

UPTAKE OF MATERNAL, NEOANATAL AND CHILD HEALTH SERVICES PROVIDED UNDER UNIVERSAL HEALTH COVERAGE IN MACHAKOS COUNTY, KENYA

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DECLARATION

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DEDICATION

I dedicate my thesis to my family, my siblings and my master's program classmates.

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A unique feeling of gratitude goes to my beloved parents and instructors for their words of motivation and push for tenacity. Indeed, at all times I will appreciate the efforts they have made, especially in assisting me develop my technology skills, for the several hours of proofreading. I similarly give special thanks to my very able supervisors Dr. John Oyore and Dr. Isaac Mwanzo, who have relentlessly aided me through the journey. In fact, they have been my best cheerleaders. Finally, I will not forget to appreciate the community health department that offered me the opportunity to pursue my Master's program as they fed me with the appropriate knowledge. I profoundly thank you.

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LIST OF ABBREVIATIONS/ACRONYMS

ANC	Anti-Natal Clinic
CBS	Community-Based Service
CD	Communicable Disease
CDC	Centres for Disease Control
CHCs	Community Health Committees
CHEWs	Community Health Extension Workers
CHVs	Community Health Volunteers
CI	Confidence interval
GOK	Government of Kenya
HBM	Health Behaviour Model
KHHUES	Kenya Household Health Expenditure and Utilization Survey
KMFL	Kenya Master Facility List
KNHA	Kenya National Health Accounts
KQMH	Kenya Quality Model for Health
LMICs	Low - and Middle-Income Countries
MCIDP	Machakos County Integrated Development Plan
MDGs	Millennium Development Goals
MNCH	Maternal, Neonatal and Child Health
MNCH/FP	Maternal, neonatal and Child Health/Family Planning
MOH	Ministry of Health
NACOSTI	National Council for Science, Technology & Innovations
NCD	Non-Communicable Disease

NGOs	Non-Governmental Organizations
NHIF	National Health Insurance Fund
NHIS	National Health Insurance Scheme
NSSF	National Social Security Fund
OOP	Out-of-Pocket
OR	Odds ratio
RA	Research assistant
RMNCAH	Reproductive Maternal Neonatal Child and Adolescent Health
SDG	Sustainable Development Goals
SPSS	Statistical Package for Social Science
TB/HIV	Tuberculosis/Human Immunodeficiency Virus
UHC	University Health Coverage
UNDP	United Nations Development Programme
WBG	World Bank Group
WHA	World Health Assembly
WHO	World Health Organization
WRA	Women of reproductive age

DEFINITION OF OPERATIONAL TERMS

Catastrophic Health Expenditure Is a situation whereby the money spent by individuals as out of pocket for healthcare is more than a specified percentage of their total household expense, such as 10% of total expenditure or 40% of non-food expenditure, Paola *et.al* (2018).

Community Health Volunteers This refers to the group of trained individuals who work under the guidelines of Ministry of Health to provide healthcare services within communities on their own volition and are linked to a healthcare facility located within their community (Scott *et al.*, 2015).

Health financing WHO (2014) defines health financing as the process of mobilizing, accumulating, and allocating finances to cover the healthcare needs of the people both within the community or individually within a given system of health. It is therefore a combination of out of pocket, health insurance, external aid and government taxes.

Health Insurance This refers to the system of payment for

healthcare services where the users pay in advance for a healthcare risk that they will be covered for, and typically includes medical bills, hospital admission, laboratory tests and medication. Notably, some health insurances are voluntary, while others are not (Mathauer, 2008).

Health Systems

Health system refers to an organization of resources including capital, human resource, technology, supply chain networks as well as service delivery and governance, which are geared towards the provision of health needs of target population (CDC, 2012).

Out of Pocket (OOPs)

This refers to the direct payments made by individuals to healthcare providers at the time-of-service use when they do not have insurance, and the government does not provide either localized healthcare coverage or universal health coverage. This excludes any prepayment made for health services by health insurance, (WHO, 2017c).

Sustainable Development Goals

SDGs are defined as a cross-sectorial collection of goals that countries are

foreseen to achieve by 2030, which act as a blueprint for bringing a better future for generations (UNDP, 2015)

Universal Health Coverage

UHC has been defined by WHO (2018a) as the quality care that is offered to the individuals in the community without suffering financial hardship. The healthcare services range from basic treatment, to other health promotion activities, such as palliative care, rehabilitation, and even prevention of diseases and promotion of safe healthcare practices.

Maternal Neonatal Child Health

Services offered to women of reproductive age before, during and after pregnancy and services offered to their newborns and children. The study focused on skilled delivery, antenatal care, family planning and immunization. These four indicators are being monitored by WHO under UHC coverage index (WHO, 2019a).

ABSTRACT

Universal health coverage (UHC) offers an essential package of health services to a wide range of people while protecting citizens financially in case of an illness. UHC is given a high priority globally by the UN sustainable development goal (SDG) as a health-related aim. Hence, the national health system of Kenya prioritized UHC. The WHO has been monitoring of UHC progress through follow up of four MNCH (Maternal, Neonatal, Child Health) indicators; Antenatal care, skilled deliveries, immunization and family planning. MNCH services have received a lot of investment over the years but still women and children are dying. MNCH services are part of essential services in Kenya. This study aimed at assessing the uptake of universal health coverage provided MNCH services along with factors affecting the uptake. This has remained undocumented since the initiation of UHC pilot study in December 2018 in Kenya's Machakos County. A descriptive cross-sectional study design was used with a sample size of 422 respondents. This study was undertaken in Machakos Sub-County, focusing on women of reproductive age (WRA). A researcher administered questionnaire, interviews and focused group discussions were adopted for data collection. SPSS version 26 application was used to analyse data. Both descriptive and inferential statistics were deployed in the analysis. Overall, first level analysis showed that there was a significant association between demographic factors at (.05), χ^2 (9, N = 145) = 27.118, P <.001, supply side factors significance at (.05), χ^2 (13, N = 145) = 21.872, P <.001, patient related factors at (.05), χ^2 (9, N = 145) = 24.553, P <.001 and level of uptake of MNCH services. Further a second level analysis divulged that, time taken to reach facility (OR 12.26; 95% CI 1.07 to 140.48) and a perception that a CHV could attend to them during an emergency (OR 4.14; 95% CI 1.23 to 13.91) were significant patient related factors. Supply side factors found to be significant were visit from a CHV (OR 125.93; 95% CI 18.37 to 863.27), a perception that services were of quality (OR 684.411; 95% CI 50.65 to 9248.93, adequacy of staff (OR 1.00; 95% CI 1.0004 to 0.021 and adequacy of hospital commodities (OR 19.83; 95% CI 1.67 to 235.93). The study recommends that the National and county governments should conduct social mobilization to increase FP uptake, make increasing CHV coverage a priority, conduct community action to increase insurance coverage. In addition, the County government should conduct customer care trainings on their staff. Similarly, it would be progressive for national government to develop a UHC policy that puts into consideration both supply side and patient related factors.

CHAPTER ONE: INTRODUCTION

1.1 Background of the Study

Universal Health Coverage (UHC) refers to how health services are acquired by all people in need without going through financial hardship when paying for the services. More so, UHC is considered across three large areas: the extent of financial protection, the population covered, and the range of services made available (WHO, 2018a). Approximately 100 million people are driven into great poverty (living on 1.90 USD or less a day) because they are forced to pay for their healthcare (WHO, 2018a). Another WHO (2019a) study reveals that about one in two people around the world do not have optimal coverage of essential health services, and about 930 million people, or 12 percent of the global population, spend more than a tenth of their household budget paying for healthcare. It is against this background that the United Nations unanimously adopted Universal Health Coverage (UHC) as an important component of international development on December 12, 2012, rallying the provision of affordable, quality health care services to people by governments (WHO, 2012). The Agenda 2030, along with its 17 Sustainable Development Goals (SDGs), committed all United Nations Member States, including Kenya, to put in place the appropriate measures and investments needed to realize the targets. The third target highlights the need to promote wellbeing of the population at all ages and ensure healthy lives (WHO, 2015).

Health yields economic dividends: healthy women and children can develop better and become productive adults, which could contribute to a country's economic growth. Maternal, Neonatal, and Child Health (MNCH) services have

been part of the essential package for health in Kenya (KHSSP, 2018). Moreover, the WHO monitors the MNCH indicators to assess UHC progress. These services have received huge investment over the years, but still, women and children are dying from preventable causes (GOK, 2017). On average, 800 women die daily from preventable causes linked to childbirth and pregnancy. Developing countries encounter 99% of these deaths (CDC, 2014). About 14 million children did not get vaccinated with the initial dose of the DPT vaccine, while 5.7 million of these infants were partly vaccinated (WHO, 2019c). Moreover, 1.1 billion women aged 15-49 years have a need for family planning, yet 270 million of them have an unmet need for contraception (WHO, 2019d).

In Kenya, good health is a constitutional right (Government of Kenya, 2010). Kenya is among the many countries in Africa that have also pledged to adopt universal health coverage (UHC). As per Vision 2030, the Cabinet Secretary of Health, Sicily Kariuki said, "The Universal Health Care Goal aims at protecting citizens from out-of-pocket expenditure on health services." This remark shows a positive political commitment towards UHC.

MNCH services require financial resources to meet their set goals. The paramount expenses in service delivery are hospital care, human resources, and medical supplies. Financing for health care in developing countries is supplied by a blend of external aid, government spending, and private spending. According to Joseph and Rhatigan (2020), financing is a major health care delivery barrier in low-income countries, and most of them are within sub-Saharan African countries. Most families spend a huge amount on healthcare in

the sub-Saharan region. This creates a huge barrier to accessing health services, especially MNCH.’

WHO is monitoring MNCH services using a UHC coverage index and four services are included namely antenatal care, skilled delivery, family planning and immunisation (WHO, 2019a). These are the MNCH services that the study focused on.

1.2 Problem Statement

Health services in Kenya are largely provided in public facilities (47.5%) (KHMFL, 2019). These facilities depend primarily on government finances and donations. Kenya allocated 6.7% of its total government expenditure to health (KHSSP, 2018), yet the Abuja Declaration recommends that countries allocate 15% of THE (WHO, 2001). The UHC pilot was meant to increase uptake of MNCH services and protect women from incurring out-of-pocket expenses. OOP accounts for 31% of total funding for health, and this has not changed much in the previous years (KNHA, 2016). This could bar women and children from accessing essential services like MNCH. Prepaid health financing modalities cushion citizens from excessive out-of-pocket expenses. Insurance coverage in Machakos is at 19.7%, considering that it is among the counties with a catastrophic health expenditure (7.5%) that was above the national average of 6.2% (MOH-KHHUES, 2013). UHC involves the provision of an essential package of services that, in Kenya, includes MNCH services (KHSSP, 2018). MNCH indicators are among the WHO essential services that countries are required to use to monitor UHC (WHO, 2019a). Deliveries by a skilled birth

attendant in Machakos are at (47.5%) (KHMFL, 2019). These facilities depend primarily on government finances and donations. Kenya allocated 6.7% of its total expenditure to health (KHSSP, 2018), yet the Abuja Declaration recommends that countries allocate 15% (WHO, 2001). The UHC pilot was meant to increase uptake of MNCH services and protect women from incurring out-of-pocket expenses. OOP accounts for 31% of total funding for health, and this has not changed much in the previous years (KNHA, 2016). This could bar women and children from accessing essential services like MNCH. Prepaid health financing modalities cushion citizens from excessive out-of-pocket expenses. Insurance coverage in Machakos is at 19.7%, considering that it is among the counties with a catastrophic health expenditure (7.5%) that was above the national average of 6.2% (MOH-KHHUES, 2013). UHC involves the provision of an essential package of services that, in Kenya, includes MNCH services (KHSSP, 2018). MNCH indicators are among the WHO essential services that countries are required to use to monitor UHC (WHO, 2019a). Deliveries by a skilled birth attendant in Machakos are at 47.7%, while fully immunized children at one year are at 70.4%. This falls below the WHO standard of 85%. During pregnancy, 67.2% of women went for at least one antenatal care visit, while the average family planning uptake among women 15–49 in Machakos was 68% (MOH-MCIPD, 2018). This shows that the county has not achieved the Kenya RMNCAH investment framework ambitions that target increasing: 1) 4+ ANC visits to 69 percent; 2) skilled deliveries to 87 percent; 3) contraceptive use by 73 percent for currently married women; and 4) full immunization to 76 percent by 2020 (GOK, 2017). Based on this

background, the study seeks to assess the level of utilization of UHC-provided MNCH services and the factors that influence their uptake.

1.3 Justification of the Study

UHC is a global and a national priority in Kenya. The study was executed in Machakos County, which is among the four counties (Kisumu, Nyeri, and Isiolo) identified by the Ministry of Health for the pilot phase of UHC in the country. Machakos County's NHIF registration is relatively low, yet the county has a higher catastrophic health expenditure than that of its mother country, Kenya. Machakos Town Sub county is the largest, with the highest number of WRA and public health facilities. It also hosts the county's headquarters and the county level five hospital. MNCH services have been part of essential services in Kenya. WHO is monitoring MNCH services under the UHC coverage index for various countries. Despite the tremendous investment rendered in MNCH over the years, the county has not achieved its investment framework targets and those of WHO. This study has the potential to inform whether the UHC investment influenced MNCH service uptake and reduced OOP expenditures for WRA. It is an important study as there has not been no such investigation in the county.

1.4 Research Questions

1. What is the level of uptake of MNCH services provided under Universal Health Coverage in Machakos County?
2. What supply side factors influence uptake of MNCH services provided under Universal Health Coverage in Machakos County?

3. Which patient related factors influence uptake of MNCH services provided under Universal Health Coverage in Machakos County?
4. What barriers are encountered while seeking MNCH services provided under Universal Health Coverage in Machakos County?

1.5 Research Hypotheses

The following were the research hypotheses

H01: There is no statistically significant relationship between supply demographic factors and the uptake level of Universal Health Coverage provided MNCH services.

H02: There is no statistically significant relationship between supply side factors and the uptake level of Universal Health Coverage provided MNCH services.

H03: There is no statistically significant relationship between patient related factors and the uptake level of Universal Health Coverage provided MNCH services.

Chi Square results showed that socio-demographic & economic, supply side and patient related factors had a significant relationship on level of uptake of MNCH services under UHC. Further, from the multivariable logistic regression, supply side factors found to be significant include staff attending to WRA were adequate, hospital commodities and supplies were adequate, receiving a visit from a CHV, and feeling that services were of quality. Two patient-related factors, time to reach the facility and feeling that CHV can attend to them

during an emergency, had a significant effect on the uptake of Universal Health Coverage MNCH services.

Four socio-demographic & economic factors—marital status, education level, employment, and monthly income—had a significant influence on the uptake of Universal Health Coverage MNCH services.

1.6 Study Objectives

1.6.1 Main Objective

Carry out an assessment of the level of uptake and factors influencing uptake of MNCH services provided under Universal Health Coverage in Machakos County.

1.6.2 Specific Objectives

1. To determine the level of uptake of MNCH services provided under Universal Health Coverage in Machakos County.
2. To evaluate the supply side factors influencing uptake of MNCH services provided under Universal Health Coverage in Machakos County.
3. To investigate patient related factors influencing uptake of MNCH services provided under Universal Health Coverage in Machakos County.
4. To establish the barriers encountered while seeking of MNCH services provided under Universal Health Coverage in Machakos County.

1.7 Study Significance

This study aimed at assessing the uptake of UHC-provided MNCH services and factors influencing the uptake the services. Findings from the study were geared

towards informing the national and subnational governments and other stakeholders on the level of success or failure of the investment made during UHC pilot. The research identified successes and issues that hampered utilization of MNCH services provided under UHC in the sub-county. The lessons learned are envisioned to be part of guiding factors during UHC scale-up in the other 43 counties. In addition, the findings will help the county government maintain MNCH standards set by UHC pilot and improve health and wellbeing of women and children.

1.8 Study Limitations and Delimitations

Study Limitations: Language barrier was a challenge anticipated to affect data collection but was mitigated by using KMTC students who could use Kamba language. Hiring of qualified research assistants was another mishap as they are expensive. The researcher used medical students from KMTC undergoing training as qualified research assistants would be expensive. The students were however taken through rigorous training. The data gathered from the study was used to inform associations, not causality.

Study delimitations: The study was limited to Machako Sub-County only. This is mainly due to cost and time constraints. The UHC MNCH situation maybe different in other sub-counties. Women with a child older than 48 months were excluded so as to control recall bias. Those that had lived in the sub-county for less than one year were also excluded as they may not give a good representation of the sample of interest.

1.9 Conceptual Framework

A conceptual framework was described by Robson (2011) as a written or visual product that expounds, either in graphic or narrative manners, the core aspects to be studied as important factors, variables, or concepts. Conceptual frameworks guide the research path and offer a credible foundation. The conceptual framework (Fig. 1.1) below explains how independent variables are associated with the uptake of UHC and MNCH services. The research used the health belief model (HBM). Glanz K. et al. (2015) postulate that the health belief model assumes that "people are largely rational in their actions and thoughts and will take the best action that will support health. This developed as a consequence of feeling that it has the possibility of addressing negative health.

Conceptual Framework on Uptake Universal Health Coverage

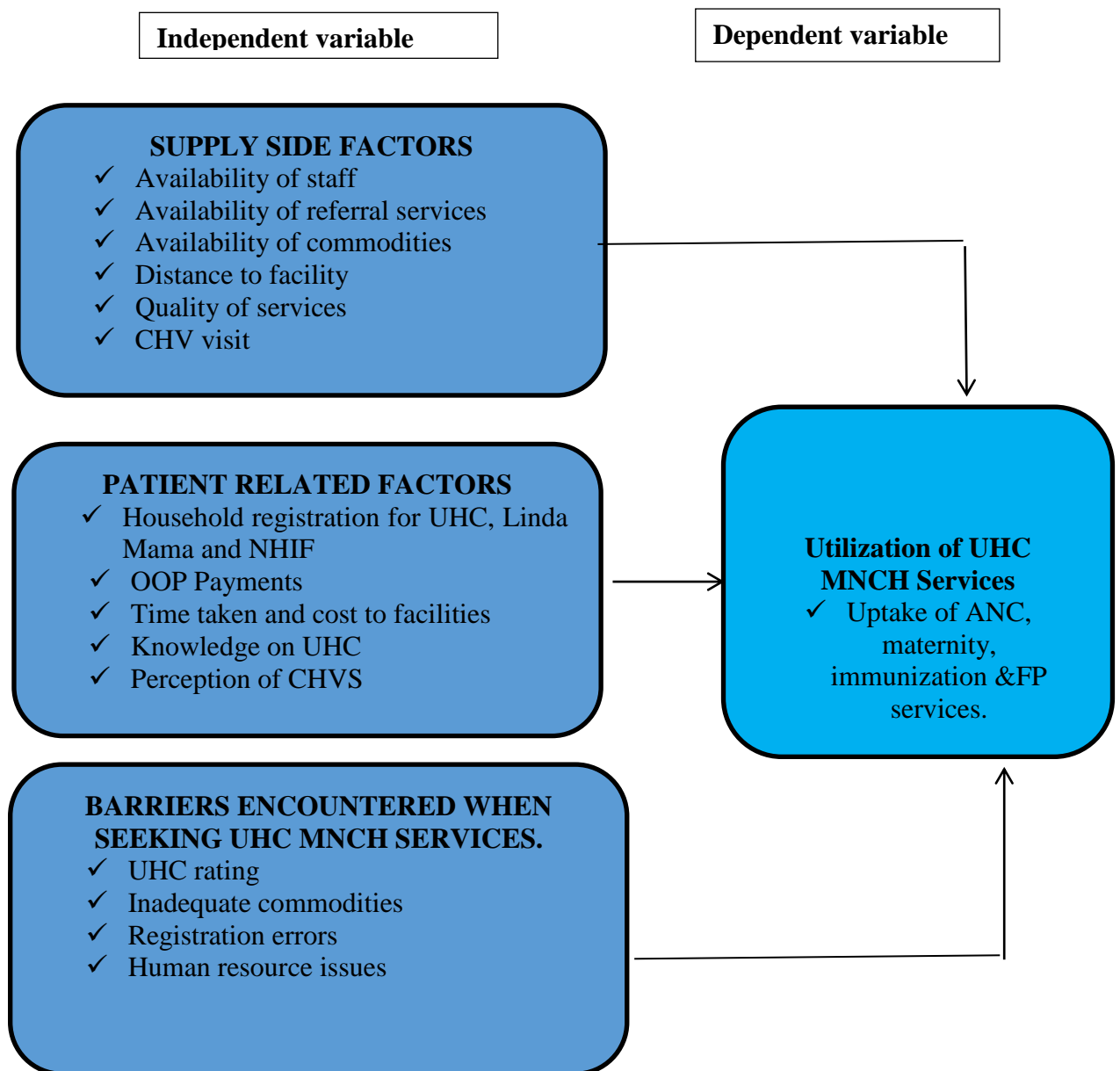


Figure 1.1: Conceptual Framework on Uptake of Universal Health Coverage MNCH services

(Adopted from *Health Belief Model* Glanz K. et al. (2015))

CHAPTER TWO: LITERATURE REVIEW

2.1 Overview

The chapter encompasses a comprehensive review of the literature on the problem under study, with a focus on the following sub-headings:

2.2 Evolution and relevance of UHC

UHC2030 is the global movement assigned to the 193 member countries of the United Nations to establish resilient systems for health towards achievement of universal health coverage (WHO, 2017a). UHC2030 seeks to provide a cross-sectoral platform to enhance working together among countries and global collaborations with the aim of strengthening health systems. It recommends for increased political dedication towards UHC and facilitates answerability along with the sharing of knowledge (WHO, 2017a). Low and middle-income territories (LMICs) are increasingly embracing UHC as a prime health policy. To meet UHC goals, states have purposed to expand the variety of services they provide to their citizenry by scaling up the population covered with affordable and effective health services and decreasing the amount of direct costs paid to acquire health care services (Chan M., 2016).

An upgraded health performance system requires regional, national, and global measures in three interconnected health system policy domains. These are health finance, service delivery, and health governance, as stated in the global commitment to achieving UHC. Kenya is among the global countries that have so far included the UHC agenda as one of their four development agendas by 2022 (WHO, 2017a). According to WHO (2019a), half of the world's

population doesn't have all-inclusive coverage of requisite health services. Additionally, people are being driven into extreme poverty (defined as living on less than 1.90 USD or equivalent daily) as they have to pay for their healthcare. Around 12% of the earth's population (about 800 million persons) spends about 10% of their household budgets on healthcare. Further, 32% of health expense per state is derived from payments from individual's pockets.

In the same vein, globally, MNCH services that are considered essential in most countries are marred by challenges. About 800 women perish every day from preventable causes associated with pregnancy and childbirth. Around 99% of life losses occur in 3rd world countries (CDC,2014). Nearly, 270 million women have an unmet need for birth control (WHO,2019d). Close to 14 million children didn't get the initial dose of the DTP vaccine, and 5.7 million are partially vaccinated (WHO, 2019c). Machakos County faces the same MNCH challenges (MCIDP 2018).

2.3 UHC in the Kenyan Context

In 2018, Kenya embraced universal health coverage as a precedent matter within the big four priorities, as announced by His Excellency President Uhuru Kenyatta. This was with the vision that by the year 2022, all Kenyans would be able to access a vital package of health resources while preventing the threat of a financial catastrophe (Kenya Policy Brief, 2018).

Besides the UHC declaration, Kenya had introduced the free maternity initiative named "Linda Mama Initiative," which was introduced in June 2013, in a bid to reduce maternal mortality while reimbursing the facilities where the deliveries

took place and facilitating the removal of user fees at level 2 and 3 health facilities (NHIF, 2013).

Another public declaration that also supported health care was the removal of the user fee for all secondary school students in public facilities under the "Edu Afya Program" with support from the NHIF scheme to reimburse the public hospitals serving the students (NHIF, 2018). With all these government declarations and guidelines, UHC uptake within the counties found ground to support the initiative.

2.4 Approach to Universal Health Coverage in Kenya

The UHC concept that has been implemented in varying strategies, with a common ground that aims at extending healthcare access as broadly as possible as well as setting the minimum health quality. It is essentially applied through regulation, taxation, and legislation. UHC ensures that the basket of health comprises and is not limited to health rehabilitation, prevention, and promotion of health services that offer palliative care, and quality curative services that are sufficient without subjecting citizens to financial hardship (WHO, 2016b). In December 2018, Kenya took a first step in introducing a UHC pilot in four counties, namely Machakos, Isiolo, Kisumu and Nyeri. The financing model involved increased budgetary allocation to the counties for operation and maintenance, the provision of funds at KEMSA for commodities and supplies, and training and equipping CHVs. This model adopted a push system for the health system, and lessons were expected to be drawn and used to inform the UHC scale-up. The table 2.1 below illustrates what the Kenyan UHC road map looks like; it tends to describe its deliverables come the year 2022.

Table 2.1: Universal Health Coverage Roadmap

Availability of Essential Services	Coverage of Interventions	Essential Financial Protection	Risk
1. 100% of primary facilities and hospitals proving the essential package	At least 80% of hard-to-reach population utilizing essential CD & NCD prevention and control interventions.	100% enrolment into insurance	
2. 100% of population living within 5km of service unit	At least 80% of expected utilization of essential curative interventions amongst hard-to-reach populations	At least 90% of the population with HH expenditures on health not exceeding 40% of their capital HH consumption	
3		50% reduction in out-of-pocket payment (OPP)	

2.5 Role of Health Insurance in UHC

In the United States, financing the health landscape is a common responsibility split by both the government and individually-owned insurance entities. As such, the U.S. is termed a multi-player system. The National Health Interview Survey reports that for persons under 65 years old in America, only 18.2% were not insured (CDC 2011). Such schemes are envisioned to effectively support UHC implementation in developed countries.

According to WHO (2005), a lot of low and middle-income countries encountered difficulties in sustaining adequate finances for health owing to large number of indigents. Health insurance schemes like social health insurance are being put forward by international policy makers in such

situations. There are two types of social health insurance models in third world states. These include the community-based (that operate at community levels) and the government-based health insurance plans (Acharya et al., 2017). In Ghana, for instance, financing for health is availed through the National Health Insurance Scheme (NHIS), which came into being after the endorsement of the National Health Insurance Act in 2003.

Kenya took several health system and financing reforms to increase essential medicine availability, improve quality health coverage, and reduce OPP (Smart Lessons, 2015). Community-based and microfinance insurance organizations, private companies, and NHIF offer health insurance in Kenya. NHIF has 18% coverage of the population, while private, microfinance, and community-based health insurance provide 2% coverage. In Machakos County, the residents were expected to register and receive a UHC insurance card. The government paid for the UHC insurance of the residents and wanted to draw lessons from the model. UHC's main goal is to reduce 32% of households' expenditure, as figure 2.1 illustrates below. Figure 2.2 below shows the percentage of Kenya's population with insurance coverage between 2002 and 2016.

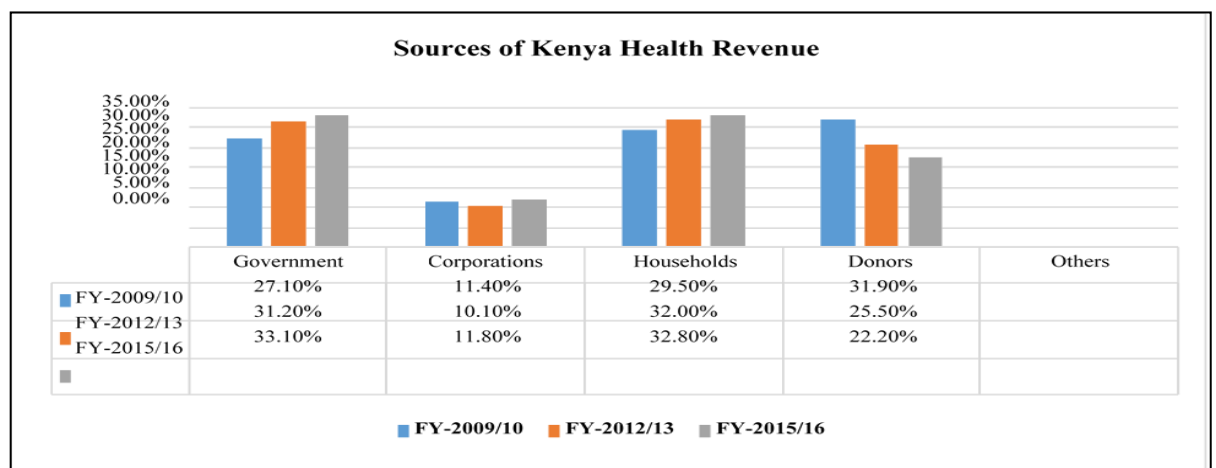


Figure 2.1: Sources of Kenya Health Revenue

(Source: KNHA, 2016)

The Figure 2.2 below shows trends of NHIF uptake between 2002 to 2016. In 2018 the NHIF insurance coverage was 16.7% (Kenya National Bureau of Statistic, 2019).

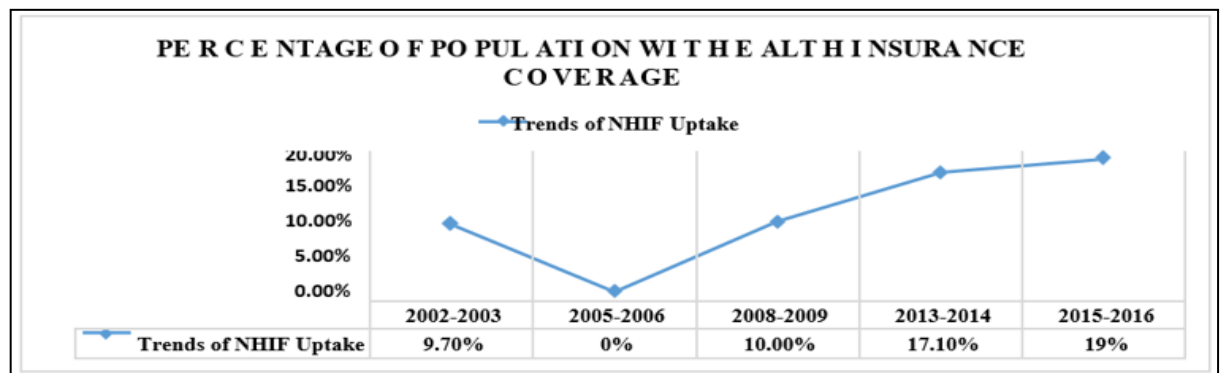


Figure 2.2: Percentage of Population with Health Insurance Coverage

(Sources: Edwine et. Al., 2018)

2.6 Implication of User Fees on the Level of Uptake MNCH Services

The UHC goal has been integrated by most African countries into their national health strategies. Penfold et al. (2007) conducted a study to review deliveries that had fee exemptions in government and faith-based facilities in Ghana in 2003. Following two years of introduction, they reported an increase of between 5% and 12% comparing the period after policy and before implementation. The study highlighted that out-of-pocket expenditure was still being experienced by families with user fees for maternal health nominally removed (Witters et al., 2007; Pearson et al., 2011; and Richard et al., 2013). Research conducted in India by Unnikrishnan et al. (2020) found that the overall uptake of a completely free MNCH scheme was optimum at 100.0%. In the same way, it was observed during the free maternity era an upsurge in ANC attendance

occurred, as outlined in a Kenyan study by Njuguna, Kamau, and Muruka (2017). A study in Nepal done by Bhatt et al. (2018) showed an increase in institutional deliveries after the introduction of free delivery care. On immunization, a research by Hu *et al.* (2018) in China depicted that BCG and polio vaccinations at birth were 92.0 percent. At 6, 10, and 14 weeks, another finding revealed that the vaccination rate of pentavalent, OPV, PCV, and rotavirus vaccines was high, but uptake of other vaccines like measles declined at 9 and 18 months.

2.7 Patient related Factors and their Implication on MNCH Service Delivery

2.7.1 Implication of User Fees (OOP) on the MNCH Service Delivery

The researcher reviewed two different perspectives on user fees, where in Nepal the user fee was abolished and in Cambodia it was introduced, and arrived at the following outcomes: A study conducted by Witter et al. (2011) in Nepal, where nationwide free delivery care was introduced in 2009, established that the number of facility deliveries in 22 purposefully identified facilities had depicted a 19% increase. Despite the increase in service delivery, the providers identified some challenges, such as poor management of employees, low capacities, a knowledge gap on the free services, and the need for more resources, especially for drugs, due to the increased demand (Witter et al., 2011).

A user fee was introduced in Cambodia in 1997 with the aim of generating cash to boost the salaries of health staff in terms of their basic pay. It was also meant to discourage employees from seeking unauthorised monies from patients and pursuing additional jobs amid official working hours. The finances were also

envisioned to support the operational and maintenance costs of health facilities, resulting in improved health care quality. This user fee introduction led Cambodia to suffer high child, infant, and maternal death rates and caused substantial out-of-pocket expenses, leading to aggravated poverty (Khun & Manderson, 2008).

To conclude this review, it's clear that changing and abolition of systems of user fees is quite challenging for policymakers and governments across the globe in the face of a need to boost the standard of health services in government health facilities. The abolition of user fees brings with it both positive and negative effects.

Health insurance is meant to protect citizens from excessive out-of-pocket spending. Despite previous efforts to maintain this, insurance coverage has remained low. An investigation by Barasa et al. (2018) exhibited that in 2015–2016, the proportion of people with health indemnity (NHIF) in Kenya was 19%. Another study conducted in Nairobi City County by Mutungi (2018) found that the uptake level of the Linda Mama program was 39.2%.

2.8 Supply Side Factors and Influence on MNCH Service Delivery

A study conducted in Nigeria, Ghana, Burundi, and Senegal affirms that failure or delayed reimbursement of these resources to health facilities is a key cause of failure or poor quality of health care. Thus, with shortages of drugs and supplies, no replacement of revenue sources, and inadequate encouragement of health workers, the result is substandard care (putting the policy's health benefits at a disadvantage) or recouping health care fees from clients in

alternative ways (invalidating the financial gains of the policy) (Witter et al., 2010 & 2007; Galadanci et al., 2010; and Nimpagaritse & Bertone, 2011).

Previous studies have shown that with budget adequacy, the availability of lifesaving MCH supplies and commodities is high, as seen in research conducted in Ethiopia by Damtew et al. (2019). Human resources are a vital arm of service delivery. A study conducted in South Sudan by Mugo et al. (2018) found that the inadequacy of staff in MCH was a major barrier to the provision of quality services.

Studies have shown that even during UHC, referral of clients from one facility to another is common. Research conducted in India by Shroff et al. (2020) indicated that managing patients in hospitals remains a challenge even after UHC implementation because some of the hospitals have well-equipped infrastructure as compared to others, which necessitate referrals.

2.8.1 Role of Community Health Volunteers in UHC implementation

Community-based services (CBS) play a vital role in providing universal coverage (WHO, 2016a). CBSs have been pivotal in successful eradication and have gone a long way to further improving access to TB and HIV treatment, as well as child and maternal healthcare. More recently, CBS has aided in the response to dealing with non-communicable diseases (NCDs). Thus, developments in mental care, palliative care, NCD detection, and rehabilitation within the community-based program will aid in improving the UHC indicators (WHO, 2016b). The literature on CHVs' performance is generally scanty. Government evaluation and monitoring globally relies on global health knowledge, the percentage of household coverage, and the monthly reporting

rate. This paper will look at the actual health activities performed by CHVs in uplifting the UHC within Machakos Town Sub county.

2.9 Barriers of Implementation of Universal Health Coverage

According to WHO (2016b), to attain UHC, service provision and the population covered by certain health services have to be increased, as well as financial safety for less popular communities. Nevertheless, studies conducted in other countries show that this process has never lacked challenges. This paper aims to look at health sector and community challenges that are likely to hinder uptake of UHC.

2.9.1 Health Sector barriers

Service Coverage Situation: An investigation by Chhabi et al. (2019) in Nepal found that a low UHC index and an awareness insufficiency in the utilization of health services existed. In addition, there was an inadequacy of space to provide health services. There was also a double burden of infectious and non-transmissible ailments in health facilities and the community. The problem of safe water, sanitation, and hygiene was also identified as a barrier. Hence, these were all the main challenges that faced Nepal's coverage of health services. Despite the differences in level of UHC achievement in every country, the global goal is the same, and similar challenges may be expected even in Kenya.

Government Leadership: To achieve UHC, robust government goodwill is essential, even more so than external support from donors or investors. Chhabi et al. (2019) found that the main factors hindering UHC achievement were political ignorance about health services as a result of previous structures of

service delivery as well as donor-dependent health financing approaches. Also, poor dynamism in the health system was another cause.

2.9.2 Community barriers

This is focused on factors influencing the uptake of health insurance at the community level.

Employment and poverty index: Kimani et al. (2012) found that the poor were less likely to have a form of health insurance because of their incapability to pay the set premiums. The findings also showed that those in informal employment sectors were less likely to be registered on NHIF than those in formal employment. On the other hand, membership in private health insurance in Kenya is quite limited and commonly accompanied by costly premiums; hence, this benefits the richer community (Ministry of Health, 2009).

Literacy level and awareness: A study by Mathauer, Schmidt, and Wenyaa (2008) found that a number of Kenyans, especially those in the informal sector, had not come by the idea of health insurance. The study also found that heavy penalties by NHIF led to low uptake across the country. In another study done by Kiplagat et al. (2013), literacy level was found to have played a crucial role in the enrolment for health-related insurance.

2.9.3 Summary of Literature review and existing gaps

In summary it is evident from the literature review that various countries around the world and in Africa have implemented various measures in MNCH towards achievement of UHC. The most popular measure is removal of user fees for MNCH services and enrolment of citizens for various health insurances. The findings also indicate that both supply side and patient related factors have an

effect on utilization of MNCH services. Barriers towards access of MNCH services are also highlighted.

However, there are few studies seeking to determine out-of-pocket spending on MNCH services. On another note, a few studies outline the perception of WRA on CHVs and a deep dive on their movement arrangements within various households. There is also no study carried out in Kenya or even Machakos County on MNCH services after the UHC pilot.

CHAPTER THREE: MATERIALS AND METHODS

3.1 Overview

This chapter outlines the study design, target population and sample size, sampling procedure, data collection techniques, data collection instrument validity and reliability, data analysis, and ethical considerations that were employed during this study.

3.2 Research Design

The research adopted a descriptive cross-sectional approach. The required data was collected at a particular time (January to December 2021) from women of reproductive age. The design chosen was appropriate for the study since the study was involving collection of data at a given time, it's time and cost effective. The also method allows for determination of relations between dependent and independent variables.

3.3 Study Variables

3.3.1 Dependent Variable

The problem under study in research is usually the dependent variable. In this case, it is the uptake of universal health coverage provided MNCH services. Utilization of UHC MNCH services was used as a proxy for uptake of services. This means the extent to which UHC MNCH services were utilized by WRA. It involved determining the uptake of ANC, FP, skilled delivery, and immunization services by women aged 15-49 years in Machakos County. Each of the four variables was dichotomised by asking respondents whether they used or didn't UHC MNCH services. Then average of those that reported to have

used and average of those that didn't use the services was obtained. These two averages were then used in the analysis.

3.3.2 Independent Variables

An independent variable is a factor that the researcher expects to influence dependent variables (the main area of the study). These factors include:

Supply-side factors influencing the uptake of UHC and MNCH services

Here, facility-based factors like availability of staff, referral services, and commodities

The distance to the facility and CHV's visit were examined. Their influence on the uptake of UHC was also explored.

Patient-related factors that influence the uptake of UHC and MNCH services

The beneficiaries of UHC MNCH services are women of reproductive age. Factors like OOP, registration for insurance, cost, and time to facility were examined to see how they influence uptake of UHC-provided MNCH services.

Barriers encountered when seeking UHC MNCH services

The researcher focused on demand-side hindrances to the uptake of UHC MNCH services.

3.4 Study Location

The research was carried out in Machakos Town sub-county, which houses both the headquarters of Machakos County and the county referral hospital. A map is available in Appendix 2. Machakos sub-county is one of the eight sub-counties with a total of seven (highest) wards. The 2019 census indicated that the

Machakos County population of women of reproductive age is 93,354 (KNBS, 2019). An assessment of the uptake of UHC-provided MNCH services within the sub-county was done among WRA. The sub-county has 21 community units (KMFL, 2019). The researcher was interested in CUs linked to the sampled facilities (11).

3.5 Population under study

The main population under investigation was women who are of reproductive age (15–49 years old) in a household with a child aged 0–48 months. Additional information was collected from county health management officers (CHMT) and CHVs.

3.5.1 Inclusion Criteria

The participants sampled in the research were women of reproductive age with children aged 0-48 months residing in the sub-county for at least one year since UHC's inception (January 2019). Only those who consented were included in the study.

3.5.2 Exclusion Criteria

The study excluded women of reproductive age who were mentally ill and those who were feeling unwell at the time of data collection.

3.6 Sampling Methods and Sample Size Determination

3.6.1 Sampling Technique

Groves (2010) states that sampling is a technique that deals with the selection of a portion of participants from a statistical population to represent the whole population's characteristics. Machakos Town Sub County was purposefully

sampled as it houses most of public health facilities and the largest population of women of reproductive age. Both stratified random and simple random sampling were used to identify main study participants. For respondents that gave additional information purposive sampling was used. The researcher first stratified all the 17 health facilities by level (from level two to level five) within the sub-county using the Kenya master facility list. Facilities in all levels were included so as to make the results on the study generalizable. Then a third of the facilities at each level were sampled. The names of facilities in each level were written, put in a box, and then selected randomly, as illustrated below.

Table 3.1: Public Health Facilities Sampled

Level of public facility	Number of facilities in sub county (KMFL 2019)	Percentage (%)	Facilities Sampled	Ward
Level 5	1 Machakos Level v	1 facility	Machakos Level 5	Machakos Central
Level 4	-	-	None	-
Level 3	1 Mutituni Health Center	1 facility	Mutituni Health Center	Mutituni
Level 2	15 APDK, School for deaf, Approved school, GK prison, Kamuthanga, Mua hills, Muvuti, Makyau, Iluvya, Wondeni, Beyond zero clinic, Ikulu, Mikuyu, Kitanga, Peoples park dis	5 facilities	Muvuti Dispensary Wondeni Dispensary Mumbuni Dispensary APDK Dispensary Makya Dispensary	Muvuti/Kiima- kimwe Muvuti/Kiima- kimwe Mumbuni North Machakos Central Mua
Total	17	100%	7	

Purposive sampling was used to identify the county health management team. Eleven community units were stratified according to their linkage to the sampled health facilities. Then a third of CUS links per facility were picked. The names of the CUS linked per facility were written down, put in a box, and then selected randomly, as illustrated below.

Table 3.2: Community Health Units and the Linked Facilities Sample (KMFL, 2019)

Facilities sampled	Ward	Number of CUS Linked per Facility	Sampled CUS	Name of CU
Machakos Level 5	Machakos Central	3 Eastleigh, Mjini, Kitanga	1	Eastleigh
Mutituni Health Center	Mutituni	3 Mutituni, Nduu, Kivutini	1	Mutituni
Muvuti Dispensary	Muvuti/Kiima-kimwe	1 Muvuti	1	Muvuti
Wondeni Dispensary	Muvuti/Kiima-kimwe	-	-	
Mumbuni Dispensary	Mumbuni North	-	-	
APDK Dispensary	Machakos Central	2 Katelembo, Upper Kiandani	1	Upper Kiandani
Makya Dispensary	Mua	2 Mwatati, Kyanda	1	Mwatati

The community household registers of the sampled CUs were used as a sampling frame where every kth household was selected and women of reproductive age were interviewed. K (2) was calculated by dividing the total number of households in a community by the sample size. Usually, each community unit has a standard of 1000 households or 5000 people. Data gathering began at the border of a unit, where a pen was tossed to determine which household was to be interviewed first. At the household it was enquired whether there's a WRA after which informed consent was obtained and questionnaire administered. If more than one WRA was present in the

household, then simple random sampling was done to determine which woman was to be interviewed. If no WRA then the that household was skipped and the next kth household was selected.

3.6.2 Sample Size Determination for community members and CHVS

According to KNBS (2019), population of Machakos Town Sub County is 258,621. The sub-county contains 93,354 women aged 15-49 years. The sample size was determined using the Fisher's formula as shown below (Fisher, et al., 1991).

Where:

n= Desired sample size (when population target is more than 10,000), **z**= The normal standard deviation set at 1.96, which represents 95% confidence interval, **p**= The percentage of WRA utilizing MNCH services in Machakos Town sub-county, which was set at 50%. The proportion of women was set at 50% since there is no any other study done previously related to such a topic

d= Desired degree of accuracy (absolute precision), which is 5.0% (0.05)

Hence sample size was calculated as;

$$n = \frac{z^2 p (1-p)}{d^2}$$

$$n = \frac{1.92^2 \times 0.5 \times 0.5}{0.05^2} = 384 \text{ respondents}$$

Additional 10% of n was included to carter for possible non-response. Hence **n=422 WRA**. This was equally distributed in the 5 community units as illustrated below.

Table 3.3: Summary of Sample Size Determination

No	Specific Objectives	Data Collection Tool	Sampling Techniques	Target Population	Sample size
1	To determine supply side factors influencing uptake of UHC MNCH services.	Questionnaire	Systematic random sampling	Beneficiaries (WRA)	422
			Purposive sampling	CHMT	5 Respondents
2	To investigate patient related factors influencing uptake of UHC MNCH services.	FGDs	Purposive sampling	CHVs	50 CHVs (10 from each CU)
			Systematic random sampling	Beneficiaries (WRA)	5 FGDS 422
3.	To determine the level of uptake of UHC MNCH services .	KII	Purposive sampling	CHMT	5 Respondents
			Systematic random sampling	Beneficiaries (WRA)	422
4.	To examine the challenges encountered when seeking UHC MNCH services.	KII	Purposive sampling	CHMT	5 respondents
			FGD	CHVS	50
			Systematic random sampling	Beneficiaries (WRA)	422

3.7 Pre-Testing

To test the reliability, validity, sensitivity, and practicability of data collection tools, pretesting came before the actual data collection to enable the researcher to identify problem areas, reduce errors of measurement, determine the responses and interpretations of respondents, and reduce respondent burdens. Pretest was conducted in neighbouring Makueni County, Makueni sub-county,

as it has its own Makueni care for UHC. KII was conducted for the 3 county health management team members while a focus group discussion was conducted on 5 CHVs linked a CU attached to Makueni level 5. 40 WRA in the CU were sampled and the questionnaire administered. This was followed by an adjustment of the tools based on the feedback.

3.8 Validity and Reliability

3.8.1 Validity

It implies how accurately the data was collected and the study represented the study variables. This was done by following the research methodology to the letter and reviewing the data collection tools of previous similar studies. An expert review of the tools was also done by my supervisors at Kenyatta University to ascertain content validity. A pre-test of the tools was also conducted and face validity was obtained from WRA in Makueni Sub-county.

3.8.2 Reliability

This measures the extent to which the instrument of the research yields data that is consistent after repeated trials. Pretesting involved asking the same questions to 40 WRA in Makueni Sub-county and then repeating the exercise after a fortnight. Test-retest reliability was then computed. The results were correlated through Cronbach's alpha test, and a correlation coefficient of 0.83 (0.77–0.96; 95% CI) was yielded. A result of 0.7 and above from Cronbach alpha is considered acceptable (Blaxter et al., 2010).

3.8.3 Selection and training of Research Assistants (RA)

10 final-year KMTC students were trained on various data collection tools a day prior to the onset of exercise. Those speaking the local language (Kamba) obtained an added advantage. Depending on eligibility, every second household was picked by the RA, and if the household had no WRA who met the criteria, the next household was picked.

3.9 Data collection techniques

The primary data collection was done through mainly gathering quantitative data from 422 WRA using a schedule (provider-administered questionnaire) in Machakos Town Sub county in various CUs. For improved triangulation the researcher also collected qualitative data; key informant interviews that were used to collect data from CHMT, while focused group discussions were conducted on CHVS.

Secondary data was mined from the Kenya Health Information System (KHIS) to show the utilization status of MNCH services before and after UHC pilot. Utilization of four MNCH was drawn for year 2018 before UHC and presented against year 2019 after UHC introduction.

Questionnaire: Questionnaires were administered to 422 sampled women of reproductive age in the community. Trained RAs administered the questionnaires by asking the questions and filing the answers on behalf of the participants.

Key informant interviews: KIIs were conducted in a private, quiet room in various locations within the sub-county. The study engaged the 5 county health

management team members. The researcher sought permission and cooperation from the CHMT representatives to get the before the interviews. The sessions were recorded on tape.

Focus group discussion: Five FGDs were conducted on CHVs. Each FDG had 10 CHVs working in sampled CUs. The discussions were timed to ensure a maximum of 45 minutes. Two research assistants were on board, one as a moderator while the other took notes. The sessions were recorded on tape.

Table 3.3 above provides a summary of information collected from each method and the objective the data fed into. Appendix 3 has the data collection tools used in the study.

3.10 Data Processing and Analysis

Data management: Each day questionnaires were assessed for completeness. Data gathered using the questionnaire was crosschecked, cleaned, and coded on excel. Outliers and errors were rectified through a data cleaning process. Qualitative results gathered through KII and FGD were transferred and saved in a computer awaiting transcription and analysis. Both qualitative and quantitative data was kept under key and lock until analysis began.

Quantitative Data Analysis: The quantitative data amassed was synthesized using IBM SPSS version 26. Coded data from each questionnaire in excel was exported to SPSS. Descriptive data was summarized using frequency, mean, and percentages. Discrete variables were presented through frequency tables while continuous variables were summarized through measures of central tendency (means and median). Inferential analysis was done using Chi square and

Multivariate logistic regression. Chi square was used to determine existence of associations between categorical variables. Hypothesis testing was done through drawing conclusions from multivariate logistic regression output. Multivariate logistic regression was applied to evaluate the direction of significance that the independent variables have on the dichotomous dependent variable's odds ratio, confidence interval, and probabilistic values (p-value). The significance level of $P = 0.05$ at 95% CI was utilized.

Qualitative Data Analysis: Data recorded using tape recorders during KIIs and FGDs was analysed thematically. Recordings were transcribed on a word document from Kamba and Kiswahili to English. Themes were then developed as per the study objectives. Coding was done for the summary of themes to assess the frequency of related responses and discussions, which were then triangulated with the quantitative responses.

Data presentation: The descriptive statistics results were depicted systematically using tables, graphs, and charts. Chi square results were portrayed through contingency tables while Multivariate logistic regression results were presented through regression model tables.

3.11 Logistics and Ethical Considerations

Approval to carry out the research was obtained from the KU Graduate School. The Kenyatta University Ethical Research Committee gave ethical approval for the study ref no: KU/ERC/APPRVAL/VOL.1. The National Council for Science, Technology, and Innovations (NACOSTI) issued a research permit ref no: 366695. The County research committee gave approval for the study to be

conducted in the county among WRA. All participants signed an informed written consent with a promise to treat the information they provided with the utmost respect and confidentiality

CHAPTER FOUR: RESULTS

4.1 Introduction

The results on the uptake of UHC provided MNCH services in Machakos Town Sub county are presented in this chapter. The study was completed with a satisfactory response rate of 100%, and data was synthesised using the Statistical Package for Social Sciences (SPSS) version 26 and Microsoft Excel 2013 software. Results are organised into subsections so as to answer the specific objectives of the study. This study gathered both numerical and non-numerical data. Informed consent was obtained from all study participants by explaining to them the contents of the informed consent and if they agreed, then they put a signature or thumbprint on the hardcopy consent. Opportunity to ask questions on the study was also given to the sampled WRA. Researcher administered questionnaires were used to collect quantitative data from 422 WRA. Five Focus group talks with community health volunteers (CHVs) and key informant interviews (KIIs) with five members of County health management team were used to collect qualitative data. Table shows the distribution of respondents by CU

Table 4.1: Distribution of Respondents by sampled Community Units

Name of CU	No of households with	No of FDGs (5)	KII respondents from County Health
Eastleigh	85	1	1. County Director health-Medical services 2. County Director health-Public health 3. County Pharmacist 4. County public Health Nurse 5. County Health Records
Mutituni	85	1	
Muvuti	84	1	
Upper Kiandani	84	1	
Mwatati	84	1	

4.2 Descriptive analysis

4.2.1: Socio-demographic and economic characteristics

The median age was 28 years (1st quartile 25 years and 3rd quartile 34 years), with 48.8% of the participants being younger than this age. The bulk of them were married (70.9%), followed by never married (13.7%), separated (11.4%), and cohabiting (4%). Over a half of the participants (51.4%) had completed secondary education, while 35.8% had completed college or university. Formal employment accounted for 30.6% of participants, while self-employment accounted for 37.4% and casual labourers accounted for 10.7%. As concerns religion, the majority of respondents (95%) were Christians, with the remainder (5%) being Muslims. The participants' median monthly income was Ksh. 20,000 (1st quartile: Ksh. 14,000; 3rd quartile: Ksh. 40,000), with 50.9%

earning more. Finally, all of the participants stated that they had visited a facility within the UHC period.

The results of the descriptive analysis of socio-demographic & economic features of reproductive age (15-49 years) are shown in Table 4.2.

Table 4.2: Socio-demographic and economic characteristics

Characteristics	Count, n(%)
Age (years), Mean (SD)	28.94 (5.69)
Monthly Income (KSH), Mean (SD)	31,202.61 (29760.54)
Marital status	
Never married	58(13.7)
Married	299(70.9)
Separated	48(11.4)
Cohabiting	17(4.0)
Education level	
Primary school incomplete	12(2.8)
Primary school completed	20(4.7)
Secondary school incomplete	22(5.2)
Secondary school completed	217(51.4)
College/University completed	151(35.8)
Occupation	
None	90(21.3)
Employed	129(30.6)
Self-employed	158(37.4)
Casual labourer	45(10.7)
Religion	
Christian	401(95.0)
Muslim	21(5.0)
Visited a facility during UHC	
Yes	422(100.0)

4.3 Level of uptake of UHC provided MNCH services

4.3.1: Overall MNCH services uptake

During the UHC pilot implementation period, findings show that, all study participants (100%) had utilized at least one of the MNCH services as shown in table 4.3 below. According to a county official in a KII, " *There was an increase in demand of services from government facilities, with the referral hospital receiving numerous self-referrals.*"

Table 4.3: Uptake of MNCH services

Services	Count, n(%)
Overall uptake of MNCH services	422(100.0)
Uptake of ANC services	411(97.4)
Uptake of FP services	357(84.6)
Uptake of Maternity services	420(99.5)
Uptake of immunization services	422(100.0)

4.3.2: Level of Uptake of MNCH Services Before and After UHC.

Below, figure 4.1 illustrates a comparison of the level of uptake of various MNCH Services under study in Machakos Town Sub county before (2018) and after (2019) UHC. From the findings the first ANC uptake increased by 0.2% from 5451 in 2018 compared to 5464 in 2019. Also to note was that the skilled deliveries in 2019 was higher (10329) compared to 2018 (9762) depicting a 5.8% increase. Modern FP methods scaled (25310) in 2019 as compared to (21788) in 2018, registering a 13.9% increase. The Pentavalent Immunization also had a higher uptake in 2019 (4302) as compared to 2018 (4228) showing a 1.7 % increase.

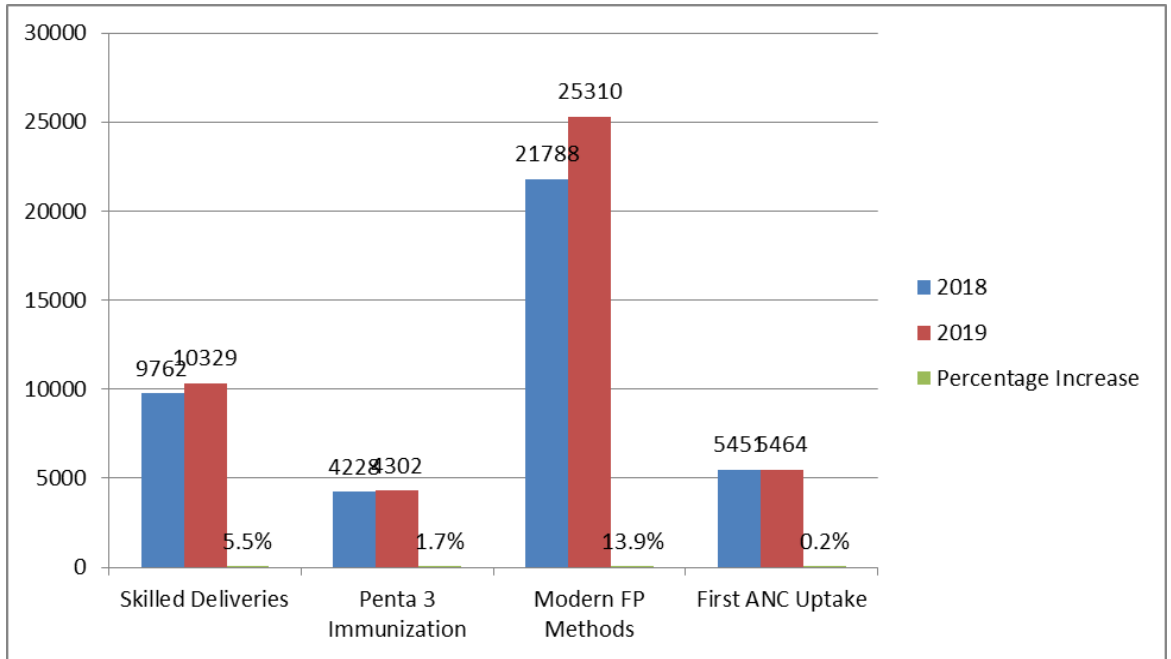


Figure 4.1: Uptake of MNCH Services before and after UHC (Source: KHIS, 2023)

A further chi-square test was conducted to confirm whether the increase in uptake of services observed from 2018 to 2019 was significant. In 2018 the total number of WRA that sought services was N=41229 while in 2019 it rose to N=45405. The results show that the increase of uptake of services observed between 2018 and 2019 is significant ($\chi^2 (3) = 78.92, p < .001$).

4.3.3: Antenatal services

The vast majority of women 97.4% (n= 411) had accessed antenatal care (ANC) services prior to delivery. The majority (38.4%) of individuals who sought ANC services did so four times, followed by three times (32.8%). Figure 4.2 shows that only a few 4.1% had used ANC services once. The GOK facility was visited the most by (84.8%), followed by private facilities at (14.5%) and those that went to a chemist were less than 1%. WRA that chose a GOK facility

outlined the reasons as proximity of the facilities (39.1%), followed by the affordability of services (28.4%), and quality of care came in third (26.3%).

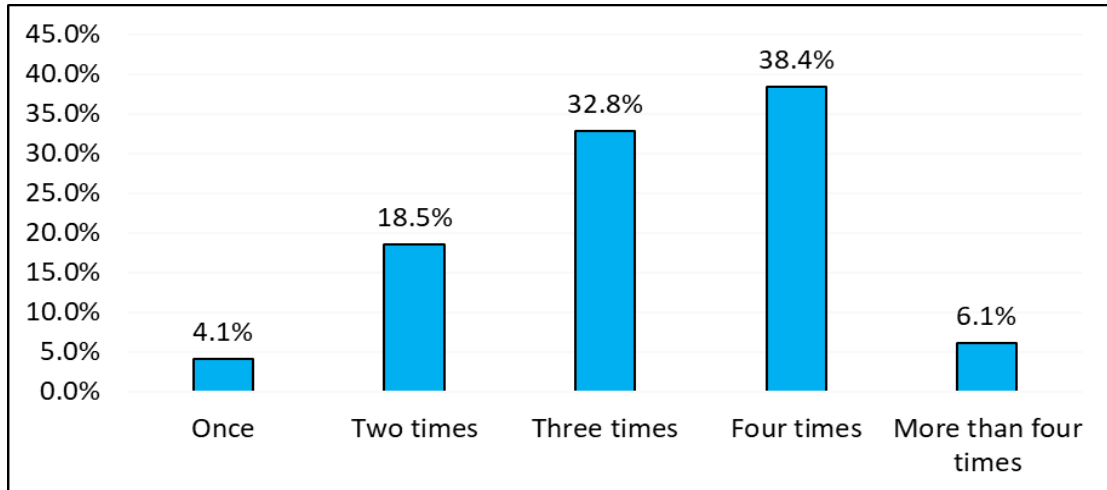


Figure 4.2: Number of times ANC services were sought

4.3.4: Maternity services

Most of the women, 99.5% (n = 420), had sought maternity care. Of those seeking maternity services, most visited a GOK institution (89.5%), followed by private facilities (10.5%). The most popular reason reported for obtaining services in the institutions they visited was the affordability of services (51.0%), followed by the facility's proximity (30.7%). The third most popular reason was the quality of care (13.1%) and lastly staff attitude accounted for 2.6%.

The vast majority of respondents (97.4%, n = 411) stated that insurance assisted them offset delivery bill. UHC accounted for the lion's share (56.4%), followed by NHIF at 28.2%. Figure 4.3 shows that Linda Mama and private accounted for 13.4% and 1.9%, respectively.

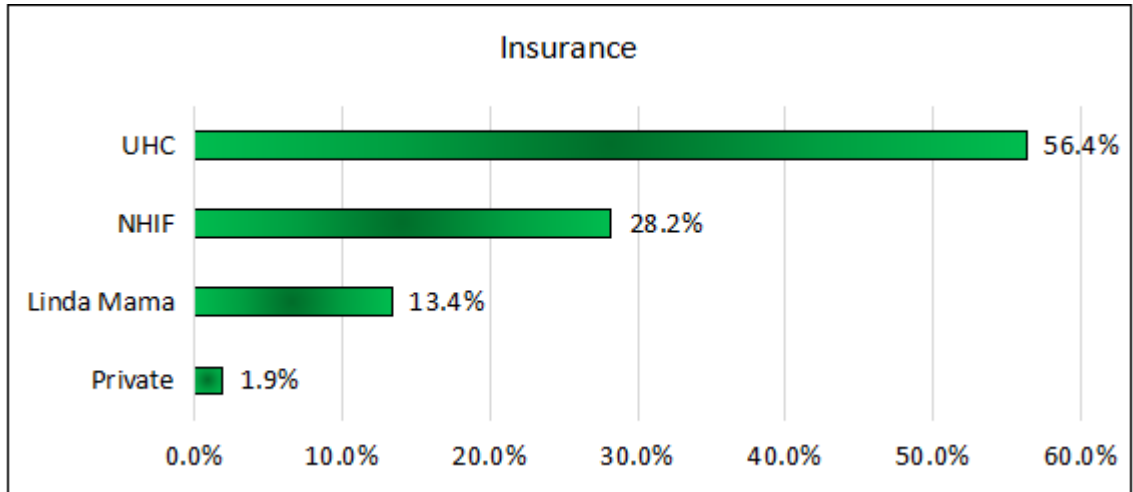


Figure 4.3: Insurance cover used to pay for maternity bill

A further comparison between type of facility and reasons for seeking maternity care (using the chi-square test) revealed a significant relationship between the two variables. The most common reason (50.0%) for seeking care from a private facility was the quality of care. The majority (56.9%) of individuals who chose a GOK facility highlighted the affordability of services. Despite the fact that 34.3% of those who sought care in the GOK facility stated proximity as a reason for seeking care, none of those who sought care in the private clinic mentioned proximity as a reason for seeking care. (table 4.4)

Table 4.4: Association between facility type and reason for choosing provider

Reasons for choosing facility/provider	GOK facility (n=376)	Private facility (n=44)	Total (n=420)	p-value
Staff attitude	0(0.0)	11(25.0)	11(2.6)	P<0.001
Facility is nearby	129(34.3)	0(0.0)	129(30.7)	
Services are affordable	214(56.9)	0(0.0)	214(51.0)	
Quality of care	33(8.8)	22(50.0)	55(13.1)	
Other	0(0.0)	11(25.0)	11(2.6)	

$\chi^2 (4) = 279.3, P < 0.001$ significant at 1%

4.3.5: Family planning (FP) services

As pertains FP services, 84.6% (n=357) of participants reported to have used FP after their last delivery. The majority of those who did not use FP services cited unfavourable side effects (50.8%) as the primary reason, while 33.8% did not realise the need, and 15.4% said their spouses prohibited them from using the methods.

As stated below, depo provera was the most widely utilized FP method (42.6%), followed by oral tablets (26.9%) as shown in figure 4.4.

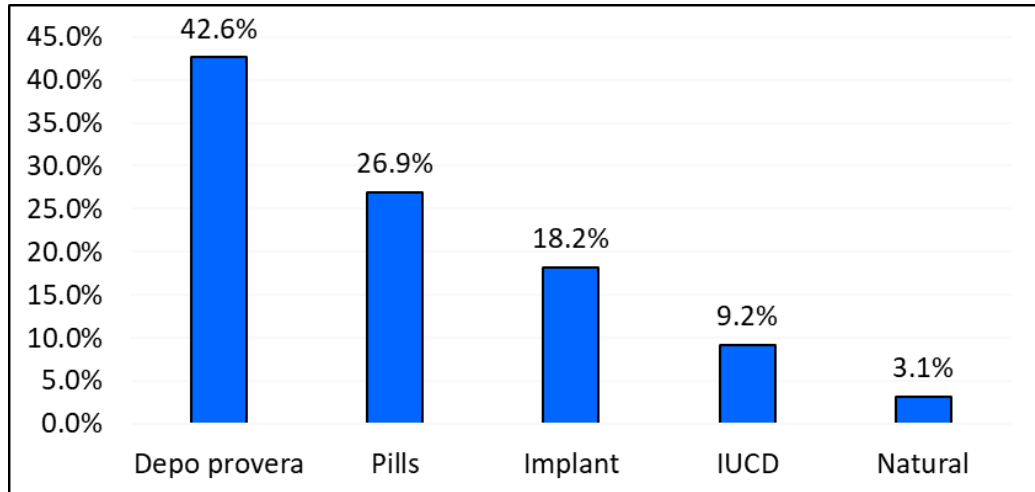


Figure 4.4: Type of family planning used

A good number of participants (78.7%) received their FP services from a GOK institution, with private facilities (15.1%) coming in second. TBAs and chemists each accounted for 3.1% of FP service providers.

4.3.6: Immunization services

The findings revealed that all participants 100% (n=422) sought at least one immunization service during the UHC pilot. Table 4.5 shows the uptake of the various immunization services.

Table 4.5: Received the vaccination listed (yes)

Vaccination	Count (n)	Percent (%)
Birth BCG	422	100.0
Birth polio	422	100.0
6 weeks		
Pentavalent	408	96.7
OPV	407	96.4
PCV	407	96.4
Rotavirus	407	96.4
10 weeks		
Pentavalent	387	91.7
OPV	386	91.5
PCV	386	91.5
Rotavirus	386	91.5
14 weeks		
Pentavalent	350	82.9
OPV/IPV	350	82.9
PCV	350	82.9
Rotavirus	336	79.6
9 months measles	283	67.1
18 months measles	248	58.8

The majority of children obtained their immunization services from GOK institutions (89.1%), with private facilities (10.9%) coming in second. The most often reported reasons for obtaining services in a GOK facility were proximity to the facility (38.8%), followed by affordability of services (37.5%). The third most popular reason was staff attitude (13.8%), while quality of care accounted for (9.6%). Staff attitude was the most reported (56.5%) reason among those

who sought services from the private facility. A further comparison between facility type and the reason for seeking immunisation care (using the chi-square test) revealed a significant association between the two variables (Table 4.6).

Table 4.6: Association between facility type and reason for choosing provider

Reasons for choosing facility/provider	GOK facility (n=376)	Private facility (n=46)	Total (n=422)	p-value
Staff attitude	52(13.8)	26(56.5)	78(18.5)	0.000*
Facility is nearby	146(38.8)	5(10.9)	151(35.8)	
Services are affordable	141(37.5)	3(6.5)	144(34.1)	
Quality of care	37(9.8)	12(26.1)	49(11.6)	

Note: $\chi^2 (3) = 70.21$, * $p < 0.005$

As regards to adhering to vaccination schedule, 5.2% of participants reported that they had failed to take their child for a vaccination visit. The most common causes for missing out were mother's forgetfulness (45.5%), being too busy at work (18.2%), not understanding the importance (18.2%), transportation concerns (13.6%), and child sickness (4.5%).

On the same note, another important issue was late presentation for immunization. Approximately 6.9% of participants reported that they have taken their children for vaccination after the prescribed date. Mother's forgetfulness (65.5%), transportation concerns (17.3%), not seeing the relevance (13.8%), and child being ill (3.4%) are the most common reasons cited.

4.4 Patient related factors

Client-related characteristics such as knowledge on UHC, out-of-pocket costs, and service impression were assessed from WRA. By the time the study was conducted, majority of WRA (97%) had heard of UHC. In terms of spending one's own cash on MNCH, 35.5% of the women reported doing so. *"During UHC, commodities and staff were adequate except for a few; thus, clients flocked to facilities as they used little, if any, money from their pockets at MNCH,"* a county official noted in a KII. *Prior to UHC, WRA would spend more from their own pockets owing to scarcity of commodities. They used to purchase delivery commodities and pay for the ANC profile."* In regards to medical insurance coverage, 95% of WRA interviewed claimed they had at least one insurance; 75.1% had registered for UHC, 47.1% for NHIF, and 79.4% for Linda Mama.

The vast majority (92.9%) spent less than Ksh 100 to get to the health facility, whereas 3.8% spent between Ksh 100 and Ksh 200. The travel time to the facility was reported to take up to an hour, with the majority of participants (65.2%) taking 10 minutes or less (Table 4.7).

Table 4.7: Patient related factors descriptive statistics

Variable	Count, n(%)
Heard about UHC	
Yes	411(97.4)
No	11(2.6)
Did you spend from your pocket on MNCH services	
Yes	150(35.5)
No	272(64.5)
At least one insurance	
Yes	401(95.0)
No	20(5.0)
UHC registration	
Yes	317(75.1)
No	105(24.9)
NHIF registration	
Yes	200(47.4)
No	222(52.6)
Linda Mama registration	
Yes	335(79.4)
No	87(20.6)
Cost to health facility	
None	79(18.7)
1-100	313(74.2)
101-200	16(3.8)
201-300	14(3.3)
Time to health facility	
10 minutes and below	275(65.2)
11-30 minutes	145(34.4)
31-60 minutes	2(0.5)

4.4.1 Out of pocket (OOP) spending on MNCH services.

4.4.1.1 Antenatal Out of Pocket spending

Some individuals (26.8%) had to pay from their own pockets for some of the ANC services and goods. Lab services was the most paid for (52.7%), followed by medication (27.3%), while ultrasound and registration were at 15.5% and 4.5%, respectively. The majority of individuals who paid for the services, (59.1%) could afford the services or products totally, while 40.9 percent could only partially afford (Table 4.8)

Table 4.8: Antenatal out of pocket spending

Variable	Count, n(%)
Are there services/products that you paid from your pocket during this time?	
Yes	110(26.8)
No	301(71.3)
Services paid for from OOP	
Lab services	58(52.7)
Medication	30(27.3)
Ultrasound	17(15.5)
Registration	5(4.5)
Ability to pay	
Completely	65(59.1)
Partially	45(40.9)

4.4.1.2 Maternity Out of Pocket spending

In the process of obtaining maternity services, 22.6% of participants stated that they had paid out of pocket for some of the services or items. Non-pharmaceutical products were paid for by the majority of participants (36.8%),

followed by medication (23.1%) and lab services (17.9%). Ultrasound and registration accounted for 7.4% and 4.2%, respectively, while delivery payments contributed for 10.5%. Of those who incurred out of pocket, 75.8% were able to entirely afford, while 24.2% reported that it was moderately affordable (Table 4.9).

Table 4.9: Maternity out of pocket spending

Variable	Count, n(%)
Did you spend from your pocket on maternity services	
Yes	95(22.6)
No	325(77.4)
Services paid for from OOP	
Lab services	17(17.9)
Medication	22(23.1)
Ultrasound	7(7.4)
Registration	4(4.2)
Non-pharm	35(36.8)
Delivery	10(10.5)
Ability to pay	
Completely	72(75.8)
Partially	23(24.2)

4.4.1.3 Family planning (FP) Out of Pocket spending

Slightly more than half of those who obtained FP services (38.1%) paid out of pocket, with the most paid-for service (53.7%) being the purchase of methods, followed by the purchase of methods and insertion (46.3%) (table 4.10).

Table 4.10: Family Planning Out-of-Pocket Spending

Variable	Count, n(%)
Did you spend from your pocket on FP services	
Yes	136(38.1)
No	221(61.9)
Services paid for from OOP	
Purchase of method	73(53.7)
Purchase of method & insertion	63(46.3)
Ability to pay	
Completely	87(64.0)
Partially	49(36.0)

As shown in figure 4.5 below, the majority of WRA who paid for the services (64.0%) could afford the services or products totally, while 36.0% could only afford them partially.

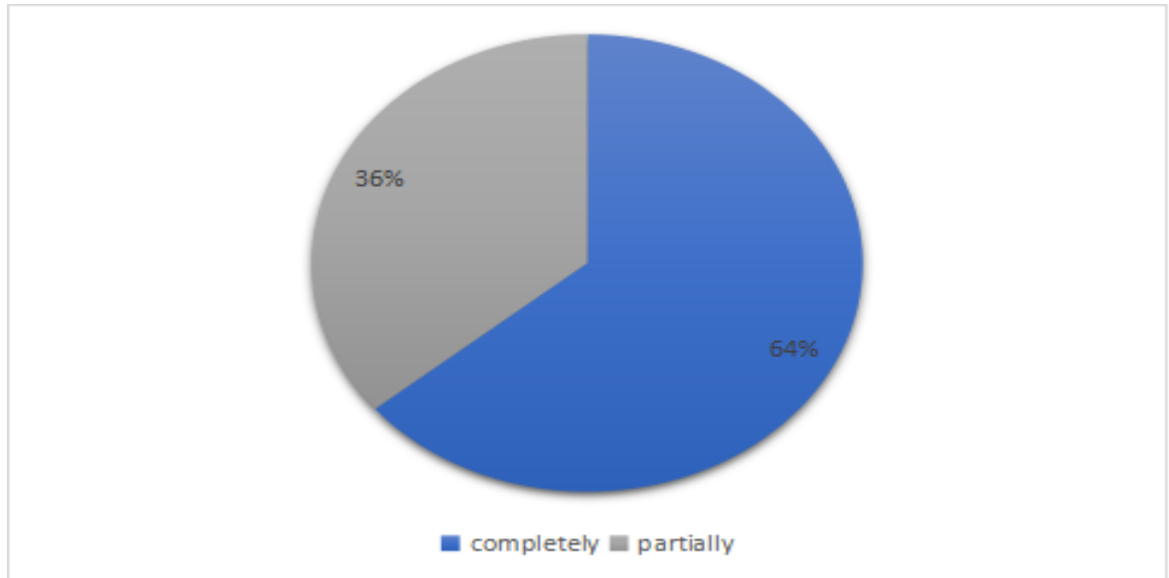


Figure 4.5: Ability to pay for FP services

4.4.1.4 Ambulance Out of Pocket spending

Only 8.5% (n = 10) of those who were referred to seek services elsewhere used an ambulance, and 60% (n = 6) paid for it from their own funds. Approximately two-thirds (66.7%, n = 4) of those who paid claimed they could fully afford the services, whereas 33.3% (n = 2) could only partially afford the service. (Table 4.11) A county official stated in a KII, "*The county has ambulances and a call centre. "Each ward has its own ambulance. Fuel is sometimes accessible for the cars." As needed, ambulances can serve any facility.*

Table 4.11: Ambulance services out of pocket

Variable	Count, n(%)
Ambulance involved	
Yes	10(8.5)
No	107(91.4)
Ambulance paid for from OOP	
Yes	6(60)
No	4(40)
Ability to pay	
Completely	4(66.7)
Partially	2(33.3)

4.4.1.5 Community Health Volunteer services

More over half of the participants (56.4%) believed that a CHV could help them if they had an emergency at home. Those who disagreed with the preceding statement cited difficulty in contacting them (29.3%) and that they lack of medical training as grounds for their disagreement. Other causes mentioned include distance (23.9%), a lack of medical supplies (12.0%), and a lack of transportation (6%). It was reported during a CHV FDG that *"I have received training on various health conditions, but I haven't been trained on CHV basic models."* Another stated, *"I had a CHV kit, but it was not fully equipped, whereas others had a fully equipped one during UHC."* In terms of knowledge on the next CHV visit at their household, none of the participants were aware of the next date. *"We don't have a specific movement plan,"* a CHV exclaimed during the FGD, *"but each person has around 100 households that they man and visit at their leisure and submit a monthly report. We make our own plans."*

(table 4.12)

Table 4.12: Community Health Volunteer (CHV) perception

Variable	Count, n(%)
Feel CHV can attend to you in case of an emergency	
Yes	238(56.4)
No	184(43.6)
Reason for feeling CHV can't attend to you	
Hard to reach	54(29.3)
Distance	44(23.9)
They lack transport	11(6.0)
They lack medical commodities	22(12.0)
They lack medical training	53(28.8)

4.5 Supply side factors

The availability of hospital commodities and supplies, number staff attending to clients, the quality of services, proximity of nearest health facility, and availability of a referral system were researched on. The majority of participants (93.6%) thought the hospital's commodities and supplies were adequate. In a FGD, a CHV reported that, *"Many women came to government hospitals for services because supplies and staff were available." "The county had drawing rights from KEMSA; we ordered drugs, non-pharms, and some lab reagents,"* a county official said in a KII. *The turnaround time was satisfactory, and we delivered commodities to facilities in accordance with past consumption. What KEMSA lacked was purchased with county monies from elsewhere. The county was given precedence at KEMSA since they were a pilot county."* The majority of participants (94.3%) believed that the number of staff attending to patients was enough. According to a KII with county officer, *"there were staff that were hired with UHC funds and sent to our facilities."* In terms of the quality services

provided, 96.4% of participants felt that they met the standards. The assessment of proximity to the health facility revealed that 97.9% of participants went less than 5 kilometres to reach the health facility, while 2.1% travelled more than 5 kilometres. Furthermore, only 32.9% of participants reported having a Community Health Volunteer (CHV) visit at their home. During the UHC era, a few (27.7%) of individuals interviewed reported being referred to another facility to seek services. According to a county official in a KII, *"an organized method of referring patients existed even prior to the pilot with ambulances and a call centre. All facilities could use the service by simply dialling a dispatch phone number. There was an increase in demand of services from government facilities, with the referral hospital receiving numerous self-referrals. The availability of consumables contributed to the increased number of clients."* The most prevalent reason for referral was for specialized services (36.85%), followed by lab (26.5%), maternal care (18.8%), and emergency (9.4%), with medicine accounting for 8.5%. A small percentage (8.5%) of those referred used an ambulance (Table 4.13).

Table 4.13: Supply side factors descriptive statistics

Variable	Count, n(%)
Hospital commodities and supplies were adequate	
True	395(93.6)
False	27(6.4)
The number of staff attending to you was adequate	
True	398(94.3)
False	24(5.7)
Did you feel that the services met the standards?	
True	407(96.4)
False	15(3.6)
Distance to health facility	
<5km	413(97.9)
>5km	9(2.1)
Visit from CHV	
Yes	139(32.9)
No	283(67.0)
Referral to other facilities to seek services	
Yes	117(27.7)
No	305(72.3)
Services referred for	
Maternal services	22(18.8)
Emergency	11(9.4)
Lab	31(26.5)
Specialized services	43(36.8)
For medication	10(8.5)
Did the services involve ambulance	
Yes	10(8.5)
No	107(91.5)

4.6 Barriers of encountered when seeking MNCH services

Overall, 76.5% of the participants rated the UHC pilot as either excellent or good, 15.6% rated the program as fair, and 7.8% said the program was poor.

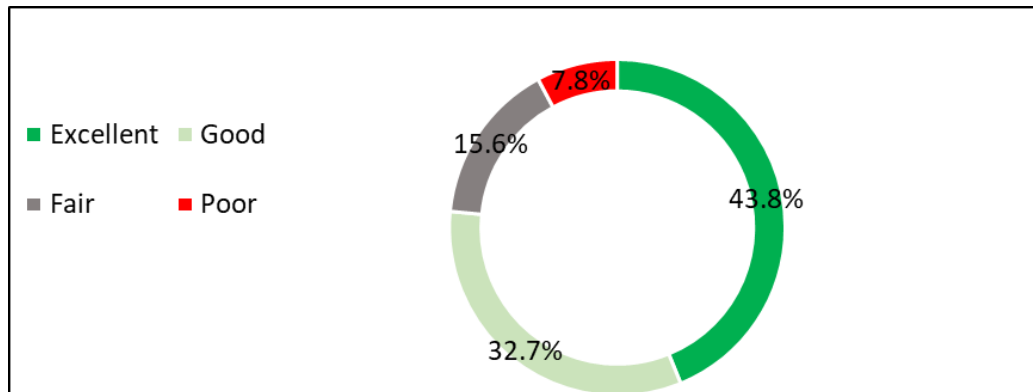


Figure 4.6: UHC rating

As pertains challenges encountered while seeking MNCH services, 54.0% of participants said they had not encountered any. Among those who reported challenges when seeking UHC, the majority (22.2%) lamented healthcare workers' rudeness and registration errors (17.0%). Other issues mentioned include inadequate staff (16.5%), short-lived UHC privilege (16.5%), delayed services (5.7%), insufficient medical supplies (10.8%), and long queues during UHC registration (11.3%). The aforementioned issues could be related to growing service demand.

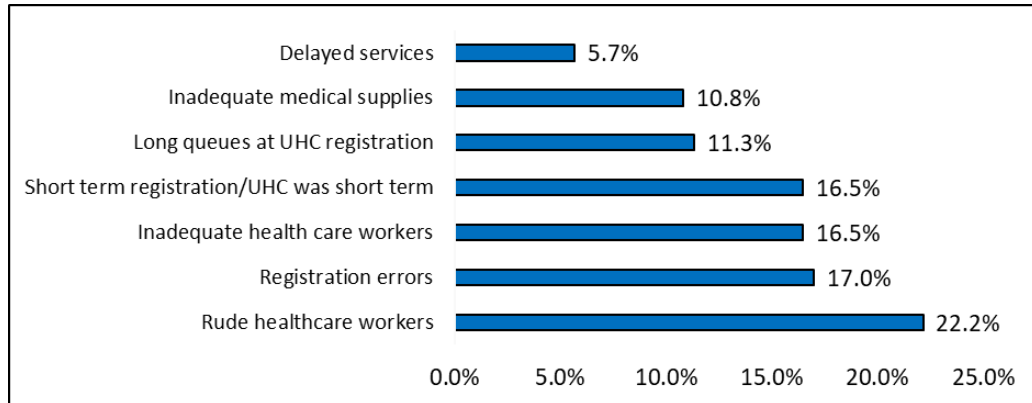


Figure 4.7: Barriers encountered when seeking UHC for MNCH services

4.7 Hypotheses Testing using Chi-Square Test

4.7.1 Hypothesis One

The study sought to establish whether there is a statistically significant relationship between socio-demographic & economic factors and the uptake level of Universal Health Coverage provided MNCH services in Machakos Town Sub county. The Pearson's Chi-square was computed to establish whether the two variables are statistically significant ($P < .05$).

***H₀₁:** There is no statistically significant relationship between supply socio-demographic & economic factors and the uptake level of Universal Health Coverage provided MNCH services.*

***H_{A1}:** There is statistically significant relationship between socio-demographic & economic factors and the uptake level of Universal Health Coverage provided MNCH services.*

Results showed that there was a statistically significant relationship between socio-demographic & economic factors and the uptake level of Universal Health

Coverage provided MNCH services in Machakos Town Sub county since the p-value is smaller than the level of significance (.05), $\chi^2 (9, N = 145) = 27.118$, $P < .001$. Thus, the study has enough evidence to reject the null hypothesis and to accept the alternative hypothesis. This is a clear evidence that socio-demographic & economic factors affect the uptake level of Universal Health Coverage provided MNCH services in Machakos Town Sub county

4.7.2 Hypothesis Two

The researcher was also interested to investigate whether there is a statistically significant relationship between patient related factors and the uptake level of Universal Health Coverage provided MNCH services in Machakos Town Sub county. The Pearson's Chi-square was computed to establish whether the two variables are statistically significant ($P < .05$).

***H₀₂:** There is no statistically significant relationship between patient related factors and the uptake level of Universal Health Coverage provided MNCH services.*

***H_{A2}:** There is statistically significant relationship between patient related factors and the uptake level of Universal Health Coverage provided MNCH services.*

Results revealed that, there was a statistically significant relationship between patient related factors and the uptake level of Universal Health Coverage provided MNCH services in Machakos Town Sub county since the p-value is smaller than the level of significance (.05), $\chi^2 (9, N = 145) = 24.553$, $P < .001$. Thus, the study has enough evidence to reject the null hypothesis and to accept the alternative hypothesis. This shows that patient-related factors have a

meaningful impact on the uptake of UHC for MNCH services in the Machakos Town Sub county.

4.7.3 Hypothesis Three

The researcher was also interested to investigate whether there is a statistically significant relationship between supply side factors and the uptake level of Universal Health Coverage provided MNCH services in Machakos Town Sub county. The Pearson's Chi-square was computed to establish whether the two variables are statistically significant ($P < .05$).

***H₀1:** There is no statistically significant relationship between supply side factors and the uptake level of Universal Health Coverage provided MNCH services.*

***H_A1:** There is statistically significant relationship between supply side factors and the uptake level of Universal Health Coverage provided MNCH services.*

It was found that, there was a statistically significant relationship between supply side factors and the uptake level of Universal Health Coverage provided MNCH services in Machakos Town Sub county since the p-value is smaller than the level of significance (.05), $\chi^2 (13, N = 145) = 21.872, P < .001$. Thus, the study has enough evidence to reject the null hypothesis and to accept the alternative hypothesis. This implies that the supply-side factors significantly impact the uptake of UHC for MNCH services in Machakos Town Sub county.

4.8 Factors influencing uptake of Universal Health Coverage MNCH services

The findings of the multivariable logistic regression that was used to determine linkage between uptake of UHC-provided MNCH services and predictor factors (supply-side factors, patient-related factors, and socio-demographic & economic factors) are shown in Tables 4.14, 4.15, and 4.16 below.

Data showed that four socio-demographic & economic factors—marital status, education level, employment, and monthly income—had a significant influence on the uptake of Universal Health Coverage MNCH services ($p < 0.05$). When compared to those who had never married, WRA who were separated and cohabiting were less prone to use MNCH services. Those who had some form of secondary school training (full or incomplete) were less probable to seek MNCH services than those who did not have any formal training. Respondents who had formal employment were less likely to seek MNCH services compared to those that have no employment. In addition, those who were self-employed were more anticipated to seek MNCH services than the jobless. Averagely high-income earners are more inclined to use MNCH services than those who earned less than Ksh. 10,000 per month (Table 4.14).

Table 4.14: Determinants socio-demographic & economic factors) of utilization of UHC maternal services

	Odds ratio	[95% conf. interval]		p-value
<u>Socio-demographic & economic factors</u>				
Marital status				
Never married	Reference			
Married	0.333	0.048	2.301	0.265
Separated	0.013*	0.0003	0.537	0.022
Cohabiting	0.001*	0.000	0.038	<.001
Education level				
No formal schooling	Reference			
Primary school completed	7.674	0.407	144.711	0.174
Secondary school incomplete	0.032*	0.002	0.44	0.010
Secondary school completed	0.006*	0.001	0.039	<.001
Occupation				
None	Reference			
Employed	0.083*	0.01	0.693	0.021
Self-employed	13.077*	2.394	71.443	0.003
Casual laborer	6.824	0.886	52.555	0.065
Religion				
Christian	Reference			
Muslim	3.241	0.389	27.01	0.277
Monthly income				
1-10000	Reference			
10001-20000	0.014*	0.001	0.142	<.001
20001-30000	207.942*	3.826	11301.18	0.009
30001-40000	18.282*	1.792	186.515	0.014
40001-50000	3.473	0.267	45.189	0.342
Over 50000	1.109	0.076	16.105	0.940
Constant	0.053	0.001	2.831	0.148

*significant factors

On patient-related considerations, two variables (the time it takes to get to the facility and the belief that CHV can help you in an emergency) had an impact

on the uptake of Universal Health Coverage MNCH services. Those who take 11 to 30 minutes to reach a health facility were 12.3 times more anticipated to use MNCH services than those who take 10 minutes or less (OR 12.26; 95% CI 1.07 to 140.48). Those who believed CHV could help them in an emergency were 4.1 times more foreseen to use MNCH services than those who did not believe CHV could help them in an emergency (OR 4.14; 95% CI 1.23 to 13.91) (Table 4.15)

Table 4.15: Determinants (patient related factors) of utilization of UHC MNCH services

	Odds ratio	[95% conf. interval]		p-value
<u>Patient related factors</u>				
At least one insurance				
No	Reference			
Yes	2.448	0.55	10.899	0.240
Out-of-pocket spent on MCH				
No	Reference			
Yes	0.479	0.119	1.934	0.301
Time to facility				
10 mins and below	Reference			
11-30 mins	12.260*	1.07	140.476	0.044
Felt CHV can attend to you during emergency				
No	Reference			
Yes	4.137*	1.231	13.906	0.022

*significant factors

Finally, four of the six supply-side elements were discovered to have a significant association with the dependent variable. That is, the four supply-side factors had an effect on the utilization of MNCH services under Universal Health Coverage (p 0.05). Staff attending to clients being adequate, hospital commodities and supplies being adequate, receiving a visit from a CHV, and

feeling that services were of quality were factors found to be significant in the model. Women who felt that hospital commodities and resources are enough increased their likelihood of using MNCH services by 19.8-fold (OR 19.83; 95% CI 1.67 to 235.93). Those who had a CHV visit were approximately 126 times more inclined to attend MNCH services than those who did not receive a CHV visit (OR 125.93; 95% CI 18.37 to 863.27). Respondents who thought MNCH services were of high quality were 684 times more probable to use them than those who did not (OR 684.41; 95% CI 50.65 to 9248.93). Participants who believed that staff attending to them were adequate were somewhat (1.003 times) more expected to use MNCH services than those who disagreed (OR 0.003; 95% CI 0.0004 to 0.021) (Table 4.16)

Table 4.16: Determinants (supply side related factors) of utilization of UHC MNCH services

	Odds ratio	[95% conf. interval]		P-value
<u>Supply side related factors</u>				
Staff attending to UHC clients are adequate				
No	Reference			
Yes	1.003*	1.0004	1.021	<.001
Referred to seek services				
No	Reference			
Yes	0.678	0.171	2.686	0.580
Hospital Commodities and Supplies Adequate				
No				
Yes	19.826*	1.666	235.93	0.018
Received a visit from CHV				
No	Reference			
Yes	125.929*	18.37	863.267	<.001
Felt services were of quality				
No	Reference			
Yes	684.411*	50.646	9248.93	<.001

*significant factors

CHAPTER FIVE: DISCUSSION, CONCLUSIONS AND RECOMMENDATIONS

5.1 Introduction

This section discusses the study's findings, deductions, and recommendations. The information gathered serves as the foundation for the chapter's content. The investigation strived to assess the level of uptake of MNCH provided by Universal Health Coverage, identify the elements that influence the utilization of services, and identify the challenges encountered when seeking services in Machakos Town Sub county.

5.2 Discussion

5.2.1 The level of uptake of universal health coverage MNCH services in Machakos County

The first focus of the study was to evaluate the level of utilization of Universal Health Coverage provided MNCH services in Machakos County. Prior to 2018, Machakos County's uptake of various MNCH services fell below national recommendations. The study's findings, on the other hand, show that UHC-provided MNCH services were better utilized, with all participants saying that they used at least one MNCH service. This information is similar to data on KHIS (secondary source) that indicates that utilization of all four MNCH services had increased after UHC introduction. This could be due to the affordability of services in the face of UHC. These findings are akin to the

findings of Unnikrishnan et al. (2020) in India, who discovered that the overall uptake of a completely free MNCH plan was at 100.0%.

According to the study findings, the majority of WRA sought ANC services during UHC. This scenario is comparable to what was witnessed during the free maternity program, which resulted in an increase in ANC attendance, according to a Kenyan study by Njuguna, Kamau, and Muruka (2017). The majority of women had gone for four ANC visits. The most preferred facilities were government-owned, and the most common reason given for this scenario was the proximity of the amenities followed by affordability of services. This is a unique trend as cost of services has been the driver of seeking services in government facilities as seen in a study in Nigeria by Uchendu, Ilesanmi and Olumide (2013).

The findings revealed that maternity services were well utilized, which is consistent with those of a probe conducted in Nepal by Bhatt et al. (2018), which found an increase in facility-based deliveries after introduction of free delivery care package. Respondents primarily sought services from government institutions, citing affordability as the primary motivator for doing so. The most mentioned rationale for selecting a private institution was that respondents perceived the services to be of good quality. The majority of WRA stated that insurance assisted them in offsetting the delivery expense, and UHC was the most common insurance, implying that OOP costs were lowered.

Most WRA stated that they had used FP after their last delivery. Those who did not use FP services cited unfavourable side effects and spouse objections as the primary reasons for not doing so. The most popular method of family planning

was depo-provera, while the natural method was the least popular. These findings are comparable with those of Gonie, Wudneh, Nigatu, and Dendir (2018), who conducted research in Ethiopia and found that injectable, implants and pills were the most preferred contraceptive methods. The majority of respondents had gone to a GOK facility for FP services. The proximity of the facility and the affordability of services were the primary factors for preferring GOK facilities over private facilities.

The results show that vaccines utilization was near to ideal. The uptake of BCG and polio vaccines at birth was high, which is comparable with Hu et al. (2018)'s research in China, which found that the uptake of BCG and polio vaccines at birth was 92.0 percent. The same research found that vaccination rates for pentavalent, OPV, PCV, and rotavirus vaccines were high at 6, 10, and 14 weeks, whereas vaccination rates for other vaccines, such as measles, fell between 9 and 18 months. This is similar to Touray et al.'s (2021) study in Gambia, where there was an upsurge in the use of first OPV, first and second pentavalent, but a reduction was registered for others such as third OPV, yellow fever, and measles. Few children missed or arrived late for immunization, and the primary reasons were found to be maternal forgetfulness, followed by transportation concerns. This finding of this is comparable to that of an inquiry conducted in Kiribati by Reiher et al. (2019), which found out that the majority of mothers reported forgetfulness as the primary reason for not visiting the hospital for immunization on time.

5.2.2 Socio-demographic and economic factors and uptake of UHC provided MNCH services in Machakos County

The inquiry intended to determine the respondents' demographic attributes. The majority of respondents were married, had completed secondary education, were self-employed, and were Christians. Nearly half were younger than the median age and earned more than the median income. During the UHC pilot, all participants reported having visited a health institution to seek services. The findings revealed that four factors—marital status, literacy level, nature of work, and monthly earnings—had a significant effect on the use of MNCH services under Universal Health Coverage. WRA who were separated, cohabiting, had formal work, and completed (or partially completed) secondary education were less inclined to use MNCH services. Self-employed individuals making high incomes were more likely to seek MNCH services.

This finding is similar to one by Emelumadu (2014) that stated that women who were not in any current marital relationship, as well as those with lower educational status were more likely utilize ANC services.

5.2.3 Patient related influencing uptake of UHC provided MNCH services in Machakos County

The second goal of the study was to pick out patient-related elements that affect the utilization of UHC provided MNCH services. In contrast to a research by Mathauer, Schmidt, and Wenya (2008), which suggested that a good number of Kenyans, more so those working in the non-formal sector, had not come across the notion of health insurance, the findings of this study indicated that virtually all respondents had heard of UHC. This could be due to UHC being

free and a national agenda while NHIF one needs to pay and is only mandatory for the employed, hence making it less popular. Less than a quarter reported spending money out of their own pockets on MNCH services during the UHC pilot. The findings are comparable to those of Khan et al. (2017), who discovered that patients who used UHC were able to reduce household OOP spending on health, particularly among persons from lower socioeconomic groups.

This also implies that, despite MNCH services being designated as free in Kenya and the availability of UHC, MNCH OOP persisted. Almost all interviewees stated that they had at least one insurance policy, with UHC and Linda Mama being the most common. However, going by a study conducted in Kenya by Barasa et al. (2018), the proportion of people with health insurance coverage (NHIF) was 19% in 2015-2016. The divergence between this probe and Barasa et al.'s (2018) study could be due to the fact that the latter research was done through a review of gray literature rather than interviews with research participants. Mutungi (2018) discovered that 39.2% of Nairobi City County residents were registered for the Linda Mama program. Similarly, Okumu (2018) revealed that the coverage of Linda Mama insurance cover was 13.0% in Homa Bay County, whereas NHIF SUPA cover services were 21.7%. Okumu's and Mutungi's study's findings differ from this research's findings probably due NHIF being a for pay insurance while UHC had no cost enrolment.

The majority of respondents spent less than 100 kshs and took fewer than 10 minutes to get to a health facility. Those who took between 11 and 30 minutes

to get to the facility are more likely to use MNCH services than those who took 10 minutes or less.

When seeking ANC services, less than half of respondents reported having incurred OOP, with the majority of money going to carter for lab services. Ultrasound services came in second last, despite the fact that they are usually not free and not covered by NHIF. This could be due to ultrasound scan not being included in the ANC guidelines. More than a half of the WRA were unable to fully afford the OOP cost. Less than a quarter of the WRA polled reported incurring OOP when seeking delivery services. This study's findings are congruent with those of Myint et al. (2018), who discovered that 75% of females incurred OOP payments during ANC and 99.6% during delivery in Myanmar. The majority of the monies were spent on non-pharmaceutical items and medication. Almost a quarter could not completely afford the OOP fee. Over a quarter of those polled paid OOP on family planning, with the majority of it going to obtain the FP method. The findings differ with those of Radovich et al. (2019) research in Kenya, which revealed that 51.1% of respondents accessed inexpensive contraception because some of the methods were free of charge. Shortage of FP methods in government facilities could be a reason for the difference in the studies. Above half of those polled said they couldn't fully afford the FP OOP.

Moreover, half of those referred elsewhere for services elsewhere paid OOP for an ambulance, yet some WRA could not afford it. The results of this research are comparable to those of Meda et al. (2019)'s study in Burkina Faso, which

found that women seeking maternal health care services were forced to pay from their pocket for ambulance transportation between health institutions.

In terms of community health volunteer services, over half of respondents felt that CHVs could not help them in an emergency, and the most common reason given was that CHVS lacked medical expertise. Those who believed CHV could help them in an emergency were more probable to use MNCH services than those who did not believe CHV could help them in an emergency. The findings are comparable to those of Aseyo et al. (2018), who discovered that CHVs face a variety of problems, including a lack of medical training, in Kisumu County. According to the results of the inquiry, none of the respondents was aware of the next CHV visit at their household.

5.2.4 Supply side factors influencing uptake of UHC MNCH services

The study's third goal was to identify supply-side factors influencing use of the Universal Health Coverage provided MNCH service. Most participants felt the hospital's commodities and supplies were adequate. Women who agreed that hospital commodities were enough became more likely to use MNCH services by 19.8-fold. This could be attributable to the increased government funding that came with UHC. The findings are consistent with Damtew et al. (2019) research in Ethiopia, which discovered a high availability of lifesaving MCH supplies and commodities, that was associated to budget adequacy. Furthermore, the data divulges that the most of respondents believed the hospital had adequate personnel. Participants who thought the staff that cared for them was adequate were slightly (1.003 times) more prone to use MNCH services compared to those who disagreed. This, similar, to a study conducted in

South Sudan by Mugo et al. (2018), which discovered that inadequate employees in MCH was a key impediment to the provision maternal care. On another note, the majority of study participants thought the services were of high quality. Respondents who agreed that MNCH services were of high quality were more inclined to use them than those who disagreed. Less than half of WRA reported being visited by a CHV. Those who received a CHV visit were roughly twice more likely to attend MNCH services those who did not receive a CHV visit. A small percentage travelled more than 5 kilometres to a health facility. This means that Machakos Town Sub county was doing fairly well in ensuring that health services are near the people. Slightly more than a quarter were sent elsewhere to seek for services. The most prevalent grounds for referral were for specialized services, followed by lab tests. The revelations of this research are similar to those of Shroff et al. (2020)'s research in India, which found that managing patients in hospitals remains a challenge even after UHC implementation because some hospitals have better-equipped infrastructure than others, necessitating referrals.

5.2.5 Barriers encountered when in seeking MNCH services under UHC

The study's fourth area of interest was to bring out the hurdles encountered when obtaining UHC-provided MNCH services. Three-quarters of respondents rated services as good or excellent. A little less than half of those polled stated that they have encountered difficulties in obtaining UHC services. The most common issues mentioned were rudeness from health workers and registration errors. The aforementioned issues could be related to an influx in demand for services leading to burn out. This study's finding is comparable to that of

Joarder, Chaudhury, and Mannan (2019), who discovered that UHC faces a variety of problems, including human resource issues, a lack of empowerment, and demand-side impediments.

5.3 Summary of finding

Overall, MNCH (immunization, maternity, ANC, and FP) services offered by UHC were well utilized. The uptake of all four services was found to be above WHO recommendations. Similarly, in a comparative review of data on KHIS, it was found that the level of utilization of the four services had increased 2019 compared to 2018 by some percentage. FP had the lowest level of uptake, with various reasons being cited including undesirable side effects and spousal opposition. The government was the most preferred provider of choice for all four MNCH services studied, followed by private providers. The main reasons for selecting government facilities were cost and close proximity from home. Those who preferred private facilities cited good staff attitudes and service quality as key motivators. Few children missed or arrived late for immunization, and some of the reasons outlined were maternal forgetfulness, followed by transportation concerns.

As pertains of demographics, the majority of WRA were married, had completed secondary school, were self-employed, and were Christians. Nearly half were younger than the median age and earned more than the median income. During the UHC pilot, all participants reported visiting a health

institution. The findings revealed that four demographic factors—marital status, literacy level, type of job, and monthly earnings—had a significant effect on the use of MNCH services under Universal Health Coverage. WRA who were separated, cohabiting, had formal work, and completed (or partially completed) secondary education were less expected to use MNCH services. Self-employed individuals with high incomes were more likely to seek MNCH services.

With respect to patient-related issues, all respondents had heard of UHC, and only a handful had incurred some OOP on FP, ANC, delivery, and ambulance services. Furthermore, others said they could only partially afford the OOP charges. A good proportion of people had at least one insurance policy that was used to cover for delivery services. Two factors, the period it takes to get to a health facility and the belief that CHV can help them in an emergency, were found to be significant. Those who took between 11 and 30 minutes to get to a health facility were more foreseen to use MNCH services than those who took 10 minutes or less. Those who believed CHV could help them in an emergency were more predicted to use MNCH services than those who did not believe CHV could help them in an emergency.

In terms of supply-side factors, the majority of participants believed that hospital goods and staff were adequate. A number of people thought the services were of high quality. Few, on the other hand, had received a CHV visit at home. Only a few WRAs were referred to seek health services elsewhere, and only a handful required an ambulance. A few people travelled more than 5 kilometres to get to a facility. Factors found to be significant include sufficient staff attending to patients, adequate hospital commodities and supplies,

receiving a visit by a CHV, and feeling that services were of quality. Women who agreed that hospital commodities, supplies, and staff were adequate, had received a visit from a CHV, and thought that services were of high quality were more likely to utilize MNCH services. The most significant variable was quality of service.

Health worker rudeness and registration problems were the most commonly encountered barriers when seeking health services during UHC. However, the majority of WRA rated MNCH services provided during UHC as good to excellent. The scale-up of UHC can only be successful if the issues encountered during the pilot phase are addressed. Challenges may dissuade responders from utilizing UHC services.

5.4 Conclusion

The level of uptake of MNCH services during the UHC pilot was good. The utilization of ANC, maternity care, family planning, and immunization was above the WHO recommendations. Family planning remained the least utilized service and had the highest OOP as per the study findings. Government facilities were preferred compared to private facilities.

Four socio-demographic factors & economic factors—marital status, literacy level, type of job, and monthly wage—had a significant influence on the uptake of Universal Health Coverage (MNCH) services. Specifically, WRA who were separated, cohabiting, had formal employment, and attended secondary school (complete or incomplete) were less inclined to utilize MNCH

services. Those who were self-employed and average high-income earners were more likely to seek MNCH services.

Two patient-related factors, time to reach the facility and feeling that CHV can attend to them during an emergency, had a significant effect on the uptake of Universal Health Coverage MNCH services. Those who take between 11 and 30 minutes to reach the facility are more anticipated to attend MNCH services as compared to those who take 10 minutes or less to get there. Those who felt CHV could attend to them during an emergency are more likely to be attending MNCH services compared to those who didn't feel that CHV could attend to them during an emergency.

Supply-side factors found to be significant include staff attending to them being adequate, hospital commodities and supplies being adequate, receiving a visit from a CHV, and feeling that services were of quality. The likelihood of attending MNCH services was higher among women who agreed that hospital commodities, supplies, and staff were adequate, had received a visit from a CHV, and felt that services were of quality. The quality of service was the most significant variable.

Barriers encountered by women of reproductive age were not found to be significant.

5.5 Recommendations

5.5.1 Recommendations from the study

1. National and county governments should put in health system investments as seen in the UHC pilot so as to keep the MNCH uptake as

per WHO recommendations. They could also support social mobilization, community dialogues, and health talks targeted at increasing FP uptake.

2. National and county governments should intensify community action in a bid to maintain the highest possible insurance coverage for the community so as to reduce out-of-pocket spending that may hinder access to MNCH services.
3. National and county governments should ensure optimal CHV coverage in the community, monitor CHV movement, train them, and routinely provide them with CHV kits. This will strengthen UHC at the community level by reaching and referring WRA for MNCH services.
4. County governments should consider customer care training for their facility staff to address inappropriate language reported by clients.

5.5.2 Recommendation for policy

UHC policy should focus on addressing both supply-side and patient-related factors, as the study has shown that both have an influence on the uptake of MNCH services.

5.5.3 Recommendations for further research

The areas below have been identified by the author for further research.

1. A comparative study of MNCH indicators before and during UHC
2. Study to determine the extent and effects of OOP on MNCH services
3. Study to determine the level to which pilot recommendations were used to design UHC scale-up.

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APPENDICES

Appendix 1: Consent form.

My name is Maureen Kangee. I am a student at Kenyatta University undertaking a Master of Public Health (epidemiology). I am conducting a study on “Universal Health Coverage uptake in relation to Maternal, Neonatal and Child Health indicators in Machakos County, Kenya”. The purpose of the study is to fulfil the Master’s program and may inform further roll out of UHC.

Procedures to be followed

Therefore, the study will involve collecting data on MNCH services since UHC began from Women of reproductive age (15-49years).

Voluntarism

Your participation in this study is voluntary. You may withdraw at any time and you are free to decline to answer any question. In the event this happens, there will be no consequences now or in future.

Benefits

The research is for academic purposes hence there will be no material benefits. However, one of the benefits is to inform the county and national government on the success and challenges of UHC MNCH services.

Discomfort and risks

There will be no discomfort or risks that you will face when you participate in the study.

Reward

There will be no rewards or direct monetary benefits if you participate. CHVs will get a transport reimbursement of 200ksh.

Confidentiality

The interviews will be conducted in a secluded area. Participants’ names will not be included in the questionnaire and codes will be used during analysis. Filled questionnaires will be kept under key and lock. Only the study team will have access to the information. **Contact information**

In case you have, further questions contact Miss Maureen Kangee on 0724113734 the principal investigator. Further, if you have queries on your right to participate you may contact Kenyatta University Ethical Review Committee Secretariat on chairman.kuerc@ku.ac.ke.

Participant's declaration

That the information above regarding the study has been explained to me and I have understood.in addition I have been given a chance to answer questions.

Participant's name:

Signature or Thumbprint

Date

Name of Representative/Witness (where necessary)

Relationship to

Subject

Investigators declaration

I declare that I have explained to the volunteer in the language he/she comprehends the procedures involved, risks and benefits of the study.

Name of Interviewer

Signature

Date

Appendix 3: Data collection tools

Tool 1: Community Health Volunteers Focused Group Discussion ASSESSMENT OF UPTAKE OF MNCH SERVICES UNDER UNIVERSAL HEALTH COVERAGE PACKAGE IN MACHAKOS COUNTY, KENYA

Name of CU: _____ Moderator:

No of participants: _____ Note taker:

Date: _____

Start _____ stop _____

Instructions:

1. Introductions.
2. Explain purpose of study.
3. Assure key participants of confidentiality.
4. Ask key participants for their informed consent to participate in the discussion.
5. Explain importance of recording the discussion.
 1. Have you received CHV training and for how long since UHC inception in December 2018
 2. Are you aware of the Community Health Assistant (CHA) training at KMTC and has anyone enrolled?
 3. What is the routine of receiving your stipend and is it sufficient?
 4. What other source of income do you have to supplement your stipend?
 5. How have you organized your movement from household to household?
 6. Describe availability of CHV kits?
 7. Are there any challenges that you encounter while offering MNCH services during UHC pilot?

Tool 2: KEY INFORMANT INTERVIEW GUIDE
ASSESSMENT OF UPTAKE OF MNCH SERVICES UNDER
UNIVERSAL HEALTH COVERAGE PACKAGE IN MACHAKOS
COUNTY, KENYA

A) Interview Guide: County Director Health/County Pharmacist/UHC
Focal Person/county HRIO

Date: _____ Venue: _____

Interviewer's name: _____

Designation of the key informant: _____

Time: Start _____ Finish _____

Time for discussion: 45minutes.

Instructions

1. Introductions.
2. Explain purpose of study.
3. Assure key informant of confidentiality.
4. Ask key informant for their informed consent to participate in the discussion.
5. Explain importance of recording the discussion.
 1. Describe the situation of the following during UHC:
 - Hiring of staff
 - Ensuring health commodities availability
 - Availability of a Referral system.
 - CHV training and capacity
 - Provision of MNCH services in the county
 2. Describe the organization of referral services in Machakos Sub County.
 3. What measures are in place to ensure CHVs retention and how is their movement monitored?
 4. Do the CHVS have equipped kits and does the community trust their capability?
 5. What some of challenges you experience as you strive to achieve UHC for MNCH services?

Tool 3: WOMEN OF REPRODUCTIVE AGE QUESTIONNAIRE

Questions are to be addressed to Women of Reproductive age (15-49years) with a child less than 2years and has lived in the Machakos county since December 2018 i.e inception of UHC.

Questionnaire number _____

Sub-County: _____ Ward: _____ Community Unit:

Village: _____ Date: _____

Research assistant ID: _____

Demographics

What is your age? Year of birth (calculate)

What is your marital Status?

- | | | |
|------------------|------------|---------------|
| 1. Never married | 2. Married | 3. Separated |
| 4. Divorced | 5. Widowed | 6. Cohabiting |
| 99. Refused | | |

What is your highest level of education?

- | | | |
|---------------------------------|-------------------------------|-----------------------------|
| 1. No formal schooling | 2. Primary School incomplete | 3. Primary school completed |
| 4. Secondary School incomplete | 5. Secondary school completed | 6. A-level completed |
| 7. College/University completed | 8. Post graduate degree | |
| 99. Refused | | |

What is your occupation?

1. None
2. Employed
3. Self-employed
4. Casual laborer

What is your religious affiliation?

1. Christian
2. Hindu

3. Muslim

4. Other (specify)

On average, how much do you think your family earns per month? Kshs:

1. Have you ever heard about UHC in your county?

Yes No

2. Did you visit a health facility during the last one year ?

Yes No

3. During last one year how do you rate the following at the facility you visited?

a) Did you spend from your pocket on MNCH services

Yes No

b) Hospital commodities and supplies were adequate

True False

c)The number of staff attending to you was adequate

True False

d)Did you feel that the services met the standards?

True False

4. Are you/your household registered for the following?

UHC Yes No

NHIF Yes No

Linda Mama Yes No

5. What is the distance in KMS between your house and the nearest health facility by road?

<5km >5km

6. How much does it cost you to get at the nearest health facility by road?

Kshs_____

7. How much time do you take to get to the nearest health facility by road?

8 During your last pregnancy did you seek the following services? *Check booklet*

- a) Antenatal care (ANC) before delivery? Yes No
- i. If yes, how many times? 1 2 3 4
 above 4
- ii. Where did you seek the ANC services? _____
 Traditional birth attendant (TBA) GOK facility
 Chemist Private facility Community health worker
 Other (specify).....
- iii. Why did you choose this facility/Provider?
 Staff attitude Facility is nearby Services are affordable
 Quality of care Referral by friend/relative other (specify)

- iv. Are there services/products that you paid from your pocket during this time?
 Yes No
- If yes,
- a) What services/products did you pay for?
 Lab services Medication Ultrasound
 Registration
- b) Were you able to afford the services/products?
 Completely Partially
- b) Maternity? Yes No
- i. Where did you seek the maternity services? _____
 Traditional birth attendant (TBA) GOK facility
 Chemist Private facility Community health worker
 Other (specify).....
- ii. Why did you choose this facility/provider? _____
 Staff attitude Facility is nearby Services are affordable
 Quality of care Referral by friend/relative other (specify)

iii. Did any of the maternity packages/insurance that you are registered for help you offset the bill during delivery?

Yes No

If yes, which package

UHC NHIF Linda mama
Private

iv. Are there services/products that you paid from your pocket during this time?

Yes No

If yes,

a) What services/products did you pay for?

Lab services Medication Ultrasound
Registration
Nonpharm Delivery

b) Were you able to afford the services/products?

Completely Partially

9. Have you been using any form of family planning since your last delivery?

Yes No

a) If no what is the reason?

Husband declined Can't afford Previous failures with a method
Didn't see need Myths/beliefs Negative side effects other
(specify).....

b) If yes, which type of family planning are you on?

Depo provera IUCD Implant Pills
Condom Natural
Other (specify)

9. Where did you acquire the family planning method?

TBA GOK facility Chemist Private facility Other
(specify).....

10. Are there services/products that you paid from your pocket during this time?

Yes No

If yes,

a) What services/products did you pay for?

- Purchase of method Purchase of method and insertion
- Other(specify)

b) Were you able to afford the services/products?

- Completely Partially

11. Did you seek immunization services for your child? *Check booklet*

- Yes No

vaccination	Tick where applicable		
Birth BCG	<input type="checkbox"/> Yes	<input type="checkbox"/> No	<input type="checkbox"/> Na
Birth polio	<input type="checkbox"/> Yes	<input type="checkbox"/> No	<input type="checkbox"/> Na
6 weeks			
i. Pentavalent	<input type="checkbox"/> Yes	<input type="checkbox"/> No	<input type="checkbox"/> Na
ii. OPV	<input type="checkbox"/> Yes	<input type="checkbox"/> No	<input type="checkbox"/> Na
iii. PCV	<input type="checkbox"/> Yes	<input type="checkbox"/> No	<input type="checkbox"/> Na
iv. Rotavirus	<input type="checkbox"/> Yes	<input type="checkbox"/> No	<input type="checkbox"/> Na
10 weeks			
i. Pentavalent	<input type="checkbox"/> Yes	<input type="checkbox"/> No	<input type="checkbox"/> Na
ii. OPV	<input type="checkbox"/> Yes	<input type="checkbox"/> No	<input type="checkbox"/> Na
iii. PCV	<input type="checkbox"/> Yes	<input type="checkbox"/> No	<input type="checkbox"/> Na
iv. Rotavirus	<input type="checkbox"/> Yes	<input type="checkbox"/> No	<input type="checkbox"/> Na
14weeks			
i. Pentavalent	<input type="checkbox"/> Yes	<input type="checkbox"/> No	<input type="checkbox"/> Na
ii. OPV/IPV	<input type="checkbox"/> Yes	<input type="checkbox"/> No	<input type="checkbox"/> Na
iii. PCV	<input type="checkbox"/> Yes	<input type="checkbox"/> No	<input type="checkbox"/> Na
iv. Rotavirus	<input type="checkbox"/> Yes	<input type="checkbox"/> No	<input type="checkbox"/> Na
9 months measles	<input type="checkbox"/> Yes	<input type="checkbox"/> No	<input type="checkbox"/> Na
18 months measles	<input type="checkbox"/> Yes	<input type="checkbox"/> No	<input type="checkbox"/> Na

i. Where did you seek the above immunisation services for your child?

Completely Borrowed to pay couldn't afford

9. Have you received a visit at your household from a Community Health Volunteer (CHV) in the last year?

Yes No

10. Are you aware of when next to expect a CHV visit?

Yes No

11. Do you feel that a CHV can be able to attend to you in case you had an emergency at home?

Yes No

If no, why?

No mode of transport They lack medical training Distance
 They have no medical equipment/drugs Other
specify.....


12. Rate the way UHC pilot was implemented in your Subcounty?


Excellent Good Fair Poor

13. What challenges did you face when seeking for health services during UHC pilot?

.....
.....
.....
.....


Appendix 4: NACOSTI Research License


REPUBLIC OF KENYA


**NATIONAL COMMISSION FOR
SCIENCE, TECHNOLOGY & INNOVATION**

Ref No: **366695** Date of Issue: **02/March/2022**


RESEARCH LICENSE




This is to Certify that Miss.. Maureen kangee of Kenyatta University, has been licensed to conduct research in Machakos on the topic: UNIVERSAL HEALTH COVERAGE UPTAKE IN RELATION TO MATERNAL, NEOANATAL AND CHILD HEALTH INDICATORS IN MACHAKOS COUNTY, KENYA. for the period ending : 02/March/2023.

License No: **NACOSTIP/22/15899**

366695
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.

THE SCIENCE, TECHNOLOGY AND INNOVATION ACT, 2013

The Grant of Research Licenses is Guided by the Science, Technology and Innovation (Research Licensing) Regulations, 2014

CONDITIONS

1. The License is valid for the proposed research, location and specified period
2. The License any rights thereunder are non-transferable
3. The Licensee shall inform the relevant County Director of Education, County Commissioner and County Governor before commencement of the research
4. Excavation, filming and collection of specimens are subject to further necessary clearance from relevant Government Agencies
5. The License does not give authority to transfer research materials
6. NACOSTI may monitor and evaluate the licensed research project
7. The Licensee shall submit one hard copy and upload a soft copy of their final report (thesis) within one year of completion of the research
8. NACOSTI reserves the right to modify the conditions of the License including cancellation without prior notice

National Commission for Science, Technology and Innovation
off Waiyaki Way, Upper Kabete,
P. O. Box 30623, 00100 Nairobi, KENYA
Land line: 020 4007000, 020 2241349, 020 3310571, 020 8001077
Mobile: 0713 788 787 / 0735 404 245
E-mail: dg@nacosti.go.ke / registry@nacosti.go.ke
Website: www.nacosti.go.ke

Appendix 5: Ethics letter



**KENYATTA UNIVERSITY
CENTRE FOR RESEARCH ETHICS AND SAFETY**

Fax: 8711242/8711575
 Email: chairman.kuerc@ku.ac.ke
 Nairobi, 00100

P. O. Box 43844,

Website: www.ku.ac.ke

Tel: 8710901/12

Our Ref: **KU/ERC/APPROVAL/VOL.1**

Date: 20th /01/2022

Maureen N.Kangee
 P.O BOX 43844-00100
 Nairobi.

Dear Ms. Kangee,

APPLICATION NUMBER: PKU/2408/I1548 – UNIVERSAL HEALTH COVERAGE UPTAKE IN RELATION TO MATERIAL AND CHILD HEALTH INDICATORS IN MACHAKOS COUNTY, KENYA

This is to inform you that **KENYATTA UNIVERSITY ETHICS REVIEW COMMITTEE** has reviewed and approved your above research proposal. Your application approval number is **PKU/2408/I1548**. The approval period is **20th /01/2022 to 20th /01/2023**.

This approval is subject to compliance with the following requirements;

- i. Only approved documents including (informed consents, study instruments, MTA) will be used
- ii. All changes including (amendments, deviations, and violations) are submitted for review and approval by **KENYATTA UNIVERSITY ETHICS REVIEW COMMITTEE**
- iii. Death and life threatening problems and serious adverse events or unexpected adverse events whether related or unrelated to the study must be reported to **KENYATTA UNIVERSITY ETHICS REVIEW COMMITTEE** within 72 hours of notification
- iv. Any changes, anticipated or otherwise that may increase the risks or affected safety or welfare of study participants and others or affect the integrity of the research must be reported to **KENYATTA UNIVERSITY ETHICS REVIEW COMMITTEE** within 72 hours
- 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 ***KENYATTA UNIVERSITY ETHICS REVIEW COMMITTEE***

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

To serve you better, researchers are kindly requested to access and complete a customer feedback form and sent it back online as you continue with research and upon completion of data collection found on the following website link;
;https://docs.google.com/forms/d/1ytWefDwvvyz5h1oz_VIn0xbxg3uGdIDzMXFWNDsMrRPQ/edit?usp=sharing

Yours sincerely



Prof. Judith Kimiywe

Director: Centre for Research Ethics and Safety

Appendix 6: Machakos county approval

REPUBLIC OF KENYA



GOVERNMENT OF MACHAKOS COUNTY
DEPARTMENT OF HEALTH AND EMERGENCY SERVICES
Office of the County Director of Medical Services

Telephone: +254-44-20575
 Fax: 254-44-20655

Machakos Highway
 P.O. Box 2574-90100
Machakos, Kenya

Ref No. MKS/DHES/RSCH/VOLI/191

10th May 2022

Dear Ms. Maureen,

RE: LETTER OF AUTHORIZATION FOR CONDUCTING PROPOSED RESEARCH

The Department of Health and Emergency Services, Machakos County is keen to collaborate in your study titled, **“Universal Health Coverage uptake in relation to maternal and child health indicators in Machakos County, Kenya.”**

Note is taken of the letter of Ethical clearance from Kenyatta University, **REF: PKU/2408/11548** for the approval period **20th January 2022 to 20th January 2023** as well as the Research License from the National Commission for Science, Technology & Innovation number **NACOSTI/P/22/15899** for the period ending **2nd March 2023**.

You are hereby authorized to proceed with the research in Machakos County and urged to share the findings with the Department of Health and Emergency Services; Machakos County, through this Email: research.dhes@gmail.com

Sincerely,

Dr. Sharon Mweni
 Ag. Director Medical Services.

MACHAKOS COUNTY



Cc:

- County Executive Committee Member – Health
- Chief Officer – Medical Services
- Chief Officer – Public health & Community Outreach