

**INFLUENCE OF EXPANDED FREE MATERNITY CARE PROGRAMME ON
DELIVERY OF QUALITY HEALTH CARE IN MATERNITY UNITS IN
PUBLIC HEALTH FACILITIES IN KAJIADO COUNTY**

RICHARD WACHIRA MAGONDU

HSM-3-1919-1/2015

**A RESEARCH THESIS SUBMITTED IN PARTIAL FULFILLMENT OF THE
REQUIREMENT OF THE DEGREE OF MASTERS OF SCIENCE IN
HEALTH SYSTEMS MANAGEMENT, KENYA METHODIST UNIVERSITY**

SEPTEMBER, 2019

DECLARATION

Student

I declare that this research thesis is my original work and has not been presented in any other university.

Signed **Date:**

Richard Wachira Magondu

HSM-3-1919-1/2015

Supervisors

This research thesis has been submitted for examination with our approval as the university supervisors.

Signed **Date:**

Dr. Wanja Mwaura-Tenambergen

Department of Health Systems Management

Kenya Methodist University

Signed **Date:**

Dr. Fredrick Ndede

Department of Reproductive Health,

Kenya Methodist University

COPYRIGHT

Richard Wachira Magondu©2019

All rights reserved. No part of this thesis may be reproduced, stored in any retrieval system or transmitted in any form or by any means, electronically, mechanically, by photocopying or otherwise, without prior written permission of the author or Kenya Methodist University on that behalf.

DEDICATION

I wish to dedicate this work to my wife Flo, my daughters Nyathuta & Njoki and my mum Joyce Nyathuta. You are my true inspiration.

ACKNOWLEDGEMENT

I wish to acknowledge my supervisors, Dr. Wanja Mwaura-Tenambergen and Dr. Fredrick Ndede for their profound support and most needed guidance in completion of this thesis. I would also like to recognize the department of Health System Management, my respondents, my HSM classmates, the health facilities, the County Government of Kajiado and lastly to Mr Dan Sankaire.

ABSTRACT

A well-functioning health system works in harmony among the six pillars; trained and motivated health workers, functional infrastructure, consistent supply of essential medicines and technologies and sufficient funding. Africa is uniquely affected by maternal health challenges with a maternal mortality estimated at 686/100,000 live births. These deaths are avoidable with proper medical intervention. Kenya has high maternal mortality estimated at 360/100,000 live births. This study sought to assess quality of service delivery in maternity units of health facilities currently implementing expanded free maternity care programme in Kajiado County. It was guided by one general objective; to assess the influence of expanded free maternity care programme on delivery of quality health services and four specific objectives which were to establish how essential drugs, medical equipment, health workers and basic amenities influence quality of health services in maternity units of public health facilities in Kajiado County. The study adopted descriptive cross sectional design of survey. All the 44 health workers in labour wards who included midwives, clinical officers and medical officers were sampled. Likert based psychometric construct, self-administered questionnaire was used to collect data. Data analysis was done using Statistical package for social scientist's software and results tabulated using frequency distribution tables. Descriptive and inferential statistics were used to provide population details and make inferences. The study found that: Health worker factors positively and significantly influenced delivery of quality of healthcare services ($r = .655^{**}$, $P < .001$); basic amenities positively and significantly influence delivery of quality healthcare services ($r = .350^{**}$, $P < .020$). There was positive association between availability of essential drugs and delivery of quality healthcare services ($r = .302^{**}$, $P < .047$). However, there was no association between medical equipment and delivery of quality healthcare services ($r = .338^{**}$, $P < .006$). An improvement in human resource factors and basic amenities would lead to an improvement in delivery of quality services. The study recommends that the County government of Kajiado should a) establish practical modalities for maintenance and replacement of worn-out medical equipments, b) deploy adequate staff to level 2 and 3 health facilities especially those in rural and far-to-reach areas, and c) establish a County fund to enable timely provision of essential drugs, d) prioritize provision of adequate water and reliable power source for all rural health facilities.

TABLE OF CONTENTS

DECLARATION	ii
COPYRIGHT	iii
DEDICATION	iv
ACKNOWLEDGEMENT	v
ABSTRACT	vi
LIST OF TABLES	x
LIST OF FIGURES	xi
ABBREVIATIONS AND ACRONYMS	xii
CHAPTER ONE	13
INTRODUCTION	13
1.1 Background to the study.....	13
1.2 Statement of the Problem	18
1.3 Broad Objective.....	20
1.3.1 Specific Objective	20
1.4 Hypothesis	20
1.5 Significance of the study	21
1.6 Justification of the Study.....	22
1.7 Scope of the Study.....	22
1.8 Limitations of the study.....	22
1.9 Delimitations of the study	23
1.10 Assumptions of the Study	23
1.11 Operation Definition of Terms	24
CHAPTER TWO	26
LITERATURE REVIEW	26
2.1 Introduction	26
2.2 Empirical review	26
2.2.1 Health Workers Influence on Quality of Maternal Health Services	26
2.2.2 Essential Drugs Influence on Quality of Maternal Health Services.....	34
2.2.3 Basic amenities Influence on Quality of Maternal Health Services.....	35
2.3 Theoretical Framework	36
2.4 Conceptual framework	39

CHAPTER THREE.....	41
RESEARCH METHODOLOGY	41
3.1 Introduction	41
3.2 Research Design	41
3.3 Target population	41
3.4 Study Location	42
3.5 Sampling Procedures.....	42
3.5.1 Sampling Technique.....	43
3.6 Data Collection Instrumentation	44
3.6.1 Data Collection Tools	44
3.6.2 Pre-testing of the Data Collection Tools	45
3.6.3 Validity of the Instruments.....	45
3.6.4 Reliability of the Instruments	46
3.7 Data Collection Methods.....	47
3.7.1 Methods.....	47
3.7.2 Data Analysis and Presentation.....	48
3.7.3 Ethical Consideration	48
CHAPTER FOUR.....	50
RESULTS AND DISCUSSIONS.....	50
4.1 Introduction	50
4.2 Response rate and reliability of instrument.....	50
4.3 General Information of the Health Facilities.....	51
4.4 Status of Expanded Free Maternity Care Programme Health Services	52
4.4.1 Delivery of quality healthcare services in maternity units	52
4.4.2 Status of Essential Medicines delivery room	54
4.4.3 Status of Medical Equipment in the delivery room e.....	57
4.4.4 Status of Health Workers in delivery room.....	60
4.4.5 Status of basic amenities in delivery room.....	62
CHAPTER FIVE.....	73
5.1 Introduction	73
5.2 Summary of the findings	73
5.3 Conclusions	77
5.4 Recommendations	79
5.5 Suggestion for Further Research	80

Appendix.....	87
Appendix 1: Checklists and questionnaires.....	87
Appendix 2: Consent form	98
Appendix 3: Ethical approval	102
Appendix 4: NACOSTI Authorization	104
Appendix 5: County Government approval.....	105
Appendix 6: Raw data	105

LIST OF TABLES

Table 3.1: Sampling Frame and Sample Distribution.....	44
Table 3.2: Distribution of Population of Study.....	44
Table 3.3: Validity and Reliability Result	47
Table 4.4: Health Facility Type	47
Table 4.5: Status of Quality of Expanded Free Maternity Care Programm.....	53
Table 4.6: Status of Essential Medicines in the Free Maternity Care Program.....	54
Table 4.7: Status of Medical Equipment in the Free Maternity Care programe.....	48
Table 4.8: Status of Health Worker in the Free Maternity Care Program.....	60
Table 4.9: Status of Basic Amenities in the Free Maternity Care Programme.....	63
Table 4.10 Bivariate linear Correlations: all variables.....	66
Table 4.11: Model Summary.....	68
Table 4.12: Delivery of Quality Healthcare Services in Maternity Units.....	69
Table 4.13 Coefficients.....	69

LIST OF FIGURES

Figure 2.1: WHO framework for the quality of material and new-born.....	37
Figure 2.2: Figure 2.2: Conceptual Framework.....	39

ABBREVIATIONS AND ACRONYMS

ANC	Antenatal Clinic
FMS	Free Medical Services
HRW	Human Resources for Health
HW	Health Workers
IOM	Institute of Medicine
KDHS	Kenya Demographic Health Survey
MCH	Maternal and Child Health
MDGs	Millennium Development Goals
MMR	Maternal Mortality Rate
MOH	Ministry of Health
MOMS	Ministry of Medical Services
MOPH	Ministry of Public Health
PAC	Post Abortion Care
PMTCT	Prevention of Mother to Child Transmission
RH	Reproductive Health
SBA	Skilled Birth Attendant
SDGs	Sustainable Development Goals
SRH	Sexual and Reproductive Health
STIs	Sexually Transmitted Infections
UNFPA	United Nations Family Population Fund
UNICEF	United Nations International Children Education

CHAPTER ONE

INTRODUCTION

1.1 Background to the study

A health system consists of all organizations, people and actions whose primary intent is to promote, restore or maintain health (World Health Organization [WHO], 2007). A well-functioning health system works in harmony among the six pillars of health workforce, health information, stewardship, service delivery, health financing and medical products vaccines and technology. Service delivery is a key pillar of any health system, it thrives on having trained and motivated health workers operating in a functioning infrastructure and a consistent supply of essential medicines and technologies supported by sufficient funding, strong health plans and evidence-based policies (WHO, 2016).

Assessing quality of service delivery is an intricate undertaking owing to the subjective nature of its definition which is often multidimensional. Its associated with patient satisfaction (Choi, Lee, & Lee, 2005) productivity and profitability (Alexander, Weiner, & Griffith, 2006) among other, The indicators used in assessing quality of maternal health care services should cover some aspect of antenatal, intra-partum and postpartum care including screening, prevention or management of major causes of maternal mortality (WHO, 2012).

A Joint WHO/UNFPA/UNICEF World Bank Statement (WHO, 1999) established that sub-Saharan Africa and the South Asia account for 86% of the maternal mortality rate in the world. Kenya continues to perform poorly in the same field with unacceptably high Maternal Mortality Ratio (MMR). Kenya Demographic Health Survey [KDHS]

2003 reported MMR at 414/100,000, this figure rose to 488/100,000 in 2008, KDHS 2014, indicate MMR had marginal decline to 360 /100,000. Other recent estimate (WHO, 2015) depict more promising global MMR statistic with global MMR reducing by nearly 44% to an estimated 216 maternal deaths per 100 000 live births in 2015 up from 385 in 1990, global lifetime risk of a maternal death fell considerably from 1 in 73 to 1 in 180. The report also revealed that developing regions accounted for approximately 302,000 or 99% of all global maternal deaths in 2015 and Sub-Saharan Africa alone accounted for roughly 201,000 deaths (66%).

In Kenya, recorded maternal deaths in 2014 stood at 6,623 (United Nations Family Population Fund [UNFPA], 2000). Quality service delivery is a key indicator of a responsive health system and integrating quality as a fundamental aspect of services delivered has a pronounced impact on the cost-effectiveness and equity of health interventions (Jamison, et al., 2006). The quality element within the health services delivery pillar in Kenya is critically constrained by a number of features; these include scarce skilled human resources for health, financing and medical product supplies (KDHS, 2008).

The average distance to the nearest health centre is 14km; the doctor to population ratio is 1:26,094 while nurse to patient ratio is 1:1,068 (County Government of Kajiado, 2013-2017) the top two reasons quoted by patients for bypassing the nearest medical facilities in Kajiado County in 2013 were unavailable medicine (21%) and unqualified staff (18.9%) (Ministry of Health [MOH], 2013) The researcher conducted a comprehensive review of literature on dependent variables i.e. quality and how it's affected by four independent variables (drugs availability, equipment and supplies, basic amenities and health workers)

Health systems in Africa are in need of strengthening; preventable illnesses, disability and deaths happen because the systems for service delivery are not in place and if they exist they do not function properly. Recent outbreak of Ebola in West Africa clearly revealed the need for a robust and functional health system able to absorb the shock of existing crises and carry on providing health services for other routine medical conditions. Africa is uniquely affected by maternal health challenges due to its all too often dysfunctional health system, the ratio of maternal mortality in sub-Saharan is the highest in the world estimated at 686/100,000 live births yet if timely and appropriate obstetric care were accessed in the event of complication, an estimated 75% of the above deaths could be prevented.

The World Health Organization defines good health services as those which deliver effective, safe, good quality personal and non-personal care to the people that need them when they need them with least waste of resources be they preventive, curative or rehabilitative and regardless if delivered at home, community or health facility. Quality is an indispensable measure of a well performing health system (Mattke, Kelley, Scherer, Hurst & Lapet, 2006).

Maternal mortality is a most tragic outcome of pregnancy. The death of a woman before, during and within 42 days after delivery is an incomparable loss and is almost entirely preventable given proper medical surveillance and intervention, and as such maternal mortality is often viewed as a sentinel indicator of the quality of a health care delivery system. Many nations have succeeded in reducing maternal deaths, Japan achieved dramatic fall in maternal mortality between 1960 and 2000.

In 1950, Japan had a maternal mortality ratio of around 180 deaths for every 100,000 live births, By 2004/5, this level had been reduced dramatically to just 9.3 maternal deaths for every 100,000 live births (Statistics and Information Department [SID], 2018).

There was a dramatic fall in maternal mortality especially over the ten-year period from 1960 to 1970, with the MMR declining from around 130 to 50 – almost a two-thirds reduction. The success of Japan in tackling maternal mortality is due to a host of factors, but also provides evidence of the three main interventions which are needed everywhere in the world: Access to family planning to prevent unwanted and mistimed pregnancies, universal access to skilled care at delivery and timely access to Emergency Obstetric Care for all women with complications (Nakamura, 2010).

Kenya has struggled with high maternal mortality statistics since independence; estimates place these rates at 360 deaths per 100,000 live births (KDHS, 2014). Many factors have contributed to high maternal mortality including poor access to quality antenatal, perinatal, postnatal and family planning services. Even in instances when these services were accessible, their quality remained poor and an impediment to their utilization (Gwatkin, et al., 2007).

On June 1st 2013, the Government of Kenya launched a free maternity health care programme in all public facilities with an objective to increase access to skilled delivery services and hence reduction of maternal mortality as was envisioned in Millennium Development Goal (MDG) number five. Though well intentioned, critical pillars of the health system were not strengthened to cope with the increased demand put on them. Reports surfaced of overcrowded maternity wards with women forced to

leave the hospital before their due discharge time to make room for others or even deliver on the floor due to lack of beds, Nurses have also reported being overburdened (Bourbonnais, 2013). Increasing the work burden on health staff without an equivalent increase on staffing numbers and other critical aspects of service delivery threatened to derail the gains.

In October, 2016, the government of Kenya re-launched the free maternity services program, re-envisioned and under a new name. *Linda Mama*, the programme is being administered by Kenya's National Health Insurance Fund (NHIF) and offers free maternity services at all public health facilities and an additional 2,000 private-sector and 700 faith-based facilities. It also provides expanded services, covering outpatient and inpatient services for both mothers and babies, including antenatal, delivery and neonatal and postnatal care and one year of paediatric services. The programme is estimated to reach 700,000 women each year.

This study sought to assess quality of service delivery in maternity units of two health facilities in Kajiado County currently implementing expanded free maternity care programme. The study population included women utilizing these free services as well as health care providers.

1.2 Statement of the Problem

The right to quality healthcare service is provided for under the Constitution of Kenya 2010 article 41 Chapter 1A (Republic of Kenya, 2010). 'Every person has the right to the highest attainable standard of health, which includes the right to health care services, including reproductive health care'. A Joint WHO/UNFPA/UNICEF World Bank Statement revealed that sub-Saharan Africa and the south Asia accounted for 86% of the maternal mortality in the world (WHO, 1999). Recent estimate (WHO, 2015) reveal global MMR has reduced by nearly 44% between 1990 and 2015 while global lifetime risk of a maternal death fell considerably from 1 in 73 to 1 in 180. Even with the gains, developing regions still accounted for approximately 99% of all global maternal deaths in 2015 with sub-Saharan Africa alone accounting for roughly 66% all global maternal deaths. In Kenya the Maternal Mortality Rate (MMR) was reported at 510/100,000 in 2015 (WHO, 2015) a disturbing disposition considering it was 488/100,000 in 2008 and 414/100,000 in 2003 (KDHS, 2008). Latest statistic (KDHS 2013) indicates an MMR of 360/100,000.

The quality element within the health services delivery pillar in Kenya is critically constrained by a number of features including limited skilled human resources for health, financing as well as medical product supplies (KDHS, 2008). Only 25% of health facilities in Kenya report on quality assurance activities and only 11% have documentation of quality assurance activities related to maternal health (MOH, 2011). In 2015, the Government of Kenya conducted a review of status of implementation of Free Maternity Services (FMS) program in the devolved health system in Kenya, in the ensuing report, Kajiado County is cited as one of the only two counties that did not submit maternal death audit despite having recorded 'significant' maternal deaths (MOH, 2015a).

The Kajiado County integrated development plan 2013-2017 highlights numerous health system challenges affecting the County; limited health care access, poorly equipped and staffed facilities, low demand for modern healthcare services and demotivated health workforce. Only 10% of pregnant women attended the WHO recommended four antenatal clinic visits prior to delivery in the year 2010 and a partial 28.7% gave birth under the care of a skilled birth attendant in the larger Kajiado District (MOH, 2013) against the national average of 44%.

Expanded free maternity care programme resulted in twofold rise in number of clients seeking reproductive healthcare services occasioning crowded and congested maternity wards, overburdened and demotivated health workers and in delayed consultation time. Despite this, the County government of Kajiado has not prioritised strengthening of the health system in either the integrated development plan 2015-2017 or in budgetary allocation plans, in the 2015/16 expenditure plan, only 1.99% of the County budget was allocated for health in the entire County and no health system strengthening project was earmarked (County government of Kajiado, 2013).

1.3 Broad Objective

The overall objective of this study was to assess the influence of expanded free maternity care programme on delivery of quality health services in maternity units in Kajiado County

1.3.1 Specific Objective

- i) To establish the influence of essential drugs on quality of delivery of maternal health services in public facilities' maternity units in Kajiado County.
- ii) To determine the influence of medical equipments on quality of delivery of maternal health services in public facilities' maternity units in Kajiado County
- iii) To establish the influence of health workers on quality of delivery of maternal health services in public facilities' maternity units in Kajiado County.
- iv) To establish the influence of basic amenities on quality of delivery of free maternal services in public facilities' maternity units in Kajiado County.

1.4 Hypothesis

H₀₁ There is no relationship between availability of essential drugs and delivery of quality maternal health services in maternity units in Kajiado County.

H₀₂ There is no relationship between availability of medical equipment and delivery of quality maternal health services in maternity units in Kajiado County.

H₀₃ There is no relationship between availability of health workers and delivery of quality maternal health services in maternity units in Kajiado County.

H₀₄ There is no relationship between availability of basic amenities and delivery of quality maternal health services in maternity units in Kajiado County.

For the expanded free maternity care programme to deliver its intended objective of reducing maternal mortality, it's critical that the quality theme be incorporated in routine service delivery. The basic elements of quality service delivery in a maternity will include ease of access of essential medicines by clients in the ward, availability of basic medical equipments, presence of enough numbers of health workers with a good skill mix for tasks at hand and accessibility to the basic amenities required for a functional maternity including lighting and running water

1.5 Significance of the study

This study came at an appropriate time to provide understanding into the quality of services provided within the scope of the expanded free maternity care programme in public hospitals in Kenya, the findings presented crucial insights for improving maternal and neonatal health outcomes. Because the study was carried out in a typical public health care setting, it was envisaged to trigger a thought process on pillars of the health system that need strengthening in order for this government policy to succeed.

Regular review and reporting on quality dimension of expanded free maternity care programme by observing at a set of output and outcomes allowed timely adjustment and eventual improvement of the programme deliverables. Findings from the study were important to the designers of expanded free maternity care programme at devolved County levels; they related to these findings and recognize priorities that expedite realisation of vision 2030. Bearing in mind that this is still a new program whose challenges and improvement opportunities has not been widely explored, the findings were very important to future researchers because they had some documented findings research literature.

1.6 Justification of the Study

This study was important in providing an understanding into quality of service delivery within the free maternity care programme; findings were communicated to Kajiado county health authorities. Communicating on gaps in quality of service delivery allowed for timely adjustment and eventual improvement of the programme deliverables and improved maternal and neonatal health outcomes.

1.7 Scope of the Study

The study assessed the quality of service delivery in maternity units of health facilities implementing expanded free maternity care programme in Kajiado County. The study was carried in Kajiado county health facilities. It targeted health workers as well as delivery women in maternity units. Data was collected among health workers and the research observed actual deliveries in maternity wards.

1.8 Limitations of the study

The respondents were not willing to disclose information about service delivery especially where quality was compromised. The researcher introduced himself to the respondents to allay their fears and assured them their responses were treated with utmost confidentiality and coded names were used for health facilities. The midwives, who formed a key sample, were wary of responding honestly to the questions asked by the researcher lest they expose quality gaps and be victimized by the supervisors. The researcher made effort to establish good rapport with the respondent, introducing himself first to the respondent and explaining purpose of visit. The researcher made arrangement with the Kajiado county health management team to ensure this exercise

was carried out effectively. Kajiado County is geographically expansive and the researcher necessitated preparation for long road trips often in areas with poor road infrastructure.

1.9 Delimitations of the study

The study only reviewed experiences at the maternity ward and all other factors outside the facility were not considered e.g. policies, systems and structures which could have a significant influence on delivery of quality services, other government policies and projects e.g. the Beyond Zero Campaign could have impacted the implementation of the free maternity care program.

1.10 Assumptions of the Study

Assumptions have been made that the respondents would provide credible and honest information pertaining to the state and operations of the expanded free maternity care programme in Kajiado County. There is an assumption that factors other than the free maternity care programme would not have significantly impacted either negatively or positively on quality of maternal health services. Lastly, it was assumed that all respondents would cooperate to fill out the questionnaire and provide accurate and honest answers as enquired.

1.11 Operation Definition of Terms

Health Facility-health service delivery structure that provides services and has one or more departments operating within it e.g. Outpatient, pharmacy, laboratory.

Health System - People and actions whose primary intent is to promote, restore and maintain health.

Free maternal healthcare policy - a government policy launched in 2013 by Kenya government aimed at increasing access to skilled deliveries through a range of free services categorized as prenatal, postnatal, delivery and well-baby care.

Expanded free maternal healthcare policy (Linda Mama) - a basic healthcare package targeting expectant mothers as well as infants with access to quality healthcare during pregnancy, at delivery and 6 months after delivery at no charge.

Quality of maternal healthcare services - The degree to which the maternal and newborn health services (for individuals and populations) increase the likelihood of timely, appropriate care for the purpose of achieving desired outcomes.

Maternity unit - a health facility department specializing in the treatment and care of women and babies during pregnancy and childbirth.

Medical equipments – Are medical devices that are essential for safe and effective prevention, diagnosis, treatment and rehabilitation of illness and disease.

Health workers – they are all people engaged in actions whose primary intent is to promote, restore and maintain health.

Essential medicines – These are medicines that satisfy the priority health care needs of the population.

Basic amenities – they are primary constituents of health care delivery system that increases patient satisfaction, whether or not it improves clinical outcomes.

CHAPTER TWO

LITERATURE REVIEW

2.1 Introduction

This chapter reviews literature relating healthcare service delivery world over and in Kenya. Various works on this subject in Kenya and in other countries around the globe will be reviewed. The chapter will conclude with a summary of the reviewed literature that highlights the gaps in literature that this study sought to fill, theoretical framework review and conceptual framework will come at the end.

2.2 Empirical review

2.2.1 Health Workers Influence on Quality of Maternal Health Services

Human resources for health burdened with heavy workloads, poor compensation packages and low quality of work life have impeded capacity to deliver patient centred care particularly in the public health sector. In a study on professional satisfaction of intern doctors and its relation to patient satisfaction. It was established that patients of physicians who have higher professional satisfaction were themselves more satisfied with their care.

In a study on association between patient-centered communication in primary care visits and subsequent health and medical care utilization, it was established by Stewart et al. (2000) that patient-centered practice was associated with improved health status (less discomfort, less concern, and better mental health) and increased efficiency of care (fewer diagnostic tests and referrals). Other studies by Saha (2008) noted that integrating cultural competence and patient-centered care significantly improved utilisation of health services among rural communities, this also stimulated healthcare that was both equitable and of high quality.

Good human resource management drives employee satisfaction and loyalty; effective human resource management can also have a significant effect on HRH satisfaction, satisfied and committed employees deliver patient centred care which ultimately results in better health outcomes and higher patient satisfaction (Mosadeghrad, 2014). The Kenya Health Sector Strategic Plan 2012–2018 and the Vision 2030 which are core strategies within the health system in Kenya emphasize on health interventions being organized around people's legitimate needs and expectations with community involvement and participation.

A 2006 study on health workers contribution to delays in service delivery (Edson, et al., 2006) established that constrained healthcare provider skills delayed diagnosis for higher level complications such as dystocia, uterine rupture and severe pre-eclampsia; there were unique incidences of delays in provision of decisive treatment which were occasioned by a health worker often taking the pharmacy locker keys rendering them inaccessible. A 2009 survey on cause of delays when patients were admitted with obstetric emergencies in Nigeria (Orji et al., 2006) established that personnel absenteeism was a notable cause of delays for patients awaiting emergency caesarian section, a related survey by Hoestermann, Ogbaslassie, Wacker and Bastert (1996) found that delayed management of cases by staff members and unavailability of drugs and blood were a major cause of delay.

Human resources for health also influence on timeliness of care, In 2001 the Institute of Medicine brought the timeliness theme into focus in assessing quality of health service delivery by discussing the consequences of a lack of timeliness ranging from

long waiting times that patients may interpret as disrespect from providers to delay in the diagnosis or treatment of an illness (Alastair, 2001). Three forms of delay are noted as major cause of maternal deaths in the developing nations, they include; delay in decision to seek care, delay in reaching care and delay in receiving care (Maternity Worldwide, 2015). Whether due to patient, provider or system factor, any form of delay may lead to suboptimal clinical outcomes; often the patient will take long in the queues waiting for clinician consultation, laboratory test, pharmacy drugs dispense and other diagnostic testing (Magid, Rhodes, Asplin, Steiner & Rumsfeld, 2008).

A safe motherhood study on delay of in-hospital care for treating obstetric emergencies in Jamaica, Rwanda, Ecuador and Benin, found most delays occurred between patient arrival and diagnosis, especially for patients with obstructed labor. Errors and missed diagnoses happened because of long periods when women in labour were not monitored at all, by which fetal distress had been missed and fetal heart lost, this shows HRH has a profound effect on timeliness of care.

HRH has perhaps the strongest link to timely service delivery; good human resources for health policy provides the right number of health care workers with the right knowledge, skills, attitudes and qualifications, performing the right tasks in the right place at the right time to achieve the right predetermined health targets. Failure to do this may contribute to delays - a hallmark of underperforming health system.

The expanded free maternity care programme resulted in increased demand for services; however critical pillars of the health system including HRH were not strengthened to cope with the increased demand. Nurses are reported being overburdened with huge overcrowding in maternity wards, with some women forced

to leave the hospital before their due discharge time to make room for others or even deliver on the floor. The quantity and quality of healthcare providers affect the safety of services delivery process, skilled, motivated and well equipped providers are critical to producing high-quality outcomes as employees perform better when they feel recognised and appreciated (Mosadeghrad, 2014).

A January 2015 study that sought to establish relationship between Human resources for health exhaustion and patient safety Welp (2015) found that burnout affected decision making and was primarily driven by both a lack of motivation or energy and impaired cognitive function, they postulated that emotionally exhausted health workers curtail performance to focus on only the most necessary and pressing tasks and are more prone to safety errors. Clinicians with burnout may also have impaired attention, memory, and executive function that decrease their recall and attention to detail.

A report commissioned by the Global Health Workforce Alliance (GHWA) Secretariat and WHO (GHWA & WHO, 2014) point out that setting up a health workforce with capacity and ability to meet the task of universal health coverage is demanding, and if present-day status quo in the rolling out of human resources for health continue, it will not produce the projected results: the report further states that one major lesson learnt in the past 10 years' is the need to move away from disorganized approaches and temporary solutions; only durable solutions, supported up by civil and administrative commitment with sufficient funding, will contribute to the transformative changes required to attain sustainable health workforce results. The number of health workers required will increase and this calls for newer approaches to estimate human resources for health needs.

A study by Kuehn (2017) indicates that a global scarcity of health care workers, tied with uneven concentration in urban areas, hinders the attainment of key public health priorities including decreasing child and maternal mortality, increasing vaccine coverage, and battling epidemics such as HIV/AIDS. WHO estimates a global shortage of 2.4 million physicians, nurses, and midwives to provide essential health interventions. Disproportionate emigration of health workers from developing nations including Kenya to wealthier countries continues to worsen the situation. These challenges require implementing a long-term approach that will include different stakeholders.

A study in Kenya by Macharia (2010) concluded that inadequate patient safety was 80% associated with disability lasting at least one month and longer hospital stay or death ranking it among top causes of preventable morbidity and mortality world over. Diminished vigilance, cognitive function, and increased lapses place health workers and patients at higher risk for errors. As burned out clinicians become cynically detached from their work, they may develop negative attitudes toward patients further contributing to poor clinician–provider interaction, poor communication, loss of pertinent information for decision-making and ultimately lack of desired health outcomes.

A woman in labour’s cumulative experience while at a facility may deter or encourage her return for subsequent delivery; she may also spread rumour to the wider community which may have the same effect. Findings from a safe motherhood study in Nigeria (Okafor & Rizzuto, 1994) revealed that poor hygiene, censure or abuse from

health workers; convenience and kindness were principal factors in choice of health care providers.

A study in Zaire identified interpersonal qualities (respect, patience, attentiveness, friendliness and straightforwardness) as utmost in family decision between home and facility delivery (Haddad & Fournier, 1995). In a study on perception of quality of maternal and new born care among Malawian women, it was revealed that perceived quality of care widely influence health service utilization (Kambala et al, 2015). The study further revealed that high perceived quality of care was observed on interpersonal relations, conditions of the examination rooms and nursing care services. Self-introduction by the health worker, explanation of examination procedures, consent seeking and encouragement to ask questions were rated highly by respondents.

2.2.2 Medical Equipments Influence on Quality of Maternal Health Services.

Quality and safety have long been used synonymously in healthcare service delivery: safety is a pre-requisite for quality and attaining a high level of client's safety is an indispensable first step towards improving the quality of a health system service delivery (Institute of Medicine, 2001). Patient safety emerges from systems that are skilfully designed to prevent harm (Cook, 1998) and clinical interventions present the strongest supporting evidence on effects of decreasing safety risks to patients. Measuring patient safety remains a challenge, little data available show that critical improvements are required. In Kenya only 2% of health facilities in 2012 were compliant with minimum protocols and systems to assure patient safety (WHO, 2012).

Patient satisfaction is not limited to the way patients are treated by health care workers, their experiences and interactions with equipment and products in the care seeking process can have a significant impact not only on the their opinion of care but also recovery outcome. a recent study from Kim et al. (2017) states that patients' main grumble with care providers is usually related to the long wait times, as well as the non-responsive care environment, the time a patient spends in an treatment office, for example, is affected by the speed of laboratory and diagnostic imaging equipment and the efficiency of other technological equipments. In this study, 37% of patients said they were unhappy because they couldn't receive lab test or X-ray results during their appointment in the same facility but had to trek some distance hospital.

A study on prevention of maternal mortality network (Maine, 1992) established that drug shortages occasioned delays in service delivery. Even where care was free, family members were being asked to purchase drugs and supplies from outside pharmacies, these requirements delayed care, especially when pharmacies were closed. Another study by Gbangbade S and WA Reinke established that lack of drugs and waiting for the emergency room were leading cause of service delivery delays in Benin (Gbangbade & Reinke, 1998).

In his literature on framework to guide clinical teams and healthcare organisations in maintaining safety, Vincent, Burnett & Carthey, 2014) categorised patient harm into the following; treatment harm, harm due to over-treatment mainly over prescription, general harm from healthcare including hospital-acquired infections, harm resulting from delayed or inadequate diagnosis and harm due to failure to receive standard evidence-based care. When the wider population realise care is unsafe, they may lose trust in healthcare and may even be unwilling to have vaccinations, give blood, donate organs or receive transfusions.

A retrospective review of records of patient safety in developing and transitional countries of Middle East and Africa including Kenya (Wilson, 2012) indicates that the scale of preventable disability resultant from poor safety was significantly high and under-reported, 8.2% showed at least one adverse effect resultant from poor safety, of these events, 83% were judged to be preventable, while about 30% were associated with death of the patient. 34% adverse events were from treatment errors in relatively non-complex clinical situations. Inadequate training and supervision of clinical staff or the failure to follow policies or protocols contributed to most events.

Safety should always be of acceptable standard and not lessen due to increased number of clients or absence of healthy workers or any other cause; it should be seamless and must support the ability of interdependent people and technologies to perform as a cohesive unit. Safety failures occur as a result of multiple and often related recurring factors, in order for a health system to guarantee that its care delivery system is safe for all patients; it requires self-analysis of processes of care, identifying the bottlenecks and modifying these factors that cause systems break down (Alastair, 2001). In a safe health system, client information is not lost, is not inaccessible or forgotten during shift changeovers, all relevant medical facts about patients are available, with assurances of confidentiality, to all who need to know it, regardless of where and when they become involved in the process of giving care (Institute of Medicine, 2001).

Safety is a by-product of multiple elements of a health system that work in harmony complementing each other, policies and procedures provide standardization in daily operational activities, they are essential in providing clarity when dealing with issues and activities that are critical to health and safety.

A culture of health service delivery where errors are tracked, analyzed, and interpreted for improvement rather than blame is needed; extensive research in Africa and Kenya in particular on the factors leading to injury; investment should be made on systems of care designed to prevent error and minimize harm should (Institute of Medicine, 2001).

2.2.2 Essential Drugs Influence on Quality of Maternal Health Services

In 1977, the WHO came up with a model list of essential medicines to help governments with a guide for selecting the drugs and medical devices that best address public health needs Essential Medicines List [EML], 2007). National essential medicines lists in Kenya is designed to give priority standing to the medicines necessary to treat a country's most pressing public health problems, this way the limited resources for procurement of medicines can be maximized.

Studies in rural districts of Tanzania (Mkoka, Goicolea, Kiwara, Mwangi & Hurtig, 2014) noted that unreliability of obtaining essential drugs and medical supplies compromised the timely provision of quality care. Similar studies by Reproductive Health Supplies Coalition (2014) stated that essential reproductive health drugs like Oxytocin, misoprostol, and magnesium sulphate are essentially, low-cost and effective medicines enough to save women's lives, the study recommended supportive policies and appropriately funding to ensure access to these medicines in health facilities and communities. A report study by World Health Organization (WHO, 2014) found that approximately 67% of the population lives without an access to essential medicines.

Essential medicines are key to effective referral; lower level health facilities should have essential medicines to manage cases prior to referral. Quality referral system is crucial in preventing maternal deaths and without an efficient lower level facility referral system, obstetric emergencies significantly increased chances of complication and eventual death (WHO, 2016).

A study in Nigeria (Okafor & Rizzuto, 1994) identified lack of essential drugs for premedication during referrals as a significant constraint to reducing maternal mortality. It recommended establishment of essential referral medicines to stabilise a woman in labour's condition before referral because the time taken to travel between referral facilities on often crowded is unpredictable roads is distressing, uncomfortable and could prove fatal for both mother and child (Mathew, Van Holde & Ahern, 2000)

2.2.3 Basic amenities Influence on Quality of Maternal Health Services

Poor infrastructural development in sub-Saharan Africa, particularly in rural areas has been cited as the main contributor to the poor Millennium Development Goal scores, lower level health facilities especially those located in rural communities are mainly served with poor roads, inadequate health personnel and face inadequacy in the provision of essential services arising from lack of electricity and adequate water supply particularly in the lower-tier facilities (Kenya National Bureau of Statistics [KNBS], 2009).

Poor basic amenities can have a negative influence on patients satisfaction with health care service delivery, a study by Bouzid, Cumming and Hunter (2018), noted that patient satisfaction is a good indicator of quality of care provided and the study noted that dissatisfaction with care was even more pronounced when some departments of the health facility notably maternity, lacked adequate water. Other studies by Heather

et al. (2017) established that only 34% of hospitals in sub-Saharan Africa, on average, have reliable electricity access. Kenya was noted to have coverage of 55%.

2.3 Theoretical Framework

2.3.1 Quality of care framework

This study builds upon the WHO's quality of care framework, this framework has eight domains of quality of care within the overall health system. It focuses on the care provided in health facilities and also accounts for the critical role of communities and service users in identifying their needs and preferences and in managing their own health. Perceptions of women, their families and their communities on the quality of maternity care services influence their decision to seek care and are essential components in creating a demand for and access to high-quality maternal and newborn services (WHO, 2012)

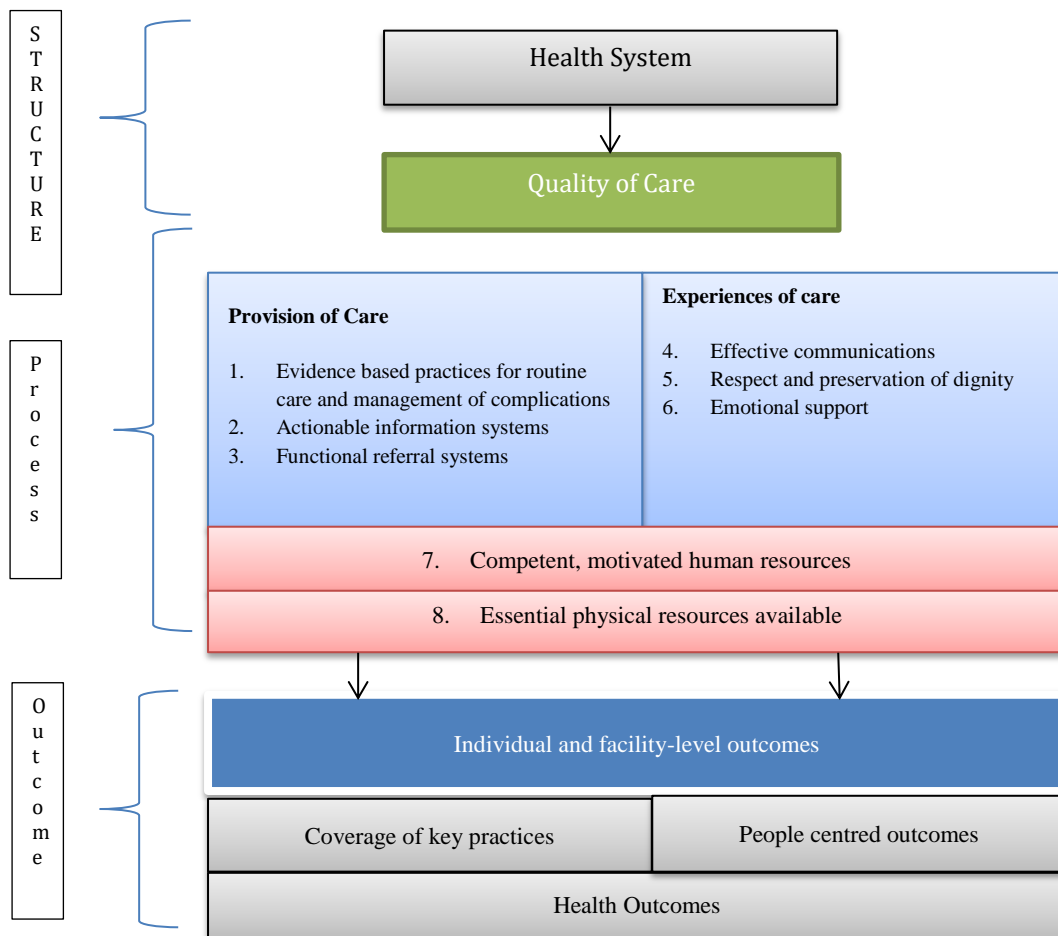


Figure: 2. 1 : WHO framework for the quality of material and new-born
Source: WHO (2016)

The quality of care framework proposes eight domains of quality of care for pregnant women and new-borns in facilities which increases the likelihood of individual and facility achieving desired outcomes. Provision and experiences of care are underlined as key to quality theme. Provision of care includes use of evidence-based practices for routine and emergency care, information systems in which recordkeeping allows review and auditing and functioning systems for referral between different levels of care.

Experience of care consists of effective communication with women and their families about the care provided, respect and preservation of dignity and emotional. The six strategic areas above are identified as fundamental for improving the quality of maternal and new-born care.

Availability of competent motivated human resources and of the physical resources are cross-cutting areas of the framework and prerequisites for good quality of care. The framework assesses the dimensions of quality of care in various sectors of the health system, from the perspectives of service users, service providers and managers, it strongly recommends against making disjointed improvements in a health system but rather laying out an all-inclusive approach which holistically strengthens the health system, processes should be established that ensure seamless client flow and minimal delays. Ultimately health systems can shift their depiction on the purpose of health care from what is done to patients to what is accomplished for them.

2.4 Conceptual framework

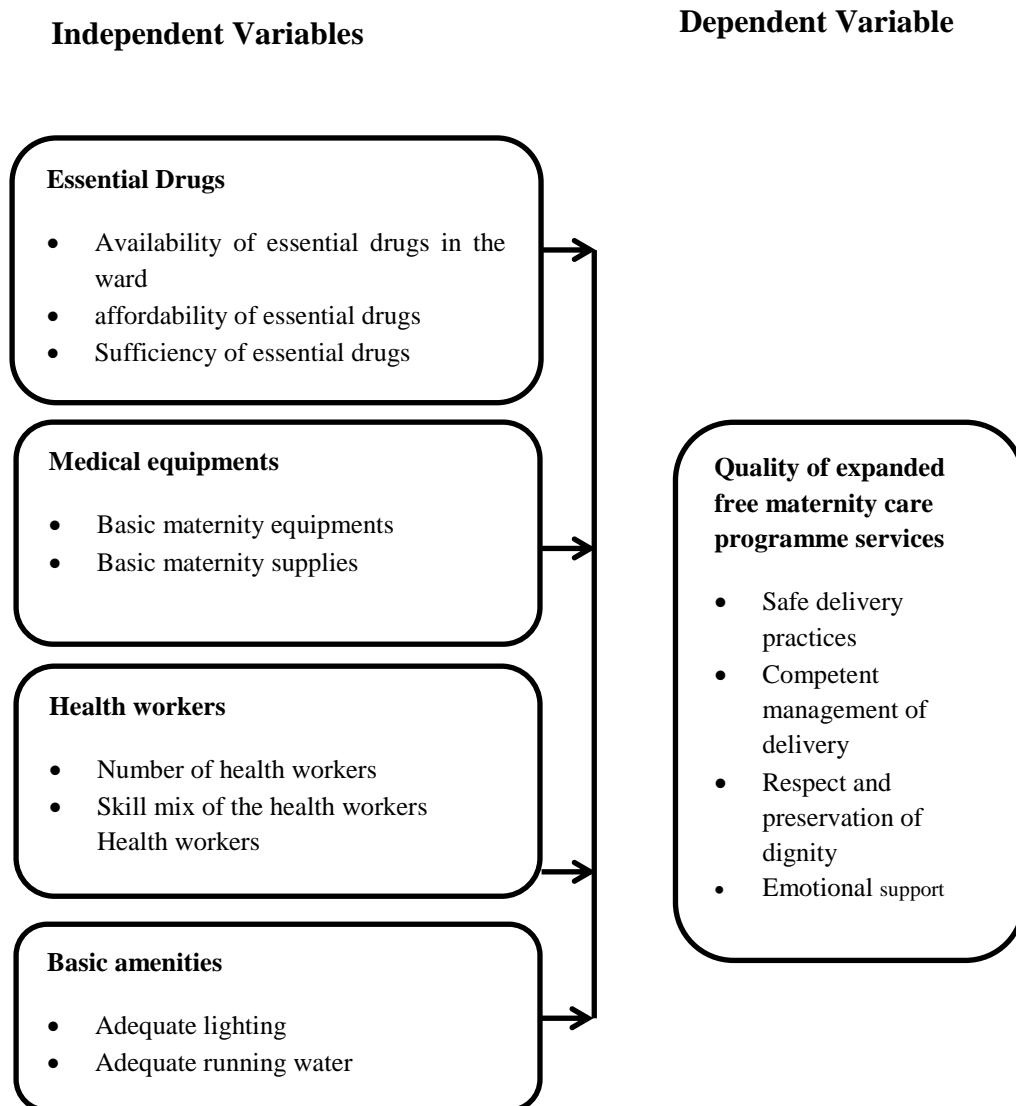


Figure 2.2: Conceptual Framework

Conceptual framework has independent and dependent variables. The independent variables which influence quality of maternal health services are essential drugs, medical equipment, basic amenities and health workers). They are precursor conditions presumed to affect dependent variable (quality of maternity service delivery). The indicators for essential drugs include: availability, affordability and sufficiency of essential drugs of essential drugs. The indicators in medical equipments include basic equipments and supplies. The indicators in health workers include

number and skill mix; the indicators for basic amenities include adequate lighting and running water. Quality of expanded free maternity care programme as the dependent variable was measured using four indicators namely safe delivery practices, competent management of delivery, respect and preservation of dignity and emotional support.

CHAPTER THREE

RESEARCH METHODOLOGY

3.1 Introduction

This chapter describes the methodology of the study. It focuses on research design, study site, target population, sample size, sampling method, sampling procedures, data collection methods, data collection procedures and the methods of data analysis.

3.2 Research Design

A descriptive cross sectional design of survey was utilized to assess the quality of care provided to women with normal and complicated pregnancies used in the study, this design gives focus on the making of objections, design of the instruments collecting data, data collection, processing and analysing data (Mugenda & Mugenda, 1999). The descriptive survey design suited this research in that it provides qualitative as well as quantitative data collection methods of selecting samples in addition to giving adequate information after considering the study in different angles (Oso & Onen, 2009).

3.3 Target population

The population targeted for this study comprised of midwives, clinical officers and medical officers in health facilities in Kajiado County. These persons have provided, and managed expanded free maternity care programme respectively. Since target population was small in number, the study carried out a census.

3.4 Study Location

The study was carried out in Kajiado County of the Rift Valley region of Kenya. the County has a population of 687,312 and an area of 21,292.7 km², it borders Nairobi and extends to the Tanzania border to the south. The county headquarter is Kajiado with the largest township being Ngong.

Kajiado County has continuously experienced poor scores not only in maternal health indicators but also in general health, it is mentioned as one of the only two Counties in Kenya counties that did not provide maternal death reports to the central government audits notwithstanding recording ‘significant’ maternal deaths (MOH, 2015b). There is also limited investment in both clinical and public health by the County government despite poor health system scores. Attendance antenatal clinic is recorded at only 10% while skilled deliveries are 29% compared to the national mean of 44% (MOH, 2013).

The county was positively chosen because it has 44 public health facilities currently implementing expanded free maternal healthcare programme ranging from level 1- 5. There are 154 health workers stationed in the maternity unit conducting a total of 880 deliveries a month. There has been concerted effort to improve quality of maternal health services in view of the aforementioned constraints, the mix of challenges and the efforts put in place make the County well placed to provide related to the Linda mama programme.

3.5 Sampling Procedures

This describes the sampling technique and comprises sampling unit, sampling frame and sample size for the study.

3.5.1 Sampling Technique

The population targeted for this study comprised of healthcare workers (midwives), delivery women and maternity in-charges from Kajiado County. These persons have provided, benefited or managed expanded free maternity care programme. Geographical areas covered by this survey included the five sub counties; Kajiado Central, Kajiado North, Loitokitok, Isinya and Mashuru. The study used census method to sample the health facilities as well as the study respondents. All the 44 health facilities implementing free maternity services were sampled and included: one County referral hospital, three Sub-County hospitals, 10 health centres and 30 dispensaries. See Table 3.1.

Table 3.1: Sampling Frame and Sample Distribution

Health facilities	Population of HF	Percentage
Dispensaries (level 2)	30	68
Health Centres (level 3)	10	23
Sub county hospitals (level 4)	3	7
County referral hospitals (level 5)	1	2
Total	44	100

Source: County Government of Kajiado (2013)

The study sample was 44 respondents comprising 32 midwives, 8 medical officers, and 4 clinical officers. The respondents had experience in delivery and/or management of the free maternal services package (See Table 3.2).

Table 3.2: Distribution of Population of Study

Designation	Population	Percentage
Midwives	32	73
Medical officers	8	18
Clinical officers	4	9
Total	44	100

Source: Kajiado County Health information department, (2018)

3.6 Data Collection Instrumentation

3.6.1 Data Collection Tools

A self-administered semi-structured questionnaire with both closed (Likert scale psychometric constructs where 5=strongly agreed, 4= agreed, 3=neutral, 2= disagreed, and 1=strongly disagreed) and open ended questions, and an observational check-list were used. Through a combination of these sources, the researcher developed an overall diagnosis of quality of care, singling out those areas that impede and promote quality of care and establish links between the direct and indirect variables. Since the health facility in-charges are major architect of quality implementation in labour units, one questionnaire was administered to the labour ward in-charge/supervisor of each facility selected for this study. Another questionnaire was administered to a nurse midwife functional in the labour ward at the time of visit. In total, 44 questionnaires were administered to an equal number of selected health workers

3.6.2 Pre-testing of the Data Collection Tools

Pre-testing of questionnaires is essential to avoid pitfalls during administration of the data collection tool. Pre-testing allows the researcher to try the questionnaire on a smaller group of respondents initially to allow for feed-back and corrections (Zikmund, Babin, Carr & Griffin, 2010). Pretesting the questionnaire helped to detect any ambiguities, misunderstanding and any other difficulty the researcher may have encountered with the instruments, the researcher identified what questions worked well, which needed revision, which could be entirely removed and what needed to be added. To detect misunderstandings, ambiguities, or other difficulties participants may encounter with instrument items, a pretesting of the questionnaire took place in Kitengela Sub County Hospital and comprised 6 respondents. This facility is located on the outskirts of the capital city Nairobi; it reports higher volume of patients' turnout of patients in the maternity. It was primarily chosen due to its ease of access by the researcher as well as ample respondents. Specific activities during this pretesting phase included; administering the tools to randomly sampled subjects in exactly the same way as it was carried out in the main study. The record of these participants was noted and documented to ensure they did not participate in the main study.

3.6.3 Validity of the Instruments

The researcher ran a test on the instruments to establish extent to which they measure and accomplish tasks they are designed to perform including appropriateness for the sample/population, comprehensiveness of the questionnaire to collect information needed to address the purpose and goals of the study. Validity was established during the pretest, the researcher administered the tools to sampled pilot subjects in exactly the same way as it was carried out in the main study and ask them to identify unclear

and difficult questions, the study documented the duration taken to fill out the questionnaire and in the process determine whether it is reasonable, the study also establish if the replies can be interpreted to gather information that is required. Based on the feedback, the researcher with further re-word or re-scale any questions as was deemed necessary.

3.6.4 Reliability of the Instruments

The researcher wanted to establish if the measurement tools used to quantify the variables provide stable and consistent responses, test re-tests approach was employed with researcher administering the same questionnaire to same respondents under the same conditions and within another short period issue another one to the same persons, data collected from the two set of responses were then reviewed to see the level of co-relation, a correlation coefficient (r) value greater than 0.70 was considered good and the instrument will be deemed to be reliable. It was expected that the four thematic subjects being studied would not change over the testing period in the sampled list hence affecting the findings; the second supposition was that the time period after test one was just enough not to influence the test two scores

The analysis of reliability was done using (Cronbach's-Alpha which evaluates internal consistency by establishing whether certain items within a scale measure the same construct validity. Gliem and Gliem (2012) recommend that Alpha value threshold should be 0.7; The illustration below on table 3.3 depicts that all the five scales were reliable because their reliability values exceeded a threshold of 0.7. This infers that the research instrumentation was reliable.

Table 3.3: Validity and Reliability Result

Determinant	No of items	Cronbach's Alpha
Essential drugs	18	.834
Medical equipment	15	.872
Health workers	11	.993
Basic amenities	10	.825
Quality healthcare	12	.789

The above Cronbach's Alpha results indicate that the data collection instrument had consistency because all values are above threshold value of 0.7.

3.7 Data Collection Methods

3.7.1 Methods

The data used for this study was mainly primary data; permission was sought from the relevant bodies within Kajiado County executive board. A letter which introduces the researcher as a Master's student from the Kenya Methodist University was sent to the County administration seeking a go-ahead in accessing the health facilities as well as the health workers in the area. All participants were clearly explained about the research study including its objectives; only those who willingly express readiness to contribute in the study were interviewed or asked to fill in the questionnaire. In the questionnaires, the respondents were not expected to divulge their names and therefore were in a position not to disclose all the relevant information without fear. Questionnaires and observational checklists were well framed to ensure disclosure of only what was intended; those getting into details on personal matters were avoided. Being a complex and sensitive area, the assessor (who is a qualified Nurse / midwife) was personally responsible for all data collection. After the general agreement with the County and Sub county administration, written information was sent to participating hospitals on the purpose of the study.

3.7.2 Data Analysis and Presentation

Prior to the processing of the responses obtained in this study, questionnaires were edited for completeness and consistency and the incomplete ones excluded from analysis. Quantitative data analysis was done using bivariate linear correlation and multiple linear regression, statistics used included P-Values, which were used to indicate the influence of spread between variables in delivery of quality healthcare in maternity units, F- statistics was used to test validity of the regression model and Pearson correlation coefficient (Pearson's r) was used to test how independent variables correlate with the dependent variables.

The analysis consisted examining, categorizing, tabulating and recombining in order to discover any important underlying patterns and trends used in analyzing the interview guides of the study, descriptive statistics was used for the analysis to provide mean and mode while pie charts, tables and bar charts were used for data presentation.

3.7.3 Ethical Consideration

An encrypted language was used to identify respondents and their identity remained withheld. Informed consent was obtained from all the study participants. Ethical clearance to carry out the research study was sought and obtained from Kenya Methodist University's Board of Scientific and Ethics Review Committee. A written permission to conduct the study was sought from Kajiado County Directorate of Health.

Before the researcher went to the field for data collection, ethical approval was sought from KeMU Scientific and Ethical Review Committee. Once the approval was granted, ethical values were upheld to ensure the study is conducted in a manner that promoted respect and dignity to respondents and interviewers, a person's self-worth were not undermined regardless of any difference e.g. decline to participate in the study. It was therefore not substituted even at the expense of getting more credible information.

All participants were clearly explained about the research study including its objectives; only those who willingly expressed readiness to contribute in the study were interviewed or asked to fill in the questionnaire. In the questionnaires, the respondents were not expected to divulge their names and therefore were in a position to disclose all the relevant information without fear. Questions were well framed to ensure disclosure of only the data intended and those getting into details on personal matters were avoided.

CHAPTER FOUR

RESULTS AND DISCUSSIONS

4.1 Introduction

This chapter presents the findings obtained from the primary data. It further provides characteristics of the respondents and their opinions concerning the influence of expanded free maternity care programme on delivery of quality health care in maternity units within Kajiado County. For the sake of simplification of this presentation, the researcher used tables and pie charts that summarize responses of the respondents.

4.2 Response rate and reliability of instrument

4.2.1 Response rate

The target population of this study was 44 healthcare workers. The targeted respondents were nurses, clinical officers and medical doctors all working in maternity units, all 44 questionnaires were administered, filled and returned, this gave a response rate of 100%.

4.3 General Information of the Health Facilities.

Table 4.4 provides information on distribution of surveyed health facilities and their levels.

Table 4.4: Health Facility Type

Health Facility type	Percentage
Dispensaries (level 2)	68
Health centre (level 3)	23
Sub-county (level 3)	7
County referral (level 5)	2

According to Table 4.4 in this study 68% of the health facilities were dispensaries (Level 2), 23% were Health centres (Level 3), 7% were Sub County referral hospitals (Level 4) while 2% were County referral hospital (level 5). It can be concluded that a majority of the health facility were dispensaries (Level 2).

Health Services Offered

This study found out that 88.37% of the health facilities offer free medical services including antenatal care, delivery care, postnatal care and family planning. Only 11.63% do not offer all the free medical services. It can be concluded that majority of the health facility offer expanded free maternity care programme services including antenatal care, delivery care, postnatal care and family planning this justifies the purpose of the study of establishing the determinants of quality health care provision.

4.4 Status of Expanded Free Maternity Care Programme Health Services

This section presents descriptive analysis findings on the independent (essential drugs, medical equipment, health workers, and basic amenities) and dependent variables (delivery of quality healthcare) of the study. The respondents were therefore required to rate their responses on a Likert scale of 1-5 where: 5= Strongly Agree; 4= Agree; 3= Neutral; 2= Disagree; 1=Strongly Disagree.

4.4.1 Delivery of quality healthcare services in maternity units

The study respondents were requested to show their level of agreement with the statements in relation to delivery of quality healthcare. The analysis in Table 4.3 shows that a majority of services related to patient safety were not routinely performed, hand washing with soap and water (or using hand sanitizer) is the most important way to prevent the spread of infections. Germs on healthcare workers' hands can transmit dangerous organisms to patients, still only 39% of the health workers reported always wash their hands prior to conducting deliveries. Study by Iryna (2015) established that most common mistakes by health workers were to regard hand washing and hand disinfection as one and same, neglecting the five moments for hand hygiene and not wearing protective gloves.

Table 4.5: Status of Quality of Expanded Free Maternity Care Programme

Statements	SA		A		N		D		SD		Mean	SD
	n	%	n	%	n	%	n	%	n	%		
Hands cleaned with disinfectant prior to conducting deliveries.	0	0	17	39	22	50	5	11	0	0.0	4.32	0.47
All biohazards including placenta were disposed appropriately	7	16	31	71	5	11	1	2	0	0.0	3.93	0.5
Sterile gloves worn for all sterile procedures	7	16	31	71	6	13	0	0	0	0.0	4.25	0.53
Delivery procedures in 2nd and 3rd stage performed using sterile implements.	7	16	33	75	4	9	0	0	0	0.0	3.16	1.28
Clients felt they were treated with respect in the maternity unit	7	16	35	80	2	5	0	0	0	0	2.91	1.1
Clients agreed they got patient centred care in maternity units	5	11	27	61	9	21	3	7	0	0	3.55	1.11
Delivery parameters were documented accurately in the Partograph	2	6	33	75	8	18	1	2	0	0	3.84	0.68
Evidence based care practiced for all clients in the maternity unit.	5	11	30	68	9	21	0	0	0	0	3.5	0.63
Complete new-born assessment was done on all new-borns	3	7	11	25	19	43	11	25	0	0	2.5	1.02
Routine prophylaxis was done to all new-born babies	7	16	24	55	10	23	2	5	0	0	4.27	0.45
Patients agreed there was effective communication with health worker	5	11	24	55	13	30	2	5	0	0	4.07	0.7
Overall quality of care to patients in maternity ward was good	3	7	34	77	7	16	0	0	0	0	3.16	0.78

KEY: SA=Strongly Agree; A=Agree; N=Neutral; D=Disagree; SD=Strongly Disagree

Study by Giorgia (2017) that assessed 37 health facilities with a maternity unit in Zanzibar established that merely 49% had the setup requirements to enable hygienic hands', readiness of constant running water was principally lacking. below half (46%) of assessed health facilities met the understanding desired for ensuring a clean delivery environment; 85% of the delivery surfaces tested positive for multiple potential pathogens. Basic equipments including sterile disposable cord clamps were habitually out of stock, resulting in use of non-sterile thread made of cloth.

Partograph is a valuable tool to help detect abnormal progress of labour, fetal distress and signs that the mother is in difficulty, 85% of respondents positively responded to always using a partograph when managing labour. A study by Haymanot (2017) that assessed familiarity and practice of the partograph in public health facilities in eastern Ethiopia established that less than 50% of health staff had reasonable knowledge about the tool. Continuous in-service obstetric care training as well as the type of health institutions and profession were associated with knowledge and use of the partograph. Health workers with positive attitude towards partograph were more inclined to utilise the partograph.

A study by Wolke, Dave, Hayes and Tomlin (2002) on routine newborn assessment and its related maternal satisfaction established that post delivery women were more likely to be satisfied with the newborn examination by a midwife because midwives were more likely to talk over healthcare concerns during the check-up and were able to provide continuity of care.

4.4.2 Status of Essential Medicines within the Expanded Free Maternity Care Programme

The study respondents were requested to show their level of agreement with the statements in relation to essential drugs availability in the delivery room. The results are shown in Table 4.6.

Table 4.6: Status of Essential Medicines in the Expanded Free Maternity Care Program

Statement	SA		A		N		D		SD		Mean	Std-dev
	n	%	n	%	N	%	n	%	n	%		
Maternity unit has an essential drugs list hang on the wall	1	2	6	14	10	23	23	52	4	9	2.07	0.45
Oxytocin injectable is always available for use	11	26	32	74	0	0	0	0	0	0	4.39	0.49
Magnesium sulphate injectable is always available	9	20	27	61	2	5	6	14	0	0	4	0.75
Misoprostol drug is always available	1	2	4	9	2	5	32	74	4	9	2.02	0.59
Intravenous fluids are always available	10	23	31	70	2	5	1	2	0	0	4.07	0.33
Dexamethasone injection is always available	5	11	1	2	11	25	25	57	2	5	2.39	1.21
Glucose 5-10-50% is always available	7	16	5	11	21	48	11	25	0	0	3.02	1.25
Sodium chloride 0.9% is always available	18	42	24	56		0	1	2	0	0	4.25	0.44
Water for injection is always available	15	34	26	59	1	2	2	5	0	0	3.91	0.6
Lignocaine injection is always available	16	36	27	61		0	1	2	0	0	4.23	0.57
Epinephrine/adrenaline is always available	6	14	5	11	7	16	26	59	0	0	3	1.16
There are never any expired drugs in the pharmacy or in the drug cupboard	0	0	9	21	16	37	13	30	5	12	2.61	0.84
Vaccines are always kept at recommended cold chain temperatures	5	11	12	27	22	50	4	9	1	2	3.39	1.04
Patients always have access to essential drugs	3	7	33	79	4	10	2	5	0	0	3.7	0.63
There is always sufficient quantities of essential drugs in the labour room	1	2	37	86	2	5	3	7	0	0	3.5	0.63

Key: SA (Strongly Agree), A (Agree) N (Neutral) D (Disagree) SD(Stongly Disagree)

Availability of essential drugs has been acknowledged to be one of the factors that influence delivery of quality healthcare. The study wanted to establish the claim. The respondents were therefore required to rate their responses on a likert scale of 1-5 where:5= Strongly Agree; 4= Agree; 3= Neutral; 2= Disagree; 1=Strongly Disagree. The analysis in table 4.8 shows that 81% of health facilities didn't have an essential drug list. A quantitative assessment of essential drugs list in South Africa by (Velisha

Ann Perumal-Pillay, 2016) established that critical appraisal and continued review of the essential medicines list is key to promote safety and efficacy.

Another study by Wang (2018), established that increasing the quantities of essential medicines in health facilities was an effective way to lessen the disease burden for affected patients. Establishing a locally embraced essential medicines system, increasing government outlay, underpinning education and publicity as most effective ways to promote and increase use of essential drug prescriptions. Another study by Mururi (2017) recognized that health staff training was found to be positively related with ease of use as well as ability to request and make monetary plans for availability of essential medicines in healthcare facilities.

Misoprostol was available in only 11% of health facilities, this notwithstanding the critical role the drug plays in prevention of postpartum haemorrhage. A study by Nguyen Thi Nhu Ngoc (2013) established that a single of 400 mcg sublingual misoprostol successfully empties the uterus of products of conception for most women experiencing incomplete abortion. vaccines were only kept at recommended cold chain temperatures in 39% of health facilities its however positive to note that Oxytocin, an important drugs for induction of labour and management of postpartum hemorrhage as well as Magnesium sulphate, for treatment of eclampsia were available in 100% and 81% of assessed facilities.

The study findings are comparable to similar studies in rural districts of Tanzania by Mkoka et al. (2014) which noted that unreliability of obtaining essential drugs and medical supplies compromised the timely provision of quality care. The study also comparable to those of Reproductive Health Supplies Coalition (2014) which stated

that Oxytocin, misoprostol, and magnesium sulphate are essential, low-cost and effective medicines that can save women's lives and supportive policies and appropriately funding are vital to ensuring access to these medicines in health facilities and communities around the world. Their findings however represent a better score than The World Medicines Situation Report 2014 of the World Health Organization (WHO) which pointed out that approximately 67% of the population lives without an access to essential medicine.

4.4.3 Status of Medical Equipment in the Expanded Free Maternity Care Programme

The study respondents were requested to show their level of agreement with the statements in relation to essential drugs availability in the delivery room. The results are shown in Table 4.7

Table 4.7: Status of Medical Equipment in the Expanded Free Maternity Care Program

Statements	SA		A		N		D		SD		Mean	Std-dev
	n	%	n	%	n	%	n	%	n	%		
Delivery room is always properly lit	9	20	14	32	1	2	13	30	7	16	2.57	1.02
Delivery room is always adequately heated to keep new-born warm	5	11	22	50	15	34	2	5	0	0	4.16	0.37
Delivery room always has adequate oxygen supply for use when needed	5	11	12	27	19	43	8	18	0	0	4.02	0.4
Delivery room always has a functioning wall clock	6	14	5	11	20	45	13	30	0	0	2.7	0.93
Delivery room always use Sterile Delivery pack to conduct deliveries	10	23	26	60	6	14	1	2	0	0	3.91	0.42
Delivery room always has a functional thermometer	14	33	24	56	2	5	3	7	0	0	2.75	0.99
Delivery room always has sterile gloves	15	35	24	56	3	7	1	2	0	0	2.86	0.96
Delivery room always has a functional foetal scope	19	43	25	57	0	0	0	0	0	0	4.02	0.59
Delivery room always has a functional BP Machine available	15	34	28	64	1	2	0	0	0	0	4.34	0.61
Delivery room always has IV catheters of right size	14	33	24	56	4	9	1	2	0	0	4.25	0.65
Delivery room always has syringes	16	37	25	58	2	5		0	0	0	3.34	1.08
Delivery room always has needles of right size	15	34	24	55	4	9	1	2	0	0	2.82	1.21
Delivery room always has sterile suturing set (scissors, needles holder)	10	23	26	59	7	16	1	2	0	0	3.64	1.22
Delivery room always has Weigh machine for baby	15	34	28	64	1	2	0	0	0	0	3.93	0.82
Delivery room always has resuscitation bags	11	25	22	50	11	25	0	0	0	0	3.7	0.88

SA (Strongly Agree), A (Agree) N (Neutral) D (Disagree) SD(Stongly Disagree)

Basic equipments are the tools that help healthcare workers deliver optimal services, without these tools the quality of delivery is compromised. The study sought to know whether a medical equipment availability influence delivery of quality healthcare availability in the delivery room of health facilities in Kajiado County. The respondents were therefore required to rate their responses on a Likert scale of 1-5 where: 5= Strongly Agree; 4= Agree; 3= Neutral; 2= Disagree; 1=Strongly Disagree.

The analysis in table 4.4 shows that a majority of respondents in the category agreed that the health facilities had relatively adequate supplies but not so sufficient equipments. 51% agreed that the delivery room was always properly lit, 83% of the facilities always used sterile delivery pack to conduct deliveries. A functional BP Machine (Sphygmomanometer) was available in 83% of facilities. Of concern was the oxygen supply which was always unavailable in 61% of health facilities. 51% of delivery rooms were properly lit, dispensaries in remote settings were most affected. Midwives explained their frustrations in performing simple but crucial procedures like episiotomy and tear repairs. Often they had to refer patients to higher level institutions for procedures they could perform. This not only financially burdened the client but also created unnecessary load to upper level facilities. as reported by one respondent: *the lack resuscitation bags for newborns is of great concern for us, we want to resuscitate a newborn but the ambubag are adult size and won't fit in its mouth, this can easily crash her chest*'. Another respondent had this to say; *in recent times, the quality of medical equipment that we happen to receive is of poor quality, they quickly fail to function and you have to replace them...now don't even talk of the lengthy and bureaucratic process involved here that can take 6 or more months, ultimately we just let them stay here and waste, just go outside and see the ambulance that is rotting away in the sun yet we have no means for emergency referral*. The finding concurs with a research conducted by the Navrongo Health Research Centre (Akazili, 2016) on the government's free maternal health care policy in the Upper East Region, Ghana which brought the role of equipment as crucial in the implementation of the policy. Cook (1998) also noted that poor functioning equipments were a risk to patient and staff wellbeing, it went on to state that patient safety could only be assured when systems are skilfully designed to ensure skilled workers and optimally functioning equipment

4.4.4 Status of Health Workers in the Expanded Free Maternity Care Programme

The study respondents were requested to show their level of agreement with the statements in relation to essential drugs availability in the delivery room. The results are shown in Table 4.8.

Table 4.8: Status of Health Worker factors in the Expanded Free Maternity Care Program

Statements	SA		A		N		D		SD		Mean	Std-dev
	n	%	n	%	n	%	n	%	n	%		
Health facility periodically appraises all staff	2	5	9	20	13	30	19	43	1	2	2.61	0.87
Health facility has mechanism for recognizing good performance.	5	12	33	77	1	2	4	9	0	0	3.86	0.51
Each health worker has a job description	4	9	10	23	11	25	19	43	0	0	2.61	0.97
A qualified staff member is designated to carry out triage	11	25	30	68	2	5	1	2	0	0	2.84	1.03
A health professional is always available to manage patients with an emergency condition	11	25	30	68	2	5	1	2	0	0	4.02	0.51
Staff in charge of labour ward is adequately trained and able to apply skills	2	5	9	20	30	68	3	7	0	0	4.25	0.58
Health workers in delivery room routinely undertake continuing professional development	23	52	13	30	4	9	1	2	3	7	4.16	0.61
There are enough health workers in labour ward relative to deliveries	8	18	4	9	4	9	28	64	0	0	3.25	0.97
We have adequate skill mix of the health workers	3	7	24	55	13	30	4	9	0	0	2.73	1.07
Health workers have adequate experience to effectively manage deliveries	6	14	30	68	8	18	0	0	0	0	3.55	1.15
Health workers have adequate capacity to identification, manage and refer complicated delivery	6	14	30	68	8	18	0	0	0	0	3.84	0.75

Key: SA (Strongly Agree), A (Agree) N (Neutral) D (Disagree) SD(Stongly Disagree)

The study sought to know whether skill mix and numbers of healthcare workers influence delivery of quality healthcare in the delivery room of health facilities in Kajiado County. The respondents were therefore required to rate their responses on a Likert scale of 1-5 where: 5= Strongly Agree; 4= Agree; 3= Neutral; 2= Disagree; 1=Strongly Disagree. A health systems' ability to perform well and respond appropriately to the emerging challenges is strongly influenced by the availability of health workers with relevant skills, in sufficient numbers, located where they are needed, and working in an environment that motivates and engages them, midwives especially play an instrumental role to introduce women to the health system and ensure that women and their babies receive a continuum of skilled care during pregnancy, childbirth, and in the immediate post-delivery. The research identified that over 75% of staff did not receive routine appraisal from their supervisors, 68% of health workers did not have a job description. Skilled health workers are unable to deliver services effectively unless they are adequate in number, 73% noted that the number of health workers was not adequate vis a vis the number of deliveries.

On a positive note, 88% stated that there were processes in place for recognition of good performance among health facilities and this was a big motivation factor. 82% stated that they routinely undertook continuing professional development that helped improve their skills and experience.

Overworked staff are more prone to professional dissatisfaction which subsequently has a direct relation to patient satisfaction. According to Haas et al. (2000), patients of physicians who have higher professional satisfaction were themselves more satisfied with their care. Satisfied and committed employees deliver patient centred care which ultimately results in better health outcomes and higher patient satisfaction (Mosadeghrad, 2014). This study has established that staff shortage was a major implementation challenge, feedback from midwives and facility in-charges

collaborated with observation from the researcher. Only 53% of respondents agreed that their facilities had adequate skill mix of the health workers.

The study agrees with (Welp, 2015) which established that inadequate staff numbers often lead to fatigue which subsequently affected decision making process, lack of motivation and impaired cognitive function, they postulated that emotionally exhausted health workers curtail performance to focus on only the most necessary and pressing tasks and are more prone to safety errors. Health workers with burnout may also have impaired attention, memory, and executive function that decrease their recall and attention to detail

4.4.5 Status of basic amenities in delivery room

The study respondents were requested to show their level of agreement with the statements in relation to basic amenities in the delivery room. The results are shown in table 4.9

Table 4.9: Status of Basic Amenities in the Expanded Free Maternity Care**Programme**

Statements	SA		A		N		D		SD		Mean	Std-dev
	n	%	n	%	n	%	n	%	n	%		
Maternity unit always has regular electricity supply	5	11	36	82	2	5	1	2	0	0	3.25	0.92
Maternity unit always has back-up power supply in the case of a power outage	2	5	7	16	8	19	20	47	6	14	3.09	1.14
Maternity unit always has adequate running water available	6	14	29	66	1	2	5	11	3	7	3.66	1.12
Maternity unit is always open 24 hours	28	64	6	14	4	9	5	11	1	2	3.93	0.63
Maternity unit has a separate ward for admitting obstetrics patients post-delivery	6	14	5	12	12	29	16	38	3	7	3.59	0.66
Maternity unit has a functional theatre room operational 24 hours	3	7	2	5		0	31	70	8	18	2.77	1.18
Maternity unit always has updated clinical protocols and guidelines for referral of complicated labor and maternity cases	5	11	26	59	7	16	4	9	2	5	4.16	0.43
Maternity unit always has a functioning ambulance/taxi for emergency referrals	2	5	3	7	26	59	10	23	3	7	3.34	1.22
Maternity unit always has adequate, clean running water	5	11	28	64	7	16	3	7	1	2	3.11	1.19
Maternity unit always has adequate reliable back-up water source	7	16	6	14	16	36	14	32	1	2	4.11	0.49

SA (Strongly Agree), A (Agree) N (Neutral) D (Disagree) SD(Stongly Disagree)

The study sought to know whether basic amenities influenced delivery of quality healthcare in the delivery room of health facilities in Kajiado County. The respondents were therefore required to rate their responses on a Likert scale of 1-5 where: 5= Strongly Agree; 4= Agree; 3= Neutral; 2= Disagree; 1=Strongly Disagree.

Study revealed that 93% of assessed health facilities always had regular electricity supply from the main grid; it was notable for the researcher to observe that 75% of health facilities had adequate, clean running water. This should be applauded in view of the key role this essential commodity plays in not only infection prevention but

also overall client satisfaction (Aradhana, 2015). That said, some basic amenities were wanting, 71% of health facilities did not have a separate ward for admitting antenatal and patients post-delivery mothers, they were all kept together, also there was no back-up power and water source for 79% and 71% of health facilities. In a study on the role of energy in health facilities by Laura (2018), it was recognized that rural health facilities were constrained with regard to consistent supply of power. The study concluded that quality of service delivery would be strengthened with an improved energy supply.

Recent studies by Bouzid et al. (2018) noted that Patient satisfaction is a good indicator of quality of care provided and impacts on care seeking behaviour, inadequate water and sanitation services in healthcare facilities was associated with increased patient dissatisfaction and was even a barrier to service use in some settings, most notably maternity services. The findings are also in agreement with related studies by (Heather et al., 2017). The study established that despite access to electricity being critical to health care delivery and to the overarching goal of universal health coverage, only 34% of hospitals in sub-Saharan Africa, on average, have reliable electricity access. Kenya was noted to have coverage of 55%.

4.5 Relationship between Expanded Free Maternity Care Programme and Quality of Delivery of Health Care

The relationship between expanded free maternity care programme and the quality of health care delivery was examined using correlation analysis while the influence of this programme on quality of healthcare delivery was assessed using multiple linear regression analysis. This section of the study presents findings on regression, analysis of variance and co-efficient of determination.

4.5.1 Strength of the relationship between expanded free maternity care programme and quality of healthcare service

The study used Pearson correlation coefficient to check on the relationship between the dependent variable and independent variable as well as between the independent variables themselves. It is expected that the dependent variable should be correlated with the independent variable.

Table 4.10 Bivariate linear Correlations: all variables

		Quality healthcare	Essential drugs	Medical equipment	Health workers	Basic amenities
Quality healthcare (Y)	Pearson Correlation	1				
	Sig. (2-tailed)		.			
	N	44				
Essential drugs(X ₁)	Pearson Correlation	.302	1			
	Sig. (2-tailed)	.047				
	N	44	44			
Medical equipment (X ₂)	Pearson Correlation	.338	-.012	1		
	Sig. (2-tailed)	.006	.939			
	N	44	44	44		
Health workers (X ₃)	Pearson Correlation	.655**	.032	-.159	1	
	Sig. (2-tailed)	.000	.836	.303		
	N	44	44	44	44	
Basic amenities (X ₄)	Pearson Correlation	.350**	-.196	.011	.333*	1
	Sig. (2-tailed)	.020	.202	.943	.027	
	N	44	44	44	44	44

** . Correlation is significant at the 0.01 level (2-tailed).

* . Correlation is significant at the 0.05 level (2-tailed).

As shown in Table 4.10, availability of health workers have the highest correlation with provision of quality healthcare, followed by basic amenities, medical equipment, and essential drugs respectively. Similarly there should be low correlation among the independent variables. High correlation among the independent variables means that the estimated dependent variable can either be overestimated or underestimated. As seen from the correlation results (Table 4.10) the independent variables were not very highly correlated as to present the threat of multicollinearity (all correlation coefficients were below 0.8)

Further, the study result in Table 4.9 indicate that availability of basic amenities (X₄) was statistically significantly correlated with delivery of quality healthcare services ($r = .350^{**}$, $p < .020$). Hence, improvement in availability of basic amenities would positively influence delivery of quality healthcare services in maternity units in

Kajiado County under the Expanded Free Maternal Care Programme. Similarly the null hypothesis that there is no influence of availability of basic amenities on delivery of quality healthcare services in maternity units was rejected. Results indicated that there was statistically significant relationship between the health worker factors as well as availability of basic amenities and delivery of quality healthcare services in maternity units.

However, there was no significant statistical evidence on the relationship between availability of essential drugs ($r = .302^{**}$, $p < .047$), as well as availability of medical equipment ($r = .338^{**}$, $p < .006$) and delivery of quality healthcare services in maternity units in Kajiado County under the Expanded Free Maternal Care Programme. Hence, the null hypothesis that there is no influence of availability of essential drugs on delivery of quality healthcare services in maternity units in Kajiado County was accepted. Likewise, the null hypothesis that there is no influence of availability of medical equipment on delivery of quality healthcare services in maternity units in Kajiado County was accepted.

4.5.2 Effect of Expanded Free Maternity Care Programme on Quality of Delivery of Health Care

A multiple regression analysis was done on the four factors (availability of essential drugs (X_1), availability of medical equipment (X_2), health worker factors (X_3), and availability of basic amenities (X_4) to test their combined influence on delivery of quality healthcare services in maternity units in Kajiado County under the Expanded Free Maternal Care Programme. The model summary results are presented in Table 4.9.

Table 4.11: Model Summary

Model Summary				
Model	R	R Square	Adjusted R Square	Std. Error of the Estimate
1	.802 ^a	.643	.606	.419

a. Predictors: (Constant), Basic amenities, Medical equipment, Essential drugs, Health workers

As shown in Table 410, 64.3% of the variation in provision of quality healthcare can be explained by changes in basic amenities, medical equipment, essential drugs, and health workers, leaving 33.7% unexplained (error term). Since $R^2 > 0.60$, the model is fit for forecasting.

Table 4.12: Delivery of Quality Healthcare Services in Maternity Units: Regression Coefficients

Model		Sum of Squares	df	Mean Square	F	Sig.
1	Regression	12.319	4	3.080	17.560	.000 ^b
	Residual	6.840	39	.175		
	Total	19.159	43			

a. Dependent Variable: Competency

b. Predictors: (Constant), Basic amenities, Medical equipment, Essential drugs, Health workers

As seen from Table 4.11, the regression output containing all the four variables in this study was found to be valid ($F(4,39) = 17.560, p < .001$) meaning the four factors in this study are good predictors explaining the variations in delivery of quality healthcare services in maternity units under the Expanded Free Maternal Care Programme. Further the relative influence of each of the aspects of the expanded health care program were assessed and the results are presented in Table 12.

Table 4.13 Coefficients

		Coefficients ^a				
		Unstandardized Coefficients		Standardized Coefficients		
Model		B	Std. Error	Beta	t	Sig.
1	(Constant)	.350	.915		.383	.704
	Essential drugs	.457	.197	.228	2.318	.026
	Medical equipment	.134	.109	.118	1.224	.228
	Health workers	.427	.066	.660	6.460	.000
	Basic amenities	.122	.059	.215	2.067	.045

a. Dependent Variable: Quality healthcare

The multiple regressions results (Table 4.12) indicate that availability of essential drugs (X_1 : $\beta_1 = .228$, $t = 2.318$, $p < .026$), health worker availability (X_3 : $\beta_3 = .660$, $t = 6.460$, $p < .001$), and availability of basic amenities (X_4 : $\beta_4 = .215$, $t = 2.067$, $p < .045$) influenced delivery of quality healthcare services in maternity units in Kajiado County under the Expanded Free Maternal Care Programme. One factor, availability of medical equipment (X_2 : $\beta_2 = .118$, $t = 1.224$, $p = .228 > 0.05$) did not significantly influence quality of healthcare delivery. The value of the constant ($\beta_0 = .350$, $p < .704$) indicates that delivery of quality healthcare services may not always exist without at least some of these minimum four factors (availability of essential drugs, medical equipment, health workers factors and availability of basic amenities) under investigation in this study. The coefficients of Essential drugs(X_1), Medical equipment (X_2) and Basic amenities (X_4) indicate that a unit increase in essential drugs, human resource factors and basic amenities index leads to an increase in delivery of quality. The probability value of $p < 0.05$ indicates that the model was entirely significant. Specifically, Basic amenities, Medical equipment, essential drugs, and health workers combined together significantly influences provision of quality health care in the health facilities in Kajiado County Kenya.

Specifically, essential drugs have the highest positive influence on quality healthcare, followed by health workers, medical equipment and basic amenities respectively. Individual significance of the predictor variables was tested using t-test. The finding reveal that essential drugs, health workers, medical equipment and basic amenities were individually statistically significantly related to provision of quality healthcare $p\text{-value} < 0.05$.

Finding on health workers influence on quality service delivery in this study agree with those of Mosadeghrad (2014) which noted that motivated employees tended to deliver patient centred care which ultimately results in better quality health outcomes and higher patient satisfaction, it also agrees with studies by Welp (2015) which established that staffing significantly affected quality of service delivery, inadequate staff numbers often led to fatigue which subsequently affected decision making process and negatively affecting the health facilities effort towards quality improvement and patient safety.

The finding on basic amenities agrees with similar study by (Kurt D, 2007) which established a positive and significant influence of hospital amenities on patient's decision to utilize the health facility. The same study also established a positive association between doctors choice of referral hospital with its amenities – sometimes even when the hospital didn't have best clinical reputation, this also concur with Rust and Tuck (2006) who noted that providing basic amenities and designing services to be user friendly simultaneously strengthen quality and facilitate increased consumer use.

A study on essential medicines impact on quality service delivery at primary health care settings in china by Wang, C (2018) concluded that influence varied by region; in the lesser developed economic regions, essential medicines were rated with lesser significance as compared with the more economically developed areas. This could possibly explain the findings from this study which concluded that essential medicines had no significance influence on quality of maternal health services; it's probable the same variable could render different conclusion when carried out in different Counties in Kenya.

Medical equipments are essential in the diagnosis and treatment of the different kinds of medical conditions. Study by (Bruce Campbell, 2018) illustrated on the importance of pertinent evidence and a clear vision of the place and role of new products in care pathways from an early stage. If this is not well-articulated, the medical equipments may produce lesser value addition to the entire healthcare service delivery system. This study found no significant statistical evidence on the relationship between availability of medical equipment and delivery of quality, it could be stated that the place of modern medical equipments was not properly designed in the health service delivery pathway in Kajiado County and therefore their optimal value is not yet achieved.

CHAPTER FIVE

SUMMARY, CONCLUSION AND RECOMMENDATIONS

5.1 Introduction

This chapter presents the study summary, conclusion and recommendations according to the study findings and interpretations to the study. In addition to the researcher provides suggestions for further research study areas. The chapter ends with provision for implications for policy and practice revived from the research findings.

5.2 Summary of the findings

The main objective of the study was to assess the influence of expanded free maternity care programme on delivery of quality health care in maternity units in Kajiado County. Specifically the study sought to: determine the influence of essential drugs on delivery of quality maternal health services in Kajiado County, to establish how medical equipment's influence delivery of quality maternal health services in Kajiado County. to establish how medical equipment's influence delivery of quality maternal health services in Kajiado County, to determine the influence of basic amenities on delivery of quality maternal health services. The findings of the study are summarized below.

5.2.1 Influence of essential drugs on delivery of quality of maternal health services

Although a majority of health facilities surveyed reported having adequate stocks of essential drugs, key challenges were mentioned that affected potency and use of these essential drugs in maternity units, they include; top-down process for accessing locally mobilized drug funds, supply of near-expiry and unmatched drugs especially

in far-to-reach rural areas, a supply chain that was not able to support a temperature-controlled system. Supply chains were reported to have many problems including delays of ordered drugs, supply of unneeded drugs and medical supplies, and the supply of poor quality drugs. The lack of measures for holding accountable those who were irresponsible at county health executive level could have contributed to this problem. Other issues revealed by this study were the lack of transparency of fund utilization and the minimal involvement of facility managers and community members in decision making over locally mobilized funds which could be utilised to purchase drugs. The results from this study indicated only 19% of health facilities surveyed had an essential drug list, a key tool in definition and planning of essential drugs. Misoprostol, vital drug in management of postpartum haemorrhage was only always available in 16% of facilities. That said, magnesium sulphate (crucial in management of eclampsia in pregnancy were) was available in over 80% of health facilities surveyed. This should be commended and encouraged.

This study has revealed that most basic drugs were available in the maternity an in adequate quantities, however some were expired or nearing expiry, this is collaborated by feedback from health workers where only 26% reported that there were never expired drugs in the pharmacy.

5.2.2 Influence of medical equipment's on delivery of quality maternal health services

The study established that there is a direct relationship between medical equipment and delivery of quality maternal health services. Medical equipments are the enabling factors and immediate input into health system; they significantly influence how safe and efficient healthcare delivery system is. Also the effectiveness and efficacy of

human resources in executing their capacities is largely due to medical equipments at their disposal. Broadly, the study has shown that public hospitals Kajiado do have enough medical equipment, however feasible arrangements for their maintenance should be developed, still there is need to commit locally derived funds to more medical equipment to cope with the growing number of women seeking deliveries. The high salinity of water in Kajiado County predispose most equipments to corrosion and subsequently wear and tear, most equipment's were broken down leading to malfunction hence the need to establish a stronger or efficient biomedical engineering to ensure timely maintenance and technical advice while procuring hospital equipment.

5.2.3 Role of health workers on delivery of quality maternal health services

This study has provided statistical evidence that human resource significantly influences quality of healthcare delivery. This finding supports the works of a number of contemporary scholars cited in the literature who concluded that good management of HR impacts performance of an organization.

Moira Stewart (Stewart, 1995) established that patient-centered practice could only be delivered in an environment with adequate numbers and skill mix of health workers; they should be motivated and well equipped. Saha et al. (2008) noted that integrating patient-centered care significantly improved utilisation of health services among rural communities, this also stimulated healthcare that was both sustainable, equitable and of high quality. Increased workload without commensurate numbers of health workers was identified as a key bottle neck to delivery of quality services in this study. It caused a strain on the employee, on the space and on the equipment used to deliver services to the patients. Staff shortage was reported as a major implementation

challenge, respondents noted that County government never implemented its plan of employing more staff to cope with increased utilization of maternal health services.

5.2.4 Influence of basic amenities on delivery of quality maternal health services

The study established that basic amenities influenced delivery of quality maternal health care. Irregular water and electricity supply largely affected the facilities in rural areas. The one referral and 3 sub county health facilities had a functional ambulance however only one health centre and 3 dispensaries ambulance were functional. Clean running water was not available in 40% of health facilities, the salinity of water had a negative effect on drainage system making most toilets and bathrooms to corrode hence posing a health risk to women and the newborn.

The study also established that effectiveness and efficacy of most amenities lasted well below the average shelf life due to bureaucratic impediments and rigid top down management and expenditure approval processes which are often inept and are destined for failure by default. E.g. most health centres have ambulances which are grounded due to minor mechanical hitches which could be quickly fixed if local facility managers had authority to directly engage mechanics and organise repairs. The net loss from grounded vehicle and other equipments in terms of depreciation and missed opportunities for emergency referrals and potentially life-saved far outweigh possible financial risk of fraud as a resulting from granting facility managers authority to incur minor costs.

5.3 Conclusions

The study established that independently, essential drugs had no statistically significant influence on quality of free maternal health services. However when collectively combined with other independent variables, they had substantial influence quality of maternal healthcare services.

Medicines are undeniably one of the munitions at mankind's disposal to fight disease and illness, they are integral in the modern health care not only saving lives and promoting health, but prevent epidemics and diseases too. Formulation of policy guidelines facilitating establishment of a County fund to enable timely provision of essential drugs in health facilities would sure promote quality, an essential medicines list should also be provided. The supply chains should be streamlined to eliminate bottlenecks including delays in the supply of ordered drugs, inadequate supplies and even incorrect supplies.

The study also established that independently and collectively medical equipments had no significant influence on delivery of quality healthcare services in maternity units. Wear and tear of equipment affected most equipment longevity and as such the county government should avoid purchasing equipment without a clear maintenance plan; this not only reduces its shelf life but is imprudent use of resources and a demotivating factor to health workers.

Individual and collectively, health workers were noted to have the highest influence on with provision of quality healthcare services in maternity units. As such this study recommends the county government of Kajiado to invest in the human resources development. A human resource development plan targeting current workforce should be developed intent on nurturing and motivating health workers. Current incentives are focused on improved salary package and while this is commended working conditions should be strengthened.

The study established that availability of basic amenities independently and collectively significantly influenced delivery of quality healthcare services and its enhancement would positively affect delivery of quality healthcare services in maternity units. Water supply and power provision should be made a priority investment by the county government of Kajiado. Many rural health facilities struggle to access sufficient energy to power lighting, refrigeration and a few basic medical devices. Hygiene during childbirth is essential to the health of mothers and newborns, it's the key component of infection prevention and without it not much can be achieved. A sterile delivery is almost synonymous with flowing water; it requires clean hands of the birth attendant, clean perineum, clean birth surface, clean cord preparation and cutting, and appropriate new-born postpartum skin care.

In conclusion, this study found a positive and significant influence of essential drugs, medical equipments, human resource and basic amenities on delivery of quality maternal health services in maternity units in Kajiado County, importantly it established specific related gaps whose activation would improve quality of service delivery. Resources to meet these gaps may be scarce but evidence has shown that careful selection and focus on a limited range of essential deliverables results in higher quality of care; better management of medicines and a more cost-effective use of available health resources (Essential Medicines list, 2007) will improve access to essential drugs in maternity units within Kajiado County. Medical equipments were found to significantly influence how safe and efficient healthcare delivery system is; they affected the output, effectiveness and efficacy of human resources. Water salinity and resultant corrosion affected the shelf-life, performance and effectiveness of the few medical equipments available. Level 2 facilities dispensaries in remote settings were most affected.

Increase in health facility birth deliveries resulted in increased workload on health workers and this effectively curtailed their capacity to offer optimal (quality) care to clients, the study established it was practically impossible to carryout non lifesaving but important actions in maternity units owing to under staffing. Access to clean water and energy source are critical enablers of access to health technologies and thus key elements of effective attainment of universal health coverage. This study established that lack of these key amenities disproportionately affected rural and low level health facilities. Clean running water was not available in 40% of health facilities. Water salinity had a negative effect on drainage system, corroding most toilets and bathrooms and hence posing a health risk to women and their newborn. Bureaucratic impediments and rigid top down management approach affected the usefulness of most amenities; basic repairs of amenities took an average 6 months leading to even more breakdown and wear and tear.

5.4 Recommendations

The study recommends the following:

- i) The County government of Kajiado should establish practical modalities for maintenance and replacement of worn-out medical equipments.
- ii) The county health office should deploy adequate staff to level 2 and 3 health facilities especially those in rural and far-to-reach areas.
- iii) The county of Kajiado should establish a County fund to enable timely provision of essential drugs.
- iv) The County health office should prioritize provision of adequate water and reliable power source for all rural health facilities.

5.5 Suggestion for Further Research

Future studies should be carried in diverse counties in Kenya to establish the expanded free maternity care programme on delivery of quality health care in maternity units

The study relied on primary data that was gathered using a questionnaire. Further studies should be conducted using empirical data to establish the factors that influence delivery of quality health care in maternity units in both public and private health facilities.

REFERENCES

- Alastair, B. (2001). Crossing the quality chasm: a new health system for the 21st century. *British Medical Journal*, 323(7322), 1192. doi:10.1136/bmj.323.7322.1192
- Alexander, J. A., Weiner, B. J., & Griffith, J. (2006). Quality improvement and hospital financial performance. *Journal of Organisational Behaviour*, 27(7), 67. doi:10.1002/job.401
- Bouzid, M., Cumming, O. & Hunter, P. (2018). What is the impact of water sanitation and hygiene in healthcare facilities on care seeking behaviour and patient satisfaction? A systematic review of the evidence from low-income and middle-income countries. *British Medical Journal; global health*, 3(3), 648. Doi: 10.1136/bmjgh-2017-000648
- Choi, K. S., Lee, H. K., & Lee, S. (2005). The service quality dimensions and patient satisfaction relationships in South Korea: comparisons across gender, age and types of service. *Journal of Services Marketing*, 19(3), 140-149. doi:10.1108/08876040510596812
- Cook, E. (1998). Mental retardation and developmental disabilities research reviews: Genetics of autism. *Wiley Periodicals Corporation*, 4(2), 61-141. Retrieved from [https://doi.org/10.1002/\(SICI\)1098-2779\(1998\)4:2%3C113::AID-MRDD8%3E3.0.CO;2-Q](https://doi.org/10.1002/(SICI)1098-2779(1998)4:2%3C113::AID-MRDD8%3E3.0.CO;2-Q)
- Essential Medicines List (2007). *30 years of vital health care*. Geneva: World Health Organization. Retrieved from http://www.vitalhealthcareproperty.co.nz/sites/default/files/news_pubs/01.07.16%20-%20Market%20update%20release%20Final.pdf
- Gbangbade, S., & Reinke, W. A. (1998). *Safe motherhood studies—results from Benin competency of skilled birth attendants the enabling environment for skilled attendance at delivery in-hospital delays in obstetric care (documenting the third delay)*. United States: University Research Corporation. Retrieved from <http://www.qaproject.org/pubs/PDFs/BeninMothers.pdf>
- Giorgia, G. S. (2017). Unpacking the enabling factors for hand, cord and birth-surface hygiene in Zanzibar maternity units. *Journal for Health Policy and Planning*. 32(8), 1220-1228. doi: 10.1093/heapol/czx081.
- Gliem, J. A. & Gliem, R. R. (2003). Calculating, interpreting, and reporting cronbach's alpha reliability coefficient for likert-type scales. *2003 Midwest research to practice conference in adult, continuing, and community education*, Columbus, pp. 82-88. Retrieved from <https://scholarworks.iupui.edu/bitstream/handle/1805/344/Gliem+&+Gliem.pdf?sequence=1>
- Global Health Workforce Alliance Secretariat & World Health Organization. (2014). *A universal truth: no health without a workforce*. Geneva: World Health Organization. Retrieved from

<https://www.who.int/workforcealliance/knowledge/resources/hrhreport2013/en/>

- Haas, J. S., Cook, E. F., Puopolo, A. L., Burstin, H. R., Cleary, P. D., & Brennan, T. A. (2000). Is the professional satisfaction of general internists associated with patient satisfaction. *Journal of General Internal Medicine*, 15(2), 122–128. doi: 10.1046/j.1525-1497.2000.02219.x
- Haddad, S., & Fournier, P. (1995). Quality, cost and utilisation of health services in developing countries; A longitudinal study in Zaïre. *Social Science & Medicine*, 40(6), 743-753. doi:10.1016/0277-9536(94)00134-F
- Haymanot, M. A. (2017). Health professional's knowledge and use of the partograph in public health institutions in eastern Ethiopia: a cross-sectional study. *BioMed Central: Pregnancy and Childbirth*. 17(1), 291. doi: 10.1186/s12884-017-1477-3.
- Heather, A., Karen, Z., Sophie, B., Susan, W., Annette, C., ... Elaine, R. (2013). Limited electricity access in health facilities of sub-Saharan Africa: a systematic review of data on electricity access, sources, and reliability. *Fletcher Global Health: Science and Practice*, 1(2), 249-261. Retrieved from <https://doi.org/10.9745/GHSP-D-13-00037>.
- Hoestermann, C. F., Ogbaselassie, G., Wacker, J., & Bastert, G. (1996). Maternal mortality in the main referral hospital in The Gambia, West Africa. *Tropical Medicine and International Health*, 1(5). 24. doi:10.1111/j.1365-3156.1996.tb00099.x
- Kambala, C., Lohmann, J., Mazalale, J., Brenner, S., Allegri, M., Muula, A. S., & Sarker, M. (2015). How do Malawian women rate the quality of maternal and newborn care? Experiences and perceptions of women in the central and southern regions. *BioMed Central: Pregnancy and Childbirth*, 15(1), 169. doi:10.1186/s12884-015-0560-x
- Kenya Demographic Health Survey (2008). *Kenya demographic and health survey report 2007*. Nairobi: Government of Kenya printing press.
- Kenya Demographic Health Survey (2013). *Kenya demographic health survey report 2012*. Nairobi: Government of Kenya printing press.
- Kenya Demographic Health Survey (2014). *Kenya demographic and health survey report 2013*. Nairobi: Government of Kenya printing press.
- Kenya National Bureau of Statistics (2009). *Kenya demographic and health survey 2008-09*. Nairobi: Government printers. Retrieved from <https://dhsprogram.com/pubs/pdf/fr229/fr229.pdf>
- Kim, C. E., Shin, J. S., Lee, J., Lee, Y. J., Kim, M. R., Choi, A., & Ha, I. H. (2017). Quality of medical service, patient satisfaction and loyalty with a focus on interpersonal-based medical service encounters and treatment effectiveness: a cross-sectional multicenter study of complementary and alternative medicine (CAM) hospitals. *BioMed Central Complementary and Alternative Medicine*, 17(1), 174. doi: 10.1186/s12906-017-1691-6.

- Kuehn, B. M. (2017). Global shortage of health workers, brain drain stress developing countries. *Medical News & Perspectives*, 298(16), 1853-5. doi: 10.1001/jama.298.16.1853
- Laura S. J. (2018). The role of energy in health facilities: A conceptual framework and complementary data assessment in Malawi. *Public Library of Science: One*. 13(7), 261. Retrieved from <https://doi.org/10.1371/journal.pone.0200261>
- Macharia, W. M. (2010). *Quality of health care in health institutions in Kenya*. Retrieved from <http://origin.who.int/patientsafety/events/05/cairo/Kenya.pdf>
- Magid, D. J., Rhodes, K. V., Asplin, B. R., Steiner, J. F., & Rumsfeld, J. S. (2008). Designing a Research agenda to improve the quality of emergency care. *Academic Emergency Medicine*, 9(11), 1124-1130. doi:10.1197/aemj.9.11.1124
- Maine, D., Kamara, A., Wray, J., Aniteye, P., Collison, A., Richardson, D., . . . Braimoh, S. (1992). Barriers to treatment of obstetric emergencies in rural communities of West Africa. *Studies in Family Planning*, 23(5), 279-291. doi: 10.2307/1966526
- Mattke, S., Kelley, E., Scherer, P., Hurst, J., & Lapet, M. L. (2006). Health care quality indicators project initial indicators report. *OECD Health working papers (NO. 22, pp. 1-151)* Retrieved from <http://www.oecd.org/health/health-systems/36262514.pdf>
- Ministry of Health (2011). *Kenya service provision assesment*. Nairobi: Government press. Retrieved from https://www.healthpolicyproject.com/pubs/745_KHHUESReportJanuary.pdf
- Ministry of Health (2013). *Kenya Demographic Health Survey 2012*. Nairobi: Government printers. Retrieved from <https://dhsprogram.com/pubs/pdf/fr308/fr308.pdf>
- Ministry of Health (2015a). *Kajiado County health at a glance*. Nairobi: Government Press. Retrieved from <https://www.healthpolicyproject.com/pubs/291/Kajiado%20County-FINAL.pdf>
- Ministry of Health. (2015b). *Implemetation status of FMS*. Nairobi: Government printers. Retrieved from http://publications.universalhealth2030.org/uploads/free_maternal_health_services_report_feb_2015_final1_doc_.pdf
- Ministry of Medical Services & Ministry of public Health and Sanitation (2012). *Kenya Health Policy 2012 - 2030*. Nairobi: Government press. Retrieved from <https://www.healthresearchweb.org/files/KenyaHealthpolicyfinalversion.pdf>
- Mkoka, D., Goicolea, I., Kiwara, A., Mwangi, M., & Hurtig, A. (2014). Availability of drugs and medical supplies for emergency obstetric care: Experience of health facility managers in a rural District of Tanzania. *BioMed Central pregnancy and childbirth*. 14(1), 108. doi: 10.1186/1471-2393-14-108.

- Mosadeghrad, A. M. (2014). Factors influencing healthcare service quality. *International Journal of policy management*, 3(2), 77–89. doi:10.15171/ijhpm.2014.65
- Mururi, C. W. (2017). *Factors influencing availability of essential medicines in public health facilities in Embu, Kenya*. (Master's Thesis, University of Nairobi, Kenya). Retrieved from <http://erepository.uonbi.ac.ke/handle/11295/101916>
- Nakamura, Y. (2010). Maternal and Child Health Handbook in Japan. *Japan Medical Association Journal*, 53(4), 259-265. doi: 10.1177/2333794X16649884
- Nguyen Thi Nhu Ngoc, T. S. (2013). Results from a study using misoprostol for management of incomplete abortion in Vietnamese hospitals: implications for task shifting. *BioMed Central; Pregnancy and Childbirth*. 13(1), 118. doi: 10.1186/1471-2393-13-118.
- Okafor, C. B., & Rizzuto, R. R. (1994). Women and health providers' views of maternal practices and services in rural Nigeria. *Studies in Family Planning*, 25(6), 353-361. doi:10.2307/2137879
- Orji, E. O., Ojofeitimi, E. O., Esimai, A. O., Adejuyigbe, E., Adeyemi, A. B., & Owolabi, O. O. (2006). Assessment of delays in receiving delivery care at a tertiary healthcare delivery centre in Nigeria. *Journal of Obstetric and Gynaecology*, 26(7), 643-644. doi:10.1080/01443610600903628
- Reproductive Health Supplies Coalition (2014). *Ensuring equitable access for all*. Retrieved from http://www.familycareintl.org/UserFiles/File/Essential_Medicines_Maternal_Health.pdf
- Saha, S. M., Beach, M. C., & Cooper, L. A. (2008). Patient centeredness, cultural competence and healthcare quality. *Journal of the National Medical Association*, 100(11), 1275–1285. Retrieved from <http://www.nmanet.org/images/uploads/Publications/OC1275.pdf>
- Statistics and Information Department. (2018). *Vital Statistics Division, Ministry of Health, Labour and Welfare*. Retrieved from <http://www.mhlw.go.jp/english/database/db-hw/index.html>
- Stewart, M. A., Brown, J. B., Donner, A., McWhinney, I. R., Oates, J., Weston, W. W., & Jordan, J. (2000). The impact of patient-centered care. *The Journal of family practice*, 49(9), 796-804. Retrieved from <https://www.ncbi.nlm.nih.gov/pubmed/11032203>
- United Nations Family Population Fund (2000). *Standards for maternal and neonatal care Group 1: General standards of care for healthy pregnancy and childbirth*. Geneva: World Health Organization. Retrieved from https://www.who.int/reproductivehealth/publications/maternal_perinatal_health/a91272/en/
- United Nations Family Population Fund (2014). *Summary Report of the Assessment of UNFPA's Advocacy Campaign to End Preventable Maternal and New-Born Mortality in Kenya*. Retrieved from <https://kenya.unfpa.org/sites/default/files/pubpdf/UNFPA%20RMNCAH%20>

Advocacy%20Campaign%20Assessment%20Summary%5BTo%20Print%5D.pdf

- Velisha A. F. (2016). Quantitative evaluation of essential medicines lists: the South African case study. *BioMed Central: Health Services Research*. 16(1), 687. doi: 10.1186/s12913-016-1937-x
- Vincent, C., Burnett, S., & Carthey, J. (2014). Safety measurement and monitoring in healthcare: a framework to guide clinical teams and healthcare organisations in maintaining safety. *British Medical Journal: Quality Safety*, 23(8), 670-677. doi:10.1136/bmjqs-2013-002757
- Wang, C., Li, N., Wang, H., Yin, H., & Zhao, Y. (2018). Study on essential drug use status and its influencing factors among cerebral infarction inpatients in county level hospitals of Anhui Province, China. *Public Library of Science One*, 13(4), 513. Retrieved from <https://doi.org/10.1371/journal.pone.0193513>
- Welp, A, M. (2015). Emotional exhaustion and workload predict clinician-rated and objective patient safety. *Frontiers in psychology*, 5(1), 1573. doi:10.3389/fpsyg.2014.01573
- Wilson, R. (2012). Patient safety in developing countries: retrospective estimation of scale and nature of harm to patients in hospital. *British Medical Journal*, 20(12), 344-356. doi: <https://doi.org/10.1136/bmj.e832>
- Wolke, D., Dave, S., J Hayes, J. T., & Tomlin, M. (2002). Routine examination of the newborn and maternal satisfaction: A randomised controlled trial. *British Medical Journal*, 86(3), 8-9. Retrieved from <http://dx.doi.org/10.1136/fn.86.3.F155>
- World Health Organization (1999). *Reduction of maternal mortality*. Geneva: WHO Library Cataloguing.
- World Health Organization (2007). Everybody's business. *Strengthening Health systems to improve Health outcomes*.
- World Health Organization (2012). *World Health Organisation multicountry survey on maternal and newborn health 2010-2012*. Retrieved from http://www.who.int/reproductivehealth/topics/maternal_perinatal/neaarmiss/
- World Health Organisation (2014). *The world medicines situation report*. Geneva: World Health Organisation. retrieved from https://www.who.int/medicines/areas/policy/world_medicines_situation/en/
- World Health Organisation (2015). *Service delivery and safety at WHO*. Placing people at the centre of health services. Retrieved from <https://www.who.int/servicedeliverysafety/about/SDS-summary.pdf?ua=1>
- World Health Organization. (2016). *World Health Report - Working together for health*. Geneva, Switzerland: WHO. Retrieved <https://www.who.int/whr/2006/en/>
- Zikmund, W., Babin, J., Carr, C., & Griffin, M. (2010). *Business research methods* (8th ed.). Mason, HO: Cengage Learning. Available at

<https://pdfs.semanticscholar.org/e4a6/312402a230f5f72904b0ac4c53d89852ad11.pdf>

Appendix

Appendix 1: Checklists and questionnaires

1. Bio Data

1.1: Date	___ / ___ / _____ (DD-MM-YYYY)
1.2: County	
1.3: Sub-County	
1.4: Facility Name	
1.5: Enumerator's Name	
1.6: Catchment population of HF	

2. Facility Type (✓-tick that apply)

5.1: County/referral hospital (level 5)	
5.2: Sub County Hospital (level 4)	
5.3: Health Centre (level 3)	
5.4: Dispensary (level 2)	

3. Free Medical Services provided by the facility (✓-tick all that apply)

6.1: Antenatal Care	
6.2: Delivery Care	
6.3: Postnatal Care	
6.4: Family Planning	
6.5 Any other (specify)	

SECTION B:

1. Essential drugs in labour room

The following checklist should be answered by the respondent to the best of their knowledge and experiences

Criteria	Strongly Agree	Agree	Neutral	Disagree	Strongly Disagree
9.1:Our labour room has an essential drugs list hang on the wall					
9.3:Oxytocin injectable is always available for use in labour room					
9.4:Magnesium sulphate injectable is always available in labour room					
9.5:Misoprostol drug is always available in the labour room					
9.6:Intravenous fluids are always available in the labour room					
9.7:Dexamethasone injection is always					

available in the labour room					
9.8: Glucose 5-10-50%					
9.9: Sodium chloride 0.9%					
9.10:Water for injection is always available in the labour room					
9.11:Lignocaine injection is always available in the labour room					
9.12:Epinephrine/adrenaline is always available in the maternity					
9.15:There are never any expired drugs in the pharmacy or in the drug cupboard					
9.16: Vaccines are always kept at recommended cold chain temperatures					
9.17:Patients always have access to essential drugs					
9.17:There is always sufficient quantities of essential drugs in the					

labour room					
-------------	--	--	--	--	--

2. Medical equipment in the labour room

	Strongly Agree	Agree	Neutral	Disagree	Strongly Disagree
7.1: Our delivery room is always properly lit					
7.2: Our delivery room is always adequately heated to keep new-borns warm					
7.3: Our delivery room always has adequate oxygen supply for use when needed					
7.4: Our delivery room always has a functioning wall clock					
7.5: Our delivery room always use Sterile Delivery pack to conduct deliveries					
7.6: Our delivery room always has a functional thermometer					
7.7: Our delivery room					

always has sterile gloves					
7.8:Our delivery room always has a functional foetal scope					
7.9:Our delivery room always has a functional BP Machine (Sphygmomanometer) available					
7.10: Our health facility always has IV catheters of right size					
7.11: Our health facility always has syringes					
7.13:Our health facility always has needles of right size					
7.14:Our health facility always has sterile suturing set (scissors, needles holder)					
7.17:Our health facility always has Weigh machine for baby					
7.20:Our health facility					

always has resuscitation bags					
Catheter					

3. Health Workers

Staff management	Strongly Agree	Agree	Neutral	Disagree	Strongly Disagree
8.0: Health facility periodically appraises all staff					
8.1: Health facility has mechanism for recognizing good performance.					
8.2: Each health worker has a job description					
8.3: A qualified staff member is designated to carry out triage					
8.4: A health professional is always available to manage patients with an emergency condition					
8.5: Staff in charge of labour ward is adequately					

trained and able to apply skills					
8.6: Health workers in delivery room routinely undertake continuing professional development					
8.7: We have enough health workers in labour ward to conduct deliveries					
8.8: We have adequate skill mix of the health workers					
8.9: Our health workers have adequate experience to effectively manage deliveries					
8.10 our health workers have adequate capacity to identification, manage or refer complicated delivery					

4. Basic amenities

	Strongly Agree	Agree	Neutral	Disagree	Strongly Disagree
10.1: Our health facility always has regular electricity supply					
10.2: Our health facility always has back-up power supply in the case of a power outage					
10.3: Our health facility always has adequate running water available					
10.4: Our health facility is always open 24 hours					
10.5: Our health facility has a separate ward for admitting obstetrics patients post-delivery					
10.6: Our health facility has a functional theatre room operational 24 hours					
10.7: Our health facility					

always has updated clinical protocols and guidelines for referral of complicated labour and maternity cases					
10.8: Our health facility always has a functioning ambulance/taxi for emergency referrals					
10.9:Our health facility always has adequate, clean running water					
11.0:Our health facility always has adequate reliable back-up water source					

SECTION C:

1. Observing for competent service delivery in labour room

	Strongly Agree	Agree	Neutral	Disagree	Strongly Disagree
The HW performed hand washing appropriately					
labour and delivery were					

documented correctly in a Partogram					
Mother reports she was treated with respect after delivery					
There was complete newborn assessment after delivery					

SECTION D

Observational checklist for actual service provision in the delivery room

Sterile gloves were used for all invasive procedures, establishing sterile catheters, VE, in sterile tissues or body fluids (blood, liquor)					
Gloves were used when handling soiled instruments and when disposing of contaminated waste items					
A separate pair of gloves was used for each patient					
Handling of biohazards					
Placenta was disposed in a					

pit appropriately					
Garments soiled with blood and body fluid were decontaminated and cleaned in the sluice					
Maternity floor was cleaned with disinfectant					
Contaminated delivery instruments were cleaned appropriately in the sluice with disinfectant					

Summary: Care for labour and vaginal delivery

Please indicate the quality of support by marking one of the five areas

The midwife demonstrated competence in:	Strongly Agree	Agree	Neutral	Disagree	Strongly Disagree
Preparation for delivery; gloves, hand washing, biohazards.					
Documentation of Partogram					
Care of woman during 2 nd stage					
Care of woman during 3 rd stage management					
Care of both mother and baby after delivery					

Women in labour room were satisfied with services provided.					
Women in labour agreed there was effective communication between her and HW Women in labour feels she was treated with respect and dignity					
Woman in labour reports she received emotional support during labour					

Appendix 2: Consent form

Kenya Methodist University

P. O Box 267-60200

MERU, Kenya

Subject: Informed consent

Dear Respondent,

My names are Richard Magondu; I am a student undertaking MSc in Health Systems Management studies from Kenya Methodist University. I am conducting a study titled: quality of care in the implementation of expanded free maternity care programme, a case study of maternity units in Kajiado County

The findings will be utilized to strengthen the health systems in Kajiado, Kenya and other low-in-come countries in Africa. As a result, countries, communities and individuals will benefit from improved quality of healthcare services. This research

proposal is critical to informing implementation progress of expanded free maternity care programme services as it will generate new knowledge and inform decision makers on corrective measures needed to strengthen it.

Procedure to be followed

Participation in this study will require that I ask you some questions and also access some hospital records touching on this policy and those addressing the six pillars of the health system. I will record the information from you in a questionnaire check list. You have the right to refuse participation in this study. You will not be penalized nor victimized for not joining the study and your decision will not be used against you nor affect you at your place of employment.

Please remember that participation in the study is voluntary. You may ask questions related to the study at any time. You may refuse to respond to any questions and you may stop an interview at any time. You may also stop being in the study at any time without any consequences to the services you are rendering.

Discomforts and risks.

Some of the questions you will be asked are on intimate subject and may be embarrassing or make you uncomfortable. If this happens; you may refuse to answer if you choose. You may also stop the interview at any time. The interview may take about 30 minutes to complete.

Benefits

If you participate in this study you will help us to strengthen the health systems in Kenya and specifically in Kajiado country. As a result, countries, communities and individuals will benefit from improved quality of healthcare services. This research study is critical to strengthening quality of services as offered in the FMS.

Rewards

There is no reward for anyone who chooses to participate in the study.

Confidentiality

The interviews will be conducted in a private setting within the hospital. Your name will not be recorded on the questionnaire and the questionnaires will be kept in a safe place at the

University: Contact Information

If you have any questions you may contact the following supervisors:

Dr Wanja ... Supervisor

Head of Department of Health Systems Management, Kenya Methodist University,
Nairobi Campus.

Tel: 0726 678020

Email: [wanjamwaura@gmail.com](mailto:wanjemwaura@gmail.com)

Dr. Fredrick Ndede

Department of Reproductive Health,

Kenya Methodist University

Tel: 0722762871

Email: frederick.odhiambo@kemu.ac.ke

Participant’s Statement

The above statement regarding my participation in the study is clear to me. I have been given a chance to ask questions and my questions have been answered to my satisfaction. My participation in this study is entirely voluntary.

I understand that my records will be kept private and that i can leave the study at any time. I understand that i will not be victimized at my place of work whether I decide to leave the study or not and my decision will not affect the way I am treated at my work place.

Name of participant.....

Date.....

Signature.....

Investigator’s Statement

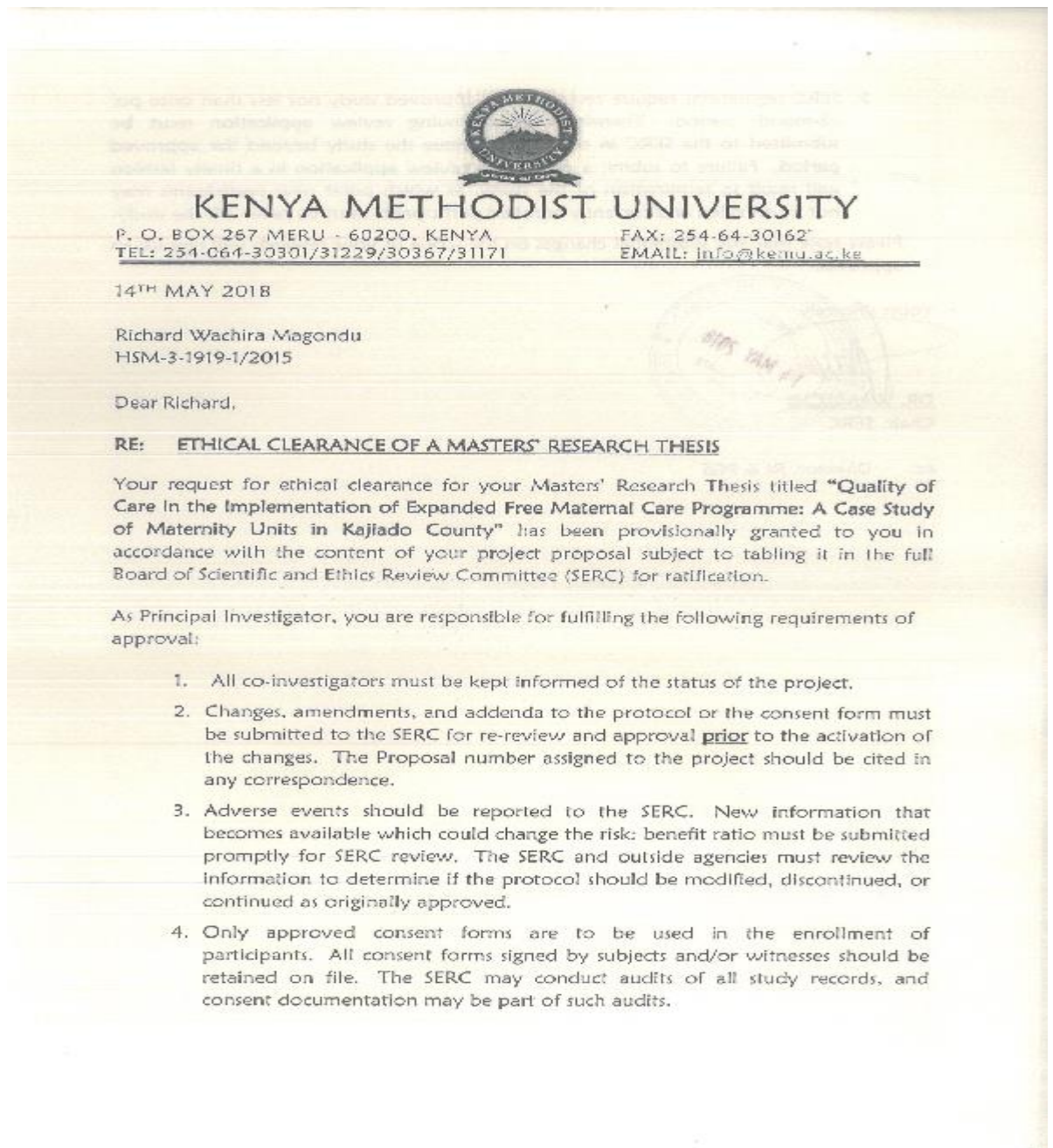
I, the undersigned, have explained to the volunteer in a language s/he understands the procedures to be followed in the study and the risks and the benefits involved.

Name of interviewer.....

Date.....

Signature.....



Appendix 3: Ethical approval



-
5. SERC regulations require review of an approved study not less than once per 12-month period. Therefore, a continuing review application must be submitted to the SERC in order to continue the study beyond the approved period. Failure to submit a continuing review application in a timely fashion will result in termination of the study, at which point new participants may not be enrolled and currently enrolled participants must be taken off the study.

Please note that any substantial changes on the scope of your research will require an approval.

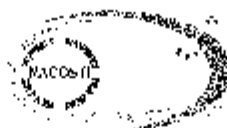
Yours sincerely



DR. WAMACHI
Chair, SERC

cc: Director, RI & PGS

Appendix 4: NACOSTI Authorization



NATIONAL COMMISSION FOR SCIENCE, TECHNOLOGY AND INNOVATION

Telephone: +254-20-2213471.
20-13493310571, 2214420
Fax: +254 20-20 8245, 118244
Email: ig@nacosti.go.ke
Website: www.nacosti.go.ke
When replying, please quote

NACOSTI, Upper Kabu,
Off Ng'ara Way
P.O. Box 30627-00 00
NAIROBI-KENYA

Ref No: **NACOSTI/P/18/10246/22955**

Date: **28th June, 2018**


Richard Wachira Magondi
Kenya Methodist University
P.O. Box 267- 60200
MERU.


RE: RESEARCH AUTHORIZATION

Following your application for authority to carry out research on *“Quality of care in the implementation of expanded free maternity care programme: A case study of Maternity Units in Kajiado County”* I am pleased to inform you that you have been authorized to undertake research in **Kajiado County** for the period ending **28th June, 2019**.

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

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


DR. STEPHEN K. KIBIRU, PhD.
FOR: DIRECTOR-GENERAL/CEO

Copy to: 

The County Commissioner
Kajiado County.

Appendix 5: County Government approval

COUNTY GOVERNMENT OF KAJIADO



DEPARTMENT OF HEALTH SERVICES
OFFICE OF THE COUNTY DIRECTOR OF HEALTH SERVICES

RE: CCRK/HEALTH SERVICES/CDHS/141

16TH JULY 2018

Richard Wachira Magondi
Kenya Methodist University
P.O. Box 267 – 60200

MERU

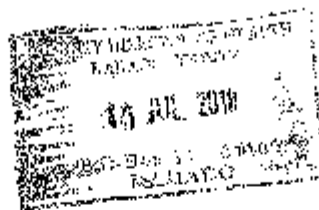
RE: AUTHORIZATION TO DO RESEARCH

This office has been informed of your intention to carry out research on "Quality of care in the implementation of expanded free maternity care programme."

The Department has no objection; however, you will be expected to share your study findings with this office.

Thank you,

DR. FRANKIEL KAPKONI



COUNTY DIRECTOR OF HEALTH SERVICES,

CC: CEC MEMBER FOR HEALTH SERVICES

CHIEF OFFICER FOR PUBLIC HEALTH & SANITATION SERVICES