still births, pre maturity, LBWT and various defects in surviving neonates. Pre term births and LBWT are major determinants of infant mobility and mortality especially in developing countries where intensive care facilities are not often available (Mullick et al., 2014).

The type and rhesus factors are other important screening test components. If a lady is rhesus negative and the partner is rhesus positive she may develop anti bodies that prove dangerous to the fetus.
2.3 Maternal characteristics influencing perinatal outcomes

Maternal health is the health of a woman during pregnancy, child birth and post-partum period. Poor maternal health and some maternal characteristics contribute negatively to birth outcome.

Maternal age especially the extreme young age for mothers confers a considerable risk of adverse outcomes of pregnancy, including low birth weight and prematurity. This may be caused by a functional immaturity of the reproductive system of the teenage mother, as well as deleterious social environment and genetic influences. Fraser et al., (2013) studied 134,000 girls and women aged 13 - 24 years who delivered singleton, first-born children. The relative risk to have a low-birth-weight infant was found to be increased 2-fold if the mother was younger than 17 years. In addition, the risk for premature delivery was elevated as well. This elevation was independent of relevant socio-demographic factors like marital status, level of education and adequacy of prenatal care. Advanced maternal age is an independent risk factor for intrauterine growth restriction. At maternal age of 40 years or older, the odds ratio for intrauterine growth age is defined as age 35 years and restriction should range between 1.9 - 4 based on screening pregnant women above age 35 years.

Advanced maternal older at estimated date of delivery, and has been associated with adverse perinatal outcomes to include birth of babies with chromosomal defects (Ruth, 2012). Advanced age is also likely to be accompanied with pre-existing or likely to develop preeclampsia and or diabetes during their pregnancy.
2.4 Maternal infections and maternal pre-existing disease

Severe anaemia (HB less than 8g/dl), has been reported to be associated with low birth weight. Other maternal infections also persist during pregnancy in mothers with low hemoglobin level. The relationship between anaemia and infections may be due to the adverse effects of anaemia on immune function as a result of alteration in the proliferation of T and B lymphocytes (Lone 2013). Malaria in pregnancy affects birth outcomes through intra uterine growth retardation and preterm delivery Beaudrap, (2013).

According to Mujal et al., (2013) pregnant HIV-infected women face multiple obstacles to a good perinatal outcome. There is a need for a more intense approach to ensure better lifetime access to care for them, their partners, and their offspring. The medical model alone may not be sufficient to meet the complex demands of such population. A network of community programs providing housing, education, and maternal healthcare services specifically designed for families affected by HIV need to be set up. In addition, similar studies propose that patients be given care in designated multidisciplinary postpartum mother-child clinics. HIV/AIDS in untreated populations lead to Mother to child transmission of HIV during pregnancy, delivery and breastfeeding. The transmission occurs at an approximate overall rate of 25 - 40% and accounts to a significant number of perinatal deaths.

Identification of the population at-risk is paramount to early detection, diagnosis and treatment of the disease. Moreover, determining maternal diseases in pregnancy early assist in optimizing the nature and timing of clinical interventions designed to prevent
the adverse effects on the fetus. Factors that influence fetal growth can be intrinsic to the fetus or represent extrinsic insults that stem from the maternal environment. The most common intrinsic causes of fetal growth are fetal anomalies, multi-fetal gestation and congenital infections. Extrinsic factors are more common, and are frequently suspected based on the maternal history (Masselli, 2015).

Maternal smoking—Smoking during pregnancy is associated with reduced birth weight and is strongly associated with preterm birth (Maghea C. et al. 2014). Infants born to mothers who smoke also are likely to be delivered prematurely. When a woman smoke during pregnancy the risk of perinatal death increases by 33% (IUFD) and also does the risk of Neonatal deaths. Other risky maternal behaviors include Alcohol consumption, miraa chewing and tobacco use. According to Floyd et al., (2008) smoking has been named probably the most important modifiable cause of poor pregnancy outcome among women in the United States the fetal health consequences of a pregnant woman’s cigarette smoking is one of the most-studied risk factors in contemporary obstetrics noting that the results of well-designed epidemiologic studies leave little doubt that smoking during pregnancy exerts an independent, adverse effect upon numerous reproductive outcomes. Medical professionals tend to separate the results of studies on the fetal and infant health effects of smoking during pregnancy into two broad categories: conclusive and suggestive. In other words, while some medical findings are considered convincing and well established due to the strength, quality and consistency of the data across studies, others are seen as preliminary and controversial.
There is a growing body of literature of maternal stress during pregnancy and adverse infant/child outcomes.

Maternal stress is highly linked to increased measures of maternal psychological stress is associated with a variety of unhealthy behavior such as poor dietary intake. Maternal nutrition plays a major role in perinatal health and poor nutrition has been related to adverse birth outcomes Kathleen (2010). Maternal stress is also associated with alcohol consumption, cigarette smoking and thus increases the risk factors for preterm births.

2.5 Health Facility/Staff Factors that Contribute to Perinatal Outcomes

Perinatal deaths and still births have many hospital related causes and determinants. In Kenya facility based maternal health care is faced by many challenges namely; lack of physical access to facilities, insufficient number of facilities, and distance to facilities, inadequate transportation infrastructure, inadequate staff and lack of staff specialization in perinatal care. Shortage of staff and especially skilled staff mostly leads to high workload, pressure which in turn causes staff to spent much less time on some activities hence affecting the quality of services being delivered. A common measure of workload is the number of patients that a particular nurse takes care of versus the recommended WHO standards of nurse patient ratio.

In government hospitals workload could come about due to, shortness of nurses, staff absenteeism from leaves to include annual leaves, maternity leaves, sick leaves or the shortage could also be due to nurse turn over or retirements. The shortage of nurses makes the few nurses to overwork; hence they become unable to offer high quality standards of care (Bhega 2010). Staff shortage due to any reason leads to long working
hours for those on duty leading to fatigue, psychological stress and even physical exhaustion hence low performance that can have an influence on not only perinatal outcomes but also on the general patients care, and even contribute to maternal outcomes. Burnouts can also be a consequence of workload. Burnouts bring about work related pressure which in turn causes staff to spent much less time on some activities hence affecting the quality of services being delivered. According to medical execution council January 2016 following nurse shortage in health facilities nurses work long hour under stressful conditions that can result to fatigue, injury and job dissatisfaction in general.

Availability of supplies and equipments in hospitals and generally in any organization can affect the organization output. In hospitals nurses should be in a position to perceive that the resources at their reach are adequate to meet their work demands. Failure to have adequate resources makes it difficult for nurses to have their work done and in many occasions they experience work dissatisfaction (Bhaga, 2010). Inadequate supplies and equipments contribute to low quality services and raise the risk of advance patient outcomes through delaying care provision (Susanne et al., 2013). Inadequate stocks also compromises the health system's ability to reduce both maternal and perinatal mobility and mortality by affecting staff personally and professional which hinders the provision of timely and appropriate intervention Susanne et al., (2013).

Access to health facilities also plays a big role in both maternal and perinatal outcomes according to (DHS 2008 – 2010). Approximately 42% of women delivered outside a health facility due to the long distance to the nearest health facility and lack of efficient
means of transport to the facility. In North Eastern, where only one maternity wing is currently operational, 68.8% of women were deterred because of distance, lack of transport or because the facility was not open, versus only 4.9% who cited cost as the key barrier to skilled delivery (Kenya Demographic Health Survey, 2010; Kitui, Lewis, & Davey, 2013).

Managerial support on nurse service delivery specifically supports trainings and carrier development is very essential process that improves the caliber and competency of the employees. Continuous training in addition changes the behavioral patterns of the employee in a direction which is in line with the organizational objectives to achieve the organizational effectiveness, sustainability and growth (Argote and Ingram, 2010).

Availability and use of standard operating procedures in maternity to define expected practice in all fields, ensures fewer errors in all areas, health and safe environments, a road map for how to solve issues in case they arise to both the mother and the baby is very essential. Lack of standard procedures, norms, routines indicates lack of organization in the health care service. In addition to use of standard procedures, communication between staff to staff and staff to patients can significantly contribute to both maternal and perinatal outcomes. Staff to patient communication is very important in delivering service satisfaction because when a nurse takes time to answer questions of concern to patients it can alleviate many feelings of uncertainty (EFP, 2006). Communication also leads to increased patients cooperation.
2.6 Synopsis of Reviewed Literature

A number of studies on perinatal outcomes have been performed worldwide with emphasis to perinatal mortality, stillbirth and early neonatal deaths. According to a systematic review conducted in 2015 on one hundred and fifty seven countries, it was estimated that about 18.4/1000 LB million stillbirths occurred in 2015 with the highest rates being reported in south Asia and sub-Saharan Africa. However, these rates vary depending on the settings and countries. On the contrary, developed countries experience a small proportion of the stillbirths which is attributed to the access and availability of high quality prenatal care. A number of risk factors have been associated with poor perinatal outcomes in developed countries including: maternal weight, smoking, age, diabetes and hypertension. The scenario in developing countries is very different from that of developed countries hence the diversity of risk factors which take in account of: lack of access to antenatal care, poverty, malnutrition, infections such as malaria and HIV/AIDS. It is estimated that 75% of perinatal deaths occur during the first week of life with a larger proportion being the first day after birth. These deaths have been associated with lack of access to maternity services during pregnancy, labor and postpartum.

The current study therefore aimed at assessing the perinatal outcomes following implementation of free maternity services at Mama Lucy Kibaki hospital with the aim of gauging whether these services have had a positive impact on both clients and health providers. Since the implementation of free maternity services by the Kenyan government very few studies have been conducted to follow up on the progress,
capacity and effect of the free maternity implementation on perinatal outcomes. It is expected that if proper implementation is done then the perinatal mortality rate and its indictors will be reduced. However, this can only be proved by contacting studies of this kind across the entire country. The findings of this study are of benefit not only to Mama Lucy Kibaki hospital but to the entire Nairobi County.
CHAPTER THREE: RESEARCH METHODOLOGY

3.1 Research Design

The study adopted a descriptive cross-sectional study design. Data was collected from mothers post-delivery, those delivered at 28 weeks gestation and above. The research design helped to examine, analyze and evaluate the perinatal outcomes of free maternity services and the factors contributing to them.

3.2 Variables

3.2.1 Independent Variables

These included the maternal characteristics of women seeking the free maternity services, health facility factors and health provider factors.

3.2.2 Dependent Variables

The dependent variables for the study were the perinatal outcomes which include among them live birth, prematurity, birth weight, Apgar score, and perinatal deaths.

3.3 Location of the Study

The study was carried out at Mama Lucy Kibaki Hospital. A sub county hospital located along Kangundo road, approximately 9 km East of Nairobi’s Central Business. Mama Lucy Kibaki Hospital is a referral hospital serving the residents of Nairobi’s populous Eastland’s. It provides comprehensive and specialized health care services. The facility is located between Umoja, Komarocks, Nasra estates and Kayole slum. The hospital has a bed capacity of 112.
3.4 Study Population

The study population composed of all women who sought free delivery services in the hospital at the time of study. Monthly averages of 650 women were included in the sampling frame. To enrich the information obtained on the perinatal outcomes of free maternity services. Nurses working in the perinatal clinic and maternity unit were thought by the researcher to be readily available and possess first-hand information cutting across antenatal care, labour delivery and post-delivery care of both mother and the baby and hence were considered as key informants.

3.4.1 Inclusion Criteria

The study included women who had delivered at the hospital at the time of study and were willing to participate by signing a consent form. A one week follow up was done on all mothers and babies who participated in the study.

3.4.2 Exclusion Criteria

The study excluded women who delivered at the hospital but were extremely sick to answer the questions, women who may have had delivered but suffered mental challenges, women under other medical insurance covers as well as those who never sought free maternity services during the antenatal period.

3.5 Sampling Techniques

Mama Lucy Kibaki hospital was purposively chosen because of its location and diversity in terms of clients since it serves a large population of poor and the lower middle class. It is also the only main referral hospital offering comprehensive obstetric care in Embakasi Sub County. Simple random sampling was used to get the study
participants while the key informants were selected conveniently. The hospital has a total nurse population of 230 from which a sample of the key informants was drawn. A sample of 23 nurses was obtained representing 10% of the total nurse population.

3.6 Sample Size Determination

The total number of women who sought delivery services one year after the implementation of the free maternity services was 7,510; an average of 630 per month. From this target population a representative sample was drawn.

For this study the sample was obtained by calculating the sample size from the target population by applying the Fishers Model Equation.

\[
N = \left( \frac{Z^2 pq}{d^2} \right)
\]

Where \( N \) = Desired Sample Size

\( Z \) = the standard Normal deviation at the required confidence interval (95 probability error equal to \( 1.96^2 \))

\( p \) = Prevalence characteristic of interest mothers who delivered in the facility

\( q \) = Proportion of non-occurrence

\( d \) = the level of statistical significance or margin of error (0.05 for 95% significance level)

\[
N = \frac{(1.96^2 \times 0.63 \times 0.37)}{0.05^2}
\]

\[
N = 3.8416 \times 0.2331
\]

\[
N = 0.8955 = 358.2
\]

0.0025
This sample was adjusted using the formulae below which is recommended for adjusting the sample size a population below 10,000

\[ n_f = n/1 + (n/N) \]

Where \( n_f \) = desired sample size

\( n \) = calculated sample size

\( N \) = Estimated population in the study area

\[ n_f = 358.2/ (1+358.2/630) \]

\[ n_f = 358.2/1.57 \]

\[ n_f = 228.2 \]

Therefore 228 plus 10% for non-respondent (23) = 251 participants were randomly selected.

### 3.7 Construction and Research Instruments

An interviewer administered questionnaire with both open and closed ended questions were administered to the respondents in order to collect data on the perinatal outcomes. Technical defects were minutely scrutinized and removed after re-examination. The questionnaire contained simple and straightforward questions that the respondents could not face any difficulty in answering. Separate set of questionnaire was prepared to collect data from the key informants who consisted of the nurses working in the hospital. The researcher conducted one on one interviews with the sampled key informants and their responses were captured and recorded in the questionnaires as appropriate.
3.8 Pilot Study and Pre-Testing

The data collection pretest was done at Mbagathi District Hospital. It involved distribution of the questionnaire and interviewing of 10% of the calculated sample size. 23 postnatal mothers were interviewed before discharge. Four nurses from the maternity unit were selected as key informant. The number was considered appropriate based on WHO recommendation on which the nurse patient ratio stands at 1:6. The data collected was checked and analyzed to see if it makes sense. There were minor corrections on the tools to make them perfect for the task.

3.9 Validity

Four research assistants were recruited and trained on the study tools to ensure that the respondents gave correct answers. The research assistants were also trained on the process of recruiting the study participants who met the inclusion criteria. All the questionnaires were allocated serial numbers before being distributed to the study participants. The completed questionnaires were continuously being checked for completeness. Critic of the research tool was also done by supervisors and other researchers.

3.10 Reliability

Reliability refers to the measure of stability or consistency of information obtained in a study. The instruments were pre-tested to ensure that the data collected made sense when correlated. This was also counter checked against the objectives to see if the data collected addressed the topic of study.
3.11 Data Collection Techniques

Data for the study was collected using structured questionnaires for the mothers and key informants’ interviews for the nurses. Each item in the questionnaire comprised of structured (closed ended) and unstructured (open ended) questions. The women were interviewed post-natally and before discharge. Research assistants were employed to help in the collection of primary data. They were trained in the various methods of data collection, such as having appropriate interpersonal relationship with clients. Data was collected within 1 month.

3.11.1 Questionnaires

A total of two hundred and twenty eight questionnaires were administered to the respondents. In occasions where the respondents were not literate, the locally recruited research assistant was called upon to read and interpret the questions for the participant and translate it to Swahili language and again translate to English for the purposes of recording.

3.11.2 Key Informants Guide

A key informant’s guide was used to seek views on free maternity services from nurses working in the maternity unit and perinatal clinic who had worked in the department for at least 6 months. Interviews involved face-to-face contact with the respondents. To avoid bias, the research assistants were trained on interview processes especially in asking questions and recording answers. Both structured and unstructured interviews questions were asked.
3.12 Data Analysis

Data obtained from questionnaires was coded, summarized and cleaned for possible errors. A database was designed in the Statistical Package for Social Sciences (SPSS) version 23 where the completed questionnaires were keyed in. Both quantitative and qualitative methods of analysis were used to analyze the data. In the study, Chi-square tests were used to establish the significance in the relationships between the independent variables and the dependent variables. Descriptive statistics namely frequencies, percentages and means were used. Results were presented in form of figures, charts, graphs and tables.

Data was processed using SPSS software version 23. The Data from informants’ interviews was analyzed thematically and the summary was written for the necessary explanation of the quantitative data.

3.13 Logistical and Ethical Considerations

Permission to carry out the study was sought from the Kenyatta University Ethical Research Committee through Graduate school, the National Commission for Science and Technology (NACOSTI) and Mama Lucy Kibaki hospital management through the Medical Superintendent. Informed consent was sought from the participating respondents. Participation in the study was voluntary, and all participating respondents were free to withdraw at any time. Anonymity, confidentiality and privacy were safeguarded.
CHAPTER FOUR: RESULTS

4.1 Introduction

This chapter provides the findings of the study with regard to the stated objectives, hypotheses and research questions. It provides detailed information on the findings of the study and further presents a descriptive explanation on the results. The results from the study relayed through this chapter together with their accompanying discussions of what the results imply following study objectives and as stressed using research questions. The study results presentations are logically sequenced based on the study objectives and research questions.

4.1.1 Response Rate by the Respondents

A total of 228 questionnaires were prepared and administered to the respondents. Simple random sampling was used to sample participants and they were voluntarily requested to participate in the answering of the study questions. A total of 228 women accepted to participate in the study meaning that the respondent rate was 100%. Key informants consisting of 10% of the study population (N=23) were also used to obtain additional qualitative data on the perinatal outcomes of free maternity services, so as to enrich the study with information.

4.2 Socio Demographic Characteristics of the Respondents

The respondent’s socio demographics of interest were age, residence, educational level, occupation and mean household income. The responses were summarized, analyzed and presented in tabular form as summarized in table 4.1.
Table 4.1 Social Demographic Characteristics of the Respondents

<table>
<thead>
<tr>
<th>Social Demographic Characteristics</th>
<th>Frequency (n)</th>
<th>Percentage (%)</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Age</strong></td>
<td></td>
<td></td>
</tr>
<tr>
<td>15 – 20</td>
<td>46</td>
<td>20.1</td>
</tr>
<tr>
<td>21 – 25</td>
<td>74</td>
<td>32.5</td>
</tr>
<tr>
<td>26 – 30</td>
<td>63</td>
<td>27.6</td>
</tr>
<tr>
<td>31 – 35</td>
<td>35</td>
<td>15.4</td>
</tr>
<tr>
<td>36 and above</td>
<td>10</td>
<td>4.4</td>
</tr>
<tr>
<td><strong>Education Level</strong></td>
<td></td>
<td></td>
</tr>
<tr>
<td>No Education</td>
<td>3</td>
<td>1.3</td>
</tr>
<tr>
<td>Primary Level</td>
<td>78</td>
<td>35.4</td>
</tr>
<tr>
<td>Secondary Level</td>
<td>113</td>
<td>49.6</td>
</tr>
<tr>
<td>Tertiary/University Level</td>
<td>34</td>
<td>14.9</td>
</tr>
<tr>
<td><strong>Marital Status</strong></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Single</td>
<td>37</td>
<td>16.2</td>
</tr>
<tr>
<td>Married</td>
<td>189</td>
<td>82.9</td>
</tr>
<tr>
<td>Divorced</td>
<td>2</td>
<td>0.9</td>
</tr>
<tr>
<td><strong>Occupation</strong></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Not Employed</td>
<td>125</td>
<td>54.8</td>
</tr>
<tr>
<td>Employed permanently</td>
<td>38</td>
<td>16.7</td>
</tr>
<tr>
<td>Self Employed</td>
<td>58</td>
<td>25.4</td>
</tr>
<tr>
<td>Casual Laborer</td>
<td>7</td>
<td>3.1</td>
</tr>
<tr>
<td><strong>Mean Household Income</strong></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Under sh. 10,000</td>
<td>121</td>
<td>53.1</td>
</tr>
<tr>
<td>Between sh. 10,000 – 50,000</td>
<td>102</td>
<td>44.9</td>
</tr>
<tr>
<td>Above sh. 50,000</td>
<td>5</td>
<td>2.2</td>
</tr>
</tbody>
</table>

4.2.1 Distribution of Respondents by Age

The age range of the study respondents varied from 15 to 42 years. The study showed that nearly a third of the respondents 32.5% (n=74) fell between ages 21-25 years. There was also a relatively big portion of respondents between ages 26-30 at 27.6% (n=63) while 20.1% (n=46) were aged between 15 and 20 years. This distribution demonstrates that most women who sought free maternity services at the hospital were young mothers below 28 years, and only a few 4.3% (n=10) were past 36 years of age as shown in table 4.1.
4.2.2 Distribution of respondents by level of education

The study concerning the respondent’s education level showed that a third of the respondent’s 34.4% (n=78) had at least primary education while 49.6% (n=113) had secondary education. The study also showed that negligible proportion of the respondents had no formal education at 1.3% (n=3). The other education category that was noted is the tertiary level group where only (14.9%) n=34 of total respondents were identified to have sought free maternity services at Mama Lucy Kibaki hospital.

4.2.3 Distribution of Respondents by Marital Status

The distribution of the respondents based on their marital status. The study showed that about three quarters of the respondent’s 82.9% (n=189) were married while 16.2% (n=37) were single. It was further noted that only a few of the respondents 0.9% (n=2) of respondents were divorced.

4.2.4 Distribution of Respondents by their Occupation

The study sought to understand the nature of work the respondent engaged in. Respondents were asked to indicate on the questionnaire their occupation. The study learnt that majority of the respondents 54.8% (n=125) were not employed while 16.7% (n=38) of the respondents were in permanent employment. It was also noted that 25.4% (n=58) were self-employed while a few of the respondents 3.1% (n=7) were in casual labour.
4.2.5 Distribution of Respondents by Mean Household Income

The study sought to understand the economic status of the respondents in terms of their mean household income. Most of the respondents 53.1% (n=121) indicated that their monthly income was below 10,000/ month. Another big percentage of the respondents 44.9% (n=102) reported that their income ranged between 10,000 and 50,000. The rest of the respondents who were the minority 2.2% (n=5) reported to have been earning an income of more than 50,000.

4.3 Perinatal Outcomes one year before and After the Implementation of Free Maternity Services at MLKH.

The study sought to make a comparison of the perinatal outcomes statistics one year before and one year after the implementation of free maternity services at Mama Lucy Kibaki Hospital, so as to find out whether the implementation had actually contributed to the perinatal outcomes either positively or negatively. The results were captured in figure 4.1.
Figure 4.1 Perinatal Outcomes Comparison One Year before and after the Implementation of FMS

The study found out that 6676 total deliveries had occurred in Mama Lucy Kibaki hospital a year after the implementation of free maternity services, (June 2014 to May 2015) while 4732 deliveries had occurred for the same period before the implementation of free maternity services.(i.e. June 2013 to May 2014) The total number of live births a year after the implementation of free maternity services was 6512, while the live births a year before the implementation was 4543. This study also found out that there were 57 and 60 Fresh still births, 152 and 102 Macerated still births, 98 and 82 Birth asphyxia, 20 and 26 perinatal deaths, and lastly, 280 and 349 Underweight babies before and after the implementation of the free maternity services at Mama Lucy Kibaki Hospital respectively. The researcher had difficulty in
differentiating the number of Fresh still Births from the number of the Macerated still births since in the DHIS reporting they were both generalized as Still Births, though the circumstances leading to the occurrence of both are very different. The actual figures were obtained from the hospitals maternity registers and the hospital records. The total deliveries and the birth outcomes before and after the implementation of free maternity services are shown in the table below:

**Table 4.2: Total deliveries and birth outcomes before and after the implementation of free maternity services at MLKH**

<table>
<thead>
<tr>
<th></th>
<th></th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>Total deliveries</td>
<td>4732</td>
<td>6676</td>
</tr>
<tr>
<td>Total still births</td>
<td>189</td>
<td>164</td>
</tr>
<tr>
<td>Total FSB</td>
<td>57</td>
<td>60</td>
</tr>
<tr>
<td>Total MSB</td>
<td>123</td>
<td>104</td>
</tr>
<tr>
<td>Birth Asphyxia</td>
<td>98</td>
<td>82</td>
</tr>
<tr>
<td>Underweight babies</td>
<td>280</td>
<td>349</td>
</tr>
<tr>
<td>Perinatal deaths</td>
<td>20</td>
<td>26</td>
</tr>
</tbody>
</table>

**4.4 Maternal Characteristics that Contribute To Perinatal Outcomes**

The study sought to understand the maternal characteristics and maternal health seeking behavior that contributed significantly to perinatal outcomes. Among them are; utilization of the free antenatal care service by the expectant mothers, maternal healthcare seeking behavior, maternal drug use and abuse,

**4.4.1 Utilization of Free Antenatal Care by Mothers**

The study sought to understand how the free maternal care was rated and utilized by mother who attended the facility. Their responses were recorded and tabulated in various tables in this section. They were further interpreted so as to obtain a wider view of the service. The study asked the respondents whether they attended antenatal clinic,
and 99.1% (n=226) of the respondents said they did. Only two respondents said that they had not attended any antenatal clinic. This could be attributed to the fact that the free maternity service was available and convenient to mothers during their pregnancy.

**4.4.2 Maternal trimester of Antenatal Care Booking**

Most women 60.2% (n=136) of the respondents who were interviewed had booked for their first antenatal clinic in their second trimester while 35.4% (n=80) had booked for their first antenatal clinic in their third trimester. The study observed that only 4.4% (n=10) of the respondents had booked for antenatal clinic in their first trimester. Further, it was noted that though the maternity service were thought to be free 0.9% (n=2) of the respondents had not attended Antenatal Clinic at all during their term of pregnancy. The study also investigated the number of times the respondents had actually attended the antenatal clinic before they gave birth. It was noted that majority of the respondents 40.8% (n=93) attended the antenatal clinics three times during their pregnancy, 25.4% (n=58) had attended the clinic twice, and still 4.8% (n=11) had attended the Antenatal Clinic once. Only 28.9 %( n=66) had visited the antenatal clinic four times and more as recommended by the WHO.

**4.4.3 Maternal Drug Use and Abuse**

The study observed that a huge proportion of the respondents 94.2% (n=215) did not use drugs. Of interest were alcohol use, smoking and tobacco sniffing. Only 5.7% (n=13) of the respondents reported to have been taking alcohol while pregnant.
4.4.4 Maternal Pre-Existing Disease/Conditions Suffered During Pregnancy

The study endeavored to study the common conditions suffered by the respondents during their period of pregnancy. Majority of the respondents did not have any disease during pregnancy. A total of 22 study participants (9.6%) women had suffered some medical condition during their pregnancy. The results were tabulated as shown in the figure below:

**Table 4.3 Maternal Conditions and Diseases Suffered by Respondent during pregnancy**

<table>
<thead>
<tr>
<th>Maternal Disease in pregnancy</th>
<th>Frequency (n)</th>
<th>Percentage (%)</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Disease Suffered</strong></td>
<td></td>
<td></td>
</tr>
<tr>
<td>No disease</td>
<td>206</td>
<td>90.4</td>
</tr>
<tr>
<td>Anaemia</td>
<td>13</td>
<td>5.7</td>
</tr>
<tr>
<td>Hypertension</td>
<td>3</td>
<td>1.3</td>
</tr>
<tr>
<td>Malaria</td>
<td>2</td>
<td>0.9</td>
</tr>
<tr>
<td>HIV/AIDS</td>
<td>4</td>
<td>1.8</td>
</tr>
<tr>
<td>Total</td>
<td>22</td>
<td>100%</td>
</tr>
<tr>
<td><strong>Disease Treated</strong></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Yes</td>
<td>20</td>
<td>90.9</td>
</tr>
<tr>
<td>No</td>
<td>2</td>
<td>9.1</td>
</tr>
<tr>
<td>Total</td>
<td>22</td>
<td>100%</td>
</tr>
</tbody>
</table>

The blood hemoglobin test conducted on the respondents on their first visit to the hospital revealed that 5.7 % (n=13) of the respondents were anemic. It was further observed that anaemia was more prevalent among first time mothers (primigravidae). Among those who suffered anaemia, 80% of them were primigravidae while the percentage of anaemia in multigravida was at 20%.

The study further sought to assess the respondents with regard to diabetes; and the study found out that none of the respondents had tested positive for diabetes during pregnancy.
With regards to malaria, the study found out that 0.9 % (n=2) had suffered malaria in pregnancy, while 1.3% (n=3) of the respondents had suffered pregnancy induced hypertension. Another percentage 1.8 % (n=4) of the respondents suffered HIV/AIDS and were all on ARVs.

4.4.5 Maternal Disease/Conditions Treatment

In total 22 respondents representing 9.6% of all the responses were identified with one condition or the other. On whether the conditions suffered were treated, 90.9% (n=20) of the respondents who were identified with either of the conditions was treated, while 0.9% (n=2) of the respondents did not receive treatment. Of those not treated, the reasons for non-treatment were the cost implications in the purchase of the prescribed medicine. The two respondents who did not receive treatment suffered anaemia and unfortunately both gave birth to macerated still births.
Table 4.4 Chi Square Tests for Maternal Characteristic against Perinatal Outcomes

<table>
<thead>
<tr>
<th>Variable</th>
<th>Response</th>
<th>%</th>
<th>Perinatal Outcome</th>
<th>Chi-Square analysis</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td></td>
<td></td>
<td>Good</td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>Poor</td>
<td></td>
</tr>
<tr>
<td>Maternal Age</td>
<td></td>
<td></td>
<td></td>
<td>x²=15.094 P=0.002 df=3</td>
</tr>
<tr>
<td>15-20</td>
<td>48</td>
<td>21.1</td>
<td>30(13.2%)</td>
<td>18(7.9%)</td>
</tr>
<tr>
<td>21-25</td>
<td>65</td>
<td>28.5</td>
<td>57(25.0%)</td>
<td>8(3.5%)</td>
</tr>
<tr>
<td>26-30</td>
<td>63</td>
<td>27.6</td>
<td>55(24.1%)</td>
<td>8(3.5%)</td>
</tr>
<tr>
<td>Above 30</td>
<td>52</td>
<td>22.8</td>
<td>37(16.2%)</td>
<td>15(6.6%)</td>
</tr>
<tr>
<td>Maternal parity</td>
<td></td>
<td></td>
<td></td>
<td>x²=9.689 P=0.029, df=2</td>
</tr>
<tr>
<td>Primigravidae</td>
<td>88</td>
<td>38.6</td>
<td>83(36.4%)</td>
<td>5(2.2%)</td>
</tr>
<tr>
<td>Multipara</td>
<td>129</td>
<td>56.6</td>
<td>116(50.9%)</td>
<td>13(5.7%)</td>
</tr>
<tr>
<td>Grand multipara</td>
<td>11</td>
<td>4.8</td>
<td>7(3.1%)</td>
<td>4(1.8%)</td>
</tr>
<tr>
<td>No. of ANC visits</td>
<td></td>
<td></td>
<td></td>
<td>x²=8.125 P=0.003, df=3</td>
</tr>
<tr>
<td>One visit</td>
<td>11</td>
<td>4.8</td>
<td>5(2.2%)</td>
<td>6(2.6%)</td>
</tr>
<tr>
<td>Two visits</td>
<td>58</td>
<td>25.4</td>
<td>45(19.7%)</td>
<td>13(5.7%)</td>
</tr>
<tr>
<td>Three visits</td>
<td>93</td>
<td>40.8</td>
<td>74(32.5%)</td>
<td>19(8.3%)</td>
</tr>
<tr>
<td>Four visits</td>
<td>66</td>
<td>28.9</td>
<td>55(24.1%)</td>
<td>11(4.8%)</td>
</tr>
<tr>
<td>First ANC booking</td>
<td></td>
<td></td>
<td></td>
<td>x²=3.615 P=0.021 df=1</td>
</tr>
<tr>
<td>1&lt;sup&gt;st&lt;/sup&gt; trimester</td>
<td>12</td>
<td>5.3</td>
<td>8(3.5%)</td>
<td>4(1.8%)</td>
</tr>
<tr>
<td>2&lt;sup&gt;nd&lt;/sup&gt; trimester</td>
<td>136</td>
<td>59.6</td>
<td>103(45.2%)</td>
<td>33(14.5%)</td>
</tr>
<tr>
<td>3&lt;sup&gt;rd&lt;/sup&gt; trimester</td>
<td>80</td>
<td>35.1</td>
<td>68(29.8%)</td>
<td>12(5.3%)</td>
</tr>
<tr>
<td>Maternal drug use</td>
<td></td>
<td></td>
<td></td>
<td>x²=0.021 P=0.886 df=1</td>
</tr>
<tr>
<td>No</td>
<td>215</td>
<td>94.3</td>
<td>169(74.1%)</td>
<td>46(20.2%)</td>
</tr>
<tr>
<td>Yes</td>
<td>13</td>
<td>5.7</td>
<td>10(4.4%)</td>
<td>3(5.7%)</td>
</tr>
<tr>
<td>Sickness during pregnancy</td>
<td></td>
<td></td>
<td></td>
<td>x²=1.497 P=0.221 df=1</td>
</tr>
<tr>
<td>No</td>
<td>202</td>
<td>88.6</td>
<td>161(70.6%)</td>
<td>41(18.0%)</td>
</tr>
<tr>
<td>Yes</td>
<td>26</td>
<td>11.4</td>
<td>18(7.9%)</td>
<td>8(3.5%)</td>
</tr>
<tr>
<td>Anaemia</td>
<td></td>
<td></td>
<td></td>
<td>x²=0.045 P=0.832 df=1</td>
</tr>
<tr>
<td>No</td>
<td>211</td>
<td>92.5</td>
<td>166(72.8%)</td>
<td>45(19.7%)</td>
</tr>
<tr>
<td>Yes</td>
<td>17</td>
<td>7.5</td>
<td>13(5.7%)</td>
<td>4(1.8%)</td>
</tr>
<tr>
<td>Hypertension</td>
<td></td>
<td></td>
<td></td>
<td>x²=3.677 P=0.055 df=1</td>
</tr>
<tr>
<td>No</td>
<td>225</td>
<td>98.7</td>
<td>178(78.1%)</td>
<td>47(20.6%)</td>
</tr>
<tr>
<td>Yes</td>
<td>3</td>
<td>1.3</td>
<td>2(0.4%)</td>
<td>2(0.9%)</td>
</tr>
<tr>
<td>Malaria</td>
<td></td>
<td></td>
<td></td>
<td>x²=0.552 P=0.457 df=1</td>
</tr>
<tr>
<td>No</td>
<td>226</td>
<td>99.1</td>
<td>177(77.6%)</td>
<td>49(21.5%)</td>
</tr>
<tr>
<td>Yes</td>
<td>2</td>
<td>0.9</td>
<td>2(0.9%)</td>
<td>0(0.0%)</td>
</tr>
</tbody>
</table>
4.5 Health facility/health provider Factors that contribute to perinatal outcomes

4.5.1 Duration from Residence to the Hospital

The study sought to know approximately how long respondents took from their residence to the hospital, 79.4% (n=181) of the respondents indicated that they had taken less than an hour to reach the hospital, 17% (n=36) of the respondents indicated that they had taken between an hour and two to get to the hospital while 4.8% (n=11) of the respondents took more than two hours to arrive at the hospital.

4.5.2 Means of Transport to the Hospital

The means of transport the respondents used to access the facility were as follows, 24.1% (n=55) of the respondents indicated that they had used motorbikes as means of transport, 71% (n=162) had used matatu 2.1% (n=5) walked to the facility while 2.6% (n=6) of the respondents has used private means.

4.5.3 Average Wait Time between Arrival at the Hospital and Examination

The study further sought to know about the on average the duration of stay at the facility between the arrival and examination. The study showed that a majority of the respondents 51.3% (n=117) had on average 30 minutes and less wait time before one would get examined. The study also learned that 25.4% (n=58) of the respondent had waited to be examined for between 30 minutes and two hours while 23% (n=53) had waited for more than 3 hours before they were examined.
4.5.4 Availability of resources (Equipment Supplies and Nurses)

The availability of supplies and equipment information was obtained from the key informants. All of the key informants (100%) stated that the supplies were inadequate most of the time and essential equipment to include fetal monitoring equipments were not available at all. Nurse-patient ratio was cited by the key informants as 1:10 far below the required standard by WHO nurse-patient ratio of 1:1 in maternity wards. The study also sought the patients’ view of the state of the hospital’s equipment and supplies. The study showed that 87.3% held the view that the facility did not have adequate equipment and that supplies were inadequate. The major areas that were cited by the respondents were lack of beds hence patients were sharing beds and even some patients sleeping on the floor post-delivery, lack of beddings, patients gowns and even the presence only one toilet were other areas of the respondents concern. Despite the identified challenges, the study showed that majority of the respondents 77.6% rated the free maternity as excellent while a small percentage 22.4% of them felt that free maternity services were poorly executed.

4.5.5 Knowledge and Skills of the Nurses providing care

Majority of the respondents were satisfied with the nurses’ knowledge and skills in the provision of crucial maternal care. In that regard, more than three quarters (85.9 %) of the respondents were in agreement that nurses were adequately knowledgeable and skillful to perform their work. A small percentage (14%) held a contrary opinion. The satisfactory knowledge and skills was also reported by more than three quarters of the key informants with 90% of the nurses reporting that they had been in the maternity
department for a period of more than 3 years and also majority (93%) of them reported that they had been trained on maternal and neonatal care in the last one year.

4.5.6 Nurses attitude

Most of the respondents 35% (n=82) held the view that the attitude was very good, 36.8% (n=84) of the respondents rated the nurses’ attitude as good and a few 27.2% (n=62) rated the attitude as poor.

4.5.7 Provision of Health Information to the Expectant Mothers

The study was determined to know whether expectant mothers were furnished with necessary health information about themselves and their fetus such as; the danger signs in pregnancy, importance of keeping appointment dates, birth preparedness and general hygiene and safe environment, healthy and balanced diet as well as exercises among others. The study learnt that a vast majority 99.6% (n=227) had received all the necessary information regarding their own health and that of the unborn.

4.5.8 Tests Done and Recommendation to Expectant Mothers

In the interest to know the actual tests done or recommended to the expectant women, the study sought to enumerate the various tests done on them as well as the ones recommended to them. The tests forms a solid ground for the doctors and nurses to appropriately inform and advice the expectant mother on the various aspects of her lifestyle of habits that are critical at the time. According to the informants guide data it was observed that some critical conditions suffered by the mothers during their pregnancy are testable. It was noted that 1.7% (n=4) of the mothers had not done the basic required antenatal tests that women are required to undergo during the antenatal
clinic attendance though the tests were available at the facility. The respondents reported that the cost involved in the lab investigation was a barrier for them to have the investigations done.

4.5.9 Administration of Preventive Therapy and Provision of Physical Examination

Respondents were asked whether they had received any preventive therapy in their ANC visits to include among them TT dose, IPT, ITNS, Dewormers, IFAS, and ARVs. Majority 99.6% (n=226) were in agreement of having received preventive therapy. Below is a summary of the responses.

Table: 4.5 Summary of Preventive Therapy Given to Respondents Antenatally

<table>
<thead>
<tr>
<th>Summary of care to the expectant mother</th>
<th>Number (n)</th>
<th>Percentage (%)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Received preventive care during ANC</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Tetanus toxoid</td>
<td>226</td>
<td>99.1</td>
</tr>
<tr>
<td>IPT</td>
<td>226</td>
<td>99.1</td>
</tr>
<tr>
<td>ITN’s</td>
<td>11</td>
<td>4.8</td>
</tr>
<tr>
<td>Dewormers</td>
<td>103</td>
<td>45.2</td>
</tr>
<tr>
<td>IFAS</td>
<td>189</td>
<td>82.8</td>
</tr>
<tr>
<td>Received health information</td>
<td>226</td>
<td>99.1</td>
</tr>
<tr>
<td>Received full head to toe examination</td>
<td>3</td>
<td>1.3</td>
</tr>
<tr>
<td>Undone antenatal profile</td>
<td>4</td>
<td>1.7</td>
</tr>
</tbody>
</table>
Table 4.6 Chi square test for the relationship between Health Provider factors and perinatal outcomes

<table>
<thead>
<tr>
<th>Variables</th>
<th>Response</th>
<th>%</th>
<th>Perinatal outcome</th>
<th>Correlation between characteristic and outcome</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td></td>
<td></td>
<td>Good</td>
<td>Poor</td>
</tr>
<tr>
<td>Knowledge and skills</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Adequate</td>
<td>195</td>
<td>86</td>
<td>182(93.3%)</td>
<td>13(6.7%)</td>
</tr>
<tr>
<td>Inadequate</td>
<td>33</td>
<td>14</td>
<td>24(72.7%)</td>
<td>9(27.3%)</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>No. of nurses providing care</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Adequate</td>
<td>22</td>
<td>9.6</td>
<td>19(86.3%)</td>
<td>3(16.3%)</td>
</tr>
<tr>
<td>Inadequate</td>
<td>206</td>
<td>90.4</td>
<td>187(90.7%)</td>
<td>3(9.9%)</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Attitude of nurses providing care</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Very good</td>
<td>82</td>
<td>35</td>
<td>76(92.6%)</td>
<td>6(7.3%)</td>
</tr>
<tr>
<td>Good</td>
<td>84</td>
<td>36.8</td>
<td>74(88.1%)</td>
<td>10(11.9%)</td>
</tr>
<tr>
<td>Poor</td>
<td>62</td>
<td>27.2</td>
<td>56(90.3%)</td>
<td>6(9.7%)</td>
</tr>
</tbody>
</table>

Table 4.7 Chi-Square Tests for the relationship between Health Facility factors and the Perinatal outcomes

<table>
<thead>
<tr>
<th>Variable</th>
<th>Response</th>
<th>%</th>
<th>Perinatal Outcome</th>
<th>Chi-Square analysis</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td></td>
<td></td>
<td>Good</td>
<td>Poor</td>
</tr>
<tr>
<td>Accessibility (duration to hospital)</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Less than 1 hour</td>
<td>181</td>
<td>79.4</td>
<td>143(62.7%)</td>
<td>38(16.7%)</td>
</tr>
<tr>
<td>1-2 hours</td>
<td>36</td>
<td>15.8</td>
<td>27(11.8%)</td>
<td>9(3.9%)</td>
</tr>
<tr>
<td>More than 2 hours</td>
<td>11</td>
<td>4.8</td>
<td>9(3.9%)</td>
<td>2(0.9%)</td>
</tr>
<tr>
<td>Mode of transport</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Ambulance</td>
<td>5</td>
<td>2.2</td>
<td>1(0.4%)</td>
<td>4(1.8%)</td>
</tr>
<tr>
<td>Walking</td>
<td>11</td>
<td>4.8</td>
<td>9(3.9%)</td>
<td>2(0.9%)</td>
</tr>
<tr>
<td>Matatu</td>
<td>115</td>
<td>50.4</td>
<td>95(41.7%)</td>
<td>20(8.8%)</td>
</tr>
<tr>
<td>Motorcycle</td>
<td>44</td>
<td>19.3</td>
<td>31(13.6%)</td>
<td>13(5.7%)</td>
</tr>
<tr>
<td>Personal car</td>
<td>14</td>
<td>6.1</td>
<td>12(5.3%)</td>
<td>2(0.9%)</td>
</tr>
<tr>
<td>Taxi</td>
<td>38</td>
<td>16.7</td>
<td>30(13.2%)</td>
<td>8(3.5%)</td>
</tr>
<tr>
<td>Tuktuk</td>
<td>1</td>
<td>0.4</td>
<td>1(0.4%)</td>
<td>0(0.0%)</td>
</tr>
<tr>
<td>Waiting time</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Less than 30 min</td>
<td>117</td>
<td>51.3</td>
<td>89(39.0%)</td>
<td>28(12.3%)</td>
</tr>
<tr>
<td>30 min -2 hours</td>
<td>58</td>
<td>25.4</td>
<td>48(21.1%)</td>
<td>10(4.4%)</td>
</tr>
<tr>
<td>2 hours – 4 hours</td>
<td>27</td>
<td>11.8</td>
<td>23(10.1%)</td>
<td>4(1.8%)</td>
</tr>
<tr>
<td>More than 4 hours</td>
<td>26</td>
<td>11.4</td>
<td>19(8.3%)</td>
<td>7(3.1%)</td>
</tr>
<tr>
<td>Availability of supplies and equipment</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Adequate</td>
<td>29</td>
<td>12.7</td>
<td>23(10.1%)</td>
<td>6(2.6%)</td>
</tr>
<tr>
<td>Inadequate</td>
<td>199</td>
<td>87.3</td>
<td>156(68.4%)</td>
<td>43(18.9%)</td>
</tr>
</tbody>
</table>
4.6 Perinatal /birth Outcomes of the study Respondents

4.6.1 Mode of delivery

Figure 4.2 showed that 25.0% of the respondents delivered through caesarean section, while nearly three quarters of the respondent’s 72.4% had spontaneous vertex delivery, 1.7% deliveries were assisted vaginal deliveries and 0.9% (n=2) gave birth via spontaneous breech delivery.

Figure 4.2 Pie Chart Showing Respondents’ Mode of Delivery

4.6.2 Infant Status at Birth

The study observed that 96.05% (n=219) of the respondents had babies born alive while 4% (n=9) had babies born dead. Among the ones who were delivered dead were 40% (n=4) macerated stillbirth and 55.6% (n=5) fresh stillbirth. Birth outcomes were further examined for weights and it was revealed that 5.7% (n=13) of the respondent’s babies
recorded low birth weights and were admitted into the newborn units for further management.

The study was able to establish that 95.6% (n=207) of the infants born alive had an Apgar score of between 8 and ten which is considered normal for a newborn. The study further established that 5% (n=11) of the respondent's babies registered a low Apgar score of less than 6 in ten minutes and were admitted to the newborn unit. The total respondent’s babies with poor outcome were 22. Some babies had multiple poor birth outcomes for instance some were underweight and also scored poorly. No perinatal death was recorded at the time of the study.

**Figure 4.3 A Pie Chart Showing Perinatal/Birth Outcomes**
CHAPTER FIVE: DISCUSSIONS, CONCLUSIONS, AND RECOMMENDATIONS

5.1 Introduction

This chapter presents summarized discussions, conclusions and the recommendations of the entire study. Part one is a discussion of the social demographic characteristics of women seeking free maternity services at Mama Lucy Kibaki Hospital, the second part is a comparison of the perinatal outcomes one year before and one year after the implementation of the free maternity services, part three discusses the maternal characteristics of women seeking free maternity services at Mama Lucy Kibaki Hospital and part four studied the health facility /health provider factors that contribute to perinatal outcomes among women seeking delivery services at Mama Lucy Kibaki Hospital. The outcomes of the study participants are also narrated in the last section of this chapter. Lastly, the chapter gives the conclusion achieved from the study findings, recommendations according to the conclusions made from the study and also recommends areas for further research.

5.2 Discussion of Results

5.2.1 Socio-Demographic Characteristics of Women Seeking Free Maternity Services

The study found out that majority of the women seeking free maternity service at Mama Lucy Kibaki Hospital aged between twenty one and twenty five years, with only a few aged 36 years and more seeking the service. Majority of the mothers seeking the free maternity healthcare services were educated up to secondary school, and only a few
had no basic education. The study equally noted that most of the study respondents were married. Majority of the study respondents were not employed and those employed had an average monthly income of less than 10,000. Only a few women earning more than 50,000 sought free maternity services at Mama Lucy Kibaki Hospital. The socio demographic characteristics of the respondents in this study concurred with a study done in Uganda by David Musoke on ‘Health seeking behaviors’ and utilization of free health care services in Uganda (2014) that found out that low-income levels can affect the uptake and utilization of health care services particularly in communities where services are supposed to be offered for free, While the rich may opt for private facilities due to their ability to pay for health services.

5.2.2 Comparison of Perinatal Outcomes at Mama Lucy Kibaki Hospital before and After Implementation of Free Maternity Services

A comparison of the perinatal outcomes one year pre and post the introduction and the implementation of the free maternity services revealed that there was a sharp rise in the total number of women delivering at the facility post the implementation of the free maternity services. The total deliveries increased by 41% from 4732 deliveries before implementation to 6676 deliveries after the implementation of the free maternity services. There was also an increase in the number of the positive perinatal outcomes, where the number of babies born alive was noted to have increase by 43% from 4543 LB before implementation of free maternity services to 6512 LB after the implementation of the free maternity services. The perinatal poor outcomes also reduce by 15, 16, 9, and 8 per1000 LB for the perinatal stillbirths, perinatal deaths, perinatal
birth asphyxia and Perinatal under weight’s respectively. The study results on the outcomes agreed with a systemic review of user fee impacts which was conducted in Ghana and revealed that removing maternity user fee increased utilization of maternal services, and lead to increased positive outcomes usually in the form of one sharp rise (Lagarde and Palmer 2008). The Study findings also agreed with the KDHS (2014) report, and also supported by MOH (2015) comprehensive report which noted that there was an increased delivery together with improved birth outcomes a year of initiating free maternity services in Kenya.

5.2.3 Maternal Characteristics of Women Seeking Free Maternity Services at MLKH

The researcher studied the maternal characteristics of women who sought free maternity services at the hospital. The characteristics of interest included maternal health-seeking behavior. The study learnt that most of the women were seeking their first antenatal care in their second trimester, and only few had sought their antenatal care services early in pregnancy. Another big percentage (35.4) n= 80 had sought their ANC in their third trimester, and still two respondents had not attended ANC at all, and unfortunately the two got MSBs. Concerning the number of visits the study noted that only a few women 28.9% visited the clinic four times and above as recommended by the World Health Organization. The study also revealed that most mothers seeking free maternity services in the facility did not take drugs, only a few reported to have been taking alcohol. The common maternal disease was Anaemia, while none of the respondents had suffered diabetes. A significant number of those affected by anaemia gave birth to
poor perinatal outcomes which were mostly low birth weights. The findings of this study on the relationship between the maternal characteristics and health seeking behaviour agreed with a study by (Lindsay, 2013) on anaemia and iron deficiency effects on pregnancy outcomes which concluded that maternal iron deficiency increased the risk of preterm delivery and subsequent low birth weight.

5.2.4 Health facility /Provider Factors that Contribute to Perinatal Outcomes in FMS

Health Facility and Health provider factors can significantly contribute to both maternal and perinatal outcomes. The study found out that the hospital is very convenient in terms of accessibility. A majority of the respondents reported to have had taken less than one hour to reach the hospital, while a small percentage reported to have taken more than 2 hours to reach to the hospital. Majority 71% (n=162) used matatu while another huge percentage had used motorbikes. The Hospitals physical access leads to the increased number of women seeking delivery services. The findings concurred with a study on determinants of utilization of maternity services in Nepal by Rajendra et al., (2013) which concluded that, improved physical access enhances both the use of antenatal care and delivery services by a trained health care provider.

The study found out from the respondents that the hospital lacked beds and linen. All the respondents indicated that they shared beds and other necessary resources. The key informants confirmed the scarcity of the materials and equipment’s in the facility. The equipment’s lacking included monitoring machines for both the mothers and the fetus. It was also reported by the key informants that the hospital had occasionally lacked the key supplies to include gloves and the essential medicines. The shortage of supplies,
equipment’s and workforce was cited by the key informants as the biggest challenge in the implementation of free maternity this was attributed to the large number of mothers being admitted at the maternity unit. The findings on the availability of equipment’s and supplies agreed with a study by Bourbonnais (2013) who concluded in his study that” since the introduction of free maternity services there had been reported crowding in the maternity ward with patients being forced to leave early and even others delivering on the floor to give room for more patients”

The study found out that 99% of the study participants had received health information through health talks provided by the nurses in the ANC, regarding their health during pregnancy. Such information included danger signs in pregnancy, nutrition hygiene, the importance of attending the antenatal clinic, birth preparedness and the importance of hospital delivery among others.

The study also found out that, the basic antenatal profile was requested for all the antenatal clients and done by the majority except a two percent of the clients who did not have their antenatal profile done and reported that they did not have the money for the investigations. The cost implications in health care here were cited to be an obstacle in the provision of quality care to the clients.

The study further found out that a full head to toe examination which is required for every client so as to screen for unnoticed problems that the patient might not be aware of was not being done and their physical examination was reported to have been focused on the abdomen alone. The study noted a limitation in the provision of full head to toe examination as only a small proportion of the respondent had. Failure to conduct
full examination was cited by the key informants to have been contributed by the nurses shortage. Most of the respondents received preventive therapy where applicable.

The study also sought to understand the respondent’s opinion regarding the knowledge and attitude of the nurses attending them. Majority of the respondents reported that the nurses were very knowledgeable and the very knowledgeable fact was also reported by the key informants, who reported that Most of them had been in the maternity for more than three years and had at least attended an update on the maternal newborn health in the past one year. Their experience and knowledge was attributed to the good perinatal outcomes. The findings concurred with a study on the factors associated with labour support behavior of nurses by Samantha (2013) which concluded that “Nurses who have more experience and are knowledgeable in giving labour care have increased labour support and are likely to be more confident and competent in giving labour care and are likely to produce good perinatal outcomes compared to less knowledgeable and less experienced nurses”.

5.3 Conclusion

The study concludes that, introduction of free maternity services in Kenya lead to an increase in the number of women seeking maternal child health services and subsequently leads to improved perinatal outcomes. However, during data collection on the still births the researcher noted that the National statistics for stillbirths could not be a true reflection of the stillbirth’s rate since most macerated stillbirths are never reported in the DHIS. It is clear from this study findings that free maternity services provided a relief to most households which could otherwise not have afforded the user
fee levied in health facilities. The study further concludes that despite the free maternity care women are seeking services in late pregnancy, and a number of them are not attending the recommended antenatal visits. A big percentage is using unsuitable means of transport (motorcycles) to reach the hospital, which can have an influence on their perinatal outcome.

Most women with medical problems in pregnancy are being started on treatment and proper follow up initiated immediately they are diagnosed. Some respondents did not do Antenatal profile while others did not purchase the prescribed medicines. They attributed the failure to do the profile and buy the medicines to the costs and therefore the study discovered that the free maternity service did not include the lab investigations for the mothers and the medicines.

The study further revealed that despite the increased workload the staff ratio remained constant. Equipment’s and supplies also remained constant. This has led to a lot of strain to the nurses providing care; they work for long hours and have led to improvisation most of the time leading to substandard care. Sharing of beds by the clients has also put them at the risk of both cross infection and hospital acquired infections.

5.4 Recommendations

The Ministry of Health should continue supporting the free maternity services in Kenya because it has contributed to improved both maternal and perinatal outcomes. The ministry should also review the DHIS reporting tool and specifically the MOH the birth outcomes reporting tool, so as to group the Stillbirths in to Fresh stillbirths and
Macerated stillbirths for accurate reporting and proper planning because the circumstances contributing to the occurrence of the two are completely different.

The sub county public health nurse should collaborate with the community to increase sensitization to all pregnant mothers on the importance of seeking antenatal care services immediately they discover that they are pregnant and the importance of adhering to the booked appointments. They should further educate them on the dangers of the use of various means of transport to come to the hospital to include the use of motor cycles and bicycles.

In order to improve the service, the study recommends to the county government of Nairobi to boost the hospital with human resource through employment of additional health workers and specifically nurses so as to cope with the increased workload; boost the hospital with supplies and equipment’s, improve the hospital infrastructure so that the hospital can be in a position of handling the increased number of women seeking the service and increase the funding so as to include free diagnostic tests and free medicines
REFERENCES


APPENDIXES

Appendix I: Consent Form

Informed consent for study respondents in English

My name is KaindeMusyoka. I am a Masters student in Public Health at Kenyatta University. We think there is scanty information on perinatal outcomes following implementation of free maternity services in Kenya. We anticipate that the information we gather will guide health researchers, practitioners and policy makers to be able to understand the positive or negative effects that are associated with the introduction of free maternity services in relation to perinatal outcomes. The research will be vital in identifying factors that tend to cause the failures or the success of the implementation of free maternity services. The study findings will provide baseline information on the actual perinatal outcomes that result from implementation of free maternity services at Mama Lucy Kibaki hospital which will be useful in assessing performance of health systems in Kenya and also provide comprehensive data on health needs to support resource allocation for improvement of maternal health care. The KU’s ethical review committee has approved this study. We also have sought permission from the relevant Mama Lucy Kibaki hospital management.

Research Procedures: If you agree to be a participant in this study, we will ask you a few questions regarding the study entitled “Perinatal outcomes following implementation of free maternity services at Mama Lucy Kibaki hospital in Embakasi Sub-County, Nairobi County”.

Risk/benefits: We will be able to recommend and design appropriate interventions to enhance effective utilization and quality of free maternity services at the hospital hence, no risks will be involved in the study.

Participant’s Rights: Your participation in this study is voluntary and if you decline to participate, you will not be denied any services that are normally available to you.
Confidentiality: We will make every effort to protect your identity. You will not be identified in any report or publication of this study or its results.

Contact Information: If you have questions now or in the future regarding your rights on this study, you may contact Mrs. MusyokaKainde (Principal Researcher) of KU at 0720839208, Prof. Margaret Keraka on 0721817521 or Dr. Olivia Wesula 0725984059 or through Kenyatta University Ethical Review Committee Secretariat of address;

Kenyatta University Ethical Review Committee
P. O Box 43844 00100
Nairobi
Email: kuerc@ku.ac.ke

May I now ask if you would like to participate in the study?
The above details about the study and the basis of participation have been explained to me and I agree to take part in the study. I understand that I am free to choose to be part of the study. I also understand that if I do not want to go on with the study, I can withdraw at any time. I give my consent for my data to be used in the study.
Please sign here or put your right hand thumb mark if you agree:

Signature/ Thumb mark………………………….   Date………………………..
Appendix II: Questionnaire

PERINATAL OUTCOMES FOLLOWING IMPLEMENTATION OF FREE MATERNITY SERVICES AT MAMA LUCY KIBAKI HOSPITAL IN, EMBAKASI SUB-COUNTY, NAIROBI COUNTY

1. Patients questionnaire

Instructions

The questionnaire has four sections (A, B, C and D). Answer all questions indicating (X) in the appropriate answer bracket.

Date of participant’s interview …………………………….

Study Number ……………………………

A) Socio-demographic characteristics of women utilizing free maternity services at MLKH

i. Maternal age………………………………………………

ii. Marital status

Married Single Divorced Separated Widowed

iii. Residence………………………………………………

iv. Education level

a) No education c) Secondary

b) Primary d) Tertiary

iv) Occupation

a) Employed b) Self-employed
c) Not employed  

d) Casual laborer

v) Mean household income

Less than Kshs 10,000  
between Kshs. 10000 and 50000  
Above 50000

B) Availability and utilization of free antenatal care services by mothers delivering at MLKH

i) Did you attend ANC?

   Yes ..................   No ..................

ii) Number of visits  (1)  (2)  (3)  (4)  (more)

iii) Did you have a full head to toe examination done in every visit?

   Yes ..................   No ..................

vi) Did you receive any preventive therapy?

   Yes ..................   No ..................

   If yes tick which ones? (TT) (IPT) (ITNS) (DEWORMERS) (IFAS) (ARVS)

v) Did you receive any of the following health information? (Tick where applicable)

   Danger signs in pregnancy
   Importance of keeping appointment dates
   Birth preparedness
   General hygiene and safe environment
   Healthy and balanced diet
   Exercise
   Avoidance of unhealthy habits e.g. Alcohol, Cigarette smoking and miraa chewing
   Importance of Hospital delivery
   any other ................

vi) Were the following tests done or recommended for you?

   a) Blood slide for malaria
   c) Stool for ova and cyst............

   parasites............

   b) HB............
   d) FBC............

   e) VDRL............
f) HIV

g) Hepatitis Test

h) Urine analysis

vii) Reasons for undone tests if any

viii) Was any of the tests above significant?

Yes

No

C) Maternal characteristics that contribute to perinatal outcomes

(i) Do you take any of the following?

a) Cigarette smoking

b) Alcohol

c) Tobacco

If yes to any of the above state which one and the frequency

(ii) During this pregnancy have you suffered any of the following?

a) Anemia

b) Diabetes

c) Hypertension

d) Malaria

e) Hyperemesis

f) Any other

If suffered any of the above was treatment given?

Yes

No

(iii) Do you have any food taboos?

Yes

No

If yes specify

D) Heath Facility Factors that Contribute to Perinatal Outcomes

i) How long did you take from your residence to reach this hospital?
ii) By what means did you come to the hospital………………

iii) What was the average length of stay from arrival at maternity and the time you were examined by the health provider?
   a) Less than 30 min…………………..
   b) Between 30 min and two hours…………………
   c) Between 3 and 4 hours……………………..
   d) More than 4 hours…………………..

E) Perinatal Outcome measures:

i) Mode of delivery
   a) Caesarian  
      Section…………………..
   b) SVD…………………
   c) Breech………………..  
   d) AVD…………………..

ii) Baby born
   a) Alive…………………..  
   b) MSB…………………..
   c) FSB…………………..  
   d) LBWt…………………..
   e) Perinatal death…………………..

iii) Apgar score at
   a) 1 Min  
   b) 5Min  
   c) 10Min  
   v) Baby’s Admission to newborn unit
      Yes ……………………..  
      No ……………………..

F) Patients Perception on Nurse/Patient Ratio.

In your own opinion what would you comment about?

i) Number of nurses providing care
a) Adequate

b) Inadequate

ii) Knowledge and skills of nurses providing care

a) Adequate

b) Inadequate

iii) Altitude of nurses providing care

a) Very good

b) Good

c) Fair

d) Poor

iv) In your opinion do you think the equipment’s and supplies are adequate for care provision in this hospital

Yes

No

If No to the question above state what needs to be improved

v) Kindly gauge the free maternity services that have been offered to you

a) Excellent

b) Good

c) Average

d) Poor

Thank you for Participating and Answering the Questions.
Viambatisho III: Daima ya Maswali ya Utafiti kwa Wahusika

MATOKEO YA HUDUMA ZA UZAZI KABLA, WAKATI WA KUJIFUNGUA
NA BAADA YA KUJIFUNGUA KUFUATIA UTEKELEZAJI WA HUDUMA
HIZO BILA MALIPO KATIKA HOSPITALI YA MAMA LUCY KIBAKI,
KATIKA EMBAKASI, KAUNTI YA NAIROBI

2. Maswali kwa wamama waliojifungua

Maagizo
Daima ifuatayo inavyo visehemu vinne (A, B, C and D). Jibu maswali yote kwa
kutia alama ya (X) au ✓ katika sehehemu wazi katika mabano.
Tarehe ya kuhusika ............................

Nambari ya somo ............................

A) Sifa za uhusiano wa kijamii na wingi wa watu baina ya wamama wanaopokea
huduma za uzazi bila malipo katika hospitali yakujifungua ya MLKH

v. Umri wa mama kikamilifu.................................................................

vi. Hali ya ndoa

       (Aliyeolewa)                             (Aliyetengana)

       (Binafsi)                                (Mjane)

       (Aliyetalakiwa)

vii. Maeneo ya makaazi.................................................................
viii. Kiwango cha elimu

(a) Asiye na elimu (   )

(b) Aliye na elimu ya msingi (   )

(c) Aliye na elimu ya sekondari (   )

(d) Aliye na elimu ya juu ama ya kiufundi (   )

iv) Hali ya utendakazi

a) Uliyeajiriwa (  ) c) Usiyanakazi(  )

b) Uliyejiajiri (  ) d) Mfanya vibarua(  )

v) Kiwango cha mapato

Chini ya shilingi 10,000 (   ) Kati ya shilingi 10,000 na 50,000 (   ) Zaidi ya 50000 (   )

B) Uwepo na utumiziwa huduma za afya bila malipo kwa wamama waja wazito wanojifungua katika hospitali ya MLKH

i) Je, ulitemebelea kituo cha afya kwa waja wazito?

Ndio…………………………. La………………………….

ii) Kama Ndio Je, mara ngapi? (1) (2) (3) (4) (Zaidi ya mara nne)

iii) Je, ulipokea ukaguzi wa kina wa viungo vyote vya mwili kila mara ulipo tembelea kliniki?
vi) Je, ulipokea huduma zozote za kinga dhidi ya magonzwa wakati wa ujuzito?

Ndio…………………… La……………………

Iwapo jibu lako ni (Ndio), ni kinga zipi ulipewa?

Kinga dhidi ya Pepopunda ( ) Dawa zilizo na madini za kuoneza damu ( )
Tembeza kikinga Malaria ( )
Neti za kuzuia Mbu ( ) Dawa za kinga dhidi ya maradi ya UKIMWI

Dawa za minyoo ( )

v) Je, ulipata maelezo kuhusu mambo yafuatayo ya kiafya?

(a) Hatari zinazoweza kumpata mama katika ujuzito
(b) Manufaa ya kutembelea vituo vya afya kwa waja wazito kwa wakati ufaao.
(c) Matayarisho yakujifungua.
(d) Kuhusu hali ya usafi na usalama wa mazingira kwa jumla.
(e) Afya na vyakula bora vilivyvo na madini muhimu kwa kadri
(f) Mazoezi
(g) Kutojihusisha na ulevi, uvutaji wa sigara au utafunaji wa miraa
(h) Manufaa kabambe ya mama kujifungulia hospitalini
(i) Mambo mengineyo……………………………..

vi) Je, ulifaniyiwa vipimo vifutavyo?
a) Kipimo cha malaria  

b) Shinikizo la damu

c) Uchunguzi wa kina wa Kinyesisi

d) Uchunguzi wa damu kwa mkojo kina

e) Kisonono

f) Hali ya virusi vya Ukimwi

g) Homa ya majano

h) Uchambuzi wa hali ya

i) Skani ya mimba

j) Vipimo vinginevyo?

vii) Kama kuna kipimo ambacho hukufanyiwa kati ya vipimo viliyotanjwa kwa swali tangulizi, nini sababu haswa zakutofanyiwa vipimo hivyo muhimu?...........................................

viii) Je, katika vipimo hivyo kunayo haikuwa kwa hali ya kawaida?
Ndio........................................  La........................................

Iwapo jibu lako ni (Ndio) kwa swali tangulizi, je, gani?....................................................

Je, ulipata matibabu ya vipimo zilizopatikana kuwa si za kawaida?...........................................

C) Tabia za mama mjamzito ambazo huchangia katika matoto ya hali ya mtoto wakati wa kuzaliwa

(i) Je, unajihusisha na moja wapo ya mambo haya?

(a) Uvutaji wa sigara  
(b) Ulevi wa pombe (  )  
(c) Utumizi wa tubaku (  )  

(d) Utafunaji wa miraa  
(e) Madawa Mengine ya kulevya (  )

Iwapo jibu lako ni (Ndio), eleza ni gani unayo itumia na mara ngapi?.....................
ii) Je wakati wa ujauzito uliwahi kumbana mojawapo wa magonjwa haya yafuatayo?

(a) Upungufu wa damu mwilini
(b) Kisukari
(c) Shinikizo la damu
(d) Malaria
(e) Kutapika kupindukia
(f) Magonjwa amengine……

Iwapo jibu lako ni ndio kwa yoyote ya magonjwa yaliyotanjwa, je, ulitibiwa?

Ndio………………………….. La…………………………..

iii) Je, unavyo vikwazo vya kitamaduni kuhusiana na vyakula fulani?

Ndio………………………….. La…………………………..

Iwapo vipo eleza ni nini inaweza kutokea kama utavila vyakula hivyo……………………

D)Sababu katika kituo cha afya ambazo huchangia matokeo ya ujauzito katika musimu wa afya bila malipo kwa wamama wajawazito

i) Je, safari yako kutoka nyumbani hadi hospitalini ni mwendo wa takribani muda gani?........

ii) Je ukija hospitalini ulitumia namna gani ya usafiri?………………

iii)Je,baada ya kufika humu hospitalini ulichukua takribani muda gani kupokelewa na kuhudumiwa na wauguzi?

a) Chini ya dakika thelathini ,

b) Kati ya dakika thelathini na masaa mawili

c) Kati ya masaa matatu na masaa manne

d) Zaidi ya masaa manne
E) Matokeo ya ujauzito wa miezi saba hadi siku saba baada ya kujifungua

i) Namna mbalimbali za kujifungua

(a) Kupitia upasuaji (  )        (b) Njia ya kawaida(  )

(c) Mtoto kuzaliwa akianzia na miguu (  )      (d) mtoto kuvutwa kwa kifaa maalum (  )

ii) Hali ya motto aliyezaliwa

a) Akiwahai (  )                     d) Akiwa na uzani chini ya gramu

b) Akiwa mfu na akisha anza                   2500 (  )

kubambuka ngozi (  )                     e) Kifo cha mtoto kabla ya siku saba

b) Akiwa mfu lakin ngozi ikiwa                      baada yakuzaaliwa (  )

katika hali ya kawaida (  )

iii) Alama za mtoto katika kipindi cha

a) Dakika moja…………          b) Dakika tano…………          c) Dakika kumi…………………

iv) Kulazwa katika kitengo spesheli cha watoto waliozaliwa wakiwa na shida mbalimbali

Ndio…………………          La…………………

F) Maoni ya mama kuhusu uwiano kati ya idadi ya wauguzi kwa idadi ya wagonjwa.

Maoni yako ni yapi kuhusu mambo haya: ungependa kutoa mapendekezo?

i) Idadi ya wauguzi wanaotoa huduma kwa wagonjwa kuwa,
(a) Yatosha                 (b) Haitoshi

ii) Ujuzi na tajriba za wauguzi kuwa

(a) Niza kuridhisha         (b) Sizakuridhisha

iii) Mtazamo wako kuhusu huduma wanazitoa wahuguzi

(a) Ni bora zaidi…..  (b) Nzuri…..

(c) Zawastani……(d) Zachini mno……………..

iv) Je,kwa maoni yako mwenyewe uwepo wa vifaa zinazotumiwa na wauguzi kwa usambazaji wa huduma za afya kwa hospitali hii ni wakuridhisha?

Ndio……………………... La…………………….......

Iwapo jibu lako ni (La) kwa swali tangulizi, eleza kwa kifupini mambo yapi yanafaa kuangaziwa na kuboreshwa?……………………………………………………………..

vi) Tafadhal toa maoni yako kuhusu hali ya huduma za uzazi bila malipo ulizopokea

Bora zaidi ( )    Nzuri ( )    Wastani ( )    Duni ( )

Asante kwa Kushiriki kikamilifu na Kujibu Maswali
Appendix IV: Key Informants Guide.

PERINATAL OUTCOMES FOLLOWING IMPLEMENTATION OF FREE MATERNITY SERVICES AT MAMA LUCY KIBAKI HOSPITAL, EMBAKASI SUBCOUNTY, NAIROBI COUNTY

KEY INFORMANTS GUIDE

Instructions

This guide has two sections (A and B) section A covers providers department of work, and their expertise while section B covers their views about the hospital capacity in the provision of free maternity services

Date of participant’s interview ………………………

SECTION A

i) Department of work

   a) Prenatal clinic ( )
   b) Maternity unit ( )

ii) Professional cadre

   a) General Nurse ( )
   b) Nurse mid wife ( )
   c) Pediatric nurse ( )
   d) Any other ………………………

iii) Years of service

   Less than 2 years ( )
   Between 2 and 5 years ( )
   More than 5 years ( )

iv) Years of experience in maternal and newborn care …………………

   Less than 2 years ( )
   Between 2 and 5 years ( )
   More than 5 years ( )

v) Have you had any training in maternal and newborn care in the past 1 year?

   Yes……… No………

vi) Have you been trained in newborn care or newborn resuscitations in the past 1 year?
vii) How would you range the availability of supplies available for provision of care in free maternity services?

a) Adequate always
b) Inadequate sometimes
c) Inadequate always

(viii) How is the nurse patient ratio at this facility?

Adequate ( ) Inadequate ( )

SECTION B. Health facility factors that contribute to perinatal outcomes

i. Does the hospital have the necessary facilities in terms of equipment’s to offer perinatal services?

a) Yes b) No

Explain

b) Does the hospital have adequate personnel to offer perinatal services

Yes No

Explain

ii) Are there standard operating procedures/guidelines for patients care in the prenatal and maternity units

Yes No

If present above, do nurses in the above areas adhere to use of the standard operating procedures
vi) Are partographs used in maternity to monitor the progress of Labor?
   a) Always…………….           b) Sometimes…………..          c)Never……………….

v) Are maternity services fully free or they are cost shared?

vi) In your own view do you think a free maternity service has impacted positively on improved perinatal outcomes?
   Yes………………..           No………………………..

vii) Explain why to your answer………………………………………………………………………

viii) Any other remarks:

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Thank you for your participation in this study.

Name of person completing form: ............................................................

Signature ................................. Date .................. Time ..................
Appendix V: Kenyatta University Ethics Committee Approval

KENYATTA UNIVERSITY GRADUATE SCHOOL

E-mail: dean-graduate@ku.ac.ke
Website: www.ku.ac.ke

FROM: Dean, Graduate School
DATE: 8th May, 2017

TO: Kainde Musyoka
C/o Population & Reproductive Health Dept.

REF: F139/CE/26567/2011

SUBJECT: APPROVAL OF RESEARCH PROPOSAL

We acknowledge receipt of your revised Research Proposal as per our recommendations raised by the Graduate School Board of 19th April, 2017 entitled “Perinatal outcomes of free maternity services in Embakasi Subcounty – A Study of Mama Lucy Kibaki Hospital in Nairobi County, Kenya”.

You may now proceed with your Data Collection, Subject to Clearance with Director General, National Commission for Science, Technology and Innovation.

As you embark on your data collection, please note that you will be required to submit to Graduate School completed Supervision Tracking Forms per semester. The form has been developed to replace the Progress Report Forms. The Supervision Tracking Forms are available at the University’s Website under Graduate School webpage downloads.

Thank you.

GIDEON KAINEN
FOR: DEAN, GRADUATE SCHOOL

C.c. Chairman, Department of Population & Reproductive Health

Supervisors:

1. Dr. Margaret Keraka
C/o Department of Population & Reproductive Health
Kenyatta University

2. Dr. Olivia Wusula Lwande
C/o Department of Population & Reproductive Health
Kenyatta University

OK/lnn
Appendix VI: National Commission For Science and Technology Approval

NATIONAL COMMISSION FOR SCIENCE, TECHNOLOGY AND INNOVATION

Telephone: 020 400 7000,
0713 788787,0755404245
Fax: +254-20-316245,318249
Email: dg@nacosti.go.ke
Website: www.nacosti.go.ke
When replying please quote

Ref: No: NACOSTI/P/17/69909/19543 Date: 14th November, 2017

Kainde Musyoka
Kenyatta University
P.O Box 43844-00100
NAIROBI.

RE: RESEARCH AUTHORIZATION

Following your application for authority to carry out research on “Perinatal outcomes of free maternity services in Embakasi Sub County - A case study of Mama Lucy Kibaki Hospital in Nairobi County, Kenya” I am pleased to inform you that you have been authorized to undertake research in Nairobi County for the period ending 13th November, 2018.

You are advised to report to the County Commissioner, the County Director of Education and the County Director of Health Services, Nairobi County before embarking on the research project.

Kindly note that, as an applicant who has been licensed under the Science, Technology and Innovation Act, 2013 to conduct research in Kenya, you shall deposit a copy of the final research report to the Commission within one year of completion. The soft copy of the same should be submitted through the Online Research Information System.

GODFREY P. KALERWA MSc., MBA, MKIM
FOR: DIRECTOR-GENERAL/CEO

Copy to:

The County Commissioner
Nairobi County.

The County Director of Education
Nairobi County.
Appendix VII: Mama Lucy Kibaki Hospital Approval

Ref no: MLKH 12/2/VOL VI/70

MISS Kainde Musyoka
Kenyatta University
P.O.Box 43844 – 00100
NAIROBI.

RE: RESEARCH AUTHORIZATION.


You have been authorized to conduct research on “perinatal outcomes of free maternity services in Embakasi Sub County a study of Mama Lucy Kibaki Hospital in Nairobi County”. The data collection will be carried out in Mama Lucy Kibaki Hospital for a period ending 13th Nov 2018.

You are requested to share your findings with the Hospital management committee and the hospital research committee upon completion of your research.

DR. J.L KIBARA
FOR: MEDICAL SUPRINTENDANT
MAMA LUCY KIBAKI HOSPITAL

CC: DEAN GRADUATE SCHOOL
Kenyatta University
P.O.Box 43844 – 00100
NAIROBI.

National Commission for Science, Technology and Innovation
P.O.Box 30623 – 00100
Nairobi.
Appendix VIII: Map showing constituency boundaries of Nairobi County
Appendix IX: Map showing the distribution of Health Facilities in Nairobi County