

**ASSESSMENT OF THE QUALITY OF  
POSTDELIVERY CARE AT NAIVASHA DISTRICT  
HOSPITAL**

**DR. FREDRICK KAIRITHIA M'IBUKU  
POSTGRADUATE STUDENT, DEPT OF OBSTETRICS AND GYNECOLOGY  
REG NO H58/64537/2010**

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## STUDENT'S DECLARATION

This proposal is my original work and has not been presented for award of degree in this or any other university.

Dr. Fredrick Kairithia M'ibuku      Reg. Number H58/64537/2010

Date ...../...../.....

Signature.....

## CERTIFICATION OF SUPERVISION

This is to certify that this dissertation was done under my guidance as University Supervisors and has been submitted with our approval.

Signature..... Date ...../...../.....

Name: Professor J.G. Karanja  
Associate Professor, Obstetrics and Gynaecology  
University of Nairobi, Kenya

Signature..... Date ...../...../.....

Name: Dr Eunice Cheserem  
Senior Lecturer and Obstetrician/Gynaecologist  
University Of Nairobi, Kenya

## **CERTIFICATE OF AUTHENTICITY**

This is to certify that this dissertation is the original work of Dr. Fredrick Kairithia (Registration number H58/64537/2010) a master's student in the Obstetrics and Gynaecology Department, College of Health Sciences, University of Nairobi, under the guidance and supervision of Prof. JG Karanja and Dr Eunice Cheserem. It has not been presented in any other university for award of a degree.

Signed.....

Date.....

**Prof. Zahida Qureshi**

Associate Professor of Obstetrics and Gynaecology,  
Consultant Obstetrician and Gynaecologist  
Chairperson,  
Department Of Obstetrics and Gynaecology  
University of Nairobi

## **DEDICATION**

*This research work and dissertation report is dedicated to my Wife Dorothy and Daughter Neema Chantale for their patience and support during the proposal development, data collection and report compilation.*

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## ABSTRACT

**Introduction and background:** The MDG5 aims at lowering the maternal mortality by 75% by 2015<sup>1</sup> but recent trends indicate increased maternal mortality<sup>2</sup> in Kenya. From 414 maternal deaths per 100,000 live births in the KDHS of 2003 the maternal mortality ratio rose to 488 deaths per 100,000 live births as reported in the KDHS of 2008/9<sup>2,3</sup>. 15% of all pregnancies are likely to complicate<sup>5</sup>, it is not possible to predict pregnancy complicates. Therefore all pregnancies must be strictly monitored both prenatally and after delivery. Post delivery care prevents detects maternal complications early. Health information impacts health behaviors of mothers.

**Objective:** The study sought to evaluate the quality of immediate post delivery care at Naivasha district Hospital.

**Methodology:** The study design was cross sectional and 96 participants were recruited. Data was collected using a questionnaire and patients observations review schedule. Data analysis was done using SPSS Version 17 for analysis.

**Key results:** 96 (vaginal 66 and CS 33) participants were recruited into the study with mean age 25.5 (SD6.2). Majority of respondents rates care as good or excellent. The measurement and documentation of vital signs was below recommended. Only 58.4% had temperature recorded while 95.8% had BP taken at least once. The health information was not adequately provided to the participants.

**Conclusion:** The Quality of care at Naivasha District Hospital was not adequate. Maternal vital signs were not adequately monitored. There were gaps in heath information provided to post delivery mothers.

**Recommendation:** There is need to put emphasis on maternal vital signs monitoring as a means of early detection of post delivery complications. Similarly, health information should be provided routinely to aid in their health seeking habits. **Key words:** Post delivery care, Naivasha District Hospital

## **ABBREVIATIONS AND ACRONYMS**

<b>AIDS</b>	Acquired Immunodeficiency Syndrome
<b>ANC</b>	Ante-Natal Care
<b>ARDS</b>	Acute respiratory Distress Syndrome
<b>CS</b>	Caesarean Section
<b>FANC</b>	Focused Antenatal Care
<b>FP</b>	Family Planning
<b>GOK</b>	Government Of Kenya
<b>HIV</b>	Human Immunodeficiency Syndrome
<b>KDHS</b>	Kenya Demographic Health Survey
<b>MDG</b>	Millennium Development Goals
<b>MEPI</b>	Medical Education Partnership Initiative
<b>MMR</b>	Maternal Mortality Ratio
<b>MOH</b>	Ministry of Health
<b>NDH</b>	Naivasha District Hospital
<b>PMCTC</b>	Prevention of Mother-To-Child transmission
<b>PNC</b>	Post-Natal Care
<b>PPC</b>	Post-Partum Care
<b>PRIME-K</b>	Partnership in Innovative Medical Education for Kenya
<b>PTE</b>	pulmonary Thrombo-embolism
<b>RH</b>	Reproductive Health
<b>ROM</b>	Rupture of Membranes
<b>SPSS</b>	Statistical Package for Social Scientists
<b>SSA</b>	Sub-Saharan Africa
<b>SVD</b>	Spontaneous Vaginal (Vertex) Delivery
<b>UNFPA</b>	United Nations Population Fund
<b>UNICEF</b>	United Nations Children’s Fund
<b>USPSTF</b>	United States Preventive Services Taskforce
<b>WHO</b>	World Health Organization



## DEFINITION OF OPERATIONAL TERMS

- **MDG:** Millennium Development Goals is a blueprint agreed upon by world leaders in the year 2000, committing their nations to a new global partnership to reduce extreme poverty and setting out a series of time-bound targets - with a deadline of 2015
- **MMR:** Maternal mortality ratio, is the number of women who die as a result of child bearing during pregnancy, or within 42 days of delivery or termination of pregnancy in one year, per 100,000 live births regardless of the duration of the pregnancy (ACOG, 2012)
- **Skilled birth attendants:** is an accredited health professional – such as a midwife, doctor or nurse – who has been educated and trained to proficiency in the skills needed to manage normal (uncomplicated) pregnancies, childbirth and the immediate postnatal period, and in the identification, management and referral of complications in women and newborns (WHO, 2004)
- **Post Partum Haemorrhage (PPH):** bleeding from the birth canal by a woman who has just given birth quantified thus; Vagina delivery with loss of more than 500mls and Caesarean Section (CS) loss of more than 1000mls of blood (WHO Guidelines for the management of post partum haemorrhage and retained placenta, 2008)
- **Monitoring:** Objective and repeated recording of specific parameters in regard to the progress of an index patient with an aim of assessing the progress in patient care, early detection of complications and instituting interventions in time to prevent the patient from suffering the resultant morbidity and/or mortality<sup>28</sup>
- **Maternal Mortality**  
A maternal death is defined as the death of a woman while pregnant or within 42 days of termination of the pregnancy, irrespective of the duration and site of pregnancy, from any cause related to or aggravated by the pregnancy or its management, but not from accidental or incidental causes.<sup>21</sup>

## TABLE OF CONTENTS

<b>STUDENT'S DECLARATION</b> .....	<b>i</b>
<b>CERTIFICATION OF SUPERVISION</b> .....	<b>ii</b>
<b>CERTIFICATE OF AUTHENTICITY</b> .....	<b>iii</b>
<b>DEDICATION</b> .....	<b>iv</b>
<b>ACKNOWLEDGEMENT</b> .....	<b>v</b>
<b>ABSTRACT</b> .....	<b>vi</b>
<b>ABBREVIATIONS AND ACRONYMS</b> .....	<b>vii</b>
<i>DEFINITION OF OPERATIONAL TERMS</i> .....	<i>viii</i>
<b>1 INTRODUCTION</b> .....	<b>1</b>
1.1 <i>BACKGROUND TO THE STUDY</i> .....	1
<b>2 LITERATURE REVIEW</b> .....	<b>6</b>
2.1 <i>MATERNAL HEALTH</i> .....	6
2.2 <i>THE ROLE OF POSTPARTUM CARE IN THE SAFE MOTHERHOOD INITIATIVE</i> .....	7
2.3 <i>THE SIGNIFICANCE OF MATERNAL MORTALITY AND ITS RELATION TO POSTDELIVERY MONITORING</i> .....	7
2.4 <i>QUALITY OF SERVICE</i> .....	9
2.5 <i>DELIVERY (CHILDBIRTH) AND MATERNAL MORTALITY</i> .....	10
2.6 <i>STATEMENT OF THE PROBLEM</i> .....	11
2.7 <i>RESEARCH QUESTIONS</i> .....	12
2.7.1 <i>BROAD AND SPECIFIC OBJECTIVE OF THE STUDY</i> .....	12
2.8 <i>STUDY JUSTIFICATION AND SIGNIFICANCE TO THE NAIVASHA DISTRICT HOSPITAL</i> .....	13
2.9 <i>THE CONCEPTUAL FRAMEWORK (SOURCE; MACCATHY AND MAINE (1994) MODIFIED)</i> .....	14
2.10 <i>LIMITATION OF THE STUDY</i> .....	15
<b>3 METHODOLOGY</b> .....	<b>16</b>
3.1 <i>STUDY DESIGN</i> .....	16
3.2 <i>STUDY AREA (NAIVASHA DISTRICT AND NAIVASHA DISTRICT HOSPITAL)</i> .....	16
3.3 <i>TARGET POPULATION</i> .....	17
3.4 <i>STUDY PARTICIPANTS</i> .....	17
3.5 <i>SELECTION OF STUDY SITE AND SAMPLING OF PARTICIPANTS</i> .....	17

3.6	<i>SAMPLE SIZE CALCULATION</i> .....	18
3.7	<i>INCLUSION CRITERIA</i> .....	18
3.8	<i>EXCLUSION CRITERIA</i> .....	19
3.9	<i>INSTRUMENTS OF DATA COLLECTION</i> .....	19
3.10	<i>DATA COLLECTION TECHNIQUES</i> .....	19
3.11	<i>MINIMIZATION OF ERRORS AND BIASES</i> .....	20
3.12	<i>DATA MANAGEMENT (CODING, PROCESSING, ANALYSIS AND QUALITY CONTROL)</i> .....	21
3.13	<i>ETHICAL CONSIDERATIONS</i> .....	22
<b>4</b>	<b>RESULTS, DISCUSSION AND RECOMMENDATIONS</b> .....	<b>23</b>
4.1	<i>RESULTS</i> .....	23
4.2	<i>DISCUSSION</i> .....	34
4.3	<i>CONCLUSION</i> .....	36
4.4	<i>RECOMMENDATIONS</i> .....	36
	<b>REFERENCES</b> .....	<b>37</b>
	<b>APPENDICES</b> .....	<b>41</b>

## LIST OF TABLES

<i>Table 1: Demographic characteristics of study participants .....</i>	23
<i>Table 2: Interviewees satisfaction and rating of the quality of postpartum care at Naivasha District Hospital .....</i>	24
<i>Table 3: Description of vitals sign recording at Naivasha district Hospital.....</i>	25
<i>Table 4: Frequency of documentation of vital signs for study participants by healthcare midwives at Naivasha District Hospital in 24hrs .....</i>	26
<i>Table 5: cross-tabulation of the six areas of health education and number counselled .....</i>	27
<i>Table 6: Clients who received counselling on specified aspects .....</i>	28
<i>Table 7: correlation between mode of delivery and counselling received by study participants.</i>	29
<i>Table 8: the correlation between parity and postdelivery counselling on selected areas .....</i>	30
<i>Table 9: Relationship between maternal age and being counselled on selected area .....</i>	31
<i>Table 10: correlation between counselling on specified areas and respondents' level of education .....</i>	32

## LIST OF FIGURES

<i>Figure 1: Trends in ANC coverage and skilled birth attendances; Source KDHS 1988,1993,1998,2003,2008/9 .....</i>	2
<i>Figure 2: Trends of maternal mortality ratio in the Kenya Demographic Health Surveys (1998, 2003, 2008).....</i>	3
<i>Figure 3: Recommendations by study participants on ways of improving maternity care at Naivasha District Hospital .....</i>	33

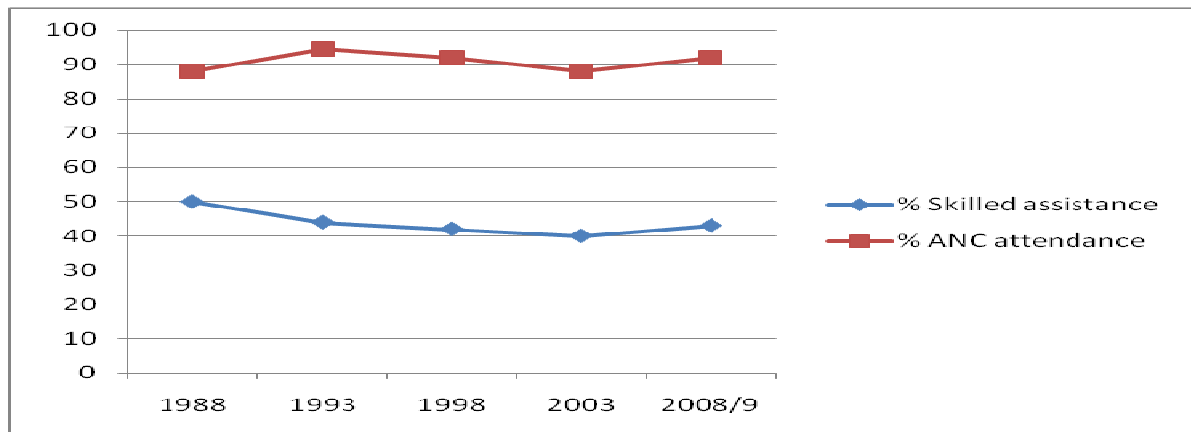
## **CHAPTER1: INTRODUCTION**

### **1.1 BACKGROUND TO THE STUDY**

More than three hundred thousand women die during pregnancy and childbirth every year worldwide. For every woman who dies another 30 suffer long-lasting injuries and illnesses<sup>6</sup>. Maternal health is inextricably linked with the survival of the newborn: every year four million babies die in the first four weeks of life (the neonatal period), a similar number are stillborn. Three quarters of neonatal deaths occur within the first week and the highest risk of dying is within the first 24 hours. Almost all (99%) neonatal deaths occur in low income or and middle income countries<sup>9</sup>.

In Kenya, it has been established that 92% of all women attend the antenatal clinic (ANC) at least once during their pregnancy<sup>2</sup>. This high attendance has regrettably not translated to proportionate deliveries attended by skilled personnel (in health facilities). The same survey shows that only 44% of all mothers deliver under supervision of skilled birth attendants (SBAs). There is also a significant disparity between health seeking between rural and urban populations, uneducated and educated populations as well as variation from one income bracket to another<sup>2,7</sup>. Review of other demographic and health surveys done in Kenya shows high utilization of antenatal services and low skilled birth attendance. The trends in ANC attendance and skilled birth attendance as established in various Kenya Demographic Health Surveys are illustrated in the figure below:

**Figure 1: Trends in ANC coverage and skilled birth attendances; Source KDHS 1988,1993,1998,2003,2008/9**

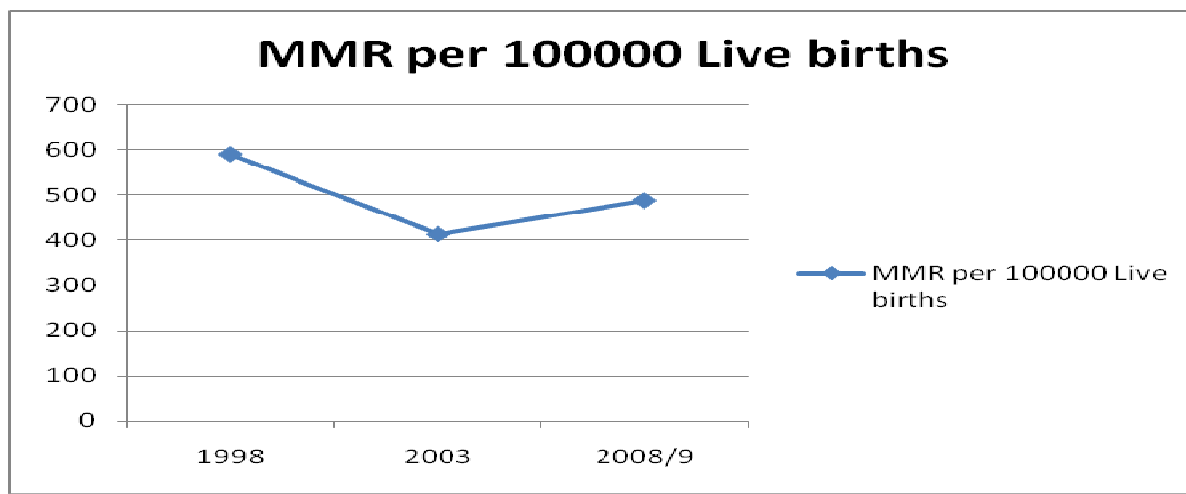


Of all pregnancies, it is estimated that fifteen percent are likely to have a complication(s) that may endanger the life of the mother or the foetus or both<sup>3</sup>. Unfortunately, it is not possible to predict which pregnancy will result into these life threatening complications and at what stage these complications will set in<sup>4</sup>. Therefore all pregnancies must be treated as potentially risky in order to take precautions that will reduce maternal and perinatal mortality and morbidity<sup>3</sup>. This caution is more applied when one has the necessary skills and training to conduct deliveries. The technical skills and training are largely not seen in traditional birth attendants who take care of approximately 46%<sup>7</sup> all deliveries according to the KDHS 2008. A large proportion of maternal and neonatal deaths occur during the first 48 hours after delivery. Thus, postnatal care is important for both the mother and the child to treat complications arising from the delivery, as well as to provide the mother with important information on how to care for herself and her child<sup>2</sup>. Review of the Millennium Development Goals (MDGs) has indicated that Kenya like other resource poor countries is far from achieving the MDG5<sup>1</sup>. Regrettably, the trends in maternal mortality are on the upward direction<sup>2</sup>. This is in spite of very high percentage of women attending antenatal clinics (ANC). Additionally, of this high percentage of mothers who visit ANC, adequate information must be provided in order to create a sense of ownership and direct participation of the pregnant woman and the immediate family members in the management of pregnancy and childbirth<sup>9</sup>. During these visits pregnant women are given care that emphasizes on the woman’s overall health, her preparation for child birth and readiness for complications. Subsequently, it is expected that when the woman comes to a health facility,

necessary caution is taken to pre-empt or identify complications at the earliest opportunity when interventions are likely to be successful<sup>10</sup>. A major obstacle to achieving the health related Millennium Development Goals (MDGs) is the weakness of the health systems in many low- and middle-income countries, and their struggle to effectively provide health care to populations in need<sup>1,2</sup>

The global statistics indicate that there is increase in pregnancy related deaths<sup>3</sup>. In Kenya, the estimates of deaths related to pregnancy and childbirth have increased over the decades<sup>2</sup>. MMR estimates in Kenya have been high by global standards over the past decades with ratio of 590 maternal deaths per 100,000 live births in 1998.<sup>26</sup> In 2003, there was a slight decline to 414 maternal deaths per 100,000 live births<sup>3</sup>. However, available data reveals that the ratio has again taken an upward trend. It is currently estimated at 488 maternal deaths per 100,000 live births<sup>2</sup>. The trend in maternal mortality ratio is illustrated below:

**Figure 2: Trends of maternal mortality ratio in the Kenya Demographic Health Surveys (1998, 2003, 2008)**



This trend is occasioned by interplay of factors that have both direct and indirect effect of maternal outcomes. These are largely patient factors, societal factors and system, structural or policy issues<sup>8</sup>.

Most maternal deaths could be prevented by ensuring good quality maternal health services, including antenatal and postnatal care, skilled care during childbirth, emergency obstetric care, prevention of unwanted pregnancies and post abortion care

Maternal mortality remains one of the main challenges in sub-Saharan Africa and indeed many other resource poor settings<sup>7</sup>. The five main direct causes of maternal mortality include: haemorrhage (30%), sepsis (25%), Complications of preeclampsia/eclampsia (17%), ruptured uterus and complications of abortions(15%)<sup>9</sup> All these causes of maternal deaths are largely preventable with adequate maternal and pregnancy surveillance and monitoring. It is important to note too that these direct causes occur after delivery within the first 24 to 72 hours.

The most important period in which maternal mortality can be predicted and prevented is the first hour after deliver<sup>12</sup>. This crucial period has been conventionally termed as fourth stage of labour, primarily to emphasise the need for strict maternal and newborn monitoring. While the mother is likely to develop post partum haemorrhage from uterine atony, retained products of conception (POCs), genital tears or other causes, the infant is likely to have acute respiratory distress syndrome (ARDS), transient tachypnea of the newborn (TTN), hypothermia, hypoglycaemia, hypocalcaemia or even mechanical asphyxia by the exhausted and drowsy post Caesarean section mother<sup>9</sup>.

The health care that a mother receives during pregnancy, at the time of delivery, and soon after delivery is important for the survival and well-being of both the mother and her child<sup>2</sup>. If the blood pressure and pulse rate is meticulously measured in all post delivery mothers, it will be possible to identify and treat post partum haemorrhage (PPH) early enough to prevent the high proportion that succumb to this complication<sup>42</sup>. Other significant observations include the amount and nature of lochia, presence of genital injuries, maternal pulse rate, temperature and respiratory rate. Wound care by the nursing staff and the patient herself will ultimately result into reduced cases of post partum sepsis and wound complications<sup>14</sup>.

Likewise, knowledge of the maternal HIV status and other communicable diseases will help in preventing transmission of such infections to the newborn as well as the expected deterioration that occurs from stress of childbirth both by caesarean section and vaginal deliveries<sup>15,16</sup>. As a policy in Kenya today, all pregnant mothers must be encouraged to get screened for HIV in order to enrol those infected into the existing prevention of mother-to-child transmission (PMCTC) programs. Knowledge and management of HIV has become integral part of antenatal and postpartum care.



Measuring quality of care is a difficult concept since it is at times hard to delink the clients' expectations and perceptions from the actual recommended level of care<sup>17</sup>; it is hard to eliminate the impact of the prevailing circumstances while judging quality<sup>18</sup>. Quality greatly derives from the staff attitude<sup>19</sup>, which is even harder to measure. The subjective aspect of quality is also prone to bias based on other uncommunicated factors<sup>20</sup>. Due to the complexities in measuring quality, most researchers opt to focus on key areas deemed to be vital in overall patient care, to provide synopsis of the quality of care.

## CHAPTER 2: LITERATURE REVIEW

### 1.2 MATERNAL HEALTH

Postnatal period remain an important period in a woman's life and health. This is the period when childbirth related complications set in. The identified 5 main causes of maternal mortality are haemorrhage, sepsis, complications of obstructed labour and complication of blood pressure (pre-eclampsia and eclampsia). These become evident during this period.

Early Postpartum Care must be repositioned to complete the strategies for the continuum of skilled care from Pregnancy (Focused Antenatal Care), delivery (Skilled Attendance) and after delivery (Early Postpartum Care), with an emphasis on encouraging family spacing.<sup>22</sup>

This realization has made the first one hour after delivery by aptly referred to as fourth stage of labour. Maternal health refers to the health of women during pregnancy, childbirth and the postpartum period. Maternal health is conveniently divided into two major components namely: reduction of maternal mortality ratio and achievement of universal access to reproductive health. Both targets are articulated in the millennium development goals (MDGs) to be achieved by 2015 (UN, 2000). Information available shows that most maternal deaths are avoidable or preventable with use of skilled care during child birth<sup>6</sup>. Achieving universal access to reproductive health entails more women receiving antenatal care, bridging inequalities in care during pregnancy, and expanding the use of contraception to even the poorest women and with no education<sup>4</sup>. The bill of rights in the Constitution of Kenya<sup>45</sup> states that, "every person has right to highest level of health including reproductive health care". This puts great emphasis on the need to safeguard the women's health and life. The largest contributor to the national mortality and morbidity figures is the first life cohort. Maternal deaths contribute about 27% of all adult deaths in Kenya<sup>2</sup>

Maternal health services are conventionally categorized as preventive and curative services. Preventive services include focused antenatal care (FANC) and nutritional care, intermittent presumptive treatment (IPT) of malaria, use of skilled births attendants (SBA), clean delivery, post natal care (PNC), family planning (FP) services, promotion and use of insecticide treated nets (ITNs), prevention of mother-to-child transmission (PMTCT) for HIV positive pregnant women, Micro-nutrient supplementation, hygiene, water and sanitation to prevent communicable

diseases. Curative services include adequate and timely referral of patients who may develop complications during pregnancy, use of partographs to monitor labour, availability of transport (ambulance) services to the next level of care and basic and comprehensive emergency obstetric care and the postpartum care.

The community strategy document created six levels of care in Kenya right from the community to the national referral hospitals (MOH 2006).<sup>24</sup> Naivasha District Hospital is in Level Five in the stratification of health facilities in Kenya. Naivasha District is served by a combination of Government of Kenya (GOK) facilities, mission hospitals and private clinics and dispensaries. However the topmost referral centre is the Naivasha District hospital.

### 1.3 THE ROLE OF POSTPARTUM CARE IN THE SAFE MOTHERHOOD INITIATIVE

In 1987 WHO, UNICEF, the World Bank and other international agencies launched the Global Safe Motherhood Initiative in Nairobi at the Conference on International Safe Motherhood. It was declared that in order to reduce maternal mortality, each woman should be enabled to: choose whether she will become pregnant, receive care for the prevention and treatment of pregnancy complications, have access to a trained birth attendant, have access to emergency obstetric care for complications if she needs it, have care after birth, avoid death or disability from complications of pregnancy and childbirth<sup>25</sup>

The Safe Motherhood Initiative differed from other health initiatives in that it focused on the well being of women as an end to itself. The prevention of a death of pregnant woman is considered to be the key objective, not because death adversely affects children and other family members but because women are intrinsically valuable<sup>27</sup>.

### 1.4 THE SIGNIFICANCE OF MATERNAL MORTALITY AND ITS RELATION TO POSTDELIVERY MONITORING

Maternal mortality is defined as the death of a woman while pregnant or within 42 days of termination of pregnancy, irrespective of the duration and site of the pregnancy, from any cause

related to or aggravated by the pregnancy or its management, but not from accidental or incidental causes<sup>4</sup>. Globally, 1500 women die from pregnancy or childbirth-related complications every day. More than three quarters of these deaths occur in the Sub-Saharan African (SSA) region<sup>19</sup>. In 2005, there were an estimated 536 000 maternal deaths worldwide, most of which occurred in developing countries, and most were avoidable<sup>1</sup>. A total of 99% of all maternal deaths occur in developing countries, where 85% of the poor population lives<sup>28</sup>. More than half of these deaths occur in sub-Saharan Africa and one third in South Asia. With aggressive interventional strategies, this number has reduced to slightly over 300,000 maternal deaths per annum according to the WHO. This is a great improvement in this health indicator but a lot more needs to be done.

The average maternal mortality ratio in developing countries is 450 maternal deaths per 100 000 live births versus 9 per 100 000 live births in developed countries. Some countries in the world have maternal mortality ratios of at least 1000 per 100 000 live births. These include Afghanistan, Angola, Burundi, Cameroon, Chad, the Democratic Republic of the Congo, Guinea-Bissau, Liberia, Malawi, Niger, Nigeria, Rwanda, Sierra Leone and Somalia<sup>1</sup>. The high incidence of maternal death is one of the signs of major inequity spread throughout the world, reflecting the gap between rich and poor as almost all the countries with MMR of at least 1000 per 100,000 live births are in Sub-Saharan Africa<sup>29</sup>.

Nationally, maternal mortality has remained a challenge over the last two decades. In 1998 Kenya recorded a national maternal mortality ratio of 590 deaths per 100, 000 live births<sup>3</sup> while in 2003 maternal mortality ratio was recorded at 414 deaths per 100,000 live births<sup>6</sup>. In 2005 the WHO/UNICEF/UNFPA/World Bank estimated it at 560 maternal deaths per 100,000 live births<sup>1</sup> while in 2009 it was estimated at 488 deaths per 100, 000 live births<sup>2</sup>. Maternal mortality can be attributed to direct and indirect causes. Direct causes include maternal haemorrhage, sepsis, pre-eclampsia and eclampsia, obstructed labour and abortion<sup>9</sup>. Among the indirect causes of maternal death are diseases that complicate pregnancy or are aggravated by pregnancy and child birth, such as malaria, anaemia and HIV<sup>30</sup>.

The rates of sepsis seen are directly related to the level of practice of aseptic techniques and the availability and administration of antibiotics<sup>31</sup>. Studies have also indicated that there is an immense role of prophylactic antibiotics for women with prolonged labour and/or prolonged

rupture of membranes (ROM) in preventing puerperal sepsis<sup>29, 32</sup>. Mothers from resource poor settings typically present to hospital late after many hours of rupture of membranes. Complications of obstructed labour cause enormous morbidity to the affected women<sup>33</sup> stringent supervision of deliveries and monitoring in the post partum period can help in identifying the above mentioned complication and institution of timely management.

The Millennium Development Goal number 5 (MDG5) specifically addresses maternal health tackling issues like maternal mortality ratio, proportion of births attended by skilled health personnel, contraceptive prevalence rate, adolescent birth rate, ante-natal care coverage (at least one and at least four visits) and unmet need for family planning. MDG 5 aims to reduce maternal mortality ratio by 75% between 1990 and 2015 noting that most maternal deaths are preventable when there is access to adequate reproductive health services, equipment, supplies and skilled healthcare workers. To achieve this milestone, the Government of Kenya through the then Ministry of Health developed a strategic plan for the different levels of health facilities. This document takes a holistic approach with suggested interventions to improve the maternal mortality and morbidity in the country.

## 1.5 QUALITY OF SERVICE

Quality of service may be described using both subjective and objective observations. These specified aspects of care also limit observer bias and would provide basis for judgement. The quality of care has been set up in policy documents that give guidelines in dealing with clinical and other scenarios<sup>34</sup> Rights to privacy, confidentiality and sensitive care are often missing where staff and funds are limited. Other aspects of care to be considered include patient monitoring, patient health information and encouraging feedback for continuous quality improvement. Woman-friendly services tailored to the local socio-cultural context increases women's confidence in the formal health system<sup>35</sup>. Quality improvement is a process to: improve adherence to standards and guidelines based on Evidence Based Medicine; to improve structure-process-outcome by applying quality principles and tools; and to satisfy clients' needs in a culturally appropriate way. It is therefore possible to reduce the work done into measurable parameters that can be compared with prescribed minimum levels in order to judge the quality and completeness of these activities<sup>42</sup>.

## 2.4 DEFINING QUALITY OF POSTNATAL CARE

Universally, there is no clear definition of quality since this varies from observer to observer. Additionally, quality has both the subjective, non-verifiable parameters and objective measurable parameters

The study focused on aspects that improve the outcomes of both the mother and the infant in the postdelivery period. The scope of this study was to assess reported and documented aspects of quality indicators. This study isolated and investigated the following areas to define quality of care.

**What was done after the delivery?** This information was elicited through questionnaires. The specific aspects on which inquiry was made included check for presence of tears and vaginal bleeding. Women were asked direct question as to whether this was done or not.

**Transmission of health information** to the recipients of care at Naivasha District Hospital was also assessed. For this study, the researcher concentrated on 6 areas considered to be important among the respondents. These areas included counselling on exclusive breastfeeding, family planning/spacing, testing for HIV/AIDs, counselling on infant and maternal danger signs, the care of umbilical stump and infant immunization schedules. These 6 key areas were considered by the research to have fundamental impact on both maternal and neonatal wellbeing.

The completeness of measuring and documenting vital signs including body temperature, blood pressure, pulse rate and respiratory rate. The role of vital signs is well documented in establishing presence of hypovolemia from bleeding, infection/sepsis and other early postdelivery complications.

Finally, having the subjective rating of care of the patients was considered. Ultimately, the mothers were asked about possible recommendations they would make to the hospital to improve the quality of care.

## 1.6 DELIVERY (CHILDBIRTH) AND MATERNAL MORTALITY

About 80% of all maternal deaths globally can be directly attributed to pregnancy, with severe bleeding accounting for 25%, infections 15%, eclampsia 12%, obstructed labour 8%, unsafe abortion 13%, other direct cause 8%<sup>30</sup>. Most maternal deaths seem to occur between the third trimester and the first week after the end of pregnancy<sup>23</sup>. A large proportion of all maternal

deaths occur in health facilities mainly due to three types of cases: women who arrive too late to benefit from emergency care, women who arrive with complications who could have been saved if they had received timely and effective interventions, and women admitted for normal delivery who subsequently develop serious complications<sup>36</sup>. It is imperative that health workers must anticipate and prepare adequately to handle emergencies if the trends of maternal mortality are to be reversed<sup>37</sup>. Nationally, pregnancy is a leading cause of maternal deaths with haemorrhage (ante-partum and post-partum), sepsis, pre-eclampsia and eclampsia, ruptured uterus and complications of induced abortion being the main causes.<sup>34</sup> There is a proportionate relationship between the quality of care during delivery and the perinatal morbidity and mortality<sup>42</sup>. There are key challenges that have been isolated in hospital settings that account to inadequate post partum care. These include: Lack of advocacy of postpartum services by health care providers, lack of updates /knowledge of the new schedule among providers, negative provider attitude towards postpartum services, health care providers are not aware of the policy and guidelines on early postpartum care, shortage of providers in health facilities, availability of the postpartum register in the health facilities.<sup>39</sup>

## 1.7 STATEMENT OF THE PROBLEM

The immediate post delivery period is the most critical period to both the mother and the newborn<sup>12</sup>. Mothers are prone to developing complications such as postpartum haemorrhage (PPH) which is the leading cause of maternal deaths, vomiting and aspiration pneumonitis, and later she may develop severe sepsis. Another complication that may result is post partum eclampsia for mothers with mild or moderate preeclampsia. Other rare complications include pulmonary thromboembolism (PTE), amniotic fluid embolism, hypoglycaemia, and peri-partum psychosis and cardiomyopathies<sup>12</sup>.

Therefore, this period requires quality care and strict patient monitoring to detect complications early for appropriate interventions. Most maternal deaths could be prevented by ensuring good quality maternal health care especially during and immediately after delivery. Likewise the content and extent of health information provided to mothers in form of counselling determines

their compliance to treatment, their vigilance to detect complications early and empowerment to making health seeking decisions.

Inadequate and poor quality of care and lack of health information provision to the mothers will inevitably have a negative effect on the health outcomes and mothers' satisfaction both immediately and in the long term.

In Naivasha District Hospital, there has not been previous study done to assess the quality and completeness of post delivery care and the health information these mothers are provided with. This study sought to determine the quality of post delivery care given to mothers and the health information given to mothers after delivery as a means of early detection of complications for timely interventions. Identification of gaps in the post delivery care was done and relevant recommendations made.

## 1.8 RESEARCH QUESTIONS

The following were the study questions:

Is the postdelivery care at Naivasha district hospital provided adequately in accordance to the specified criteria; and to what extent is key health information passed to post delivery mothers at the NDH through postdelivery counselling; how do the mothers perceive the quality of care they get at the Naivasha District Hospital; how complete is the observations carried out to post delivery mothers at NDH

### 1.8.1 BROAD AND SPECIFIC OBJECTIVE OF THE STUDY

#### 1.3.1. BROAD OBJECTIVE

To evaluate the quality of immediate postdelivery care at the Naivasha District Hospital



### 1.3.2: SPECIFIC OBJECTIVES

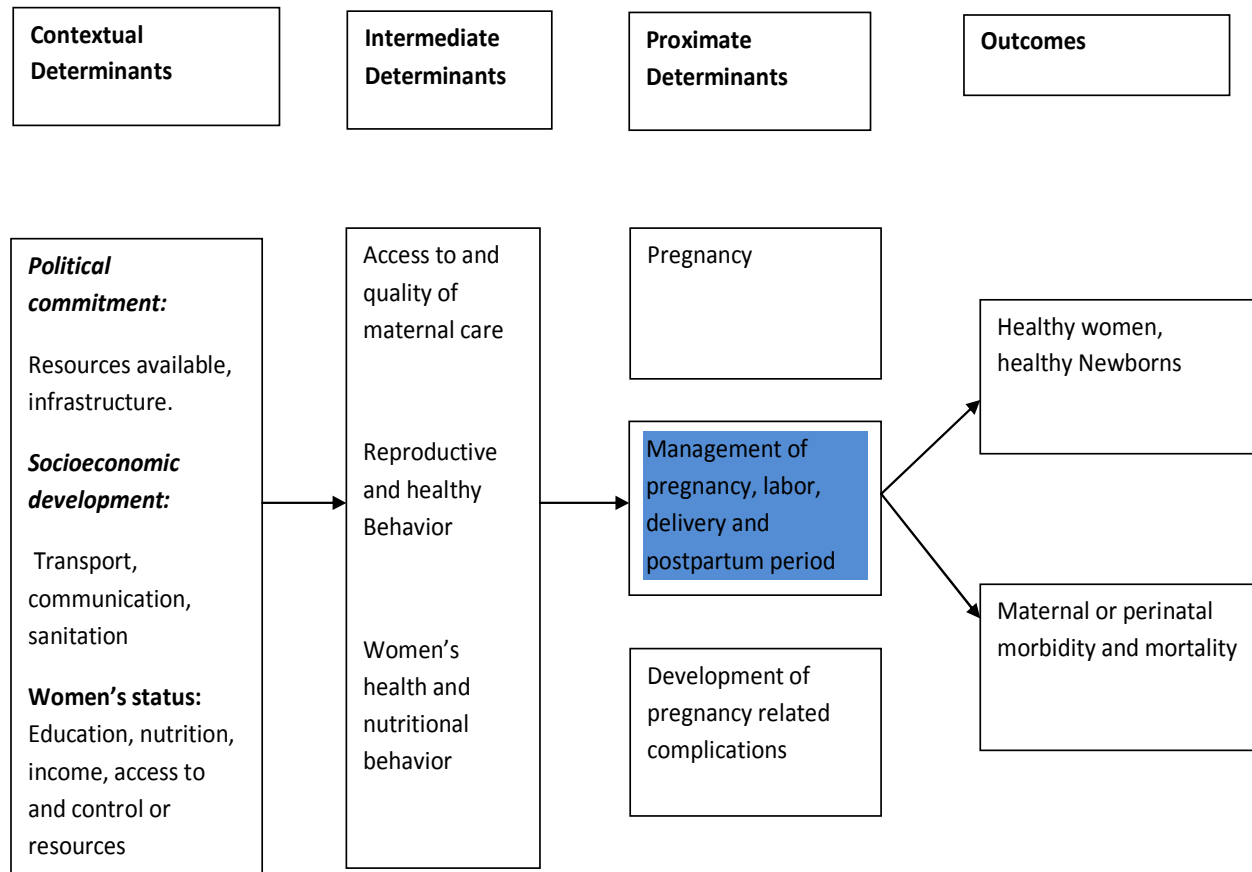
The specific objectives of this study were to:

- i. Assess the adequacy and completeness of post delivery maternal vital signs monitoring and documentation at the Naivasha District hospital.
- ii. Evaluate the extent to which selected aspects of health information is provided to post delivery mothers at the Naivasha district Hospital

### 1.9 STUDY JUSTIFICATION AND SIGNIFICANCE TO THE NAIVASHA DISTRICT HOSPITAL

This study evaluated the quality of post delivery care provided at the NDH, the frequency of observations made and their documentation and completeness of postdelivery instruction provided at the facility. Similarly, the study aimed at isolating the areas that ought to be emphasized in order to detect early or prevent delivery related complications, morbidity and mortality. The findings of this study were communicated to the hospital administration and staff. The researcher also provided recommendations to drawn from the findings to the Naivasha District Hospital staff and administration.

1.10 THE CONCEPTUAL FRAMEWORK (SOURCE; MACCATHY AND MAINE (1994) MODIFIED)



THEORETICAL EXPLANATION OF THE CONCEPTUAL FRAMEWORK

The maternal outcomes are dictated by determinants that interact at three levels. All these must work together to ensure that the pregnancy culminates in a health mother and a healthy neonate. Adequate and quality antenatal, labour and and post delivery care forms intermediate determinants for healthy mothers and healthy neonates. The proximate determinants of maternal and neonatal morbidity and mortality include pregnancy, management of labour and post partum period and the associated complications. The focus is early detection of complications and institution of timely interventions by well trained and qualified staff. This framework presumes that there exists adequate supplies, there is infrastructure and equipment and the system is

backed by sound policies and guidelines. The contextual factors include political commitment that allocate adequate funds and prioritizes healthcare, the socioeconomic factors, infrastructure, and individual woman's status. All these variables must work in concert with each other to influence health seeking behaviour, to avail timely and quality health care and to prevent unfavourable outcomes. The framework displays this interaction at different levels and how the different factors impact on management of pregnancy, labour and postpartum care/surveillance.

#### 1.11 LIMITATION OF THE STUDY

This study did not look at trends in practicing post delivery care. It did not assess if all health care providers were observing practices under investigation or not. Therefore, it cannot be generalised to all workers in the facility. The study also did not seek reasons for inadequate post delivery care at the facility.

## **CHAPTER III: MATERIALS AND METHODS**

### **1.12 STUDY DESIGN**

A cross sectional design was used to this study. All participants recruited for this study were interviewed once and their medical records reviewed once to extract relevant data for this study. All women who had delivered at the Naivasha District Hospital were targeted by participants were recruited based on specified inclusion criteria.

### **1.13 STUDY AREA (NAIVASHA DISTRICT AND NAIVASHA DISTRICT HOSPITAL)**

The study was carried out at the Maternity Unit of the Naivasha District Hospital. This site was chosen in keeping with the Prime-K selected remote sites for development of centres of Excellence in research and training. Naivasha District Hospital is situated in Naivasha town. Naivasha is a market town in Nakuru County of Kenya lying about 90kms North West of Nairobi. It is located on the shores of L. Naivasha and along the Nairobi-Nakuru Highway and Kenya- Uganda Railway line. It is estimated to have a population of 500,000 people<sup>41</sup>

Naivasha District Hospital (NDH) is a major referral centre serving more than four surrounding districts. It is estimated that the catchment population is about half a million people<sup>44</sup>. This is partly due to easy accessibility to the facility by adjacent districts. The hospital is situated along the Nairobi-Nakuru highway, has considerably affordable charges for their services, and a functional operating theatre and other essential obstetric facilities and supplies.

In the antenatal ward, there are 16 beds with average occupancy of 30-40% in the year 2011<sup>44</sup>. The delivery room has four delivery beds with one working Ventouse vacuum and working resuscitation equipment. In addition, the hospital has one operating theatre where emergency Caesarean sections are performed. There are two dedicated maternity operation tables both of which are in good working condition. The hospital has 16 post delivery beds with an average occupancy of 66-90% in the year 2011<sup>44</sup>. There are two consultant obstetricians who take calls in turns to provide the hospital with round the clock coverage. There are two mission hospitals in the Naivasha District, seven private hospitals and three government of Kenya (GoK) owned health centres all of which refer patients to the district hospital for specialised care. The NDH has a laboratory which operates on 24hr basis mainly serving the inpatients.

#### 1.14 TARGET POPULATION

The target population was women who delivered at Naivasha District Hospital at the time the study was conducted.

#### 1.15 STUDY PARTICIPANTS

These were women who delivered at Naivasha District Hospital during the study period. They are recruited after delivery.

#### 1.16 SELECTION OF STUDY SITE AND SAMPLING OF PARTICIPANTS

Naivasha District Hospital was non-randomly and purposefully selected in tandem with the overall Partnerships in Innovative Medical Education - Kenya (PRIME-K) objectives. PRIME-K is a National Institute for Health (NIH) funded grant. The selection of Naivasha District hospital was based on allocation of the site by the Ministry of Medical Service to PRIME-K. This site is an accredited internship centre, a key prerequisite, it has relatively high patient turnover. The hospital has consultants posted there by the government, who acted as adjunct supervisors for the researchers within the facility. Naivasha District Hospital is an accredited internship centre and also serves as a peripheral site for training of undergraduate students from the University of Nairobi. Other alternative sites where PRIME-K had programs included Garissa Provincial General Hospital, Mbagathi District Hospital, and Coast Provincial General Hospital. The overarching aim of the Linked Award is to establish a collaborative centre of excellence in maternal, newborn and child health (MCNH) at the University of Nairobi which will build research capacity and provide outstanding training in implementation science and applied research health metrics and evaluation and program leadership relevant to achieving Kenya's health development goals. It aims to promote implementation science research by investing in regionally relevant research that strengthens MNCH efforts at the community level in collaboration with the Ministry of Health (MOH).

#### SELECTION OF INDIVIDUAL PARTICIPANTS

Study participants were randomly selected. In randomization the names of the patients in the ward on the day and time of the study were each written on identical pieces of paper folded tightly and pooled together. Each at a time, a paper with name of potential respondent was

picked and the patient approached and requested to take part in the study. Once a client agreed to participate, a questionnaire was administered and her file retrieved for review of documentation using a standard guide (see appendix 2). If a client did not meet the inclusion criteria, or declined to participate, another paper was randomly picked. The study took place over two months with weekly visits. Therefore the daily target of participants to be interviewed was fourteen.

### 1.17 SAMPLE SIZE CALCULATION

Sample size was determined using the single population formula for cross sectional studies applicable for simple random sampling which was appropriate for this study. (Fischers et al, 2008)

$$n = \frac{Z^2 [P (1-P)]^*}{d^2}$$

*Whereby:-*

**n** is the required sample size

**z**= statistical score is the critical value associated with significance level of 95% confidence interval, is 1.96

**p** is the estimated proportion of mothers whose immediate post delivery monitoring and care is adequate. Since this was unknown in the facility, it was pegged at 50% or 0.5

**q** is the proportion that did not get adequate postdelivery care; 1.0-0.5=0.5

**d**, the margin of error accepted for this study will be 90% confidence interval and a margin of error of +/- 0.10.

Substituting the variables above: (n=sample; z=1.96; p=0.5; q=0.5; d=0.1)

$$n = \frac{(1.96)^2 0.5 \times 0.5}{0.1 \times 0.1} = 96.$$

### 1.18 INCLUSION CRITERIA

The inclusion criteria included:

- i) Having delivered at the facility
- ii) Within their first week of delivery irrespective of mode of delivery, whether live birth or still birth, term or preterm birth.

iii) Ability to give a valid informed consent for the study.

#### 1.19 EXCLUSION CRITERIA

- All mothers very sick to participate in the study
- Mothers who decline to participate.

#### 1.20 INSTRUMENTS OF DATA COLLECTION

Primary data collection was done using pre-coded, structured questionnaire. Data about the patient documentation was obtained from their records/files using an information review schedule.

#### 1.21 DATA COLLECTION TECHNIQUES

- The data collection tool (questionnaire) was developed with assistance from the study supervisors who are lecturers from the department of obstetrics and gynaecology at the University of Nairobi.
- The tool was pretested at the same facility before the actual study began. Any gaps noted, unclear questions were polished in order to elicit relevant responses to the questions posed.
- Actual data collection was done by the researcher during the period of study. A study assistant was also trained and involved in data collection.
- Upon identifying the prospective study participant, the objectives of the study were highlighted to her and informed consent sought prior to administration of the questionnaire. All questions were read loudly to the respondent and appropriate response marked by the interviewer.
- Before the end of each interview session, the investigator looked through all the questions to ensure all were asked and answered and any outright outliers were clarified and corrected.
- Using the same consent, the mothers' file was retrieved and checked for completeness of documentation using a documentation review schedule.

- At the end of each day, all questionnaires responses were uploaded to the computer program (database) in a cumulative manner. All responses obviously wrong or outlying the rest were clarified at the end of every day.

## 1.22 MINIMIZATION OF ERRORS AND BIASES

- Pilot testing of questionnaire: The questionnaire was pilot tested in the same facility prior the actual commencement of this study. Testing the tool at the same facility was aimed at refining and validating the questions asked and making necessary modification. Since this department was a high turnover unit, the use of same facility to pre-test the tool did not interfere with the patients' responses.
- Training of study assistant: the research assistant was trained on data collection tool was done to minimize interviewer bias and safeguard validity of data collected.

## DEFINING QUALITY OF CARE

The scope of this study was to assess reported and documented aspects of quality indicators. The following are the three areas on which this study dwelt:

- i) What was done after the delivery? This information was elicited through questionnaires. The specific aspects on which inquiry was made included check for presence of tears and vaginal bleeding. Women were asked direct question as to whether this was done on not.
- ii) Transmission of health information to the recipients of care at Naivasha District Hospital was also assessed. For this study, the researcher concentrated on 6 areas considered to be important. These areas included counselling on exclusive breastfeeding, family planning/spacing, testing for HIV/AIDs, counselling on maternal and infant danger signs, the care of umbilical stamp and infant immunization schedules. These 6 key areas were considered by the research to have fundamental impact on both maternal and neonatal wellbeing.
- iii) The adequacy of measuring and documenting vital signs of temperature, blood pressure, pulse rate and respiratory rate. The role of vital sign is well documented in



establishing presence of hypovolemia from bleeding, infection/sepsis and other early postdelivery complications. Documentation of vaginal bleeding during the 4<sup>th</sup> stage of labour was also checked. Other aspects of maternal observations that were not reviewed in this study include documenting uterine size, abdominal distension, volume and characteristics of Lochia, general condition of the mothers, pallor, jaundice and wasting.

- iv) Finally, having the subjective rating of care of the patients was considered. Ultimately, the mothers were asked about possible recommendations they would make to the hospital to improve the quality of care.

### **1.23 DATA MANAGEMENT (CODING, PROCESSING, ANALYSIS AND QUALITY CONTROL)**

#### **DATA CODING PROCEDURE**

The following was used used for data coding:

- i) Exhaustive: unique codes were used for each category of data. For example, in marital status, 1-Single 2-Married 3-Divorced 4-Widowed
  - ii) Mutually exclusive: information being coded will be assigned to one category that is not overlapping. For example, satisfaction with services (Yes/No)
  - iii) Residual information: for some responses the participants were allowed to provide any other information not anticipated by the interviewer. For example, reasons for delay: Many Patients/Few staff/Lack of commitment/OTHERS
- The quality of data was be guarded through pre-testing the tool used for data collection for consistency and usability
  - Data collected was entered into a password protected Microsoft access database and any obviously erroneous responses and omissions check for. Entered data was verified against the hard copies.
  - After the above process of data verification and cleaning, data was transferred to SPSS programme for analysis and interpretation.
  - To guard confidentiality, participants' data bore no names or identifiers but serial numbers. Data forms were kept in secure lockable cabinet only accessible to the research and the stastician.

## 1.24 ETHICAL CONSIDERATIONS

This study got ethical clearance from the KNH/UoN ethics review board. Voluntary and informed consent was sought before the subjects were interviewed. There was no emotional or financial manipulation by the researcher to take part in the study. Confidentiality was strictly observed at all times and no direct link between the information provided and respondents. The completed filled questionnaires were kept in safe locked cabinets.

## CHAPTER III: RESULTS, DISCUSSION AND RECOMMENDATIONS

### 1.25 RESULTS

#### DEMOGRAPHIC CHARACTERISTICS

Ninety six participants were recruited into this study. Table 1 shows the Sociodemographic characteristics of the study participants.

*Table 1: Demographic characteristics of study participants*

<b>Formal education of participants n=96</b>	
Primary	67.7%
Secondary	28.1%
College	4.2%
<b>Marital status of participants n=96</b>	
Single	12.5%
Married	87.5%
<b>Number of children of participants n=96</b>	
One	44.8%
Two	28.1%
Three	20.8%
Four	5.2%
<b>Occupation of the participants n=96</b>	
Employed	14.6%
Unemployed	70.8%
<b>Religion of the participants n=96</b>	
Christian-Protestant	74.0%
Christian catholic	25.0%
Muslim	1.0%
<b>Residence of the participants n=96</b>	
Within the municipality	68.8%
Outside the municipality	31.3%

The mean age of study participants was 25.5years (SD 6.2) with a range of 16 to 40 years. All the patients had attended formal education. Two-thirds (67.7%) of the patients reported having attained primary level education. Eighty-four participants (87.5%) were married. The number of living children ranged from 1 to 4 and most (44.8%) mothers had only one child. (Table1). Sixty-six (68.8%) mothers resided within Naivasha municipality and 70.8% reported that they were unemployed. Christianity was the predominant religion amongst the participants accounting for 99%.

#### SATISFACTION WITH POST DELIVERY CARE RECEIVED

Most clients rated the care they received as either excellent or good. The few study participants who rated the quality of care as poor, mentioned staff attitude and hygiene as their main reasons for this rating. This rating of care might indicate that they women were genuinely happy with the services they received, or they gave socially acceptable answer. It could also indicate that they were not well informed concerning the kind of standard they were to expect hence they were disadvantaged in their capacity to make comparison.

***Table 2: Interviewees satisfaction and rating of the quality of postpartum care at Naivasha District Hospital***

<b>Satisfaction with aspect of care:</b>	<b>(%)</b>
<b>Client rating of care n=96</b>	
Excellent	22.9%
Good	74.0%
Fair	1.0%
Poor	2.1%

#### VIGILANCE FOR POST PARTUM HAEMORRHAGE AT NDH

Vigilance for PPH was assessed through inquiry on whether mothers had unusually high per vaginal bleeding. The researchers inquired whether the staff asked about bleeding and if they

inspected the patients for evidence of vaginal bleeding. Ninety one percent of women who had vaginal delivery reported that they were examined within 24hrs to find out if they had post partum haemorrhage or not. Post partum bleeding was monitored through counting perineal pads (n = 87, 100%), asking clients orally about visible bleeding (n = 17, 19.5%) and inspecting beddings in one client (1.2%). All women were provided with pads immediately after delivery by the midwives.

### POST DELIVERY MONITORING AND OBSERVATION

Concerning the post delivery observations and recording of vital signs, clients' files were reviewed. There was discrepancy in the documentation of vital signs and other observation compared with data obtained from clients' interviews. The study found that most documented observation was blood pressure. The study showed that patients who delivered by Caesarean Section were more likely to have their blood pressure checked. The least checked vital sign from the records of study respondents was body temperature. Only 58.3 of all respondents had their temperature examined at least once during their stay in hospital. One third of the study respondents never had pulse rate recorded at all. The standard guideline is to document vital signs (temperature, pulse, respiratory, blood pressure- TPRB) at least four hourly, meaning at least four recordings of each parameter.

***Table 3: Description of vitals sign recording at Naivasha district Hospital***

	N=96	
Vital sign	Measured at least once	Not measured at all
Temperature	56 (58.3%)	40 (42.7%)
Pulse rate	63 (65.8%)	33 (34.2%)
Respiratory rate	70 (72.9%)	26 (17.1%)
Blood Pressure	92 (95.8%)	4 (4.2%)

The study found that the frequency of measuring and documenting vital signs was way below this recommendation. Only 56 (58.3%) of the respondents had temperature recorded at least

once while 92 (95.8%) had blood pressure recorded at least once. Table 4 shows the frequency of documentation of the four vital signs considered in this study.

**Table 4: Frequency of documentation of vital signs for study participants by healthcare midwives at Naivasha District Hospital in 24hrs**

	Frequency of vital signs measurement in 24 hours		
	1-3	4-5	6 +
<b>Vital sign</b>			
Temperature	n=56 49 (89%)	n=56 6(10.9%)	0
Pulse	n=63 56 (88.9%)	n=63 7(11.1%)	0
Respiratory rate	n=70 62 (88.6%)	n=70 8(11.4%)	0
Blood pressure	n=92 77 (84.6%)	n=92 13 (14.3%)	n=92 1(1.1%)

#### POST DELIVERY HEALTH INFORMATION TO THE STUDY PARTICIPANTS

Six critical areas of patient information applicable to all mothers delivering in the facility were selected for assessment in this study. These areas are included information on the need for *HIV* testing, family spacing (family planning), full immunization of infants, exclusive breast feeding, instruction on danger signs and post discharge care of the neonate's umbilical cord. The study focused on these six aspects due to their contribution to both the maternal and neonatal health. The respondents were required to indicate they had received information on these aspects from the attending staff. 5.2% of all clients had not had any of the six areas of instructions mentioned to them. Most clients received instruction in at least four or more areas; 31.3% of all respondents were educated by the attending staff on all the six selected areas.

Table 5 indicates the frequency by which the clients received the specified instructions from the care providers.

**Table 5: cross-tabulation of the six areas of health education and number counselled**

	<b>Number of clients (%)</b>
<b>Number of guideline recommended areas of instruction</b>	<b>N=96</b>
Received no information at all	5.2% (5)
Received information on One area only	3.1% (3)
Received information on two areas only	9.4% (9)
Received information on three areas only	10.4% (10)
Received information on four areas only	16.7% (16)
Received information on five areas only	24% (23)
Received information on all six areas	31.3% (30)
<b>Total</b>	<b>100% (96)</b>

The study found that the least communicated aspect of counselling was family spacing. Only 55.2% of the respondents were informed of available methods of family spacing. The national statistics indicate an unmet contraceptive need of 27% and an ever rising population. Frequent pregnancies of short intervals are linked with increased maternal morbidity and mortality. Further, the study established that 65.6% received counselling on exclusive breast feeding, 73.7 percent got counselling on care of the neonate's umbilical stump to prevent infections (neonatal sepsis) and 65.6 percent had got counselling of infant danger symptoms/signs. The danger signs cited by respondents were fever, irritability, failure to feed, vomiting and drowsiness. The best performed aspect of client information provision was education on the need for HIV testing. 87.5 percent of respondents were counselled on the need for HIV testing. Of these, 72.6% were actually tested for the disease while 6% already knew their status. Table 5 below illustrates the frequency of counselling on specified areas considered to be vital in this study:

**Table 6: Clients who received counselling on specified aspects**

	Number of clients (%)	
	N= 96	
Areas of post delivery counselling	Counselled (%)	Not Counselling (%)
Need for HIV testing	87.5	12.5
Family spacing	55.2	44.8
Full immunization of infant	80.2	19.8
Breast feeding and need for exclusive breastfeeding	65.6	34.4
Umbilical cord care	73.7	26.3
Infant illness danger signs	65.6	34.4

#### POST DELIVERY INSTRUCTION AND CLIENT CHARACTERISTICS

Disaggregation of various counselling components against patients' characteristics indicated that generally, women who delivered vaginally were more likely to receive counselling while those with Caesarean Section as mode of delivery were disadvantaged in this aspect. Only 33% received of CS mothers got counselling on family spacing while 67.6% of women who delivered vaginally were found to have received counselling on family planning. A similar finding was made where only 48.4% of CS mothers were counselled on infant danger signs while 74.6% of mothers with vaginal delivery were counselled on infant danger signs. Table 7 shows relationship between mode of delivery and percentage of women counselled on the six selected areas.



**Table 7: correlation between mode of delivery and counselling received by study participants**

	Mode of delivery		P value
	Vaginal (n =63)	Caesarean (n = 33)	
<b>Ares of counselling</b>			
<b>Need for HIV testing</b>			
N (%)	57(90.5%)	27(81.8%)	0.22
OR (95%CI)	1.0	0.9(0.8-1.1)	
<b>Family spacing</b>			
N (%)	48 (66.7%)	11 (33.3%)	0.002
OR (95%CI)*	1.0	0.5(0.3-0.8)	
<b>Full immunization</b>			
N (%)	55(87.3%)	22(66.7%)	0.016
OR (95%CI)*	1.0	0.8(0.6-0.99)	
<b>Breast feeding</b>			
N (%)	48(76.1%)	15(45.2%)	0.003
OR (95%CI)*	1.0	0.6(0.4-0.9)	
<b>Umbilical cord care</b>			
N (%)	49(79.0%)	21(63.6%)	0.105
OR (95%CI)	1.0	0.8(0.6-1.1)	
<b>Danger signs</b>			
N (%)	47(74.6%)	16(48.4%)	0.01
OR (95%CI)*	1.0	0.6(0.4-0.95)	

## PARITY AND POST DELIVERY COUNSELLING

The study showed that the only significant association was between parity and counselling on care of umbilical cord. It was established that 86% of mothers with parity of 1 received counselling on care of the umbilical stump with only 64% of mother with parity of >1 were counselled on the same. (P 0.001, OR 0.7)

Table 8 shows the correlation between parity of respondents are post delivery counselling received.

**Table 8: the correlation between parity and postdelivery counselling on selected areas**

	Parity		P value
	Para 1 N=43	Para 2 + N=53	
<b>Ares of counselling</b>			
Need for HIV testing			
N(%)	39(90.7%)	45(84.9%)	0.39
OR (95%CI)	1.0	0.9(0.8-1.1)	
Family spacing			
N(%)	26 (60.5%)	27 (50.9%)	0.35
OR (95%CI)	1.0	0.8(0.6-1.2)	
Full immunization			
N(%)	36(83.7%)	41(77.4%)	0.44
OR (95%CI)	1.0	0.9(0.8-1.1)	
Breast feeding			
N(%)	31(72.1%)	32(60.4%)	0.23
OR (95%CI)	1.0	0.8(0.6-1.1)	
<b>Umbilical cord care</b>			
N(%)	37(86.1%)	33(63.4%)	0.01
OR (95%CI)*	1.0	0.7(0.6-0.9)	
Danger signs			
N(%)	26(60.5%)	37(69.8%)	0.34
OR (95%CI)	1.0	1.2(0.9-1.6)	

## PARTICIPANTS' AGE AND COUNSELLING RECEIVED

There was no significant variation in likelihood of getting counselled in relation to age of the respondent. This finding is not in agreement with other studies that have shown that the very young mothers tend to receive more counselling compared to older ones

Table 8 below illustrates the distribution of counselling (or lack of it) concerning various aspects in comparison to participants' ages in years.

**Table 9: Relationship between maternal age and being counselled on selected area**

	Average age in years (SD) n=96		P value
	Counselled	Not Counselled	
<b>Area of counselling</b>			
Need for HIV testing	25.2(6.2)	27.4(6.5)	0.25
Family spacing	25.8(6.0)	25.1(6.6)	0.6
Full immunization	25.6(6.3)	24.8(5.9)	0.6
Breast feeding	25.2(6.1)	26.1(6.4)	0.51
Umbilical cord care	25.0(6.1)	27.0(6.3)	0.17
Danger signs	26.0(6.3)	24.5(6.0)	0.27

## LEVEL OF EDUCATION AND COUNSELLING

The study showed no significant association between the level of education of respondents and their tendency to get counselled or not.

Table 10 below illustrates the association between counselling received and the participant's level of education.

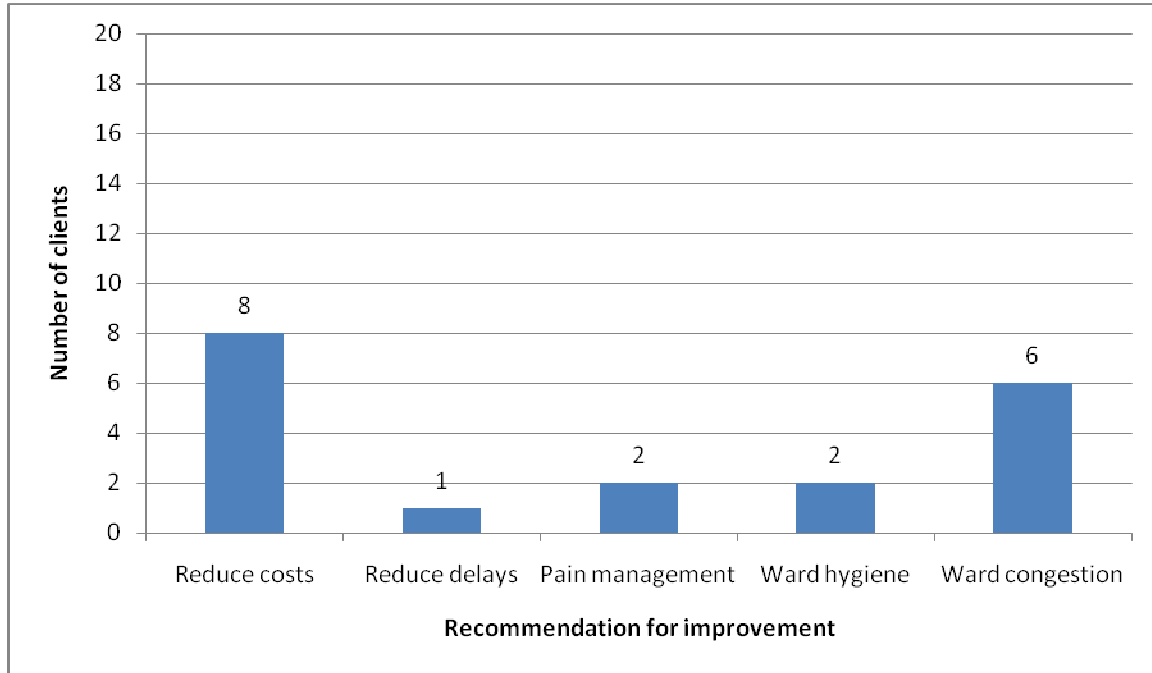
*Table 10: correlation between counselling on specified areas and respondents' level of education*

	Level of education			P value
	Primary	Secondary	Tertiary	
<b>Ares of counselling</b>				
<b>Need for HIV testing</b>				
N(%)	55(84.6%)	26(94.3%)	3(75%)	0.23
<b>Family spacing</b>				
N(%)	34(52.3%)	16(59.3%)	3(75%)	0.6
<b>Full immunization</b>				
N(%)	52(80%)	22(81.4%)	3(75%)	0.95
<b>Breast feeding</b>				
N(%)	40(61.5%)	20(74.1%)	3(75%)	0.47
<b>Umbilical cord care</b>				
N(%)	48(75%)	19(70.4%)	3(75%)	0.9
<b>Danger infant signs</b>				
N (%)	42(64.2%)	18(66.7%)	3(75%)	0.91

#### CLIENT' RECOMMENDATIONS

There were 2.1% of participants who said that they would neither opt to deliver at the facility nor refer friends or relatives to the facility in future. These participants had also rated care at the facility as poor. A total of 19(19.8%) clients made recommendation for improving maternity care at Naivasha District Hospital. Figure 3 below indicates the specific recommendations made by respondents towards improving healthcare are Naivasha District Hospital.

**Figure 3: Recommendations by study participants on ways of improving maternity care at Naivasha District Hospital**



## 1.26 DISCUSSION

The study established that there were gaps in the provision of post delivery care and the level of vigilance exercised at the facility. Majority of women who delivered vaginally reported that they were checked routinely to assess if they had bleeding. Since PPH has been cited as the leading cause of maternal mortality, most health workers often concentrate on this observation. The methods used to check for PPH included verbal inquiry, inspection of the external genitalia, use of pads and checking the beddings. These findings concur with those by Seranath et al (2007) who documents strong emphasis on this observation. In the records however, there was minimal documentation as to whether this parameter was checked or not. This inadequacy in recording might have been due to work load, or lack of awareness on the need to document. AbouZahr (2003) noted that inadequate documentation impacts negatively during maternal mortality reviews once a mother died. Estimation of blood loss using perineal pads has been recommended by the WHO (2008). WHO has noted that this form of assessment of postpartum blood loss is fairly satisfactory and easy to standardize.

### DOCUMENTATION OF VITAL SIGNS

The study established that maternal vital signs were not adequately measured and documented. The least measured parameter under consideration was body temperature. Only 58% of the participants had their temperature recorded at least once during their admission for delivery. The finding concurs with what was observed by Campbell et al (1990). The body temperature rise in presence of infection is a well documented phenomenon. This also may be accompanied by increased pulse rate and respiratory rate. Additionally, respiratory rate changes may indicate chest infection, pulmonary thromboembolism, amniotic embolism, maternal exhaustion and anaemia (Ronsmans, 2006). Inadequacies in measuring body temperature may delay detection of puerperal sepsis that has been identified as one of the main causes of maternal mortality (WHO, 2012). The most emphasized vital sign was blood pressure. Almost all the participants had their blood pressure measured at least once. Close to two-thirds of the participants had had their pulse counted. A study by Fortney (1996) identified staff attitude, understaffing, lack of necessary equipment as some hindrances to adequate maternal vital signs monitoring. In Naivasha District Hospital, the high nurse to staff ratio might have contributed to this. Fortney further suggested

that one effective way of promoting compliance to measurement and documentation of vital signs in periodic audits and feedback to health care provider.

Ronsmans (2006) has suggested that formulation of post delivery protocol may increase vigilance by health care providers in detecting delivery complications. According to Ronsmans, maternal mortality does not just happen but reflect deficiencies in the systems and procedures both at the community and health facility levels. Campbell (1990) and Lohr (2002) have also noted that facilities with clear structures and procedures are less likely to experience incidences of maternal mortalities.

#### HEALTH INFORMATION AND COUNSELLING TO POST DELIVERY MOTHERS

It was also established that there was association between mode of delivery and health information given to mothers (Table7). For instance, women who delivered through caesarean sections were less likely to be counselled on family spacing (OR=0.5; P=0.22). Family spacing has been identified as one key component of maternal health (MoH,2008). Possible reasons why post caesarean section patients were less likely to be counsel was over-concentrating in the prevention of caesarean section related complication and the care of other needs created by caesarean sections such as wound care. In the study site, it was observed that staff shortage was a major issue that affected the completeness of work done in the care of post delivery mothers. There was also disparity noted in the completeness of selected aspects of health information provision. One possible explanation may be lack of structured and standardized guideline to be employed by the care givers. Bennet (2008) noted that where guidelines exist, they improve the quality and completeness of counselling received. The study however did not establish whether there were guidelines or not.

#### SATISFACTION WITH CARE RECEIVED

Participants satisfaction with care received was assessed as an immediate indicator of quality as perceived by the mothers. Almost all participants rated the care received as either excellent or good (Table2). The researcher attributes this high rating to either of the two reasons; lack of awareness on expected level of care to expect by the participants and interviewer bias. As complimentary indicator of satisfaction, a large majority indicated they would either recommend or refer their friends and relatives to deliver at Naivasha District Hospital. This rating means that

the study participants perceive care as good and are likely to utilise the facility in their subsequent deliveries. This assumption is based on study by Blaauw (2010) who found that dissatisfaction with care deters mothers from seeking skilled birth attendance.

### **1.27 CONCLUSION**

The study concluded that there were deficits quality and completeness of care provided to the post delivery mothers at the Naivasha District Hospital. These included inadequate documentation of vital signs and inadequate dissemination of health information to study participants. The participants who had had caesarean section delivery were disadvantaged since less of them received counselling.

However, a vast majority of participants were satisfied with care at the facility and indicated they would opt to come back in their next delivery and/or refer friends and relatives to the facility.

Both the subjective assessment from client interviews and objective review of the records showed that there was no clear protocol to be followed by care givers in the maternity unit.

### **1.28 RECOMMENDATIONS**

The following recommendations are made based on the study findings:

- i) There is need to emphasize documentation of vital signs for all mother who deliver at Naivasha District Hospital
- ii) There is need to emphasise information provided to post delivery mothers with emphasis to family spacing.
- iii) There is need to assess the competency of midwives at Naivasha District Hospital in provision of post delivery health information as one of the ways of improving health information transfer

### **RECOMMENDATION FOR FURTHER STUDY**

Further study may be carried out to establish why vital signs are not adequately documented at the Naivasha District Hospital



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## APPENDICES

### APPENDIX 1: INFORMED CONSENT FORM

**Title of the study:** Assessment of post delivery care at the Naivasha District Hospital. **Principal**

**Investigator:** Dr Fredrick Kairithia Mibuku, MBCHB

**Supervisors:** Prof JG Karanja

Dr Eunice Cheserem

#### **Investigators' statement**

I am requesting you to be in a research study. You have been selected to participate because you meet the inclusion criteria for the study. The purpose of this form is to give you the information you will need to help you decide whether to be in the study. You may ask questions about what I will ask you to do, the risks, the benefits and your rights as a volunteers or anything about the study or in this form that is not clear. When all your questions have been answered, you can decide if you want to be in this study or not this process is called “informed consent”

#### **Purpose and benefits**

The aim of this study is to determine the quality and completeness of the care given to mothers immediately after they deliver in this facility. This quality helps in preventing complications as well as deaths of either the mother or the baby or both. Through this study, I want to understand if the attention and care given to mothers is adequate or not

The study will benefit the hospital in identifying areas which need to be changed in order to provide high quality of care to all mothers who utilize this facility for delivery services. Lessons learnt in this study can be used to improve maternal and neonatal health in the whole country.

At a personal level, this study will provide you with opportunity to ask any question you may have about your health and that of the baby. Any mother identified to have post-delivery complication(s) will be attended to and/or appropriate referrals made.

## **Procedures**

This is what will happen if you decide to participate in this study. I will ask you questions about yourself, your pregnancy, your antenatal clinic attendance, and the process of delivery or caesarean section and what happened immediately after you delivered. I will also ask you of any specific instructions you have been given in order to adequately take care of yourself and the baby. In addition, I will look at your patient file/records to get more information. There is no procedure that will be performed on you.

## **Risks stress and discomfort**

You may feel uncomfortable while we ask you some questions about yourself and your pregnancy experience if it was not good.

Participation in this study will take a bit of your time, approximately 15-20minutes. No painful procedure will be performed on you or your baby. You will be asked to take part by responding to the questions asked.

## **Other information**

I will keep your identity and any information you provide confidential. Only the investigator, institution review board of the University of Nairobi will have access to information about you. The answers you provide will not in any way be linked to you directly in a manner that may prejudice your care in this facility in future. The information about you will be identified as a serial number with no names in any records. While all effort will be made to ensure confidentiality, it is still possible that someone could still find out that you were in this study and could find out information about you. You may withdraw from the study or refuse to answer any of the questions asked at any time without loss of adequate care or penalty.

If you have any questions regarding the study, you can contact me on the telephone number provided in this form.

Lastly you are free to refuse to take part in the study. If you decline to participate in the study, you will receive similar care and attention to those who accept to take part in the study.

Signature of the investigator.....

Name of the investigator.....

**Study subject's (respondent's) statement**

This study has been explained to me. I volunteer to take part in this research. I have had a chance to ask questions. If I have questions later on about this research, I can ask the investigator. If I have questions about my rights as research subject, I can call the university of Nairobi Ethics Committee on (020)2726300.

Signature of the subject/Left thumb print.....

Date: .....

Name of the study subject.....

Signature of the witness (if thumb print is used).....

Name of the witness.....

## APPENDIX2: QUESTIONNAIRE

### SECTION 1: DEMOGRAPHIC INFORMATION      SERIAL NUMBER.....

*Instruction: Please read the questions to the interviewee slowly and circle the answer provided.*

*Ensure that the interviewee understands the question before the answer is circled.*

1. Age in complete years.....

2. Highest level of education

1. None
2. Primary
3. Secondary
4. College

3. Marital status

1. Single
2. Married
3. Divorced/separated
4. Widowed

4. Number of children

1. One
2. Two
3. Three
4. Four
5. Five
6. Six
7. More than 6

5. Residence

1. Within the Municipality
2. Outside the Municipality



6. Religion

1. Christian-Protestant
2. Christian-Catholic
3. Muslim
4. Others: Specify.....

7. Tribe.....

8. Occupation

1. Employed
2. Unemployed
3. Self employed

**SECTION II: CURRENT DELIVERY REVIEW OF SATISFACTION BY  
REPOENDENTS**

9. How would you rate the level of care you have received in this facility?

1. Excellent
2. Good
3. Fair
4. Poor

10. If poor, what is the main reason for rating the services as poor?

1. Poor staff attitude
2. Poor ward set up and hygiene
3. Lack of supplies such as drugs
4. Others: Specify

11. On the day of admission, were you received well?

1. Yes
2. No

12. Mention the mode of delivery for your child?

1. Vaginal delivery

2. Caesarean delivery

13. Where applicable, would you say your delivery was...

1. Normal delivery

2. Difficult delivery

14. On the day you delivered, were you examined by the attending staff to find out if you had tears in your birth canal?

1. Yes

2. No

15. Were you given an injection either by drip (intravenous) or on the muscle to prevent excessive bleeding?

1. Yes

2. No

16. Immediately after your baby was born, was your abdomen rubbed/massaged by the attending staff?

1. Yes

2. No

17. Within the first 24hrs, did any medical staff check on you to find out if you were bleeding or not?

1. Yes

2. No

18. If you were checked for evidence of bleeding after delivery, specify what was checked?

1. Asked orally if there was bleeding

2. Perineal pads inspected

3. Beddings inspected

### **SECTION III: INQUIRY ON IMMEDIATE POST DELIVERY ADVICE**

During this time of admission, please indicate if any staff has discussed with you're the following issues:

19. The need to have HIV testing?

1. Yes

2. No

20. If yes above, have you been tested?

1. Yes
2. No
3. Not Applicable

21. The available methods of family spacing and need for family spacing

1. Yes
2. No

22. The need to have your baby fully immunized?

1. Yes
2. No

23. The how to breastfeed the baby and the need for exclusive breastfeeding?

1. Yes
2. No

24. Has any staff explained to you how to take care of the baby's umbilical stump upon discharge?

1. Yes
2. No

25. If you were/are to become pregnant again, would you opt to deliver in this facility again?

1. Yes
2. No

26. Would you refer your friends/relatives to deliver in this facility based on your current experience of services rendered here?

1. Yes
2. No

27. Concerning the health of your baby, there are certain things that may indicate your baby is unwell. These are called danger signs. Has any staff in this hospital explained to you what danger signs are?

1. Yes
2. No

28. In your opinion, what can you recommend to improve the care mothers receive in this facility?

1. None, I am happy with the services
2. Reduce to cost of care
3. Reduce delays in attending to mothers when they present or need surgery
4. Provide good painkillers after delivery
5. Others: Specify.....

**APPENDIX 3: REVIEW OF CLIENTS RECORD FOR DOCUMENTATION OF VITAL INFORMATION**

***Introduction:** This is a short review of the documented observations and procedures that were carried out within the first 24hours of delivery. The objective of this review is to establish how closely these clients are followed up and how complete the observations are in early detection of post delivery complications. Kindly remember that the information gathered is for research purposes only and shall remain confidential.*

Observation	Done	Not done	If done how many times?
Mode of delivery	c/s	vaginal	n/a
Age			n/a
Parity			n/a
Date of admission			n/a
Blood Pressure			
Respiratory Rate			
Temperature			
Pulse rate			
Checked Bleeding or No Bleeding			
Checked Presence of pain or not			
Other Observations			