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ASSESSING SERVICE AVAILABILITY BEFORE AND AFTER THE INTRODUCTION OF FREE MATERNITY SERVICES AT THE PUMWANI MATERNITY HOSPITAL

BY

EDNA MWENDE KAVINDU

A DISSERTATION SUBMITTED TO THE STRATHMORE UNIVERSITY BUSINESS SCHOOL FOR A DEGREE OF MASTER IN BUSINESS ADMINISTRATION (MBA) IN HEALTHCARE MANAGEMENT
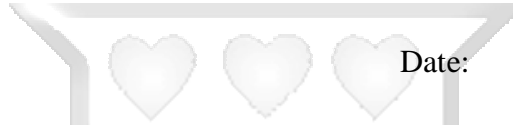
DECLARATION

I declare that this MBA dissertation has not been previously submitted and approved for the award of degree by this or any other university and does not contain material previously published or written by any person except where due reference is made.

Kavindu E. Mwende

Signature: Date:

This dissertation is submitted with my approval as the supervisor:

Signature: Date:

Dr. Francis Wafula

Institute of Healthcare Management

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LIST OF ABBREVATIONS

ANC	Antenatal Care
CARMMA	Campaign on Accelerated Reduction of Maternal Mortality in Africa
DHS	Demographic and Health Survey
FBO	Faith Based Organization
GDP	Gross Domestic Product
HIV	Human Immunodeficiency Virus
KEPI	Kenya Expanded Programme on Immunization
MCH	Maternal and Child Health
MDG	Millennium Development Goals
MOH	Ministry of Health
NHIF	National Hospital Insurance Fund
SARAM	Service Availability and Readiness Assessment Mapping
SBA	Skilled Birth Attendant
SDG	Sustainable Development Goals
UHC	Universal HealthCare
UNICEF	United Nations Children's Fund
USAID	United States Agency for International Development
WHA	World Health Assembly
WHO	World Health Organization

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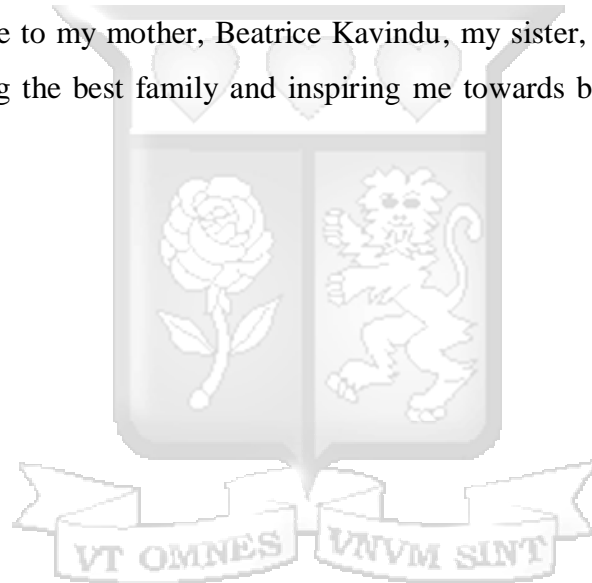
ABSTRACT

Maternal health is the state of health of women during pregnancy, childbirth and the postpartum period. The Kenyan government introduced free maternal healthcare services in June 2013 to address the high maternal mortality rates that stood at 362 per 100000 live births in 2016. Maternal Mortality rate in Nairobi County was estimated to be at 57.1 per 100000 live births as of 2014. The study aimed at contributing towards strengthening maternity services by assessing the availability of maternity services before and after the introduction of the free maternity services policy at the Pumwani Maternity Hospital. This was a mixed method study; quantitative study (data from existing records) employing longitudinal study design and qualitative study where in depth interviews were conducted on six respondents using topic guides. This was simple and allowed evaluation of variables that change before and after interventions. The study was conducted in the month of February 2018 and was for the periods 2009 to 2017. The implementation of the free maternity services resulted to a 1974.75 mean increase in admissions, 1840.42 mean increase in total deliveries of which 1358.50 was increase in normal deliveries and 478.50 caesarian deliveries. These figures as seen in the analysis had not been recorded in the facility before and it is important also to note that these figures decline through the years. There was no much variation in the infrastructure, equipment and personnel and coping mechanisms largely relied on the Pumwani Maternity team. Similar studies are required both in the facility and the private entities to come up with recommendations on how to keep the numbers high and sustain the free maternity services policy. This study therefore contributes to knowledge that would inform policy in Kenya and other countries that seek to subsidize maternity services.

CHAPTER ONE: INTRODUCTION

1.1 Background Information

Recent years have seen increased focus on maternal healthcare services, particularly across Low- and Low Middle-Income Countries (LMIC). Recent multi-lateral initiatives include the World Bank (WB) supported Global Financing Facility (GFF) and the recently adopted Sustainable Development Goals (SDG), all aiming at reducing maternal deaths and improving health (Fernandes, 2017).

Maternal health is defined as the state of health of women during pregnancy, childbirth and the postpartum period. It is the women's right to decide freely and responsibly on the number and spacing of their children. United Nations Children's Fund (UNICEF) estimates that 529,000 women die every year with one in 16 dying during pregnancy or childbirth in sub-Saharan Africa compared to one in 4000 in developed countries. Sub-Saharan Africa accounts for nearly 47% of deaths of the population of reproductive ages. In Kenya, the maternal mortality ratio in 2016 was at 362 per 100000 live births with 58% of mothers completing recommended four Antenatal Care (ANC) visits (Demombynes & Trommlerová, 2016).

Maternity standards according to a framework endorsed by the Royal College of Midwives and the British Maternal and Fetal Medicine Society (2016) show that contributions by multi-disciplinary teams should meet mothers, their babies and their family's needs.   It also states that a proper structured team with the right infrastructure in place for staff ensures high quality and professional maternal care. The United States government is the largest donor in the world towards supporting maternal and child health (MCH) activities through United States Agency for International Development (USAID) by improving access to and quality of care and services for mothers. Improving maternal health requires the world to focus on the Millennium Development Goals (MDGs 4-reduce child mortality and 5-improve maternal health) which needs substantial work to achieve despite the limited funding and access to services especially in the Sub-Saharan Africa. Kenya has participated in several mandates and committed to the 2001 Abuja declarations where there was claim to allocate 15% of the national budget to healthcare. The country also signed without ratifying the Maputo protocol on

Rights of women of 2003 which recognizes reproductive rights and strengthens existing pre-natal, delivery and post-natal health (Bourbonnais, 2013).

Health systems with equipped facilities, trained and motivated health workers and referral systems are vital if maternal mortality rates are to be reduced. This is particularly so among the urban poor areas, typically characterized by high levels of unemployment, substance abuse, poor schooling facilities and early sexual engagements leading to unplanned childbearing (Fotso & Mukiira, 2012).

In 2015, countries united globally and came up with SDGs which look to, among other things, reducing maternal mortality ratio to less than 70 per 100,000 live births and end preventable deaths of newborns and children under five (see figure one for progress over the years). The countries will also strive to reduce neonatal mortality to 12 per 1000 live births and achieve Universal Health Coverage (UHC) by year 2013 (Yates, 2009). According to World Health Organization (WHO) through its World Health Assembly Resolution (WHAR), 58.33 there was a call on member states to ensure all citizens had access to universal care. These targets align with those of the Kenyan constitution Article 43(a), which indicates that; "all persons have a right to the highest attainable standard of health."

Despite these ambitions, the maternal mortality ratio remains high particularly among the rural women and those living in urban slums like Pumwani area in Nairobi. Kenya never achieved the Millennium Development Goals (MDG) of reducing by 75% the maternal mortality ratio (United nation, 2014). This means that a lot more effort will be required to achieve the even more ambitious goals set out under the health related SDGs. The SDG framework proposes that certain key areas must be adopted or strengthened, including; clinical guidelines, standards of care, effective interventions, quality measures and the relevant research and capability building. All these are benchmarks on offering quality care and should be adopted and streamlined within national quality of care strategies. The following figure shows under-five mortality rates progress in all WHO regions between 1990 and 2016 (WHO, 2016).

Under-five mortality declined in all WHO regions between 1990 and 2016

Source: UNICEF, WHO, World Bank, UN DESA/Population Division. *Levels and Trends in Child Mortality 2017.* UNICEF, 2017.
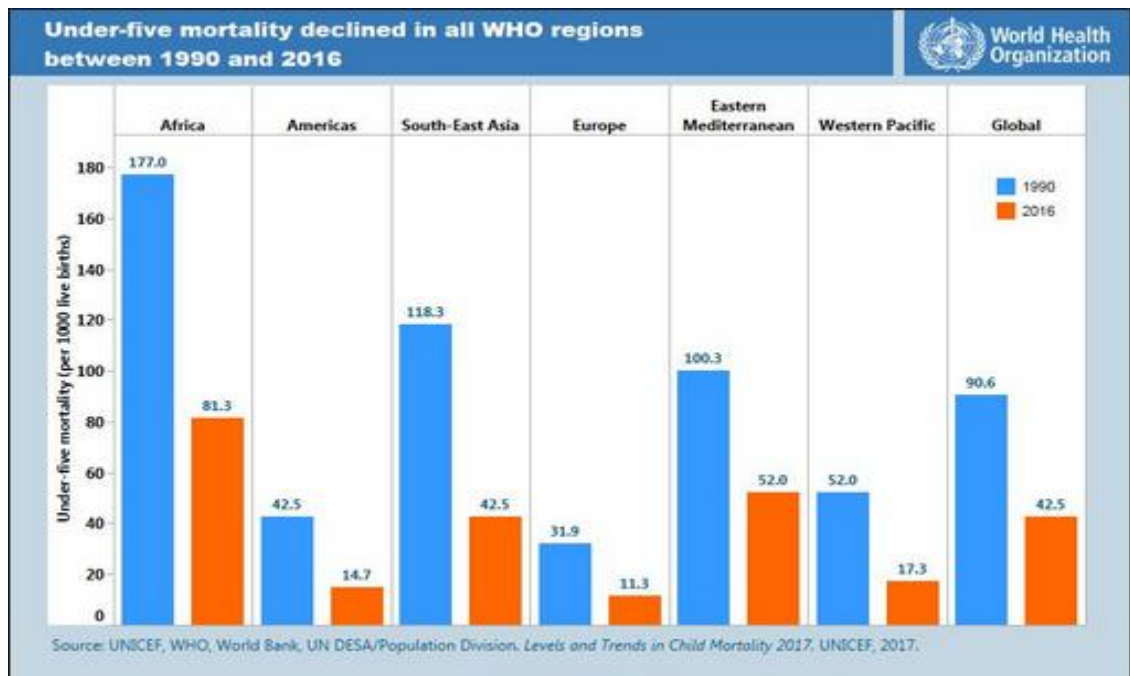
Figure 1. Global Under-Five mortality, 1990-2016

From the figure above, under-five mortality is seen to be highest in Africa with 177 per 1000 live births in the year 1990 to 81.3 per 1000 live births in 2016. Globally, the mortality rate was at 90.6 per 1000 live births (1990) to 42.5 per 1000 live births (2016). Only Europe had achieved the 12 per 1000 live births as dictated for UHC with 11.3 per 1000 live births recorded as of 2016.

In an effort to reduce maternal mortality, the Kenyan government introduced the free maternity services policy for all women at public health institutions in 2013. This was designed to ensure equitable access to maternity services. Some initial evidence suggests that there has been some increase in the uptake of antenatal care services and more favorable pregnancy outcomes (Wamalwa, 2015). Findings from this study guide policy makers to match client volumes with essential infrastructure, personnel and equipment through examining the institution's preparedness in handling changing volumes. This ensures that maternity services are strengthened through reduction of inadequacies and improving the impact of the free maternity policy.

1.1.1 Overview of Public Hospitals in Kenya

A majority number of citizens visit public institutions in Kenya since they are readily accessible and cheaper in their services. Many patients have been enjoying the wavering benefits in healthcare facilities despite the large disparity in the rural areas. This is a challenge being addressed by the 47 counties that came into after the promulgation of the new constitution in 2010, with health services being moved from the National government to the county governments in 2013. Many people will debate on the quality of services offered but these institutions have an infrastructure of highly skilled personnel, the buildings are several hence better accessibilities and the facilities are well equipped (Gabriel, 2012).

The healthcare system is divided into three subsystems: The public sector which is the largest in number of facilities available and is owned by the government, the commercial private sector whose services are more expensive compared to its counterparts and is owned by several stakeholders including Non-Governmental Organizations (NGOs), commercial enterprises and private individuals and the Faith Based Organizations (FBOs) owned by religious institutions or Christians with a common goal of helping their communities as commissioned by the Ministry of Foreign Affairs on the Kenyan Healthcare Sector (2016).

Kenya has subsequently categorized hospitals within the counties, with each county having a referral hospital for specialized care. The facilities are categorized as Level 1: Community health services which has all community based demand creation activities, Level 2: Primary care services which holds the dispensaries, health centers and maternity homes, Level 3: County referral services: consisting of former level four and district hospitals in the county and Level 4: National referral services which are the tertiary referral facilities offering highly specialized services used for training and supporting research e.g. Pumwani Maternity Hospital, Moi Teaching and Referral Hospital (MTRH), The National Spinal Injury and Referral Hospital and Kenyatta National Hospital which is a semi-autonomous government entity.

1.2 Problem statement

Maternal health care must be strengthened if Universal Health Coverage (UHC) is to be achieved. This is well articulated under the health and wellbeing component of the SDGs. In an effort to achieve this, the Kenyan government adopted a policy of Free Maternity Services (FMS) across all public institutions. This was specifically aimed at removing financial barriers to access.

Kenya has a rapidly expanding population, with Nairobi County having one of the highest birth rates. The Pumwani Maternity Hospital is Nairobi's and Kenya's largest maternity hospital, conducting 50-100 normal deliveries and 10-15 caesarian section deliveries each day. The Hospital is government owned and predominantly serves persons of lower socio-economic status.

While the facility remains an important service delivery point, it has faced medical malpractice and negligence complaints touching on maternity services. The risk of complaints rises with increased volumes triggered by the introduction of the free maternity services. Kenya's maternal mortality rate rose to 488 per 100,000 live births from 414 between 2003 and 2008/9 (Aridi, Chapman, Wagah, & Negin, 2014). Furthermore, the country failed to meet the Millennium Development Goal of a 75 percent drop in deaths between 1990 and 2015. The same case might happen with the SDGs if something is not done to address quality and accessibility issues of maternity services. Increased dissatisfaction with the services puts in jeopardy the very goal of achieving UHC. Among the major causes of dissatisfaction are delays in services offered and lack of adequate infrastructure to accommodate the increased volumes leading to mothers turning away from hospital-based deliveries, and often poor attitudes by demotivated healthcare workers (Bradley et al., 2015).

These have all been barriers towards effective implementation of the free maternity policy, thus reducing progress towards the attainment of UHC. It is not enough to avail services; service quality must be acceptable for women to opt to deliver at healthcare facilities (Ng et al., 2014). Health systems challenges such as low numbers of skilled staff, lack of essential materials and inadequate bed space (leading to sharing of beds at the maternity) can contribute to women opting to not use skilled attendants for delivery.

The alternative of delivering at home without skilled attendance carries significant risks, particularly among rural populations and the urban poor. These groups rarely have the option of seeking the more costly specialized services in cases of obstetric complications. Saggurti & Bharat, (2015) used the dimensions of the theory model to assess the equity of access to UHC especially to the marginalized and hard to reach areas. In Nairobi, for instance, urban slums contribute the most to the maternal mortality ratio.

This study sought to contribute towards strengthening maternity services by assessing the availability of maternity services before and after the free maternity services policy was introduced. By assessing these parameters, information was generated on the Hospital's preparedness to handle the changing client volumes and examine coping mechanisms, if any, that the facility adopted to deal with the challenges.

Study findings guides policy on reducing inadequacies and improving the impact of the free maternity policy. This is by incorporating policies that anticipate scale-up in volume changes by both the public and private facilities, formulating strong formal communication rules among stakeholders thus ensuring the highest attainable quality of services as provided for under Kenya's Constitutional dispensation.

1.3. Objectives

1.3.1. Main Objective

To assess service availability before and after the implementation of free maternity services at the Pumwani Maternity Hospital in Nairobi Kenya

1.3.2. Specific Objectives

i. To determine the maternity client volumes before and after the introduction of free maternity services at the Pumwani Maternity Hospital

ii. To determine the Hospital's maternity service readiness before and after introduction of free maternity services with respect to availability of essential infrastructure, equipment and personnel.

iii.   To examine the extent to which the changing maternity client volumes were matched with essential infrastructure, equipment, personnel and understand coping mechanisms, if any, adopted to deal with any mismatch.

1.4. Research Questions

The following research questions guided my study: -

i.   What changes in client volumes has been experienced in Pumwani Maternity Hospital before and after introduction of free maternal care?

ii.   What is the facility maternity readiness in respect to availability of essential infrastructure, equipment and personnel before and after devolution?

iii.   Has available infrastructure, equipment and personnel in Pumwani Maternity Hospital matched the client volumes after free maternal care and what are the coping mechanisms?

1.5. Justification

The study contributes to discussions on the impact of the FMS on the health system, particularly on service availability and matching of client volumes to the available infrastructure, equipment and personnel. Previous studies have shown that vertical policy interventions such as maternity services, HIV and malaria, can weaken the health system, if not adequately tracked, assessed and adjusted as and when necessary to the local realities. Such interventions could divert resources from other purposes towards the policy's purpose, thus causing unexpected negative impacts. Yet maternity services remain a key area for strengthening if SDGs are to be achieved.

While the free maternity policy is expected to result in increased volumes, it is not clear whether commensurate adjustments have been made on the inputs, including infrastructure, skilled attendants and equipment. A mismatch between volumes and inputs could lead to substandard services and subvert the intentions of the policy.

The selected facility, Pumwani Maternity Hospital is the hospital that handles the largest number of deliveries, in the largest County (by population density) in Kenya. In addition, the hospital is located in an area of relatively high poverty levels, serving

persons of lower socio-economic status. These are the populations targeted by the government through the policy. They are also the populations with the worst maternal health indicators. Pumwani is the third busiest maternity Hospital in Africa, after Chris Hani Baragwanath Academic Hospital and Mowbray Maternity Hospital, and the largest public facility in terms of deliveries (up to 27000 annually) (Kimani, 2008).

The study therefore contributes to knowledge that would inform policy in Kenya and other countries that seek to subsidize maternity services. The importance of inputs such as infrastructure, personnel and equipment, and appropriate matching with client volumes were explored.

CHAPTER TWO: LITERATURE REVIEW

2.1. Introduction

This section outlines the theoretical foundation, global achievements and challenges around maternal services, particularly in relation to attainment of universal health coverage. The discussions are particularly important for low-and middle-income countries like Kenya, which recently embraced the SDGs as the primary vehicle for universal coverage of essential services. The review was divided into five sections. The first section explored theoretical concepts, particularly models and theories related to maternal healthcare services. The second section looked at the overview of maternal care in Kenya, focusing on coverage and adherence to the global standards set through the years, as well as achievements and challenges faced in trying to expand coverage. The third section defined the conceptual and donabedian frameworks that are used in this study of the Pumwani Maternity Hospital in the availability and quality analysis. The fourth looked at the measurement of quality with a clear definition of the donabedian framework.

2.2. Theories and models on Maternal Healthcare

2.2.1 Demand and Supply theory

According to the demand and supply theory, when prices are lowered, the quantity demanded will increase, and this relationship motivates user fee exemption policies. However, the interaction between price and the quality of services provided complicates an otherwise straightforward picture; in essence, the 'product' or health services on offer may change as the price drops, if there are fewer revenues available to motivate good performance of providers, purchase key inputs, like drugs, hire additional staff to handle increased volumes, etc (Samuelson, 2005). If both quality and the price drop simultaneously, the effects on quantity demanded are unknown.

The extent to which suppliers of health services have the flexibility to accommodate increased demand (through hiring additional staff, for instance) can also, in turn, influence the quality of services. Finally, the presence of alternative providers offering affordable care at acceptable levels of quality will also influence consumer responses to

price changes (Cesarano, 2006). The impact of user fee reductions on population health outcomes is mediated by how the demand for services and the quality of services respond to this policy change, making it essential to empirically measure these relationships in real-world settings.

2.2.2. Theory of Effective Coverage

Theory of effective coverage indicates that health services are a concept expressing interaction between the service and the people to whom it is intended. This interaction is a process from resource allocation to achievement of desired objective and defines utilization as relationship between service capacity and service output. The interaction is made possible through availability of resources (manpower, facilities, and drugs), accessibility, acceptability, contact and effective coverage (Ng et al., 2014). Access is made available through these dimensions together with individual's empowerment to use the health services following informed decision. It is important to use the Affordability Ladder Program (ALPS) to assess social inequities in health care among different social groups according to Rupani, Gaonkar, & Bhatt, (2016). Women will utilize free maternity services when barriers in supply and demand side factors are removed.

Demand is determined by quality, accessibility, price, waiting time and knowledge of healthcare needs. Reduction of direct financial barriers results in increased utilization of services, workload and consumption of supplies (Rose-Ackerman, 1996). Apart from direct hospital fees, there are other costs like transport cost and price of substitutes which will determine if a woman seeks to deliver in a health facility or at home.

2.2.3. Three Delay Model

Delay in seeking treatment leads to adverse outcomes on care Thaddeus & Maine, (1994). He talks of three types of delays which are: decisions to seek healthcare, reaching the facility and receiving adequate and appropriate treatment. The factors that cause these delays are social cultural, distance, cost and quality. Shortage of qualified staff, essential drugs and supplies is a major cause of delay in commencement of treatment after arriving in the facility. Financial cost is not a major determinant as

women are more concerned with the quality of care (Thaddeus & Maine, 1994).Women will find poor services as a barrier to utilizing free maternity services.

2.2.4. Behavioral Models on Health care service utilization

This model relies purely on non-cognitive factors motivating or leading to health-seeking behavior (Regassa, 2011). The process of health care service utilization is put into a contextual situation, for example in the context of socio-cultural and economic fundamentals. This model was proposed by (Collins, Hewson, Munger, & Wade, 2010) and used in the works of (Rupani et al., 2016). The model consists of predisposing factors (such as age, sex occupation, education); enabling factors (such as income, household materials); and need factors (such as perception of illness and service indicators). This model is based on determinants that affect decision-making and take into account economic circumstance, distances to travel, level of education, individual satisfaction based on previous services utilized and perceived quality of services (Rupani et al., 2016). Consideration is given to individual level, household level and health systems level characteristics (Collins et al., 2010).

Prompts for health seeking and health service use are determined by social, cultural, political and economic factors as seen by the individual and as defined by the community. In this case, free maternal health care services in relation to utilization by pregnant women involve a kind of analysis of health care use leading to recognition of the importance of the social determinants of health. Note that social capital has lately become increasingly important to the general population welfare (Regassa, 2011).

2.3. Maternity Department

This is a department in hospitals that provides care for women through their pregnancy period including antenatal care, childbirth and infant care. For effective service delivery, there should be appropriate infrastructure including skilled personnel, equipment, supplies, resources and adequate facility sizes towards accommodating volume changes. It is important to have a resourceful health workforce which is not only limited to routine, clinical and data training but includes staff supervision and continuous professional development which boosts confidence and empowers

healthcare providers, patients and communities ensuring decision makers are accountable for population needs. To get quality healthcare provided in resource poor settings, improvements can be enhanced by adopting participatory and accountability-based approaches which are highly advocated in meeting the sustainable development goals. Inadequate infrastructure leads staff of different cadres, including nurses, doctors, laboratory technologists, pharmacists, clinical officers and support staff unable to manage the increasing number of mothers accessing health facilities citing burn outs and poor morale. This in turn affects the mothers' perceptions who delay their visits to facilities for skilled assistance leading to negative maternal and neonatal outcomes (Bradley et al., 2015).

A Skilled Birth Attendant (SBA) is a trained and certified health worker who manages mothers' pregnancies through childbirth to postnatal periods and identifies complicated cases for referrals (Kimani, Farquhar, Wanzala, & Ng, 2015). SBAs are a vital intervention for saving lives despite the low proportion of health workers to clients in the country. The world through the WHO had an inadequate supply of 4.3 million trained health workers with the poorest countries in Africa hardest hit. It recommends 36 doctors and 356 nurses per 100,000 populations but Kenya, one of the country's that is faced by severe workforce crisis, has an average 19 doctors and 166 nurses per 100,000 populations and of this, Nairobi has 25% and 6.6% of doctors and nurses respectively for its 8.2 Million population. This was backed by the Kenya Service Availability and Readiness Assessment Mapping (SARAM) report (2014) which showed county unpreparedness in health institutions in maternity units through looking at infrastructure and equipment availability.

Most facilities did not fulfill on antenatal wards, ambulance numbers per hospital, number of Kenya Expanded Programme on Immunization (KEPI) refrigerators per maternal and child health, Cd4 machines in laboratories and operating theatres. And since most government facilities are located hours away of their homes, 63% of citizens do not access the services leading to high death rates (MOH, 2014).

2.4. Overview of Maternal Care

Maternal care is for mothers of reproductive ages between 15-49 years and in health facilities is under the Maternal and Child Health (MCH) department. It includes antenatal care; care during and around delivery and post natal care. A positive maternal experience is where mother and baby are safe from illnesses and risks towards a high maternal self-esteem and freedom through Antenatal Care (ANC). The care includes nutrition, interventions and preventive measures in improving quality of care. Mothers should have visited a facility at least four times during their pregnancy before delivery according to the World Health Organization ANC model which has shown to increase maternal satisfaction. Various health systems in facilities should be strengthened in ensuring availability and quality of services offered to mothers and their communities (Tunçalp et al., 2017).

In November 2010, Kenya launched the Campaign on Accelerated Reduction of Maternal Mortality in Africa (CARMMA) which had the slogan that "no women should die while giving life". Kenyan women face an unacceptable 1 in 20 lifetime risk of maternal death with 6000 dying annually from pregnancy related conditions which are almost preventable and/or treatable. These causes vary by region and include; Obstetric hemorrhage (25%), Infection (15%), unsafe abortion (13%), Eclampsia (12%), obstructed labour (8%) and the indirect causes like malaria, HIV (20%). For substantial progress to be achieved, interventions have to be made on people of lower socio-economic status (Khan, Wojdyla, Say, Gülmezoglu, & Van Look, 2006).

The negative maternal and neonatal outcomes and through global trends in healthcare reforms towards attaining UHC guided the Kenyan health sector through the Ministry of Health to introduce the free maternal care in line with achieving Vision 2030 of the SDGs. Designing this policy however has required careful balance on staff motivation, adequate provider funding and quality of care in ensuring its effective implementation. The elimination of out of pocket charges by the government and the package of maternity care introduced by the National Hospital Insurance Fund (NHIF) ensure all women of reproductive ages access care in the public health institutions. The implementation however was a top-bottom policy initiative which found health facilities

not ready to handle increased patient numbers. The change required improvement on health facilities, human resources and the necessary infrastructure for easy access and care in matching the new volumes. Despite the varied socio-economic and demographic factors influencing access, the named interventions help in improving delivery care of services and its perceived quality especially through Safe Motherhood Initiative which requires all countries to improve the health and well being of mothers and newborns (Mpembeni, 2007).

Infrastructure, Equipment and staffing however remain the biggest challenges in delivery of maternal care. The current staff meets only 17% of minimum requirements needed for operation of health system where 7 Nurses serve 4,000 residents, half the number recommended by the World Bank. The facilities being used should be thoroughly assessed to ensure adequate maternity service utilization. This is important in deliveries of all pregnancy cases since staff are aware on the possibility of their being risks of complications. A survey done showed of the 70% deliveries carried out in health facilities, only 48% of them had adequate staffing, drugs and equipment. This disadvantages the mothers since emergency obstetric care facility coverage per 500,000 inhabitants in Nairobi is known to be the lowest in the country and hence maternal mortality cannot be reduced. Obstetric outcomes are highly influenced by community factors and perceived benefits of health care systems which in turn affect access and utilization of the services and therefore need for promotion and education campaigns on ANC and importance of SBA services (Fotso, Ezeh, Madise, Ziraba, & Ogollah, 2009). The figure below shows maternal mortality ratio per 100000 live births globally and by WHO region between 1990 and 2013.
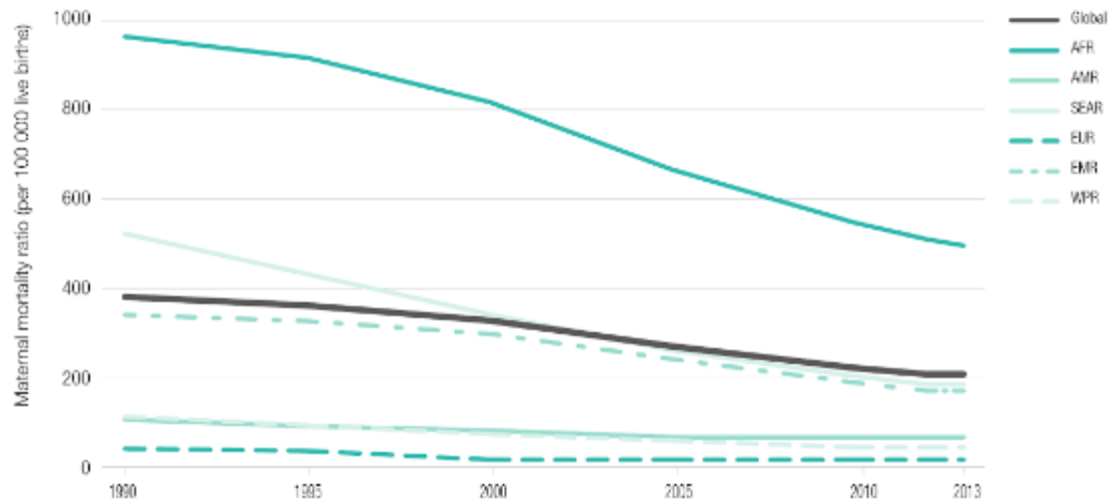
Figure 2.Overview of maternal mortality ratio-Globally and by WHO region, 1990-2013.

2.5. Availability of Free Maternity Services

Women from rural and mountainous areas without transport will not seek health facility delivery even when services are free. Studies done in Afghanistan, Bolivia, Ethiopia and Kenya reviewed geographical barriers where those in mountainous regions were not accessing health services adequately (Klinger et al., 2013).

A study done in Madya (India), on twenty two cases of deceased women classified the causes using the three delays model. Eleven out of the 22 women died due to delays in deciding to seek care after becoming aware of complications. Twenty one women died of delay in reaching the facility as a result of poor transportation with 12 dying in the health facility and eight during referral from one health facility to another (Regassa, 2011).

Thirteen women out of the 22 reached the facility but shortage of drugs, blood and staff negligence caused delay in receiving adequate care. This was attributed to shortage of resources including skilled personnel, supplies and inadequate infrastructure (Njuguna, Kamau, & Muruka, 2017).

A study in Bangladesh showed that; though there was reduction in Maternal Mortality Ratio (MMR) from 574 deaths per 100,000 live births to 194, more than 75 percent of deliveries took place at home due to inadequate facilities and lack of skilled care (The World Bank Group & IBRD IDA, 2016). A health assessment survey of 2006 in Tanzania confirmed that most facilities lacked electricity and sterile equipment and this kept women from using them. In Columbia the improvement of roads, communication, education and increase of health facilities helped to reduce maternal mortality from 472/100,000 to 206/100,000 live births from 2000 to 2010 with referral systems being strengthened (The World Bank Group & IBRD IDA, 2016).

Kenya Service Availability and Readiness Assessment Mapping found that only 32 percent of facilities were prepared in readiness for maternity services (Ministry of Health, 2005). The assessment report of free maternity services reported overcrowding which made women to share beds or be discharged prematurely. Functionality of equipment and other amenities was inadequate. Most of the ambulances (50 percent) were nonfunctional causing delays in referrals, toilets and bathrooms in some facilities were broken down. The same authors also reported poor communication services both for administrative functions and for operations and ambulances (Head, Peven, Kichamu, & Wamae, 2015).

2.6. Utilization of Free Maternal Care

Free as described in the oxford dictionary is "Able to act or be done without control of another. Using healthcare as an example, it states that it is given or available without charge". Free however should not lower quality of services being offered and should exceed customer expectations by giving desired health outcomes.

It is estimated that over 100 Million people in low-income countries incur catastrophic health expenditures which pushes most households into poverty with Kenya's poverty levels at 46.6%. This is due to out of pocket payments made at points of care in public facilities leading to lack of financial protection. 1-5% of total annual household expenditure is spent on maternal care which may rise to between 5-34% in case of obstetric complications. It is this burden that led the WHO to call for universal health coverage through health systems with benefits on need for care and not ability to pay. In

addressing the barrier of the high poverty index and burden of the healthcare costs on households, the Kenyan government implemented free maternal healthcare in all public facilities. However, availability of facilities does not guarantee utilization of health services (Wamai, 2009).

According to the 2003 Kenya Household Health Expenditure and Utilization Survey, Nairobi had the highest rate of hospital service utilization with a national utilization rate of 1.92 visits per person, annually. Even with health budget growth in 2008 Fiscal year, government expenditure declined from 9% to 7.9% in 2006/07 fiscal year. The Kenyan government contributions towards healthcare has remained constant with allocations over the last two decades averaging between 1.4 to1.6 percent of the GDP despite its commitment to the Abuja declaration of allocating 15% of its budget to the health sector. Numerous reforms required to improve health status of population therefore includes timely budget transfer of funds to health facilities from the National government and coordination among various stakeholders to ensure all delivery services required by citizens are available.

Low income countries are still struggling in meeting assisted childbirth despite the proportion increasing worldwide. With a 99% ANC community based care in health facilities and with a 90% population coverage, infant and neonatal mortality rates will be reduced by over 70% if women's access to perinatal health services will be improved. Community participation and health care system communication will raise awareness on safe motherhood and service usage among women of childbearing ages irrespective of the gaps seen between the rich and poor countries on antenatal service utilization (ML, K, Dramaix-Wilmet, & Donnen, 2012).

Patients and their families' safety is a key pillar of quality care and therefore significant engagement with the public health system is important. This is because the Kenyan healthcare system faces numerous human resource problems who feel the need to be compensated for the increased volumes after the free maternity introduction which the government has not adequately financed. Having well trained, skilled staff and with the right infrastructure improves quality leading to more uptake of delivery services. The resources will be employed in educating both women and men towards recognizing

complication signs and how to make decisions on their health detecting main causes of maternal deaths like the community based initiative taken up in northwestern Nigeria, a model if implemented in Kenya would reduce delays in treatment and maximize the utilization of maternal care (Bourbonnais, 2013).

Increased number of mothers seeking maternity services may negatively impact physical and organizational resources meant to support the healthcare delivery from the removal of financial barriers. This is due to the dynamic relationship between access, cost and quality that requires improving care experience and health of populations whilst reducing health care per capita costs. It is summarized as the iron triangle concept meant to sustain facility based deliveries with emphasis on quality which increases utilization and access to care (Berwick, Nolan, & Whittington, 2008).

2.7. Measurement of Quality Healthcare

In healthcare, there is a relationship between access, quality and cost with a shift in one leading to a change in the other two. This clearly illustrates that quality cannot work on its own hence implementation of systematic evaluation and process improvements. In assessing quality, a donabedian framework is used since it guides through the structures of care, processes of care and the health outcomes in a healthcare organization where each component influences the next one. The framework was defined by Avedis Donabedian and is universally accepted in developing quality standards which meet patient's needs and satisfaction. Structures involve characteristics of health providers and settings where care is delivered like personnel and equipment, the processes are what is done to the patient through technical and interpersonal aspects like diagnosis and preventive care and outcomes is what happens to the patient by recording achieved goals like patient satisfaction and patient well-being (Haj, Lamrini, & Rais, 2013).

Quality and access can be strained when number of patients' increases like in the case of Pumwani Maternity Hospital after the free maternal implementation from the inadequate infrastructure, personnel and equipment in the facility from lack of adequate preparedness.

Figure 3.Donabedian Framework (Quality of Care between Donabedian Model and ISO9001V2008, 2013)
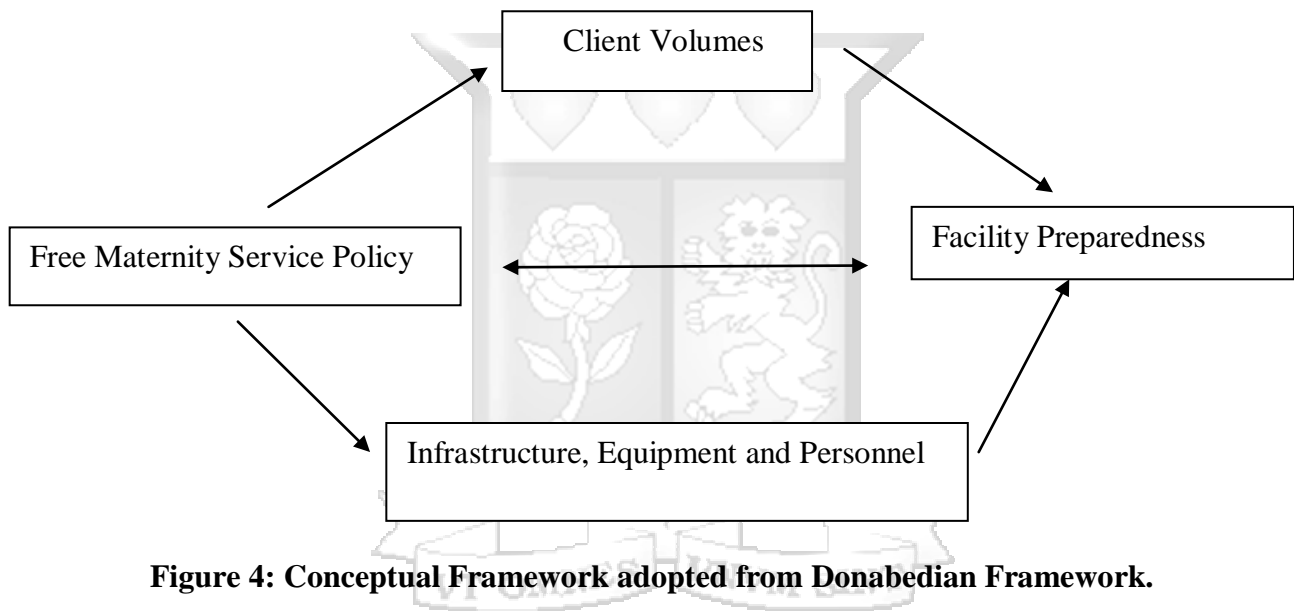
Figure 4: Conceptual Framework adopted from Donabedian Framework.

CHAPTER THREE: STUDY METHODOLOGY

3.1. Research Design

The study utilized the longitudinal study design. This involves repeated observations of the same variables over a period of time and in this study, before and after interventions. Data on the relevant events was collected from existing records (archival method) to capture the client volumes, infrastructure, equipment and personnel changes and was immediately analyzed. Quantitative approach provides large and higher-quality databases that would be unfeasible for any individual researcher to collect on their own hence saving time. For the qualitative approach, in-depth interview was done using a topic guide to the heads of departments in learning how the facility has adapted to the changing volumes and the coping mechanisms adopted after free maternal care policy. Qualitative approach can be adapted and changed while study is ongoing enhancing quality of data and insights generated from its open-ended approach.

3.2. Study Site

This study was conducted at the Pumwani Maternity Hospital, a pioneer facility in the provision of maternity care in Sub-Saharan Africa. The Hospital is located in Kamukunji Sub-County in the east of Nairobi County, Kenya. The Hospital mainly serves urban slum women drawn from informal settlements and areas of low socio-economic status around Nairobi. The maternal mortality rate in Nairobi is estimated to be 57.1 per 100,000 live births (MOH, 2014). The study was conducted in February 2018.

3.3. Data Collection Methods

Secondary data was obtained from the Pumwani Maternity Hospital medical records. The collected data consisted of the volume of women that gave birth at the facility 4 years before and 4 years after the introduction of FMS. Data also captured mortality and neonatal birth cases information before and after the introduction of free maternity service at Pumwani Maternity Hospital. The collected data also contained information

on the actual total number of beds, the level of the hospital based on classification rules, the number of trained obstetricians and nurse midwives, total number of available ambulances and actual number of theatres. This data was then consolidated, cleaned, analyzed and interpreted. Finally, in depth interviews were conducted with the respondents answering questions from the topic guide. Interviews foster a cordial environment as opposed to focus group discussion which evades the problem of controlling and managing discussions. This tool eases data collection because it involves recording one participant at a time accommodating all speakers. The advantage of qualitative interviewing is helping the interviewer to record the unique perspective or experience of the respondent (Hollstein, 2011).

A sample of six respondents (Heads of Departments) from 14 departments was selected for an in-depth interview on how best they have handled the changes experienced after the introduction of the free maternity policy through purposive sampling. The six respondents were purposively identified from impact the FMS policy brought upon the departments based on matching of client volumes and available infrastructure, personnel and equipment. Each informant in the study got sufficient time to respond to different questions on the coping mechanisms they have adopted towards ensuring effective matching of the changing volumes with the available infrastructure, equipment and personnel. This ensures large data is collected from each respondent hence the few participants for the study (Morse, 2000).

The data collected contributes to discussions on the impact of the FMS on the health system which sought to commensurate adjustments towards matching volumes and inputs. The knowledge gained seeks to inform policy in Kenya and other countries seeking to subsidize maternity services.

3.4. Data Analysis

Secondary data is considered essential, since it is impossible to conduct a new survey that can adequately capture past change and/or developments. As such, the relevant data obtained from Pumwani Maternity Hospital database was coded and classified into themes for the purpose of analyzing them. Statistical Package for the Social Sciences

(SPSS) was used to analyze the quantitative data which was collected using checklists. For qualitative data, transcripts were read iteratively and major minor themes identified. These are modified as more and more transcripts are read, and eventually arranged in a thematic tree.

3.5. Reliability and Validity

Validity in research is concerned with the accuracy and truthfulness of research findings (Roberts, 2006). A valid study should demonstrate what actually exists and a valid instrument or measure should actually measure what it is supposed to measure. Two major forms of validity that encompass the many types include the "internal" and "external" validity, terms which are today used in most nursing research textbooks (Nahid Golafshani, 2003). Reliability is concerned with the consistency, stability and repeatability of the informant's accounts as well as the investigators' ability to collect and record information accurately (N Golafshani, 2003). It refers to the ability of a research method to yield consistently the same results over repeated testing periods.

Data triangulation was used to perform auditing to assess internal validity. Through cross-referencing multiple data sources, quantitative data was obtained and verified from different other documents that contained similar information. External relevance/validity was conducted on a real-time basis at the Pumwani Maternity Hospital.

3.6. Ethics

The research sought approval from the Strathmore University Ethics Committee before primary data collection commenced. There was assurance on anonymity and privacy of data collected from Pumwani Maternity Hospital, who approved my study after I followed their protocol on data collection from the facility.

CHAPTER FOUR: RESEARCH FINDINGS AND INTEPRETATION

4.1. Introduction

This chapter presents the data analysis and findings of the study as set out in the research objective and research methodology. The study findings are presented on service availability before and after the implementation of free maternity services at the Pumwani Maternity Hospital in Nairobi Kenya. The data was gathered from primary and secondary data sources.

4.2 Maternity client volumes before and after the introduction of free maternity services.

The first objective of the study sought to measure the maternity client volumes before and after the introduction of free maternity services at the Pumwani Maternity Hospital. The study findings are as indicated below.

4.2.1 Admissions

In the interest of establishing the admission volumes before and after the introduction of free maternity services at the Pumwani Maternity Hospital, **Figure 4.1 summarizes the study findings:-**

Figure 4.1: Admissions   **Free maternity policy introduction**

The admission volumes increased after the introduction of free maternity services at the Pumwani Maternity Hospital as indicated by the mean of 1974.75 in the year 2014 which drastically fell into a mean of 811.67 in the year 2017. An indication that introduction of free maternity services at the Pumwani maternity hospital was initially welcomed.

4.2.2 Deliveries

It was the interest of the study to establish the total number of deliveries (normal and caesarian) before and after the introduction of free maternity services at the Pumwani Maternity Hospital. **Figure 4.2. Summarizes the study findings:-**

Figure 4.2: Deliveries

According to the study findings, the number of deliveries increased immediately after the introduction of free maternity services at the Pumwani Maternity Hospital as indicated by the mean of 1840.42 in the year 2014 which drastically falls into a mean of 789.08 in the year 2017.

4.2.2.1 Normal Deliveries

Normal deliveries before and after the introduction of free maternity services at the Pumwani Maternity Hospital are summarized in Figure 4.3 and shows an increase in normal deliveries with a mean of 1358.50 in 2014 with subsequent decline to 631 in 2017.

Figure 4.3: Normal Deliveries
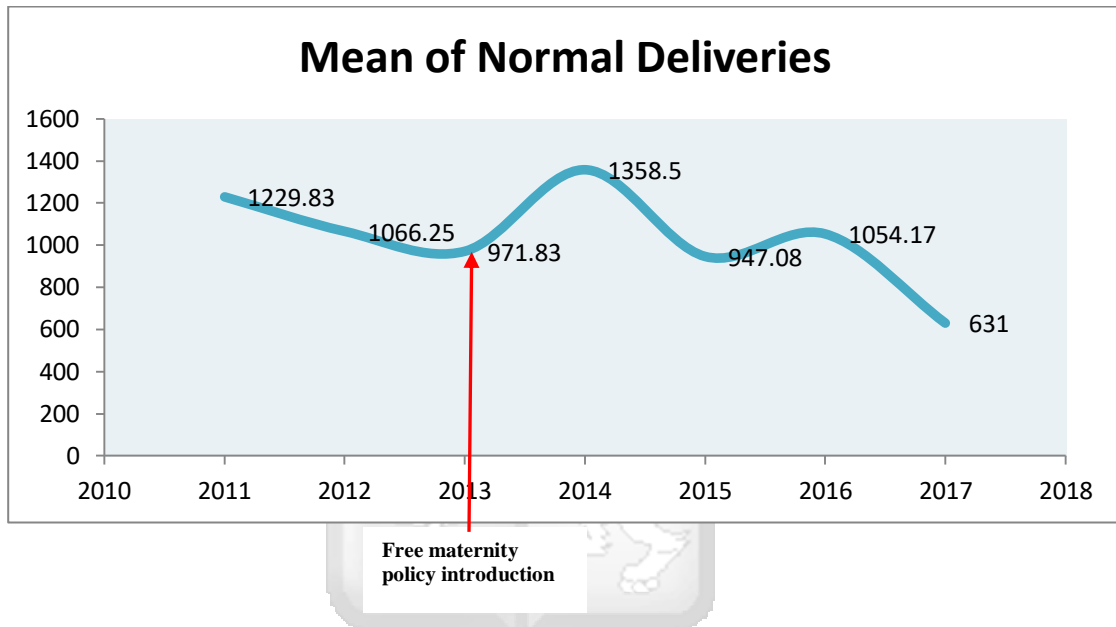
4.2.2.2 C/S deliveries

A summary of C/S deliveries before and after the introduction of free maternity services at the Pumwani Maternity Hospital is shown in Figure 4.4

Figure 4.4: C/S deliveries
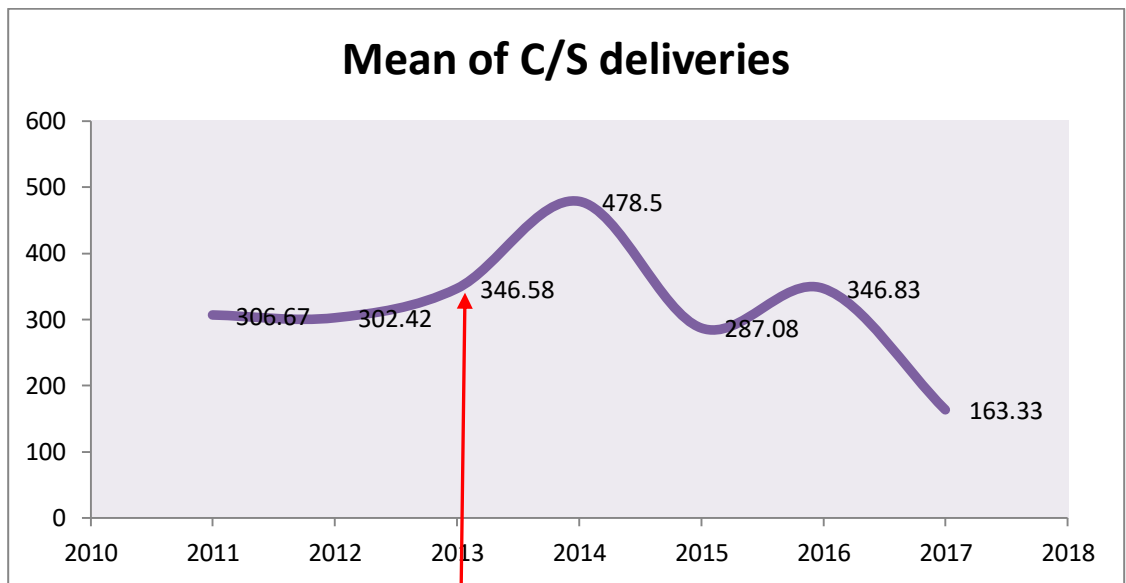
Mean of C/S deliveries

Free maternity
policy introduction

The study established that the total number of C/S deliveries increased immediately after the introduction of free maternity services at the Pumwani Maternity Hospital as indicated by the mean of 478.50 in the year 2014 which later declines to a mean of 163.33 in the year 2017.

4.2.3 Neonatal deaths

It was the interest of the study to establish the number of neonatal deaths before and after the introduction of free maternity services at the Pumwani Maternity Hospital. Figure 4.5 summarizes the study findings

Figure 4.5: Neonatal deaths

Mean of Neonatal deaths

- 41.83
- 38.25
- 36.67
- 54.83
- 31.42
- 27.42
- 12.67

Free maternity policy introduction
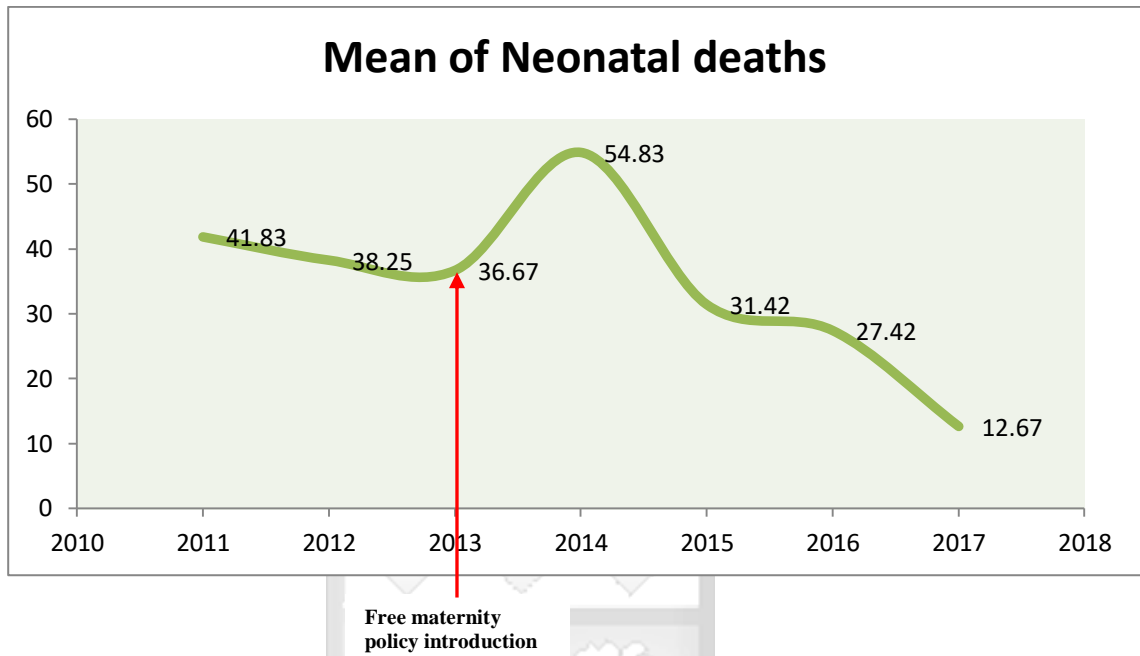
As per the study findings, the total neonatal deaths increased immediately after the introduction of free maternity services at the Pumwani Maternity Hospital as indicated by the mean of 54.83 in the year 2014 and decreased to a 12.67 mean in 2017.

4.2.4 Maternal Deaths

It was the interest of the study to establish the number of maternal deaths before and after the introduction of free maternity services at the Pumwani Maternity Hospital. Figure 4.6 summarizes the study findings

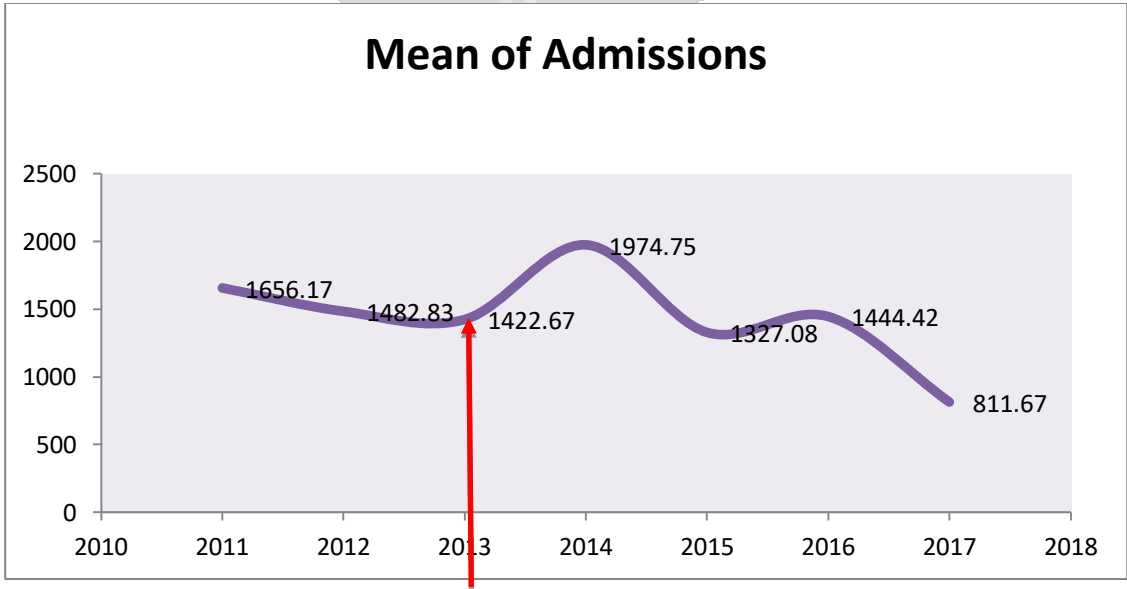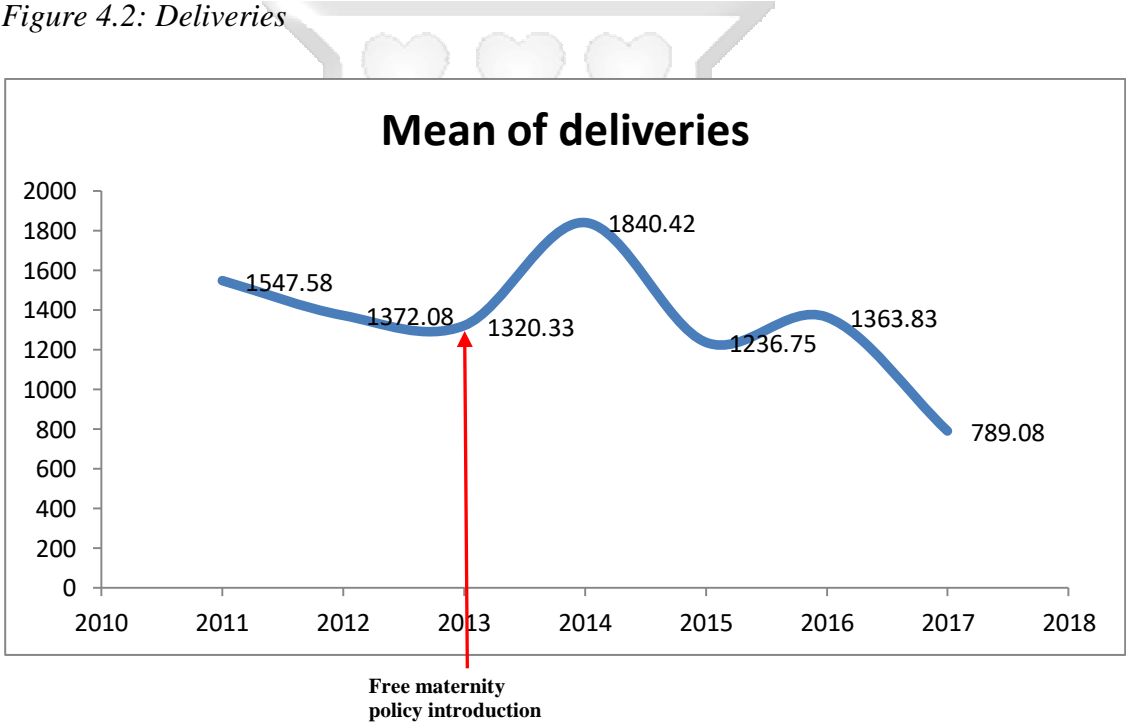*Figure 4.6: Maternal Deaths*
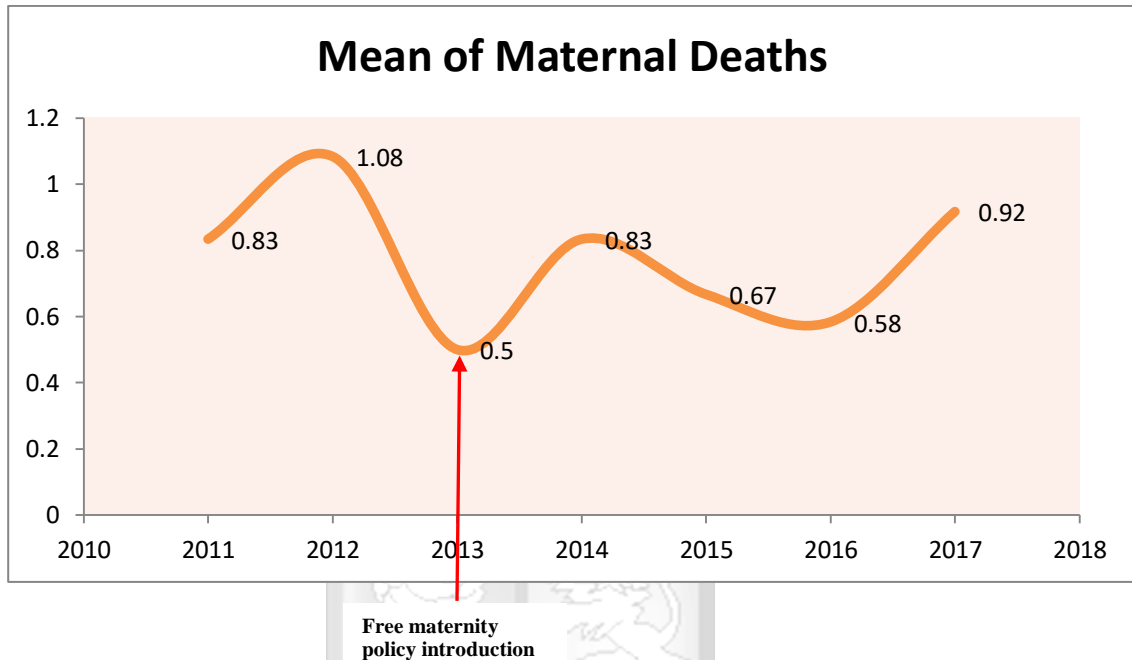
Based on the study findings, the total number of maternal deaths has decreased after the introduction of free maternity services at the Pumwani Maternity Hospital as indicated by the mean of 0.83 in the year 2014, 0.67 in the year 2015 as well as the mean of 0.58 in the year 2016. However, the ratio of admissions to maternal deaths is higher after the introduction of free maternity services at the Pumwani Maternity Hospital.

4.3 Hospital's maternity service readiness before and after devolution with respect to availability of essential infrastructure, equipment and personnel

The second objective of the study sought to determine the Hospital's maternity service readiness before and after devolution with respect to availability of essential infrastructure, equipment and personnel. The results findings are as shown in Table 4.7

Table 4.1: Available infrastructure, equipment and personnel before and after devolution

	2011	2012	2013	2014	2015	2016	2017
Bed Numbers	233	233	250	260	265	265	265
Ambulances	2	2	2	2	2	3	3
Delivery Packs	60	60	65	67	67	68	68
Theatre Rooms	3	3	3	3	3	3	3
Doctors	22	18	24	30	33	33	34
Nurses and Midwives	205	217	198	212	160	166	167
Paediatricians	2	2	2	2	3	4	4
Obs/Gynae	4	4	5	5	5	6	6
Cardiologists	0	0	0	0	0	0	0
Nutritionists	2	2	2	2	2	2	2
Physiotherapists/Occupational therapist	2	3	3	3	3	3	3
Pharmacy tech./Pharmacists	4	4	5	6	6	6	6
Laboratory tech.	7	9	10	10	10	10	10
Medical Records	2	2	2	1	2	3	4
Others (Cleaners and Labourers)	28	28	28	30	31	31	31

Based on the study findings, it is evident that there were no much variations on the means with regards to the essential infrastructure, equipment and personnel before and after the introduction of free maternity services at the Pumwani Maternity Hospital.

The study findings indicate how maternity client volumes are matched with the availability of essential infrastructure, equipment and personnel before and after the introduction of free maternity services at the Pumwani Maternity Hospital. Despite the introduction of the free maternity policy there was relatively no change in the infrastructure, equipment and personnel which meant that there would be maximum utilization of the available resources.

4.4: Opinions and coping mechanisms for staff

Objective three was to understand the various coping mechanisms adopted by the hospital and six respondents were purposively sampled. Numbers 1 to 6 were used as identification numbers for the respondents.

All six respondents felt there was increased number of clients after the introduction of the free maternity policy. *"We expected that numbers would increase but not this much. Maybe by 30 patients a day but it was by more than 400"* Respondent (1). All respondents said the new volumes were unmanageable with the majority maintaining that despite the policy being rolled out years ago, the volumes remained high making it hard for them to handle. *"Believe me when I answer with a resounding NO. The numbers were unmanageable and the fatigue that got to us is still unimaginable"* Respondent (3). *"The numbers were unmanageable and still are. It's unbelievable what the medical personnel go through"* Respondent (4). *"No. The numbers were too high and we couldn't handle the new changes. But gradually by the end of the first year, I was comfortable with the numbers and felt we were all handling the volume changes well"* Respondent (1).

When asked about adequacy of staff numbers, all respondents felt the nurse to patient ratios were low.

"No. The patients were too many to the available staff and the infrastructure was inadequate" Respondent (4). When asked about infrastructure adequacy, alongside staff numbers, some respondents had mixed thoughts. They felt the infrastructure could work well if staff numbers were increased to match *"Yes and No. The equipment and infrastructure is enough for the numbers but we are overwhelmed by the amount of work since the personnel numbers remain the same"* Respondent (5). *"Yes. The facility has adequate infrastructure towards effective implementation of the free maternity policy"* Respondent (2).

Rolling out the free maternity policy across the country was well received by citizens but healthcare personnel had different perceptions on how it should have been carried

out. Some felt a phased approach would have worked well, while other thought the model used was appropriate to achieve good outcomes.

"I feel the program should have been in phases, first increase number of staff and infrastructure then roll it" Respondent (3).

"The roll out by the government was okay and I don't see any other way it would have been carried out" Respondent (1).

"The policy introduction was well done although I feel the government should have adequately prepared the facilities by staffing and ensuring they have appropriate infrastructure and equipment" Respondent (2).

Several factors were identified as barriers to the implementation of the free maternity policy at Pumwani Hospital, including staff shortage, lack of continuous training and development of the personnel and unpreparedness by the policy makers on the handling the changing nature of health care sector.

"The Staff shortages hinder service delivery, insufficient and inconsistent supplies of drugs and other supplies" Respondent (4).

The coping mechanisms adopted by personnel in the facility include maximum utilization of the available resources.

"We have learnt the art of task sharing and working extra hours to ensure all our patients are served. Being a referral hospital we enjoy the privilege of having students attached from the medical training schools to our facility too" Respondent (5).

Recommendations given included improving communication with stakeholders during implementation of new policies, hiring more staff and better adoption of technology in the changing healthcare environment.

"Proper planning by hospital management in terms of increasing staff levels, proper maintenance of equipment" Respondent (3)

"I would recommend that the government should involve all stakeholders when rolling out policies since the free maternity policy revealed several gaps of unpreparedness" Respondent (4).

CHAPTER FIVE: DISCUSSION, CONCLUSION AND RECOMMENDATION

5.1 Introduction

Under this Chapter, key findings from the study are discussed in light of experiences reported from other studies in Kenya and elsewhere. This chapter will also incorporate the conclusion and recommendations on gaps realized from the study.

5.2 Discussion

For success of any reform, careful consideration should go towards planning and phased implementation, assessment of financial implications, establishment of a monitoring system and careful evaluation of the impact of the reform on the health system. However, more often than not, policymakers and political leaders introduce new (usually populist) policies without sufficient preparation. This creates a risk of good policies failing to achieve meaningful impact.

Pumwani Maternity Hospital, the largest maternity referral hospital in the country, faced the risk of trying to meet increased maternity needs without commensurate expansion in facility capacity. Anecdotal evidence had suggested that the free maternity policy had faced major challenges across the country. This study sought to examine the extent to which the Maternity Hospital had been affected by the policy, and how it was coping, despite the challenges.

The study revealed that admission and delivery volumes increased after the introduction of free maternity services at the Pumwani Maternity Hospital before and after the introduction of the free maternity policy. Evaluation of fees reduction in Kenya a year after its implementation showed that levels of utilization increased (Chuma, Musimbi, Okungu, Goodman, & Molyneux, 2009). Similar observations have been made elsewhere. For instance, a study in Nepal found that removal of user fees resulted in an increase in the utilization of healthcare services. It focused on maternal and primary

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care in improving health outcomes for mothers and their babies and showed deliveries increased over 3 years from 14% to 22.5% (Hatt et al., 2013).

However, there is notable decline through the preceding years after the free maternity policy introduction in the admission and delivery numbers. Inadequate infrastructure, equipment and personnel may compromise quality of services when high patient volumes are experienced. This then leads to poor maternal health outcomes leading to reduced numbers (Lang'at & Mwanri, 2015). Attitude of health staff and the distance that clients have to cover from their communities to service delivery points may also be seen as impediments towards access and utilization of free maternal health services.

The study also established that the total number of C/S deliveries increased immediately after the introduction of free maternity services. This could be one of the successes of free maternity policy that include; increased number of institutional deliveries especially for the lower-income earners and uneducated women, and an increase in elective caesarian section rates (Lang'at & Mwanri, 2015). Further, the study revealed that the total number of neonatal deaths too increased. This is alluded to the inadequate infrastructure, equipment and personnel available to serve the increased neonates from the high volume of mothers experienced.

The study established that the total number of maternal deaths decreased after the policy introduction. A systematic review discovered that two Nigerian hospital studies reported increases in maternal and perinatal deaths following fee introduction (Dzakpasu, Powell-Jackson, & Campbell, 2013). Another study in a tertiary hospital in South Africa also found out that the institutional MMR increased following fee removal. They argued that quality of care deteriorated as an increased patient load was not accompanied by increase in the health care providers and other resources. Prior to the introduction of FMS, women facing financial burden were unable to visit a health facility. This increased the chances of reduced care during the pregnancy period leading to obstructive deliveries which in turn increased maternal deaths. Hence the FMS has led to mothers accessing the health facilities in a bid to have safe deliveries which has led to reduced maternal mortality cases (Haddad & Nour, 2009).

The study found that there was little change in essential infrastructure, equipment and personnel before and after the introduction of free maternity services at the hospital, despite significant changes in client volumes. Previous experiences elsewhere suggest that increased utilization of maternity services may negatively impact on the physical and organizational resources meant to support service delivery (Berwick et al., 2008).

Apart from cost barriers, a number of quality, information and cultural barriers should be overcome before the poor can access adequate health services. Before removing user fees, clear communication with broad stakeholders should be considered. Appropriate management of alternative financing mechanisms replacing user fees and careful monitoring to ensure that official fees are not replaced by informal fees should be considered before abolishing user fees (James et al., 2006). Majority of the respondents felt they were unprepared to handle the volumes that skyrocketed from the introduction of free maternity policy. This was due to lack of complete stakeholder involvement involving the general staff and immediate management. Piloting of this programme was highly suggested by the respondents and they felt successful piloting would have lead to a faster implementation process across the country.

5.3 Conclusion

Free Maternity Care Program is an excellent initiative and every effort should be made to sustain it. The Kenyan health system is gradually changing and new financial policies are being introduced within the decentralized system like the Linda mama initiative to sustain the FMC policy. This helps reduce cost further as a barrier to maternity services that many persons in Kenya were facing. The study highlights gaps experienced during the policy roll-out and requires policy makers to review and adjust implememntation of new policies improving accountability.

There were data limitations (missing data) that made it impossible to carry out a longer pre-free maternity policy assessment, for years 2009 and 2010. The initial intention was to look at the patters four years pre- and four years post the free maternity policy. However, years preceeding the free maternity policy (2011 and 2012) were appropriate to equally match the uptake of the free maternity service policy after its introduction

(2014 and 2015) and hence the missing data did not negatively impact the final results. In addition, the quality of data at Kenyan public facilities has historically been observed to have inadequacies, including errors and incompleteness. Despite the data challenges, relatively clean data were obtained for the period covered by the analysis.

5.4 Recommendation

There was an open admission by respondents to having fatigue, which impacted their productivity hence it is recommended that investments in infrastructure, equipment and personnel by the National and County governments in Free Maternal Care (FMC) should be prioritized. This is through assessing, mapping and planning investments to improve quality of service delivery by having adequate infrastructure, equipment and personnel to handling the changing volumes. There is need to have an adequate health system governance in place to handle changes when new policies are introduced. It is essential to provide incentives towards the inadequacies. To avoid opportunities in abusing this, the National and County Governments are required to establish clear monitoring and evaluation procedures to track results of the program towards improving maternal health services. This monitoring system is required to cover utilization trends and give health workers and managers opportunity to give feedback on health facility experience. When FMC was rolled out, it happened simultaneously with devolution implementation. This otherwise compromised operational matters like delay in receiving reimbursements at health facilities and stock outs. For a new policy to be effective, it is imperative to adjust these policies in line with organization's capacity to implement, ensure efficiency of claim processing and frequently review the amount allocated to deliveries to meet the growing cost of items. Effective dissemination of information and raising public awareness towards facilitating compliance with the policy through participation of all stakeholders in policy development is required. This ensures that there is commitment towards policy success and law makers need to make the FMC program a Kenyan law and not just a political tool to ensure sustainability.

5.4.1 Recommendations for Further Research

Future research is needed to determine health impacts in relation to increased utilization and also include the private hospitals in Kenya.

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Appendix i) Participant information and consent form

Assessing service availability before and after the introduction of the free maternity services at the pumwani maternity hospital

SECTION 1: INFORMATION SHEET–HEALTH PERSONNEL

Investigator: Edna Mwende Kavindu

Institutional affiliation: Strathmore Business School (SBS)

SECTION 2: INFORMATION SHEET–THE STUDY

2.1: Why is this study being carried out?

This study seeks to contribute towards strengthening maternity services by assessing the availability of maternity services before and after free maternity services policy was introduced. By assessing these parameters, information will be generated on the Hospital's preparedness to handle the changing client volumes and examine coping mechanisms, if any, that the facility has adopted to deal with the challenges.

2.2: Do I have to take part?

No. Taking part in this study is entirely optional and the decision rests only with you. If you decide to take part, you will be asked to give information on availability of healthcare services before and after the implementation of the free maternity services policy in the facility through the availed medical records. You are free to decline to take part in the study from this study at anytime without giving any reasons.

2.3: Who is eligible to take part in this study?

- Administrative and medical record staff

2.4: Who is not eligible to take part in this study?

- All staff not in the administration positions.

2.5: What will taking part in this study involve for me?

You will be approached by investigator and requested to take part in the study. If you are satisfied that you fully understand the goals behind this study, you will be asked to sign the informed consent form (this form) and then taken through a checklist tool to complete.

2.6: Are there any risks or dangers in taking part in this study?

There are no risks in taking part in this study. All the information you provide will be treated as confidential and will not be used in any way without your express permission.

2.7: Are there any benefits of taking part in this study?

The information will be used to improve knowledge that would inform policy in Kenya and other countries that seek to subsidize maternity services. The importance of inputs such as infrastructure, personnel and equipment, and appropriate matching with client volumes will be explored.

2.8: What will happen to me if I refuse to take part in this study?

Participation in this study is entirely voluntary. Even if you decide to take part at first but later change your mind, you are free to withdraw at any time without explanation.

2.9: Who will have access to my information during this research?

All research records will be stored in securely locked cabinets. That information may be transcribed into our database but this will be sufficiently encrypted and password protected. Only the people who are closely concerned with this study will have access to your information. All your information will be kept confidential.

2.10: Who can I contact in case I have further questions?

You can contact me, Edna Mwende Kavindu, at SBS, or by e-mail (edna.kavindu@gmail.com), or by phone (0728399377). You can also contact my supervisor, Dr. Francis Wafula, at the Strathmore Business School, Nairobi, or by e-mail (fwafula@strathmore.edu)

I, _____, have had the study explained to me. I have understood all that I have read and have had explained to me and had my questions answered satisfactorily. I understand that I can change my mind at any stage.

Please tick the boxes that apply to you;

Participation in the research study

☐   I AGREE to take part in this research

☐   I DO NOT AGREE to take part in this research

Storage of information on the completed questionnaire

☐   I AGREE to have my completed questionnaire stored for future data analysis

☐   I DO NOT AGREE to have my completed questionnaire stored for future data analysis

Participant's   **Signature:**

_____   **Date:** _____/_____/_____

                                                DD /   MM /   YEAR

Participant's   **Name:**

_____   **Time:** _____ /_____

                                                  HR / MN

I, _____ (Name of person taking consent), certify that I have followed the SOP for this study and have explained the study information to the study

participant named above, and that she has understood the nature and the purpose of the study and consents to the participation in the study. She has been given opportunity to ask questions which have been answered satisfactorily.

Investigator's Signature:

_____

Date: _____/_____/_____

DD /   MM /   YEAR

Investigator's Name:

_____

Time: _____ /_____

HR / MN

Appendix ii) Topic guide for an in-depth interview with staff and administration heads

1) Initial questions on the free maternity services policy.

➢ In your opinion, has there been a change in client numbers since the free maternity policy was introduced?

➢ Do you feel your workload after the free maternity policy introduction is manageable?

➢ Are you satisfied with the overall staffing of the facility and do you have the necessary infrastructure to do your job well?

➢ How in your opinion do you think the free maternity policy should have been rolled out?

2) Mechanisms of adapting to the free maternity policy

➢ In your opinion do you think Pumwani Maternity Hospital has the right infrastructure to ensure effective implementation of the free maternity services policy?

➢ What barriers do you feel have hindered effective implementation of this policy in the facility?

➢ What are some of the coping mechanisms the facility has adopted in keeping up with the changes brought about by the free maternity services?

➢ What recommendations in your opinion should be applied towards matching the changing client volumes to the infrastructure, equipment and personnel at the Pumwani Maternity Hospital?

Appendix iii) Collected Data

Admissions

	2011	2012	2013	2014	2015	2016	2017	TOTAL
Jan	1747	1571	1193	1631	2350	1601	49	10142
Feb	1453	1465	1228	1525	1823	1609	21	9124
Mar	1822	1541	1291	1877	1463	1660	900	10554
Apr	1778	1452	1292	1907	697	1708	1661	10495
May	1968	1487	1486	2063	632	1871	1492	10999
Jun	1753	1396	1714	2084	638	1756	318	9659
Jul	1749	1408	1746	2005	1024	1910	160	10002
Aug	1481	1355	1747	2069	1262	1770	507	10191
Sep	1613	1555	1101	2066	1326	600	925	9186
Oct	1598	1567	1638	2138	1505	860	1002	10308
Nov	1566	1469	1513	2103	1588	1717	1352	11308
Dec	1346	1528	1123	2229	1617	271	1353	9467
	19874	17794	17072	23697	15925	17333	9740	121435

Deliveries

	2011	2012	2013	2014	2015	2016	2017	TOTAL
Jan	1600	1451	1133	1463	2154	1591	46	9438
Feb	1343	1385	1126	1447	1664	1574	20	8559
Mar	1644	1455	1190	1738	1388	1280	846	9541
Apr	1671	1416	1183	1767	654	1623	1619	9933
May	1767	1391	1429	1918	590	1833	1468	10396
Jun	1777	1356	1591	1996	603	1717	333	9373
Jul	1633	1351	1602	1926	979	1760	148	9399

Aug	1440	1257	1640	1923	935	1763	490	9448
Sep	1484	1305	927	1813	1293	589	904	8315
Oct	1496	1439	1478	2141	1430	803	1000	9787
Nov	1505	1226	1502	2007	1552	1569	1301	10662
Dec	1211	1433	1043	1946	1599	264	1294	8790
	18571	16465	15844	22085	14841	16366	9469	113641

Normal Deliveries

	2011	2012	2013	2014	2015	2016	2017	TOTAL
Jan	1269	1145	869	1032	1720	1166	40	7241
Feb	1041	1105	839	1036	1258	1156	19	6454
Mar	1319	1166	890	1271	1022	1280	658	7606
Apr	1351	1148	873	1279	494	1166	1321	7632
May	1437	1086	1054	1430	453	1414	1180	8054
Jun	1380	1031	1190	1506	387	1284	253	7031
Jul	1335	1014	1174	1455	728	1340	119	7165
Aug	1127	914	1177	1456	824	1333	372	7203
Sep	1195	1019	737	1382	1007	449	729	6518
Oct	1200	1105	1039	1629	1054	616	807	7450
Nov	1125	920	1044	1441	1243	1225	1053	8051
Dec	979	1142	776	1385	1175	221	1021	6699
	14758	12795	11662	16302	11365	12650	7572	87104

C/S

	2011	2012	2013	2014	2015	2016	2017	TOTAL
Jan	331	270	264	431	434	423	51	2204
Feb	302	280	287	411	406	418	21	2125
Mar	325	289	300	467	366	437	188	2372

Apr	320	268	310	488	160	458	298	2302
May	330	305	352	488	137	419	288	2319
Jun	397	325	401	490	216	433	80	2342
Jul	298	337	428	471	251	420	29	2234
Aug	313	343	463	467	111	430	118	2245
Sep	289	281	190	431	279	140	173	1783
Oct	273	334	439	512	376	197	193	2324
Nov	270	306	458	525	309	344	248	2460
Dec	232	291	267	561	400	43	273	2067
	3680	3629	4159	5742	3445	4162	1960	26777

Neonatal deaths

	2011	2012	2013	2014	2015	2016	2017	TOTAL
Jan	45	37	42	41	69	39	1	274
Feb	43	41	44	42	59	36	0	265
Mar	46	38	33	66	36	46	14	279
Apr	39	43	40	62	16	36	2	238
May	58	40	29	46	11	29	25	238
Jun	48	48	38	51	23	35	4	247
Jul	51	36	41	44	17	24	2	215
Aug	47	32	36	63	36	32	9	255
Sep	38	40	21	41	29	11	19	199
Oct	32	30	50	69	20	12	22	235
Nov	29	33	33	61	37	21	24	238
Dec	26	41	33	72	24	8	30	234
	502	459	440	658	377	329	152	2917

Maternal Deaths

	2011	2012	2013	2014	2015	2016	2017		TOTAL
Jan	0	2	1	0	0	0	0		3
Feb	0	1	1	0	2	2	0		6
Mar	4	2	0	3	1	0	0		10
Apr	3	0	0	1	0	1	3		8
May	1	0	0	1	1	1	4		8
Jun	1	2	2	0	1	0	0		6
Jul	0	0	0	1	0	1	1		3
Aug	1	1	2	0	0	0	0		4
Sep	0	2	0	1	1	1	0		5
Oct	0	1	0	1	0	0	1		3
Nov	0	1	0	1	1	0	1		4
Dec	0	1	0	1	1	1	1		5
	10	13	6	10	8	7	11		65

Appendix iv) Compiled data

				CHECKLIST						
	2009	2010	2011	2012	2013	2014	2015	2016	2017	
Total Admitted Patient Numbers			19874	17794	17072	23697	15925	17333	9740	
Total Delivery Nos.			18571	16465	15844	22085	14841	16366	9469	
Normal Delivery			14758	12795	11662	16302	11365	12650	7572	
Caesarian Delivery			3680	3629	4159	5742	3445	4162	1960	
Mortality cases			10	13	6	10	8	7	11	
Neonatal cases			502	459	440	658	377	329	152	

Bed Numbers			233	233	250	260	265	265	265
Ambulances			2	2	2	2	2	3	3
Delivery Packs			60	60	65	67	67	68	68
Theatre Rooms			3	3	3	3	3	3	3
PERSONNEL									
Doctors			22	18	24	30	33	33	34
Nurses and Midwives			205	217	198	212	160	166	167
Paediatricians			2	2	2	2	3	4	4
Obs/Gynae			4	4	5	5	5	6	6
Cardiologists			0	0	0	0	0	0	0
Nutritionists			2	2	2	2	2	2	2
Physiotherapists/Occupational therapist			2	3	3	3	3	3	3
Pharmacy tech./Pharmacists			4	4	5	6	6	6	6
Laboratory tech.			7	9	10	10	10	10	10
Medical Records			2	2	2	1	2	3	4
Others (Cleaners and Labourers)			28	28	28	30	31	31	31

2nd February 2018

EDNA MWENDE KAVINDU
P.O Box 2171-90100,
Nairobi,
Kenya.

Email: edna.kavindu@gmail.com

Dear Edna Mwende,

REF   **Student ID:** MBA-HCM 090451/16: **Protocol ID:** SU-IRB 0158/18
       **ASSESSING SERVICE AVAILABILITY BEFORE AND AFTER THE INTRODUCTION OF THE FREE
       MATERNITY SERVICES AT THE PUMWANI MATERNITY HOSPITAL**

We acknowledge receipt of your application documents to the Strathmore University Institutional
Review Board (SU-IRB) which includes:

1. Study Proposal dated 22nd November 2017
2. Data Collection Tool
3. Study budget
4. CV

The committee has reviewed your application, and your study *"Assessing Service Availability before and
after the Introduction of the Free Maternity Services at the Pumwani Maternity Hospital"* has been granted
approval.

This approval is valid for one year beginning **2nd February 2018** until **1st February 2019.**

In case the study extends beyond one year, you are required to seek an extension of the Ethics approval
prior to its expiry. You are required to submit any proposed changes to this proposal to SU-IRB for review
and approval prior to implementation of any change.

SU-IRB should be notified when your study is complete. You must maintain a research file for at least 3
years after completion of the study. This file should include all correspondence with SU-IRB, original signed
consent forms, and study data.

Thank you

Sincerely,

Amina Salim
Regulatory Affairs Fellow

Ole Sangale Rd, Madaraka Estate, PO Box 59857 00200, Nairobi, Kenya. Tel +254 (0)703 034000