

THE INFLUENCE OF CONTINUOUS PROFESSIONAL DEVELOPMENT ON  
REPRODUCTIVE HEALTH TO SERVICE DELIVERED TO WOMEN BY  
NURSES AT MBAGATHI COUNTY HOSPITAL, NAIROBI\_KENYA

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NURSING EDUCATION OF KENYA METHODIST UNIVERSITY.

OCTOBER 2022

## DECLARATION AND RECOMMENDATION

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

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## **DEDICATION**

I dedicate this thesis to God, for good health and peace of mind and my family, for their patience and understanding.

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I acknowledge the following people for walking with me throughout this academic journey;-

My supervisors, for patiently guiding me in this process, from conception of the idea, to execution and finally reporting. I will forever appreciate their quick responses and encouragement throughout the process, and making it a mentoring as well as a learning process.

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## **ABSTRACT**

Continuous Professional Development (CPD) is based on the traditions of lifelong learning in the medical profession, for development of qualities and competencies in the working lives of health care providers. CPD in Nursing enhances competencies, which cannot be achieved without scientific knowledge, clinical skills and humanistic values. Reproductive health is important in every stage of life, it is about access to the safest, effective, affordable method of family planning or safe pregnancy, safe delivery for healthy mother and baby. Therefore, there is need for continuous professional development in reproductive health for all Health care providers. This study sought to evaluate the influence of CPD on reproductive health care service delivery by nurses at Mbagathi County Hospital. The objectives of this study were to establish how CPD on focused antenatal care (FANC) influenced services delivered to women attending antenatal care clinic, determine how CPD on Emergency maternal obstetric and newborn care influenced services delivered to women and new-born in emergency condition and establish how CPD on long lasting reversible contraception (LARC) influenced services delivered to women seeking contraception and identify challenges that Health Care Providers experience during service delivery. This was a cross sectional study. Study population were nurses working in units offering reproductive health services. Sampling method was census. Sixty one nurses who met the study criteria, filled semi structured questionnaires, 58 questionnaires were analysed. Data were analysed using MS Excel where cleaning, coding and tabulation of percentages, were conducted. Stata and Epi Info version 7 where tabulation of percentages and inferential analysis were conducted. The findings were presented by descriptive and inferential statistics. Results obtained indicated that 44 (76%) Nurses were trained on Focused antenatal care, 39 (67%) on EmONC and 31 (53%) on LARC. There was no influence of CPD to provision of Focused Antenatal care services at 95%CL: CI; 0.47-5.52, P Value= 0.449 and EmONC: CI; 0.47-4.49, P- Value = 0.514. There was influence of CPD in provision of LARC services: CI; 1.82-30.65, P value =0.003. Inadequate staffing and inadequate commodities and supplies were the major challenges in provision of reproductive health services. Therefore, it is recommended that the hospital management explores other methods of training alongside workshops that have been found to be effective in transfer of skills for FANC, EmONC and LARC. Examples are online interactive sessions and on job training that are being used to deliver contents virtually in other platforms. It should be able to provide scheduled updates on long-acting reversible contraception to health care providers. Effective documented monitoring and evaluation of best practice and outcomes will greatly improve service provision. It should also recruit and train more health care providers to strengthen service delivery and ensure provision of adequate commodities and supplies for reproductive health services delivery.

## **TABLE OF CONTENTS**

DECLARATION AND RECOMMENDATION .....	i
DEDICATION .....	iii
ACKNOWLEDGEMENT .....	iv
ABSTRACT.....	v
TABLE OF CONTENTS.....	vi
LIST OF TABLES .....	ix
LIST OF FIGURES .....	x
ABBREVIATIONS AND ACRONYMS .....	xi
CHAPTER 1 : INTRODUCTION OF THE STUDY .....	1
1.1 Background .....	1
1.2 Global overview of Reproductive Health .....	3
1.3 Statement of the problem .....	6
1.4 Purpose of the Study .....	8
1.5 Specific Objectives .....	8
1.6 Research questions .....	9
1.7 Justification .....	9
1.8 Limitation of the study .....	10
1.9 Delimitation of the Study .....	10
1.10 Significance of the study .....	11
1.11 Assumptions of the study .....	11
1.12 Operational definition of terms .....	12
CHAPTER 2 LITERATURE REVIEW .....	14
2.1 Introduction.....	14
2.2 Focused antenatal care .....	14
2.3 Emergency maternal Obstetric Neonatal Care (EmONC) .....	16
2.3.1 Essential New-born care training .....	19
2.4 Long Acting Reversible Contraception (LARC) .....	20
2.5 Theoretical Frame work .....	21
2.5.1 Kolb’s experiential learning theory.....	21
2.6 Conceptual Frame work .....	23
CHAPTER 3 : METHODOLOGY .....	25
3.1 Introduction.....	25
3.2 Research design .....	25

3.3 Study variables .....	25
3.3.1 Independent Variable .....	25
3.3.2 Dependent Variable.....	25
3.4 Study Site .....	25
3.5 Target population .....	26
3.6 Study Population .....	26
3.7 Eligibility Criteria .....	27
3.7.1 Inclusion Criteria .....	27
3.7.2 Exclusion Criteria .....	27
3.8 Sample size determination .....	27
3.9 Sampling Technique .....	28
3.10 Data collection .....	28
3.10.1 Instrumentation .....	28
3.10.2 Pretesting the questionnaire .....	30
3.11 Validity and Reliability .....	31
3.11.1 Validity .....	31
3.11.2 Reliability.....	31
3.12 Data Collection procedure .....	31
3.13 Data Analysis .....	31
3.13.1 Descriptive statistics .....	32
3.13.2 Inferential statistics .....	32
3.14 Ethical Consideration.....	33
CHAPTER 4 : RESULTS AND DISCUSSION.....	34
4.1 Introduction.....	34
4.2 Response Rate .....	34
4.3 Demographic Characteristics .....	34
4.4 Continuous Professional Development in Reproductive Health.....	38
4.4.1 Approach to Training .....	40
4.5 Effectiveness in Service Delivery after CPD.....	42
4.6 Effectiveness in Service delivery after CPD for FANC .....	43
4.6.1 Inferential statistics on the relationship between CPD on FANC Service delivery .....	43
4.7 Effectiveness in Service delivery after CPD for EmONC .....	46
4.7.1 Inferential statistics on the relationship between CPD on EmONC Services.	48



4.8 Effectiveness in Service delivery after CPD for LARC .....	50
4.8.1 Inferential statistics on the relationship between CPD on LARC Services ....	52
4.9 Challenges experienced by nurses in each service delivery after CPD .....	54
4.10 Solutions for challenges in effect provision of Reproductive Health Services	56
4.11 Suggested Solution on Challenges in provision of EmONC services .....	60
4.12 Solutions on Challenges in Provision of New-born emergency services .....	64
4.13 Suggested solutions on challenges in provision of LARC services.....	68
<b>CHAPTER 5 : SUMMARY, CONCLUSION AND RECOMMENDATIONS .....</b>	<b>72</b>
5.1 Introduction.....	72
5.2 Summary .....	72
5.3 Conclusion of the study .....	74
5.4 Recommendations.....	75
5.5 Areas for further research .....	77
<b>REFERENCES .....</b>	<b>78</b>
<b>APPENDICES .....</b>	<b>86</b>
Appendix I: Informed Consent .....	86
Appendix II: Questionnaire.....	88
Appendix III: Ethical clearance from KeMU SERC .....	100
Appendix IV: Research Permit from Nacosti .....	102
Appendix VI: Permission to conduct study from Mbagathi County Hospital.....	104
Appendix VII: Study site .....	105

**LIST OF TABLES**

Table 3-1: Description of Effectiveness of CPD .....30

Table 4-1: Demographic Characteristics.....36

Table 4-2: Continuous Professional Development in Reproductive Health .....38

Table 4-3: Influence of Continuous Professional Development in FANC to Service Delivery.....44

Table 4-4: Influence of Continuous Professional Development on EmONC to Service Delivery.....47

Table 4-5: Influence of Continuous Professional Development on LARC to Service Delivery.....51

**LIST OF FIGURES**

*Figure 2.1: Kolb’s Theory of Learning*..... 22

*Figure 2.2: Conceptual framework*..... 24

*Figure 4.1: Training approach*..... 40

*Figure 4.2: Perception of Nurses on the influence of CPD on Reproductive Health Service Delivery*..... 42

*Figure 4.3: Challenges in Provision of Services* ..... 54

*Figure 4.4: Solutions for challenges in provision of Focused Antenatal Care* ..... 56

*Figure 4.5: Solutions for Challenges in provision of EmONC Services*..... 60

*Figure 4.6: Solutions for Challenges in Service provision of New born Emergencies* 64

*Figure 4.7: Solutions for Challenges in provision of LARC Services* ..... 68

## **ABBREVIATIONS AND ACRONYMS**

BEmONC	Basic Emergency Obstetric and New born Care
CCC	Comprehensive Care Unit
CI	Confidence Interval
CME	Continuous Medical Education
COR	Crude Odds Ratio
CPD	Continuous Professional Development
CSU	Central Sterilising Unit
EmONC	Emergency Maternal Obstetric and New-born Care
FANC	Focused Antenatal Care
HBB	Help Baby Breath
IBP	Individual Birth Plan
ICPD	International Conference on Population and Development
IUD	Intra Uterine Device
KeMU	Kenya Methodist University

KNH	Kenyatta National Hospital
MCH	Maternal Child Health
MDG	Millennium Development Goal
NACOSTI	National Commission for Science Technology and Innovations
NBU	New Born Unit
P Value	Probability Value
SDG	Sustainable Development Goal
SERC	Scientific and Ethical Review Committee
SRH	Sexual Reproductive Health
SRHR	Sexual Reproductive Health and Rights
WHO	World Health Organization

## **CHAPTER 1 : INTRODUCTION OF THE STUDY**

### **1.1 Background**

Continuous Professional Development (CPD) is based on the well-developed traditions of lifelong learning in the medical profession (Filipe et al., 2014). It is in the learning activity where health professionals maintain, improve and broaden their knowledge and skills in a way that they develop qualities and competencies in their working lives (Oxbridge Academy, 2017). The pace of knowledge acceleration has made the health care provider and society keep abreast of essential knowledge and practices (Jahangir, 2017). CPD is anchored on the attainment of the East, Central and Southern Africa Health Community Ministers' resolution of improving the level of competence in Maternal Child Health cadres of staff which is one of the interventions that will influence the scale up of the Human Resources for Health in the African Region. (Ministry of Health Kenya,[MoH], 2014).

The Health sector's continuing professional development regulatory framework for the Ministry of Health Kenya, provides for harmonized mechanism that seeks to address the provision of ongoing professional development for health care providers, through their various regulatory and professional bodies as well as other stakeholders ,(MoH, 2014). Through the guidance of the framework, Nursing Council of Kenya (NCK), a regulatory body for nurses, developed CPD guidelines for Nurses and Midwives that provides a framework for the regulation and provision of CPD (Nursing Council of Kenya [NCK], 2020). The nurses act Cap 257, endorses CPD as a means of maintaining and updating competence in nursing ( NCK, 2020).

Continuous professional development in nursing enhances competency and to be competent requires acquisition of knowledge, psychomotor skills and affective skills.

Competency cannot be achieved without scientific knowledge, clinical skills and humanistic values (Melnyk et al., 2014). For a learning process to be effective, the learners must demonstrate that they have learned as a result of an educational event, producing change in practice (Filipe et al., 2014). The principle objective of CPD is maintenance of competence, improvement of service and protection of the public (Neimeyer et al., 2012).

The Somaliland Nursing and midwifery association states that a nurse/midwife who is ignorant of the latest available knowledge important to his/her area of practice, and uses old methods, cannot expect public trust and confidence. Therefore, according to World Health Organization, the good standing and reputation of the profession will be compromised. (WHO, 2010).

While Continuous professional development is conducted most of the time in conferences and local events, better learning is through experience (Cherry, 2020). College conferences, medical society conferences and speciality associations are the most valuable contributors to CPD (Schostak et al., 2010). However, there are barriers to acquisition of knowledge through CPD, which include the cost incurred especially for short courses, lack of time between work and social life to attend CPD courses (Schostak et al., 2010).

Continuous Professional Development in reproductive health is key in strengthening service delivery in all areas of Reproductive Health because ,Reproductive Health is important in every stage of life and it is about access to the safest, effective, affordable method of family planning or safe pregnancy, safe delivery for a healthy mother and baby (United Nation Population Fund [UNFPA], 2014).

## **1.2 Global overview of Reproductive Health**

Globally, 295 women died at the time of pregnancy and during childbirth in 2017. Most of these deaths (94%) occurred in countries with limited resources. Eighty six percent (254,000) of the estimated global maternal deaths that occurred in the year 2017 were from Sub-Saharan Africa and Southern Asia (Say et al., 2014). Haemorrhage, infection, high blood pressure, unsafe abortion and obstructed labour are the major direct causes of maternal morbidity and mortality. One of health system investment on averting maternal and perinatal deaths is capacity building of midwives and enabling availability of emergency obstetric care round the clock (WHO, 2013).

Globally, there were 2.6 million stillbirths with more than 8200 deaths a day, half of which occurred at child birth. Out of 133 million babies born alive, 2.8 million die in the perinatal period, with most of the deaths attributed to poor quality of care, and therefore, quality skilled care is key to the health of the baby and mother (WHO, 2013). In Kenya, new born mortality gradually dropped from 35.4 per 1000 live births in the year 1975 to 19.5 per 1000 live births in the year 2018 (Masaba & Mmusi-Phetoe, 2020).

Having a responsible, satisfying and safe sex life with a choice to have a child when ready is what reproductive health and family planning is all about. In countries where women begin to bear children at a younger age, the need for a long-term contraceptive is inevitable to allow for maturity of the young women and space child births. In high income countries, about 25% of those seeking contraception choose female sterilization or IUDs. In low income countries, female sterilization (21%) and IUDs (15%) are the methods with highest prevalence accounting for 57% of overall contraceptive use. An



estimated 90% of contraceptive users in the world prefer modern methods of contraception (Joshi et al., 2015).

Maternal mortality in Kenya is higher compared to the neighbouring countries whose maternal mortality rates have been on the decline, an example is Rwanda whose maternal mortality trended down by 50% between the year 2000 to the year 2010 (Assaf et al., 2018) Maternal mortality rate in Kenya is at 362 maternal deaths /100000 live births (Kenya National Bureau of Statistics [KNBS] et al., 2015). According to reviewed data from the Kenya Health Information system (KHIS), there were one thousand and eighty one (1,081) facility maternal mortalities and twenty three thousand, four hundred and thirty (23,430) perinatal mortalities in the year 2018 (KHIS,2018). Continuous Professional Development on Focused Antenatal care (FANC), emergency maternal obstetric and new born care and family planning are part of interventions put in place to avert these deaths.

The Division of Reproductive and Maternal Health in the Ministry of Health Kenya agrees to the challenge of implementing high quality and uniform continuous professional development programmes on reproductive health to all service providers across Kenya and in some instances, sought help from partners (Division of Family Health, Ministry of Health,[DRMH], 2008).

The Pre-service Reproductive Health and Family Planning trainings content and approaches, continue to be outdated, but those in charge of health care services in most countries have worked towards improving in-service trainings and are yet to utilise supportive supervision which can assist providers improve the quality of health services ( United States Agency for International Development [USAID], 2008).

Inadequate staff training, shortage of equipment/supplies and inappropriate infrastructure inhibits provision of focused ANC services. Not all clinics offering focused ANC have staff trained in focused ANC. Clinics also lack the minimum logistics (in terms of equipment and supplies) and appropriate infrastructure to offer different components of focused ANC (Birungi & Onyango-Ouma, 2006). Kenya began Continuous professional development on antenatal care in the year 2000, this was a mixed training for antenatal care, delivery and post-natal care. Upon revision of the training manual in the year 2010, the CPD offered was designed for antenatal care alone (Division of Family Health, Ministry of Health, [DFH] 2011).

Continuous professional development on EmONC began in Kenya in the year 2006 in small scale basis. Full scale training began in 2013 after devolution of health services and was supported by Liverpool School of Tropical Medicine a non-governmental organization who partnered with the Ministry of Health ( DFH, 2011).

Family planning is about allowing people to delay and space pregnancies as well as decide on the number of children to have through use of contraceptives. These are services that are widely offered by midwives and other trained health care providers ( WHO, 2018).

About 214 million women of reproductive age in the low and middle income countries, who want to avoid pregnancy, are not using modern contraceptive method. One of the major reasons being poor quality of available services (WHO,2018). In Kenya, the unmet need for family planning stands at 18 % of women of reproductive age with 58% contraceptive prevalence rate (Kenya Demographic Health Survey [KDHS], 2014).Work place experience in reproductive health care is not part of what is

prescribed in the curriculum for health professionals in many countries, and this calls for increase in continuous professional development for Health Care Providers on reproductive health, to address the unmet need for family planning (Lia et al.,2015)

Long Acting Reversible Contraceptives are modern contraceptive methods that include; copper intra-uterine devices (IUD), progesterone releasing intra –uterine system, injectable and implants. These methods have safety and efficacy records but remain under-utilised. An estimated 3.4% women use injectable contraceptives and implant methods while 15.5% of women globally use intra uterine methods. These methods are provider dependent requiring a trained health care professional for initiation and discontinuation (Blumenthal et al., 2011).

Due to less utilization of Long Acting Reversible Contraceptives (LARC) in Kenya, the Ministry of Health, Kenya came up with a strategic plan 2011-2016 for training of Health Care Providers on provision of LARC (DFH, 2011).

### **1.3 Statement of the problem**

Continuing implementation of International Conference on Population and Development (ICPD), Sustainable Development Goals (SDG) and 2015 global agenda prioritises accountability in Sexual Reproductive Health and Rights (SRHR), equality and quality through several actions. One of the action is to strengthen SRHR by scaling up human resources training and deployment for Sexual Reproductive Health (SRH) services, to strengthen the right to health specifically reproductive health (Germain et al., 2015).

In Africa, culture, poor maternity care experiences, poor professional diligence and insensitive care, has made it important to put emphasis on health care providers' relational practice to influence women's healthcare seeking behaviour. To address the

above issues, emphasis is also given to capacity building of health care providers in research and education on RH (Blanco, 2016).

Despite increased opportunities for nurses to participate in continuous Professional development for reproductive health, possibility of these opportunities being underutilised, is reflected in the low utilization of Antenatal Care services at Mbagathi County Hospital. Emergency obstetric and new born care services are not well established in the hospital and women are still utilizing short acting contraceptives.

A high proportion of women attended clinic once compared to the proportion of women who completed 4 focused antenatal care as required, the expectation would be equal proportion in attendance for the two visits (Kenya health Information System, [KHIS] aggregate, 2019). In the year 2019, 31.3% women were reported to have attended ANC clinic at least once and 25.9% made four (4) ANC visits (KHIS aggregate, 2019).

EmONC training has been an intervention that was intended to reduce maternal and perinatal morbidities and mortalities that would occur as a result of complications during pregnancy, delivery and in the postpartum period among women and neonates.

Mbagathi County hospital has some of its health care providers trained on EmONC and presumed to have knowledge and skills to manage obstetric emergencies, despite the training, 43 women with obstetric emergencies were referred from Mbagathi County hospital to Kenyatta National Hospital for further management in the year 2019, (KHIS, 2020). One of the objectives of CPD on EmONC is to reduce maternal and perinatal morbidity and mortality this has not been realised because in the year 2019, eight (8) women and 282 new born babies died at Mbagathi County Hospital as a result of preventable causes. (Kenya Health Information System- KHIS aggregate, 2020).

In a bid to reduce maternal morbidities and mortalities, interventions used have been modern methods for child spacing - Implants and Intra Uterine Devices (IUD), effective Antenatal care services, and EmONC services. What remains unclear is how continuous professional development in FANC, EmONC and LARC has influenced service delivery.

This study sought to determine the influence of CPD in reproductive health in the provision of effective services in reproductive health specified areas at Mbagathi County Hospital.

#### **1.4 Purpose of the Study**

To evaluate the influence of continuous professional development on reproductive health Services provided by nurses at Mbagathi County Hospital, Nairobi.

#### **1.5 Specific Objectives**

1. To establish the influence of CPD on Focused Antenatal Care (FANC) services delivered by Nurses to women receiving antenatal care at Mbagathi County Hospital
2. To determine the influence of CPD on Emergency maternal obstetric and new-born care (EmONC) services delivered by Nurses to women and new-borns in emergency condition at Mbagathi County.
3. To establish the influence of CPD on long lasting reversible contraception (LARC) to services delivered by Nurses to women seeking contraception at Mbagathi County Hospital.
4. To identify challenges experienced by nurses in each service delivered

## **1.6 Research questions**

1. What influence does CPD on Focused Antenatal Care (FANC) have on services delivered to women receiving antenatal care at Mbagathi County Hospital
2. What influence does CPD on Emergency maternal Obstetric and New-born Care have on services delivered to women and new-borns in emergency condition at Mbagathi County Hospital?
3. What influence does CPD on long lasting reversible contraception have on services delivered to women seeking contraception at Mbagathi County Hospital?
4. What are the general challenges experienced in service delivery?

## **1.7 Justification**

Continuous Professional Development is one of the formal approaches to building capacities of health care providers, but has no specific measure for success or failure. This study was necessary to determine whether CPD in reproductive health has any kind of influence to service delivery and eventually to maternal and new born health outcomes.

The health of women and children is important and is addressed in sustainable development goal. In a bid to work towards reducing maternal deaths to less than 70 maternal deaths /100,000 live births as well as reducing perinatal deaths to less than 12 deaths per 1000 livebirths by the year 2030 (Boldosser-Boesch et al., 2017),it was important that interventions be within the continuum of maternal care, that is from pregnancy, at child birth, and after child birth with timely initiation of appropriate family planning method.

Mbagathi County Hospital had not assessed the influence of CPD to service delivery, this study has given a basis and baseline for future evaluations of CPD to service delivery across all services offered in the hospital.

It was important to assess CPD and its implication to service delivery in order to give more inputs on its improvement for future CPDs, provide evidence to guide allocation of resources for the trainings and curb wastage of resources in trainings where no improvement in service delivery is noted.

### **1.8 Limitation of the study**

The sampling criteria was census due to the small number of participant's, therefore the sampling strategy was non-probability sampling where all were included in the study with an assumption that equal opportunity was accorded to all participants. The limitation is that it is a small sample that does not require probability sampling, if sample size determination is tabulated, it will further reduce the sample size. Small samples decrease the significant level of the findings and the results cannot be inferred/generalised to the rest of the population.

### **1.9 Delimitation of the Study**

The study focused on CPD provide to nurses only in relation to provision of reproductive health services, but there are other cadres like the Medical doctors, obstetricians, paediatricians and Clinical officers with specialisation in reproductive health who also provide reproductive health services. The other cadres' inclusion in the study would have enriched the study, but would have required a wider scope of assessment of different areas of reproductive health service provision, which is not the goal of this study. Nurses offer most of the services identified in this study, thus, are a representative sample.

### **1.10 Significance of the study**

The outcome of this study is intended to benefit the client through the recommendations made, clients/patients will receive better health care services in reproductive health. The providers will have confidence in the provision of care for they will be aware of the challenges that they have in provision of reproductive health services and seek to work towards addressing the challenges and receive updates through CPD. Mbagathi County Hospital will be able to identify the challenges in CPD and address the challenges appropriately. The study will inform Division of Reproductive Health in the Ministry of Health and the Nairobi County Health Management Team, in the development of policies, standards and protocols to guide Continuous Professional Development and improve strategies and approaches used in capacity building of Health care providers.

### **1.11 Assumptions of the study**

The study made the following assumption;

That all participants will have gone through CPD in at least one of the following; that is CPD on FANC, EmONC or LARC and that the responses given will be honest.



### 1.12 Operational definition of terms

Continuous Professional Development (CPD)	Formal and informal trainings conducted for health care providers in or out of the hospital setting like CME, on job trainings and workshops.
In-Service training	Nurses who go back to training colleges for additional courses and receive training on FANC, EmONC and LARC.
Competencies	Ability to perform FANC, EmONC or LARC services efficiently.
Litigation	Process of taking legal action that will be as a result of poor service provision in FANC, EmONC or LARC
Simulation	Imitation of a situation or process, a technique that is used in the training of FANC, EmONC or LARC.
Didactic Learning	Teaches basic skills of reading and writing and is teacher centred an approach used in the training of FANC, EmONC and LARC.
Nurse	Health care provider deployed in Maternal child Health service unit and provides FANC, EmONC or LARC services
Nursing Practice	Implementation in to practice what has been learned in FANC, EmONC and LARC

Formal Training	Those who have undergone CPD on reproductive health specifically on FANC, EmONC and LARC in a prescribed setting within a specified length of time prescribed for the training.
CPD in reproductive Health	This refers to continuous professional development conducted on FANC, EmONC and LARC, also used interchangeably as training or capacity building
Reproductive health Practice	These are services provided by nurses specific for FANC, EmONC and LARC
Informal Training	FANC, EmONC or LARC knowledge and skills shared among peers as they work together
Influence	CPD on FANC, EmONC and LARC being a factor that effective service delivery on the same depends on it.
Service delivery	FANC, EmONC or LARC services offered by Nurses

## **CHAPTER 2 LITERATURE REVIEW**

### **2.1 Introduction**

Professions have the responsibility to look in to their current systems and come up with a better way of maintaining competency that are in keeping with existing theories of knowledge and skill acquisition and have them reflected in practice (Lysaght & Altschuld, 2000). Continuous professional development's main purpose is to maintain and improve clinical performance. This is augmented by changes in the world in the medical field where there is increased utilization of services and patient autonomy, growing responsibility to external bodies and more emphasis on the quality of care (Cantillon & Jones, 1999).

This study evaluated utilization of services after Continuous professional development in FANC, EmONC and LARC. Antenatal care, Labour and delivery and Family Planning are three areas of reproductive health that assures healthy lives for all women and babies in the long run. Focus on how the ongoing trainings lead to subsequent effective service delivery in specific areas of practice has been a concern to many countries.

### **2.2 Focused antenatal care**

Antenatal care model was developed in 1900 for the purpose of detecting risks among pregnant women. However, this model was associated with more perinatal deaths especially stillbirths, and was changed to Focused Antenatal Care in 2001 (Cumber, 2016;McHenga et al., 2019) .The change resulted to increased utilisation of Antenatal care services in low resource settings, from the time the WHO model of FANC was launched. The model's approach was goal oriented, delivering interventions at four critical times during pregnancy (Tunçalp et al., 2017).

In the year 2016, World Health Organization gave a recommendation on antenatal care for a better pregnancy experience. The new recommendations stipulated a minimum interaction between a pregnant woman and health care providers of not less than eight contacts (WHO, 2016). Focus is on giving priority to human centred approach to health as envisioned in human rights. It is evidenced that maternal satisfaction is reflected in the increased numbers of antenatal contacts (De Masi et al., 2017). However, studies conducted earlier in different settings suggest that more regular visits do not lead to a better pregnancy outcome, it brings about affordability and accessibility challenges in the lower and middle income countries. The studies also stated that many pregnancies develop normally, and only need support from skilled care givers to prevent complications (Dahiru, 2015).

Pregnant women face the risk for complications and they all require the same prescribed basic care and monitoring for detection of impending complications, with an aim of maintaining a normal pregnancy and child birth (Cumber, 2016). It is possible for women without risk factors to develop complications and those with risk factors to not develop any complications which may lead to unpreparedness in recognising and responding to complications on time. Therefore, more resources should be allocated for monitoring those with risk factors and little or no resources allocated to cases/ women who will not manifest any complications (Patience et al., 2016). Programs or staff with weak monitoring system and staff who do not have the required skill to provide all the components of Focused Antenatal Care, often lead to low quality Antenatal Care and poor regulatory mechanisms (Miltenburg et al., 2017). A study conducted in Pakistan, about assessing the quality of ANC in tertiary institutions found that provision of health education and services was higher among health care providers who were trained on

FANC (Ashraf et al., 2017). Another study conducted to evaluate antenatal care experiences by pregnant women in Kwazulu-Natal, South Africa, registered poor attitude and performance of clinic staff, recommending compliance to service delivery guidelines and protocols and increase of trained staff (Ngxongo & Sibiya, 2013).

In Kenya, a survey conducted in Asembo Western Kenya, to assess the provision of focused antenatal care by health care providers who had undergone training, reported increased number of skilled deliveries conducted in the area compared to the period before training, with increased service delivery for various services under Focused Antenatal Care (Ouma et al., 2010).

### **2.3 Emergency maternal Obstetric Neonatal Care (EmONC)**

A global estimate of births with life threatening complications during pregnancy, at child birth and after child birth is placed at 15%, therefore providers with build capacities in managing obstetric and new-born emergencies are important to avert the life-threatening emergencies.

EmONC was developed for low and middle income setting, the package was developed by health care providers with experience of working in such settings. The Training package was pre-tested in Somali land and Swaziland in the year 2007, then used in Africa and South Asia in the year 2015. The generic package was then reviewed and adopted by specific countries (Burodo et al., 2015).

The EmONC training package consist content in the following areas: Communication, triage of pregnant women, Normal Vaginal delivery, early new-born care and new born resuscitation, management of shock, management of unconscious patient and maternal resuscitation, prevention and treatment of obstetric haemorrhage, manual removal of retained placenta, management of severe pre-eclampsia and eclampsia, use of

partograph, prevention of obstructed labour, diagnosis and treatment of pregnancy related sepsis and HIV diagnosis and treatment of complications of abortion, breech delivery, cord prolapse and twin delivery, shoulder dystocia, assisted vaginal delivery-vacuum extraction, repair of episiotomy and perineal tears, caesarean section and referrals (Burodo et al., 2015).

EmONC content is specifically on prevention and management of major causes of maternal and new-born's death and it requires effective communication and team work for successful implementation. The training approach determines effectiveness of the outcome anticipated , like in the case of Cambodia whose approach was clinical mentorship, they strengthened capacities at selected facilities to function as clinical training sites and offered 24 hours support on EmONC service delivery (Cambodia, 2010).

There is the Basic Emergency Obstetric and New Born Care that focuses on seven (7) signal functions (BEmONC) and an additional two signal functions for the comprehensive obstetric care (CEmONC). The signal functions that are used for assessment in service delivery for BEmONC are as follows: Ability to administer; parenteral antibiotics, parenteral anticonvulsants for pre-eclampsia and eclampsia, parenteral Uterotonic drugs, manual removal of retained placenta, removal of retained products of conception, ability to perform assisted vaginal delivery (Vacuum delivery) and basic neonatal resuscitation of the new born with bag and mask. For Comprehensive emergency care, in addition to the given seven signal functions, there is ability to perform caesarean section and provide blood transfusion (Otolorin, et al,2015;Pattinson et al., 2015).

An evaluation done in Tanzania after BEmONC training, reported marked improvement in the active management of third stage of labour (AMTSL) at 60%, recording an increase of 19% for the year 2012 compared to the year 2010. There was also an increase in the use of oxytocin at 99% in all health facilities, resulting to reduction of the number of women experiencing postpartum haemorrhage to 4 cases out of 500 births in 2012 (0.8%), compared to 10 cases out of 500 births in 2010 (2%) (Otolorin et al., 2015).

Nepal conducted CPD that focused on appropriate use of drugs (Magnesium sulphate) in management of pre-eclampsia and eclampsia with positive results. There was an average facility score increase from 26% to 60% and by the end of the program in 2009, 11 of the 22 facilities assessed were performing at over 80%, in achieving the set standards (Otolorin et al., 2015). A related study by Wondimu (2020) found inadequate training in Ethiopia to be a major challenge in provision of EmONC services while McNab and Atieno, (2010) found inability to sustain supply and equipment as a major challenge in EmONC service delivery even in situations where Health care providers were well trained.

Effectiveness of EmONC training was assessed in a study conducted in Kenya, in which improvement in knowledge and skills was reported, Burodo et al. (2015). However, there were challenges noted on implementation of EmONC services that varied from staffing, deployment to retention policy after training, lack of equipment, poor support from obstetricians, nurses/midwives and administrators, Gudu (2020) and Task shifting and redeployment of staff was seen as one of the solutions to improve service delivery in EmONC (Lobis et al., 2011).

### 2.3.1 Essential New-born care training

The Emergency Maternal Obstetric and New born Care Training (EmONC) has content on new born care where more focus is on keeping of babies warm and initiation of breast feeding immediately after delivery. The training is per the guidelines on helping babies breathe (HBB) program that was integrated to EmONC training and in keeping in mind that the outcomes of the babies wellbeing is dependent on the mother.

The training package for essential new-born care consists of the following content;- routine neonatal care, thermoregulation, kangaroo (skin to skin) care, initiation of breathing and resuscitation (including bag and mask ventilation), early and exclusive breast- feeding, recognition and initial management of complications, recognition of danger signs and care of small babies. The purpose of the training is to improve the midwives skill and knowledge and reduce neonatal deaths in the first 7 days after birth (Carlo et al., 2010). As a result, there was 60% adoption of kangaroo mother care in Nepal after training of Community Health workers on kangaroo mother care and introduction of the practice (Otolorin et al., 2015).

Essential new-born care training was conducted in rural communities in 6 countries namely; Argentina, Guatemala, Zambia, Democratic Republic of Congo, India and Pakistan. It was noted that the rate of neonatal death (7 days after birth) did not decrease after training but decreased for still births due to new skills acquired on new born resuscitation and care. The reason was the standard of measure of a neonate was days after delivery without consideration of the gestation at birth, weight and height to rule out prematurity (Carlo et al., 2010).

A study conducted by Moron et al. (2015) to assess potential bottlenecks and solutions in the management of small and sick new born, recommended the need to define core



competencies by level of care, to enable monitoring of new born. In the same study, recommendation was made on the need for a neonatal nursing cadre for all countries to strengthen new born care (Moxon et al., 2015). This is contrary to this study findings, potential bottleneck in new born service delivery was inadequate supplies and equipment and poor staffing, and the recommendations made were to increase budgetary allocation and staffing.

Neonatal/perinatal mortality remains a big challenge in resource constrained communities (Turab et al., 2013). Solutions include having reliable supply of oxygen and emergency drugs, to enable improve emergency interventions in pregnancy, childbirth, infancy and childhood (Cole-Ceesay et al., 2010). There is also the need to adopt a reliable training approach like convectional learning (Yigzaw et al., 2019).

#### **2.4 Long Acting Reversible Contraception (LARC)**

Long Acting Reversible Contraception (LARC) are contraceptive methods that provide effective contraception (99% effective). They protect against pregnancy for a long time and are reversible when stopped (Winner et al., 2012). They include implants, intra uterine device and injection (Jatlaoui et al., 2017).

Kenya developed a strategy for 2011 to 2016 that would help increase uptake of long acting and permanent method of family planning, whereby training of 80 regional trainers was planned through an in-service program and thereafter 200 trainers from 13 decentralised Reproductive health training centres. The Kenya Medical Training College campuses as well as private and Mission training institutions (DRMH, 2010).

In a bid to increase utilization of long acting contraceptives, Tujipange project spearheaded by JHPIEGO came up with interventions that included trainings of health care providers, the trainings resulted to increase LARC usage from 6.1% to 15.8 %

(Muthamia et al., 2016). Competency based training for LARC has shown improvement in service provision (Stewart et al., 2016). The Ministry of Health targets to train 10,000 providers on LARC due to its increased uptake. A total of 3,019 health care providers in 8 counties have been trained on provision of LARC (Karutu et al, 2016). Family planning trainings are still on going, with 141 health care providers have been trained as trainers in 47 counties (Family Planning Program, & DRMH, 2020).

An in-depth interview conducted on Health Care Providers to explore practices in provision of LARC, reported structural, human resource, provider bias and inadequate skills as barriers to provision of LARC services (Ontiri et al., 2019). Another study was conducted to assess medical trainees of different levels' experience and training on insertion and removal of LARC, it found that the trainees had limited experience of insertion and removal of LARCs of all types, they also lacked confidence in the provision of these services (Abdalla et al 2021).

A study conducted by Mwafulirwa et al. (2016) found that as much as health care providers provide family planning services to over 50% of clients, less than 20% of the providers could offer LARC services, it was found that what hindered LARC service provision was providers' lack of experience, work demand and low demand for LARC service.

## **2.5 Theoretical Frame work**

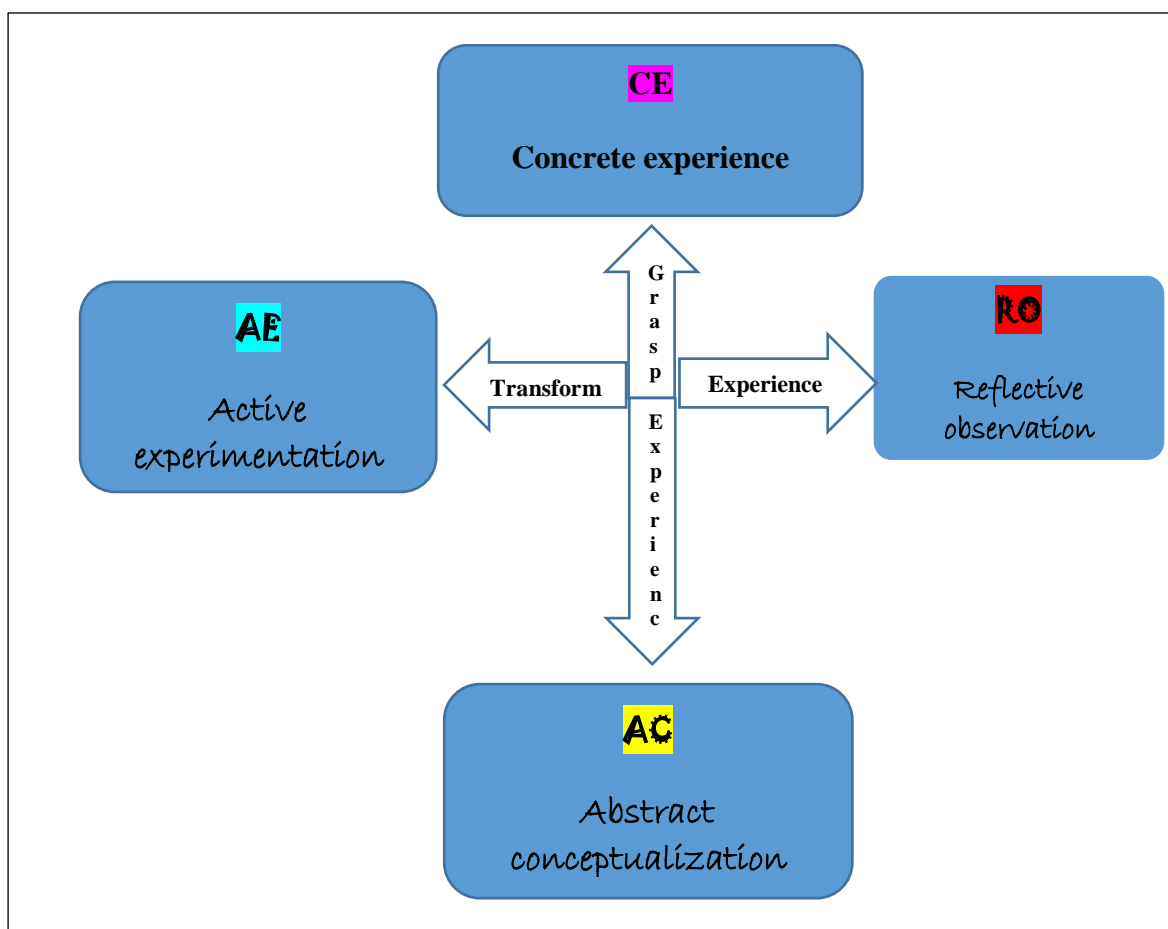
### **2.5.1 Kolb's experiential learning theory**

This study adapted Kolb's (2013) experiential learning framework due to its theory that is based on learning from experience. This entails putting in to practice what one has

learned, and improve on the practice as one continues to repeat the same action and reflecting on the outcome. Kolb's theory of learning is based on experiences of learning as outlined in the cycle.

**Figure 2.1**

*Kolb's Theory of Learning*



Kolb's theory of experiential learning is a foundation for various strategies applied in theoretical learning and practice. It can be used in demonstrations on selected skills with an aim of evaluating ones thinking, whether critical or not and assess the

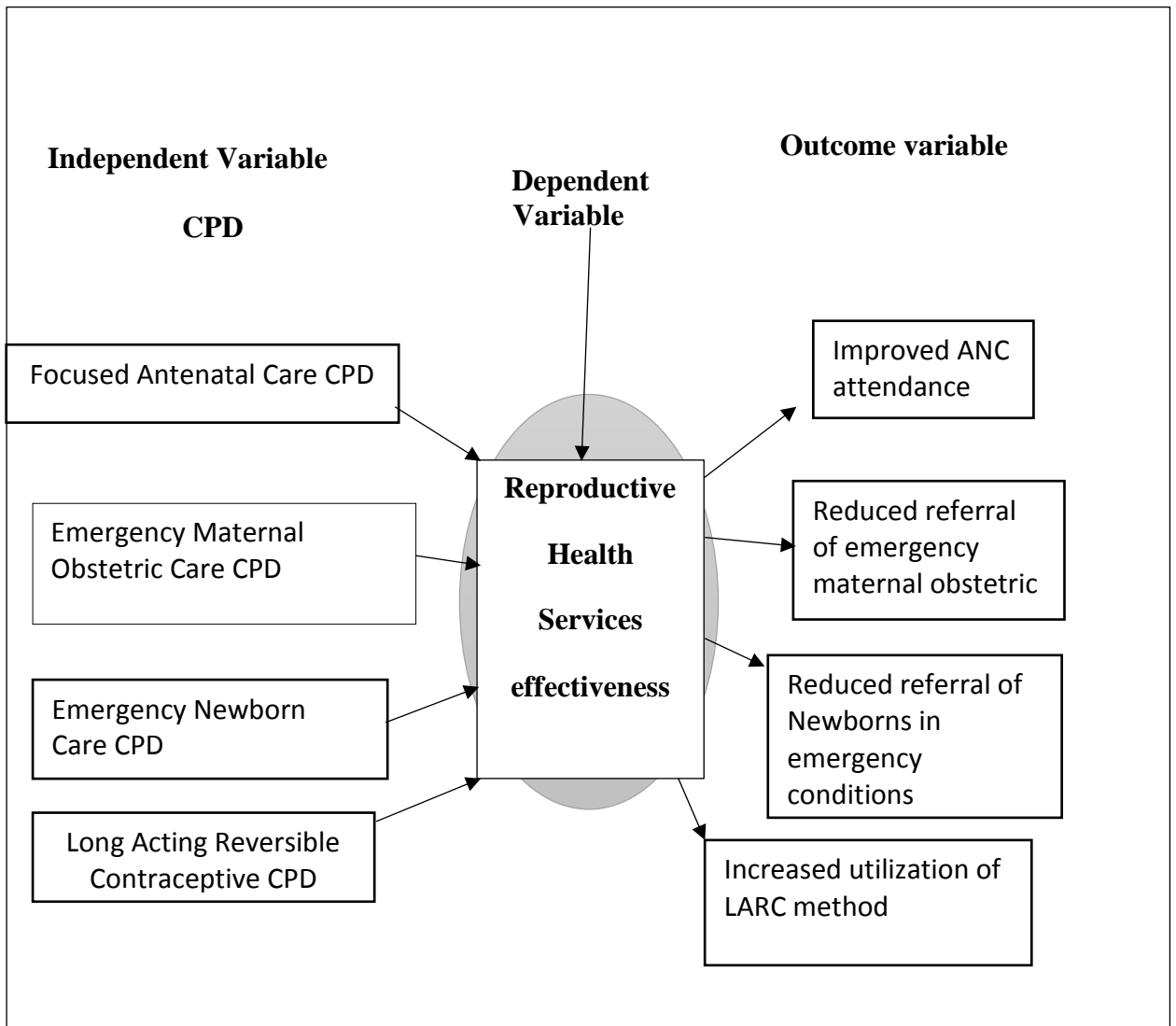
relatedness of theory to practice (Kolb & Kolb, 2013). While knowledge is created from what one goes through or observes in practice, it can also be as a result of what one learns or experiences during the same practice. This is related to the ability of the nurse to translate what was learned through CPD in to service delivery as intended. The learning that occurs in CPD in the clinical setting offers an environment for the nurse to experience what has been described in Kolb's cycle of experiential learning; Concrete experience where one learns through seeing and thinking about what was seen. All these are brought together to form an abstract concept, It is from these concepts that new implications for action can be drawn. These are tried and are a basis of creation of new experiences- active experimentation. Meaning good results derived from the actions will motivate a nurse to continue offering better services.

## **2.6 Conceptual Frame work**

The conceptual framework outlines the specific variables in reproductive health important to this study and the expected outcomes in service delivery.

### **Figure 2.2**

*Conceptual Framework*



Adapted from Donabedian works of on Quality of care model (**Donabedian, 1988**)

## **CHAPTER 3 : METHODOLOGY**

### **3.1 Introduction**

The chapter outlines the methods that were used in the study, these are; the study design, study site, target and study population, sampling strategy, analysis plan, data collection instruments and ethical considerations.

### **3.2 Research design**

The study design was cross sectional quantitative design, where semi structured questionnaires were filled. Information was collected at one point in time and this saved time and resources. It was quantitative because the kind of data collected was expected to produce discreet numerical or quantifiable data to enable make statistical inference about the population of interest who were the nurses.

### **3.3 Study variables**

#### **3.3.1 Independent Variable**

This study explored four independent variables following CPD on focused antenatal Care (FANC), Emergency Maternal Obstetric Care, Emergency new-born care and long lasting Reversible Contraception (LARC) and how they influenced service delivery.

#### **3.3.2 Dependent Variable**

Influence on Service delivery was the dependent variable in the study. Effectiveness of services delivered is determined by CPD. The total influence of service delivery will arise from the effects of independent variables (CPD).

### **3.4 Study Site**

The study was carried out in Mbagathi County Hospital, situated in west of Nairobi in Kenyatta golf course location, Dagoretti district of Nairobi County, along Mbagathi

way. It is located on the edge of Kibera Slum, Africa's largest slum and is in close proximity to Nairobi city centre.

In the past, Mbagathi county hospital was a hospital managing infectious diseases like tuberculosis and leprosy, it was known as isolation hospital, this changed and the hospital now manages people with a wide range of diseases as well as offers maternal and child health care. It is a teaching hospital offering placement /internship to medical interns, clinical officers and nurses for clinical experience. It has a total of ten (10) wards, two (2) theatres, four (4) special clinics and casualty department for adults and children. Among the wards there is the Medical/surgical ward for males and for females, Gynaecology wards, paediatric wards, labour ward, postnatal ward, major general theatre and maternity theatre, these are vital for student rotation and training. The four special clinics include comprehensive care centre (CCC), dental clinic, Ante natal care, family Planning clinic and the child welfare clinic.

The catchment population for Mbagathi county hospital is 178,000 with an estimated 55,892 women of reproductive age (KHIS, 2019).

### **3.5 Target population**

The target population were the 170 nurses working at Mbagathi County Hospital. The reason for selecting nurses was because the area of assessment is mostly covered by nurses compared to other cadres in health care.

### **3.6 Study Population**

These were the 66 nurses working in the Reproductive health Units at Mbagathi County Hospital who met the inclusion criteria.

### **3.7 Eligibility Criteria**

#### **3.7.1 Inclusion Criteria**

The following were included in the study;

- 1 Nurses who were licensed to practise
- 2 Nurses who have worked for more than 6 months in Mbagathi county hospital
- 3 Nurses were currently deployed in maternity, Ante Natal Care and new-born unit
- 4 Nurses who were trained in the specific areas of reproductive health under study

#### **3.7.2 Exclusion Criteria**

- 1 Nurses who were on leave at the time of data collection or on offs.
- 2 Nurses who were working in maternity unit to relieve shortage but are not deployed in the unit.
- 3 Nurses who had not undergone CPD on any of the four areas of reproductive health under study.

### **3.8 Sample size determination**

This study used census method, where all populations under the study area, who met inclusion criteria, participated in the study. Some publications on research have stated that for a meaningful result, a study sample should not be less than 100 but if less , all participants should be included (Cridland, 2022). A study with a small sample can provide more believable results than those on a large sample with uncontrolled confounders. Small samples have a tremendous advantage as highly sophisticated and accurate measurements can be made with all the precautions in place. The measurement errors and biases can be easily controlled and can be easily identified in a small sample. Census method include all members of the population (Indrayan & Mishra, 2021). Due



to the small number of RH service provider population, all nurses working in these units and met the inclusion criteria, were recruited to take part in the study.

### **3.9 Sampling Technique**

The health units/departments were purposively selected using the researchers' knowledge on the units that offer reproductive health services.

In purposive sampling, people and items are selected on the basis of expertise and experiences. It also operates on the principle that we can get the best/accurate information through focusing on a small number. Using Census method, all nurses working in the RH units and met the inclusion criteria were allowed to fill semi structured questionnaire. This ensured that the results collected were accurate as each member in the unit was given a chance to take part in the study, giving negligible error and highly reliable results.

Statistical calculation of sample size in an already small population under study and considering non-response rate and proportion of data left for analysis after data cleaning would make it futile to analyse data of fewer participants. This was the reason why all the 66 nurses were targeted to take part in the study.

### **3.10 Data collection**

#### **3.10.1 Instrumentation**

Self-administered Semi structured questionnaire was used with closed and open-ended questions. The questions were on demographic characteristics, continuous professional development in FANC, EmONC and LARC. The questions also sought to get information on service provision with challenges for each specific area, as well as

whether the training improved service delivery and uptake, the questions on effectiveness of service delivery are on Table 1.

The questionnaires were coded by use of questionnaire numbers to assure confidentiality.

### **Description for effectiveness to service delivery**

The table below summarises the questions that were asked to determine effectiveness of service delivery before training and after training. The number of items in each area under study were to enable determine whether a service was effectively provided before training /after training or not. The responses were useful in coming up with a bivariate indicator that was used as a dependent variable during statistical analysis.

**Table 3.1:*****Description of Effectiveness of CPD***

	<b>Very Effective</b>	<b>Effective</b>	<b>Not Effective</b>
<b>FANC</b>	Means that the health care provider is able to provide the range of services prescribed for every visit and can offer advice on all areas of individualized birth plan	Means that the health care provider is able to give some services prescribed for each visit and can offer advice on some areas of individualized birth plan	Means that the health care provider cannot offer any of the services prescribed for each visit and cannot give advice on individualized birth plan
<b>EmONC</b>	Means that the health care provider is able to perform prescribed services for all cases and has attended to more than three (3) obstetric and new-born emergencies	Means that the health care provider can perform some procedures and has attended to 1 to 2 obstetric and new born emergencies	Means that the health care provider is unable to perform all procedures in EmONC and has never attended to any obstetric and new-born emergencies.
<b>LARC</b>	Means that the health care provider was able to provide all long acting reversible contraception to more than 3 clients	Means that the health care provider was able to provide all long acting reversible contraception to one (1) to two (2) clients	Means that the health care provider cannot provide any long acting reversible contraception.

**3.10.2 Pretesting the questionnaire**

The questionnaires were pretested among nurses at Mama Lucy County hospital due to its similarity in characteristics with study population. It was then administered to sampled nurses calculated as 10 % of the study population as prescribed by (Mugenda & Mugenda, 2000). The study population was 66 nurses whereby 10% of 66 is 6.6,

which was rounded off to 7 nurses who took part in pretesting of the tool. The responses given helped refine the questionnaires.

### **3.10.3 Validity and Reliability**

#### **Validity**

Pre-testing of the questionnaires helped improve validity of the tool. It highlighted areas of weakness, or errors in the questions and identified questions that did not yield or give the answer they were intended to give. This enabled a test for validity of the questions

#### **Reliability**

Reliability refers to how consistently a method measures something. If the same result can be consistently achieved by using the same methods under the same circumstances, the measurement is considered reliable. Stability and consistency of the questions were assessed as a measure of reliability, implying that the same questions can yield similar responses in a different setting.

### **3.11 Data Collection procedure**

A semi structured questionnaire was used to collect information from the nurses. Each questionnaire had a serial number in order to observe confidentiality and for easy data entry and analysis. Questionnaires were administered during working hours that is 08.00a.m to 5.00p.m on weekdays. The respondents were required to read the consent form, then sign, before filling the questionnaire. Sixty one (61) questionnaires were filled, out of which 58 were complete and were analysed.

### **3.12 Data Analysis**

Data was checked for completion, cleaned, coded in Microsoft excel and analysed. Inferential statistics were conducted in epi info version 7, Stata and some in Microsoft excel windows 10. Filled questionnaires were stored in a password protected computer,

accessed by those allowed to have the password, filled hard copies questionnaires were stored in a locked cupboard.

### **3.12.1 Descriptive statistics**

Data tabulated included, measures of central tendency for continuous data, and proportions for categorical data. Percentages/proportions calculated in MS Excel and Stata included; Demographic Characteristics, Proportions for those trained in FANC, EmONC and LARC, those who received update within the year to data collection, Proportions on Training approaches, percentages/proportions on Challenges experienced on service delivery.

Proportions for the effectiveness of service delivery were calculated and comparison made for before and after training. This entailed calculation of the proportions for the response in effectiveness, proportions under very effective, effective and not effective were calculated for each statement, under each of the three areas of RH services in the study. The scores/responses were compiled together and tabulated to provide one score/response for before CPD and after CPD for each area of RH services. Ref: Table

### **3.12.2 Inferential statistics**

Chi square test was conducted in Epi info version 7, where bivariate analysis was done to assess the relationship between CPD in reproductive health to service delivery. This was to enable understanding of the correlation between the two variables. To get a binary outcome variable from effectiveness of service delivery, very effective and effective were summed up to be effective while not effective was captured as not effective. This is because effective service delivery meant that a service was carried out to a satisfactory level where, very effective and effective would give a satisfactory outcome, while not effective meant the service was unsatisfactory. Confident interval

(CI) without a null factor ( $>1$ ) and a p-value of  $\leq 0.05$  were considered to show levels of significance in the association of the two variables. The exposure variable was CPD training and the outcome variable was the effectiveness of the training to specific area of service delivery.

### **3.13 Ethical Consideration**

Ethical approval was sought from KEMU SERC and National Commission for Science Technology and Innovation (NACOSTI) who provided the licence to conduct the research. To be able to access study participants, permission was sought from the Nairobi Metropolitan Services Research Committee and Mbagathi County Hospital Research Committee. Written consent was sought from participants before they filled the questionnaire. Confidentiality was assured through use of serial numbers on questionnaires, use of pass word protected computers and locked cupboards for questionnaires.

## **CHAPTER 4 : RESULTS AND DISCUSSION**

### **4.1 Introduction**

This chapter presents research findings based on the study objectives. The purpose for the study was to evaluate the influence of continuous professional development on reproductive health services, provided by nurses at Mbagathi County Hospital, Nairobi. This entailed establishing how training in CPD influenced service delivery, determining how CPD on EmONC influenced service delivery to pregnant women and the newborns, how training in LARC influenced provision of long-lasting reversible contraceptives, identifying areas that require more training of health care providers as well as challenges and suggested mitigation. For discussion, the results of the study will be compared to other study findings to establish area of similarity and those that differ, enabling a discussion that will draw suitable conclusion and practical recommendations for the study.

### **4.2 Response Rate**

Sixty-one (61) out of sixty-six (66) questionnaires were filled giving a response rate of 92 %. During cleaning of data, three questionnaires were found to be incomplete and were left out in the analysis stage. Therefore, fifty-eight 58 (88%) questionnaires were analysed. Studies have shown that response rate of  $60\% \pm 20$  is valid, extremes of response rates should be followed by explanations (Baruch, 1999).

### **4.3 Demographic Characteristics**

Demographic characteristic gives a general picture of the respondent. It gives information that helps the researcher understand various aspects of the responses given by the respondent, giving character to the response therefore, helping the researcher draw reasonable conclusions.

The mean age of the respondents was 33.5 years with a standard deviation of  $\pm 7.5$ , the youngest aged 23 years and oldest aged 58 years old. The largest age group who took part in the study was between 30 to 39 years at 29 (50%), this shows that most of those who participated in the study were young adults. This was followed by age group 20 to 29 years at 19 (33%), then 40-49 Years 7(12%), the age group with fewer participants was 50 to 59 years at 3 (5%).

Most nurses had attained diploma level of education 33 (57%), 19 (33%) had reached degree level, 3(5%) Masters Level, 2 (3%) certificate level and 1 (2%) higher diploma. On the years in practice, 45 (78%) of the nurses had worked for between 1 year to 10 years, 9 (16%) had worked for 11-20 years, 3 (5 %) had worked for 31 to 40 years and 1 (2%) for 21 to 30 years, Table 4.1.



**Table 4.1*****Demographic Characteristics***

---

<b>Demographic Characteristics</b>		<b>Frequency</b>	
<b>Characteristics</b>	<b>Description</b>	<b>N</b>	<b>%</b>
<b>Age group</b>	20 – 29	19	33
	30 – 39	29	50
	40 – 49	7	12
	50 – 59	3	5
<b>Level of Education</b>	Masters	3	5
	Degree	19	33
	Higher Diploma	1	2
	Diploma	33	57
	Certificate	2	3
<b>Years in Practice</b>	1-10	45	78
	11-20	9	16
	21-30	1	2
	31-40	3	5

---

The mean age of the respondents for this study, compares to that of the study conducted by Khan et al. (2019) on health care providers. The implication of both findings is that we have younger professionals working in maternal health care area in our facilities. This may be advantageous for the fact that the knowledge and skills acquired from health training institutions is still fresh among these age group, but on the other hand, they may lack experience that the older age groups have attained overtime (Khan & Malik, 2019). Most of the respondents had a diploma level education or better. The level of education determines the level of preparedness that nurses have in provision of reproductive health services, this differs for every level, in higher level of education there is comprehensive training on RH compared to lower level of education (Mengesha et al., 2018).

Continuous Professional Development has been used to fill the gaps in knowledge and skills that one did not acquire during pre service training. This has worked in health settings where regular updates on current practice are disseminated over time, builds capacities of the professional who then improves their practice/in service delivery.

#### 4.4 Continuous Professional Development in Reproductive Health

The proportions of nurses who were trained on Reproductive health **Table 4.2.**

**Table 4.2**

*Continuous Professional Development in Reproductive Health*

Characteristics	Description		Frequency		Description		Frequency	
			N	%	N	%		
FANC	Training	Yes	44	76				
		No	14	24				
	Years since training	<1	7	16	Updates	13	30	
		1-5	30	68		24	54	
		6-10	6	14	No-update	7	16	
		11-15	1	2				
EmONC	Training	Yes	39	67				
		No	19	33				
	Years since training	<1	-	-	Updates			
		1-5	31	79		31	79	
		6-10	6	15		6	15	
		11-15	2	5		2	5	
Newborn Emergencies					Update	26	67	
					No-Update	13	33	
LARC	Training	Yes	31	53				
		No	27	47				
	Years since training	<1	8	26	Updates	8	26	
		1-5	21	68		21	68	
		6-10	1	3		1	3	
		11-15	1	3		1	3	

The three areas of reproductive health include Focused antenatal care (FANC), Emergency Obstetric and Neonatal care (EmONC) and Long Acting Reversible Contraceptives (LARC).

The nurses trained on FANC were 44 (76%), the trainings occurred as recent as below one year to 15 years. The updates given on FANC were as follows: Thirteen (30%) received updates in less than one year from the time of data collection, 24 (54%) received updates on FANC more than 1 year ago, while 7(16%) nurses had not received any updates at the time of data collection.

There were 39 (67%) nurses trained on EmONC out of which none received updates on EmONC in less than one year to data collection, a majority 31(79%) received updates on EmONC within 1-5 years, 6 (15%) received updates within 6-10 years and only 2(5%) reported to have received updates in more than 11-15 years.

Concerning LARC, most of the respondents 31(53%) had been trained. Of those trained, a majority 28 (84%) received updates on LARC within five years while 2(6%) had updates within 6-15 years since training. The findings imply that respondents had access to continuous professional development relating to reproductive health aspects of the study. The demographics indicate that having been trained in reproductive health made CPD relevant for their professional development hence the need for seeking more information. A number of studies concluded that nurses viewed CPD as an indicator of professionalism for improving practice ( Ameh & Van Den Broek, 2015; Pool, & Ten, 2013).

#### 4.4.1 Approach to Training

The training approaches outlined were used to provide Continuous professional development in the three areas of Reproductive Health. Figure 4.1

Figure 4.1

#### *Training Approach*



Most nurses 23 (43%) received trainings through workshops, followed by Continuous Medical Education 19 (33%) and on job training 14 (24%). Workshops were the major setting for delivery of updates.

A study conducted in Nigeria found that traditional methods of training health care providers was not as effective as when there was an organized clinical mentorship program for improvement of service delivery (Okereke et al., 2015). This study findings indicate that in Workshops were the major setting utilised when conducting CPD to nurses at Mbagathi Hospital. Workshops are costly to plan and execute,

requiring more resources compared to CME's and on job training (Banke-Thomas et al., 2019).

A study evaluating EmONC trainings, reported that most updates were given through workshops and deficiencies in pre service training content and methodology was noted when assessing quality service delivery using maternal and perinatal mortality audits (Ameh & Van Den Broek, 2015). The findings led to adjustment of EmONC trainings to on job training.

Some countries have developed curricula for EmONC training as part of in-service training, where knowledge retention after six months was found to be better compared to acquisition of knowledge in the immediate post training (Mirkuzie et al., 2014). Different approaches and settings have been utilised in delivering EmONC content, this study reported workshops and CME's as major settings in delivery of EmONC content.

The area that require more training of nurses to enable improvement of service delivery as suggested by the nurses, is EmONC 54 (93%), LARC 28 (48%) and FANC 28 (48%).

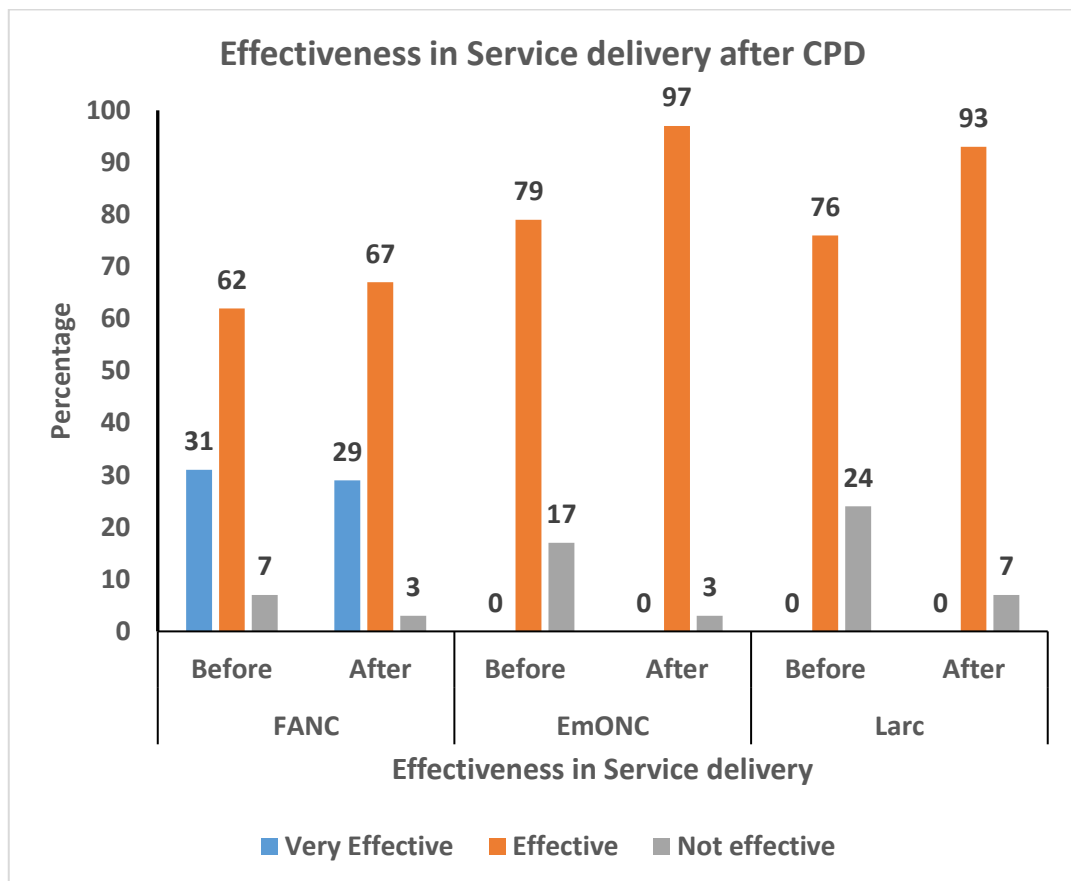
It's evident that most nurses in Mbagathi received training on EmONC and yet it still is the area recommended for more trainings. Otolorin et al.(2015) considers trainings as an intervention that will enable a health care provider to give high impact maternal and new born interventions. EmONC training is now embedded in pre service training, it may take care of the training needs of the new entrants in health service (Otolorin et al., 2015).

#### 4.5 Effectiveness in Service Delivery after CPD

The study sought to establish how continuous professional development influenced service delivery in reproductive health for FANC, EmONC and LARC. This influence was operationalised to refer to the respondents perceived level of effectiveness in reproductive health services delivered after the CPD. Figure 4.2 Compares the general perception of respondents on the influence of CPD on reproductive health services.

**Figure 4.2**

#### *Perception of Nurses on the Influence of CPD on Reproductive Health Service Delivery*



#### **4.6 Effectiveness in Service delivery after CPD for FANC**

Thirty one percent of Nurses could provide Very effective FANC Services, 62% effective FANC services and 7% not effective FANC services before CPD in general, while After CPD, 29% could provide very effective FANC services, 67% effective FANC services while 3% could not provide FANC services, Figure 4.2.

##### **4.6.1 Inferential statistics on the relationship between CPD on FANC Service delivery**

Table 4.3 presents information on nurses who are able to provide effective services in FANC after CPD, and has specified specific areas in service delivery where there was perceived effective delivery of the service after CPD. The relationship between knowledge on FANC and utilization of FANC services by women was found not to be statistically significant as shown on the table below.



**Table 4.3*****Influence of Continuous Professional Development in FANC to Service Delivery***

	<b>Percent received CPD and effective</b>	<b>Percent did not receive CPD and effective</b>	<b>COR</b>	<b>CI</b>	<b>P value</b>
<b>FANC CPD</b>	<b>30 (79%)</b>	<b>8 (21%)</b>	<b>1.61</b>	<b>0.47-5.52</b>	<b>0.449</b>
Offer prescribed ANC services for 1 <sup>st</sup> visit	34 (81%)	8 (19%)	2.55	0.72-9.09	0.177
Offer prescribed ANC services for 2 <sup>nd</sup> visit	34 (81%)	8 (19%)	2.55	0.72-9.09	0.177
Offer prescribed ANC services for 3 <sup>rd</sup> visit	33 (79%)	9 (21%)	1.67	0.46-6.05	0.499
Offer prescribed ANC services for 4 <sup>th</sup> visit	32 (78%)	9 (22%)	1.48	0.41- 5.33	0.737
Counsel on six essential elements on IBP	32 (78%)	9 (22%)	1.48	0.41- 5.33	0.737

*\*COR-Crude Odds Ratio    \*CL-Confidence Level    \*P Value-Probability Value*

When making comparison between effective Focused Antenatal Care offered before and after CPD on FANC 30 (79%) nurses could provide effective service after CPD. Over 50% of nurses could provide effective services on specific areas of FANC as outlined on table 4.3. Despite these facts, the overall findings showed that there was minimal difference between those who had received CPD on FANC and those who had not, implying that there was no influence of CPD to service delivery on Focused Antenatal Care. Ngxongo and Sibiyi (2013) in their study, were able to point out that there are other factors that influence the outcome of service delivery, including compliance to service delivery guidelines and protocol, and increased training of staff. Solnes et al. (2017), found weak monitoring system as an additional factor affecting FANC service delivery. Contrary to the general findings of this study, better ANC services is attributed to those trained on FANC.

The odds of those who received CPD on FANC being able to deliver effective services during the antenatal period was more than those who did not receive CPD on FANC (COR 1.61). However, the level of association between CPD on FANC and service delivery was not statistically significant (95% CL: CI; 0.47-5.52,  $p=0.449$ ).

Those who received CPD on FANC were two times (2.55) more effective in offering FANC services required under 1st Antenatal Care and 2<sup>nd</sup> Antenatal care. For services offered in 3<sup>rd</sup> visit and 4<sup>th</sup> visit, the odds that those who received CPD could provide effective service was 1.67 times more for 3<sup>rd</sup> visit and 1.48 times more for 4<sup>th</sup> visit than for those who did not receive CPD. Counselling on the six essential elements for individual birth plans could be done more effectively by those who received CPD (COR 1.48) than those who did not receive CPD on FANC. The probability value in all areas

was more than  $> 0.05$ , implying that, though there was better service delivery attributed to those who had CPD in FANC, the general association of CPD in FANC and FANC Service delivery was not statistically significant.

A study on acceptability and sustainability of the WHO FANC package in Kenya, showed significant effect of staffing to effective service delivery, this shows that other factors can influence effectiveness of service delivery other than CPD on FANC (Amoakoh-Coleman *et al.*, 2016). The findings are similar to those reported in this study where poor staffing was one of the challenges reported to affect service delivery.

#### **4.7 Effectiveness in Service delivery after CPD for EmONC**

The study compared service delivery before and after CPD on Emonc. The findings in figure 4.2 on general comparison of service delivery before and after CPD on EmONC showed that there was slight improvement in service delivery after CPD, and the number of nurses who were still unable to provide Emonc services, reduced from 17% to 3 %.

Table 4.4 presents information on nurses who are able to provide effective services in EmONC after CPD, and has specified specific areas in service delivery where there was perceived effective delivery of the service after CPD.

**Table 4.4*****Influence of Continuous Professional Development on EmONC to Service Delivery***

	<b>Percent received CPD and effective</b>	<b>Percent not received CPD and effective</b>	<b>COR</b>	<b>CI</b>	<b>P-value</b>
<b>EmONC Training</b>	<b>26 (70.7%)</b>	<b>11 (29%)</b>	<b>1.45</b>	<b>0.47- 4.49</b>	<b>0.514</b>
Administer medication for severe pre/Eclampsia	34 (71%)	14 (29%)	2.43	0.61- 9.72	0.270
Administer required Uterotonic to prevent PPH	33 (72%)	13 (28%)	2.54	0.69- 9.32	0.180
Have manually removed retained placenta for some cases	30 (70%)	13 (30%)	1.54	0.45- 5.22	0.533
Perform assisted vaginal delivery	32 (71%)	13 (29%)	2.11	0.59- 7.49	0.318
Perform Manual Vacuum Aspiration	31 (72%)	12 (27%)	2.26	0.67- 7.61	0.213
Manages 1 to 2 maternal emergencies in a month	32 (73%)	12 (27%)	2.67	0.77- 9.22	0.189
Identify danger signs in New-born and resuscitate	32 (68%)	15 (32%)	1.22	0.31- 4.81	1.000
Performs new-born resuscitation with little guidance	31 (72%)	12 (28%)	2.26	0.67- 7.61	0.213
Has managed 1 to 2 new born emergencies	30 (68%)	14 (32%)	1.19	0.34- 4.21	1.000

*\*COR-Crude Odds Ratio    \*CL-Confidence Level    \*P Value-Probability Value*

New born Emergency training is incorporated in EmONC training where 26 (70.7%) nurses who were trained could offer effective services, Table 4.4

Some countries like Tanzania have reported marked improvement in the management of third stage of labour specifically prevention of PPH after EmONC training (Otolorin et al., 2015). This study has shown that 33 (72%) nurses can manage postpartum haemorrhage effectively using Uterotonic.

This study found that 32(62%) nurses could provide effective services in identifying new born emergencies and performing resuscitation while 31(72%), could provide effective services in new born resuscitation with little guidance after receiving CPD. Despite the positive outcome from specific areas investigated in this study, a study conducted in 6 countries reported that the rate of neonatal death did not decrease after training (Carlo et al, 2010). Failure to take appropriate intervention can lead to new born morbidity and mortality and CPD on EmONC builds capacity of Health care providers to be able to make accurate decisions and interventions in emergency situations for new-borns.

#### **4.7.1 Inferential statistics on the relationship between CPD on EmONC Services**

Continuous Professional Development on EmONC had the following outcome to service delivery; 39 (67%) of nurses had CPD on EMONC, those who had CPD on EmONC and were able to provide effective service were 26 (70.7%). Nurses who received CPD on EmONC were more likely to provide effective services (COR 1.45) than those who did not receive CPD on EmONC. However, the level of association between CPD on EmONC and Effective service delivery was not statistically significant (at 95%CL: CI: 0.47-4.49, P=0.514). Table 4.4

The odds that nurses can administer pre-eclampsia and eclampsia medication effectively is higher (COR 2.43) among those who received CPD than those who did not receive CPD.

On administration of Uterotonic in PPH, there were higher odds of effective administration of Uterotonic (COR 2.54) among the nurses who received CPD compared to those who did not receive CPD on EmONC. Nurses who received CPD on EmONC were more likely (COR 1.54) to effectively remove retained placenta manually and also conduct assisted deliveries effectively (COR 2.11) than those who did not receive CPD on EmONC. For Manual Vacuum aspiration, nurses who received CPD on EmONC were more likely (COR 2.26) to provide this service effectively compared to those who did not receive CPD on EmONC.

Those who received CPD in EmONC are more likely to manage; 1 to 2 maternal emergencies in a given month (COR 2.67), identify danger signs in new born and resuscitate effectively (COR 1.22) and perform new born resuscitation with little guidance (COR 1.19) than those who did not receive CPD in EmONC, Table 4.4.

The proportion of nurses who received CPD on EmONC and can give effective service is higher than those who did not receive CPD, the odds of those who received CPD being able to provide effective service on EmONC was higher compared to those who did not receive CPD, however these associations were not statistically significant since the probability value in all the areas was more than 0.05.

This finding is contrary to those found in a study conducted in Embu and Meru County that looked in to training intervention and its outcome. It showed improvement in knowledge after training ,the relationship between educational intervention on EmONC to service delivery ,was found to be statistically significant ( Gitonga & Muriuki, 2014).

In the Cambodia improvement plan for EmONC, one of the strategies was to strengthen capacities at selected facilities to function as clinical training sites that offer 24 hours

support on EmONC service delivery. It was reported that competency based provider education leading to skilled birth attendance, was key in provision of effective EmONC services (Cambodia, 2010). Different training strategies have been employed in different countries to capacity build Health Care Providers in EmONC with an aim that is similar to this study, which is to improve Maternal and New-born Health outcomes by provision of effective EmONC services.

#### **4.8 Effectiveness in Service delivery after CPD for LARC**

The study compared the general service delivery for LARC before and after the CPD. Figure 4.2 shows that over 90% of nurses were able to provide effective services on LARC after CPD and those who could not provide effective service dropped from 24% to 7% after CPD in LARC.

Table 4.5 presents information on nurses who are able to provide effective services in LARC after CPD, and has specified specific areas in service delivery where there was perceived effective delivery of the service after CPD.

**Table 4.5*****Influence of Continuous Professional Development on LARC to Service Delivery***

	<b>Percent received CPD and effective</b>	<b>Percent not received CPD but effective</b>	<b>COR</b>	<b>CI</b>	<b>P Value</b>
<b>LARC Training</b>	<b>28 (65%)</b>	<b>15 (35%)</b>	<b>7.47</b>	<b>1.82-30.65</b>	<b>0.003</b>
Have inserted IUD to 1 to 2 clients in the last three months	30 (67%)	15 (33%)	24.00	2.85-202.38	0.001
Have removed IUD of 1 to 2 clients in the last three months	29 (67%)	14 (33%)	13.46	2.67-68.01	0.001
Have inserted implants to 1 to 2 clients, in the last three months	26 (67%)	14 (33%)	13.46	2.67-68.01	0.001
Have removed Implants of 1 to 2 clients in the last three months	30 (67%)	15 (33%)	22.75	2.85-202.38	0.001
Managed side effects of 1 to 2 clients in the last three months	28 (67%)	14 (33%)	8.67	2.12-35.49	0.001

*\*COR-Crude Odds Ratio    \*CL-Confidence Level    \*P Value-Probability Value*



Nurses who could provide effective LARC services after CPD on LARC were 28 (65%). Those who could insert implants effectively were 26 (67%) while 30 (67%) could remove implants effectively after receiving CPD. Those who could insert IUD effectively were 30 (67%) while 29 (67%) could remove IUD effectively.

#### **4.8.1 Inferential statistics on the relationship between CPD on LARC Services**

The odds of those who received CPD on LARC being able to offer effective service was seven times more (COR: 7.47) than those who did not receive CPD in LARC, therefore, there was a high likelihood of those who received CPD on LARC to offer effective LARC services than those who did not receive CPD on LARC, the level of association was statistically significant at a 95% CL: CI; 1.82-30.65 and a P value of 0.003. Table 4.5

The odds of having inserted implants to 1 to 2 clients effectively in a given period of three months was thirteen times more (COR:13.46) and twelve times more (COR 12.75) for removal of implants compared to those who did not receive CPD on LARC. Those who received CPD on LARC had higher odds of managing 2 to 3 clients effectively for side effects attributed to LARC compared to those who did not receive CPD on LARC.

The probability value in all areas was less than 0.05 (P Value = <0.05), implying that there was effective service delivery attributed to those who had CPD on LARC. The level of association between CPD in LARC and effective service delivery was statistically significant. Table 4.5.

Training deficiency and limited experience in insertion or removal of LARC, leads to lack of confidence in the provision of the service (Abdalla et al., 2021).

A study conducted on the outcomes of a competency based training for intra uterine device insertion for doctors in primary facility to service delivery, found that the training significantly influenced service delivery (Stewart et al., 2016).

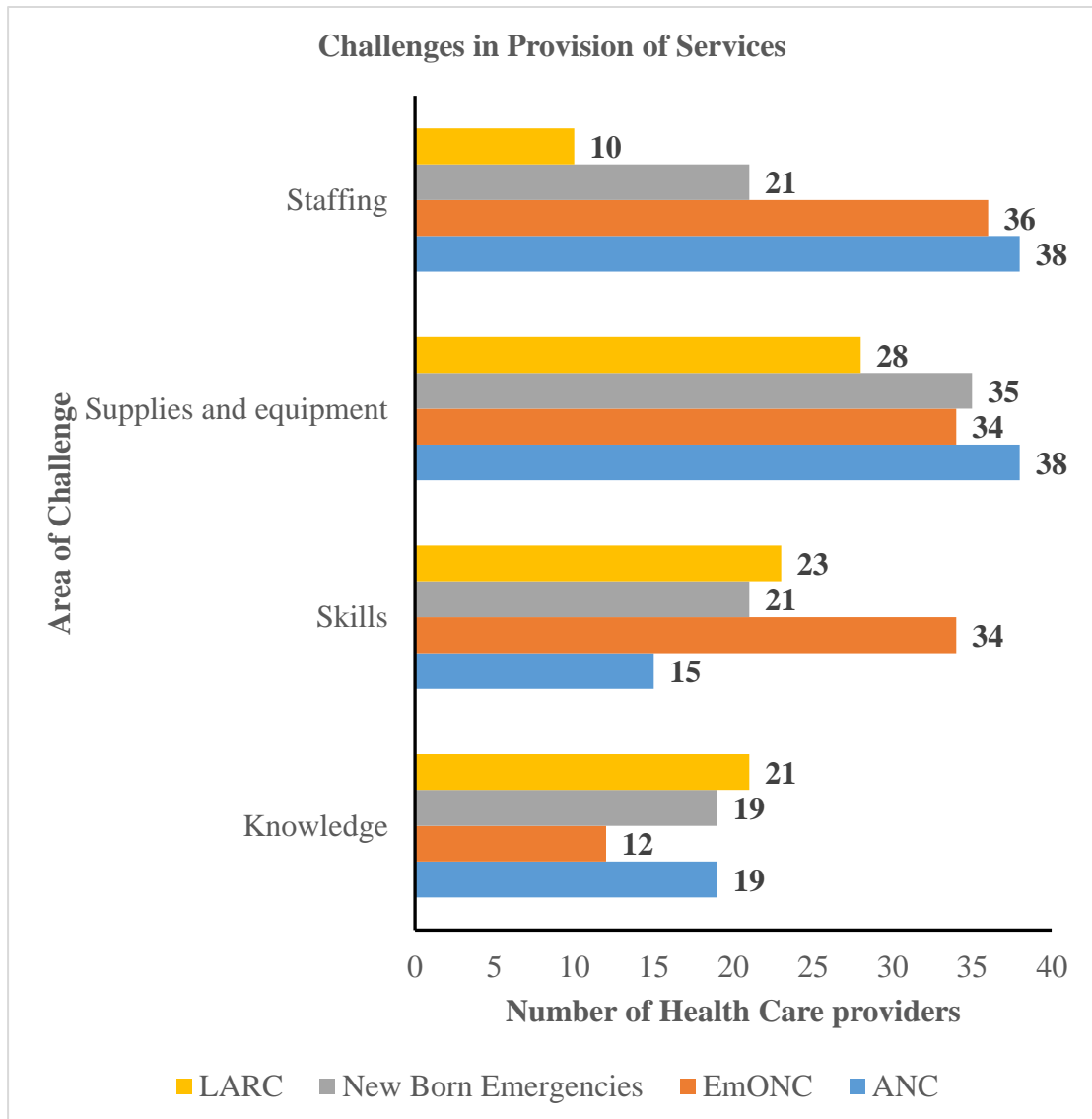
These findings are similar to the ones in this study where Intra Uterine Device (IUD) insertion could be done effectively by the nurses, after CPD. To offer effective service delivery, a study report suggested increased providers counselling skills, to foster readiness in clients' acceptance for LARC and strengthen capacity in provision of Implants and IUD. The study recommended improvement of knowledge and skills ,through provision of learning resources for self-study to promote blended learning and avail more clinical practice time (Gardner et al., 2021).

#### 4.9 Challenges experienced by nurses in each service delivery after CPD

Challenges experienced by nurses in the provision of the specific Reproductive health (FANC, EmONC and LARC) services are as outlined in Figure 4.3.

**Figure 4.3**

##### *Challenges in Provision of Services*



The challenges experienced in provision of Focused Antenatal Care were; insufficient supplies and equipment 38 (66%), poor staffing 38 (66%) followed by insufficient

knowledge on FANC 19 (33%) and inadequate skills 15(26%) in the provision of FANC Services.

The challenges that impedes service delivery in EmONC were as follows: 12 (21 %) cited insufficient knowledge in provision of services in emergency maternal obstetric care, 34(59%) reported insufficient supplies and equipment, 34(59%) reported inadequate skills and 36(62%) reported poor staffing as a challenge in provision of emergency maternal obstetric services.

Challenges identified in new born emergencies service delivery were as follows; 35(60%) reported insufficient supplies and equipment as a major challenge in provision of new born emergency services, 21(36%) cited poor staffing , 21(36%) inadequate skills and 19(33%) reported insufficient knowledge in provision of services in new born emergencies.

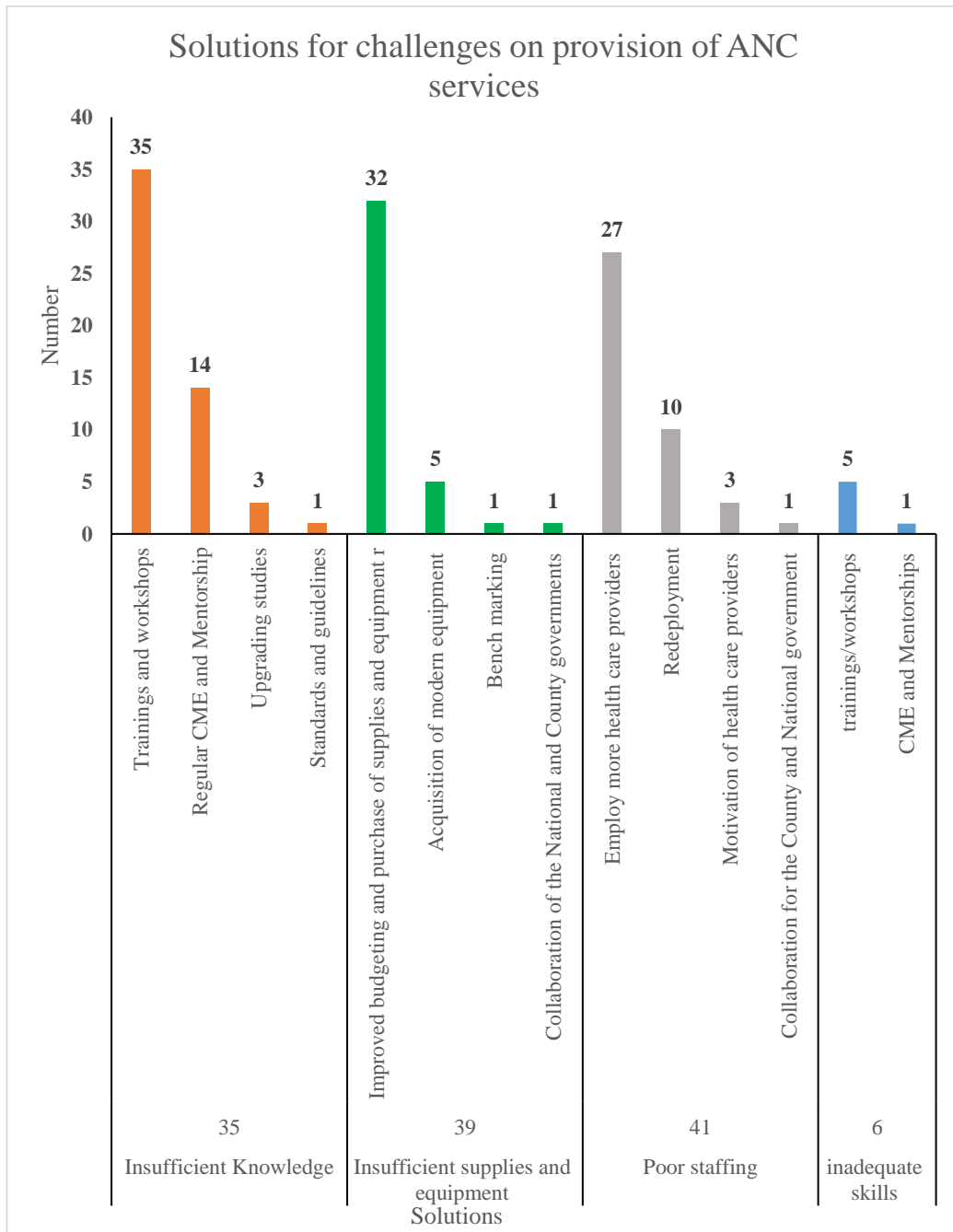
The challenges identified that influence service delivery in the provision of LARC were as follows; 28(48%) reported insufficient supplies and equipment, 23(39%) reported inadequate skills, 21(36%) insufficient knowledge in LARC, while 10(17%) reported poor staffing as a challenge in providing the service.

#### 4.10 Solutions for challenges in effect provision of Reproductive Health Services

The study sought to establish the challenges faced by the respondents during reproductive service delivery and the solutions to mitigate these in Figure 4.4

**Figure 4.4**

#### *Solutions for Challenges in Provision of Focused Antenatal Care*



Solution for insufficient knowledge on FANC was given by 35 (60%) of the respondents. Most nurses suggested trainings/workshops on FANC 35(100%), regular CME's and mentorship 14(40%) as solutions while fewer nurses suggested upgrading studies for nurses 3 (8.6%), as well as availing standards and guidelines on FANC 1 (2.9%) as solutions to the afore mentioned challenges.

Suggested solution towards insufficient supplies and equipment was given by 39 (67%) nurses, where 32 (82%) nurses suggested improved budgeting and purchase of supplies and equipment required for FANC service delivery, 5 (12.8%) suggested acquisition of modern equipment and 1 (2.56%) suggested bench marking to facilities that have shown efficiency in FANC service delivery and 1(2.56%) suggested collaboration of the National and County governments on procurement and delivery of supplies and equipment for FANC.

On staffing, 41 (71 %) of the respondent suggested solutions towards this challenge that ranged from the need to employ more nurses 27(65.9%), redeployment 10 (24.4%) to increase the number deployed in FANC clinic, motivation of nurses 3(7%) and the need for collaboration for the County and National government 1(2.4%) to work together to resolve the issue on staffing for the hospital.

Solutions for inadequate skills given by 6 (10%) respondents were trainings/workshops 5(83.33%) and CME and Mentorships 1 (16.66%) on Focused Ante natal Care.

Ensuring that supplies and equipment for effective provision of FANC services are available, and is an important aspect of service delivery, even in places where adequate trainings have been conducted.

Several studies conducted to assess provision of quality FANC services have reported trainings on FANC among other solutions. A qualitative study conducted in South Asia on provision of quality FANC services, found insufficient knowledge and skills and unprofessional behaviour, to be factors influencing women not to seek maternal care. Other studies have shown that clinical mentorship in competency based training improves quality of ANC care (Phommachanh et al.,2019).

In 2018, WHO revised the number of contacts that pregnant women should have with Health Care Providers in the course of their pregnancy, this was from four contacts to eight contacts (WHO, 2018). Four focused Antenatal care is more goal oriented with specific package of care for each visit, making it a challenge to achieve since there are other requirements (Medicine and Medical products and other supplies) that must be available rather than knowledge and skills to enable provision of effective service delivery in FANC (Tunçalp et al., 2017).

Dahiru (2015), stated that many pregnancies develop normally and only need support from skilled care givers. There are pregnancies that can also develop with complications or develop complications as they progress, this calls for quality focused antenatal care to enable timely interventions and improvement in FANC services, CPD in FANC did not influence provision of effective Focused Antenatal Care.

Studies have shown increased number of antenatal visits, and also an increase in Skilled Birth attendance, after training in FANC (De Masi et al., 2017; Ouma et al., 2010). This findings did not point out whether services provided to the increased number of women attending antenatal Clinic as effective following the requirements for each visit, this

study sought to find out whether CPD influenced delivery of FANC services as required for each visit.

Mutai and Otieno (2021), Identified factors that influence ineffective service delivery for FANC, which are poor communication, unfriendly behaviour and negative attitude towards health care providers. The challenges identified in this study ranged from lack of supplies and commodities, inadequate skills and knowledge to inadequate staffing, they are not similar to the ones stated by Mutai and Otieno in their study but they all affect effective service delivery. Utilization of Focused antenatal care package was found to be low due to evidence practice gaps in some countries, this study found the gaps by identifying the challenges nurses experience during service delivery (Tessema et al., 2021).

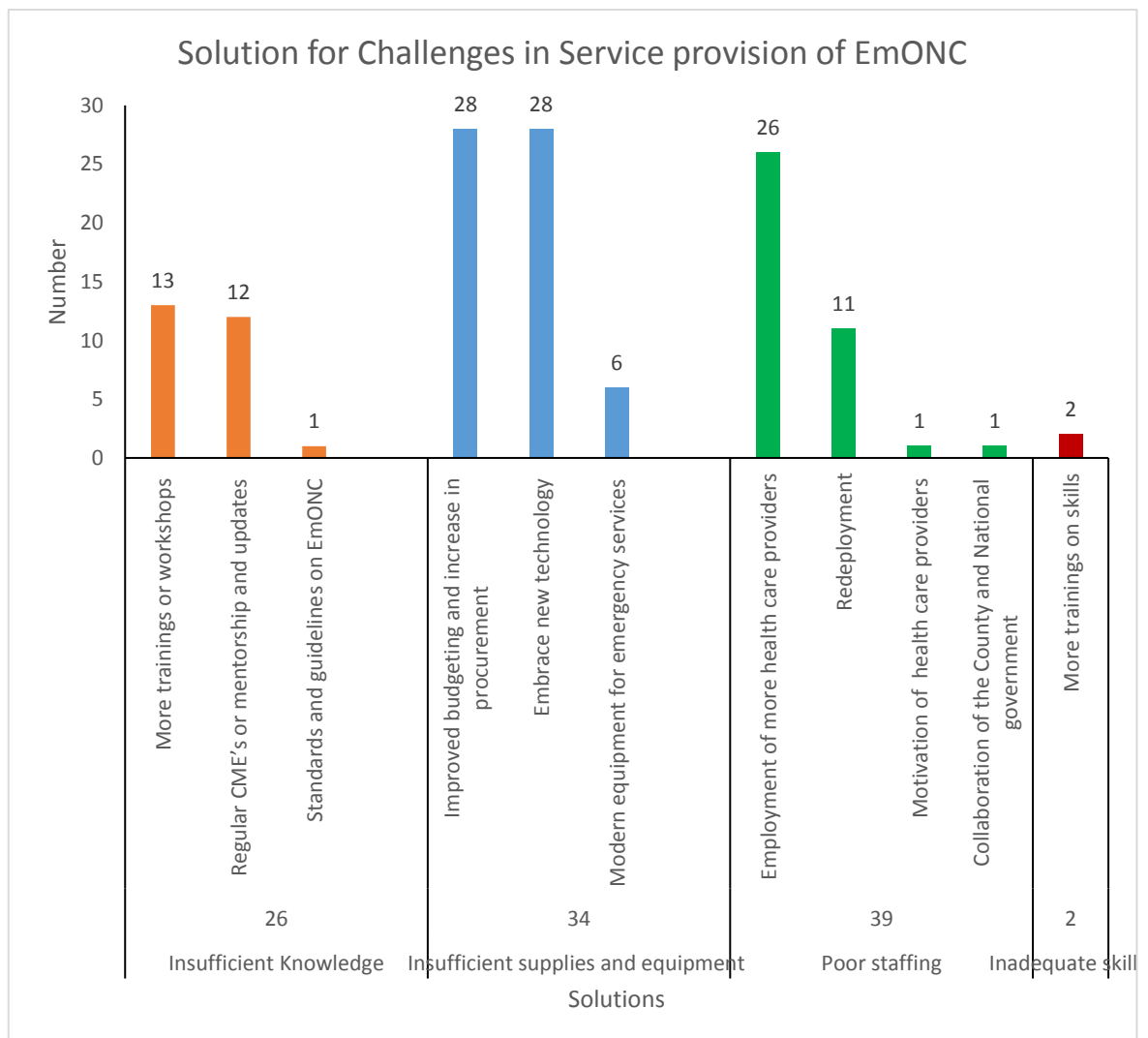


#### 4.11 Suggested Solution on Challenges in provision of EmONC services

There are other challenges that hinder effective service provision on EmONC despite provision of CPD on EmONC, suggested solutions made for the challenges on EmONC service delivery are as shown on figure 4.5.

**Figure 4.5**

*Solutions for Challenges in Provision of EmONC Services*



Solutions for insufficient knowledge were given by 26 (45%) nurses, where 13 (50%) nurses suggested more trainings or workshops on emergency obstetrical maternal care, 12 (46%) nurses suggested regular CME's or mentorship and updates on EmONC, and the need to have Standards and guidelines on EmONC available was suggested by 1 (4%) nurse.

Challenges on insufficient supplies and equipment hampering service delivery to women with obstetric emergencies had solution suggested by 34 (59%) nurses. These were improved budgeting and increase in procurement of supplies and equipment required to provide obstetric emergency services to women 28 (82%), the need to embrace new technology 28 (82%), as well as modern equipment for emergency maternal obstetric care suggested by 6 (18%) nurses.

On poor staffing, 39 (67%) nurses gave solutions towards this challenge, 26 (67%) nurses suggested employment of more nurses, 11 (28%) suggested redeployment, to have more nurses working in labour/delivery Unit, the need to motivate nurses suggested by 1 (3%) nurse and collaboration of the County and National government to increase staffing was suggested by 1 (3%) nurse. Solution for inadequate skills was given by two nurses who suggested more trainings on skills.

Major challenges in provision of EmONC services were; insufficient knowledge in provision of services, insufficient supplies and equipment, inadequate skills and poor staffing.

Major solutions suggested for insufficient knowledge were more trainings or workshops on emergency obstetrical maternal care, regular CME's or mentorship and updates on EmONC.

Insufficient knowledge is one of the challenges cited under EmONC in this study, this finding is similar to the result of an in depth interviews conducted on stakeholders in Ethiopia, which found that inadequate training of health care providers at the facility level was a barrier to effective management of Pre/eclampsia, (Gudu,2020).

This study found that 34(71%) nurses can administer pre-eclampsia medication effectively, this is one of the indicators assessed for management of pre-eclampsia, to qualify effective service delivery on EmONC. A qualitative study, conducted in Malindi Kenya found that 67% of nurses can effectively manage Pre/eclampsia, Echoka et al.(2014).

A multi country analysis done in 12 countries to identify bottlenecks to offering quality maternal and new-born health care, found health service delivery to be the most critical for both basic and comprehensive emergency obstetric care for 9 out of 12 countries. The proposed solution included task shifting and improving the quality of training, Sharma et al.(2015). This is similar to the findings of this study, where insufficient knowledge and inadequate skills were found to be challenges in provision of effective EmONC services.

Another study that assessed the alignment of regulation, training and actual performance of EmONC care providers in Malawi and Tanzania, suggested task Shifting and deployment of health care providers as solution for effective service delivery (Lobis et al.,2011). Redeployment is one of the suggested solution for poor staffing in this study.

Inadequate supply of equipment was cited by respondents as contributing to ineffective delivery of EmONC services. Inability to sustain supply and equipment for delivery of

EmONC services, led to clients/patients not seeing the need to visit facilities ,due to poor service delivery during periods of shortages, (McNab &Atieno, 2010).

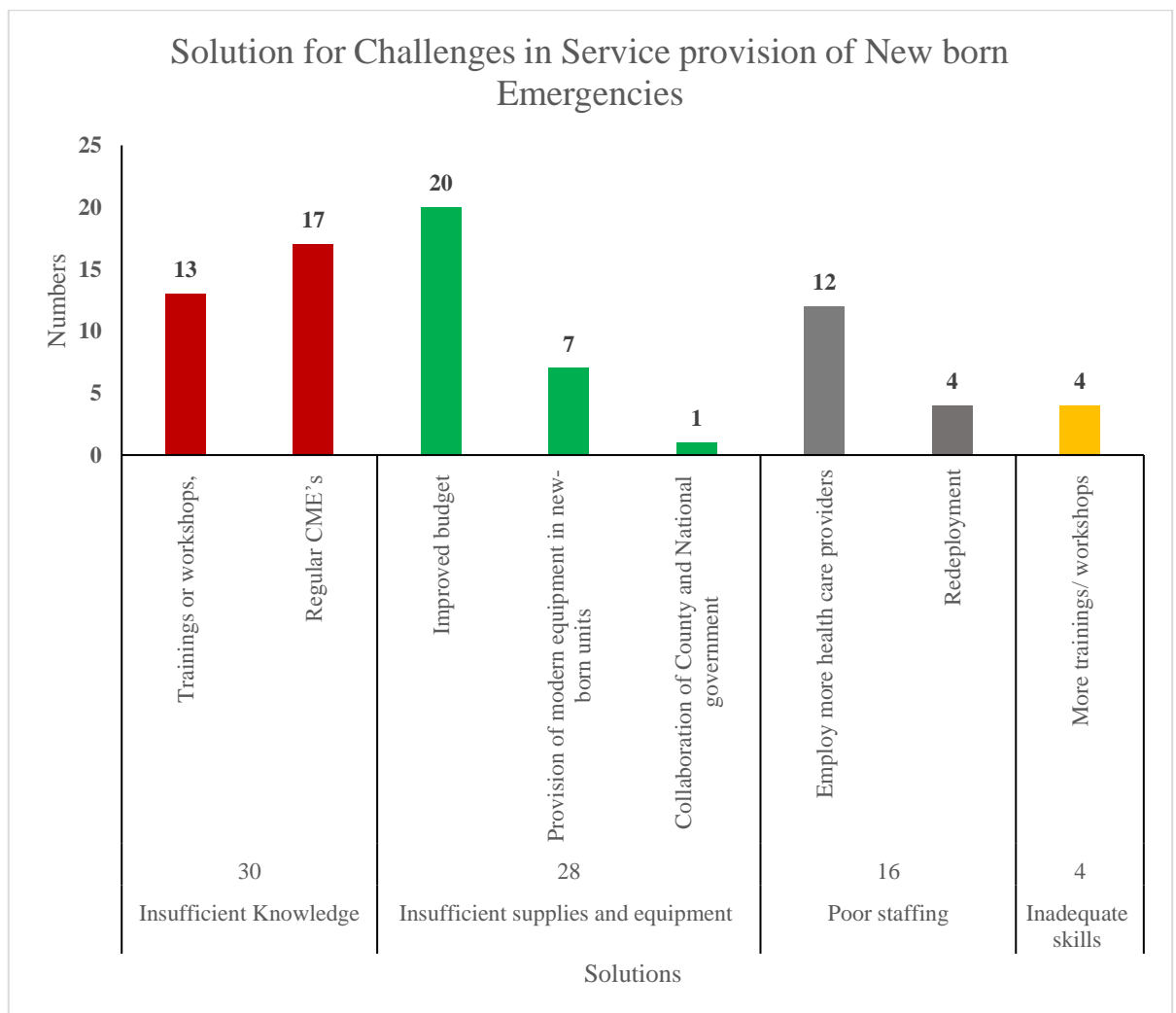
On staffing, the findings in this study cited poor staffing as a challenge, to EmONC service provision. The suggested solutions were; employment of more nurses, redeployment, to have more nurses working in labour/delivery Unit, the need to motivate nurses as well as collaboration of the County and National government to increase staffing. Burodo et al. (2015) in a study conducted in Kenya, attributed poor implementation of EmONC service, to poor staffing, poor deployment of staff and lack of retention policy.

#### 4.12 Solutions on Challenges in Provision of New-born emergency services

New born emergencies is part of EmONC training, as much as nurses acknowledge the challenges that they experience in the provision of this service, they have solutions to those challenges as outlined in Figure 4.6

**Figure 4.6**

#### *Solutions for Challenges in Service provision of New born Emergencies*



The nurses who gave solutions for insufficient knowledge were 30 (52%).

Of these 13 (43%) suggested trainings or workshops and others suggested regular CME's 17 (57%) to include updates on new-born emergency care.

Twenty eight (48%) nurses gave solutions to insufficient supplies and equipment; 20 (71%) suggested improved budget and increase in supplies and equipment (incubators and oxygen cylinders). Seven (25%) suggested that the department should provide modern equipment in new-born units and embrace new technology, while 1 (4%) nurse suggested the need for the County and National government to work together to improve the new-born unit.

Nurses who reported poor staffing as a challenge were 16 (28 %), solutions to the challenge ranged from the need to employ more nurses 12 (75%), redeployment 4 (25%) in the new-born unit. Four nurses suggested solution for inadequate skills, whereby they all suggested trainings/ workshops to improve interventions towards new-born emergencies.

Challenges identified in new born emergencies service delivery were insufficient supplies and equipment, poor staffing, inadequate skills and insufficient knowledge.

To resolve the challenge on insufficient supplies and equipment; suggestions made were; improved budget and increase in supplies and equipment (incubators and oxygen cylinders). They suggested that the department should provide modern equipment in new-born units and embrace new technology, as well as the need for the County and National government to work together to improve the new-born unit.

A randomized controlled trial carried out in the community in Pakistan, concluded that neonatal /perinatal mortality remains a big challenge in resource constrained communities, indicating that supplies and equipment in these facilities may be insufficient (Turab et al., 2013). This is similar to the challenges reported in this study, where insufficient supply and equipment remains to be an impediment to effective service delivery and these may contribute to increase in perinatal mortalities in our facilities.

A study conducted in Gambia reported the need to avail emergency equipment, reliable oxygen supply, emergency drugs and training health care providers in order to improve on emergency interventions in pregnancy, childbirth, infancy and childhood (Cole-Ceesay et al., 2010). This study suggested improved budget allocation to enable purchase of supplies and equipment to suggested solutions for insufficient supply of equipment and supplies, which was to increase budget for purchase of the equipment and supplies for maternal and new born emergencies

Solutions suggested to improve poor staffing were: the need to employ more nurses and redeployment in the new-born unit.

A multi country analysis of health system bottlenecks and potential solutions in the care of small and sick new born, found that the health system building block with the highest challenge was health workforce, followed by community ownership and partnership. The solutions included, a need for neonatal nurse cadre and the need for core competencies to be defined by level of care, for monitoring of new-born and for the community to create demand for accessible quality new-born care (Moxon et al., 2015). Poor staffing was also found to be a challenge in this study. There is need to

improve core competencies of those offering new-born emergencies, to enable reduce perinatal mortalities that occur as a result of poor skills and knowledge in new-born emergency care.

Inadequate knowledge in managing new born emergencies was a challenge where trainings especially in skills on new born emergencies, through mentorship was suggested by most nurses. This is similar to results of a study which compared blended learning (off site learning with follow up on SMS and weekly phone calls) to convectional learning (offsite learning with follow up mentorship in the facility), it showed that significant learning took place in convectional learning (Yigzaw,2019).

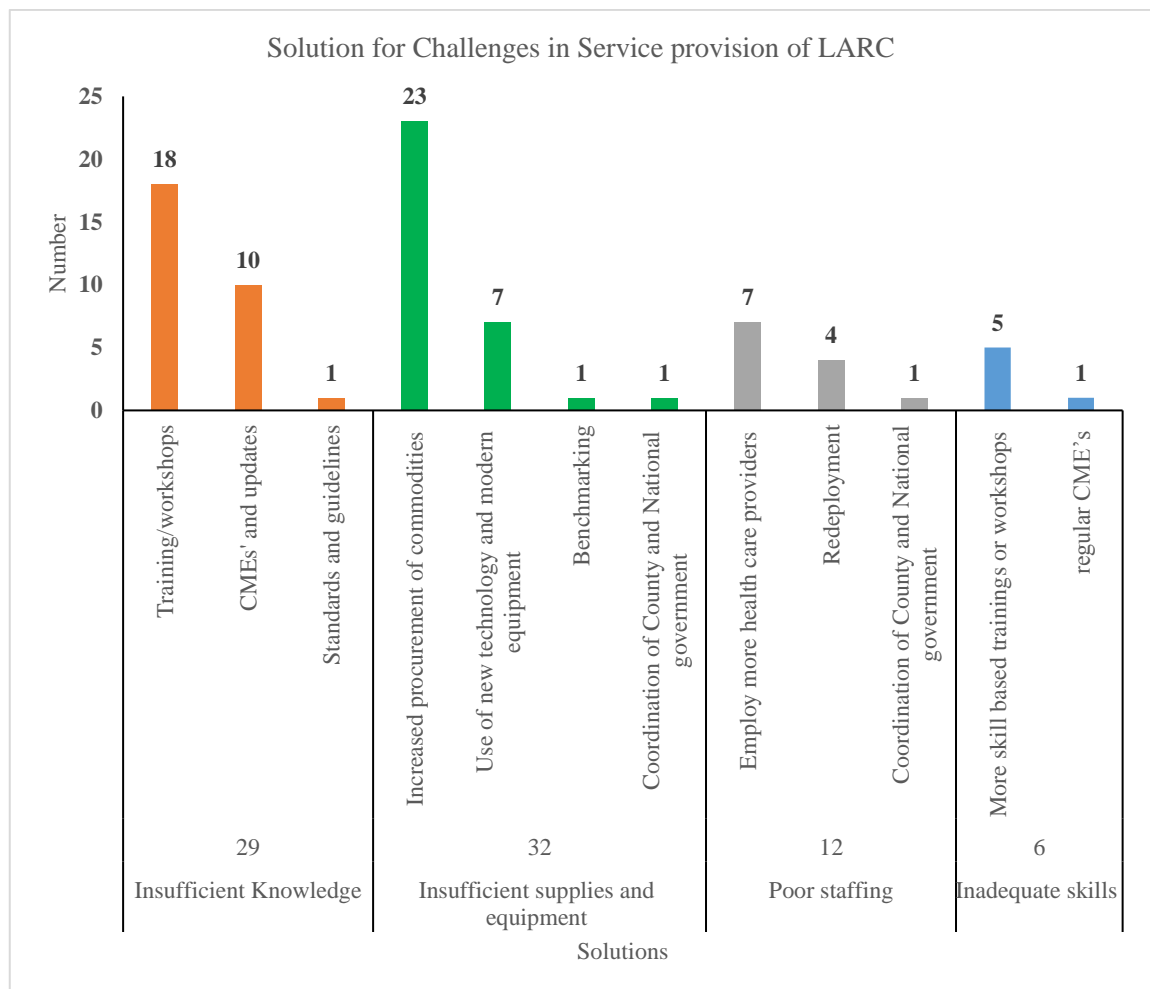


### 4.13 Suggested solutions on challenges in provision of LARC services

The respondents made suggestions on how the challenges in provision of LARC services could be mitigated, Figure 4.7. The solutions ranged from trainings, CME to increased staffing among others.

**Figure 4.7**

*Solutions for Challenges in provision of LARC Services*



There were 29 (50%) nurses who suggested solution on insufficient knowledge on LARC, 18 (62%) suggested training/workshops, 10 (35%) suggested regular CME's on

LARC and updates and 1 (3.4%) nurse, suggested the need to have existing Standards and guidelines on provision of LARC.

The respondents who suggested solutions on insufficient supplies and equipment were 32(55%). Twenty three (72%) suggested increased procurement of commodities for LARC, 7 (22%) suggested the use of new technology and modern equipment to provide LARC services, while 1(3.1%) suggested the need for benchmarking in facilities that provide excellent services, and 1(3.1%) suggested coordination between the County and National government in procuring LARC commodities.

Twelve (21%) nurses suggested solution on staffing, these were, the need to employ more nurses 7 (58%), 4 (33%) suggested redeployment of nurses, while 1(8.3%) nurse suggested coordination of County and National government to increase staffing in the facility.

Six (10.3%) respondents gave solution to the challenge of in adequate skills, of which 5 (83%) suggested more skill based trainings or workshops and 1 (17%) suggested regular CME's to improve skills in providing LARC services.

Major challenges identified that influence service delivery in the provision of LARC were; insufficient supplies and equipment, inadequate skills, insufficient knowledge in LARC and poor staffing.

Suggested solutions were; training/workshops, regular CME's and updates and the need to have existing Standards and guidelines on provision of LARC.

A shortage of trained health care provider was cited as a barrier in provision of LARC services ( Foster et al., 2015). A study reported structural factors such as shortage of human resource, provider bias and lack of adequate skills as barriers to provision of

LARC services (Ontiri et al., 2019). Some of the barriers stated, are like the ones reported in this study, but others are not, an example is provider's bias was not mentioned by the respondents but is a possible barrier in the given setting.

Suggested solutions for ensuring sufficient supplies and equipment were; increased procurement of commodities for LARC, use of new technology for provision of LARC Services and modern equipment to provide LARC services, others suggested the need for benchmarking in facilities that provide excellent services, and coordination between the County and National government in procuring LARC commodities.

The need to address supply and demand for commodities, was one of the recommendations to address barrier in Provision of LARC services in Lilongwe in Malawi (Mwafulirwa ,2016). This is similar to findings in this study where inadequate supply and equipment was stated as a challenge in provision of reproductive health services.

Sustainability of commodity supply in situations where the service had initially been funded, has always been a problem and calls for focus on transition of funded services to governments for the sake of commodity security (Ingabire et al.,2019). Kenya is transitioning from partner funded family planning commodities to government funded family planning commodities, the transition will be complete by the year 2024.

Suggested solution on poor staffing were; the need to employ more nurses, redeployment of nurses and coordination of County and National government to increase staffing in the facility. Clients who choose long acting contraception make fewer visits to health facility, therefore there will be reduced workload in instances where there is inadequate staffing (Biggs et al., 2013).

Solution to the challenge of inadequate skills; were to have more skill-based trainings or workshops and regular CME's to improve skills in provision of LARC services. A study conducted to determine the use of LARC as an effective method in preventing unintended pregnancies, cited inadequate skills in provision of IUD and Implants as a challenge in providing the service (Moniz et al., 2017).

Internal medicine training program was found to be ineffective in building capacity of doctors in the provision of LARC services (Gopinath et al., 2022). This is the reason why CPD is used to build capacities of Health Care Providers to enable provision of LARC services and this study has shown CPD in LARC influenced service delivery in LARC.

## **CHAPTER 5 : SUMMARY, CONCLUSION AND RECOMMENDATIONS**

### **5.1 Introduction**

This chapter gives a summary of the findings, conclusion to the outcome of the study as per the study objectives. Conclusions and recommendations are presented.

### **5.2 Summary**

The study sought to establish the influence of Continuous Professional Development to reproductive health Service delivery by nurses working at Mbagathi Hospital.

A descriptive cross sectional study design was used to obtain quantitative and qualitative data for objectives on the aspects of reproductive health services of FANC, EmONC, and LARC.

The Mean age of the respondents was 33 years, most of whom had a Diploma in Nursing and had practiced between 1 to 9 years. Most of the nurses working in reproductive health services were young professionals and recent graduates.

On the objective for CPD on Focused Antenatal Care (FANC), the study found that the association between CPD on FANC and service delivery was not statistically significant (95% CL: CI; 0.47-5.52,  $p < 0.449$ ). Those who received CPD on FANC were two times (2.55) more effective in offering FANC services required under 1st Antenatal Care and 2<sup>nd</sup> Antenatal care .For services offered in 3<sup>rd</sup> visit and 4<sup>th</sup> visit, the odds that those who received CPD could provide effective service was 1.67 times more for 3<sup>rd</sup> visit and 1.48 times more for 4<sup>th</sup> visit than for those who did not receive CPD did not influence provision of FANC. The association between Continuous Professional Development in FANC and service delivery for Focused antenatal care, was not statistically significant, but improved service delivery was noted among nurses who

had received CPD on FANC compared to those who had not received CPD on FANC. The difference was minimal to have any impact statistically.

For objective two, Nurses who received CPD on EmONC were more likely to provide effective services (COR 1.45) than those who did not receive CPD on EmONC. However, the level of association between CPD on EmONC and Effective service delivery was not statistically significant (at 95%CL: CI: 0.47-4.49,  $P < 0.514$ ). The level of association between Continuous Professional Development on EmONC and service provision for Maternal and New born emergencies, was not statistically significant. However, there was improved service provision among those who received CPD in EmONC compared to those who did not receive CPD in EmONC.

For objective three on CPD on LARC, the odds of those who received CPD being able to offer effective service was seven times more (COR: 7.47) than those who did not receive CPD in LARC,. This implies a high likelihood of those who received CPD on LARC to offer effective LARC services than those who did not receive CPD on LARC, the level of association was statistically significant at a( 95% CL: CI; 1.82-30.65 and a  $P$  value  $< 0.003$ ).

There was influence of CPD to LARC service provision, the level of association for CPD on LARC and service provision was statistically significant. There was a great improvement to LARC service provision among nurses who received CPD on LARC compared to those who did not receive CPD on LARC.

The fourth objective sought to establish the challenges that nurses faced in the implementation of on mitigation of the challenges of services delivered for reproductive

health, a majority of the nurses suggested to have more CPD on EmONC, than the other areas on Reproductive Health.

A majority of the respondents stated poor staffing, inadequate supplies and Equipment was the major impediment to service provision of Reproductive Health services in the three areas of study. They suggested to Increase budget allocation for supplies and equipment in Reproductive Health as one of the major solution to this challenge.

### **5.3 Conclusion of the study**

The study sought to establish the influence of Continuous Professional Development on reproductive health Service by nurses at Mbagathi County Hospital. The specific services in Focused Antenatal care, Emergency Maternal Obstetric and New born care and were not significantly influenced by CPD. However, there was significant influence of CPD on provision of services for Long Acting Reversible Contraception. The study objectives were achieved.

CPD on focused antenatal care to nurses did not influence the services delivered to women attending antenatal care Clinic at Mbagathi County Hospital.

CPD on Emergency maternal Obstetric and New-born care, did not influence service delivery to women and new-born babies in Mbagathi County hospital.

CPD in Long Acting Reversible Contraception had influence in services to women at Mbagathi County Hospital.

The area that requires more training for Nurses at Mbagathi County Hospital in Reproductive health is Emergency Maternal Obstetric and New-born care (EmONC).

The major Challenges experienced by nurses in service delivery was poor staffing, inadequate supplies and equipment, followed by inadequate knowledge in provision of specific reproductive health Services.

The study suggests that the Management of Mbagathi hospital and Nairobi Metropolitan Health services budget for and provide adequate staffing, regular supplies for reproductive health services and targeted updates of reproductive health practices for effective service delivery by nurses at Mbagathi Hospital.

The study findings indicate that overall, Continuous Professional Development in Reproductive Health as provided at Mbagathi Hospital had no influence in service delivery for Focused Antenatal care and Emergency obstetric and new-born Care, but had influence in provision of Long Acting reversible contraception.

#### **5.4 Recommendations**

Continuous Professional Development can influence service delivery for reproductive health services at Mbagathi Hospital. This study gives the following recommendations according.

5.4.1 To establish how CPD on Focused Antenatal Care (FANC) for nurses influenced services delivered to women attending antenatal care clinic .The Hospital CPD program organizers should explore other methods of training that have been found to be effective in transfer of skills ; this may include online interactive sessions and on job training for nurses.

5.4.2 To determine how CPD on Emergency maternal obstetric and new-born care (EmONC) has influenced services delivered to women and new-borns in emergency condition.



The hospital management should address challenges on provision of adequate supplies for emergency management of mother and child and provide drills to entrench current best practice in EmONC

New-born emergencies refresher courses should be provided by health care providers trained on essential new-born care, there should be timely updates on change of care or improved care.

5.4.3 To establish how CPD on long lasting reversible contraception (LARC) has influenced services delivered to women seeking contraception.

On job training should be conducted for nurses in reproductive health scheduled updates on long acting reversible contraception given with effective documented monitoring and evaluation of best practice and outcomes. This will provide an opportunity for continued improvement.

5.4.4 To identify challenges experienced by nurses in each service delivered after CPD

The major challenges were inadequate equipment and supplies and shortage of staff. The Nairobi Metropolitan services and Mbagathi Hospital Management should budget for and ensure adequate and sustainable provision of commodities and supplies for reproductive health service delivery

The Nairobi Metropolitan Services department of health, Nairobi County to provide staff and ensure quality to the recommended international standards, employ and deploy according to staff specialization. This will ensure that service delivery is not compromised.

### **5.5 Areas for further research**

The following areas are proposed for future studies

1. Challenges in provision of FANC services, specific to the requirements of each visit.
2. Intervention study on EmONC service provision after introduction of mentorship program.
3. Explore the use of electronic media as a source of update in LARC service provision
4. Equipment and supplies role in provision of RH services for Antenatal care, EmONC services and LARC services

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## APPENDICES

### **Appendix I: Informed Consent**

Kenya Methodist University

P.O.Box 267-60200

MERU, Kenya

### **SUBJECT: INFORMED CONSENT**

#### **Dear Respondent,**

My name is **Scolastica Wabwire**. I am an MSN student from Kenya Methodist University.

I am conducting a study titled: An Evaluation of the influence of Continuous Professional Development on reproductive health to service delivered to women by Nurses at Mbagathi County Hospital

The findings will be used to inform standardization of protocols, guidelines and policies on Continuous Professional Development, strengthen pre-existing CPD to influence change in practice on reproductive health in Kenya.

Clients and patients will benefit from improved service delivery in reproductive health. This study is important to Nursing Education as it will generate new knowledge in the area of study and generate basis for more studies to be conducted in the specific area as well as provide insight on the influence of CPD to service delivery.

Participation in this study will require that you complete a questionnaire

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 fill the questionnaire. You may also stop participation in the study at any time without any consequences to the services you are rendering.

#### **Discomforts and risks**

If there is any question that will bring about discomfort, you may seek clarification after which you may make the decision to answer it or not to answer. The interview may take about 30 minutes to complete.

#### **Benefits**

If you participate in this study you will help us to strengthen the training of health care providers and specifically Nurses in Kenya and other Low-income countries in Africa.

As a result, countries, communities and individuals will benefit from improved quality of healthcare services.

**Rewards**

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

**Confidentiality**

The questionnaire can be filled in a setting you deem comfortable for you in 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

**Investigator:** Scolastica Wabwire-0722409542; Email: Wabwire789@gmail.com

**Supervisors:**

1. **Prof Ruth Gatere –;** Head of Department of Nursing, Kenya Methodist University.  
**Email:** RuthGatere@kemu.ac.ke
2. **Dr.Susan Njuguna – 0722 383 401; Email:** [njugunarsm@gmail.com](mailto:njugunarsm@gmail.com)

**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.

**Signature**.....

**Name of Participant**.....

**Date**.....

**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**.....

**Interviewer Signature**.....

**Appendix II: Questionnaire**

Participants number .....

**Section One**

**Demographic Characteristics**

1. Age

.....

2. Marital Status

1. Single

2. Divorced

3. Widowed

4. Married

5. Separated

6. Others specify.....

3. The Highest level of Education Attained

1. Masters Level

2. Degree Level

3. Diploma Level

4. Certificate Level

5. Others.....

4. How Long Have you been practicing as a nurse/midwife? .....

5. Have you been trained on the following?( Tick all that apply)

1. FANC

2. EmONC

3. LARC

5a. If yes, for any of the above, please state the

Approach/model of training?

Workshop

CME

On job training

Others specify.....

5b.If yes to question 5,state year of training by Month/Year

FANC.....

EmONC.....

LARC.....

6. Have you received any updates on reproductive Health in your area of practice in the last 6 months?

Yes

No

6a.State Mode of delivery of the Update .....

**Focused Antenatal care-**

7. Have you undergone any form of training on focused antenatal care?

i). Yes

ii). No

8. When did you last receive any updates in the recent weeks on focused antenatal care?

i) None-

ii) Less than a year

iii) More than a year

iv) Any other, specify.....

9. a) Indicate the challenges you have experienced when offering ANC services (select as many as relevant)

i) Insufficient Knowledge on ANC services

ii) In adequate skills in ANC service delivery

iii) Insufficient supplies and equipment

iv) Poor staffing

v) Any other, specify.....

9. b) Indicate two possible solutions you would suggest for the challenges experienced in (9.a), specify one solution for each challenge selected

i) Solution for Insufficient Knowledge on ANC services.....

ii) Solution for in adequate skills in ANC service delivery.....

iii) Solution for insufficient supplies and equipment .....

iv) Solution for Poor staffing  
.....

v) Any other, specify.....

**Emergency Maternal Obstetric Care**

10. Have you undergone any form of training on EmONC?

i) Yes

ii) No

11. When did you last receive any updates in the recent weeks on obstetric emergencies?

i) None

ii) Less than a year

iii) More than a year

iv) Others specify.....

12 a). Indicate the challenges you have experienced when giving emergency services to women in labour and delivery (select as many as relevant)

vi) Insufficient Knowledge on obstetric emergencies services

vii) In adequate skills in obstetric emergencies service delivery

viii) Insufficient supplies and equipment

ix) Poor staffing

x) Any other, specify.....

13. b) Indicate two possible solutions you would suggest to mitigate the challenges experienced in (12.a), specify one solution for each selected challenge

i) Solution on insufficient Knowledge on Obstetric emergencies services.....

ii) Solution for inadequate skills in obstetric emergencies service delivery.....

iii) Solution for insufficient supplies and equipment  
.....

iv) Solution for Poor staffing  
.....

v) Any other, specify.....

**Emergency New-Born Care**

14. When did you last receive any updates through workshop or CME on new-born emergencies?



i) None

ii) Less than a year

iii) More than a year

iv) Any other, specify.....

15a). Indicate the challenges you have experienced when giving emergency services to new-borns in new-born unit (select as many as relevant)

i) Insufficient Knowledge on new-born services

ii) In adequate skills in emergency new-born service delivery

iii) Insufficient supplies and equipment

iv) Poor staffing

v) Any other, specify.....

16. b) Indicate two possible solutions you would suggest to mitigate the challenges experienced in (15.a), specify one solution for each selected challenge

i) Solution for insufficient Knowledge on new born services.....

ii) Solution for in adequate skills in new born service delivery.....

iii) Solution for insufficient supplies and equipment .....

iv) Solution for Poor staffing .....

v) Any other, specify.....

**Long Acting Reversible Contraceptive (LARC)**

17. Have you undergone any form of training on LARC?

i) Yes

ii) No

18. When did you last receive any updates in the recent weeks on Long acting contraception?

i) None

ii) Less than a year

iii) More than a year

iv) Any other, specify.....

19 a). Indicate the challenges you have experienced when offering LARC services (select as many as relevant)

i) Insufficient Knowledge on LARC services

ii) Inadequate skills in LARC service delivery

- iii) Insufficient supplies and equipment
- iv) Poor staffing
- v) Any other, specify.....

20. b) Indicate two possible solutions you would suggest to mitigate the challenges experienced in (19.a), specify one solution for each challenge selected

1. Solution for insufficient Knowledge on LARC services.....
2. Solution for in adequate skills in LARC service delivery.....
3. Solution for insufficient supplies and equipment.....
4. Solution for poor staffing.....
5. Any other, specify.....

21. Which area requires training of more nurses to improve service delivery?

- i). Focused Antenatal Care (FANC)
- ii). Emergency Maternal and Obstetric Care (EmONC)
- iii) Long Lasting Reversible Contraceptive (LARC)

*Please select the responses given by ticking (√) for each statement the responses provided in the columns identified as before training and after training or only for before training if you have not been trained in the specific area*

	Before training			After Training		
FANC	Very Effective (If all selected)	Effective (If some are selected)	Not effective (If none is selected)	Very Effective (If all selected)	Effective (If some are selected)	Not effective (If none is selected)
22) Able to offer the range of services as prescribed under focused ANC 1 <sup>st</sup> visit	1 <sup>st</sup> Visit Comprehensive history <input type="checkbox"/> Physical Exam- Vital observation <input type="checkbox"/> Foetal size assessment <input type="checkbox"/> Nutritional advice <input type="checkbox"/> HIV counselling <input type="checkbox"/> Advice on malaria prevention <input type="checkbox"/> Urinalysis <input type="checkbox"/> Budgetary advice in case of emergency <input type="checkbox"/>			1st Visit 1. Comprehensive history <input type="checkbox"/> 2. Physical Exam- Vital observation <input type="checkbox"/> 3. Foetal size assessment <input type="checkbox"/> 4. Nutritional advice <input type="checkbox"/> 5. HIV counselling <input type="checkbox"/> 6. Advice on malaria prevention <input type="checkbox"/> 7. Urinalysis <input type="checkbox"/> 8. Budgetary advice in case of emergency <input type="checkbox"/>		
23) Able to offer the range of services as prescribed under focused ANC 2 <sup>nd</sup> visit	2 <sup>nd</sup> visit Address complaints/concern <input type="checkbox"/> Perform dipstick test for protein for first time mothers and those with history of hypertension and pre/eclampsia <input type="checkbox"/> Review/ modify individual birth plan <input type="checkbox"/> Advice on social and financial support in the community <input type="checkbox"/>			2nd visit 1. Address complaints/concern <input type="checkbox"/> 2. Perform dipstick test for protein for first time mothers and those with history of hypertension and pre/eclampsia <input type="checkbox"/> 3. Review/ modify individual birth plan <input type="checkbox"/>		

		4. Advice on social and financial support in the community <input type="checkbox"/>
24) Able to offer the range of services as prescribed under focused ANC 3 <sup>rd</sup> visit	<p>3<sup>rd</sup> Visit</p> <p>Rule out multi foetal pregnancies <input type="checkbox"/></p> <p>Birth preparedness and complication readiness <input type="checkbox"/></p> <p>Risk assessment to inform referral <input type="checkbox"/></p> <p>Family Planning advice <input type="checkbox"/></p> <p>Advice on exclusive breast feeding <input type="checkbox"/></p>	<p>3<sup>rd</sup> Visit</p> <ol style="list-style-type: none"> <li>1. Rule out multi foetal pregnancies <input type="checkbox"/></li> <li>2. Birth preparedness and complication readiness <input type="checkbox"/></li> <li>3. Risk assessment to inform referral <input type="checkbox"/></li> <li>4. Family Planning advice <input type="checkbox"/></li> <li>5. Advice on exclusive breast feeding <input type="checkbox"/></li> </ol>
24) Able to offer the range of services as prescribed under focused ANC 4 <sup>th</sup> visit	<p>4<sup>th</sup> Visit</p> <p>Assess position of the baby and give appropriate interventions if in breech or transverse presentation <input type="checkbox"/></p> <p>Review on individual birth plan, complication readiness and emergency planning <input type="checkbox"/></p> <p>Advice on normal labour and pregnancy related emergencies and how to deal with them <input type="checkbox"/></p>	<p>4<sup>th</sup> Visit</p> <ol style="list-style-type: none"> <li>1. Assess position of the baby and give appropriate interventions if in breech or transverse presentation <input type="checkbox"/></li> <li>2. Review on individual birth plan, complication readiness and emergency planning <input type="checkbox"/></li> <li>3. Advice on normal labour and pregnancy related emergencies and how to deal with them <input type="checkbox"/></li> </ol>

<p>25) Counsel on Birth-plan appropriately</p>	<p>Table on the six essential elements for IBP</p> <p>1 Discussion on due date <input type="checkbox"/></p> <p>2 Choice of Health Facility for delivery <input type="checkbox"/></p> <p>3 Transport to the Health facility <input type="checkbox"/></p> <p>4 Supplies to take to the health facility <input type="checkbox"/></p> <p>5 Person to accompany woman to the facility <input type="checkbox"/></p> <p>6 Who will take care of the home when the mother is away <input type="checkbox"/></p>	<p>Table on the six essential elements for IBP</p> <p>1 Discussion on due date <input type="checkbox"/></p> <p>2 Choice of Health Facility for delivery <input type="checkbox"/></p> <p>3 Transport to the Health facility <input type="checkbox"/></p> <p>4 Supplies to take to the health facility <input type="checkbox"/></p> <p>5 Person to accompany woman to the facility <input type="checkbox"/></p> <p>6 Who will take care of the home when the mother is away <input type="checkbox"/></p>
<p><b>Emergency Maternal Obstetric Care</b></p>		
<p>26) Can administer timely the following medication in the management of severe Pre/eclampsia without supervision</p>	<p>1.Magnesium sulphate 20% solution <input type="checkbox"/></p> <p>2.Magnesium sulphate 50% solution <input type="checkbox"/></p> <p>3.Calcium carbonate <input type="checkbox"/></p> <p>4.Anti-hypertensives <input type="checkbox"/></p> <p>5.Phenytoin <input type="checkbox"/></p>	<p>1.Magnesium sulphate 20% solution <input type="checkbox"/></p> <p>2. Magnesium sulphate 50% solution <input type="checkbox"/></p> <p>3.Calcium carbonate <input type="checkbox"/></p> <p>4.Anti-hypertensives <input type="checkbox"/></p> <p>5.Phenytoin <input type="checkbox"/></p>
<p>27) Know when to administer the following Uterotonic to prevent and manage postpartum</p>	<p>1. Oxytocin <input type="checkbox"/></p> <p>2. Ergometrine <input type="checkbox"/></p> <p>3. Tranexamic acid <input type="checkbox"/></p> <p>4. Carbetocin <input type="checkbox"/></p> <p>5. Misoprostol <input type="checkbox"/></p>	<p>1. Oxytocin <input type="checkbox"/></p> <p>2. Ergometrine <input type="checkbox"/></p> <p>3. Tranexamic acid <input type="checkbox"/></p> <p>4. Carbetocin <input type="checkbox"/></p> <p>5. Misoprostol <input type="checkbox"/></p>

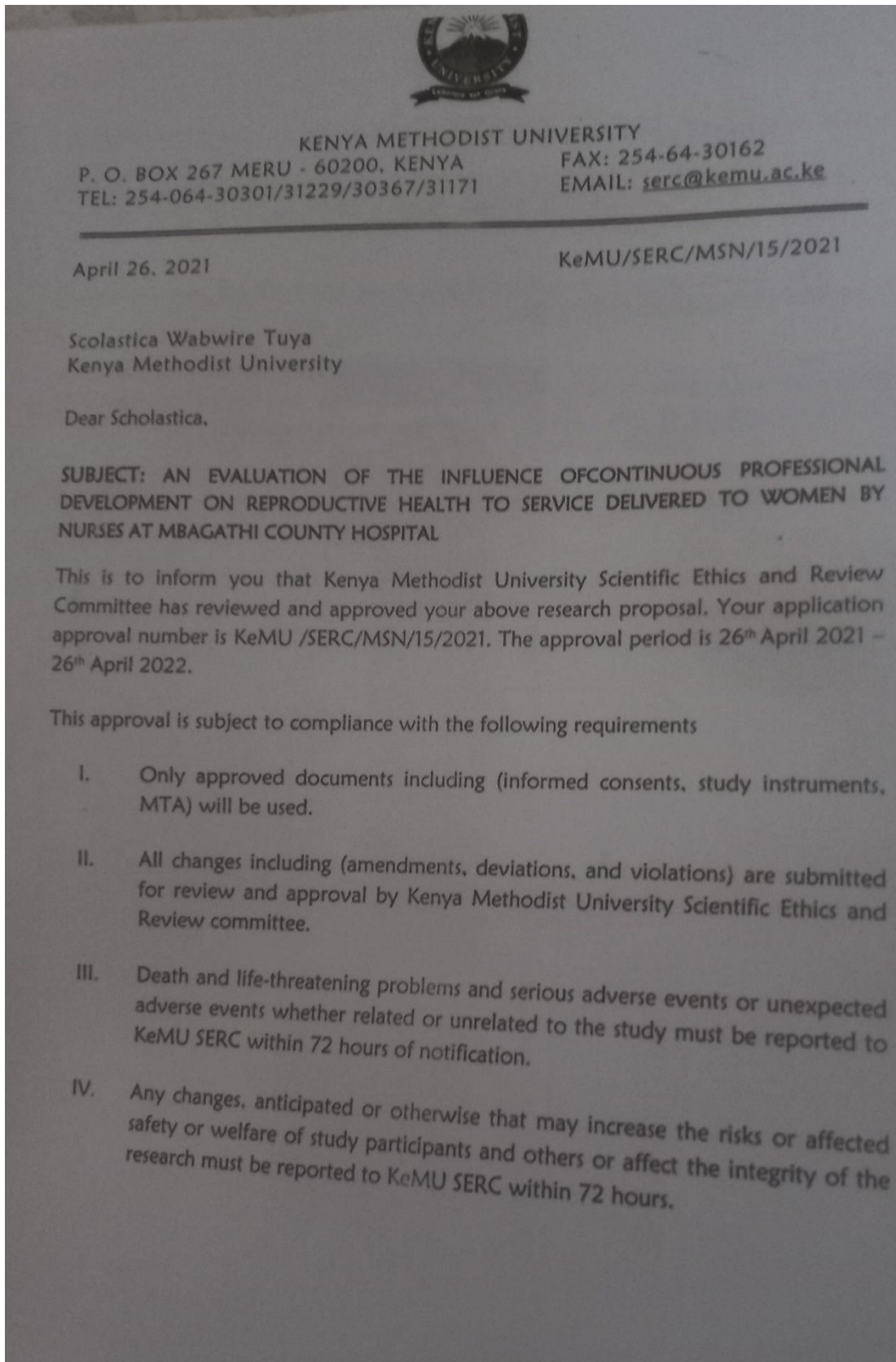
haemorrhage						
28) Have been able to Identify and Manage Magnesium sulphate toxicity	All cases	Some cases	None	All cases	Some cases	None
29) Have manually removed retained placenta	All cases	Some cases	none	All cases	Some case	None
30) Have performed Manual Vacuum aspiration of retained products of conception	All case	Some case	None	All cases	Some case	None
31) Have conducted assisted vaginal delivery using vacuum extraction	All cases	Some cases	None	All cases	Some cases	None
32) Number of maternal emergencies managed in a month	1. More than 3 2. 1 to 2 3.None 4. No client			1. More than 3 2. 1 to 2 3.None 4. No client		
<b>Emergency New-Born Care</b>						

33) Able to Identify danger signs on a neonate to enable initiate new-born resuscitation	Baby not breathing <input type="checkbox"/> Gaspings <input type="checkbox"/> Unresponsive/Floppy <input type="checkbox"/>			1. Baby not breathing <input type="checkbox"/> 2. Gaspings <input type="checkbox"/> 3. Unresponsive/Floppy <input type="checkbox"/>		
34) Has been able to employ various methods in keeping babies warm	Skin to skin <input type="checkbox"/> Kangaroo mother care <input type="checkbox"/> Radiant warmer <input type="checkbox"/>			1. Skin to skin <input type="checkbox"/> 2. Kangaroo mother care <input type="checkbox"/> 3. Radiant warmer <input type="checkbox"/>		
35) Able to Comfortably resuscitate neonates with ambu bag and mask until baby stabilizes	Can resuscitate without guidance	Can resuscitate with little guidance	Cannot resuscitate	Can resuscitate without guidance	Can resuscitate with little guidance	Cannot resuscitate
36) Number of new born emergencies managed in the last three months	1. More than 3 2. 1 to 2 3. None 4. No client			1. More than 3 2. 1 to 2 3. None 4. No client		
<b>Long Acting Reversible Contraceptive (LARC) 1=effective, 2=</b>						
37) Number of clients who you successfully inserted	1. More than 3 2. 1 to 2 3. None			1. More than 3 2. 1 to 2 3. None		

intrauterine device in the last three months	4. No client	4. No client
38) Number clients whose intrauterine device you successfully removed in the last three months	1. More than 3 2. 1 to 2 3. None 4. No client	1. More than 3 2. 1 to 2 3. None 4. No client
39) Number of clients who you successfully inserted implants in the last three months	1. More than 3 2. 1 to 2 3. None 4. No client	1. More than 3 2. 1 to 2 3. None 4. No client
40) Number clients whose implant rods you successfully removed in the last three months	1. More than 3 2. 1 to 2 3. None 4. No client	1. More than 3 2. 1 to 2 3. None 4. No client
41) Number of clients managed for side effects as a result of using LARC	1. More than 3 2. 1 to 2 3. None 4. No client	1. More than 3 2. 1 to 2 3. None 4. No client
(WHO, 2017)		



### Appendix III: Ethical clearance from KeMU SERC



- V. Clearance for export of biological specimens must be obtained from relevant institutions.
- VI. Submission of a request for renewal of approval at least 60 days prior to expiry of the approval period. Attach a comprehensive progress report to support the renewal
- VII. Submission of an executive summary report within 90 days upon completion of the study to KeMU SERC.

Prior to commencing your study, you will be expected to obtain a research license from National Commission for Science, Technology and Innovation (NACOSTI) <http://cris.nacosti.go.ke> and also obtain other clearances needed.



## Appendix IV: Research Permit from Nacosti

  
REPUBLIC OF KENYA

  
NATIONAL COMMISSION FOR  
SCIENCE, TECHNOLOGY & INNOVATION

Date of Issue: 19/May/2021

Ref No: 501629

**RESEARCH LICENSE**



This is to Certify that Ms. Scolastica Tuya Wabwire of Kenya Methodist University, has been licensed to conduct research in Nairobi on the topic: **AN EVALUATION OF THE INFLUENCE OF CONTINUOUS PROFESSIONAL DEVELOPMENT ON REPRODUCTIVE HEALTH TO SERVICE DELIVERED TO WOMEN BY NURSES AT MBAGATHI COUNTY HOSPITAL** for the period ending : 19/May/2022.

License No: NACOSTI/P/21/10590

501629  
Applicant Identification Number

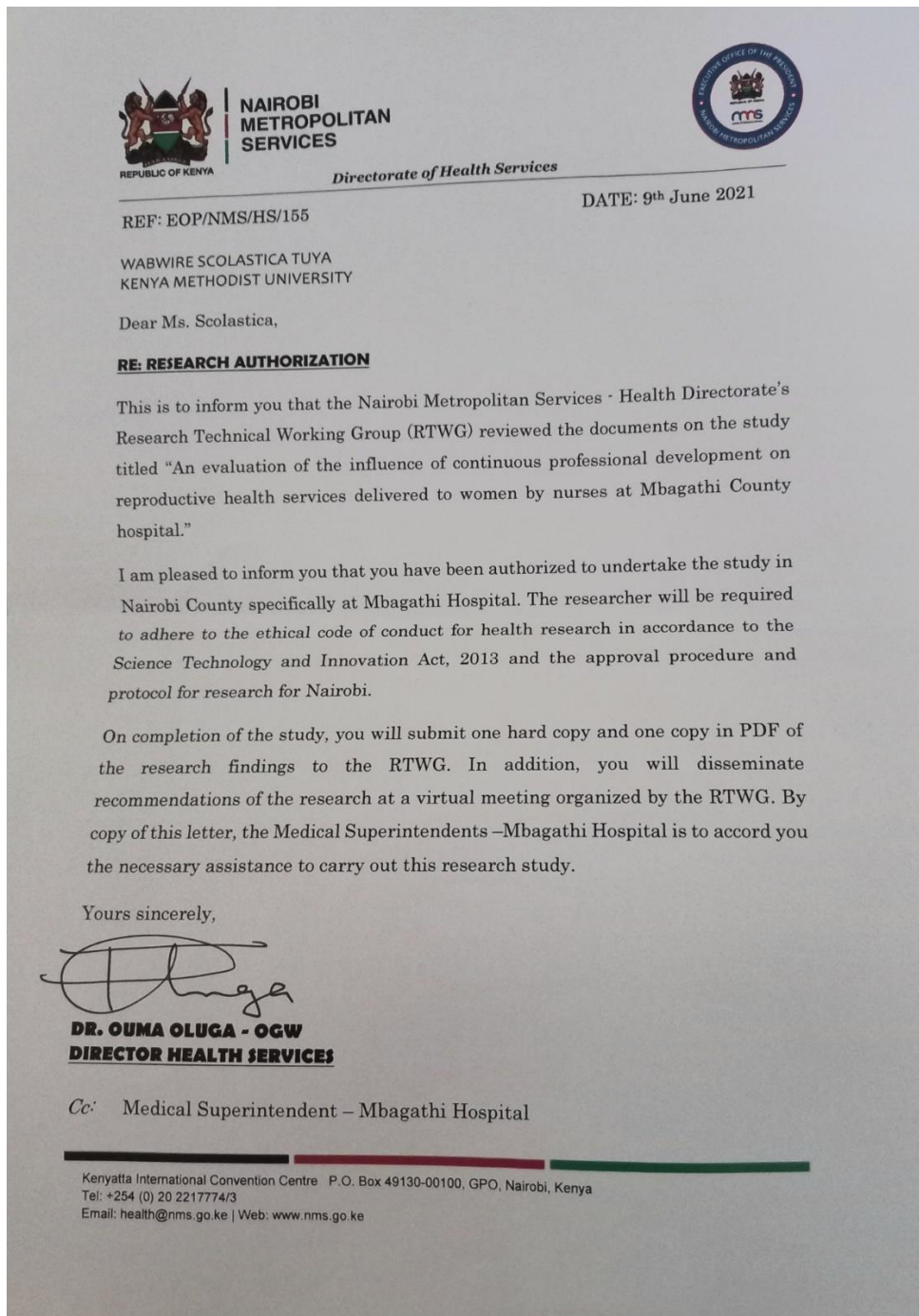
  
Director General  
NATIONAL COMMISSION FOR  
SCIENCE, TECHNOLOGY &  
INNOVATION

Verification QR Code




NOTE: This is a computer generated License. To verify the authenticity of this document,  
Scan the QR Code using QR scanner application.

Appendix V: Permission to conduct study from Nairobi metropolitan services



## Appendix VI: Permission to conduct study from Mbagathi County Hospital

 **NAIROBI METROPOLITAN SERVICES**  
REPUBLIC OF KENYA



Mbagathi Hospital, P.O Box 20725 – 00202  
Email: [mbagathihosp@gmail.com](mailto:mbagathihosp@gmail.com)  
Tel: 0721311808, 2724712, 2725791

Date: 21<sup>st</sup> July, 2021

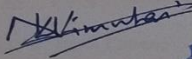
Scolastica Wabwire Tuya  
Kenya Methodist University.

**RE: RESEARCH AUTHORIZATION.**

This is in reference to your application for authority to carry out a research on **'An Evaluation Of The Influence Of Continuous Professional Development on Reproductive Health To Service Delivered To Women By Nurses At Mbagathi County Hospital.'**

I am pleased to inform you that your request to undertake research in the hospital has been granted.

On completion of the research, you are expected to submit one hard copy and one soft copy of the research report/ thesis to this office.

  
**Dr. David Kimutai**  
**For: Medical Superintendent**  
**Mbagathi Hospital.**



---

Kenyatta International Convention Centre P.O. Box 49130-00100, GPO, Nairobi, Kenya  
Tel: +254 (0) 20 2217774/3  
Email: [transport@nms.go.ke](mailto:transport@nms.go.ke) | Web: [www.nms.go.ke](http://www.nms.go.ke)

## Appendix VII: Study site

Figure 4.8: Study Site

