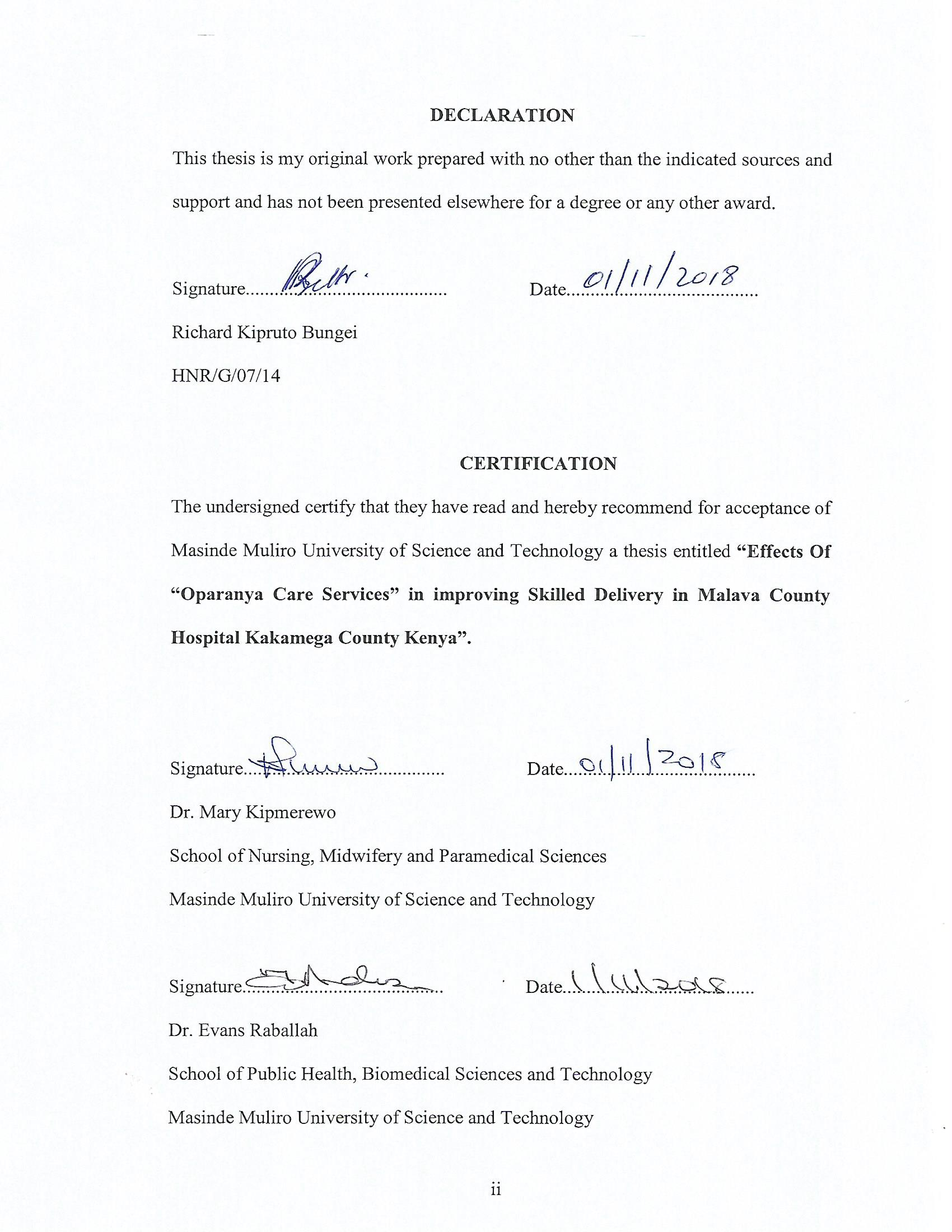
**EFFECTS OF “OPARANYA CARE SERVICES” IN IMPROVING SKILLED DELIVERY IN MALAVA COUNTY HOSPITAL KAKAMEGA COUNTY KENYA**

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**A Research Thesis submitted in partial fulfillment of the requirements for the Degree of Masters of Science in Advanced Nursing Practice (Midwifery) of Masinde Muliro University of Science and Technology**

November, 2018

# DECLARATION



# DEDICATION

This research thesis is dedicated to my beloved mother Joyce Sharu Bungei, my children for their patience, love, encouragement and tolerance during some of the most difficult and frustrating times during the development of this thesis.

# ACKNOWLEDGEMENT

First, I would like to acknowledge God for giving me strength to develop this Thesis. It is difficult to acknowledge all persons who have assisted me this far physically, academically and spiritually on seeing success of this thesis. Otherwise, I would like to thank entire MMUST School of Nursing and Midwifery faculty staff and entire school of graduate studies staff for their tireless assistance.

Thanks to Prof. John Okoth, Dean School of Nursing and Midwifery, MMUST for great efforts and time he has sacrificed to make this thesis a success.

I also pass my thanks to Dr. Mary Kipmerewo, Mr. John Arudo and School of Nursing and Midwifery MMUST for the continued guidance and mentorship during the thesis development process.

Also, my deepest appreciation goes to Dr. Evans Raballah for the guidance and support offered which has been enormous during development of this thesis.

Thanks to my entire family and friends for their tireless effort they have offered me during development and conduct of this research.

Last but not the least, thanks go to my beloved wife Jael Bungei and my children for the support and understanding, your tolerance and patience has guided me accomplish this work. May God bless you all.

# ABSTRACT

It is estimated that nearly 300,000 women die from pregnancy related complications and childbirth. Globally 34% of deliveries take place without skilled birth attendant. In Kenya more than 50% of deliveries are conducted by unskilled persons. These high indices of maternal mortality are reason for launching incentive use and digital programme in Kakamega County commonly known as “Oparanya care services”. Despite the commitment provided by the county government in resource allocation and free maternity care from the national government, pregnant women still deliver under watch of unskilled attendants, which endangers the outcome of the delivery. The main objective of the study was to assess the effects of incentive use in “Oparanya Care Services” on improving skilled delivery of mothers in Malava County Hospital. The specific objectives of the study were to determine the awareness of digital care programme, compare utilization of Focused Antenatal Care in beneficiaries and non-beneficiaries of Oparanya Care and identify the effects of Incentive use on the skilled delivery. The study is based on Andersen’s (2005) behavioral models of health services, where three set of individual characteristics which influence an individual choice of skilled delivery to include demographic, social and enabling factors. The study was conducted in Malava County hospital, Kakamega County and the target population comprised all mothers within reproductive age bracket 18-49 years and attending ANC facility at the hospital. The study employed cross-sectional descriptive study design. Purposive sampling was used to identify the hospital while systematic sampling was adopted in selecting 402 respondents who comprised of beneficiaries and non-beneficiaries in Oparanya care services. Data was collected using a structured questionnaire and was analyzed using SPSS version 20.0.  Descriptive statistics, frequencies, percentages and means were used to summarize the research findings while odds ratio (OR) and logistic regression were used to establish relationships between independent and dependent variables at α=0.05. The study results indicated that the mean age (in years) was 29.1 and 30.4 years for beneficiaries and non-beneficiaries respectively. In addition, all (100%) of the beneficiaries and non-beneficiaries were aware of the digital programme running in the County hospital. Those who benefited from the programme attended ANC promptly compared to the non- beneficiaries. Being a beneficiary influenced mothers to seek skilled delivery promptly at the facility among other factors (p-value<0.05). The utilization of FANC was influenced by factors such as history of chronic illness, high blood pressure, complications during pregnancy and history of losing a child. The study concludes that incentive use in “Oparanya Care Services” significantly improves skilled delivery of mothers in Malava County hospital Hospital. The study recommends creating more awareness on OC programme, formulation of a robust assessment of beneficiaries and boosting hospital workforce, particularly the ANC staff.

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# LIST OF ABBREVIATIONS AND ACRONYMS

ANC Antenatal Care

CCT Conditional Cash Transfer

EMONC Emergency Maternal Obstetric Neonatal Care

FIGO International Federation of Obstetrics and Gynecology

GHO Global Health Observatory Data

IMCI Integrated Maternal and Child Intervention

KDHS Kenya Demographic Health Survey

LMIC Low and Middle Income Countries

MCH Marternal Child Health

MDGs Millennium Development Goals

MMR Maternal Mortality Rate

MOH Ministry of Health

NHSSP National Health Sector Strategic Plan

PD Programme Draft

SBA Skilled Birth Attendant

SDGs Sustainable Development goals

SMI Safe Motherhood Initiative

SPSS Statistical Package for Social Sciences

SSA Sub-Saharan Africa

TBA Traditional Birth Attendant

UN United Nations

UNFPA United Nations Fund for Population Activities

UNICEF United Nations Children’s Fund

WHO World Health Organization

# CHAPTER ONE

## INTRODUCTION

## Overview

This chapter describes the background, statement of the research problem, justification of the study and objectives of the study. It also presents the hypotheses, justification, limitation of the study and the conceptual framework.

## 1.1 Background

Healthy women are the foundation of strong community and healthy newborns are the future of the society. It is estimated that nearly 300,000 women die from pregnancy related complications and childbirth. Furthermore, estimates indicate that about 3 million newborns die within the first month of life. It is further estimated that approximately 4.6 million represented by 74% of all under five years deaths occurred within the first year of life (GHO, 2013).Globally it’s estimated that 34% of the deliveries take place in the absence of a skilled birth attendant, which translates into 45 million births (GHO, 2013). Estimate of the world Health Organization (WHO), United Nations Children's Fund (UNICEF), and United Nations Population Fund (approximately 15% of expected births suffering from obstetric complications) is more than double this figure: approximately 20 million women suffer from an obstetric complication. The consequences of birth and acute maternal complications, including death and disabilities, make up the largest burden of disease affecting women in developing countries (UK Gov, 2009; World bank, 2000; UNICEF, 1997).Therefore, evidenced based strategies are imperative to reduce the burden of intrapartum-related deaths especially in low income settings, where 60 million women mostly give birth at home every year (Darmstadt, 2009). In addition, over 90% maternal deaths occur in sub-Saharan Africa due to obstetrics complication that could be managed effectively by increasing women’s access to skilled birth attendance (Yakoob, 2011).

It is widely believed that many maternal and neonatal deaths are preventable (Ronsmans *et al.,* 2003).Simulation-based studies, for example, have estimated that up to a third of maternal deaths, and up to half of newborn deaths, may be prevented by increasing coverage rates for skilled attendance at delivery (Bhutta *et al.,* 2014; Graham, Bell, &Bullough, 2001).There is therefore, a strong global push to increase rates of use of maternal and child health services; in particular antenatal care, institutional deliveries, and postnatal care. Many well-known indices now track these indicators. There is, however, still uncertainty about how best to achieve these policy goals.

A significant amount of effort has been devoted to eliminating demand-side barriers, with a growing number of countries implementing programs that provide financial incentives to use maternal and child health services (Murray *et al.,* 2014). The Janani Suraksha Yojana (JSY) in India, the Safe Delivery Incentives Program (SDIP) in Nepal, and the Maternal Health Voucher Scheme (MHVS) in Bangladesh are examples of such programs. The impact of these programs is still unclear. Recent evaluations however find surprisingly little evidence of health effects(Debnath, 2013; Mazumdar, Mills, & Powell-Jackson, 2011; Mohanan *et al.,* 2014;Randive,

Diwan, & De Costa, 2013). Attention is increasingly being turned to the supply side, as studies continue to document significant problems with care delivery, including a lack of skilled providers, suboptimal provider effort, provider absenteeism, and lack of necessary infrastructure to provide high-quality care (Barber & Gertler, 2009; Das, Hammer, & Leonard, 2008; Harvey *et al.,* 2007; Leonard &Masatu, 2010).

The attainment of MDGs, which is related to reduction of maternal mortality by two thirds by the year 2015, was not achieved due to non-substantial reduction of maternal mortality. However, this is potentially tenable through increased prenatal care, skilled attendance at delivery, increased immunization, poverty reduction and reduction of illiteracy in women (KDHS, 2014).

Kenya has a high maternal mortality rate of 362 per 100,000 live births (KDHS, 2014) and a lifetime risk of maternal death at 1 in 38 live births(UNICEF, 2013; WHO, 2015). Most women in Kenya deliver at home and only 61% of deliveries are attended to by skilled birth attendants(KDHS, 2014).Previous studies have demonstrated that, there is low utilization of skilled attendants during pregnancy, childbirth and the postnatal periods. As interventions, programs such as conditional cash transfers basket typically offer nutritional support, antenatal care and access to skilled delivery. Furthermore, there is limited provision of basic emergency obstetric and newborn care (EMONC) existing in Kenya (Kenya Ministry of Health, attainment of Millennium goal, 2010).In Western Kenya, the leadership of Kakamega County had reiterated that “low rate of skilled delivery and poor ante-natal care, which contributed to high infant mortality and maternal mortality”. Kakamega County, whose infant mortality stands at 56%, has led to increased child deaths”. In spite of all the efforts by both national and County Governments in improving health of pregnant mothers, maternal mortality rate remains high. These high indices of maternal mortality are at least in part, the reasons for launching Incentive use and digital programme in Kakamega County commonly known as “Oparanya care services.“Oparanya Care Services” commenced with signing of MOU between Kakamega County government and UNICEF in September, 2013 (The Star Newspaper, 24th Sep., 2013). The programme comprised of a healthy kitty amounting to 1.34 billion to improve infant and maternal health care. OC service is a cash incentive initiative that the county government of Kakamega, whose main goal was to enable mothers to seek skilled delivery and utilize FANC services, including post-natal care. Mothers were subjected to a questionnaire to ascertain whether they became beneficiaries or Non-beneficiaries. Questions asked, included income earned, the average number of meals taken per day among others. Beneficiaries were paid Ksh. 2000 through MPESA in each of four categories of services sought. These include four ANC services, skilled delivery, postnatal care and immunization schedule. This program has been running from September, 2014 to date. The effect of this programme have not been elucidated, and is the reason why this study was conducted to assess the effects of OC on improving skilled delivery in Malava County hospital.

## 1.2 Problem Statement

There is high maternal mortality of 510per 100,000 live births in Kenya (Inter-agency group, 2015). This statistic is for the whole country, including urban areas where, maternal mortality is low. This implies that by comparison, the rural parts of Kenya (for which Kakamega is part of) may have higher maternal mortality rates, because of the fact that the numbers of deliveries are high. This high mortality rate is attributed to delivery by unskilled attendant, poverty, illiteracy and underutilization of prenatal care. Achieving MDG5, that is, “reducing maternal mortality by three quarters by the year 2015”, was a pipe dream and difficult to accomplish just a year before the target period(KDHS, 2014). Critical challenge for maternal and newborn health care in developing countries include, poor health-care system, low use of skilled care at birth, procuring of inexpensive equipment and low utilization of technology (WHO, 2005). Kakamega county has some of the worst health indicators in the country, Maternal Mortality Rate (MMR) is at 880 deaths per 100,000 live births while deliveries under skilled health providers is a paltry 25.4% compared to home delivery at 74.6%(KDHS, 2014). These indicators are spelt out more so in Malava County hospital due to its larger population than other sub-Counties in Kakamega County. This has remained so in spite of County government increasing resources to health sector to enhance among others maternal and child health care and free maternity by central government. It has been noted that mothers continue to deliver at home under help of unskilled attendants hence endangering the outcome of the delivery(Maine 1996).Therefore, it is important to determine whether Incentive use in Oparanya care services has improved the health outcomes of maternal health (delivery by skilled attendance) in Malava County hospital after being officially rolled out in the year 2015.

## 1.3 Justification of the Study

Kakamega County is one of the most populous counties in the republic; it has a high poverty index level which stands at 51.3% compared to the national average of 45.9%. There is high maternal mortality of 510 per 100,000 live births in Kenya (Inter-agency group, 2015).It is important to find out whether strategies being employed influences the maternal outcomes. The findings of this study informed local policy makers and stakeholders at the facility with relevant information on the programme and its quality improvement on health.

## 1.4 Research Hypotheses

Incentive use in “Oparanya Care Services” do not significantly improve skilled delivery of mothers in Malava County Hospital

## 1.5. Objectives

### 1.5.1 General Objective

The main objective of the study is to assess the effects of Incentive use in “Oparanya Care Services” on improving skilled delivery of mothers in Malava County hospital Hospital.

### 1.5.2 Specific Objectives

1. To determine the awareness on Oparanya Care Services
2. To compare utilization of Focused Antenatal Care in beneficiaries and non-beneficiaries of Oparanya Care Services
3. To investigate the effects of Incentive use on the skilled delivery

## 1.6 Limitation of the study

The anticipated or foreseen challenges in the study includes sample discrepancies, the sample size views of the study cannot be generalized to represent the entire views of mothers in the study area. The weakness in data collection tool might lead to a biased response from the mothers. This is in response to conditional cash transfers to only beneficiaries, those attending required full visits.

## 1.7 Conceptual Framework

In this study, the independent variables include pre-disposing factors and need, while the dependent variable is skilled delivery. There are many predisposing characteristics and need of those who seek health services. In this study the predisposing factors measured include social structure, demographic and health beliefs. Demographic factors include age, Marital Status among others, while social structure includes level of education and religion. The health need included perception, expectation Benefit and Intervention (See Figure 1.1).

There were several extraneous variables, but the most remarkable one was free maternity care programme offered by the national government. This was controlled by ensuring that all the participants were benefiting from free maternity care. In any case, Malava county hospital showed an increase of 40.0% in deliveries after the introduction of OC in September 2014 indicating the impact that OC caused.

**Independent Variables Confounding Dependent Variables**

**Predisposing Characteristics**

* Social structures
* Demographic
* Health beliefs

**Free maternity care**

**Skilled Delivery**

**Need**

* Perception
* Benefit

###### **Figure 1.1: Conceptual Framework**

***Source: Andersen’s behavioral model of health services was adopted in this study (Anderson, 2005)***

## 1.8 Operational Definition of Terms

**Maternal Death/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.

**Maternal Mortality Ratio**

The maternal mortality ratio is the number of maternal deaths per 100,000 live births.

**Maternal Morbidity**

Maternal morbidity is any symptom or condition resulting from or made worse by pregnancy. In developing and developed countries alike, there are 12 to 16 serious maternal complications to each maternal death.

**Skilled Birth Attendant**

It refers to “an accredited health professional – such as 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 or referral of complications in women and newborns”. Traditional birth attendants (TBAs) either trained or not, are excluded from this category of skilled health workers (WHO, 2002).

**Skilled Attendance**

World Health Organization (2002) defines skilled attendance as the process by which a pregnant woman and her infant are provided with adequate care during labour, birth, and the postnatal period, whether the place of delivery is the home, health centre, or hospital. In order for this process to take place, the attendant must have the necessary skills and must be supported by an enabling environment at various levels of the health care system, including a supportive policy and regulatory framework; adequate supplies, equipment, and infrastructure; and an efficient system of communication and referral/transport.

**Traditional birth attendant (TBA)**

TBA is a community-based provider of care during pregnancy and childbirth. TBAs are not trained to proficiency in the skills necessary to manage or refer obstetric complications. TBAs are not usually salaried, accredited members of the health system. Although they are usually highly esteemed community members and are often the sole providers of delivery care for many women, they are not included in the definition of a skilled attendant.

“**Oparanya Care Services”** A cash incentive initiative or program that the county government of Kakamega, under the leadership of the H.E the Governor Mr. Wycliffe Oparanya started in September, 2014 whose main objective was to make mothers utilize at least four ANC services, seek skilled delivery and Post-natal care. Mothers are paid two thousand shillings through mpesa in every service sort, to include ANC, Delivery, PNC and fully Immunization schedule. Other studies done in countries like Brazil, Hondurous, Mexico and Nicaragua refers to this incentive as conditional cash transfers.

Millennium Development goals (MDGs) refers to a blueprint of eight goals that the UN member countries agreed to attain by the year, 2015.

Sustainable Development goals (SDGs) refers to a set of ambitious goals to banish a whole range host of Social ills by 2030.

# CHAPTER TWO

## LITERATURE REVIEW

## 2.0 Overview

Maternal health is the foundation of a strong community and newborns health represents the future of the community. Every year approximately 358,000 women die due to preventable maternal causes(WHO, 2010). Over 90% of these deaths occur in sub-Saharan Africa due to obstetric complications that could be managed effectively by increasing women’s access to skilled birth attendants (SBA) (Yakoob, 2011).

## 2.1 Skilled Delivery

Skilled delivery may basically be used to refer to delivery of newborn that occur with the assistance of a skilled birth attendant in designated environments. The term ‘skilled attendant’ refers exclusively to people with midwifery skills (for example, doctors, midwives, nurses) who have been trained to proficiency in the skills necessary to manage normal deliveries and diagnose, manage or refer complications. Ideally, the skilled attendants live in, and are part of, the community they serve.

“Skilled attendance” has only recently been defined explicitly as “the process by which a woman is provided with adequate care during labour, delivery and the early postpartum period” (SMIAG 2000b). This definition goes onto emphasize that the process requires a skilled attendant and an enabling environment which includes adequate supplies, equipment and infrastructure as well as efficient and effective systems of communication and referral. The “environment” can, however, also be viewed more broadly to include the political and policy context in which skilled attendance must operate, the socio-cultural influences, as well more proximate factors such as pre- and in-service training, supervision and deployment and health systems financing.

Skilled delivery is one of the three main three main components of maternal healthcare delivery system. The other two includes skill enabling environment (EE) and referral system (RS). Appropriate skilled delivery serves to reduce maternal mortality. However, if shortcomings exist then skilled delivery will be farfetched. In a study done in Malawi, Thorsen *et al.,* (2014) identified shortcoming in SBA that were contributing to maternal death. They include inadequate clinical workups and monitoring, missed and incorrect diagnoses, delayed or incorrect treatment, delayed referrals and transfers, patients not being stabilized before being referred and outright negligence (Thorsen *et al.,*2014).

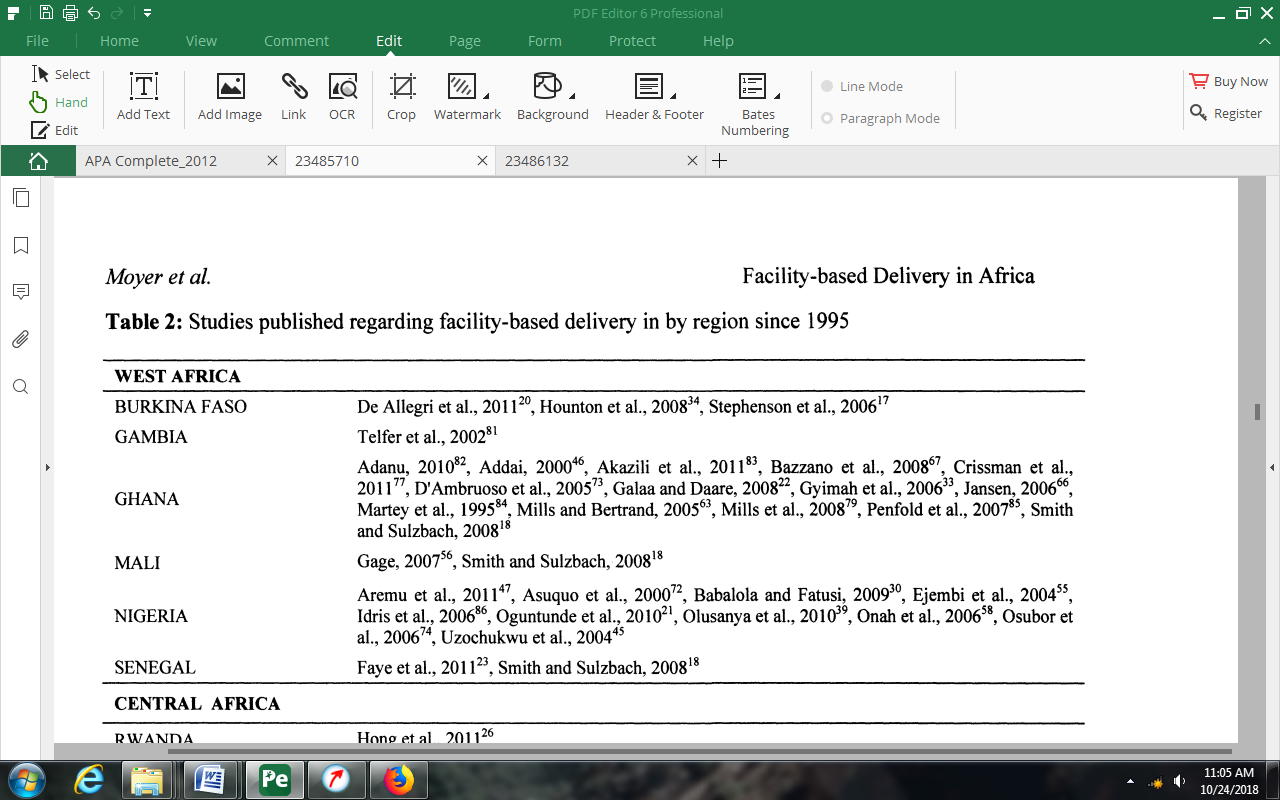
Also, majority of the women in the study area who had live birth in the last 5 years were assisted by skilled health worker (67.5%) while only 3.0% did not receive any assistance at delivery (Adebowale, 2016). The proportion of women who were assisted by skilled health worker was highest among women with at least secondary education (75.7%) and least among those with primary education (64.3%) (p=0.015). About 71.1% and 54.9% of women who earned at least 20,000 naira and at most 5,000 naira as average monthly income were assisted by skilled (Adebowale, 2016).

In Cambodia, the maternal mortality ratio fell from 472 per 100,000 live births in 2000–2005 to 206 in 2006–2010. Background factors have included peace and stability, economic growth and poverty reduction, improved primary education, especially for girls, improved roads, improved access to information on health and health services via TV, radio and cellphones, and increased ability to communicate with and within the health system (Liljestrand, 2012). Specific health system improvements include a rapid increase in facility-based births and skilled birth attendance, notably investment in midwifery training and numbers of midwives providing antenatal care and deliveries within an expanding primary health care network, a monetary incentive for facility-based midwives for every live birth conducted, and an expanding system of health equity funds, making health care free of cost for poor people (Liljestrand, 2012).

In other countries such as Mexico, mortality ratio is low (63.3 per 100,000 live births per year in 2005), which appears low, but this is high when compared with that of other countries of similar or lower economic development such as Argentina, Bulgaria, Costa Rica, and Moldova. (WHO, 2004; Urquieta, 2009). The reduction of maternal mortality is a priority for the Mexican health sector, and it is one of the commitments of the Mexican government for achieving the Millennium Goals (Torres &Mu´jica 2004).As a means to reduce maternal mortality, Mexican health institutions have been working to increase skilled attendance at delivery (Urquieta, 2009), defined as the attendance at a delivery by skilled personnel under conditions that allow the provision of quality delivery services (Graham, Bell,&Bullough 2001).

Access to skilled delivery in SSA varied widely between countries. In an analysis of 30 articles published with regard to West Africa (See Table 1), Moyer (2013) indicated that facility-base percentages varied widely. De Alleg*etal.,* (2011) found that only 7.2% of women in rural Burkina Faso delivered in a facility, and Oguntunde *et al.,*(2010) reported that only 11.7% of women in one region of Nigeria delivered in a facility (21). However, Daare22 found that nearly two-thirds of women in Northern Ghana delivered in a facility (63%), and Faye *et al.,* (23), found that 78% of women delivered in a facility. In Eastern Africa, the lowest delivery reported was in Tanzania at 36%, whereas Tann *et al.,* and Southern Africa, the lowest rate of f reported nearly 83% of women delivering in a facility in Uganda. The majority of other studies cite between 40%and only 60%. The one study in Central Africa, reported a percentage of 29.3% of women delivering in a facility women in. In the 11 published studies in Southern Africa, the lowest rate of facility delivery was found in Zambia at 32.5%, with the highest percentage, 85% in Zimbabwe (28).

##### **Table 2.1: Studies published regarding facility-based delivery by region, since 1995**



In a study done in Ghana, barriers to skilled delivery include maltreatment by midwives, cost associated with Health care facility (HCF) delivery despite waived facility fees, the need for a support person for HCF delivery, difficulties in transportation; and precipitous labor (Crissman, 2013). Given the importance of community in Ghanaian health care decision-making, increasing community support for HCF delivery suggests progress toward increasing uptake of SBA and HCF delivery, however important actionable barriers remain.

In Rwanda, from 2000 to 2010, Rwanda implemented comprehensive health sector reforms to strengthen the public health system, with the aim of reducing maternal and newborn deaths in line with Millennium Development goal 5, among many other improvements in national health. Pertaining to maternal health, between 2006 and 2010, births with skilled attendance (77% increase versus. 26%) and institutional delivery (146% increase versus 8%) increased in coverage particularly in rural areas, where most poor women live took more than compared to 2000-2005 (Bucagu *et al.,* 2012).

Currently, the situation in Kakamega has made a major turnaround. The proportion of skilled delivery has increased from 33 per cent in 2013 to 69 per cent by 2016, while the proportion of mothers who have attended their fourth Ante Natal Care visit has gone up to 54 per cent, up from 35. Similarly, immunization coverage of children is now at 81 per cent compared to 63 back in 2014(KDHS, 2014).

## 2.2 Maternal Intervention Programs

In recent years, conditional cash transfer (CCT) programs have received considerable attention as a means of increasing utilization of healthcare services among disadvantaged populations. CCT programs are a form of performance-based payments in exchange for compliance with certain behaviors, such as sending one's child to school or attending regular health check-ups. CCT specifically target beneficiaries, rather than the agents delivering services (Kahn *et al.,* 2015). Governments in a number of countries have implemented CCT programs, and evidence is growing that these programs increase utilization of health services and improve clinical outcomes (Morris , Flores &Olinto, 2004; Fiszbei&Schady, 2009).

The amount of cash transferred has varied between programs, with most programs providing the average value of a day's work to help alleviate the financial burden of utilizing the health system (Morris ,Flores &Olinto, 2004). These CCT programs have given participants meaningful cash amounts that help offset costs of daily living. For example, in Mexico's Opportunities program, participants received 25% of household consumption per year, while in Honduras, women received 10% of household consumption per year (Morris, Flores &Olinto, 2004). In low-income countries where government budgets are limited, instituting cash transfer programs that require considerable funds may not be feasible. While the use of CCT has become popular Latin America and South Asia, little is known about the potential benefits of CCT in African countries, which continue to have among the highest rates of maternal mortality and extreme access to care issues. Moreover, even less is known about whether modest cash incentives would have a meaningful effect on health care utilization and outcomes. We designed a pilot study to determine the minimum cash threshold that may successfully incentivize utilization of antenatal care in Kisoro, Uganda.

If full removal of user fees is considered untenable, there is a case for partial removal of fees for specific services such as maternity care, which have high social priority. Maternity care exemptions would be expected to contribute to reducing maternal mortality (by increasing supervised deliveries and reducing the impoverishing effect on households of high and unpredictable payments for deliveries (especially complicated deliveries) (Sophie *et al.,* 2007).

Creative strategies, such as output-based assistance in East Africa and Southeast Asia, cash incentives for deliveries in hospitals in India, and training and deployment of community midwives in Afghanistan, among others demonstrate a considerable promise as a means to increase access to maternal health services for the poor (WHO, 2010; Currie, 2007; Mayhew, 2008; Bellows, 2010; Iyengar, 2009; Lim, 2010).

In a study done in Nigeria, to find the effects of a unique government program, which sought to alleviate supply-side constraints by deploying skilled midwives to primary health facilities in rural communities to provide round-the-clock access to skilled obstetric care. This program was known as the Midwives Service Scheme (MSS), was rolled out in 2009 and involved the deployment of nearly 2,500 midwives to 652 primary health care clinics. The goal was to double the rate of skilled birth attendance in intervention areas by 2015. To evaluate the impact of the program, we undertook a mixed-methods evaluation in 2014. We collected data on outcomes for nearly 10,000 births within the preceding five years in 386 communities, split equally between MSS (intervention) and non-MSS (comparison) areas. To understand implementation challenges and contextualize the quantitative results, we carried out a nested qualitative study in three states, consisting of in-depth interviews and focus group discussions with policymakers, providers, childbearing women, and community stakeholder groups.

This study makes an important contribution to a growing literature evaluating the effects of policies and programs designed to increase use of maternal and child health services and improve outcomes in developing countries. Much of this literature has focused on demand-side initiatives such as conditional cash transfers (Lim *et al.,* 2010; Powell-Jackson & Hanson, 2012), transportation subsidies (Ekirapa-Kiracho*et al.,* 2011), voucher schemes (Bellows, Bellows, & Warren, 2011; Nguyen *et al.,* 2012; Obare *et al.,* 2013), and negative incentives or penalties(Godlonton& Okeke, 2015).Supply-side studies are considerably less common (Kumar & Dansereau, 2014). Limited availability of skilled providers, particularly in rural areas, is though tto be an important supply-side constraint, but there are few well-identified studies of the relationship between the supply of skilled workers and outcomes. Existing studies are often cross-sectional in nature (Anand &Bärnighausen, 2004; Sousa, Dal Poz, &Boschi-Pinto, 2013),making causal inference challenging. In this study, we leverage the increase in skilled worker supply provided by the MSS to generate important evidence about the relationship between supply of skilled providers, use of services, and health outcomes.

The Chiranjeeve scheme was launched as a one-year pilot project n December, 2005 in five backward districts: Banaskanthaa, Dahod, Kutch, Panchmahas, and Sabarkanths. The scheme has now been extended to the entire state. when the scheme was initiated, the districts were selected depending on remoteness and included regions with the highest rate of infant mortality. The private medical practitioners (mainly obstetricians) in these districts were empaneled in the same scheme to provide delivery care services to below poverty line women. The Government of Ghana introduced exemptions from delivery fees in September 2003 in the four most deprived regions or the country, which in April 200S was extended (without formal evaluation) to the remaining six regions. The aim was to reduce financial barriers to using maternity services to help reduce maternal and perinatal mortality and contribute to poverty reduction.(Sophie *et al.,* 2007). The policy was funded through Highly Indebted Poor Country (HIPC) debt relief funds, which were channeled to the districts to reimburse public, mission and private facilities according to the number and type of deliveries they attended monthly. A tariff was approved by the Ministry of Health which set reimbursement rates according to type or delivery (e.g. normal, assisted or caesarean section) and type of facility. Mission and private facilities were reimbursed at a higher rate, because they did not receive public subsidies (Sophie *et al.,* 2007) women would then only have to bear the costs of reaching facilities.

In Kenya, the government through the Ministry of Health launched the free maternity care in June 2013. This has since been expanded to free maternal care programme dubbed Linda Mama Boresha Jamii at Kenyatta International Convention Center (KICC) for a two-year phase of 2016/2017 financial year. Linda Mama is a great step forward towards improving access and quality of maternal, new born and child health care services in the country as well as attainment of health goals as outlined in Kenya’s Vision 2030 and the Sustainable Development Goals 1, 3 and 10 related to poverty, good health/wellbeing and reduction of inequalities. The redesigned initiative expands the network of health providers to include faith-based facilities through a direct re-imbursement mechanism that pays for number of deliveries reported, to a health insurance plan to be administered by NHIF. The system was expected to improve efficiency, accountability and minimize complains associated with delays in disbursement of free maternity money. The benefit package includes both outpatient and inpatient services for the mother and newborn for a period of one year and it will include Antenatal Care, Delivery, Postnatal Care and Emergency referrals for pregnancy related conditions as well as complications. Maternal mortality has reduced significantly since the abolishment of the maternity fee and introduction of Free Maternal Care Programme in public hospitals by the President Uhuru Kenyatta in June 1, 2013 (<http://www.babybandafair.com/government-of-kenya>). Because of the intervention, the maternal mortality has also dropped from 488 to 362/100,000 while primary healthcare utilization has increased from 69% in the financial year 2013 to 77% in 2016 as a result of foregone user fees (MOH, 2016).

In Kakamega county, one of the Kenya’s counties in Western region, the “Imarisha Afya ya Mama na Mtoto” (*Improve the Health of Mother and Child*) programme contributed significantly to maternal care, especially on skilled delivery. The programme was initiated by the County Government of Kakamega, and was designed to reach the neediest in the county - a literal life-saver for over 44,500 mothers who have benefitted from it. The programme targets poor and disadvantaged pregnant and breastfeeding women, encouraging them to use maternal and child health services by assisting them with regular Cash Transfers. The project delivers six cash payments of KES.2000 shillings over a period of 18 months. These small amounts enable these poor pregnant women and mothers to cover transportation costs to health facilities and to even buy food and other necessities for their children ([www.kakamega.go.ke/health-services](http://www.kakamega.go.ke/health-services)).Despite free maternity on intervention that was effective in all the country, a relative comparison of the county to national statistics indicated that there was a 60.0% increase in skilled delivery attendance after the introduction of OC programme (Unpublished Malava statistics, 2014).

In an action research carried out in on postpartum care for women within the first week after delivery in a rural area of Rajasthan, India, the intervention program introduced included a rigorous system of receiving reports of all deliveries in, after the initiation of a national scheme called Janani Suraksha Yojana to provide cash incentives to women delivering in government institutions in 2006, there has been a major shift in the placeof delivery from home to institutions-starting with 53% in 2007 and increasing to 82% in 2010.Overall, 68.2% of the reported deliveries occurred in institutions, 31.1% at home, and 0.7% on the way to the institutions(Iyengar, 2012). Another program initiated in India’s, Nanded district, referred to as National Rural Health Mission (NRHM) focused on increasing the institutional deliveries. After the incentive, the proportion of institutional deliveries increased from 42% in 2004 to 69% in 2009. A significant increase was observed in theproportion of institutional deliveries [60% vs 45%; y=173.85, p<O.05, odds ratio (OR)=1.8 (95% confidence interval (CI) 1.65-1.97)1 in the NRHM period compared to the pre-NRHM period. The deliveries in government institutions and in private institutions also showed a significant rise in deliveries assisted by health personnel increased significantly during the NRHM period C62% versus 49%; =149.39:p<0.05, OR 1.73, 95% CI 1.58-1.89). However, less than 10% of the deliveries in the home (range 2-9%)were assisted by health personnel throughout the study period. There was a wide geographic variation in place of delivery among the study villages. The results showed a significant increase in the proportion of institutional deliveries and deliveries assisted by health personnel in the NRHM period.

## 2.3Knowledge and Evidence of Skilled Delivery

Globally about 60 million women give birth outside health facilities annually, mainly at home, and 52 million among them without skilled birth attendant. Furthermore, skilled birth attendance, use of antenatal care and family planning services are the most inequitably distributed of the 12 key maternal, newborn and child health interventions studied in low and middle income countries (LMIC) with poorer women facing higher barriers to access (GHO, 2013).Quality maternal health care is a fundamental right for all women. This is because it links child survival and development to health-care strengthening and environmental sustainability. This makes it imperative for broader development goals, including the achievement of the Sustainable Development Goals 5(Wagsstaff, 2004)*.*

Previous investigations have revealed positive impacts of Conditional Cash Transfer (CCT) Programs on child nutrition and reduction of stunting and wasting in children. This is corroborated by findings of studies conducted in Mexico, Honduras, Nicaragua, Colombia, Brazil and Ecuador in which, substantial reduction of stunting prevalence among beneficiaries was demonstrated (Sridhar, 2006)*.*In addition, according to Center for Global development policy paper no. 019: 2013 most CCT programs are broad, aiming to alleviate poverty and increase human capital. The conditions include combination of school attendance, use of well child visits, vaccination, and/or use of nutritional supplements. Examples of “broad” CCT include Mexico’s *Oportunidades*, Colombia’s *Familiasen Accion*, Nicaragua’s *Red de Proteccion Social*.

In Gujarat state in India, incentive programs such as Chiranjeevi Scheme were publicized to the beneficiaries in various ways. In particular those clients who took advantage of the scheme (CCB group), 55% were informed about the Chiranjeev Scheme by the ANM/FHW and 17% by the *Angarwudi*workers (Aww-community level nutrition worker). Public-health facilities, including the Subcentre, Primary Health Centres (PHCs), Community Health Centres (CHCs), and the district hospital.

##### **Table 2.2Comparative studies on Conditional Cash Transfers**

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
| Country | Baseline | Effect size | Standard Error | Significance |
| **Births attended to by skilled personnel** | | | | |
| El Salvador (Sridhar, 2006) | 0.738 | 0.123 | 0.070 | \* |
| India (Lim, 2010) | 0.593 | 0.366 | 0.006 | \*\*\* |
| Mexico (Urquieta*et al*., 2009) | 0.305 | 0.114 | 0.048 | \*\* |

***(Adopted from American journal studies done in Brazil and Latin America)***

Friends and neighbours were the sources of information for 4%in the CB group. Printed material and pamphlets were the sources of information for only 1% of client. TBAs informed only 1% of the beneficiaries about the scheme. Others, such as panchayats (governing) bodies at the village level) members, balwadi teachers, doctors, amid nurses provided information to 6% of the CB. The questionnaire did not seek this information from the NCMS (Bhat,2009).

In a study done in Nepal, among the total 414 mothers, 60.6% and 82.9% were aware on 4 ANC incentive and Safe delivery incentive programme (SDIP) respectively. Total, consulted, mothers who had delivered in health facility (n=212) received delivery incentive. Comparing the delivery benefits with ANC (n=212), 65.4% of mothers were deprived from ANC incentive though they practiced scheduled ANC visit. As an interesting fact, some other cases of non-ANC visit (n=3) and less than four/non-scheduled visit (n=8) were benefited from the ANC incentive as opposed to the rule of scheme. Analysis has shown that mothers who were aware of ANC incentive scheme were 5.2 times more likely to receive incentive than those of unaware one(Subedi, *et al.,*2014).

The Kenya Demographic and Health Survey of 2014, there was very low knowledge on the best practices around ante-natal care, skilled delivery and post-natal care. This was largely attributed to the poverty rate of 49.6 per cent with more than 33,000 mothers living on less than a dollar a day (KDHS, 2014).

## 2.4Utilization of Focused Antenatal care

### 2.4.1Traditional ANC

Antenatal care, the care women receive during pregnancy helps to ensure healthy outcomes for women and newborns. The traditional approach to antenatal care, which is based on European models developed in the early 1900s, assumes that more is better in care for pregnant women. Frequently routine visits are the norm and women are classified by risk category to determine the likelihood that they will experience complications and the level of care they need. Moreover, many developing countries have adopted the traditional approach without adjusting the interventions to meet the particular needs of their population. This is without taking into account their country’s available resources and without evaluating the scientific basis for specific practices (Villar&Bergsjo 1997).

The approach focused antenatal care, recognizes three key realities: first, frequently visits do not necessarily improve pregnancy outcomes. In developing countries, they are often logically and financially impossible for women to manage and a burden on the healthcare systems (Villat*et al.,* 2001). Secondly, the majority of pregnancies progress without complication, so antenatal care providers must support women with normal pregnancies and help prevent complications. Thirdly, many women who have risks factors never develop complications, while women without risk factors often do (Vanneste *et al.,* 2000).

### 2.4.2 Utilization of Focused antenatal care

Focused antenatal care (FANC) recognizes that every pregnant woman is at risk for complication and therefore all women should receive the same basic care and monitoring for complications (Maine, 1996). The provision of quality basic care, safe, simple, cost-effective interventions that all women should receive helps to maintain normal pregnancies and can save lives by preventing complications and facilitating early detection and treatment of complications. The utilization of maternal health service definitely is essential strategy in reducing the risks associated with pregnancy and child bearing in this age group. The essential maternal health care services during pregnancy included antenatal care, skilled care at delivery and postpartum care and these are necessary to promote good health. Antenatal care utilization (65%) in the developing countries is low when compared to that of the developed countries which is 97%. Skilled attendance at delivery is 53% in developing countries while it is 99% in the developed countries and postpartum care utilization is 30% compared to 90% in developed countries (WHO, 2007).

In Nigeria antenatal care utilization is reported to be 63% (Stewart, Cynthia and Omar, 1997). In Tanzania, the main barriers reported to hinder pregnant women effectively utilize ANC include socio-cultural values stigmatizing and discriminating women during pregnancy, service providers’ unfriendly attitudes towards clients, shortages of drugs and other essential service supplies, existence of user-fees in health facilities, and pregnant women’s unawareness of essential ANC services needed or actually delivered at ANC clinics (Mubyazi, 2015). In a study done in Zambia by Chamileke (2017), results showed that 38.5 percent (154) of the women received antenatal care, 32.3 percent (129) of the women received delivery services while 48.3 percent (193) received postnatal care services.

In India’s Uttar Pradesh state, a National Family Health Survey (NFHS-2), 1998-99 indicated that, the rural population, does not have the benefit of access and a woman must go to the nearest city or town for institutional delivery care, and household economic condition does matter in this case. The study concludes that unless transport and communication become easily accessible to villages and to health professionals and centres, many rural women, especially the poor and the illiterate, may not be able to afford appropriate health care at delivery. In this cases distance from home was the most prominent factor that affected utilization of antenatal services (Ghosh, 2004).

In Nepal, knowledge on ANC visit was found popularly high (95.5%) but there was variation in practice viz. 11.4% absent for ANC visit, 27.2% had less than 4 visits or unscheduled and 61.4% scheduled visits as per the ANC protocol. The status of last delivery was near about equal for both non-institutional and institutional delivery (48.8% home/related place delivery and 51.2% institutional delivery). Knowledge on ANC Incentive and SDIP-only 60.6% (n=251) mothers knew that government provided incentive after the completion of 4 ANC visits but only 3/4th of them mentioned the correct amount (NRs. 400) regarding that. On the contrary, 82.9% mothers were aware about the incentive that is provided to mothers in delivery as health-facility; among the population, 90.4% knew that the amount is NRs.1000.

### 2**.4.3Goals of Focused Antenatal Care**

The major goal of focused antenatal care is to help women maintain normal pregnancies through;

* Targeted assessment to ensure normal progress of childbearing cycle and newborn period and facilitate early detection of complication, chronic conditions and other problems that will affect pregnancy.
* Individualized care to help maintain normal progress including preventive measures, supportive care, health message and counseling (including empowering women and families for effective self-care) and birth preparedness and complication readiness planning.

Maternal newborn health program promotes a minimum of four antenatal care visits- ideally at 16 weeks, 24-28 weeks, 32 weeks and 36 weeks for women whose pregnancies are progressing normally (WHO, 1994).

Other general principals of FANC include: -

1. Detection and treatment of existing disease and conditions
2. Early detection and management of complication
3. Birth preparedness and complications readiness
4. Women friendly
5. Inclusion of woman’s partner
6. Culturally appropriate- defines what a culture regards as acceptable or unacceptable in terms of its own rituals, taboos and prescription surrounding pregnancy and childbirth.

Globally it is estimated that 34% of pregnant mothers are delivered by skilled attendants annually (WHO, 2015). Evidenced based practices are therefore needed urgently to negate deaths related to delivery especially in low income settings, where an estimated 60 million women deliver at home every year (Darmstadt, 2009). According to (Loudon, 2010) only countries that have strengthened access to skilled care in pregnancy, during child birth, use of technological equipment, access to Emergency Obstetrical care and maintained accepted WHO Standards ratio of clients to skilled workers, have managed to reduce their maternal mortalities significantly. Skilled attendance is the presence of a health practitioner with midwifery skills and enabling environment where systems are in place to allow the practitioner to provide skilled care. These systems include regular safe supply of drugs and equipment, as well as supportive supervision. In addition, it includes close links for easy referral to facility able to offer higher level obstetric and neonatal services among others (Graham, 2014).

Previous studies indicated that, child survival could be attributed to improved maternal and child health, increased births assisted by skilled providers and delivery in health facilities, not forgetting increased postnatal care (KDHS, 2014). The high numbers of maternal and newborn deaths have declined since 1990 although the indices remain relatively high and this has been attributed to unavailable or inaccessible health services. To this end, a number of non-governmental organizations have come up to plug the deficit. For instance, John Hopkins piego plays a critical role in guiding the world efforts towards attainment of United Nations (MDGs4 and 5) for reducing maternal and newborn morbidity and mortality (WHO, 2012).

Studies in other countries (India and Bangladesh) give morbidity rates at 15-16 times higher than that of mortality rates. This was found to be due to unsafe and unhygienic practices based on taboos and superstitions such as putting mustard oil in vagina, to try to hasten cervical dilation, to speed up delivery process or use of excessive fundal pressure to deliver the placenta, in belief that it obstructs the baby (Good burn, 1995)*.*In Africa, there has been criticism of the risk approach strategy for reducing maternal mortality, whereby pregnant women identified as having risk factors were provided with specialist obstetric care. Focus was concentrated around the lack of specificity, sensitivity and predictability of the risk factors. Such uncertainty poses huge challenges to meeting the (MDG5) by year 2016 (FIGO, 2015; WHO, 2015).Kenya has a high maternal mortality ratio of 495 per 100,000 live births (KDHS, 2014)and a high life time risk of maternal deaths. The situation in Kenya is compounded by critical shortage of health human resource. For example, there are about 7,330 doctors in Kenya for a population of 43 million people, which translate to 1 doctor for slightly above 5,800 inhabitants (MOH, 2014; USAID, 2014).

There are approximately 30,000 and above registered nurse-midwives and slightly above 4,800 enrolled nurses-midwives which translates to 101 registered nurses-midwives and 16 enrolled nurses-midwives per 100,000 populations (Health, 2005-2010;Health, 2010). In order to mitigate these gaps, the government of Kenya developed the community midwifery programme in 2005 as an additional strategy to increase access to skilled attendance at birth. The aim of the programme was to link skilled birth attendants living within the community near women, to facilitate skilled care during childbirth and to refer complication to Emergency Obstetrics and Neonatal Care (EMONC) facilities nearby (Warren, 2014).

Important to note is that, proper care during pregnancy and delivery is important for health of both the mother and baby. It is estimated that 7,700 Kenyan women die every year due to pregnancy related causes. Reducing maternal mortality rates from 488 -147 per 100,000 live births by 2015, which was not attained but captured in the sustainable development programme has been a challenge(KDHS, 2014).Further statistics indicated that Kenya loses at least 52 infants out of 1,000 deliveries monthly (USAID, 2014). In Western Kenya, there is high maternal mortality of 800 per 100,000 live births and this high indicator is attributed to delivery by unskilled attendants, poverty, illiteracy and underutilization of prenatal care (KDHS, 2014).

## 2.5 Effects of Incentive Use on Utilization of Skilled Delivery

There is need to invest in education of women and men on the dangers associated with pregnancy. Usefulness of skilled deliveries are not only to attend antenatal clinic but also to use skilled deliveries at birth (Quargaye, 2007). Specific knowledge about the risks of childbirth and the benefits of skilled attendance should help increase care seeking behaviour. A study conducted in Zambia, revealed that women who had knowledge on danger signs in pregnancy were more likely to deliver in a health facility relative to those without such knowledge(ZDHS, 2006).In another study conducted in Tanzania by (Mpembeni *et al.*, 2007), it was indicated that to increase facility utilization, there is need to raise awareness to both men and women on danger signs during pregnancy/delivery and also counseling on facility delivery and individual preparedness.

A study conducted in Nigeria indicated that several factors influenced the utilization of ANC by women. They include age, tribe, marital status, educational status, husband’s education, whether the respondent was a professional, husband occupational status, area lived, urban areas and whether the respondent participated in taking health decision (Owoyokun&Dairo, 2010). In another study in Nigeria, by Olamijulo (2015), the factors that influenced the acceptability of FANC by Nigerian pregnant included age, tribe, proximity to hospital and parity.In another study by Wencheko & Kassu (2011), mother’s age at birth, mother’s educational level, sex of head of household, household wealth status, employment/work status of mothers, region, religion, birth order and partner’s/husband’s level of educational were found to be predictors of utilization of delivery care and postnatal care services. A study in Tanzania, indicated that seeking of ANC was mainly influenced by motivation for one’s safe pregnancy and childbirth and not necessarily and specifically seeking intermittent presumptive treatment during pregnancy(IPTp)against malaria (Mubyazi, 2015). In yet another study in South west Nigeria, maternal characteristics like education, ethnicity and income were significantly associated with delivery assistant (Adebowale, 2016).

In another study by Tewodros (2009) in Ethiopia, a logistic regression analyses indicated that antenatal care users were found to be more likely to be educated (OR= 6.81, 95% CI; 3.76, 12.33), and live in less than 60 minutes’ walk from health facilities (OR= 6.73,95 CI; 4.30, 10.56). Moreover, illness experienced during past pregnancy (OR=2.57, 95%CI; 1.75, 3.78), husband’s approval (OR=7.32,95%CI; 4.69, 11.42) and planned last pregnancy (OR=2.38 95% CI; 1.52, 3.71) were among the factors associated with the utilization of antenatal care. Another study in the same country, indicated that the major challenges of Reproductive health (RH) service utilization were preference of female professionals, preference of home delivery, cultural influences, lack of knowledge, decision maker related barriers, and health facility related barriers. Husband disapproval was significant challenge for utilization of services. Family disapproval for adolescent RH service utilization and judgmental approach of health professionals for contraceptive utilization were also common barriers.

The Government of Kenya introduced a policy of free delivery services in government facilities beginning June 2013. As a result of this intervention, studies done thereafter, such as those by Njuguna (2015) indicated that deliveries and antenatal attendance in 47 county referral hospitals had increased by 26.8% and decreased by 11.9%. This indicates some impact of free delivery policy on utilization of maternal health services in county referral hospitals in Kenya. However, studies by Owiti (2015), has indicated that, out of the 97% of the women who delivered in a health facility, only an average of 43.9% delivered in a public health facility despite these facilities having free maternal services.

In Nigeria, Maternal mortality rates are among the highest in the world. This has been attributed largely to women avoiding antenatal and postnatal care, and the choice of many to deliver their babies at home and alone, as they perceive. Socio-cultural conventions drive these behaviors, as confirmed by a study conducted in Zamfara and Kano States (Segun *etal.,* 2007). The study identified many reasons for not delivering in a hospital, including poor services (unpleasant attitudes of health workers; lack of adequate equipment, drugs and skilled medical personnel; having male medical personnel attend to pregnant women); others reflected cost and lack of access; but many were socio-cultural. A recent study identified religion in Nigeria as a determinant of poor maternal health utilization, as Muslim women were significantly less likely to obtain services than other women, even when controlling for geographic region(Solange, Oladosu, Akinlo&Olanisebe 2015).

A study done in Zambia by Chamileke (2017), reduced income level was associated with decreased use of antenatal care (OR=0.1, p<0.05). In assisted delivery, increased distance to the health facility was associated with reduced use (OR=0.1, p<0.05). In another study done in Bangladesh by (Kamal, 2013), to examine the factors that influence institutional delivery among women in Bangladesh, the factors associated with the delivering in an institution was significantly associated with the premigravida, the highest education level of the couples, richness, higher autonomy, TV ownership, religion, history of pregnancy complications, and residency (whether someone lives in rural or urban). The study concluded that, government should ensure quality of care, easy accessibility, and availability of all facilities free of cost in the public medical institutions (Kamal, 2013). In yet another study conducted in Bangladesh, Matlab and/or Chandpur, out of the pregnant mothers, 3,010 (62.5%) gave birth in different hospitals in Matlab and/or Chandpur. Review of hospital-records was attempted for 2,102 women who gave birth only in the Matlab Hospital oficddr,b and in other public and private hospitals in the Matlab and Chandpur area.

A National Family Health Survey (NFHS-2), 1998-99 survey in India’s Uttar Pradesh state, indicated that educational attainment of women is the most important factor in determining utilization of maternal health care in rural, and, more pronouncedly, in urban areas, after controlling for all other socioeconomic factors. The same survey reports that standard of living (proxy for household economic status) too was found to be a significant determinant of accessing health services, in both rural and urban areas. Media exposure was important in use of antenatal care, which in turn was significantly associated with accessing delivery care.

In a study done in Kenya, 2,926 mothers in two informal settlements in Nairobi, used private and government health facilities for childbirth than traditional birth attendant. In Household wealth were associated with institutional deliveries, especially in government hospitals. Residents in the more disadvantaged settlement were more likely than those in the better-off settlement to give birth in private facilities. In urban areas, maternal health services in both the government and private sectors should he strengthened, and efforts made to reach out to women who give birth at home (Bazant *et al.,* 2009).

The Imarish aAfya ya Mama na Mtoto (Improve the Health of Mother and Child) Programme contributed significantly to skilled delivery. It was designated to reach the neediest in the county, an estimated over 44,500 mothers who have benefitted from it (www.kakamega.go.ke/health-services).

Focused antenatal care (FANC) recognizes that every pregnant woman is at risk for complication and therefore all women should receive the same basic care and monitoring for complications (Maine 1991). The provision of quality basic care, safe, simple, cost-effective interventions that all women should receive helps to maintain normal pregnancies and can save lives by preventing complications and facilitating early detection and treatment of complications.

The utilization of maternal health service definitely is essential strategy in reducing the risks associated with pregnancy and child bearing in this age group. The essential maternal health care services during pregnancy included antenatal care, skilled care at delivery and postpartum care and these are necessary to promote good health. Antenatal care utilization (65%) in the developing countries is low when compared to that of the developed countries which is 97%. Skilled attendance at delivery is 53% in developing countries while it is 99% in the developed countries and postpartum care utilization is 30% compared to 90% in developed countries.

In Nigeria antenatal care utilization is reported to be 63%. In Tanzania, the main barriers reported to hinder pregnant women effectively utilize ANC include socio-cultural values stigmatizing and discriminating women during pregnancy, service providers’ unfriendly attitudes towards clients, shortages of drugs and other essential service supplies, existence of user-fees in health facilities, and pregnant women’s unawareness of essential ANC services needed or actually delivered at ANC clinics (Mubyazi, 2015).

In a study done in Zambia by Chamileke (2017), results showed that 38.5 percent (154) of the women received antenatal care, 32.3 percent (129) of the women received delivery services while 48.3 percent (193) received postnatal care services.

In India’s Uttar Pradesh state, a National Family Health Survey (NFHS-2), 1998-99 indicated that, the rural population, does not have the benefit of access and a woman must go to the nearest city or town for institutional delivery care, and household economic condition does matter in this case. The study concludes that unless transport and communication become easily accessible to villages and to health professionals and centres, many rural women, especially the poor and the illiterate, may not be able to afford appropriate health care at delivery. In this cases distance from home was the most prominent factor that affected utilization of antenatal services (Ghosh, 2004).

In Nepal, knowledge on ANC visit was found popularly high (95.5%) but there was variation in practice viz. 11.4% absent for ANC visit, 27.2% had less than 4 visits or unscheduled and 61.4% scheduled visits as per the ANC protocol. The status of last delivery was near about equal for both non-institutional and institutional delivery (48.8% home/related place delivery and 51.2% institutional delivery). (Table 1) Knowledge on ANC Incentive and SDIP – Only 60.6% (n=251) mothers knew that government provides incentive after the completion of 4 ANC visit but only 3/4th of them mentioned the correct amount (NRs. 400) regarding that. On the contrary, 82.9% mothers were aware about the incentive that is provided to mothers in delivery as health-facility; among the population, 90.4% knew that the amount is NRs.1000.

In India, after the Janani Suraksha Yojana (JSY) program, the institutional deliveries increased after the implementation of JSY. Similar trends were observed in other studies indicating that the benefits of this scheme are being availed by a wider portion of the population (Sharma *et al.,* 2010; Iyenga, 2009). The proportion of institutional deliveries in India was around 40% in 2005-2006, which continued to increase up to 72% in 2009 (International Institute for Population Sciences, 2007; UNICEF, 2009). In the current study, almost 85% of the beneficiaries belonged to socially-disadvantaged class (scheduled caste, scheduled tribe, and other backward classes), which have been reported by other researchers also (Lim, 2010). This could be explained by the fact that a large proportion of the populations in the state of Madhya Pradesh comprise these groups (WHO, 2012) and also that JSY increased the hospital attendance among socially-disadvantaged classes.

In a study done in Oyam District in Uganda, Overall, transport vouchers had greater effects on all four outcomes, whereas baby kits mainly influenced institutional deliveries. The absolute increase in institutional deliveries attributable to vouchers was 42.9%; the equivalent for baby kits was 30.0%. Additionally, transport vouchers increased the coverage of four antenatal care visits and postnatal care service coverage by 60.0% and 49.2%, respectively. ‘Bypassing’ was mainly related to transport vouchers and ranged from 7.2% for postnatal care to 11.9% for deliveries. The financial cost of institutional delivery was US$9.4 per transport voucher provided, and US$10.5 per baby kit. The incremental cost per unit increment in institutional deliveries in the transport-voucher system was US$15.9; the equivalent for the baby kit was US$30.6.

The presence of skilled attendants at birth is considered the single most important factor in preventing maternal deaths (Groen *et al.,* 2013), particularly in resource-limited settings. To that end, several innovative approaches that target both demand and supply-side barriers are being implemented. These include incentive-based interventions using strategies, such as conditional cash transfers, clean birth kits and transport voucher schemes. Although most of the studies of such interventions have been conducted in Asia (Mugweni, Ehlers&Roos (2008) and Latin America (Tann *et al.,* (2007) rather than Africa (Van *et al.,* 2008), the results have been positive (Tann *et al.,* (2007) in all the settings.

We evaluated the effects of providing transport vouchers and baby kits on changes in the number of institutional deliveries, four ANC visits, and postnatal care (PNC) visit. We also measured the proportion of women ‘bypassing’ maternal health services inside their residential sub-counties, in favour of services outside, with respect to four ANC visits, institutional deliveries, and PNC services. As a ‘side objective’, we hypothesized that given the inadequate number and disproportionate distribution of health facilities in the district, this study could help, to some extent, document the extent of ‘bypassing’ in the study’s sub-counties before and during the interventions. We also examined the financial costs of the two interventions in the promotion of institutional deliveries, to scale up to other sub-counties in Oyam District.

In another study in Uganda, cash transfers have been used to incentivize participation in health services. The study examined whether modest cash transfers for participation in antenatal care would increase antenatal care attendance and delivery in a health facility in Kisoro, Uganda. Twenty-three villages were randomized into four groups: no cash: 0.20 United States Dollars (USD) for each of four visits, 0.40 USD for a single first trimester visit only, 0.40 USD for each of four visits. The study results indicated that women in the 0.40 USD/visit group had higher odds of three or more antenatal visits than the control group (OR 1.70, 95% CI: 1.13-2.57). The odds of delivering in a health facility did not differ between groups. However, women with more antenatal visits had higher odds of delivering in a health facility (OR 1.21, 95% Cl: 1.03-1.42).

The distribution of women who delivered in the intervention and control facilities before, and during the interventions was at 70%, and they utilized ANC services and had institutional deliveries across the intervention and control facilities, were from the catchment areas of the respective health facilities. We observed similar results concerning PNC, except that the figure was just below 70% at the control health facility for the transport-voucher intervention (Massavo *et al.,* 2017). The number of clients attending the four ANC visits increased across all the study health facilities after the start of the interventions. In the transport-voucher intervention, the number of institutional deliveries increased at both the intervention and control facilities, although the former showed a greater increase. For the baby kit, the number of deliveries decreased at the control health facility but increased at the intervention facility. The number of postnatal visits rose sharply at all the study health facilities, except the control health facility for the transport-voucher intervention (Massavo *et al.,* 2017).

According to a review paper done in 2013 from a multiagency in Bangladesh results indicated, for labour and delivery: the majority of studies that report on skilled birth attendance or facility-based deliveries show incentives to providers and consumers correlated with improvements in these indicators. Similarly, among studies that report on the effect of incentives on caesarean sections, the evidence shows incentives correlated with increased use of caesarean section. Where this service was not directly incentivized, such as in ‘broad’ CCT programmes, the reason for the increase is unclear but may be due to incentives in payment mechanisms (WHO, 2010).

## 2.6 Research Gap

The literature review indicates that other countries are using the strategy of conditional cash transfers, more over several researches have been done in other countries to evaluate the effects of these strategies on maternal outcomes. However, in Kenya, Kakamega county, the same strategy is referred to as” Oparanya care services”. This form of cash transfers being implemented in Kakamega has not been evaluated. This study will add a body of new knowledge, the effect of such intervention or incentives in a unique study area, that is Western Kenya, and in particular Kakamega county.

# CHAPTER THREE

## METHODOLOGY

## 3.0 Overview

This chapter introduces the research methodology to be used in this study. It encompasses the research design, study area, study population, inclusion and exclusion criteria, sampling procedure, sample size, ethical considerations, data collection procedure, data analysis and presentation of the findings.

## 3.1 Study Design

Cross-sectional descriptive study design was employed on both beneficiaries and non- beneficiaries in Oparanya care services.

## 3.2 Study Area

The study was conducted in Malava County hospital hospital. This facility is situated in northern part of Kakamega County, approximately 24km from Kakamega town within Kakamega-Webuye highway. The geographic area of Malava County hospital is approximately 427.45 KM2 and serves population of about 238,369 people. The main economic activity in the area is mainly maize and sugarcane farming, subsistence farming include maize, beans, sweet potatoes and millet. Other livelihood activities include small scale businesses, (boda-boda) and gold mining. Major health problems include home delivery by unskilled attendant, upper respiratory tract infection and malaria. Malava County hospital has 22 health facilities which offer promotive, preventive, curative and rehabilitative services. Malava county hospital was chosen because, Ministry of health reports indicated that, the OC programme has taken off and comprise rich source of information for the programme. On the hand, the sub county, covers a vast area covering 427.45 KM2 and stretching the rough terrain bordering Nandi, Uasin Gishu counties and Bungoma Counties.

## 3.3 Study Population

According to (Burns, 2007), the population is a set of individuals having common characteristics. An accessible population was a portion of the target population that the researcher had access to. For the purpose of this study, the population comprised of all mothers within reproductive age bracket 18-49 years (WHO, 2015) and delivered in Malava County hospital.

## 3.4 Inclusion and Exclusion Criteria

### 3.4. 1 Inclusion Criteria

1. All mothers aged bracket 15-49 years (WHO, 2015)
2. Mothers seeking maternal health services in Malava County hospital between September, 2014 to August, 2015.

### 3.4 .2 Exclusion Criteria

1. All mothers aged below 15and above 49 years of age.

Mothers seeking other health services other than maternal health services in Malava County hospital.

## 3.5 Sampling Procedure

A sample isa subject of a population from which data would potentially be collected (Parahoo, 2006). A non-probability purposive sampling technique was used in choosing the Malava County hospital, which practices the Oparanya care programme. Systematic sampling was adopted in picking mothers who filled questionnaires. Where Kth=N/n, N is total number of mothers delivering in the facility in a year and n was sample size, therefore N=1759 and n=370. 1759/370=4.75 therefore the fifth mother was picked to fill in the questionnaires. Systematic sampling was preferred over simple random sampling because of its simplicity, and in addition allowed the researcher to add into the process a random selection of subjects. The method gave assurance of the population being evenly sampled.

## 3.6 Sample Size Calculation

The sample size was calculated using Fisher’s *et al*., 1998 method;

N = Z2PQ

D2

Where n = Minimum sample size desired

Z = The standard normal deviate at the required confidence level (i.e.

at 95% the Z value was 1.96).

D = Tolerable error (Usually the maximum was at 5%)

P = Expected proportion of the accessible population (assumed to be 50%)

Q = I - P

But because the target population was less than 10,000, the sample size was smaller and therefore the final sample estimate (nf) was gotten using the following formulae;

N = Z2PQ

D2

N= 1.962x 0.5x0.5

0.052

= 0.9604

0.0025 N= 384.16

Where nf = the desired simple size (when population was less than 10,000)

n (384) = The desired sample size (when the population was more than

10,000).

N = 10,000 = the estimate of the population size.

n = 384

N = 10,000

nf = 384

1 + 384/10,000

= 369.7

= 370non-response of 10% which makes 37 respondents.

= The total sample size was 407

The value of p=0.5 was used because it gave maximum sample possible. The population of women was estimated at 11065, but this is not static as it varies with time.

## 3.7 Data Collection Procedures

A modified questionnaire from Inter Professional education (IPE) (Global programme) was used to collect data. It comprised the interview scheduled questionnaires with structured items for each of the objective of the study. The study interview questionnaires had 8 sections in total.

Section 1

This section had 5 items that focused on socio-demographic characteristics of the respondents.

Section 2

This section had 3 items that focused on household characteristics of the respondents

Section 3

This section had 8 items that focused on awareness and knowledge of the respondents on the Oparanya care services

Section 4

This section had 2 items that focused on utilization of focused antenatal care health services of the respondent.

Section 5

This section had 3 items that focused on beneficiaries using Oparanya care services

Section 6

This section had 8 items that focused on availability and accessibility of health services of the respondents

Section 7

This section had 8 items that focused majorly on health needs of the respondents

Section 8

This section had 4 items that focused mainly on health care affordability of the respondents

## 3.8 Reliability of Research Instruments

Reliability is the degree to which a test consistently measures whatever it is measuring (Gay *et al.,* 2009). The researcher ensured the reliability of the instruments by administering and utilizing Cronbach’s Alpha reliability, a type of internal consistency that require only one test administration (Gay *et al.,* 2009). The pilot phase of this study was conducted in Chombeli model health centre. The main purpose of the pilot study was to test the data collection instruments that was used in the actual data collection process. Overall, the pilot study enabled the researcher to test the data collection tool. From this, the researcher refined the preliminary questionnaire. Items were tested and the selection of items to be included in the final questionnaire which was administered in the data collection phase was made, on the basis of an assessment of internal consistency and reliability. Reliability coefficient of study’s questionnaires was found to be 0.78.Cronbach’s coefficient of 0.70 or higher is considered acceptable (Thomas, Silverman & Nelson,2015).

In order to understand whether the questions in the questionnaire employed in this study were internally consistent, the researcher ran a Cronbach’s Alpha test. The scale had a high level of internal consistency, as determined by a Cronbach’s Alpha of 0.806.

Cronbach’s Alpha reliability test confirmed reliability of the scales in this study. The test measured how closely related a set of items were as a group. It also reduced measurement errors such as differences in testing conditions. The value of 0.7 and above was considered sufficient to justify the implementation of the study. The value 0.7 and above implied close relationship between a set of items as a group. (stats.idre.ucla.edu/spss/faq/what-does-cronbach’s-alpha-means).

## 3.9 Validity of Research Instrument

Creswell (2009) pointed out that validity is concerned with whether the instruments used for measurement are accurate and whether they are measuring what they intent to measure. He pointed out that validity has two different dimensions: internal validity which ensures that the researcher investigates what she/he claims to be investigating and external validity which is concerned with the extent to which the research finding can be generalized to wider population. Creswell also presented three types of validity that are related to the question: Content validity which refers to whether the experts on the topic agree that the statement relate to what is supposed to be measured, Empirical (predictive) validity that measures relationship between questionnaires, responses and other behavioral characteristics or outcomes and Concurrent validity that measures degrees to which variable correlates. My supervisors and colleagues at MMUST assisted in ascertaining the objectives and the content of the study.

## 3.10 Data Collection

Interview scheduled questionnaires were filled in respect of each mother who came to seek MCH services. The research assistant was trained for two days and more specifically to collect data which was correct and as per objectives, they asked questions one at a time and inturn checked (by ticking) the appropriate response as guided by the questionnaire. This was repeated for each serialized question until all the questions in all the sections were answered. Each of the section attempted to answer a specific objective as illustrated in the following sub-sections.

### 3.10.1 Assessment of knowledge and awareness of mothers on Oparanya care services in Malava County hospital.

Data was collected by administering interview scheduled questionnaires to each and every mother who came to MCH services, who filled in their response and returned them. In order to achieve this objective, information on knowledge and awareness of mothers on Oparanya care services were collected.

### 3.10.2 To compare utilization of Focused Antenatal Care in beneficiaries and non-beneficiaries of Oparanya Care Services

Data was collected using interviewed scheduled questionnaires. Coded details of the mothers were filled in the improvised questionnaires.

### 3.10.3 To identify the effects of Incentive use on the skilled delivery

Data was collected using interview scheduled questionnaires; coded mother’s details were filled in the improvised interview scheduled questionnaires. In order to achieve these objectives, the effects of incentive use on the skilled delivery were determined.

## 3.11 Ethical consideration

Failure to identify and address ethical issues can place the conduct and the findings of a study in jeopardy (Oberle&Allen, 2006). This research was guided by the basic ethical principles set out in the Belmont report (1979) which states that: Respect for persons, beneficence; and justice. In addition, the personal nature of qualitative inquiry requires the researcher to pay close scrutiny to several considerations such as informed consent, protection of participants, confidentiality and anonymity (Vivar *et al.,* 2007).

### 3.11.1 Informed consent

Informed consent is defined as “a process of information exchange in which participants are provided with clear, understandable information needed to make a participation decision” (Houser 2008). Therefore, the researcher used consent process whereby consent was orally obtained at the beginning of the process before the respondents consented through written. Also, informally at further critical points of data collection leading to dissemination of results. The four elements of informed consent were applied in this study: disclosure of essential information to the participants; participants understanding information, capacity to give consent and voluntary provision of consent by participants not forgetting right to withdraw at any stage without prejudice (Burns & Grove, 2007).

### 3.11.2 Confidentiality and anonymity

This is management of personal information and no links to individual response (Burns & Grove, 2007). All data, notes and information obtained in the study whether written or digital were encrypted and stored securely in a locked place accessed by the researcher only.

### 3.11.3 Protection of Participants

The researcher had an obligation to ensure that participants in this study were free from harm at all stages of the process. The researcher endeavored to protect participants from any financial, physical, emotional or social stress or loss.

**3.12 Data Analysis**

Completed questionnaires were coded and entered in a database designed in Epidata V. 3.1. They were later exported to SPSS V.20 for analysis.  Descriptive statistics, frequencies, percentages and means were used to summarize the research findings while logistic regression was used to establish relationships between independent and dependent variables at α=0.05. Logistic regression analysis was applied to determine the relationship between beneficiary/non-beneficiary and utilization of skilled services (place of delivery)and to establish the likelihood of utilization of skilled delivery services at 95% confidence interval. Results were considered significant at p<0.05. Data is presented in form of tables, bar and pie-charts.

# CHAPTER FOUR

## RESULTS

## 4.0 Overview

This chapter presents the results of this study. Results have been organized in line with the objectives of the study and socio-demographic characteristics of the respondents. The following were the study objectives; To determine the awareness on Oparanya Care Services, to compare utilization of Focused Antenatal Care in beneficiaries and non-beneficiaries of Oparanya Care Services and to investigate the effects of Incentive use on the skilled delivery.

## 4.1 Response rate

Sample size was 407,but 402 mothers were interviewed. The response rate was 98.7%. The mothers who were selected for the study were administered with questionnaires. Three of the respondents were beneficiaries and two were non-beneficiaries. The study desired to have equal number of beneficiaries and non-beneficiaries, and therefore the final available sample size was 201 for each category of respondents, making the final sample size to be 402.

## 4.2Demographic characteristics

A total of 201 programme beneficiaries and 201 non-beneficiaries were randomly selected and interviewed during the study. Most of the beneficiaries (30.8%) and non-beneficiaries (48.2%) fell in the age category of 30 – 34 years. Among beneficiaries, mean was 29.1 years compared with non-beneficiaries with a mean of age of 30.4. T-test to compare differences in mean in the two groups showed a significant difference in ages with non-beneficiaries being older than beneficiaries (t=2.7; df=400; p=0.008). There were more married non-beneficiaries (91.5%) than beneficiaries (70.7%). Most of non-beneficiaries (52.2%) had attained tertiary education in contrast with beneficiaries where most had secondary education (49.2%). More than three-quarters of beneficiaries (76.1%) and non-beneficiaries (87.1%) were protestants. Whereas a larger proportion of beneficiaries (63.7%) were farmers about one-half (51.7%) of non-beneficiaries held some form of formal job (Table 4.1).

##### **Table 4.1 Demographic characteristics**

|  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- |
| Variable | Categories | Beneficiaries | | Non-beneficiaries | |
| N | % | N | % |
| Age group | 15 - 20 | 9 | 4.5 | 0 | 0.0 |
| 20 - 24 | 38 | 18.9 | 14 | 7.0 |
| 25 - 29 | 60 | 29.8 | 64 | 31.8 |
| 30 - 34 | 62 | 30.8 | 97 | 48.2 |
| 35 - 39 | 21 | 10.5 | 21 | 10.5 |
| 40 - 44 | 11 | 5.5 | 5 | 2.5 |
| Total | 201 | 100.0 | 201 | 100.0 |
| Mean age±SD (Range) | | 29.1±0.42 | | 30.4±2.7 | |
| Marital status | Single | 37 | 18.4 | 13 | 6.5 |
| Married | 142 | 70.7 | 184 | 91.5 |
| Divorced | 10 | 5.0 | 1 | 0.5 |
| Widowed | 5 | 2.5 | 3 | 1.5 |
| Separated | 7 | 3.5 | 0 | 0.0 |
| Total | 201 | 100.0 | 201 | 100.0 |
| Level of education | None | 16 | 8.0 | 8 | 4.0 |
| Primary | 80 | 39.8 | 4 | 2.0 |
| Secondary | 99 | 49.2 | 84 | 41.8 |
| Tertiary | 6 | 3.0 | 105 | 52.2 |
| Total | 201 | 100.0 | 201 | 100.0 |
| Religion | Muslim | 4 | 2.0 | 0 | 0.0 |
| Catholic | 44 | 21.9 | 25 | 12.4 |
| Protestant | 153 | 76.1 | 175 | 87.1 |
| Other | 0 | 0.0 | 1 | 0.5 |
| Total | 201 | 100.0 | 201 | 100.0 |
| Source of income | Farmer | 128 | 63.7 | 10 | 5.0 |
| Business | 24 | 11.9 | 83 | 41.3 |
| Formal job | 8 | 4.0 | 104 | 51.7 |
| Informal job | 13 | 6.5 | 2 | 1.0 |
| None | 28 | 13.9 | 2 | 1.0 |
| Total | 201 | 100.0 | 201 | 100.0 |

### 4.2.1 Wealth status of beneficiaries and non-beneficiaries

One of the selection criteria for Oparanya Care beneficiaries is based on their wealth status. To determine respondents’ wealth status, they were asked about the number of meals eaten per day. Study findings show that 56.7% of beneficiaries eat one or less meal per day compared with non-beneficiaries where 84.1% eat at least three-square meals a day suggesting that the OC programme correctly identified beneficiaries who deserve to be in the programme (Figure 4.1).

###### **Figure 4.1 Number of meals eaten per day**

### 4.2.2 Past and current delivery history

Past delivery history of respondents can be used as a pointer on the success of the OC Programme. Results show that among beneficiaries, 13.4% delivered at home compared with one-quarter (25.4%) non-beneficiaries. More than three-quarters (86.6%) of the beneficiaries benefitted from skilled birth delivery during the previous pregnancy. While most of beneficiaries’ gestational age for the current pregnancy was 3rd trimester (33.3%), over one-third (36.3%) of non-beneficiaries who were pregnant were in their 2nd trimester (Table 4.2).

##### **Table 4.2 Past and current delivery history**

|  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- |
| **Variable** | **Categories** | **Beneficiaries** | | **Non-beneficiaries** | |
| N | % | N | % |
| Where previous delivery took place | Home delivery | 27 | 13.4 | 51 | 25.4 |
| Public hospital | 153 | 76.1 | 137 | 68.2 |
| Private hospital | 21 | 10.5 | 13 | 6.5 |
| Total | 201 | 100.0 | 201 | 100.0 |
| Current pregnancy: Gestational age | 1st trimester | 39 | 19.4 | 37 | 18.4 |
| 2nd trimester | 50 | 24.9 | 73 | 36.3 |
| 3rd trimester | 67 | 33.3 | 50 | 24.9 |
| Has delivered | 45 | 22.4 | 41 | 20.4 |
| Total | 201 | 100.0 | 201 | 100.0 |

## 

## 4.3Awareness and Knowledge of Health Service provided under Oparanya care services

The study sought to determine the level of awareness and knowledge of health services provided under OC. Results presented here revealed that all (100%) respondents were aware of Oparanya care Programme. All beneficiaries were enrolled in the programme. Among non-beneficiaries, the main reason for not being registered in the programme was ‘not being qualified.’ Barriers experienced for the choice of delivery point was mainly lack of finance for both beneficiaries (50.7%) and non-beneficiaries (69.1%). Distance to the facility as a barrier accounted for 22.4% and 29.3% of the responses from beneficiaries and non-beneficiaries, respectively as is depicted in Table 4.3.

##### **Table 4.3 Awareness and Knowledge Health Service Oparanya care services**

|  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- |
| Variables | Categories | Beneficiaries | | Non-beneficiaries | |
| N | % | N | % |
| Awareness of OC | Yes | 201 | 100.0 | 201 | 100.0 |
| No | 0 | 0.0 | 0 | 0.0 |
| Total | 201 | 100.0 | 201 | 100.0 |
| Enrolled in OC | Yes | 201 | 100.0 | 0 | 0.0 |
| No | 0 | 0.0 | 201 | 100.0 |
| Total | 201 | 100.0 | 201 | 201 |
| Reason for non-registration | Not qualified | - | - | 194 | 96.5 |
| Not interested | - | - | 4 | 2.0 |
| Refused to be registered | - | - | 3 | 1.5 |
| Total | - | - | 201 | 100.0 |
| Barriers experienced for the choice of delivery point | Lack of finance | 102 | 50.7 | 139 | 69.2 |
| Staff attitude | 6 | 3.0 | 3 | 1.5 |
| Distance to facility | 45 | 22.4 | 59 | 29.3 |
| No barriers | 48 | 23.9 | 0 | 0.0 |
| Total | 201 | 100.0 | 201 | 100.0 |

### 4.3.1 Benefits of Oparanya Care Programme

Nearly three-quarters (73.1%) of beneficiaries have benefitted from the programme (Table 4.4). Those who had not were newly enrolled. More than one-half (53.45) have used the cash to cater for the child’s needs while 15.5% used the money to buy food. A small but important proportion (5.4%) used the money to buy a sheep or goat for the child – a practice that is highly valued by the Luhya culture. Another 4.7% either started a small business of used the money to improve their business (Table 4.4).

##### **Table 4.4 Benefits of Oparanya Care Programme**

|  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- |
| Variables | Categories | Beneficiaries | | Non-beneficiaries | |
| N | % | N | % |
| Has OC benefitted you | Yes | 147 | 73.1 | 0 | 0.0 |
| No | 54 | 26.9 | 201 | 100.0 |
| Total | 201 | 100.0 | 201 | 100.0 |
| How OC has benefitted respondent | Used cash to cater for child needs | 79 | 53.4 | - | - |
| Bought food | 23 | 15.5 | - | - |
| Paid fare, food and clothing | 10 | 6.8 | - | - |
| Used as fare to health facility | 9 | 6.1 | - | - |
| Given money and bought a sheep/goat for the child | 8 | 5.4 | - | - |
| Saved for the child I am expecting | 8 | 5.4 | - | - |
| Used to provide basic needs | 3 | 2.0 | - | - |
| Started a small business | 3 | 2.0 | - | - |
| Used money to improve my business | 4 | 2.7 | - | - |
| Not yet, its completed 4th ANC | 1 | 0.7 | - | - |
| **Total** | 148 | 100.0 | - | - |

### 4.3.2 Registration of respondents in OC database and provision of booklets

A key component of OC is the registration of participants and provision of booklets. With this regard, the results showed that all beneficiaries had had their data entered in the programme’s database compared with 96.5% of non-beneficiaries. All respondents had booklets for the ANC, delivery and PNC services. A small proportion of beneficiaries (5%) and non-beneficiaries (7%) paid Ksh. 20 for the booklets (Table 4.5).

##### **Table 4.5 Registration of respondents in OC database and provision of booklets**

|  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- |
| **Variables** | **Categories** | **Beneficiaries** | | **Non-beneficiaries** | |
| N | % | N | % |
| **Personal data in OC database** | Yes | 201 | 100.0 | 194 | 96.5 |
| No | 0 | 0.0 | 7 | 3.5 |
| Total | 201 | 100.0 | 201 | 100.0 |
| **Have booklet** | Yes | 201 | 100.0 | 201 | 100.0 |
| No | 0 | 0.0 | 0 | 0.0 |
| Total | 201 | 100.0 | 201 | 100.0 |
| **Paid for the booklet** | Yes | 10 | 5.0 | 14 | 7.0 |
| No | 191 | 95.0 | 187 | 93.0 |
| Total | 201 | 100.0 | 201 | 100.0 |
| **Amount paid** | Ksh. 20/= | 10 | 100.0 | 14 | 100.0 |

### 4.3.3 Total amount paid beneficiaries by service attended

Furthermore, the study endeavoured to determine the amount of money paid to the beneficiaries. Results indicate that more than one-third (36.9%) who had attended ANC were paid Ksh. 2,000 while 37.9% who had delivered had been paid a similar amount and another 23.4% who received PNC services had each got Ksh. 2,000 as is illustrated in Figure 4.2.

###### **Figure 4.2Total amount paid beneficiaries by service attended**

## 4.4Utilization of Focused Antenatal Care in beneficiaries and non-beneficiaries of Oparanya Care Services

In terms of the utilization of focused antenatal care in beneficiaries and non-beneficiaries of Oparanya care services, results presented here demonstrate that more than three-quarters of beneficiaries (77.6%) and non-beneficiaries (79.6%) interviewed had sought ANC services on the day of the survey. Most of the beneficiaries were making their 3rdvisit (32.1%) in contrast with 35.8% of non-beneficiaries who were making their 1st visit. One-quarter of beneficiaries (25.6%) were making their 4th visit as opposed to a smaller proportion of non-beneficiaries (2.5%) falling in the same category as shown in Table 4.6.

##### **Table 4.6 Utilization of FANC in beneficiaries and non-beneficiaries of Oparanya Care Services**

|  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- |
| **Variables** | **Categories** | **Beneficiaries** | | **Non-beneficiaries** | |
| N | % | N | % |
| **Why at the facility today** | ANC | 156 | 77.6 | 160 | 79.6 |
| Delivery | 9 | 4.5 | 5 | 2.5 |
| PNC | 18 | 9.0 | 17 | 8.5 |
| FP | 3 | 1.5 | 3 | 1.5 |
| Child vaccination | 12 | 6.0 | 16 | 8.0 |
| Child growth monitoring | 2 | 1.0 | 0 | 0.0 |
| Treatment of childhood illness | 1 | 0.5 | 0 | 0.0 |
| Total | 201 | 100.0 | 201 | 100.0 |
| **Number of ANC visits for pregnant mothers** | 1st | 31 | 19.9 | 72 | 35.8 |
| 2nd | 35 | 22.4 | 55 | 27.4 |
| 3rd | 50 | 32.1 | 10 | 5.0 |
| 4th | 40 | 25.6 | 5 | 2.5 |
| Other services | 45 | 22.4 | 59 | 29.4 |
| Total | 201 | 100.0 | 201 | 100.0 |

### 4.4.1 Gestational age by number of ANC visits for the current pregnancy

Table 4.7 shows cross-tabulation results on gestational age versus number of ANC visits. Compared with non-beneficiaries, a larger proportion of respondents (59.7%) who were in their 3rd trimester had made at least 4 visits to the facility unlike only 10% of the former.

##### **Table 4.7 Gestational age by number of ANC visits for the current pregnancy**

|  |  |  |  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |
| Gestational age: Trimester | Beneficiaries: No. of visits | | | | Total | Non-Beneficiaries: No. of visits | | | | Total |
| 1st | 2nd | 3rd | 4th | 1st | 2nd | 3rd | 4th |
| 1st  Trim | 31 (79.5) | 8 (20.5) | 0 (0.0) | 0 (0.0) | 39 (100.0) | 24 (96.0) | 1  (4.0) | 0 (0.0) | 0 (0.0) | 25  (100.0) |
| 2nd Trim | 0 (0.0) | 27 (54.0) | 23 (46.0) | 0 (0.0) | 50  (100.0) | 39 (58.2) | 26 (38.8) | 2 (3.0) | 0 (0.0) | 67  (100.0) |
| 3rd Trim | 0 (0.0) | 0 (0.0) | 27 (40.3) | 40 (59.7) | 67  (100.0) | 9 (18.0) | 28 (56.0) | 8 (16.0) | 5 (10.0) | 50  (100.0) |
| Total | 31 | 35 | 50 | 40 | 156 | 72 | 55 | 10 | 5 | 142 |

### 4.4.2 Use of skilled birth attendants

The study additionally sought to determine whether the respondents had a previous pregnancy in conformity with the requirements for the inclusion criteria in the study. The results presented here revealed that most of beneficiaries (52.7%) had delivered at home unlike only 9% of the non-beneficiaries signifying the need for the programme for the former group of respondents. The deliveries reported took place before the introduction of Oparanya Care Services. Ninety percent of non-beneficiaries were delivered by skilled birth attendants during the previous pregnancy (Table 4.8).

### 4.4.3 Availability and accessibility of health care

The study further examined availability and accessibility of health care services by comparing the two groups. Results indicated that most of beneficiaries (44.3%) and non-beneficiaries (49.2%) cited county hospital as the nearest health facility where they regularly seek health care services. The facilities are mostly government-owned. Majority of beneficiaries (81.6%) and non-beneficiaries (95.5%) have ever been to the facility in the past one year as shown in Table 4.9.

##### **Table 4.8 Use of skilled birth attendant**

|  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- |
| Variables | Categories | Beneficiaries | | Non-beneficiaries | |
| N | % | N | % |
| Had previous pregnancy | Yes | 201 | 100.0 | 201 | 100.0 |
| No | 0 | 0.0 | 0 | 0.0 |
| Total | 201 | 100.0 | 201 | 100.0 |
| Where delivered | In the current facility | 20 | 9.9 | 98 | 48.8 |
| In another facility | 18 | 9.0 | 50 | 24.9 |
| At the hospital | 40 | 19.9 | 33 | 16.4 |
| On the way to hospital | 10 | 5.0 | 1 | 0.5 |
| Miscarriage | 7 | 3.5 | 1 | 0.5 |
| Home | 106 | 52.7 | 18 | 9.0 |
| Total | 201 | 100.0 | 201 | 100.0 |

Majority of non-beneficiaries (91%) compared with beneficiaries (58.2%) live within a radius of 5 km from the nearest facility. Mean time taken to reach the nearest facility by foot is about 1.8 hours for beneficiaries and 2 hours for non-beneficiaries. One-third of beneficiaries (33.3%) and 44.3% of non-beneficiaries take less than 30 minutes to reach the facility using public transport. The mean fare by public transport for beneficiaries is Ksh.40 and ranges between Ksh. 20 – 170 which is lower than that of non-beneficiaries who spend a mean fare of Ksh. 95 ranging from Ksh. 20 – 300. The facilities provide treatment for minor ailments, ANC, among others. Oparanya Care Services are available in the facilities frequented by both beneficiaries and non-beneficiaries.

##### **Table 4.9 Availability and accessibility of health care**

|  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- |
| Variables | Categories | Beneficiaries | | Non-beneficiaries | |
| N | % | N | % |
| Nearest health facility where respondent regularly get health care services | Dispensary | 50 | 24.9 | 48 | 23.9 |
| Health Centre | 58 | 28.9 | 52 | 25.9 |
| County Hospital | 89 | 44.3 | 99 | 49.2 |
| County Referral Hospital | 1 | 0.5 | 1 | 0.5 |
| Private Facility | 3 | 1.5 | 1 | 0.5 |
| Total | 201 | 100.0 | 201 | 100.0 |
| Who owns facility | Government | 163 | 97.0 | 164 | 97.6 |
| Private | 4 | 2.4 | 3 | 1.8 |
| Other | 1 | 0.6 | 1 | 0.6 |
| Total | 168 | 100.0 | 168 | 100.0 |
| Ever been to the facility past one year | Yes | 164 | 81.6 | 192 | 95.5 |
| No | 37 | 18.4 | 9 | 4.5 |
| Total | 201 | 100.0 | 201 | 100.0 |
| Distance from facility | 0 – 5 km | 117 | 58.2 | 182 | 91.0 |
| 6 – 10 km | 34 | 16.9 | 8 | 4.0 |
| >=11 km | 2 | 1.0 | 4 | 2.0 |
| Don’t know | 48 | 23.9 | 6 | 3.0 |
| Total | 201 | 100.0 | 200 | 100.0 |
| Time to reach facility by foot | Mean±SD (Range) in hours | 1.8±1.1 (1 – 9) | | 2.0±.4 (1 – 3) | |
| Time to reach facility by public transport | Don’t know | 36 | 17.9 | 35 | 17.4 |
| <30 mins | 67 | 33.3 | 89 | 44.3 |
| 30 – 59 mins | 49 | 24.4 | 57 | 28.4 |
| 1 – 5 hrs | 6 | 3.0 | 11 | 5.5 |
| 6 – 11 hrs | 1 | 0.5 | 0 | 0.0 |
| No public transport | 40 | 19.9 | 9 | 4.5 |
| Accessible by foot | 2 | 1.0 | 0 | 0.0 |
| Total | 201 | 100.0 | 201 | 100.0 |
| Cost of transport | Mean±SD (Range) in KSh. | 40.2±25.9 (20 – 170) | | 95.9±50.8 (20 – 300) | |
| Available services | Treatment of minor ailments | 141 | 12.5 | 191 | 14.3 |
| Oparanya care services | 119 | 10.5 | 199 | 14.9 |
| Antenatal clinic | 173 | 15.3 | 200 | 14.9 |
| Delivery services | 148 | 13.1 | 200 | 14.9 |
| Postnatal | 142 | 12.6 | 200 | 14.9 |
| Immunization | 169 | 14.9 | 198 | 14.8 |
| Peadiatrics | 121 | 10.7 | 109 | 8.1 |
| Other (Dental, Nutrition, etc) | 118 | 10.4 | 41 | 3.1 |
| Total | 1131 | 100.0 | 1338 | 100.0 |

### 4.4.4 Health Needs of the household

Health needs of mothers may influence utilization of health care services. From the study, 28.4% of beneficiaries had a history of chronic illness in comparison with 7% of non-beneficiaries. Majority of beneficiaries (69.8%) and non-beneficiaries (71.7%) had high blood pressure. A small proportion of beneficiaries (6%) and non-beneficiaries (1.5%) were unable to carry out regular household activities in the past one year. Majority of beneficiaries (94%) and non-beneficiaries (98.5%) were in either excellent or good health (Table 4.10).

##### **Table 4.10 Health Needs of the household**

|  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- |
| **Variables** | **Categories** | **Beneficiaries** | | **Non-beneficiaries** | |
| N | % | N | % |
| **History of chronic illness** | Yes | 57 | 28.4 | 14 | 7.0 |
| No | 138 | 68.7 | 155 | 77.1 |
| Don’t know | 6 | 3.0 | 32 | 15.9 |
| Total | 201 | 100.0 | 201 | 100.0 |
| **Diagnosis** | Arthritis | 1 | 1.6 | 2 | 4.35 |
| Asthma | 5 | 7.9 | 0 | 0.0 |
| High Blood Pressure | 44 | 69.8 | 33 | 71.7 |
| Chronic Pain | 4 | 6.4 | 11 | 23.9 |
| DM | 9 | 14.3 | 0 | 0.0 |
| Total | 63 | 100.0 | 46 | 100.0 |
| **Childhood diseases reported in the family** | Measles | 5 | 2.70 | 1 | 2.4 |
| Diphtheria | 0 | 0.0 | 6 | 14.3 |
| Never | 180 | 97.3 | 35 | 83.3 |
| Total | 185 | 100.0 | 42 | 0.0 |
| **Inability to carry out usual activities due to health problems in the past one year** | Yes | 12 | 6.0 | 3 | 1.5 |
| No | 189 | 94.0 | 198 | 98.5 |
| Total | 201 | 100.0 | 201 | 100.0 |
| **Rating of health** | Excellent | 34 | 16.9 | 189 | 94.0 |
| Good | 155 | 77.1 | 9 | 4.5 |
| Poor | 12 | 6.0 | 3 | 1.5 |
| Total | 201 | 100.0 | 201 | 100.0 |

### 4.4.5 Health Needs: Reported perinatal complications and child mortality

More beneficiaries (35.3%) than non-beneficiaries (18.4%) had had a history of complications during pregnancy (Table 4.11). The same applied to proportion of respondents who had had a history of complications during labour among beneficiaries (31.8%) and non-beneficiaries (10.4%). One in ten of beneficiaries (10.4%) had a history of complications during delivery compared with 4.5% of the non-beneficiaries. The proportion reporting death due to complications during pregnancy, delivery or after delivery was higher among non-beneficiaries (11%) than beneficiaries (5%). On the contrary, a higher proportion of beneficiaries (24.4%) had lost a child compared with non-beneficiaries (10.4%).

##### **Table 4.11 Health Needs: Reported perinatal complications and child mortality**

|  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- |
| **Variables** | **Categories** | **Beneficiaries** | | **Non-beneficiaries** | |
| **N** | **%** | **N** | **%** |
| History of complications during pregnancy | Yes | 71 | 35.3 | 37 | 18.4 |
| No | 130 | 64.7 | 164 | 81.6 |
| **Total** | **201** | **100.0** | **201** | **100.0** |
| History of complications during labour | Yes | 64 | 31.8 | 21 | 10.4 |
| No | 136 | 67.7 | 180 | 89.6 |
| Don’t know | 1 | 0.5 | 0 | 0.0 |
| **Total** | **201** | **100.0** | **201** | **100.0** |
| History of complications during delivery | Yes | 21 | 10.4 | 9 | 4.5 |
| No | 180 | 89.6 | 192 | 95.5 |
| **Total** | **201** | **100.0** | **201** | **100.0** |
| History of death due to complications | Yes | 10 | 5.0 | 22 | 11.0 |
| No | 190 | 94.5 | 179 | 89.0 |
| Don’t know | 1 | 0.5 | 0 | 0.0 |
| **Total** | **201** | **100.0** | **201** | **100.0** |
| **Ever lost a child** | Yes | 49 | 24.4 | 21 | 10.4 |
| No | 152 | 75.6 | 180 | 89.6 |
| **Total** | **201** | **100.0** | **201** | **100.0** |

### 4.4.6 Time taken in health facility and level of satisfaction

Assessment of mean time taken during a visit to the facility show that beneficiaries took a shorter time of 34.7 minutes in contrast with non-beneficiaries who took 40.5 minutes (Table 4.12). The difference was significant (t=4.7; df=400; p <0.0001) suggesting that beneficiaries were attended to faster than non-beneficiaries. The mean level of satisfaction measured using a scale of 0 – 10 indicated no significant difference between the two groups (t=-1.1; df=400; p=0.3).

##### **Table 4.12 Time taken in health facility and level of satisfaction**

|  |  |  |  |
| --- | --- | --- | --- |
| Variables | Categories | Beneficiaries | Non-beneficiaries |
| Time taken in facility | Mean time in Min | 34.7±13.3 (10 - 60) | 40.5±11.7 (2.0 – 68.0) |
| Level of satisfaction | Mean | 7.9±13.3 (2 - 10) | 7.7±1.9 (2 - 10) |

### 4.4.7Beneficiary suggestions to improve OC

When asked to give suggestions on how to improve OC services, 35.8% of beneficiaries would like the payment to be on time while 23.5% would like all mothers to be paid rather than payment being based on the section criteria.As for non-beneficiaries, 25.1% want more health workers to be employed and another 21.1% concur with beneficiaries on the need for all mothers to benefit from the OC Services (Table4.13 and Table 4.14).

##### **Table 4.13 Beneficiary suggestions to improve OC**

|  |  |  |
| --- | --- | --- |
| **Suggestions** | **N** | **%** |
| Pay money on time | 67 | 33.3 |
| All mothers be paid | 44 | 21.9 |
| Increase amount | 25 | 12.4 |
| Add more registration centres | 17 | 8.5 |
| Build more health facilities | 9 | 4.5 |
| Help raise kids to at least 5yrs | 6 | 3 |
| Extend the period | 4 | 2 |
| Add more laptops for registration | 4 | 2 |
| Improve road network for easy access | 3 | 1.5 |
| Employ more health workers | 2 | 1 |
| Pay all the cash | 2 | 1 |
| Add more e.g. pampers and soap | 1 | 0.5 |
| Communicate for any meeting | 1 | 0.5 |
| No transparency | 1 | 0.5 |
| To be funded on monthly basis | 1 | 0.5 |
| Those who proposed none | 14 | 7 |
| **Total** | **201** | **100.0** |

##### **Table 4.14 Non-beneficiary suggestions to improve OC**

| **Suggestions** | **N** | **%** |
| --- | --- | --- |
| Employ more health workers | 50 | 25.1 |
| All mothers be paid | 42 | 21.1 |
| Build more health facilities | 33 | 16.6 |
| Educate all stakeholders | 24 | 12.2 |
| Educate the community about health service | 17 | 8.5 |
| Equip the facilities | 7 | 3.5 |
| Communicate for any meeting | 6 | 3.0 |
| Improve road network for easy access | 4 | 2.0 |
| Educate mothers on breastfeeding | 3 | 1.5 |
| Emergency vehicles to be provided | 3 | 1.5 |
| Do not charge pregnant women | 2 | 1.0 |
| Help raise kids to at least 5 years | 2 | 1.0 |
| Increase amount | 2 | 1.0 |
| Educate mothers about vaccination | 1 | 0.5 |
| Free bills in hospital bills | 1 | 0.5 |
| Take care of HIV positive patients | 1 | 0.5 |
| Women to attend with their husbands | 1 | 0.5 |
| No response | 2 | 1.0 |
| **Total** | **201** | **100.0** |

## 4.5 Factors associated with Utilization of FANC

To determine factors associated with at least a minimum of four visits during pregnancy for respondents who had reached the 3rd trimester, multiple regression was performed on several independent variables (Table 4.15). Two factors that were significantly associated with respondents attending at least four visits during the third trimester were being married (OR: 0.4; 95% CI: 0.2 – 0.8; p = 0.02) and being a beneficiary or not (OR: 8.9; 95% CI: 2.8 – 27.5; p <0.0001). Married respondents were less likely to meet the minimum required four visits in their third trimester while beneficiaries were 9-fold more likely make at least four visits as recommended. Being a beneficiary is therefore a determinant in influencing mothers’ ANC visits.

##### **Table 4.15 Bivariate analysis on factors associated with FANC**

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
| **Variables** | **Effect** | **OR** | **95% CI** | **p value\*** |
| Age group | Age 15 – 29 vs 30 plus years | 1.1 | 0.5 – 2.2 | 0.9 |
| Marital status | Married vs not married | 0.4 | 0.2 – 0.8 | 0.02 |
| Level of education | Primary or none vs Secondary and above | 1.2 | 0.6 – 2.4 | 0.7 |
| Religion | Protestant vs the rest | 1.7 | 0.7 – 4.1 | 0.2 |
| Place of delivery during last pregnancy | Home vs facility | 1.5 | 0.6 – 3.6 | 0.4 |
| Intervention | Beneficiary v Non-beneficiary | 8.9 | 2.8 – 27.5 | 0.0002 |
| Health Needs | Has chronic illness vs well | 1.1 | 0.5 – 2.4 | 0.8 |
| Complications during pregnancy | History of any complications during pregnancy vs none | 1.5 | 0.7 – 3.2 | 0.3 |
| Complication during labour | History of any complications during labour vs none | 1.1 | 0.5 – 2.3 | 0.9 |
| Complication during delivery | History of any complications during delivery vs none | 0.3 | 0.1 – 1.2 | 0.1 |
| History of death during perinatal period | History of any death during perinatal period vs none | 2.5 | 0.7 – 9.6 | 0.2 |
| Inability to conduct usual activities | Inability vs ability | 0.3 | 0.03 – 2.3 | 0.2 |

*\*Significant if p value < 0.05*

### 4.5.1 Factor associated with skilled birth delivery

Multiple regressions were undertaken to find out factors that are associated with skilled birth delivery as shown in Table 4.16. Factors that were significantly associated with skilled birth delivery included religion, treatment history, health needs and complications during pregnancy. Being a protestant versus other religions (OR: 2.7; 95% CI: 1.4 – 5.4; p = 0.003); Comparing respondents in the support and non-support group, there was no association between having taken less than 2 years since diagnosed (OR: 8.9; 95% CI: 2.8 – 27.5; p = 0.002); being a beneficiary versus not being one (OR: 11.3; 95% CI: 5.6 – 22.9; p <0.0001); having chronic illness (OR: 11.3; 95% CI: 5.6 – 22.9; p <0.0001) and having had complications during pregnancy (OR: 2.2; 95% CI: 1.1 – 4.2; p = 0.02). Protestants were two times more likely to deliver in health facility compared with other respondents from other religious groups. The findings also show that beneficiaries were 11-fold more likely to deliver in health facilities compared with those not in the programme. Those who had previously had complications during pregnancy were two times more likely to deliver in health facilities. However, respondents who had chronic illness were less likely seeks skilled birth delivery.

##### **Table 4.16 Factors associated with skilled birth delivery**

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
| **Variables** | **Effect** | **OR** | **95% CI** | **p value\*** |
| Age group | Age 15 – 29 vs 30 plus years | 1.0 | 0.6 – 1.8 | 1.0 |
| Marital status | Married vs not married | 1.0 | 0.5 – 2.0 | 0.9 |
| Level of education | Primary or none vs Secondary and above | 1.6 | 0.9 – 2.9 | 0.1 |
| Religion | Protestant vs the rest | 2.7 | 1.4 – 5.4 | 0.003 |
| Treatment | Beneficiary vs Non-beneficiary | 11.3 | 5.6 – 22.9 | <0.0001 |
| FANC | At least 4 visits by 3rd trimester vs < 4 visits by 3rd trimester | 0.5 | 0.2 – 1.2 | 0.1 |
| Health Needs | Has chronic illness vs well | 0.2 | 0.1 – 0.4 | <0.0001 |
| Complications during pregnancy | History of any complications during pregnancy vs none | 2.2 | 1.1 – 4.2 | 0.02 |
| Complication during labour | History of any complications during labour vs none | 1.5 | 0.7 – 2.9 | 0.3 |
| Complication during delivery | History of any complications during delivery vs none | 0.7 | 0.2 – 1.9 | 0.5 |
| History of death during perinatal period | History of any death during perinatal period vs none | 1.4 | 0.4 – 4.6 | 0.6 |
| Inability to conduct usual activities | Inability vs ability | 1.4 | 0.4 – 5.6 | 0.6 |

\*Significant if p value < 0.05

### 4.5.2 Relationship between incentives on use of skilled birth delivery

To determine the relationship between incentive and being delivered by skilled birth attendant, odds ratio was used. Incentives was the independent variable and skilled delivery was the dependent variable. The results showed that for a one-unit increase in incentive, the odds of being delivered by skilled birth attendant (versus not being delivered by a skilled birth attendant) increase by a factor of 6.0 (OR: 6.0; 95% CI: 3.7 – 9.4; p = <0.0001). In other words, those mothers who received digital program incentive were six times more likely to seek skilled attendance than those that did not receive the incentive.

##### **Table 4.17 Effect of incentives on use of skilled birth delivery**

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
| Variables | Effect | OR | 95% CI | p value\* |
| Incentive | Incentive versus no incentive | 6.0 | 3.7 – 9.4 | <0.0001 |

\*Significant if p value < 0.05

From the results of Table 4.17, we reject the null hypothesis that “incentive use in “Oparanya care service” do not improve Skilled delivery of mothers in Malava county hospital, and conclude that indeed it improves skilled delivery (p-value=<0.0001).

# CHAPTER FIVE

## DISCUSSION

## 5.0 Overview

This chapter discusses the important findings from the study in relation to the study objectives, literature review and the key variables. The discussions were based on the awareness of mothers on Oparanya care services, comparisons of utilization of focused antenatal care in beneficiaries and non-beneficiaries in Oparanya care services and identified effects of incentive use on the skilled deliveries therefore presented as follows.

## 5.1 Socio-demographic characteristics of the respondents

The study results indicated that the mothers who sought ANC services comprised youthful mothers who are aware of Oparanya care services. In both groups, majority of these mothers were married. This implied that most of the respondents had a family which the programme encourages and also they may have interest of promoting the progress of the Oparanya care programme.

The Oparanya care services have been utilized mostly by those with higher level of education, implying that education level showed significant influence on the Oparanya care services. This research findings corroborate the studies done in Zambia (ZDHS,2006) and disagrees with studies done in Tanzania (Mpembeni *et al.*, 2007).

### 5.1.1 Source of income

Majority of the respondents in the beneficiary category were farmers compared to the non-beneficiary who had formal jobs. The mothers are vetted for Oparanya care services and the vetting seems to successfully identify the mothers who require financial support, since the analysis of the results showed clearly the relationship between benefiting and income level. The results are comparable to studies by (Sridhar,2006) which indicated that mothers and less privileged children benefited in those countries like Mexico and Honduras among others, on the other hand, they contrast studies by (Lim,2010) which showed that beneficiaries were children attending school and those for vaccination).

## 5.2 Awareness of mothers on Oparanya care service

A significant majority of the women, whether beneficiaries or not were aware of Oparanya care services. The few of the beneficiaries who were not aware of Oparanya care services was attributed to the digital programme operating only in selected hospitals in the county. Indeed, the programme was new and on pilot phase. This can be confirming the findings of studies conducted in Mexico, Colombia and Brazil among others (Sridhar, 2006) and also digital programme development in the county (PD 105/2014). Other studies in different countries which corroborate these findings include: The Kenya Demographic and Health Survey of 2014, there was very low knowledge on the best practices around ante-natal care, skilled delivery and post-natal care. This was largely attributed to the poverty rate of 49.6 per cent with more than 33,000 mothers living on less than a dollar a day (KDHS, 2014).

In Nepal, knowledge on ANC visit was found popularly high (95.5%) but there was variation in practice viz. 11.4% absent for ANC visit, 27.2% had less than 4 visits or unscheduled and 61.4% scheduled visits as per the ANC protocol. The status of last delivery was near about equal for both non-institutional and institutional delivery (48.8% home/related place delivery and 51.2% institutional delivery). Knowledge on ANC Incentive and SDIP – Only 60.6% (n=251) mothers knew that government provides incentive after the completion of 4 ANC visit but only 3/4th of them mentioned the correct amount (NRs. 400) regarding that. On the contrary, 82.9% mothers were aware about the incentive that is provided to mothers in delivery as health-facility; among the population, 90.4% knew that the amount is NRs.1000.

A National Family Health Survey (NFHS-2), 1998-99 survey in India’s Uttar Pradesh state, indicated that educational attainment of women is the most important factor in determining utilization of maternal health care in rural, and, more pronouncedly, in urban areas, after controlling for all other socioeconomic factors. The same survey reports that standard of living (proxy for household economic status) too was found to be a significant determinant of accessing health services, in both rural and urban areas. Media exposure was important in use of antenatal care, which in turn was significantly associated with accessing delivery care. In another study done in Nigeria, by Wencheko&Kassu (2011), mother’s age at birth, mother’s educational level, sex of head of household, household wealth status, employment/work status of mothers, region, religion, birth order and partner’s/husband’s level of educational were found to be predictors of utilization of delivery care and postnatal care services.

## 5.3 Utilization of focused antenatal care in beneficiaries and non-beneficiaries in Oparanya care services.

Mostly, the mothers came to the hospital to seek ANC services, which include delivery, postnatal care, and family planning among others which is an indication of mothers utilizing focused antenatal care services in the county based on available resources. These studies are consistent with those of (Villar&Bergsjo, 1997), who indicated that many developing countries have adopted the traditional approach without adjusting the interventions to meet the particular needs of their population.

Focused antenatal care (FANC) recognizes that every pregnant woman is at risk for complication and therefore all women should receive the same basic care and monitoring for complications (Maine 1996).

In another study in Uganda, cash transfers have been used to incentivize participation in health services. The study examined whether modest cash transfers for participation in antenatal care would increase antenatal care attendance and delivery in a health facility in Kisoro, Uganda. The number of clients attending the four ANC visits increased across all the study health facilities after the start of the interventions. In the transport-voucher intervention, the number of institutional deliveries increased at both the intervention and control facilities, although the former showed a greater increase. For the baby kit, the number of deliveries decreased at the control health facility but increased at the intervention facility. The number of postnatal visits rose sharply at all the study health facilities, except the control health facility for the transport-voucher intervention (Massavo *et al.,* 2017).

A study conducted in Nigeria indicated that several factors influenced the utilization of ANC by women. They include age, tribe, marital status, educational status, husband’s education, whether the respondent was a professional, husband occupational status, area lived, urban areas and whether the respondent participated in taking health decision (Owoyokun&Dairo, 2010). In another study in Nigeria, by Olamijulo (2015), the factors that influenced the acceptability of FANC by Nigerian pregnant included age, tribe, proximity to hospital and parity.

**5.4 Effects of incentive use on the skilled delivery**

The mothers utilized skilled delivery by the fact that they attended the facility and this was influenced by whether one has had pregnancy before. This was evident since majority of the mothers who utilized the incentive were beneficiaries. This finding is supported by previous studies done in other countries such as, Honduras which offer the conditional cash transfers to improve the number of mothers seeking skilled delivery (Lim, 2010). Hence “Oparanya care services” as an incentive significantly improved skilled delivery of mothers in Malava County hospital. This agree with studies by (KDHS, 2004), which indicated that incentives usually makes mothers to seek skilled delivery. This, according to the mothers is that the facility offers a safe assisted birth if any as indicated by findings of KDHS, 2004. Those who delivered at home had their reasons as well; TBAs were easily available and friendly and lack of finances, these barriers for choice of delivery point has improved to be a major hindrance of mothers being delivered by skilled attendant (GHO,2013).

Currently, the situation in Kakamega has made a major turnaround. The proportion of skilled delivery has increased from 33 per cent in 2013 to 69 per cent by 2016, while the proportion of mothers who have attended their fourth Ante Natal Care visit has gone up to 54 per cent, up from 35. Similarly, immunization coverage of children is now at 81 per cent compared to 63 back in 2014(KDHS, 2014).

A study in Tanzania, indicated that seeking of ANC was mainly influenced by motivation for one’s safe pregnancy and childbirth and not necessarily and specifically seeking intermittent presumptive treatment during pregnancy (IPTp) against malaria (Mubyazi, 2015). In yet another study in South west Nigeria, maternal characteristics like education, ethnicity and income were significantly associated with delivery assistant (Adebowale, 2016).

In a study done in Ghana, barriers to skilled delivery include maltreatment by midwives, cost associated with Health care facility (HCF) delivery despite waived facility fees, the need for a support person for HCF delivery, difficulties in transportation; and precipitous labor (Crissman, *et al.,*2013). Given the importance of community in Ghanaian health care decision-making, increasing community support for HCF delivery suggests progress toward increasing uptake of SBA and HCF delivery, however important actionable barriers remain.

In Rwanda, from 2000 to 2010, Rwanda implemented comprehensive health sector reforms to strengthen the public health system, with the aim of reducing maternal and newborn deaths in line with Millennium Development goal 5, among many other improvements in national health. Pertaining to maternal health, between 2006 and 2010, births with skilled attendance (77% increase versus. 26%) and institutional delivery (146% increase versus. 8%) increased in coverage particularly in rural areas, where most poor women live took more than compared to 2000-2005 (Bucagu *et al.,* 2012).

According to a review paper done in 2013 from a multiagency in Bangladesh results indicated, for labour and delivery: the majority of studies that report on skilled birth attendance or facility-based deliveries show incentives to providers and consumers correlated with improvements in these indicators. Similarly, among studies that report on the effect of incentives on caesarean sections, the evidence shows incentives correlated with increased use of caesarean section. Where this service was not directly incentivized, such as in ‘broad’ CCT programmes, the reason for the increase is unclear but may be due to incentives in payment mechanisms (WHO, 2010).

# CHAPTER SIX

## CONCLUSION AND RECOMMENDATION

## 6.0 Overview

This chapter presents the discussion of the results of this study as shown in chapter guided by the following objectives;

* To determine the awareness on Oparanya Care Services,
* To compare utilization of Focused Antenatal Care in beneficiaries and non-beneficiaries of Oparanya Care Services
* To investigate the effects of Incentive use on the skilled delivery

## 6.1 Conclusions

ANC medical interventions need a lot of publicity if the target population is to benefit. Most health interventions programmes need outreach to the population for whom the service is intended. Oparanya care programme did effectively create awareness and the pregnant mothers were well aware of the programme. There is increased utilization of digital care programme as a result of incentive, with the Oparanya care incentive creating some impact on attendance, although there are other factors that influenced it such as marital status. Access to health facilities is critical to the success of intervention programmes and providers of such programmes need to consider barriers to access to such programmes. Distance to the facility is of paramount importance, and intervention programmes ought to consider taking it near to the beneficiaries.

## 6.2 Recommendation

From the results of the study and discussion, the following recommendations were made:

* Oparanya care services should be rolled out in all facilities in the county, awareness and knowledge on the programme should be disseminated to mothers and its importance outlines well, reduce waiting time so that the mothers can accept the digital programme fully, hence reduce maternal and neonatal deaths.
* Disbursement of funds should be prompt to all mothers delivering in the hospital, attending focused antenatal care and postnatal services, so that mothers are encouraged to seek skilled delivery and the services in the hospital thus improve maternal health.
* The study recommends that expectant mothers be educated on the need to separate health and religious issues. On the hand mothers need to be educated on the importance of seeking medical, particularly those who have history of complications and chronic illness during pregnancy period. In addition, Oparanya Care programme be improved to cover all the pregnant mothers, regardless of the wealth status.

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# APPENDICES

# APPENDIX I: INFORMED CONSENT

Hello,

My name is Richard K. Bungei and I am a Master of Science, Nursing student at MasindeMuliro University of Science and Technology. I am conducting a study to establish and evaluate the effects of incentive use “Oparanya care services” in improving skilled delivery of mothers.

Please read the statement below about the study.

The information you give in this study will be confidential. I promise that the knowledge gained from the study will be used for academic purposes only. I understand that the willingness to participate is voluntary and there are no rewards for participation. There are no identified risks associated with the questionnaires or information provided. Your name will not be disclosed.

Your participation in this study will not compromise your rights.

I understand that I may access the finding of this study upon completion and analysis on request.

If you have any questions about the study contact the researcher.

Richard K. Bungei

+254722 978 343

**EFFECTS OF INCENTIVE USE IN “OPARANYA CARE SERVICES” ON IMPROVING SKILLED DELIVERY OF MOTHERS IN MALAVA COUNTY HOSPITAL, KAKAMEGA COUNTY-KENYA**

**QUESTIONAIRRES**

**Section 1: Socio-demographic Data**

Good morning (afternoon) my name is Richard K. Bungei and I am a Master of Science in Nursing student at Masinde Muliro University of Science and Technology. I am conducting a study to establish and evaluate the effects of incentive use in “Oparanya care services” on improving skilled delivery of mothers.

The interview survey usually takes between 20 – 30 minutes to complete. Whatever information you provide will be kept strictly confidential and will not be shown to other persons. Participation in this study is voluntary and you can choose not to answer any individual question or all of the questions. At this time, do you want to ask me anything about the survey?

**RESPONDENT AGREE RESPONDENT DIDN’T AGREE**

# APPENDIX II: QUESTIONNAIRES

|  |  |  |  |
| --- | --- | --- | --- |
| **No.** | **Questions and filters** | **Coding Variables** | **Office use** |
| 1. | How old are you?  *(Age of the last birthday)* | **\_\_\_\_\_\_\_\_\_\_** |  |
| 2. | What is your Marital Status  *(Circle one category)* | 1 = Single 2 = Married  3 = Divorced4 = Widowed  5 = Separated |  |
| 3. | What is the highest level of school you attended? *(Circle one category)* | 1 = None 2 = Primary  3 = Secondary  4=Other(Specify)\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ |  |
| 4. | What is the source of your income? | 1=Farmer  2=Business  3=Formal job  4=Informal job  5=None |  |
| 5. | What is your Religious affiliation? *(Circle one category)* | 1 = Muslim 2 = Catholic  3 = Protestant  4=Other(specify):\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ |  |

**Section 2: Household characteristics**

|  |  |  |  |
| --- | --- | --- | --- |
| 6. | During your last pregnancy where did you deliver(Access to health services) | 1=home care by relatives or volunteers,  herbalists, TBAs  2=public hospital  3=private hospital or clinic  4=Domiciliary |  |
| 7. | What is the gestational age of your current pregnancy? | 1=First trimesters  2=Second trimesters  3=Third trimesters |  |
| 8. | Average number of meals per day (Type or frequency of quality food/Food stock) | 1=1 meal or less  2=More than 1 meal, less than 3 meals  3=3 meals or more |  |

**Section 3: Awareness and Knowledge Health Service Oparanya care services**

|  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- |
| 9. | | Are you aware of the Oparanya care services | 1=Yes  2=No | |  |
| 10. | | *Have you been enrolled in Oparanya care service?)* | 1.Yes***(Beneficiary)* [ ]**  2.No***(Non-Beneficiary)* [ ]** | |  |
| 11. | | If No, why? |  | |  |
| 12. | | Which barriers do you experience for the choice of delivery point? | 1.Lack of finance  2.Staff attitude  3.Distance to the facility  4.Cultural issue | |  |
| 13. | | Was your personal data entered in a database? | | 1 = Yes  2 = No |  |
| 14. | | Do you have a booklet containing the data on your visits to the facility? | | 1 = Yes  2 = No |  |
| 15. | | Did you pay for the booklet?*(Circle one category)*  *How much did you pay?* | | 1 = Yes  2 = No  3 = N/A  Ksh:..............................  Paid no money..........................  Not applicable...........................  Don’t know................................. |  |
| 16. | If a beneficiary, what is the total amount for Oparanya care services you were paid during your last visit?  *(Please include any money you paid for staff services)* | | | **ANC/Delivery/PNC Services**  ANC Ksh…………………………  Delivery Service Ksh……………………………  PNC Ksh……………………………  Paid no money....................................  Not applicable.....................................  Don’t know..........................................  **Other**  Ksh…………………………  Paid no money.....................................  Not applicable..................................  Don’t know..........................................  **Total cost**\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ |  |

**Section 4: Utilization of Focused Antenatal Care health services**

|  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- |
| 17. | Why are you at the facility today? | | | 1=Antenatal care  2=Delivery  3=Postnatal care  4=Family planning 5=Children vaccination  6=Child growth monitoring 7=Treatment of childhood illness  8=Oparanya care services  9=Other (specify)\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ |  |
| 18. | | If ANC, visits how many have you attended in the same facility?(Tick the category)  If in Other facilities how many visits have you attended?  Name the facility.................... | |  |  |  | | --- | --- | --- | | visit | Same facility | Other facility | | 1st |  |  | | 2nd |  |  | | 3rd |  |  | | 4th |  |  | | |  |

**Section 5: Use Health Services Skilled Delivery Oparanya care Beneficiaries**

|  |  |  |  |
| --- | --- | --- | --- |
| 19. | Have you had any previous pregnancy? | 1=Yes  2=No, this is my first pregnancy |  |
| 20. | If Yes, where did you deliver your last baby? | 1=In the current facility  2=In another facility  3=At the hospital  4=On the way to the facility  5=At home  6=Miscarriage |  |
| 21. | What is the reason for your choice on 20 above? | 1=Safe services  2=Recommended by relatives  3=Oparanya care services  4=Free maternity services  5=Other (specify)\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ |  |

**Section 6: Availability and Accessibility**

|  |  |  |  |
| --- | --- | --- | --- |
| 22. | What is the **nearest** health facility where you **regularly** get your health care services? *(Circle one category)* | 1 = Dispensary 2 = Health Centre  3 = County hospital  4 = County referral Hospital  5 = Private Hospital/Facility  6 = NGO  7 = FBO  8=  Other (specify):\_\_\_\_\_\_\_\_\_\_\_  Name of the Facility:\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ |  |
| 23. | Who ***owns*** the above facility? *(Circle one category)* | 1 = Government 2 = Private  3 = Non-GovernmentalOrganization  4 = Faith-Based Organization  5 = Other (specify): \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ |  |
| 24. | Have you ***ever*** been to the above facility as a client in the **past one year**? *(Circle one category)Name of facility..............* | 1 = Yes 2 = No |  |
| 25. | How ***far*** is the ***above*** health facility from your place of residence? *(Circle one category)* | 1 = 0 – 5 km 2 = 6 – 10 km  3 = 11 and more km 4=Don’t know |  |
| 26. | How ***long*** does it take to reach the ***above*** health facility ***by foot***? *(Circle one category)* | Hrs\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_(Nearest whole hour) |  |
| 27. | How ***long*** does it take to reach the ***above*** health facility ***by Public Service Vehicle***? *(Circle one category)* | 1 = Don’t know  2 = Less than 30 minutes  3 = 30 minutes to Less than One hour  4 = One to Less than Six hours  5 = Six to Twelve hours  6 = More than Twelve hours  7 = No public transport  8 = N/A |  |
| 28. | How ***much*** does it cost to reach the above health facility ***by Public Service Vehicle***? | Public Transport estimatedKsh:\_\_\_\_\_\_\_\_\_\_\_  BodabodaKsh.\_\_\_\_\_\_\_\_\_\_\_\_\_  N/A…………………. |  |
| 29. | What ***services*** are provided at the above health facility?  (*Circle all categories that are applicable)*  *Requires more probing from the Enumerator* | 1 = Treatment of minor ailments  2=Oparanya care services 3=Antenatal Clinic  4 = Delivery Services  5 = Post-natal  6 = Immunization services  7 =Paediatric services  8= FP  9 = Others (specify):\_\_\_\_\_\_\_ |  |

**Section 7: Health Needs**

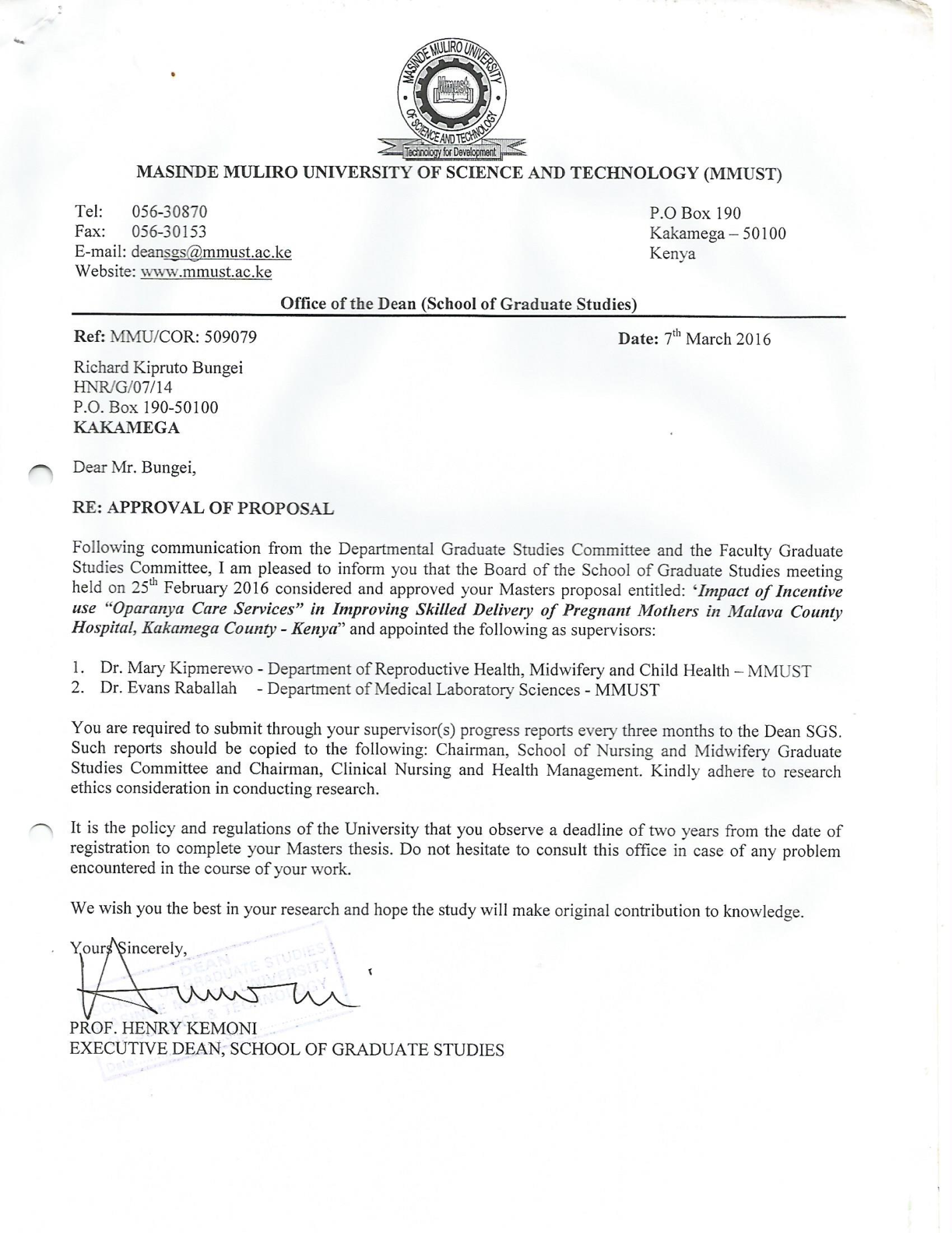
|  |  |  |  |
| --- | --- | --- | --- |
| 30. | Do you have a ***history of any chronic disease***? *(Circle one category)* | 1 = Yes  2 = No  3 = I am not sure |  |
| 31. | What is the diagnosis?  *(Circle all categories that are applicable)* | 1 = Arthritis  2 = Asthma  3 = Blood Pressure (High or Low)  4 = Chronic Pain  5 = Diabetes  6 = Gastritis  7 = Cancer  8 = Epileptic fits  9 = Psychosis  10 = Other (specify):\_\_\_\_\_\_\_ |  |
| 32. | Did you have a ***history*** of any complications during ***pregnancy?****(Circle one category)* | 1 = Yes  2 = No  3 = I am not sure  4 = N/A |  |
| 33. | Did you have a ***history*** of any complications during ***labour***? *(Circle one category)* | 1 = Yes  2 = No  3 = I am not sure  4 = N/A |  |
| 34. | Did you have a ***history*** of any complications during ***delivery or weeks following delivery?****(Circle one category)* | 1 = Yes  2 = No  3 = I am not sure  4 = N/A |  |
| 35. | Have you had a ***history of death*** due to complications of pregnancy/labour/delivery**in the last one year*?****(Circle one category)* | 1 = Yes  2 = No  3 = I am not sure  4 = N/A |  |
| 36. | Have you ***ever lost*** a child under the age of ***Five years in the last 1 year?*** *(Circle one category)* | 1 = Yes  2 = No  3 = I am not sure  4 = N/A |  |
| 37. | Have you ever had cases of the following diseases amongst ***your children in the last one year***?  *(Circle all categories that are applicable)* | 1 = Measles  2 = Polio  3 = Diphtheria  4 = Whooping cough  5 = Tetanus  6 = Tuberculosis  7 = Never  8 = N/A |  |

**Section 8: Health Care Affordability**

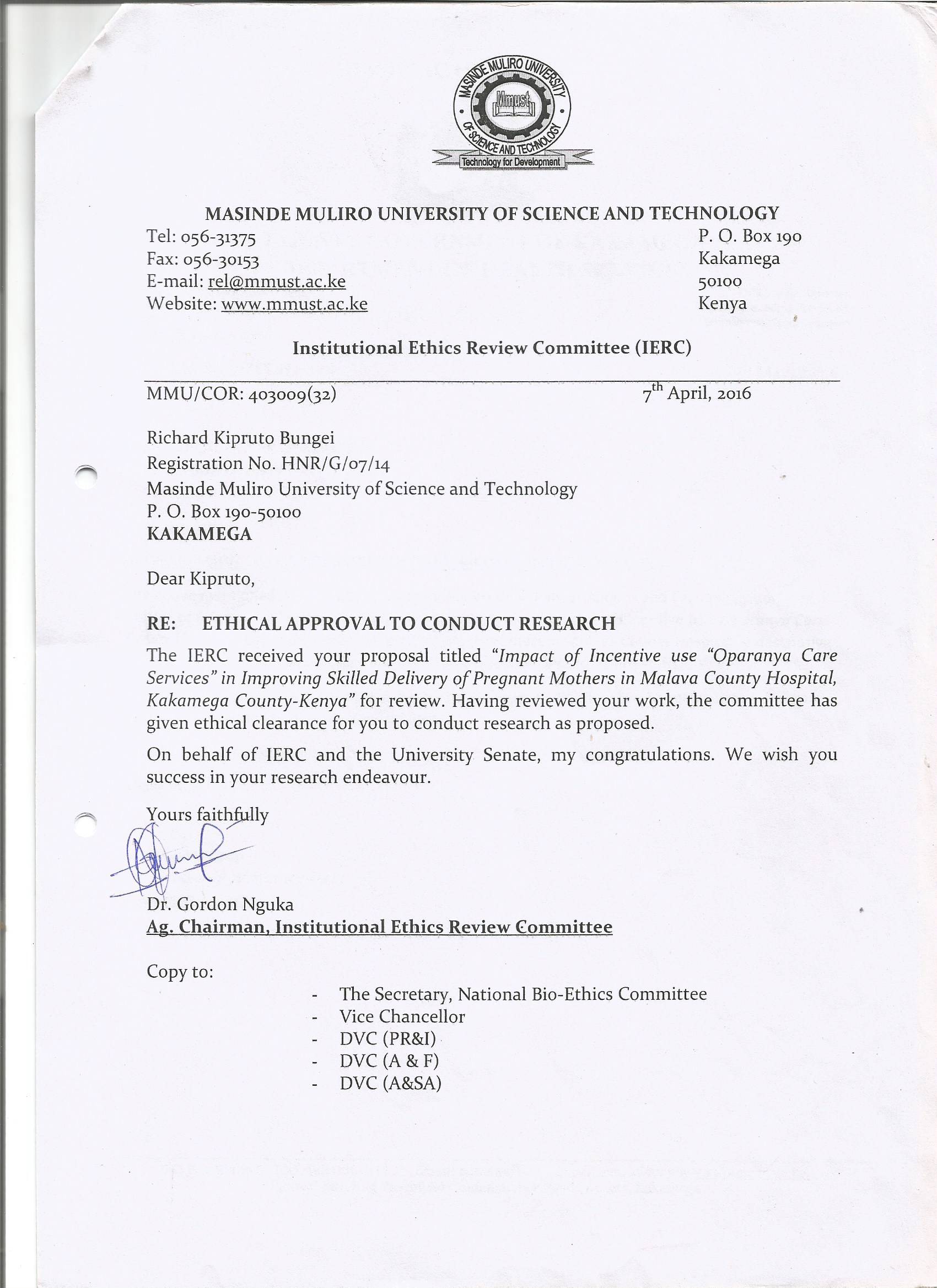
|  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- |
| 38. | What was the main reason for the last visit?*(Circle all categories that are applicable)* | | 1=Antenatal care  2=Delivery  3=Postnatal care  4=Family planning  5=Children vaccination  6=Child growth monitoring  7=Treatment of childhood illness  8=Treatment of self  9=Oparanya care service  10=Other (specify)\_\_\_\_\_\_\_\_ | |  |
| 39. | How long did you wait between the time you first arrived at this facility and the time a Provider saw you for the consultation?  *(Circle one category)* | | Minutes:\_\_\_\_\_\_\_\_\_\_  Saw provider immediately………………..  Don’t know……………….... | |  |
| 40. | | In a scale of 1 – 10, What is your overall satisfaction level with the services covered by Oparanya Care Programme?  (Where 1=Least satisfied and 10=Most satisfied) | | 1  2  3  4  5  6  7  8  9  10 |  |
| 41. | | In your opinion, what should be done to improve Oparanyas Care programme? | |  |  |

**THANK YOU FOR YOUR CO-OPERATION**

# APPENDIX III: APPROVAL LETTER FROM SGS



# APPENDIX IV: ETHICAL APPROVAL TO CONDUCT RESEARCH

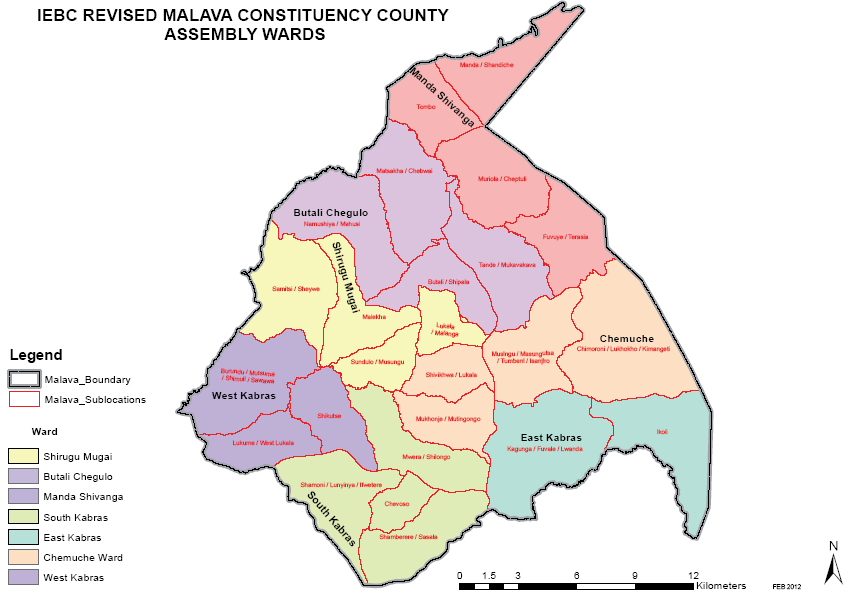


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# C446D520D04399AEAPPENDIX V: RESEARCH PERMIT

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# APPENDIX VI: MAP



**Source: Kakamega County Strategic Plan Book 2013-2017.**