EFFECTS OF "OPARANYA CARE SERVICES" IN IMPROVING SKILLED DELIVERY IN MALAVA COUNTY HOSPITAL KAKAMEGA COUNTY KENYA

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A 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

DECLARATION

This thesis is my original work prepared with no other than the indicated sources and support and has not been presented elsewhere for a degree or any other award.

Signature.....*Ruth*.....................   Date....01/11/2018........

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CERTIFICATION

The undersigned certify that they have read and hereby recommend for acceptance of Masinde Muliro University of Science and Technology a thesis entitled **"Effects Of "Oparanya Care Services" in improving Skilled Delivery in Malava County Hospital Kakamega County Kenya"**.

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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 led to the launching of 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 "Oparanya Care Services" in 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 investigate 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 the 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 =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 focused antenatal care was influenced by factors such as history of chronic illness, high blood pressure, complications during pregnancy and history of losing a child. The findings of this study suggest that incentive use in "Oparanya Care Services" significantly improves skilled delivery of mothers in Malava County 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

1.0 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). Estimates of the world Health Organization (WHO), United Nations Children's Fund (UNICEF), and United Nations Population Fund show that approximately 15% of expected births suffering from obstetric complications, which is more than 90 million births: approximately 20 million of those 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% of 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 *et al.,* 2001). Therefore, there is 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, 2012; Mohanan *et al.,* 2014; Randive *et al.,* 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 *et al* 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, 2008-2009).

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, 2008-2009). Previous studies have demonstrated that, there is low utilization of skilled attendants during pregnancy, childbirth and the postnatal periods. 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". The infant mortality in Kakamega County stands at 56%, which represents high child deaths in this County. 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" commenced with

signing of MOU between Kakamega County government and UNICEF in September, 2013. The programme comprised of a health kitty amounting to 1.34 billion to improve infant and maternal health care. "Oparanya care 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 (a mobile banking technology) 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. However, 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 (KDHS, 2014). 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 effects of "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 Kenya; 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 (KDHS, 2014). It is important to determine whether strategies being employed influence 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. Objectives

1.4.1 General Objective

The main objective of the study is to assess the effects of "Oparanya Care Services" in improving skilled delivery of mothers in Malava County Hospital.

1.4.2 Specific Objectives

  i.   To determine the awareness on Oparanya Care Services.

  ii.   To compare utilization of Focused Antenatal Care in beneficiaries and non-beneficiaries of Oparanya Care Services.

  iii. To investigate the effects of Incentive use on the skilled delivery.

1.5 Research Hypotheses

Incentive use in "Oparanya Care Services" does not significantly improve skilled delivery of mothers in Malava County Hospital.

1.6 Limitation of the study

The anticipated or foreseen challenges in the study includes sample discrepancies, the sample size views of the study participants are not generalizable 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 (Figure 1.1).

There were several extraneous variables, but the most remarkable one was free maternity care program 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 effect of that OC.

Independent Variables   **Confounding**   **Dependent Variables**
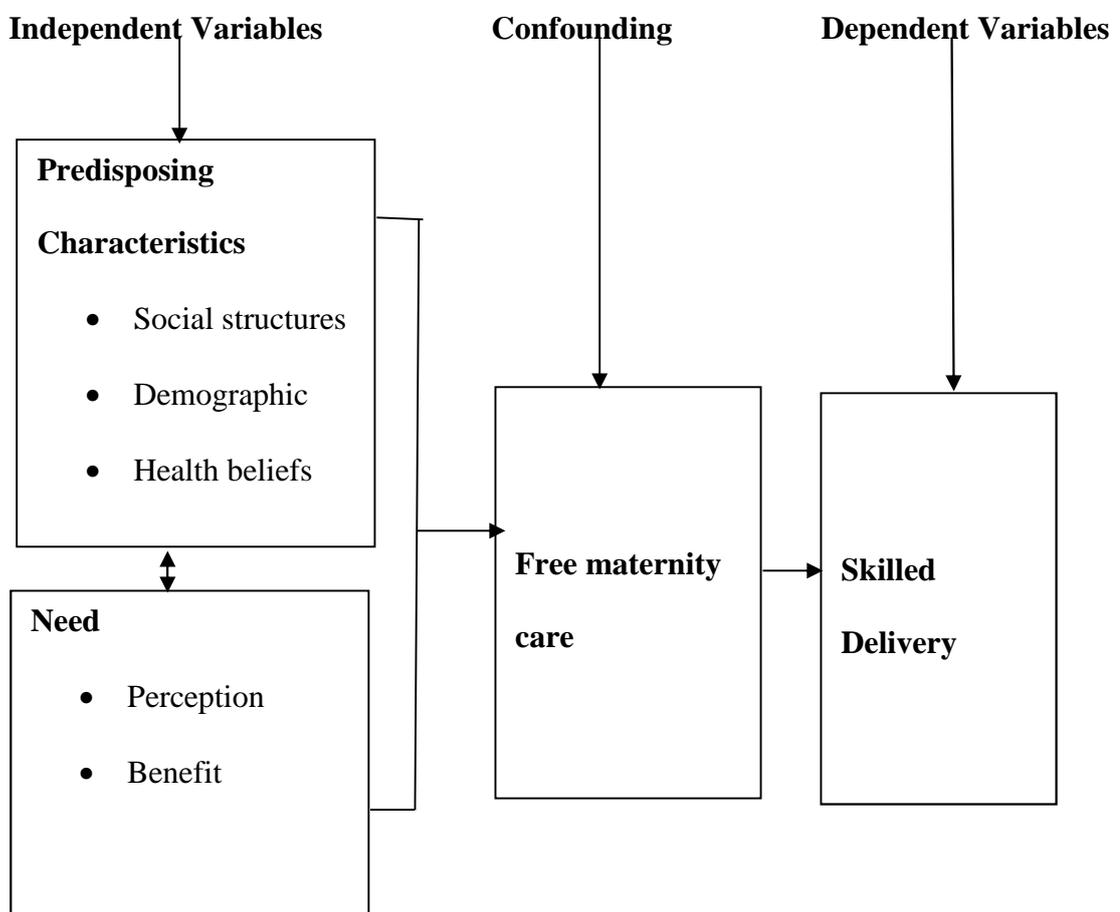
Figure 1.1: Conceptual Framework

Source: Andersen's behavioral model of health services was adopted in this study

(Anderson, 2005)

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1.8Operational 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.

Millennium Development Goals (MDGs)

Refers to a blueprint of eight goals that the UN member countries agreed to attain by the year, 2015.

"**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 sought, to include ANC, Delivery, PNC and fully Immunization schedule. Other studies done in countries such as Brazil, Hondurous, Mexico and Nicaragua refer to this incentive as conditional cash transfers.

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.

Sustainable Development goals (SDGs)

Refer to a set of ambitious goals to banish a whole range host of Social ills by 2030.

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.

CHAPTER TWO

LITERATURE REVIEW

2.0 Overview

Every year approximately 358,000 women die due to preventable maternal causes (WHO, 2010). The health of the newborn represents the base and the future of a strong community. This is mainly due to obstetric complications which can be managed by promoting 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 attendant 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 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 conducted in Malawi, Thorsen *et al.,* (2014) identified shortcoming in SBA that were contributing to maternal death. The factors identified included, 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).

In addition, a study in Nigeria revealed that majority of the women 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 attendant (Adebowale, 2016).

In Cambodia, there was a decrease in MMR from 472 to 206 between the periods 2000 to 2005 and 2006 to 2010. This was attributed to improved infrastructure, peace and stability, increased country's Gross Domestic Product (GDP), reduction in poverty, improved basic education, particularly for girls, better access to health information and

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health services through cell phones and media, increased ease of communication amongst interrelated health system (Liljestrand, 2012). In particular, there was advancement in the system pertaining to health, which comprised in institutional delivery and being attended by adequately trained and skilled professionals such as midwives. Moreover, more midwives were hired to provide primary antenatal care and deliveries in a rapidly growing health care system, a cash motivation for those who deliver at health facility, such that for every live birth carried out. In this set up, there was cash set aside for the mother. Notably, the cash strapped individuals received such services free of charge (Liljestrand, 2012).

In other countries such as Mexico, mortality ratio was low, standing at 63% per 100,000 live births per annum in 2005. Although, this appeared low, it was high relative to other countries of the same or lesser economic status such as Bulgaria, Argentina, Costa Rica and Moldova (WHO,2004; Urquieta, 2009). The reduced MMR was a priority for the health sector in Mexico, and it was one of the goals of the Mexican state for achieving the millennium goals (Torres &Mujica 2004). The government of Mexico had worked on ways to improve MMR and ensuring an increase in institutional delivery (Urquieta, 2009).

Access to skilled delivery in SSA varied widely amongst different countries. For instance, in an analysis of thirty documents, which focused on West Africa, Moyer (2013) indicated that facility-base percentages varied widely. De Allegri *et al.,* (2011) found that the proportion of women who came from the rural areas in Burkina Faso 18% delivered in a health institution, while in Nigeria, 12% of their counterparts delivered in a health institution (Oguntunde *et al.,* 2010). This was a sharp contrast to the situation in North of Ghana, where deliveries at a health institution were rated at

63% (Daare, *et al.,* 2008). There was increase though on the deliveries as indicated by Faye *et al.,* (2011) who found that the deliveries had increased to 78% in the same region. In East Africa, Tanzanian deliveries in the hospital stood at 36% while it was 83% in Uganda Tann *et al.,* (2002). In Southern and West Africa, skilled deliveries stood between 40% and 60% while in central Africa it was approximately 29% Zambia and Zimbabwe had 33% and 85% respectively (Moyer, 2013).

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

WEST AFRICA	
BURKINA FASO	De Allegri et al., 2011[20], Hounton et al., 2008[34], Stephenson et al., 2006[17]
GAMBIA	Telfer et al., 2002[51]
GHANA	Adanu, 2010[82], Addai, 2000[46], Akazili et al., 2011[85], Bazzano et al., 2008[67], Crissman et al., 2011[77], D'Ambruoso et al., 2005[73], Gulaa and Daare, 2008[22], Gyimah et al., 2006[33], Jansen, 2006[66], Martey et al., 1995[84], Mills and Bertrand, 2005[65], Mills et al., 2008[71], Penfold et al., 2007[85], Smith and Sulzbach, 2008[18]
MALI	Gage, 2007[56], Smith and Sulzbach, 2008[18]
NIGERIA	Aremu et al., 2011[47], Asuquo et al., 2000[72], Babalola and Fatusi, 2009[30], Ejembi et al., 2004[55], Idris et al., 2006[86], Oguntunde et al., 2010[21], Olusanya et al., 2010[39], Onah et al., 2006[58], Osubor et al., 2006[74], Uzochukwu et al., 2004[45]
SENEGAL	Faye et al., 2011[23], Smith and Sulzbach, 2008[18]

Source: Adapted from Moyer, 2013

In a study done in Ghana, revealed that barriers to skilled delivery included improper handling by the midwives, the costs associated with the health care facility, the requirement for a support individual for health care institution, difficulty of moving from home to the health facility and precipitated labour (Crissman *et al.,* 2013). Despite the existing barriers, there is evidence of progress towards uptake of skilled birth attendant and Hospital Care Facility (HCF) delivery. This is because Ghana has given due importance to the health care of the community in decision making (Crissman, 2013).

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).

2.2 Maternal Intervention Programs

Cash Conditional transfer refers a method where, mothers are given cash when they turn up to deliver at health care institutions. This motivates them to be delivered by a skilled birth attendant. The programme usually targets the beneficiary rather than the agent who is delivering the service (Kahn *et al.,* 2015) these programmes create a lot of impact by increasing utilization of health care services, thus improving clinical results (Morris *et al.,* 2004; Fiszbei&Schady, 2009).

The amount of cash awarded by cash transfer programs are distinct, although majority of the programs have given a value equivalent to a day's work to assist eliminate the financial difficulty of utilizing the health services (Morris *et al* 2004). Participants get meaningful amounts of cash that help gather for daily living costs. For instance, in Opportunidades, a health program implemented in Mexico, the participants of the program, received a quarter of household expenditure per annum. In a similar program, women in Honduras got 10% of consumption yearly (Morris *et al.,* 2004). In situations or countries, where the country's economy is not good or there are no substantive budgetary allocations to such programs, the amount given to beneficiaries is small. It

is evident that cash transfer programmes have greatly and positively impacted on maternal mortality in Latin America and South Asia. In India and Afghanistan, training and deployment of community midwives among others measures demonstrate a considerable promise as a means to increase access to maternal health services for the poor (Currie, 2007; Mayhew, 2008; Iyengar, 2009; Bellows, 2010 Lim, 2010;WHO, 2010).

In Africa, however, not much is known on the potential importance of such programmes, particularly on rates of maternal mortality and other access to care matters. Furthermore, not much had come to the light concerning whether appropriate cash transfer would yield a considerable effect on health care use and results.

In situations where full abolition of user levy is considered not tenable, there are cases where part of it, is removed for particular services, such as maternity care, because it has higher social implication than others. Exemptions on maternity care usually contribute to lessen maternal mortality. It lessens the poverty state of families or group of individuals and increasing managed deliveries, which have non-payments for deliveries (Sophie *et al.,* 2007).

In a study done in Nigeria, pertaining to a programme implemented in 2009, called Midwives Service Scheme (MSS), midwives were deployed into low level facilities in the rural setups. The program impacted by having increased access and 24-hour to skilled obstetric care services. The program also alleviated supply side inadequacy by sending many skilled midwives to lower level facilities located in the rural communities. The program aim was to multiply the supply of midwives in areas of maternal services of interest by the year 2015.

The Chiranjee is another program that was launched in India. The program, which was piloted for a year in five less developed districts; Sabarkanths, Banaskanthaa, Kutch, Dahod and Panchmahas in December, 2005 was extended to include districts with the high indices of infant mortality. The medical personnel, mainly obstetrician, who were operating privately, were enjoined in the scheme to provide delivery care services to women who were impoverished (Bhat *et al.*, 2009). Another intervention program was mounted in Ghana in 2003. This program involved exempting mothers, but it started in lowerly endowed regions, although it was extended in the whole country later to include six (6) of the remaining regions. The goal of the program was to reduce barriers necessitated by financial constraints and help reduce maternal mortality, perinatal mortality and poverty (Sophie *et al.*, 2007). The program was funded by the Highly Indebted Poor Country (HIPC) funds from debt relief that were directed to the relevant districts to compensate all health facilities including public, private and mission ones, depending on kind of deliveries and the numbers per month. The various kinds of deliveries included normal, assisted or caesarian section. Private together with mission hospitals were reimbursed at a rate higher than the public ones because they did not receive public subsidies (Sophie *et al.*, 2007).

A program, similar to that of Ghana was launched in Kenya by the government in conjunction with the Ministry of Health (MOH) in mid-2013. This program was fully rolled country wide with a new brand name, "Linda mama, boresha Jamii" for the financial year 2016/2017. According to the proponents of the program, it constitutes a leap forward towards improvement of access to maternal care, child care and newborn services that is quality. It also coupled as a platform for attaining health aims as required by Kenya's Vision 2030 and 1, 3 and 10 of the Sustainable Development

Goals (SDG) that is related to good health and well-being and reduction of inequities and poverty. The new program was initiated to expand services to other categories of health facilities such as faith based and minimize complaints caused by delayed remittances of the free maternity cash. In the program, which was managed by National Hospital Insurance Fund (NHIF) with mothers urged to register with it, non-public health facilities were compensated based on the number of deliveries reported in one month. The package had benefits such as outpatient and inpatient services for both the mother and young one for a period of one year which included delivery, antenatal care, emergency referrals, post-natal care and for pregnancy related conditions as well as complications. (http://www.babybandafair.com/government-of-kenya).Since the launch of the program, maternal mortality reduced considerably, from 488 to 362 per 100,000 live births and there was recorded increased use of maternal health services from 69% in 2013 to 77% in 2016 (MOH, 2014).

The program initiated by the county government "Imarisha Afya ya Mama na Mtoto" translated in English to mean improve the health of mother and child, has impacted positively to maternal care, especially on skilled delivery. Formulation of the programme was started by the Kakamega county government with the sole aim of reaching to the neediest poor, disadvantaged women including those who breastfeed in the county, while at the same time giving them an encouragement to utilize maternal health. This was literally a safer life for an estimated 44,500 mothers who have benefited so far. The assistance of Ksh.2000 cash was delivered over a period of one-and-half years and enabled pregnant women who are poor to cover transport costs to and from health facilities including buying what to eat and other necessities for the other children (www.kakamega.go.ke/health-services).Despite free maternity on

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intervention that was effective in all the country, a relative comparison of the county to national statistics indicated that there was a 60% increase in skilled delivery attendance after the introduction of OC programme (Unpublished Malava statistics, 2014).Other intervention programmes includes, Janani Suraksha Yohana in Rajathan, India. The program was started in 2006 and involved providing cash incentives to women who deliver in government hospitals. An action research on the program revealed that women shifted the place of delivery and the institutional deliveries rose from 53% to 82% in 2007 and 2010, respectively. In yet another intervention, called National Rural Heath Mission (NRHM) program in Nanded district, India, the deliveries that took place in the health facilities increased from 42% to 69% between 2004 and 2009 in government owned facilities while in private facilities from 49% to 62% (Iyengar, 2012).

2.3Knowledge and Evidence of Skilled Delivery

Worldwide, over 60 million pregnant women give birth away from health facilities yearly, mainly at their places of residence, and about 8 million only are able to access skilled birth attendance. In addition, in countries which have low and middle incomes, there exist inequitable distribution of the12 key maternal, newborns and child health interventions studied in Low and Middle-Income Countries (LMIC) with women who are poor facing higher barriers to access (GHO, 2013). The women have a fundamental right to maternal health care that is quality since it is related to the survival and the growth of health care and environmental sustainability, which call for broader progressive aims that incorporates sustainable development goals number 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: 2013a number of conditional cast transfer programs are wide, seeking to remove poverty and boost human resource. The conditions in such programs may include utilization of health child visitations, combination of school attendance, vaccination and immunization, and usage of supplements that add nutritional value. Instances of "wide" CCT included *Oportunidades program of* Mexico, *Familiasen Accion of* Colombia and *Red de Proteccion Social* of Nicaragua.

Table 2.2 Comparative 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	**

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

In Gujarat state in India, incentive programme such as Chiranjeevi Scheme were publicized to the beneficiaries took advantage of the scheme with the fact that over half of them were much informed about it, including Angarwudi employees. There were several ways in which the respondents obtained information about the program. Neighbors and friends informed then (4%), with 1% getting the information from pamphlets and printed material. Others still obtained information from governing bodies (panchayats) at the village level, doctors, balwadi teachers and nurses (Bhat, 2009).

According to the Kenya demographic and health survey (2014), expectant women had very low knowledge and understanding on the best practices in antenatal care, post-natal care and skilled delivery. The low knowledge on these practices are because of the rate of poverty, which stood at 49%, with at least 33,000 mothers living on less than a dollar daily (KDHS, 2014).

2.4.1 Traditional ANC

The early process of care an expectant mother gets to maintain good end results for the mother and unborn baby that is antenatal care. According to developed countries mode of care, in 1900sfocused basically to the gravid mother. Scheduled attendance of ANC

of expectant mothers' are grouped in a list of mothers in danger of complicating. However, third world countries had copied traditional method model before putting into place fundamentals basics for their people, lack of materials and poor technological approaches (Villar&Bergsjo, 1997). There are 3 most recognized stages of focused antenatal care they include: progressive attendance of visits cannot determine good end results for the gravid. In third world countries, their mothers cannot match financial muscle and are dependent on the institutional care systems (Villar *et al.,* 2001). Secondly, many expectant mothers continue with their gravid normally, care givers should offer assistance to avoid deviation from normalcy. Thirdly, a large number of mothers who are categorized as being in danger end up delivering well, whereas those identified to be normal end up complicating during the process (Vanneste *et al.,*2000).

2.4.2 Utilization of Focused antenatal care

Every gravid mother is prone to complications, these expectant mothers need to get fundamental care and be followed up for any deviation from the normal state, that is according to programme dubbed Focused Antenatal Care (FANC)(Maine,1996). In order for the pregnant mother progress well and avoid complications, mothers are immediately identified and managed on those abnormal. The use of institutional care by the mothers is the outright step in negating the danger of the gravid and delivery in that age category. The basic maternal institutional services in the gravid state included: skilled attendant birth, prenatal care and postnatal care hence improves wellbeing of the mother. In addition, third world countries consume low antenatal care (65%) compared to advanced regions standing at (97%); institutional birth accounts for (53%) in third world countries as compared to (99%) in a well-developed regions and

postnatal usage is much low in developing regions standing at (30%) whereas developed regions are much higher of about (90%) (WHO, 2007).

A study in Tanzania, picked several factors that impeded the use of antenatal services, they included; lack of materials, supplies, payment of services, traditional beliefs, health care providers negative values and stigmatization of gravid mothers among others (Mubyazi,2015).In another study done by Chamileke (2017) in Zambia, showed that(154) of mothers represented by 38.5% used ANC, those mothers who benefitted from institutional birth were (129) represented by 32.3% whereas those who enjoyed postpartum care were (193) with an elevated 48.3%.

A study on factors hindering accessibility for skilled delivery, in India's Uttar Pradesh state, according to a National Family Health Survey (NFHS TWO),(1998 to 1999),concluded that the most prominent factor that came out clearly to affect utilization of ANC services was distance to the health institution (Ghosh,2004).

2.4.3 Goals of Focused Antenatal Care

The broad aim concerning FANC was to assist mothers on wellbeing state of their pregnancy. Physical examination to maintain wellbeing of unborn progress and identifying deviation from normal complications and long-term diseases which interferes with expected normalcy of gravid state. Specialized need to improve wellbeing of the mothers includes control of other external abnormalities, involvement of all groups taking care of the mother and provision of health messages. In addition, strengthening women decision making on their wellbeing, delivery choices and management of complications. Maternal newborn categorized in FANC outlines least ANC visits to be 4, grouped in first trimesters, second, third and last fourth trimesters

(Week 16; week 24 to 28; week 32; and week36) those with uncomplicated gravid (WHO,1994).

Other general principals of FANC include; Identifying and management of known disease and conditions, immediate isolation of complications, delivery setup and protect dangers signs, women friendly, inclusion of woman's partner and culturally appropriate stand.

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 availability of an institutional practitioner, knowledgeable on birth expertise 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, 2013).

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 contributed major findings towards success of millennium development goals of UN (MDGs4 and 5) reversing indices of maternal and newborn morbidity and mortality (WHO,2012).

Studies in other countries like (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 (Goodburn, 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). Statistics of maternal death proportion stands at 362 per 100,000 live births in Kenya (KDHS, 2014) and high time risk of maternal mortality. The country's position is crippled by lack of resources to include health personnel among others. For instance, there are close to 7,330 medical practioners in the country to a ratio slightly over above 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 one hundred and one licensed professional birth attendants per100,000 people(Health, 2005-2010, 2010).

In order to mitigate these shortcomings, the state introduced community professional birth attendant package in 2005 as an extra mitigation to improve institutional delivery. The main goal of the package was to link professional delivery expertise reside amongst society near mothers, in order to provide support and skills to mothers delivering and act as conduit to the complicated cases, to high level of Emergency Obstetrics and Neonatal Care (EMONC) and facilities within that catchment area (Warren,2014). Good follow up at times of gravid and births are significant for wellbeing state of the woman and child. Statistics in the country shows that 7,700 maternal deaths occur every year due to gravid related causes. Reducing maternal mortality rates from 488 to 147 over 100,000 live births by 2015 was a pipe dream, which was not attained but captured in the sustainable development programme had 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 a high maternal mortality of 800 per 100,000 live delivery, this increased 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

Previous investigations have demonstrated the 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). Particular understanding about the dangers of child birth and the benefits of skilled delivery ought to assist in boosting the behaviour of seeking care. Studies such as those carried out in Zambia, indicated that women who were knowledgeable on signs of danger in pregnancy, had more likelihood of seeking skilled delivery at a

health facility compared to those who had less or no 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 women and men on signs of danger that may occur during pregnancy or delivery together with offering counseling on the need to deliver in the facility and having 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 (Dairo&Owoyokun, 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 Kassu&Wencheko (2011), the age of the mother at birth, the education level of the mother, the gender of household head, the economic status of the household, employment and work levels of mothers, region, order of birth and the education level of the husband or partner were found to influence the utilization of delivery care and other postnatal services. A study in Tanzania, indicated that seeking of antenatal care, was mostly determined by several factors. These factors included individual's motivation for safe pregnancy and child birth, and this was not dependent on seeking of malaria treatment called intermittent presumptive treatment during pregnancy (IPTp) (Mubyazi, 2015). In yet another study in South west Nigeria, the factors associated (significantly) with skilled delivery include maternal demographic information like level of education, individual's ethnicity and income earned (Adebowale, 2016).

In another study by Tewodros (2009) in Ethiopia, those who utilized antenatal care had higher chances of being educated or live close to the health facilities such that walking there may take less than 30 minutes. In addition, those who had an experience of illness in a past pregnancy were more likely to seek skilled delivery that those who do not have any history of illness. Additional factors that had relationship with usage of antenatal care included the approval of the husband and whether the previous pregnancy was planned or not. 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.

Free maternity services, specifically, delivery was initiated by the government in public health facilities in mid-2013. As a result of this intervention, studies done thereafter, such as those by Njuguna (2015) indicated that birth deliveries and attendance in antenatal care in the 47 referral health facilities in the country had increased by 26.8% and decreased by 11.9% respectively. 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 44% delivered in a public health facility despite these facilities having free maternal services.

In Nigeria, maternal mortality rates comprised the highest globally. This is because of women avoidance of 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 *et al.,* 2007). The study identified many reasons for not delivering in a hospital, including services which are poor (negative attitudes on the part of the health workers, scarce equipment, skilled and drugged medical workers; having a male medical personnel attend to expectant women); others reflected cost and lack of access; but many were socio-cultural. A recent study identified religion in Nigeria as one of the factors influencing poor maternal health usage. This was supported by the fact that in the study, Muslim women were significantly less likely to obtain services than other women, even when controlling for geographic region (Solange, *et al.,* 2015).

A study done in Zambia by Chamileke (2017), the level of income, usage of antenatal care, nearness to the health facility were determinants of utilization of antenatal health care. In another study done in Bangladesh by (Kamal, 2013), the factors which influenced delivery at the institution, was found that, the factors associated with the delivering in an institution was significantly associated with the primigravidae, 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 make sure that quality care, ease of accessibility together with availability of facilities free of any cost in public health facilities are up to date or available (Kamal, 2013). In yet another study conducted in Bangladesh, Matlab and/or Chandpur, was found that there were

increased mothers who delivered in the health facilities because of free or subsidized cost.

In a survey conducted in Uttar Pradesh state, the factors that influenced usage of antenatal health care both in rural and urban area comprised how far the women went as far as education was concerned and standards of living. The standards of living were measured by the economic status of the family and the two factors were more pronounced in urban centres, compared to rural areas. The two factors were significantly associated with usage after controlling of other socio-demographic variables. Additionally, exposure to media was also important when it came to usage of skilled delivery care, this is according to National Family Health Survey (NFHS-2) 1998-99 (Ghosh, 2004).

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.,* 2009; 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 also been reported by other researchers (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 JSY increased the hospital attendance among socially-disadvantaged classes.

In a study done in Kenya, in the informal settlements of Nairobi, Kenya, there was increased use of government owned facilities and private ones signaling more uptake of institutional delivery. In the aforementioned study, the factors that were relating to usage of antenatal care services included the wealth of the household. However, there was more likelihood for women to partake institutional delivery in a private hospital than government owned health facilities. The study recommended that services regarding maternal care be boosted both in public and private health centers (Bazant *et al.,* 2009).

The "Imarisha Afya ya Mama na Mtoto" also called improve the health of the mother and child intervention programme had contributed significantly to institutional delivery. It was designated to reach the neediest in the county, an estimated over 44,500 mothers have benefitted from it (www.kakamega.go.ke/health-services).

According to Maine (1996), FANC operates on the assumption that each and every pregnant woman is at risk of complication, and as such they require the same fundamental care and follow ups. In this way, normal pregnancies can be realized and lives can be saved through prevention of the mentioned complications through quality and cost-effective manner (Maine, 1996).

It is undoubtedly clear that, usage of antenatal service is an essential design at reducing the risks which are associated with expectance period and bearing of a child. Usage of FANC serves to promote better health, and as such there is hope that utilization in developing countries is taking an upward trend (65%), with 53% skilled attendance, 30% postpartum utilization way below developed nations at 99% for utilization and 90% postpartum.

Other than intermittent presumptive treatment during pregnancy (IPTp), other determinant included socio-cultural values that discriminate and stigmatize women, service providers who are not friendly towards their clients and inadequate drugs and essential supplies, levies in health facilities and being unaware of the actual important antenatal services offered by the ANC clinics (Mubyazi, 2015).

A study conducted in Oyam district of Uganda factors that influenced (increased) usage of institutional deliveries included provision of transport vouchers and baby kits. Transport vouchers contributed 42.9% while baby kits provision contributed 30.0%. Furthermore, the vouchers positively affected the coverage of the four ANC visits with an increase recorded from 49.2% to 60.0%. In the program transport voucher value was US$ 9.4 while baby kit value was US$ 10.5. In addition, there was an increment cost for every one unit that was valued at US$ 15.9 (Massavo *et al.,* 2017). Groen *et al.,*(2013), affirms that the presence of a skilled birth attendant is considered a beneficial factor towards prevention of deaths related to pregnant mothers, and especially in situations where resources are scarce. This has prompted innovation and implementation of approaches that targets both the supply side and demand side. There are many strategies that can be innovated and may include incentivized interventions such as conditional cash transfers, transport voucher schemes and provision of birth kits. Studies on such interventions conducted in Asia (Mugweni, *et al.,* 2008); Latin America (Tann *et al.,* 2007) and Africa (Van *et al.,* 2008), the results have been positive in all the settings (Tann *et al.,* 2007).

The participation of beneficiaries in a health program has been made possible with the use of cash transfers in Uganda. In a study done in Kisoro, Uganda to ascertain if cash transfer vouchers increased usage of antenatal care, it was reported that indeed, in a

bid to compare participants, the study objects were grouped into four, with the control group receiving no cash and others receiving either US$0.2 or US$0.4. The outcomes of the study indicated that, the group who received the maximum cash (US$0.4) recorded more antenatal visitation than the group which did not receive cash. Despite these differences, there was no difference in health facility between groups (Chava *et al.,* 2015).

According to a review paper done in 2013 from a multiagency in Bangladesh results indicated that, pertaining to labour and delivery, majority of the research works report an increase in skilled attendance and institutional deliveries for incentivized program intervention. On the other hand, related studies such as those concerning caesarean section, had also indicated that there was a correlation between use of caesarean section and abolition of fees or provisions of incentives. In cases where the service or program had not been directly incentivized, for instance in "wide" intervention programs, the reason for the upsurge is not clear, although it may be because of incentives in mechanisms of payment (WHO, 2010).

2.6 Research Gap

The literature review indicates that other countries are using the strategy of conditional cash transfers; moreover, 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 added 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. 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 KM^2 and serves population of about 238,369 people. The main economic activity in the area is mainly maize and sugarcane farming; subsistence farming includes 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

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county covers a vast area covering 427.45 KM^2 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

i.   All mothers aged bracket 15-49 years (WHO, 2015)

ii.   Mothers seeking maternal health services in Malava County hospital between September, 2014 to August, 2015.

3.4.2 Exclusion Criteria

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

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

3.5 Sampling Procedure

A sample is a 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 $K^{th}=N/n$, 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;

$N = \dfrac{Z^2PQ}{D^2}$

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;

$N = \dfrac{Z^2PQ}{D^2}$

$N = \dfrac{1.96^2 \text{x } 0.5 \text{x} 0.5}{0.05^2}$

$= \dfrac{0.9604}{0.0025}$

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

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$$
\begin{aligned}
N &= 10{,}000 \\
nf &= \frac{384}{1 + {}^{384}/_{10{,}000}} \\
&= 369.7 \\
&= 370 \text{ non-response of } 10\% \text{ which makes } 37 \text{ respondents.} \\
&= \text{The total sample size was } 407
\end{aligned}
$$

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

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<u>Section 6</u>

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

<u>Section 7</u>

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

<u>Section 8</u>

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 were 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, *et al.,* 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 in turn 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 =0.05. Logistic regression analysis was performed 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.

4.2 Demographic 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).

	1 meal or less	>1 meal and < 3 meals	>= 3 meals
Beneficiaries	56.7	12.9	30.4
Non-Beneficiaries	0.5	15.4	84.1
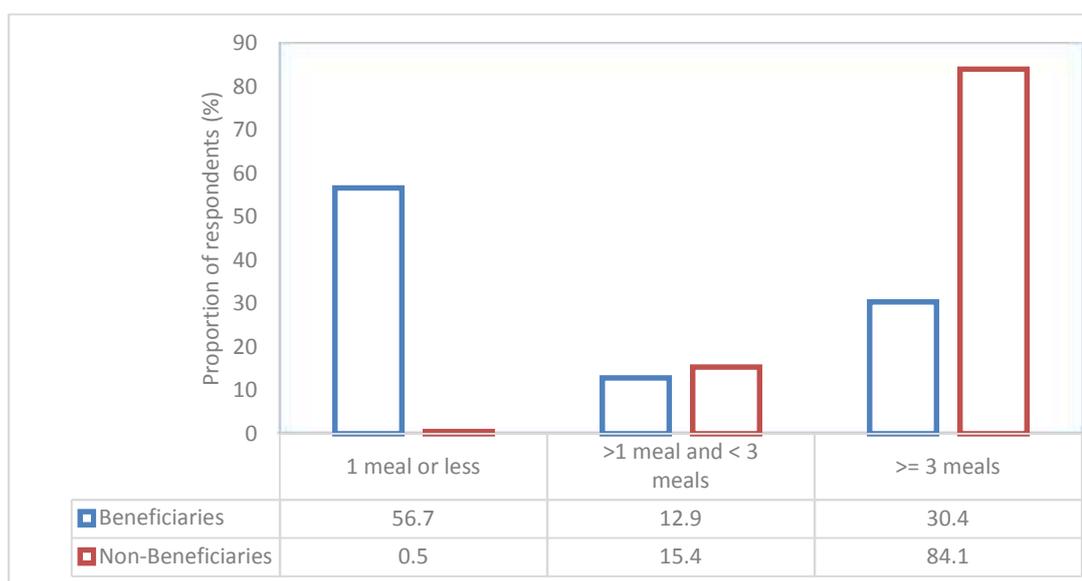
Figure 4.1 Number of meals eaten per day

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

4.3 Awareness 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.

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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 endeavored 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.
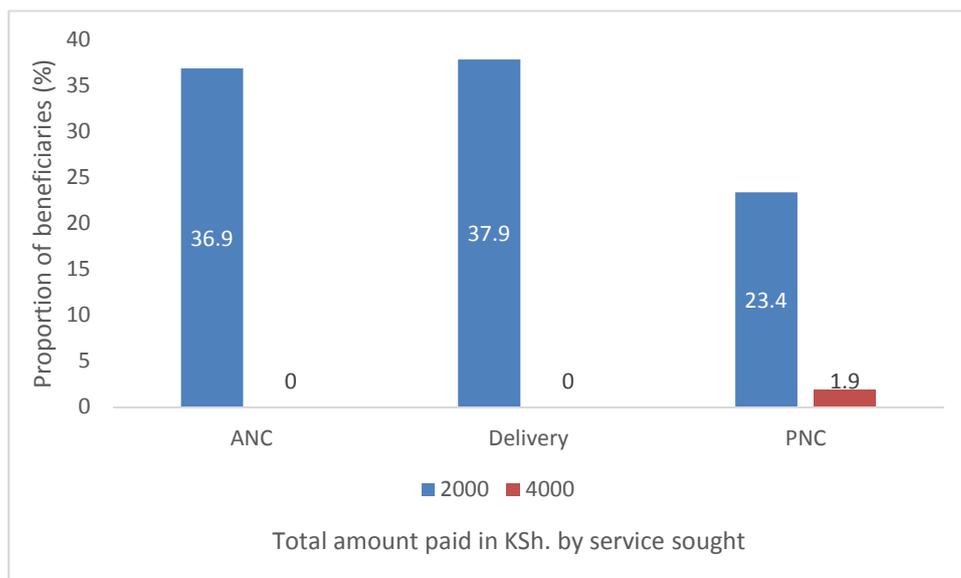
Figure 4.2Total amount paid beneficiaries by service attended

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 thatmore 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 a history of complications during pregnancy (Table 4.11). The same applied to proportion of respondents who 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)

4.4.7 Beneficiary 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 twice 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 were 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

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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 confirmed by findings of the 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% with more than 33,000 mothers living on less than a dollar a day (KDHS, 2014).

 A survey in India's Uttar Pradesh state, by the National Family Health Survey (NFHS-2), 1998-99, indicated that level of education of the women was the most important factor in determining utilization of maternal health care in rural and more magnified in urban areas, where all other socioeconomic factors remains constant. The survey observed that standard of living (proxy for household economic status) had a significant importance of accessing health services, in both rural and urban areas.

Communication through the media on antenatal care was significantly associated with access to delivery care.

In another study done in Nigeria, by Wencheko &Kassu (2011), mother's age during delivery, level of educational, gender of household head, household wealth status, employment/work status of mothers, region, religion, order of birth and partner's/husband's level of educational, were found to be predictors of utilization of delivery 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).

A study in Kisoro Uganda, Conditional cash transfers have been used to pool client's participation in health services. The study identified whether modest cash transfers for participation in antenatal care would elevate ANC attendance and skilled delivery. 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 higher and low-level facilities, but higher-level facility had elevated number. Furthermore, baby's box kit, the number of deliveries reduced at the low-level facility but increased at the high-level facility. The number of postnatal visits roused sharply at all the study health facilities, except the low-level health facility for the transport-voucher intervention (Massavo *et al.,* 2017).

A study done in Nigeria, showed several similarities on the factors that influenced the utilization of ANC by women. They included among others; age, tribe, marital status, education level of the partner, specialization of the husband, occupational status, region they lived and whether the respondent had say in taking health decision (Owoyokun&Dairo, 2010). In another study in Nigeria, by Olamijulo (2015), corroborates the findings of this study, where factors that influenced the uptakes of FANC by Nigerian pregnant mother included; distance to the facility and number of pregnancies among others.

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 agrees with studies by (KDHS, 2004), which indicated that incentives usually make 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).

In present times, the situation in Kakamega County had a reversed index. The number of skilled deliveries had increased from 33% in 2013 to 69% by 2016, whereas the number of mothers who attended their 4th ANC visit had raised to 54%, up from 35%. In addition, immunization coverage of children stands at 81% compared to 63% back in 2014; this is according to study by (KDHS, 2014).

A study in Tanzania, by Mubyazi, (2015) showed that, safe pregnancy and childbirth are motivated by outcomes of the pregnancy and not necessarily seeking intermittent presumptive treatment during pregnancy (IPTp) against malaria. In yet another study in South west Nigeria, mother's socio-demographics characteristics for instance; level

of education, ethnic background and source of income were positively associated with skilled delivery (Adebowale, 2016).

In a study done in Ghana, the findings had similarity to the outcomes of this study, it was noted that; barriers to skilled delivery included negative attitude of midwives, HealthCare Facility (HCF) fee on delivery, despite it being waived. The need for a support person for HCF delivery, difficulties in transportation and precipitous labor (Crissman, *et al.,* 2013). Despite the Ghanaian health care decision-making organ, view the community as important stakeholders, the upsurge community support towards Health care facility delivery increased on skilled birth attendance, the important actionable barriers remained.

From year 2000-2010, Rwanda government introduced holistic health sector reforms to cement the public health system, with the goal of reversing maternal and newborn deaths in tandem with Millennium Development goal 5, among many other standards in national health. As per maternal health, between the year 2006 - 2010, births with skilled attendance increased by (77%) against (26%) by unskilled attendance, hospital delivery (146%) against home delivery (8%), however its effects were felt in rural areas, where most poor women live, there was variance in indices as compared to 2000-2005 (Bucagu *et al.,* 2012).

According to a paper review of 2013 from a multiagency in Bangladesh, data for labour and delivery showed; effects of incentives on skilled delivery had significant correlation with improvements in these indicators. Similarly, among other studies the evidence showed incentives had correlation with increased use of caesarean section.

Areas without incentives, for example those practicing 'broad' CCT programmes, the reason for rise in numbers are unclear, but attributed to incentives in payment scheme (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 other hand mothers need to be educated on the importance of seeking medical care, 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 Masinde Muliro University of Science and Technology. I am conducting a study to establish and evaluate the effects of "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 "OPARANYA CARE SERVICES" IN IMPROVING SKILLED DELIVERY IN MALAVA COUNTY HOSPITAL KAKAMEGA COUNTY KENYA

QUESTIONNAIRES

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 "Oparanya care services" in 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 = Divorced 4 = 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

No.			
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....................	<table><tr><td>visit</td><td>Same facility</td><td>Other facility</td></tr><tr><td>1st</td><td></td><td></td></tr><tr><td>2nd</td><td></td><td></td></tr><tr><td>3rd</td><td></td><td></td></tr><tr><td>4th</td><td></td><td></td></tr></table>	

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 = Dispensary2 = 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-Governmental Organization 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 estimated Ksh:_____ Bodaboda Ksh._____	

		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

MASINDE MULIRO UNIVERSITY OF SCIENCE AND TECHNOLOGY (MMUST)

Tel: 056-30870	P.O Box 190
Fax: 056-30153	Kakamega – 50100
E-mail: deansgs@mmust.ac.ke	Kenya
Website: www.mmust.ac.ke	

Office of the Dean (School of Graduate Studies)

Ref: MMU/COR: 509079   Date: 7ᵗʰ March 2016

Richard Kipruto Bungei
HNR/G/07/14
P.O. Box 190-50100
KAKAMEGA

Dear Mr. Bungei,

RE: APPROVAL OF PROPOSAL

Following communication from the Departmental Graduate Studies Committee and the Faculty Graduate Studies Committee, I am pleased to inform you that the Board of the School of Graduate Studies meeting held on 25ᵗʰ February 2016 considered and approved your Masters proposal entitled: '*Impact of Incentive use "Oparanya Care Services" in Improving Skilled Delivery of Pregnant Mothers in Malava County Hospital, Kakamega County - Kenya*" and appointed the following as supervisors:

1. Dr. Mary Kipmerewo - Department of Reproductive Health, Midwifery and Child Health – MMUST
2. Dr. Evans Raballah   - Department of Medical Laboratory Sciences - MMUST

You are required to submit through your supervisor(s) progress reports every three months to the Dean SGS. Such reports should be copied to the following: Chairman, School of Nursing and Midwifery Graduate Studies Committee and Chairman, Clinical Nursing and Health Management. Kindly adhere to research ethics consideration in conducting research.

It is the policy and regulations of the University that you observe a deadline of two years from the date of registration to complete your Masters thesis. Do not hesitate to consult this office in case of any problem encountered in the course of your work.

We wish you the best in your research and hope the study will make original contribution to knowledge.

Yours Sincerely,

PROF. HENRY KEMONI
EXECUTIVE DEAN, SCHOOL OF GRADUATE STUDIES

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APPENDIX IV: ETHICAL APPROVAL TO CONDUCT RESEARCH

MASINDE MULIRO UNIVERSITY OF SCIENCE AND TECHNOLOGY

Tel: 056-31375
Fax: 056-30153
E-mail: rel@mmust.ac.ke
Website: www.mmust.ac.ke

P. O. Box 190
Kakamega
50100
Kenya

Institutional Ethics Review Committee (IERC)

MMU/COR: 403009(32)   7ᵗʰ April, 2016

Richard Kipruto Bungei
Registration No. HNR/G/07/14
Masinde Muliro University of Science and Technology
P. O. Box 190-50100
KAKAMEGA

Dear Kipruto,

RE: ETHICAL APPROVAL TO CONDUCT RESEARCH

The IERC received your proposal titled *"Impact of Incentive use "Oparanya Care Services" in Improving Skilled Delivery of Pregnant Mothers in Malava County Hospital, Kakamega County-Kenya"* for review. Having reviewed your work, the committee has given ethical clearance for you to conduct research as proposed.

On behalf of IERC and the University Senate, my congratulations. We wish you success in your research endeavour.

Yours faithfully
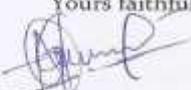
Dr. Gordon Nguka
Ag. Chairman, Institutional Ethics Review Committee

Copy to:

- The Secretary, National Bio-Ethics Committee
- Vice Chancellor
- DVC (PR&I)
- DVC (A & F)
- DVC (A&SA)

APPENDIX V: RESEARCH PERMIT

THIS IS TO CERTIFY THAT:
MR. RICHARD KIPRUTO BUNGEI
of MASINDE MULIRO UNIVERSITY OF
SCIENCE AND TECHNOLOGY, 150-50103
MALAVA, has been permitted to conduct
research in Kakamega County

on the topic: *IMPACT OF INCENTIVE USE*
"OPARANYA CARE SERVICES" IN
IMPROVING SKILLED DELIVERY OF
PREGNANT MOTHERS IN MALAVA
COUNTY HOSPITAL, KAKAMEGA
COUNTY- KENYA;

for the period ending:
13th June,2017

Permit No : NACOSTI/P/16/82070/11162
Date Of Issue : 16th June,2016
Fee Recieved :Ksh 1000

Applicant's
Signature

Director General
National Commission for Science,
Technology & Innovation

CONDITIONS

1. You must report to the County Commissioner and
   the County Education Officer of the area before
   embarking on your research. Failure to do that
   may lead to the cancellation of your permit
2. Government Officers will not be interviewed
   without prior appointment.
3. No questionnaire will be used unless it has been
   approved.
4. Excavation, filming and collection of biological
   specimens are subject to further permission from
   the relevant Government Ministries.
5. You are required to submit at least two(2) hard
   copies and one(1) soft copy of your final report.
6. The Government of Kenya reserves the right to
   modify the conditions of this permit including
   its cancellation without notice

REPUBLIC OF KENYA

NACOSTI

National Commission for Science,
Technology and Innovation

RESEARCH CLEARANCE
PERMIT

Serial No. A 9584

CONDITIONS: see back page

NATIONAL COMMISSION FOR SCIENCE, TECHNOLOGY AND INNOVATION

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Email: dg@nacosti.go.ke
Website: www.nacosti.go.ke
when replying please quote

9ᵗʰ Floor, Utalii House
Uhuru Highway
P.O. Box 30623-00100
NAIROBI-KENYA

Ref. No
NACOSTI/P/16/82070/11162

Date

16ᵗʰ June, 2016

Richard Kipruto Bungei
Masinde Muliro University of
Science and Technology
P.O. Box 190-50100
KAKAMEGA.

RE: RESEARCH AUTHORIZATION

Following your application for authority to carry out research on *"Impact of incentive use "Oparanya Care Services" in improving skilled delivery of pregnant mothers in Malava County Hospital, Kakamega County- Kenya,"* I am pleased to inform you that you have been authorized to undertake research in **Kakamega County** for the period ending 13ᵗʰ **June, 2017.**

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

On completion of the research, you are expected to submit **two hard copies and one soft copy in** pdf of the research report/thesis to our office.
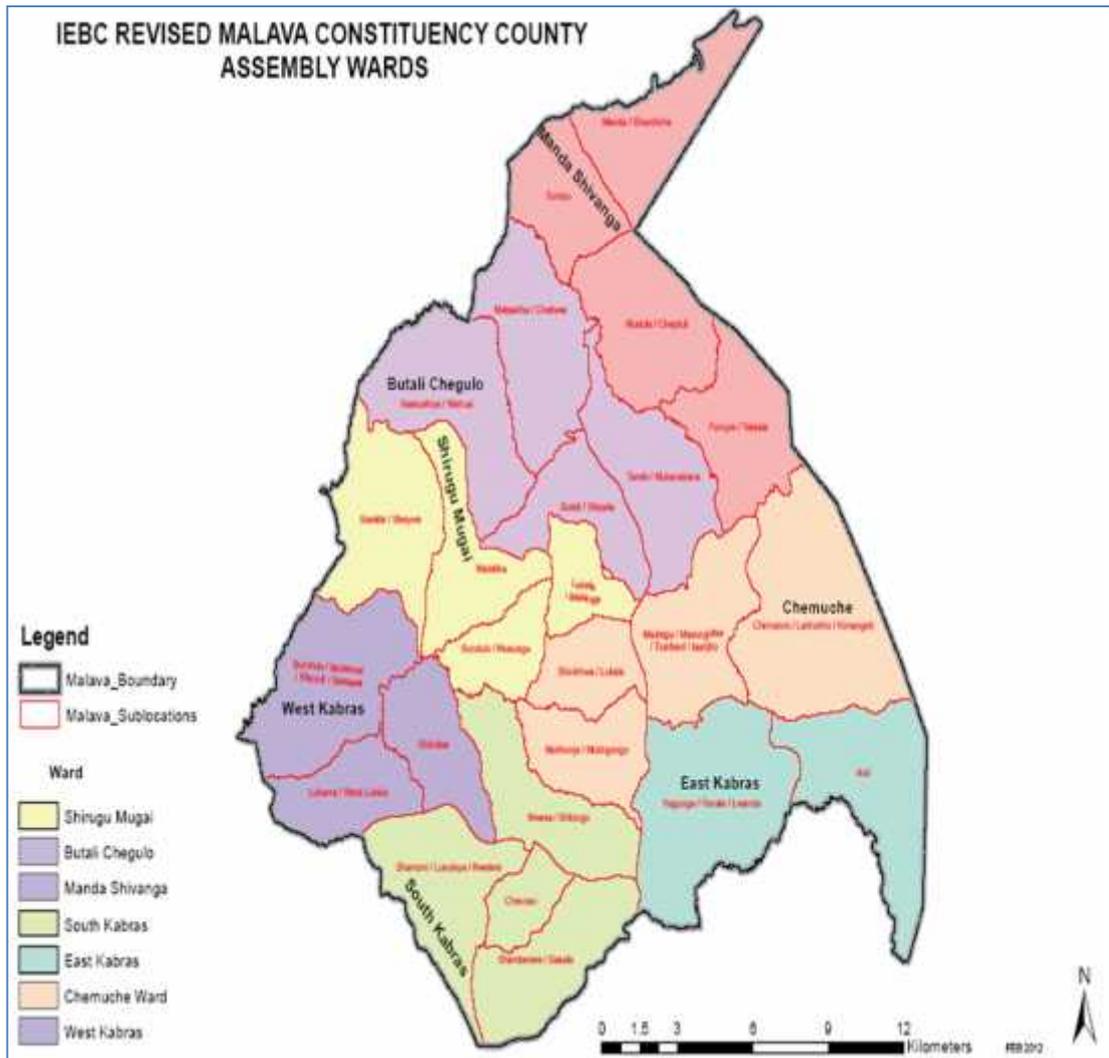
DR. STEPHEN K. KIBIRU, PhD.
FOR: DIRECTOR-GENERAL/CEO

Copy to:

The County Commissioner
Kakamega County.

The County Director of Education
Kakamega County.

Source: KakamegaCounty Strategic Plan Book 2013-2017.