

**INFLUENCE OF HEALTH INSURANCE ON CLINICAL DECISION MAKING
AMONG KENYAN DOCTORS**

ELIJAH YULU

**A Research Thesis Submitted to the Institute of Postgraduate Studies of Kabarak
University in Partial Fulfillment of the Award of Master of Medicine in Family
Medicine**

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DECLARATION

This thesis is my original work being submitted in partial fulfillment of the requirement for M. Med (Family Medicine) in Kabarak University and has not been submitted for a degree course in any other university. I have no conflict of interest to declare and I am well aware if such is found before, during or after the study is done, Kabarak University Institutional Research and Ethics Committee reserves the right to revoke their consent of the study.

Signature:

Date:.....

Dr. Elijah M. Yulu

GMMF/M/1201/09/15

RECOMMENDATION

To the Institute of Postgraduate Studies

The thesis entitled “**Influence of Health Insurance on Clinical Decision Making among Kenyan Doctors**” and written by **Elijah Yulu** is presented to the Institute of Postgraduate Studies of Kabarak University with our approval as university supervisors.

We have reviewed the thesis and recommend it be accepted in partial fulfillment of the requirement for the award of the degree of Master of Medicine in Family Medicine.

Signature:

Date.....

Dr. Jason Brian Brotherton (MD)
Consultant Physician and Faculty
Kijabe Mission Hospital

Signature:

Date.....

Dr. Geoffrey Kamau, Ph.D.
School of Business Studies,
Kabarak University

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ABSTRACT

The vast majority of Kenyans lack any form of health insurance. Thus, they find it difficult to raise money for health expenditure. As a result, studies elsewhere have shown an obvious disadvantage to uninsured individuals in terms of health care accorded to them when compared to patients with insurance. However, there is a scarcity of research in Kenya to evaluate whether lack of insurance affects the kind of health care they receive. The main objective of this study was to examine the presence or absence of change in clinical decisions among Kenyan doctors depending on the health insurance status of a patient. This research study used a cross-sectional survey which used an online self-administered questionnaire. The questionnaire sought to find out if respondents had changed their clinical decisions on the basis of the health insurance status of their patients. Further, the tool asked respondents if they thought the decision change impacted the patients' health care negatively or positively. Analysis of the responses involved categorical independent and dependent variables. Chi-square test was used to measure significance for a p-value of/ or less than 0.05 using SPSS 19 software. The completed responses were 183 (20 % of total surveyed), 25 questionnaires were incomplete and thus excluded, leaving 158 which were analyzed. Of the respondents' data analyzed, 84% reported that they had changed their clinical decisions on basis of the health insurance status of the patients. There was a significant difference in the clinical decision by the doctors between uninsured patients and those insured (71% decision change for uninsured vs. 93% for the insured; $p < 0.05$). Decision change was perceived to be harmful with an average score of -0.24. Likely harm was higher in uninsured (-0.48) compared to insured (-0.34, $p > 0.05$). Respondents in private practice were more likely to change decisions on basis of health insurance status compared to those in public practice (94% vs. 17%; $p < 0.05$). The overall effect was likely to be beneficial to those working in private (average score = +0.2) but tending to harm (average score = -0.2) in those working for public hospitals. Health insurance did not influence clinical decisions among respondents in emergency conditions ($p > 0.05$). Findings of this study revealed that clinical decision making of Kenyan doctors is influenced by health insurance. Insured patients were likely to receive better care than the uninsured. A recommendation is made to the government bodies to formulate policies that ensure that healthcare is universally available regardless of insurance status. The government can consider formulating a policy to enhance universal health insurance inclusion.

Keywords: *Health insurance, Emergency medical care, Private practitioners, Public health facilities, Clinical decisions*

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ABBREVIATIONS AND ACRONYMS

AMI	Acute myocardial infarction
IREC	Institutional Research and Ethics Committee
KES	Kenya Shillings
MBChB	Bachelor's Degree in Medicine and Surgery
MDG	Millennium Development Goals
NHIF	National Health Insurance Fund
OOP	Out of Pocket Payment
SDG	Sustainable Development Goals
SPSS	Statistical Package for Social Sciences
UN	United Nations
USA	United States of America
WHO	World Health Organization

OPERATIONAL DEFINITION OF TERMS

Clinical decision	Plan of management of a patient as determined by the clinician
Clinician factors	These are characteristics of a doctor that are likely to influence the way in which they handle a patient. These include expertise of the doctor, level of training among others.
Clinicians	Doctors offering health services.
Focus of practice	Refers to area of emphasis of a clinician relative to where a patient is treated from. In this study, the focus refers to inpatient and outpatient.
Health insurance	Payments made to an organization, a business entity or government corporation to protect one from financial loss in case of an illness. In Kenyan set up, they include NHIF, private insurances, and community-based insurances. In this study, payments made by employers, well-wishers or fundraising to cater for health care expenses of patients are not considered as health insurance.
Medical emergency	Any illness or injury that poses an immediate risk to life.
Modality of payment	The predominant mechanism a patient uses to settle hospital expenses. This can either be out of pocket payments, insurance or both.
Patient factors	Characteristics depicted by a patient that are likely to influence clinical decisions. They include severity of disease, socioeconomic status and insurance status.
Practice environment	Nature of employer of a doctor. In can be categorized into private practice and public practice.

Private practice	A doctor who is self-employed or employed by a private institution.
Public practice	A clinician employed by the government of Kenya.
Socioeconomic status	A combination of income, education and education (APA, 2015).
Specialist/Consultant	A medical doctor with further training in a particular discipline through a post-graduate degree or equivalent training program.
Universal Health Care	Availability of quality health services to all, regardless of economic status (WHO, 2015).

CHAPTER ONE

INTRODUCTION

1.1 Introduction

In 2015, the United Nations replaced the millennium development goals (MDG) with the current sustainable development goals (SDG). The third SDG is specific to healthcare and a call to all governments to ensure well-being for their population (United Nations, 2015). This suggests that universal health care, which the World Health Organization has defined as access for all to quality health services with no financial strain, is part of that goal. This includes both curative and preventive health services. In conformity with the SDG, many countries have put up measures to ensure universal equitable healthcare. Among the many strategies that have been employed is use of health insurance. The case for health insurance has been made by WHO which advised countries using out-of-pocket payments for health to use the insurance model. This has been successful in various regions especially the high-income countries. In such countries, those who are formally employed are enrolled into a mandatory social health insurance scheme. This scheme then is utilized by governments to cover for the few who may not be able to raise the premiums.

In Kenya, the National Health Insurance Fund (NHIF) is a government agency that has been mandated to ensure affordable health care for all. To achieve this, the agency has developed a scheme to which subscribers pay monthly contributions between 500 and 1,700 Kenyan shillings (KES) for a range of coverage options. NHIF has adopted a capitation model in settling bill for its subscribers. This essentially means that a set amount of money is paid regularly to the providers, whether or not the subscribers require service. Once the subscriber needs a service, they are then attended to at no extra

charge. Experience elsewhere seems to favour capitation model as a way of paying for health expenditure since it limits wastage through restricting unnecessary tests and or procedures (James & Poulsen, 2016).

In most of the cases, NHIF has succeeded in applying the above model. This, however, has not been without challenges. The capitation rates offered by the NHIF have been reported to be too low for services offers to the subscribers. This ultimately has led to the subscribers having to pay additional fees to cater for the required services. As an example, NHIF provides a maximum of 1,500 KES per visit per beneficiary per year against an average outpatient cost of 2000 KES per visit according to actuarial estimations. In addition, the fund has been inconsistent in paying up providers and all that has caused providers to charge the subscribers for services or if unable to pay, deny them the service altogether (Kimani, 2015). Other more reliable health insurers are the private insurance companies. While these are available in Kenya, their premium rates are too expensive for most Kenyans to afford. In addition, private insurers require that their premiums be paid in full before they can offer the insurance coverage. This is untenable for the many Kenyans hence the reason why only two percent of Kenyans have private health insurance.

While health insurance has greatly improved access to health care, there still remains a huge number of uninsured Kenyans. The 2013 Kenya Household Health Expenditure and Utilization survey revealed that only 17% of Kenyans had any form of health insurance. Among those insured, 88% were insured with NHIF, 9% were private insurances while other forms of insurance like community-based schemes took up about 3% (MOH, 2014). The high number of uninsured is not surprising given that approximately 35% of Kenyans live below the poverty line (World Bank, 2018).

The greater problem, however, was revealed by the 2016 Kenya Financial Diaries report. It revealed that 6% of Kenyan homesteads reported having had catastrophic spending on health that year. In this context, catastrophic spending was defined as expenditure enough to push the family into abject poverty. Further, they found out that every homestead had had 4 outpatient visits that year, costing on average 400 KES per visit translating to 1600 KES annually (Zollman & Ravisnskar, 2016).

With the alarmingly high number of poor and uninsured citizens, this study sought to determine if a patient's insurance status changed clinicians' decision making in the Kenyan setting. Extensive literature from the United States of America (USA) shows that clinical decisions are affected by the health insurance status of patients. Eighty-eight percent of family physicians in a network of over 100 primary care providers in Washington DC, was found to have made at least one change in patients' management depending on the insurance status (Meyers et al., 2006). For critically ill patients, lack of insurance was associated with fewer procedures and increased 30-day mortality (Lyon, Benson, Cooke et al., 2011). Similar results were described in a systematic review that found a shorter duration of hospitalization and favorable outcomes in critically ill patients were more common among those with insurance (Fowler et al., 2010).

While some researchers suggest that the effect of health insurance on clinical care is to the disadvantage of the patient, there are reported cases where lack of insurance made the clinician opt for a less expensive care plan. Huttin and Andral (2000) found that clinicians were likely to change a prescription to a cheaper medication in the same class if a patient lacked insurance. In another study, when perceptions about the quality of health care in insured and uninsured Ghanaian patients were compared, Abuosi, et al.,

(2016) found no difference between the two groups. This brings out the conflict in the available data on the subject matter.

Anecdotal reports from Kenyan facilities report that patients have been denied care or were not given the standard of care if they were not insured and had limited ability to pay out of pocket (Merab, 2018; Mwawasi, 2017). This may be partly because of doctors' hesitation to inappropriately plunge a family into poverty by obtaining an expensive test or intervention. In this case, the service or intervention, though important, may not be critical or have a significant impact on a patient's clinical outcome. Even for insured patients, some doctors report having ordered laboratory tests or admissions that were not deemed necessary because insurance would pay (Nyanchwani, 2008). There have been claims that patients cleared for discharge medically have been retained in a hospital to increase the amount reimbursed by the insurer (Kakah, 2018; Ogemba, 2018; VOA, 2018).

However, there is no data to support these anecdotes, which prompts the question: does having health insurance coverage affect clinicians' medical decision making in Kenya? The hypothesis is that lack of health insurance coverage does not limit health care rendered to Kenyans.

Following a literature search conducted in major journals within and outside Kenya, no studies have been done in Kenya to shed light on this subject. In conducting this research, critical information will be availed to the uninsured population and insurers. This is a major concern to the entire population because, as described above, Kenyans without insurance tend to be poor (Zollmann & Ravinshankar, 2016). Accordingly, it

was established that the health insurance coverage rate of the lowest wealth quintile was 3% compared to 93% of the wealthiest quintile (Zollmann & Ravishankar 2016).

If the uninsured are disadvantaged in clinical decision making, then the country should be concerned that the most vulnerable in society continue to languish in disease. To realize equitable and quality health care as envisioned by the sustainable development goals (SDGs), the insurers and policymakers will need to expand services while also ensuring that the quality given is not compromised.

1.2 Background to the Study

Health insurance as defined by Claxton (2002) is a mechanism for people to protect themselves from the potentially extreme financial costs of medical care if they become severely ill. This ensures that they have access to health care when they need it upon payment of some amount of money (premium) to another entity. He further goes on to elaborate that health insurance works by a risk-spreading function that helps make the cost of health care affordable for most people.

Globally, there is a wide variation in mechanisms of health care financing. Most of the countries posting good health indices have utilized health insurance as a way towards achieving equitable healthcare (Burke, Hariharan, Lipson, & Aultman, 2010). The British system has a mandatory contribution where those who are formally employed contribute to the National Health System (Kutzin, Yip, & Cashin, 2016). Such contributions ensure that those who are unemployed (poor) are able to acquire the services as well without having to incur extra cost. Similar model has been applied to other countries like United States of America with remarkable success. In addition to mandatory payments, the rate of insurance uptake for those in informal jobs is high.

USA, for example has an insurance subscription rate of more than 90% as contrasted to Kenya which has only 22% insured (Bureau, 2018). Japan boasts of the best healthcare in the world with all of its population insured. With 100% subscription, all Japanese therefore, are able to obtain any health service for free (Kutzin et al., 2016). This has seen the life expectancy of the Japanese rise to 80 as of 2016.

Low middle income countries (LMIC) have a totally different picture with majority of the population relying mainly on out-of-pocket payments. In Africa, only Ghana and Rwanda have a fair subscription rate. Rwanda in particular has made impressive strides towards accomplishing universal health insurance. It is estimated that around 81.6% of Rwandans have health insurance and have access to free health care across the country. Ghana's insured population is approximately 50%. Even with 50% insurance rate, many Ghanaians still are at a risk of catastrophic expenditure on health. It is interesting though to note that even with the insurance below many high-income countries, countries like Ghana and Rwanda report significant financial protection of its insured population. This indicates that increasing the number of insured people in a population is likely to lessen the financial burden imposed on them when they fall sick. Further, when the barrier for healthcare cost is circumvented, people are much more likely to seek care than if they were not insured. Health care utilization has been shown to increase once people get health insurance.

In Kenya, health insurance is mainly of two types; NHIF and private insurers. NHIF is by far the most dominant representing over 80% of all health insurance in Kenya. It is a government corporation to which contribution is mandatory for all Kenyans with formal employment. For the formally employed, the monthly charge is deducted from their salaries and submitted by the employer to NHIF. In 2015, the fund allowed those

informally employed to voluntarily join the scheme upon payment of an initial registration fee of 1,500 KES and thereafter a monthly premium of 500 KES.

Subscribers to NHIF get limited out-patient services without charge but caters for all inpatient charges in public hospitals. Those requiring services from private hospitals are needed to finance the deficit if services rendered exceed the amount NHIF pays. As of 2015, NHIF further recategorized its membership assigning different strata depending on premiums paid. All civil servants (those employed permanently by the government) have higher capitation rates while all other subscribers get a fixed capitation rate. In this study, a patient is considered insured if they possess an updated subscription of NHIF, private insurance or community-based insurances.

For the past decade, health insurance has revolutionized health care. The concept of health care insurance is about pooling risks together with the hope that not all subscribers will need health care. When some do, it is at different times (Claxton, 2002). Thus, those who eventually fall sick can get health care at a cost they would otherwise not afford with their own resources. While its initial intention was to improve health care while protecting subscribers from financial strain, health insurance has, over time, led to discrimination of those without insurance (Han, Call, Pintor, Alarcon-Espinoza, & Simon, 2015; Zollmann & Ravinshankar, 2016). In addition, settings that have strong health insurance systems have reported preferential treatment of those insured.

Kenya has been on a trajectory to universal health coverage (UHC). So big is the debate on UHC in Kenya that the government made a promise to achieve it in the next 4 years (MOH, 2018). As a way of achieving it, the government through the president of Kenya directed the national insurance agency (NHIF) to ensure that universal health care is

achieved by any means (Mwaura, Bearasa, Ramana, Coarasa, & Khama, 2015). Thus, the country is looking at insurance-through NHIF- as a way of realizing the project.

1.3 Statement of the Problem

In contrast to the wide body of evidence that points towards harm for the uninsured patients in Western countries, a study done in Ghana showed that health insurance did not affect the quality of health care rendered to patients (Abuosi, Domfeh, Abor, & Nketiah-Amponsah, 2016). Effects of patient insurance status on clinical decision making among doctors in Kenya has not been described. If a patient's possession of health insurance affects doctors' clinical decisions, it is unknown if this produces negative effects on uninsured patients in Kenya. Recent statistics show that only 17% of the Kenyans possess any form of health insurance. Thus, the findings of this study would apply to more than 30 million Kenyans without health insurance.

There is a potential detriment occurring to the many uninsured patients once they fall ill. Lack of insurance has been linked to poor outcomes of patients admitted in ICUs and even poorer outcome for chronic diseases like diabetes mellitus (Hadley, 2005; Zhang et al 2012). Moreover, there is an absence of research in the area in the Kenyan setting, which makes it difficult to convince the large uninsured Kenyan majority to enroll.

In a recent household consumer survey, Kenya Financial Diaries (2016) showed that among the 17% insured Kenyan population-majority, over 80%, were in the highest-earning quintile. This reinforces the fact that the uninsured majority are poor. Coupled with the World Bank (2014) report showed that nearly half of Kenyans (48%) live below the poverty line, it is reasonable to say that the uninsured Kenyan is poor.

The disadvantages of lacking health care insurance have been described in other countries. Studies in the USA have given strong association between poor health outcomes and lack of insurance (Han, Call, Pintor, Alarcon-Espinoza, & Simon, 2015; Weissman, Gatsonis, & Epstein, 1992; Fanks, Clancy, Gold, & Nutting, 1993). When people have to pay for a service (health insurance in this case), this is weighed against other competing interests. In those who have challenges meeting basic needs, paying for insurance may not rank very high in their priorities. Therefore, they are unlikely to seek health care. When they do, it is often in advanced disease, which requires more resources to treat. Over and above the huge financial burden their treatment incurs, they are forced to pay out of pocket, and this further impoverishes them.

All stakeholders, including patients and insurers, would benefit from a greater understanding of how health insurance in Kenya affects clinical decision making among doctors. Without this information, it is challenging to convince the population on the importance of having health insurance, assuming there is a local benefit to do so.

1.4 Purpose of the Study

This study intended to find out if possession or lack of health insurance among patients led to a discrepancy in the health care provided by Kenyan doctors.

1.5 Objectives of the Study

- i. To establish the extent to which doctors in Kenya varied their clinical decisions between patients with health insurance and those without.
- ii. To assess how clinical decisions made by Kenyan doctors in private practice differed from those in public practice given the health insurance status of the patient

- iii. To examine the extent that clinical decisions on emergency medical care by doctors in Kenya changed given the health insurance status of a patient.

1.6 Hypotheses

Ho₁: Clinical decisions made by Kenyan doctors on patients without health insurance do not differ from those of patients with health insurance

Ho₂: There is no difference in the management of patients between private practitioners and those in public service depending on the patients' insurance status

Ho₃: The clinical decisions made by Kenyan doctors to manage emergency conditions are not influenced by health care insurance status.

1.7 Significance of the Study

The rate of absorption of health care insurance in Kenya is extremely low, with less than a quarter of the population having any form of health insurance. There is a scarcity of research in Kenya and Africa as to whether health insurance influences clinical decision making. With data from developed countries showing that doctors sometimes change their treatment depending on the insurance status of patients, the lack of regional data is concerning for Kenyan context. Further, the available data from the African setting shows that health insurance does not affect the quality of health care which contrasts data from the developed world.

Lack of insurance has been associated with bad clinical outcomes for patients. The poor outcomes are partly due to a delay in seeking care. In other instances, health care systems have withheld useful interventions if the patients were uninsured and unable to pay. In addition, clinicians have also altered treatment decisions to the harm of the patients if such patients were not insured. This study was to determine if lack of insurance affected

clinician's decision making and if clinicians considered the change harmful to the uninsured patient.

The findings of this study will provide critical information to the Kenyan population that would enable them to make informed decisions in procuring health insurance. The government is likely to benefit from the findings of this study for the purpose of marketing and subsidizing insurance for those who would otherwise not afford it.

1.8 Scope of the Study

This study targeted doctors from the level of a medical officer intern to specialists/consultants across all medical disciplines. Pharmacists were not eligible for the study as they were not considered to be making a significant clinical decision in Kenya. Doctors who had practiced in Kenya for less than one month prior to the release of the survey were excluded from the analysis. The questionnaire was distributed over a period of three months through the Kenya Medical Association's (KMA) platform. All medical doctors, regardless of nationality, whether in public or private practice, were eligible to participate in the online survey.

1.9 Limitations of the Study

Since this study utilized a questionnaire, the impact on the patient is inferential based on the clinicians' best judgment. Therefore, the results in this study do not present a "cause and effect analysis" but rather implied from the respondents' estimation. The analysis of Likert scale is usually affected by use of mean (average) which tends to be influenced by extreme values. To remedy this, other measures of central tendency like median and mode were used to ensure that results were consistent.

Setting of practice (rural vs. urban) was not accounted for. KMA had the database and to reach all its members, emails had to be dispatched to all at once. This also made it impossible to control for the location of the respondents. It is not known whether doctors practicing in urban areas are influenced differently by insurance when compared to those in a rural setting. This, however, was not considered a significant limitation since it was not an interventional study.

Generalization to other cadres: Clinical officers and nurses who also make clinical decisions in Kenya were not part of this study. It is unknown if and how such cadres in Kenya are affected by health insurance. This is limitation stands, too, for other doctors not affiliated to KMA, for example, pharmacists.

1.10 Assumptions

It was assumed that respondents had only one email address registered with KMA. Repeated responses were likely to skew the data. The survey settings were set to allow only one submission of responses per email address. Additionally, the researcher assumed the respondents had access to the internet which would then facilitate filling in the questionnaire.

Further, the completion rate per questionnaire was anticipated to be above 80%. To achieve this, the questionnaire was made three pages long with sixteen questions. This was derived from the average completion rate from other online surveys which achieves a completion rate of 85% if questions don't exceed thirty. KMA was used to dispatch the survey since surveys dispatched by an organization known to the respondents receive completion rates above 73%.

Finally, it was assumed that all respondents would comprehend questions in a similar and consistent manner. This was controlled for beforehand by using simple language and piloting the questionnaire to rid of ambiguous questions.

CHAPTER TWO

LITERATURE REVIEW

2.1 Introduction

This chapter reviews available information on how doctors' clinical decisions are altered by payment modalities globally and the implication that has on the outcome of patients involved. It presents relevant empirical and theoretical literature reviewed including a conceptual framework which is a summary of factors influencing clinical decision making. In addition, it debunks all available health care payment methods in Kenya and their utilization thereof.

2.2 Theoretical Framework

Different theories have been fronted to describe the complex phenomenon of clinical decision-making. The theories discussed here are Hypothetico-deductive Theory, Dual processing Theory, and The Script Theory.

2.2.1 Hypothetico-deductive Theory

Initially fronted by Sir Karl Popper in 1695, this theory posits that for every situation requiring decision making, a falsifiable hypothesis is made. This then is followed by putting the hypothesis through some testing to either reject it or adopt it. In this model, a clinician goes through four stages: cue recognition, hypothesis formulation, cue interpretation and hypothesis evaluation (Tanner et al., 1987). Cue recognition happens when a clinician is collecting information from a patient. The clinician then makes a hypothesis (a tentative decision) on basis of information obtained from the patient. The cues obtained from the patient data are then combined and a decision and/or a diagnosis reached. Finally, evidence collated is evaluated in relation to its relative merits and

possible contribution to the confirmation or rejection of the original hypothesis (Banning, 2007).

This theory is useful in depicting how clinicians arrive at a diagnosis. However, it fails to take into account other non-clinical factors that may affect the decision to offer treatment. In this study, the interest of the researcher is in how insurance affects subsequent decisions given a diagnosis.

2.2.2 Dual Processing Theory

As the name suggests, this theory explains two ways in which clinical decisions can be reached (Norman, 2009). The two mechanisms have been referred to as System 1 and System 2. System 1 relates to fast and effortless unconscious thinking (e.g. pattern recognition) while the latter denotes the slow and conscious process of problem-solving. System 1 describes a process where there is almost an instantaneous decision making resulting from a stereotyped case retrieved from memory.

It is averred that System 1 is as a result of the extensive experience of making the same decision repeatedly and thus making subsequent decision making easier (Durning et al., 2011). On the other hand, System 2 entails actively comparing and contrasting features of the problem at hand with features of prototypical cases or abstract representations in memory to find the optimal solution. System 1 is a better predictor to successful clinical decisions (Graber et al., 2005). Research has shown that improper clinical decisions (e.g diagnostic errors) are as a result of failing to engage System 2 when System 1 fails (Graber et al., 2005).

Dual processing theory offers great insight into how experience and expertise influence clinical decisions. In System 2, it possible that a clinician will take into account other

factors besides the diagnosis . This theory adds to this study the importance of eliciting experience (years practiced) since this can be confounding.

2.2.3 The Script Theory

The basic concept underlying this theory is that human beings use a constellation of characteristics and features to form a script. This is then referred from memory when they encounter a similar situation. In the words of Charlin et al. (2000), “incoming information activates a previously acquired network of relevant knowledge and experience—a script—that directs the selection, interpretation, and memorization of that new information.” When a clinician encounters a patient, they (clinician) internalize patient's characteristics, signs, symptoms, and environment which are then utilized to activate networks of knowledge that contain those features and their relationships to illnesses. A clinical decision is thereby made. Unlike other theories, the Script Theory takes into consideration previous experience and environment. In the case of this study, environment has been used to refer to type of practice, public vs private. Patient characteristics was adopted as severity of disease but could also refer to health insurance status.

While all three theories try to explain the complexities involved in clinical decision making, the script theory is most applicable in this study as it considers the patient’s environment. The other two dwell majorly on the clinical state of the patient. In this study, while the clinical status of the patient is paramount, we seek to elicit the influence of health insurance (a non-clinical factor) on the clinical decisions.

2.3 Empirical Review

2.3.1 How Modality of Payment Impacts Clinical Decisions

There has been great interest in how payment modality of patients affects doctors' clinical decisions in developed countries. Various non-clinical factors influencing clinical decision making have been described. Hajjaj et al. (2010) identified payment modality as one of the non-clinical factors that influenced clinicians' decision making. They report that patients without health insurance received fewer inpatient and outpatient services (Hajjaj et al, 2010). This influence has been, in most cases, disadvantageous to the patient. For example, Mort et al. (1996) found out that physicians were more likely to recommend services they deemed important to insured patients than to uninsured patients.

Such omissions coupled with overt discrimination of the uninsured patients have further been associated with poorer outcomes in health for the uninsured. For example, since uninsured populations receive fewer preventative measures, they arguably suffer worse health outcomes (Rosen, et al., 2009; Freeman & Kadiyala, 2008; Woolhandler & Himmelstein, 2017; Baker et al., 2006; DeVoe 2003). This means that when they eventually present to the hospital, they are sicker and therefore often require in-patient admission which is more expensive. WHO (2003) explained the same observation in that uninsured patient delayed before seeking healthcare. Consequently, their mortality is higher than their insured counterparts (Hadley, 2005; Institute of Medicine (US) Committee, 2002; Driscoll & Bernstein, 2012; Wilper, et al., 2009).

In an anonymous survey done among American doctors, it was found out that a third of doctors would withhold useful services from patients due to insurance coverage restrictions, and other surveyed doctors agreed to not discussing treatment options with

their patients when they thought patients were unable to afford them (Doobinin et al., 2003).

A group of American primary care practitioners was studied to determine whether the insurance status of their patients affected their clinical decisions making. It was found that about 80% of the doctors had made at least one change to a patient's management plan depending on their insurance status (Meyer, et al., 2006).

While most of the effects of non-insurance have been studied mostly in adults, the few that have looked at children show similar findings. Wood (2002) reviewed children who had asthma. They evaluated the relationship between health insurance and the general well-being of the children. They concluded that children from uninsured families suffered more severe asthma symptoms and had more acute care visits than those from insured families (Wood et al, 2002). This further strengthens a finding made by Newacheck (1998) that having insurance was strongly associated with access to primary health care. By and large, data seems to indicate that health insurance influences clinical decisions.

2.3.2. Modalities of Payment in Kenyan Healthcare

Majority of Kenyans pay cash for healthcare services. This is commonly referred to as out-of-pocket (OOP) payment. A report analyzing how Kenyans pay for healthcare was done in 2016 and outlined three methods Kenyans use to pay for health (Gubins & Ravishankar; 2016). OOP payment was the commonest modality of payment utilized by approximately 82% of all Kenyans. This means that patients have financed their own medical expenses. The source of finances, in this case, is from personal (or family) savings, fundraisers or through well-wishers (MOH, 2013). It is in this category that

healthcare can cause catastrophic expenditure since they deplete their resources paying for healthcare expenses. There are a variety of cases in Kenya and beyond where OOP payers have been subjected to poverty due to expenditure in health care. In the case of Ghana, OOP payers were found to be unprotected against disastrous expenditure (Nguyen, Rajkotia, & Wang, 2016). Health insurance has shown strong protection against catastrophic expenditure among the poor, who many a time, are more vulnerable to health shocks than the rest of the population (Hong, Ayad, & Ngabo, 2011). It is this finding that has led the Ghanaian government to exempt premium for the indigenous and low-income earners (Wang, Temsah, & Mallick, 2017).

Less than a quarter of the population (22%) in Kenya use health insurance to pay for their healthcare expenses. The Kenyan Ministry of Health (2013) through the Kenya household health expenditure and utilization survey revealed that NHIF was the most utilized health insurance taking up 88% of all insured Kenyans (MOH Kenya, 2014). This was followed by private insurances (1.9) and a smaller group used community-based insurances. In the recent years, there has been an increased effort by the government to recruit more Kenyans into the scheme. With the much hyped UHC agenda, some devolved units have waived or even abolished the subscription fees for NHIF altogether in bid to raise the insurance subscription. A case in point is Tharaka Nithi county which has waived the NHIF subscription fees for its residents in order to increase the number registered for the scheme (GOK, 2017). Several other counties have followed suit but the consistent issue in all those arrangements is that the subscriber has to pay the annual premiums.

It is important to note that the two modalities of payment mentioned above do not always occur singly. Insured clients may be required to additionally pay out of pocket for

services that the insurer does not cover (Kimani et al.; 2004). This is commonly referred to as co-payment or cost sharing and is thus the third modality of payment in Kenya. This phenomenon as observed in other countries paints the insurance coverage as inadequate (Magge, Cabral, Kazis, & Sommers, 2013). As an example, NHIF in most hospitals offers to pay for haemoglobin test, malaria and urinalysis for its outpatient clients. Any other test required over and above the stated investigation will have to be paid for by the patient. Very often, many other tests will be required for patients visiting hospitals. When the insured individuals still have to foot part of the bills, it puts the effectiveness of their insurance scheme into question. Magge et. al (2013) termed this scenario as being under insured . This means that while the insurance offers some financial aid, such is not sufficient to cushion the patient from catastrophic expenditure. In contrast, private insurances tend to pay for all bills incurred for their subscribers.

A positive correlation has been made between poverty and under insurance. In the United States of America, there exists two forms of health insurance; Medicaid-which is the public insurance-and private insurers. Due to payment restriction as described above, Medicaid subscribers have been described as under-insured. Interestingly, under-insurance has been found to have the same effect as being uninsured when it comes to healthcare utilization and outcomes (James & Poulsen, 2016; Weissman, Gatsonis, & Epstein, 1992). A smaller population of Kenyans (8%) use private insurances to pay for their healthcare expenses. Typically, these will be the financially well off as the premiums are known to be quite high in comparison with NHIF (Kazungu & Barasa, 2017). In return, these insurances foot all healthcare expenses and adequately cushion their clients from catastrophic expenditure on health. This further fuels the inequality in health care-the rich are more likely to obtain private insurance (therefore more

protection) while the poor have to pay OOP or make do with under-insurance (further impoverishing them).

A unique challenge and influence has since arisen with the introduction of insurance as a form of settling healthcare expenses. Healthcare providers have been accused of giving excess/unnecessary interventions because of the assurance of payment (Kubania, 2018). Others have allegedly been overcharging the insurers for services rendered to the clients (Omondi, 2019). Insurance fraud has also been reported to have increased (Odit, 2017). All these demonstrate the complex manner in which health insurance influences clinical decisions. It is therefore critical to note that having insurance can influence clinical decisions in a variety of ways ranging from addition of interventions that are truly beneficial to excess and unnecessary intervention because of assurance of payments. This phenomenon is not unique to Kenyan. It has been described in multiple settings (Blomqvist & Busby, 2012; Chaix-Couturier, Durand-Zaleski, Jolly, & Durieux, 2000). Owing to that propensity to abuse by beneficiaries, some authorities have proposed capitation and cost sharing as the most logical way of solving the issue of abuse yet still paying for necessary interventions (James & Poulsen, 2016; Yip et al., 2014). In summary, NHIF has adopted a capitation method of reimbursement while private insurances utilize fee-for-service method. The remainder of population largely uses OOP payments.

2.3.3 Health Insurance in Emergency Cases

In most settings, whether to take care of a patient in an emergency regardless of the patient's ability to pay is an ethical and a legal issue. In such cases, hospitals will incur hefty expenses while taking care of an emergency case with no assurance of payment if the patient has no health insurance. Nevertheless, it is illegal to deny anyone highest

standards of care during an emergency (GoK, 2010). Similar laws exist in the USA but these laws have not eliminated care discrepancies. One study targeted African-Americans presenting to American hospitals with chest pain. The study group was in the lower socioeconomic status and therefore less likely to have health insurance. The finding was that despite chest pain in a black adult being a serious event (due to the likelihood of it being a heart attack) there were consistent delays in these patients seeking medical intervention. This was loosely associated with their inability to secure health insurance (Smoldren et al., 2010). Smolderen (2010) then concluded that lack of health insurance and financial concerns among those without health insurance were associated with delays in seeking emergency care for acute myocardial infarction (AMI)- a fatal condition which qualifies by all means to be an emergency.

A review of emergency services was conducted to determine how health insurance affected delivery of emergency services. The whole spectrum of trauma emergencies was found to be greatly influenced by insurance status, with deleterious outcomes for the uninsured. Uninsured patients involved in trauma were likely not to be rescued (Bell & Zarzaur, 2013; Joseph et al., 2015). The foregoing augers well with the finding that the all-cause mortality for uninsured patients involved was trauma is high as averred by other authors (Haas & Goldman, 1994; Haider et al., 2008; Osler et al., 2015). These poor outcomes have been linked to delayed investigations, missed interventions all of which depend on a doctor's decision.

Health insurance status has in past researches been shown to influence clinical decision making. An overwhelming majority of them have suggested that the decision change was tending to harm the patient (Hajjaj, Salek, Basra, & Finlay, 2010; McIntosh, Stewart, Forbes-McKay, McCaig, & Cunningham, 2016). As indicated above, such trend has

been observed in emergency care of patients in western settings. In Kenya, the constitution requires that in the event of an emergency, all Kenyans be provided with the services they may require regardless of their ability or inability to pay (GoK, 2010). Many providers in Kenya have complained that delivery of such services often is not paid for and hence counts as massive losses to the institutions (Merab, 2018). As a result, institutions are unwilling to offer emergency services unless there is some assurance of payment (Wachira & Martin, 2011). Having health insurance means that the institutions will be compensated for their services. This means that they might be motivated to offer services readily to those insured (Jeffrey, 2011).

The foregoing thus underscores the fact that lack of insurance can lead to loss of life. This is true for those settings from which the quoted studies were done. Notably, there is a scarcity of regional data to this effect. This is understandable as health insurance has not been a key concern for most African governments. With the growing interest and effort to have universal health care in Kenya, health insurance has taken a foreground and thence making local data more necessary.

2.3.4 Public versus Private Practice and Health Insurance

There has been a comparison made between the quality of health care given to patients in private practice and public practice. Some have argued that services rendered in public hospital were lower in quality than private. Yesilada (2010) compared the health care service quality in Pakistan and concluded that the quality of health care was significantly higher in private hospitals. Unofficial reports running in local Kenyan newspapers seem to concur.

A feature in a popular Kenyan newspaper highlighted the inferior services in Kenyan public hospitals as compared with private hospitals (Onyimbo, 2017). The author explains that basic services are not available in most public hospitals due to poor resource allocation. In addition to resource allocation, it is unknown if clinical decision making is more affected by insurance status in public versus private hospitals. Findings from this study can provide some direction in evaluating this discrepancy.

Just by design, private hospitals charge higher rates than would public hospitals (Subramanian et al., 2018). The trend of payment modality tends to follow same design. Private hospitals will have more insurance clients than OOP payers (Mwaura, Barasa, Ramana, Coarasa, & Rogo, 2015). The opposite is true. Most public hospital will attract OOP payers since they are cheap. The opportunity cost of pricing is often the quality of care rendered. While public hospitals might be cheaper, their diversity of services and even quality is significantly below the private hospitals (Onyimbo, 2017). This therefore means that while the nature of hospital (public vs private) might affect clinical decisions, the effect may not be the same.

The commonest influence recorded by private practices is inflating costs, obtaining unnecessary interventions especially for insurance payers (Merab, 2016; Omondi, 2019; Selden, Karaca, Keenan, White & Kronick, 2015). This means that the doctor realizing that one is using insurance to pay, may be change clinical decision from standard of care to more expensive or profitable interventions. As to whether the said interventions translate to better outcomes, this has not been conclusively correlated. There exists data that has shown better outcomes in private hospitals but cannot be attributed directly to cost of the service (Amorim et al., 2012).

A third category of practice exists in Kenya and has been branded the not-for-profit hospitals. Majority of these are the faith-based hospitals (FBH) and charity organizations. They shoulder approximately 40 percent of all healthcare in Kenya and have been said to provide a fair alternative to private hospitals (Kinyanjui, 2014). They aim at striking a balance between cost and quality. While their quality is arguably better than public hospitals, their charges are subsidized and therefore accessible to a greater population base than the private hospitals. While doctors working in such hospitals might make their decisions based on their religious inclinations, the payment modality might still influence decisions.

Due to the increasing interest in health insurance by the Kenyan government, there is need to evaluate its influence in clinical decisions, especially with the national treatment guidelines recommending interventions, some of which might be expensive for uninsured population.

2.4 Types of Practice in Kenya

Kenyan doctors can work either in public hospitals or in private practice (Kenya Const. Cap 253). Those employed by the government and thus work exclusively in public hospital constitute public practice. Private practitioners are those who work either in their own hospitals/clinics or at private hospitals. This includes working for mission hospitals. The third category of doctors practice in both public and private hospitals as negotiated with their employers.

2.5 Conceptual Framework

Spring and Hitchcock (2009) while exploring evidence-based practice described a tripartite model of clinical decision making. It involves interplay among patient-related factors, clinician-related factors, and organizational context, and is the conceptual framework utilized in this study.

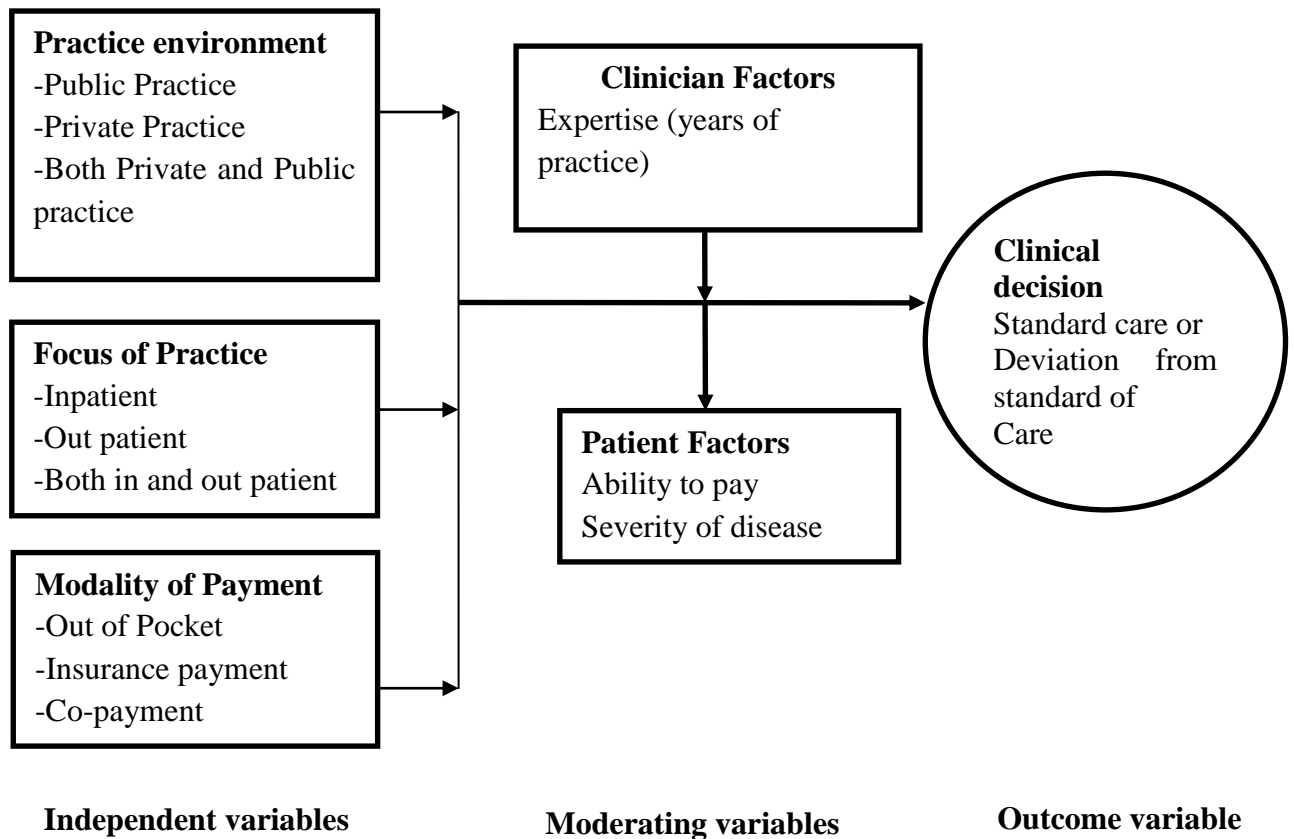


Figure 1: Conceptual Framework

The factors influencing clinical decisions are numerous since both the clinician and patient contribute to the process. These include severity of disease, patient economic status as well as preexisting patients' information which can independently influence the decision outcome. A patient presenting with an emergency condition is likely to be treated without having to pay upfront while in elective non emergent cases doctors may have the patient wait until he can raise the required funds. In addition, if a patient is

unable to pay, it might make the doctor make a clinical decision that is favourable in terms of cost. Other independent factors as illustrated influence decisions as well. A patient paying by cash is likely to be addressed differently from an insurance payer, the environment matters as well. On the clinicians' part, the potential financial impact of a treatment on a patient also can significantly change the decision-making process.

Other factors include policies and clinical or procedural guidelines, either from the hospital or government including legislation. The Kenya Ministry of Health has developed clinical guidelines for diagnosis and management of common conditions with clear directions on what action to take when a clinician is treating certain patients. These policies dictate what a clinician is supposed to do in certain scenarios. The clinical decision in such instances is therefore influenced by the policy.

This framework helped determine what data to collect from the respondents. Duration of practice, care and focus of practice were among variables obtained from respondents and analyzed to see if they influenced the decision to change. This was necessary for controlling for other factors which in addition to insurance status, could also affect clinicians' decision making.

CHAPTER THREE

RESEARCH DESIGN AND METHODOLOGY

3.1 Introduction

This chapter contains the strategy used to achieve the objectives as outlined earlier. The actual plan to undertake the study and fulfilment thereof is also presented. In it, the mechanism employed to develop the tool and its distribution are also discussed in detail. Further, the target population and number of respondents are provided.

3.2 Research Design

This was a cross-sectional survey which utilized an online questionnaire. The online survey was conducted anonymously to Kenyan doctors registered with the Kenya Medical Association. All members in the KMA database between August 2018 and October 2018 were invited to take part in the survey. In this study, a doctor has been defined as one who has successfully completed medical training (MChB, MBBS, MD, DO or their equivalents). While most of the data obtained was quantitative in nature, optional open-ended questions were included and qualitative data given. Such data was analyzed qualitatively by thematic analysis. With both quantitative and qualitative data analysed, the research design was rendered mixed method.

3.3 Location of the Study

This study was done in Kenya between August 2018 and October 2018. The online survey was distributed to all members of KMA who were in their email database during the study duration.

3.4 Population of the Study

The study population was clinicians practicing in Kenya. Clinicians, as used in this study, refer to medical officer interns, medical officers, registrars/residents, and consultants. The Kenya Medical Association emailed the doctors a link to the survey.

The Kenya Medical Association is a professional society that deals with social and welfare issues as well as capacity building for the doctors. Membership is voluntary and open to all medical practitioners registered in the Republic of Kenya upon payment of an annual membership fee.

It was founded in 1968 and as of August 2018 had close to 3000 members. The association keeps a dedicated list of their members who are reachable through an emailing list or bulk phone message to all its members. However, despite the huge membership, KMA mailing list at the time of the study had about 900 emails in their email list. These are the members to whom the survey was sent. Permission to contact respondents was sought in writing from the leadership of KMA and was promptly granted.

Other mechanism to reach out to respondents included using KMPDB registry or social media groups. Using the medical board boards posed a challenge in that the board is the regulator of doctors in Kenya. The research topic touches on ethical matters and therefore using the regulator to disseminate the survey was likely to introduce a strong self-selection or non-response bias. In addition, reaching out to the medical board was challenging given their slow response to emails and bureaucracy involved. For those reasons therefore, KMPD was dropped as an option of reaching respondents. Using social media was considered informal and it would be impossible to regulate the target group as well control for multiple responses.

3.5 Sampling Procedure and Sample Size

3.5.1 Sampling Procedure

Purposive convenient sampling was used since only doctors registered with KMA were targeted in the study. As per KMA database in July 2018, the association had roughly 900 emails subscribed. The association was chosen due to its ability to reach out to members via email. Emails were preferred in this study since that was the only way to be sure the target recipients responded once.

3.5.2 Sample Size

All doctors on the mailing list were included to increase statistical power. All those who responded, and were eligible, were included in the final analysis amounting to a convenient sample. A response rate of about 20%-30% was expected as noted by Wright who obtained Pakistani physicians' response rate of 35% (Wright, 2005). Pakistani is a developing country just like Kenya and was considered a close estimate of what response rate this study expected.

3.6 Instrumentation

3.6.1 Questionnaire

The questionnaire sought information on a clinician's practice setting, clientele, and modality of patient payment (Appendix I). Demographic details of respondents were also obtained. These details included the health profession cadre and age bracket. These were informed by the conceptual framework for clinical decision making. Deliberate efforts were made to avoid identification or data that was likely to identify respondents. For example, the questionnaire did not require one to identify their specialty. Opening screening questions were used to filter respondents who were not eligible for the study.

Respondents were then asked whether they have had to change a patient's management plan due to their insurance status and how they think the change impacted the patient. "Impact" as used here was rated on a scale of between (-3) to (+3) with negative impact at (-3) and positive impact at (+3). On a Likert scale, respondents rated how often they had had to change their management on basis of insurance status of patients. As a follow-up, those who admitted to having changed their decision were requested to explain how and, according to their opinion, rate how they thought it impacted the patient. A question on their likelihood to change their treatment plan in emergency and non-emergent cases on basis of insurance coverage was also included.

A final exit question requested the respondents to describe factors they considered when making clinical decisions in view of health insurance coverage. In addition, open-ended questions allowed respondents to describe clinical scenarios in which they had changed their clinical decisions. This was important in capturing data that the questionnaire might have overlooked.

The answers provided to the open-ended questions would be used to determine which respondents might have contaminated data, for example, straight lining. Straight-lining occurs when the respondent selects the same response option for a set of items, visually indicated by the appearance of a "straight-line" of responses as the viewer reads down a set of items (Cole, McCormick, & Gonyea, 2012). Varying responses and including free text reduced the risk of straight-lining in this study.

Free text data obtained was treated as qualitative and analyzed as such. A question requested respondents to describe an example of a clinical scenario where they had considered insurance in making clinical decisions. Additionally, an exit question had the respondents describe what they considered when making clinical decisions. These two

were used to capture any information that might have been overlooked during the development of the survey. Data obtained thus was processed qualitatively with development of themes and codes according to most recurring phrases.

Thematic approach was employed for analyzing the qualitative data from free text responses. Categories of reasons and examples of clinical cases were clustered from initial codes. Each response to a question was recorded on a spread sheet. The researcher went through each response colour coding all similar phrases emerging. The themes were then developed, and the pertinent quotes attached under each theme. For comparison, the free text data was entered into NVIVO and analyzed electronically. The themes developed manually were then compared to the ones developed by NVIVO software. There were no significant differences in the themes developed manually compared to those generated by NVIVO software.

Two supervisors independently went through the developed themes and were in agreement about the developed codes and themes. This method has previously been employed previously in analysing open ended responses from other surveys (Bankauskaite & Saarelma, 2003; Wardle, Sibbritt & Adams, 2018). Such data provide useful insights into perceptions and reasons that the researcher may not even be aware of (Wardle et al., 2018; York, Churchman, Woodard, Wainright & Rau-Foster, 2012). Results from that were used to bolster findings from the quantitative portion and also point at other areas of further research.

The questionnaire was projected to take about 6-8 minutes to fill hence respondents were likely to complete it quickly, reducing respondent fatigue. Response bias was mitigated by getting rid of all identifiers and assurance that the research was anonymous.

3.6.2 Pilot Study

The proposed questionnaire was piloted among Kabarak University faculty in the department of family medicine and four year two family medicine residents. Changes occasioned by the pilot study included restructuring questions that were considered ambiguous by the pilot respondents. A question was also added asking the respondent whether the triage personnel filtered off those patients unable to pay. Question logic was also added to the questionnaire. This would redirect respondents who had different answers. For example, those who agreed to take the survey were directed to page one while those disagreeing were redirected to the exit page. This, however, came at the cost of survey length as each question logic had to be done on a new page. This made the survey three pages long. A consent page was also included for respondents to opt in/out of the survey.

Reliability of the tool was evaluated for by calculating for an alpha Cronbach value. The internal consistency measure came to 0.8 which is considered optimal for surveys (Heale & Twycross, 2015; Streiner, 2003). Validation of the tool was done in two ways; face and content validation. Face validation was done by the researcher during selection of the questions. With the help of a bio-statistician, questions were developed that were less likely to confuse and any ambiguity noted during the pilot was addressed. After development, content validation was done by two experts who independently agreed on the set of questions with only minor corrections in semantics (Colorado university, 1997).

3.6.3 Data Collection Procedure

The final questionnaire was distributed using a premium package on Survey Monkey. The online survey had an opening statement describing the purpose of the study and that

the survey was completely anonymous with no way of identifying the respondent. Demographic details that were needed from the respondent included: specialization status, type of practice and years of practice.

Initial screening questions were used and those who were filtered exited the survey. The screening questions ensured that only those doctors who were active in clinical care proceeded. The demographics requested were not anticipated to be precise identifiers of participants since names and other obvious identifiers were omitted. Nonetheless, the information was available only to the researchers. The average time for filling up the survey was five minutes from the pilot study.

To avoid spamming, KMA emailing system which was well known to the respondents was used. Multiple responses were not possible since the feature was deactivated from the Survey Monkey website. This allowed only one response per recipient.

Straight lining is a known threat to data quality in online surveys. To reduce this phenomenon, the questionnaire was made short and relevant since it related to doctors' everyday activities. The inclusion of open-ended questions helped reduce and identify cases of straight lining.

Special permission and approval from the national executive council of KMA were obtained. The initial dispatch of the survey was done on 1st August 2018 with two reminders after two weeks and four weeks from the date.

3.6.4 Validity of Online Questionnaires in Healthcare Research

Web-based surveys have been a means of collecting data from large sample groups quickly and with minimal cost (Schonlau, Fricker & Elliott 2002). When the comparison between response rate and duration is taken to complete surveys for online surveys

versus other conventional means was done, it was found that online surveys were generally faster and cheaper to obtain data (Greenlaw et al., 2009). The effectiveness of online surveys has been thoroughly validated (Carini et al. 2003; Sax, Gillmartin, & Bryant 2003; Kaplowitz, Hadlock & Levine 2004; Kiernan et al. 2005). The consensus from the research is that data obtained is efficient, and not inferior to paper-based surveys. Merolli et al. (2014) summarized the utility of online surveys as “a valuable study method for health research that builds on the foundations of traditional survey method but harnesses the power of the Internet to conduct research” (p. 21).

Online surveys are useful for target groups that are too large and diverse to be reached otherwise. In the case of this study, doctors in Kenya are spread out in the whole of the country making it challenging to conduct paper surveys as it would be too expensive and time-consuming. With limitation in both time and financial resources, the use of an online survey helped circumvent those constraints yet obtaining equally credible data.

Online survey administration produced higher response rates when administered to an educated population with access to computers. The overall cost per response was notably less expensive than the paper-based administration and the effort (Yun, 2000). Most of the medical training requires a computer, so computers were deemed easily accessible by the target population. The respondents were required to have an email address to register with KMA.

In addition to reduced cost and turnaround time, online surveys have the advantage of eliciting sensitive information that could otherwise not be provided by respondents due to fear of being judged. Health insurance and its consequence on healthcare services have become a sensitive and even political issue in Kenya. Kenyan hospitals have been

accused of exploiting patients with insurance coverage. In a recent article by a popular Kenyan newspaper, hospitals were accused accordingly: "...excess diagnostic tests, exaggerated prescriptions, and unnecessary admissions are some of the tricks medical personnel use to fleece Kenyans seeking treatment" (Kubania, 2018). This further justifies the use of an online survey over a paper survey when exploring health insurance and its consequences on clinical decision making.

Physically surveying Kenyan doctors on health insurance may negatively impact survey responses as a result of social desirability. Use of online surveys eliminates the need for a researcher to be present and, in some cases, removes all personal contact with a researcher. Research has suggested that the pressure to impress a researcher can be reduced through computer administration (Richman, Kiesler, Weisband & Drasgow, 1999). In support, Joinson (1999) demonstrated that Internet-based tests yielded lower social desirability scores than did paper-and-pencil based tests. These studies suggest that social desirability may be a function of the type of methodology and hence making online surveying an appropriate methodology for this study.

A challenge of an online survey is the need for internet for completion. Use of internet among doctors has been explored by Pakistani researchers who concluded that internet use and web-based medical information was widely popular among physicians (Podichetty, Booher, Whitfield & Biscup, 2006). In India, internet usage among doctors was found to be very high with an average of 70% of doctors using the internet (Deodurg et al., 2013). In Kenya, data suggests that internet usage is high with 67% classified as internet users (Omulo, 2017). In the year 2018, Kenya was the leading country in the usage of mobile phone internet globally (Ngunjiri, 2018). This, by inference, means that doctors are heavy users of the internet and therefore the need for internet should not

significantly impair the survey response rate. In conclusion, an online survey will yield more honest and higher response rate compared to other methods of data collection.

3.7 Data Analysis

The responses from the online questionnaire produced data that had an independent variable that is categorical (possession of insurance) and a dependent variable that is categorical (clinical decision change). Possession of insurance was classified under out of pocket payers (no insurance), Insurance payers and out of pocket + insurance payers (co-payment).

The dependent variable was a dichotomous variable yes (changed clinical decisions) or no (did not change clinical decision). A Chi-square test of independence was then run.

Data were analyzed using SPSS software. Chi square-Test was used to determine association at a significance level of $\alpha = 0.05$ or less.

Sub-group analyses were done on whether insurance status affected the management of emergency versus non-emergent cases. In this case, the variables obtained were categorical. The frequency of decision change (yes or no) in emergency situations was compared between those paying OOP and those using insurance.

Another sub-analysis done was between private and public and how their decision change was affected by insurance status. This was also tested using the Chi-square to determine the association. This yielded the risk (or chance) of decision change given a certain insurance status. Self-selection bias was minimized in this study. The online platform was anonymous and therefore respondents were likely to disclose information without fear or stigma or repercussions.

Free text obtained from the questionnaire was analysed per question. In both questions, responses were transferred to a spread sheet for ease of analysis. The researcher went through all responses colour coding phrases which were repeated by respondents. These were eventually grouped to codes and subsequently into themes. A total of 10 codes were developed which then fit into four themes. Generated themes were reviewed by two competent researchers who largely agreed with the developed themes. Further, code and theme generation was done by NVIVO software to confirm accuracy and reliability of those developed manually. The two sets of themes were comparable.

3.8 Ethical Considerations

The ethical issues addressed were confidentiality, anonymity, informed consent and right to withdraw from survey/study.

Confidentiality: data obtained was only accessible to the researching team. The password to the online survey was kept under the custody of the principal investigator.

Anonymity: using the survey tool (Survey Monkey) there was no IP address collection and the data collection tool had no requirement of any identifier information. This was done to keep the participants anonymous and was clearly stated on the opening page.

Informed consent and the right to withdraw from the survey was clearly indicated at the beginning of the survey. However, once responses were filed, there was no way of identifying any responses so withdrawal could not be in retrospect. Permission was sought from the Kenya Medical Association. In addition to the above, ethical approval was granted by the Kabarak University Institutional Research and Ethics Committee (IREC). The final level of approval was sought from the National Commission for

Technology and Innovation (NACOSTI) upon presentation of letter from IREC. This was granted paving way for the remaining processes to be undertaken.

CHAPTER FOUR

DATA ANALYSIS, PRESENTATION AND DISCUSSION

4.1 Introduction

This chapter provides the results of the study and their subsequent analysis including discussion of the same. The objectives of the study were to explore any influence of health insurance in clinical decision making. Further, the study sought to find out whether emergency care was influenced by health insurance status, and whether there existed any differences between the clinicians in public practice compared to those in private practice.

4.2 General and Demographic Information

4.2.1 General Information

The study was conducted between August 2018 and October 2018. Initial dispatch was on the 1st August 2018 yielding 104 responses. Reminders were made on August 17th and September 28th. The total responses from the follow-up reminders were 148 responses and 183 responses respectively. Closure of the survey was done on the 14th October with the closing tally of responses at 182.

In the process of engaging with KMA, it was found out that the total number of emails they had in their database was approximately 900, and not 3,000 as had been previously indicated (from their website). Thus, the response rate was 20% (183/900). The inclusion of a consent page before starting the survey was added after feedback from the first respondent. Effectively, the survey had 3 pages that took about 6 minutes to complete.

4.2.2 Demographic Information

4.2.2.1 Recruitment Algorithm

One hundred and eighty-two respondents took the survey. Twenty-four (24) respondents who did not meet the inclusion criteria were then omitted.

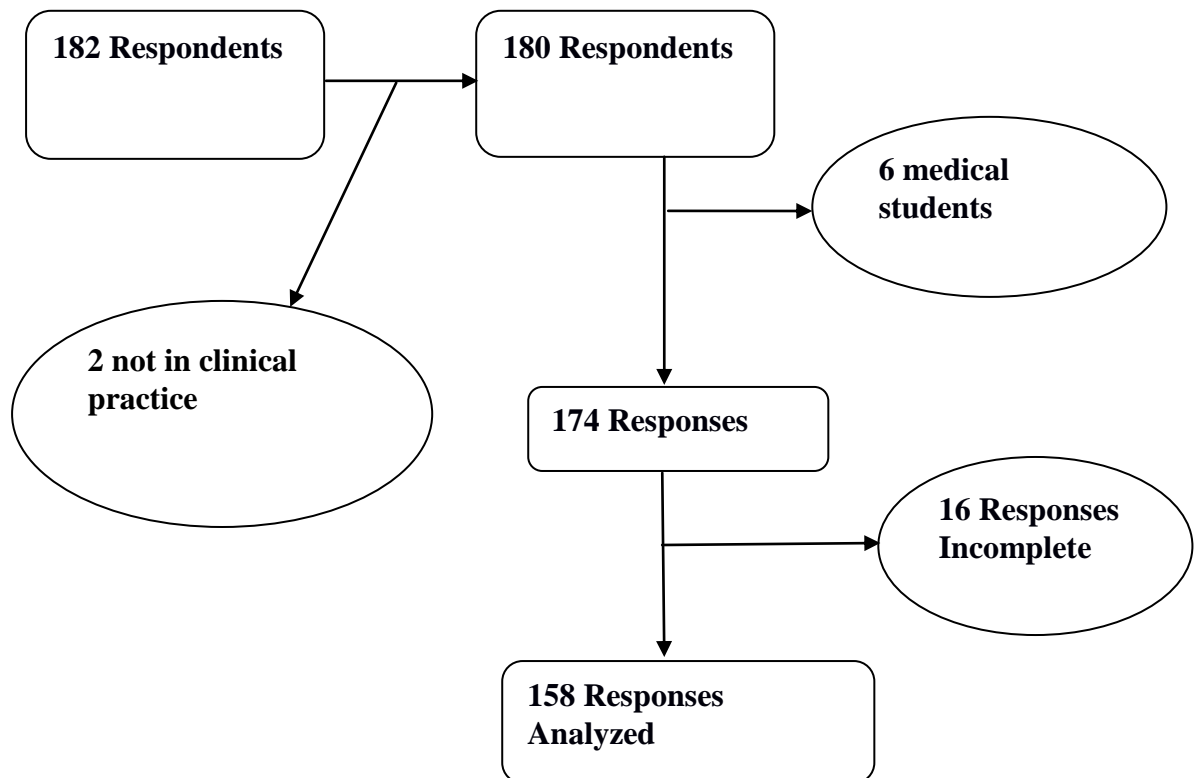


Figure 2: Recruitment Algorithm

A total of 158 questionnaires were analyzed. The demographic distribution of the respondents was as below. Demographic distribution was largely in congruence with the statistics released by the Kenya Medical Practitioners Board (KMPB) in 2017 (MOH Kenya, 2015). The only discrepancy was the number of doctors working in public hospitals. According to KMPB, 60% of the doctors worked for public hospitals but this study found only 30% worked exclusively in the public sector. It is likely that a group of doctors who work in both government and private hospitals have not declared that to the government.

4.2.2.2 Demographic Distribution

Table 1: Demographic Distribution of Respondents

Variable	Frequency (%), N=158
Cadre	
Medical Interns	6 (3.8%)
Medical officers	74 (46%)
Residents	32 (20%)
Specialists	46 (29%)
Duration of Practice	
1 month – 1 year	15 (9.5%)
2 years – 5 years	73 (46.2%)
6 years – 10 years	34 (21%)
More than 10 years	36 (22%)
Type of Practice	
Public hospital	48 (30.3%)
Private	34 (21.5%)
Private and Public	57 (36.1%)
Faith based	19 (12.0%)

The focus of practice for the majority (37%) of the respondents was both inpatient and out-patient in equal measure. The respondents whose focus was mainly in patient accounted for 21% while respondents dealing with mostly out-patient medicine added up to 27%. Fifteen percent practiced exclusively in the outpatient while the remaining 1% exclusively inpatient.

4.3 Findings per Objective

4.3.1 Health Insurance and Change of Clinical Decisions

Eighty-four percent of all respondents admitted to changing their clinical decisions depending on health insurance status. The frequency of decision change was above 80% for all respondents attending to insured patients regardless of the type of insurance

(NHIF or private insurance). The distribution along demographic strata was as shown in table 2 below.

Table 2: Distribution of Decision Change per Insurance Status, Cadre and Duration of Practice

Variable	N	Frequency	P Value
Insurance status			
OOP	40	28 (71.8%)	0.006
Insured	92	84 (91.3%)	
OOP + Insurance	26	20 (83.3%)	
Cadre			
Medical officers	74	65 (87.8%)	0.51
Residents	32	27 (84.4%)	
Consultants	45	36 (80%)	
Duration of Practice			
1 month-1 year	15	15 (100%)	0.21
2 years – 5 years	73	63 (86.3%)	
6 years – 10 years	34	29 (85.3%)	
More than 10 years	35	27 (77.1%)	

The majority of respondents (84%) changed their clinical decisions on the basis of patients' insurance status. The frequency of changing clinical decisions was significantly lower (71%) for respondents whose clients were mainly paying OOP compared to those whose clients had mainly private insurance (91%) (p=0.006). The respondents who agreed to change clinical decisions based on clients' insurance statuses were then asked to estimate how often they had to change that decision.

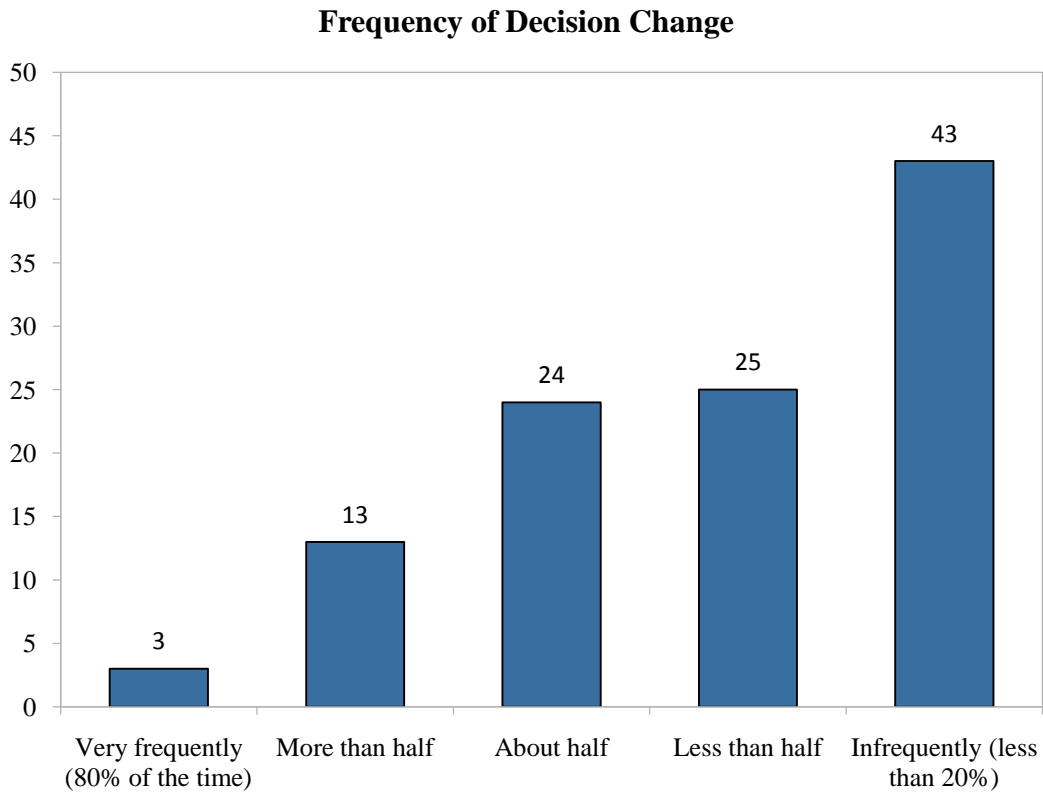


Figure 3: A Bar graph showing frequency of decision change among respondents

Notably, more than a quarter (37.0%) of the respondents made the change in at least every alternate patient (50% of the times and more). To elicit the impact of decision change occasioned by insurance status, respondents rated on a scale of -3 to +3 how useful or harmful they thought the change was to the patient. A score of zero would denote no impact (and hence the change was not perceived to alter outcome) while a negative score would infer harm. The distribution on a scatter plot showed a random distribution with equal subjects on either side of the zero lines.

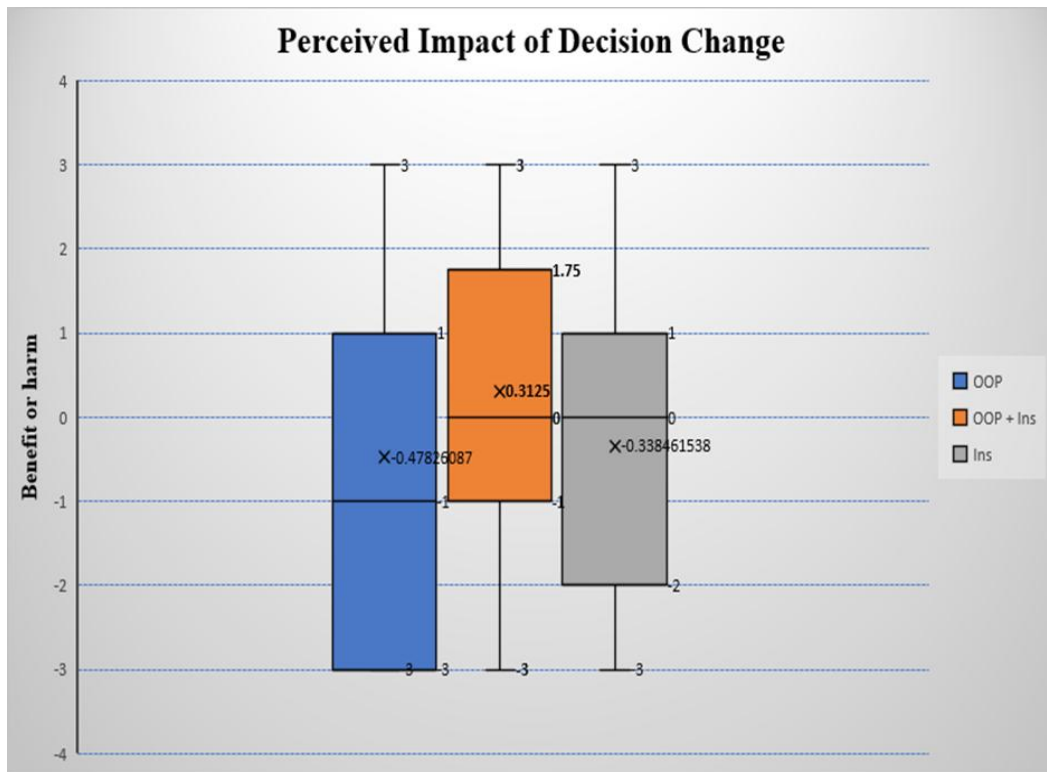


Figure 4: Combined box-and-whisker chart depicting the distribution of scores per insurance status

Table 3: impact of scores of decision change per payment modality

	OOP	OOP+Ins	Ins
Mean	-0.54	0.33	-0.34
Mode	-3	3	0
Median	-1	0	0

The average of the scores was -0.24 (-2.04 – 1.56). The box-and-whisker plot shows a distribution where there is a 50% chance that the decision change made was considered potentially harmful by the respondents. The average (-0.24) is trending toward harm, but not statistically significant.

Comparative analysis of the mean score depending on type on insurance used revealed that the OOP group had the poorest score (-0.54), closely following the insured group (-0.33) and the OOP+insured group recording the highest average of +0.33. The

respondents dealing with OOP patients posted lower values (mean -0.54, mode-3, median-1) while those dealing with insured patients had higher scores (mean-0.33, median 0, mode 0). The commonest reason (50%) for decision change was the inability to pay for the service.

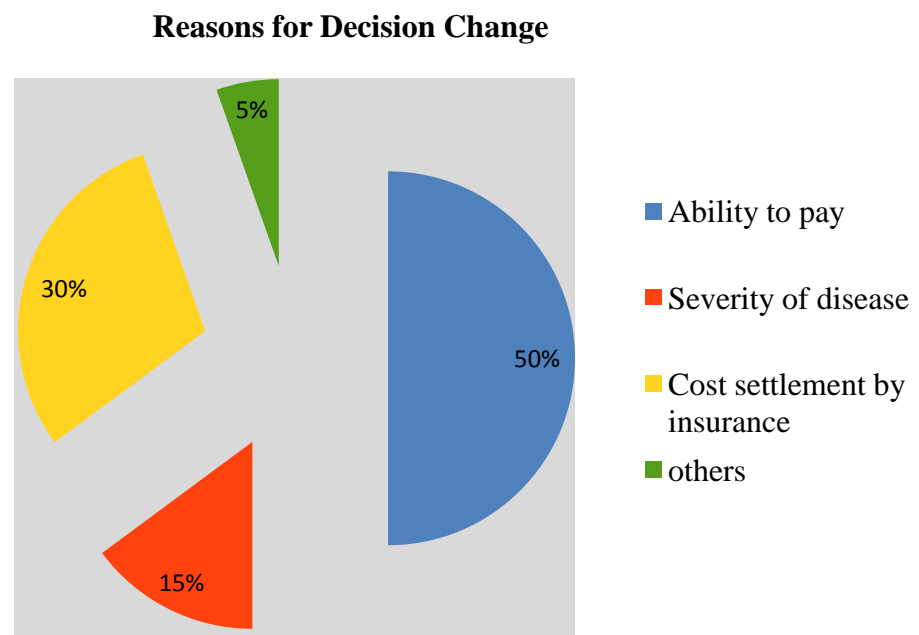


Figure 5: Pie chart showing reasons for decision change

Upon analysis, there was a statistically significant number of respondents who changed their clinical decisions on the basis of insurance status ($p=0.006$). This is in line with other studies done elsewhere that has proven that insurance status indeed influences clinical decisions (Roetzheim et al., 2000; Haider et al., 2008). No difference was observed between cadres and duration of practice in terms of how insurance status changed their decisions. This suggests that clinicians are influenced by insurance status in a similar manner regardless of their cadre and duration of practice.

The change of decision is more in the insured population compared to the uninsured. However, the perceived outcome of the decision change is worse on the uninsured group

compared to the insured. The impact of the decision change was favorable for those with co-payment (OOP+ Insurance). This is understandable especially with NHIF which restricts the amount of money that can be used at any particular visit. In this group, it can be deduced that when insurance is unable (or not willing) to pay, patients can still get the service at their own cost.

Other studies done elsewhere stand in support of the finding observed in this study. A strong association between health insurance has been shown in other similar settings (Bernheim, Ross, Krumholz, & Bradley, 2008). Bernheim and others showed that health insurance status influenced primary care physicians in decisions they made. Just like observed in this study, those who were uninsured were likely to be affected negatively by the decision change (Huttin & Andral, 2000; McIntosh et al., 2016). Data from recent African setting is also showing similar influence. Ghana, whose national health insurance scheme is similar to Kenya's, showed that having health insurance offered financial protection to subscribers (Nguyen et al., 2016). While majority of the positive impact of insurance has been attributed to increasing utilization of health services, overt discrimination of the uninsured is not uncommon (Escobar et al., 2010). In this study, those paying OOP were likely to suffer outcomes. The positive impact for those insured might be due to them being able to afford services. It is interesting however that the group that posted best figures was the OOP+Insurance. It depicts a scenario where insurance payment may not be sufficient to completely alleviate the burden of health expenditure on patient. This has been a point of contention with the NHIF which limits the amount of money it pays for a visit or intervention (KEMRI, 2012; Obadha, Chuma, Kazungu, & Barasa, 2019). Capitation, which is the model NHIF has employed for reimbursement, is partly to blame for this (Joannie et al., 2004). The other more likely

possibility is what has come to be termed as under-insurance. In a case like Kenya's, having insurance does not necessarily assure the subscriber financial protection. Limiting of payments (through capitation) makes it necessary for subscribers to still use extra money if they are to realize the full benefits of healthcare (Magge et al., 2013; Smolderen et al., 2010). Such an observation calls to question the usefulness of the scheme if it does not offer full financial protection.

In summary, with a significant p-value, respondents were influenced by insurance status. This, therefore, means the null hypothesis one has been rejected.

4.3.2 Private versus Public Practice Decision Change

The rate of decision change was highest (94%) in respondents with private and faith-based practices while those in public practice recorded least (17.7%).

Table 4: Table depicting the type of practice against the rate of decision change

Type of practice	N	Decision Change	P value
Public Hospital	46	33 (17.7%)	0.01
Private Hospital	34	32 (94.1%)	
Both Public and private	60	53 (88.3%)	
Faith based	18	17 (94.4%)	

Clinicians practicing in private practice were prone to change their clinical decisions on basis of insurance. The sharp contrast was that those in public practice were far less likely to do so. Interestingly, for those in both public and private practice, their change rate was almost as high as those in private and faith-based hospitals. A possible explanation might be that the patients at public hospitals are poor and there is little room for a change of decision. In fact, as depicted by the scores later, the decision change in a

public hospital is likely to harm. How often decision changes were made (Table 3) was similar across all practice groups ($p=0.8$).

After rating the impact on the patients, the average scores (from a Likert scale of -3 to +3) were -0.2 for public and +0.2 for the private. The data, therefore, suggests that respondents in public practice were less likely (17% vs. 94%) to change their decisions than those in private practice ($p=0.01$). However, once a decision change was made, the overall effect was likely to be beneficial to those working in private (average score = +0.2) but tending to harm (average score = -0.2) in those working for public hospitals.

The results in this study are in agreement with many others that have shown more influence of health insurance in clinical decisions for those practicing in private institutions (Amorim et al., 2012; Anderson, Dobkin, & Gross, 2012; Jang, Flatley, Greer, & Kumar, 2017).

Notable though, is the perceived impact of decision change to the patients. Respondents in private practice posted higher average scores (+0.2) suggesting that they made the change to include more helpful interventions. This might be due to the fact such interventions would be paid for by the insurances. Further, it might also imply that the service/intervention was available in the private hospital as opposed to a public hospital most of which are poorly equipped and/or staffed (Macharia, Njeru, Muli-Musiime, & Nantulya, 2009).

Given the statistically significant p-value of 0.01 in the difference of decision change between public and private practice, hypothesis 2 is thus rejected.

4.3.3 Health Insurance in Emergency Care

To determine whether health insurance was a consideration in making decisions in emergency situations, respondents rated how often they would change management in emergency services. This was related to a question that asked about their decision change in non-emergent (but important) clinical decisions. The responses to the important (but non-emergent) situations were used as the control to determine if there was a significant change.

A contingency table was then populated as shown, and a Chi-square test was run.

Table 5: Contingency table of frequency of decision change in emergency and non-emergency situations

	Emergency situations (N=128)	Non-emergency situations (N=108)
Infrequent decision change (20% of the times or less)	75	48
Frequent decision change More than 20% of the times)	53	60
P value		0.03

In order to evaluate the influence of insurance status on the management of emergency conditions further, a cross-tabulation of insurance status and decision change was done as shown in table 6. A statistically insignificant p-value of 0.4 was obtained. This strengthens the finding that health insurance was not found to influence clinical decisions in emergency conditions

Table 6: A Cross-tabulation of decision change in emergency conditions per payment modality

		The frequency of decision in emergency conditions					Total
		Very frequently	More than half	About half the time	Less than 20%	Infrequently	
Modality of payment	OOP	1	2	2	4	24	33
	Insurance	3	7	8	13	42	73
	OOP+ Insurance	0	2	4	7	10	23
	Total	4	11	14	24	76	129
P value							0.4

While there were still some decision changes that happened in emergency conditions, this change could not be attributed to the insurance status of the patient. Contrary to other observations by different researchers (Ferreira et al., 2009; Haider et al., 2008), this study found that the respondents were less influenced (made less decision change) by the insurance status. This was with an insignificant p-value suggesting that health insurance was not a consideration in emergency situations.

This study, however, could not find reasons excluding health insurance, that would lead clinicians to change their decision making in an emergency. The scope and structure of the study were not designed to capture other factors likely to influence decision changes in the emergency setting. One possible explanation would be the legal requirement that every Kenyan should receive emergency care regardless of their financial status. It is also likely that this is one case where Kenyan clinicians consider the patients' condition rather than the ability to pay which was the commonest reason given by respondents on why they changed clinical decisions. Other relevant factors that affect decision making in emergency care include severity of disease. In cases where the emergency is too far gone or not salvageable, it renders irrelevant the issue of health insurance. That

notwithstanding, this study, by finding a statistically insignificant p value (0.4) as above, rendered hypothesis number three supported.

4.4 Responses to Open-ended Survey Questions

Respondents answered two open-ended questions. One prompted them to give an example of a situation in which they had had to change their clinical decision(s) on basis of insurance. The second asked them to describe the circumstances they considered when making clinical decisions in view of health insurance. Analysis of the responses was done as follows.

4.4.1 Clinical Scenarios where Clinicians Changed Decisions

Respondents gave their experiences where insurance had influenced their clinical decisions. Codes developed from the prose were; “inability to pay”, “harmful to the patient”, “changed the prescription”, “referred to a public hospital”, “admitted to allowing insurance to pay” among others.

Many instances involved the uninsured failing to obtain intervention(s) due to their inability to pay. Some included emergency situations which ideally would need instant attention. A respondent intimated how a *“fracture that required surgery was managed by casting/traction.”* In another instance, a clinician reported that *“patients get MVA (manual vacuum aspiration) under anesthesia in private hospitals with insurance cover. While in public facilities or when there is no insurance anesthesia is not provided.”* In such cases, it was clear that the patient was disadvantaged due to lack of insurance.

While some cases involved withholding or offering sub-standard intervention, another group of respondents reported that those who lacked insurance would be referred to the nearest public hospital. In a case where a patient required ICU (intensive care unit)

admission, a respondent decided to “*transfer the patient to a public facility as they could not raise the deposit.*” One reported a case of a patient with an ectopic pregnancy who was sent to a public hospital since “*her insurance could not pay at a private facility.*”

In other responses, clinicians indicated how they substituted medication to cheaper ones or do an alternative (cheaper) investigation at the instruction of the insurances. Following are a few excerpts from respondents demonstrating the same.

“Patient needed drugs that are not covered by their insurance especially under the NHIF cover including the cheapest alternative, am forced to give analgesics and give the patient a prescription hoping that they will buy it out-of-pocket, which they likely won't.”

“I've had to discharge (on patients request) because of inability to pay out of pocket as the patient had no insurance”

“I had to allow patient home when they needed an admission because they had no NHIF and no capacity to pay otherwise”

“When a patient has no medical insurance, fewer lab tests are requested and fewer (and cheaper) medicines are prescribed”

“Insurance outpatient cover was limited in the scope of investigations. The client had to be admitted in order to access the services. This, of course, wasted man hours for both the client and hospital staff. I wish insurances would cover more costs of preventive/health promotion health interventions”

One particular case stood out where a certain patient presented with a miscarriage. The respondent and the patient agreed to medically manage the condition. When authorization was sought from the insurance, the insurer declined as it “*did not recognize*

this as a standard treatment and hence they would not pay. the patient had to settle for surgical management instead, which was costlier (sic).”

All the above situations pointed at the magnitude of influence health insurance has on clinical decisions. It was clear that in many occasions the patient would likely be harmed. In cases involving referring an emergency case to a public hospital (which is likely cheaper), there is no certainty that the patient would receive the intervention or even get to the hospital in the first place. This, therefore, could be harmful to the patients. Further, as cited above by one respondent, some insurances would have slim patient services but broad inpatient coverage prompting clinicians to offer unwarranted admissions. This is a waste of resources and exposing the patient to risks of nosocomial infections.

In contrast to unwarranted admissions, there are denied/declined admissions. Respondents reported of patients who needed to be admitted and due to lack of insurance or low insurance capitation could not be admitted. Other cases were described where important investigations were forgone since insurance would not pay, or those without insurance could not afford. This, according to respondents, would limit their capacity to make a diagnosis and hence offer appropriate treatment.

4.4.2 Considerations by Respondents during Clinical Decision-making

When asked what things they considered during clinical decision making, respondents gave a number of factors they used. It was evident that each respondent considered several factors before coming up with a decision. Free text analysis generated codes on basis of the frequency of certain words/phrases.

Table 7: Table ranking frequency of words and phrases in open-ended question

Word	Count	Percentage (%)	Similar Words
Patient	123	6.25	patient, patients
Insurance	106	4.23	check, cover, covered, covering, covers, ensure, ensured, insurance, insurances, insured, insurer, see
Required	58	2.02	ask, asked, necessary, necessity, need, needed, needing, needs, require, required, requires, requiring, take, taking, wanted
Treatment	37	1.88	discussing, intervention, interventions, treatment, treatments
Cost	33	1.68	cost, costly, costs
Pay	39	1.64	give, paid, pay, paying, pays, yield
Tests	32	1.47	exam, run, test, testing, tests, try, trying
Afford	36	1.45	afford, affordability, affordable, give, open, yield
Services	35	1.36	availability, available, help, service, services
Medication	26	1.32	medical, medication, medications, medicine, medicines
Cover	50	1.26	back, cover, covered, covering, covers, extend, treat, treated, treating

The words “patient” and “insurance” were the mostly used words. Others featuring prominently were “afford”, “cost”, “pay”, and “cover”. The combination could loosely point at how important insurance is in the care of the patients. The frequent use of afford, cost and their synonyms suggest that some payment would be required for services to be rendered.

Respondents differed over what they considered when making clinical decisions. Some asserted that the clinical status of the patient was paramount and hence offered the best available within their setting. These proposed that they would advise patients on what was best for them and leave the decision of payment/affordability to the patient. For

instance, a respondent indicated that they would *“tell the patient/relatives what NEEDS to be done and they organize themselves to try to have it done.”*

This sentiment was shared by several other respondents.

“If I feel an intervention is important or lifesaving and insurance cannot pay, I inform the patient and let the patient decide if he/she can pay out of pocket”

“Severity of disease-supersedes ability to pay if stable and investigation necessary, I consider referral to a government or more affordable hospital.”

“Clinical decisions are based on the case presentation. You have to offer all the possible and available interventions and inform the clients of what is available at the current set up or elsewhere. Then the decision lies with them because you have offered them possible solutions.”

The vast majority of respondents however mentioned affordability and patients' ability to pay for the services as key in their decisions. This group still agreed that a patient's clinical situation was important but could not solely be used as the determinant. One reported they considered socioeconomic status since patients would *“decline clinical decision if unaffordable or avoid follow up to avoid more cost not covered by insurance.”*

In an illustration of the interplay of several factors in decisions, a respondent aptly put it that they are *“mindful to keep costs as low as possible for patients who have no insurance coverage. That means that I only ask for tests that are absolutely necessary for diagnosis/management and prescribe generic rather than original drugs. I, however, will not comprise the best practice for lower costs.”* This same theme was shared by most respondents.

“I resolved to give the best care and inform the patient. I prescribe and document what the patient needs and give cheaper alternatives. If still unaffordable to the patient, I tell them of the importance and hope they will one day do it”

“Availability, accessibility and possible clinical outcomes, on a case by case basis”

“State of the patient, immediate danger to life, ability to pay”

“The disease condition of the patient, what is the bare minimum the patient requires for diagnosis and treatment, the ability to settle the bills”

According to the responses given, health insurance played a crucial role whenever respondents make decisions. It appears that while respondents are cognizant of patients' clinical status, this alone may not determine what decisions they take. Top on the list of things that the majority indicated would be considered is insurance status and/or their ability of patients to pay for the services. This is understandable since health care in Kenya is largely financed by payments from clients. Some services are free or subsidized at public hospitals, but such hospitals usually have severe and recurrent shortages outages of resources.

It is a possibility that clinicians consider giving the best care available against the financial implication on the patients. As many explained, they consider it futile to pursue standard practice (either in treatment or investigation) which is expensive in patients who will not afford it anyway. In lieu, they offer other alternatives to try to help the patients. While this is in good faith, there are some circumstances where doing so can cause harm. An example is when staging cancer to determine the initiation of chemotherapy. Several respondents agree that correct staging needs expensive forms of imaging like MRI and CT scan. When these are not affordable, some respondents will use clinical judgment or

inferior forms of imaging to initiate therapy. This could easily increase error rate in the said clinicians. It appears that the respondents are stuck in a limbo; striving to give the best care to patients but limited by the patients' inability to pay.

4.4.3 Triangulation of Quantitative Data and Qualitative Data

The quantitative study finds a statistically significant influence of health insurance in clinical decisions. In explaining the influence, respondents explain a situation where they intend to offer the best, but patients cannot afford. This especially so for those without health insurance who end up either not getting services or at the very best, get inferior services. This not only strengthens the quantitative findings but also gives a new dimension to the reasons behind the decision change. The sentiments expressed by respondents make rich ground for future research into the actual reasons for decision change. This highlights the fact that respondents indeed don't mean harm to recipients of care, rather, the inability of patients to pay for care makes decision-making for the respondents harder. The highlights also give an insight into what can be done to improve the system and alleviate suffering of those without insurance or under-insured.

CHAPTER FIVE

SUMMARY, CONCLUSIONS, AND RECOMMENDATIONS

5.1 Introduction

Having considered the results, this chapter provides a snippet of the findings with subsequent conclusions and recommendations. These are guided by the findings of the study and provide a basis of improving patient care in view of health insurance. The chapter also highlight areas that need further research.

5.2 Summary

This study found that health insurance influenced clinical decision making among Kenyan doctors with more than 80% of respondents admitting to altering their clinical decisions. Clinicians who mostly attended to insured patients were more likely to change their decisions compared to those dealing with uninsured patients. On average, all decision change was perceived by respondents to likely cause harm to the patients except in the case where there was co-payment (OOP and insurance). The exception was in respondents working in private setting where decision change was thought to be beneficial.

Management of patients differed significantly between clinicians in private practice and those in public depending on the patients' insurance status. Clinicians in private practice altered clinical decisions 93% of the time and only 17% in the public practice. The decision change for those in private practice was considered likely to be beneficial to the patient but harmful if done by those in public practice. Emergency medical conditions were not significantly influenced by health insurance status of the patient. There was a tendency to change clinical decisions for non-emergent conditions compared to emergency ones.

5.3 Conclusions

The Kenyan clinicians are influenced by the insurance status of their patients when making clinical decisions. Clinicians serving in public hospitals are less likely to consider insurance while making decisions but when they do, they are likely to be disadvantageous to the patients. Inversely, clinicians practicing in private practice change clinical decisions more often on basis of health insurance. However, such decision changes are likely beneficial to the patient. Clinical decisions made by Kenyan doctors to manage emergency conditions are not influenced by health care insurance status.

5.4 Recommendations

5.4.1 Policy Recommendations

Efforts should be made by the government and other relevant bodies to provide a mechanism of funding patients who are not insured. Preexisting national health insurer can consider subsidizing their premiums to cover as many Kenyans as possible.

Clinicians in Kenya should be made aware of the possibility of influence by health insurance and that such influence may be harmful to patients. This will help them focus more on the health of the patients than their ability to pay. Uninsured Kenyans should be encouraged to make effort to obtain health insurance since this study found a likely negative impact on those without insurance.

5.4.2 Recommendations for Further Research

Further research is needed into the actual outcomes of patients with insurance versus those without. This study focused on the clinicians' perspective and so harm in this case cannot be directly translated to mean an adverse outcome.

Research targeting other cadres that are involved in clinical decision makings like clinical officers and nurses is recommended. This is especially important since clinical officers outnumber the doctors who participated in this study.

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Appendix I: Questionnaire

Project Title: Influence of health insurance on clinical decision making in Kenya

Investigator: Elijah M. Yulu

Institution: Kabarak University

Purpose: Thesis research for M. Med (Family Medicine)

Target population: Clinicians practicing in Kenya

Research Approval: Kabarak University Institutional Research and Ethics Committee (IREC)

This survey is part of my coursework at Kabarak University towards achievement of my Master's degree in Family Medicine. The survey is meant to inform interventions to improve health care access in Kenya and health care delivery to all patients. You will be requested to answer a few questions about your day to day interaction with patients and some of the decisions you make related to patient care. No identification of the respondent will be required and therefore the respondents will remain anonymous.

Participation in this study is voluntary and a participant reserves the right to withdraw at any point while filling the survey. Once submitted, the researcher has no way of identifying the respondent and therefore it will be impossible to withdraw after submitting the survey.

Data obtained in this study will be available only to the researcher and will be kept confidential, and for the sole purpose of this study. Your honest responses are appreciated.

Estimated time to complete the questionnaire is 6-8 minutes.

In case of any concerns or clarifications, kindly get in touch with the principal investigator through following contact details.

Name: Elijah Yulu

Email: eyulu@kabarak.ac.ke

Phone: 0726 077 896

Contacts to Kabarak University IREC are as below

Kabarak University Research and Ethics Committee

P.O. Box, 20157 Kabarak

Phone: +253-724 887 431

Fill in details as indicated.

Cadre: (Please choose one)

Medical student (exits)	
Medical Intern	
Medical officer	
Registrar/Resident	
Specialist/Consultant	

Duration of practice

Less than 1 month (exits)	
1 month – 1 year	
1-5 years	
6-10 years	
More than 10 years	

From the choices provided below, choose the one that best describes your practice environment?

Public hospital	
Private practice	
Both public and private	
Faith based/ Not for profit organization	

Which of the following best describes your focus of practice?

Entirely outpatient	
Entirely inpatient	
Mostly inpatient and some outpatient	
Mostly outpatient and some inpatient	

Equal in and <i>out-patient</i> practice	
Other (explain)

Are you currently involved in making decisions relating to patient care?

Yes (Proceeds to the next section)	No (Exits survey)
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Instructions

Please, read through the statements below and check/tick in the boxes provided the choice you consider most appropriate.

1. What is the most common modality of payment for your patients?

Out of pocket only	
NHIF	
Private insurances	
Community Based Insurances	
Others (Specify)	

2a. Have you had to change your plan of management of a patient due to their insurance status?

Yes (proceeds to next question)	
No (Goes to question 4)	

2b. If your answer was yes to question 2a above, how often?

Very frequently (80% of the time or more)	More than half the time	About half the time	Less than half the time	Very infrequently (20% of the time of less)
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Kindly explain rationale, if any (optional).....

2c. If your answer was yes to question 2a above, can you give an example of a clinical encounter?

.....

3a. In a scale of -3 to +3 (where -3 is potentially harmful and +3 quite helpful), how do you feel the change made in (2) above enhanced the health service rendered to the patient?

-3	-2	-1	0	+1	+2	+3
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3b. What motivated the decision change? (tick all that apply)

Ability to pay	
Severity of disease	
Cost settlement by insurance option	
Other (explain).....	

4. How often have you had to substitute, withhold or not recommend an intervention you considered *important* to a patient due to lack of insurance?

Very often (about 80% of times or more)	
More than half the time	
About half the time	
Less than half the time	
Very infrequently	

5. How often have you had to substitute, withhold or not recommend an intervention you considered *life saving* due to lack of insurance?

Very often (about 80% of the time or more)	More than half the time	About half the time	Less than half the time	Very infrequently
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6. In your own words, please, explain circumstances you consider when making clinical decisions on a patient in view of possession (or lack) of health insurance coverage.

.....

Thank you very much for participating in this survey!

Please enter a draw for 1 year subscription to KMA that will be awarded to 1 lucky respondent by entering your email here

Appendix II: Clearance from IPGS



INSTITUTE OF POST GRADUATE STUDIES

Private Bag - 20157
KABARAK, KENYA
E-mail: directorpostgraduate@kabarak.ac.ke

Tel: 0203511275
Fax: 254-51-343012
www.kabarak.ac.ke

21st Jan, 2018

The Director General
National Commission for Science, Technology & Innovation (NACOSTI)
P.O. Box 30623 - 00100
NAIROBI

Dear Sir/Madam,

RE: RESEARCH BY ELIJAH YULU - REG. NO. GMMF/M/1201/9/15


The above named is a Master of Medicine in Family Medicine student at Kabarak University in the School Medicine and Health Sciences. He is carrying out research entitled "**Influence of health insurance on clinical decision making among Kenyan doctors**". He has defended his proposal and has been authorized to proceed with field research.

The information obtained in the course of this research will be used for academic purposes only and will be treated with utmost confidentiality.

Please assist him to obtain a research permit.

Thank you.

Yours faithfully,

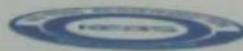

Dr. Betty Tikoko

DIRECTOR - (POST-GRADUATE STUDIES)



Kabarak University Moral Code

As members of Kabarak University family, we purpose at all times and in all places, to set apart in our hearts, Jesus as Lord. (1 Peter 3:15)



Appendix III: Kabarak University IREC Approval



KABARAK UNIVERSITY

INSTITUTIONAL RESEARCH AND ETHICS COMMITTEE

P.O. Private Bag – 20157 Kabarak M: +254 724 887 431 F: +254 51 343 529

www.kabarak.ac.ke/irecsecretariat.html E: irecsecretariat@kabarak.ac.ke

4th April 2018

Reference: KABU01/IREC/002/VoL1/2018

Formal Approval Number: KABU/IREC/004

Dr. Elijah Yulu,
Department of Family Medicine and Community Care
Kabarak University, KABARAK, KENYA.

Dear Dr Yulu,

FORMAL APPROVAL



The Institutional Research and Ethics Committee reviewed your research proposal titled:

"Effect of National Health Insurance Fund on Clinical Decision making among Kenyan Doctors."

Your proposal has been granted a Formal Approval Number; **KABU/IREC/004** on 4th April 2018. You are therefore permitted to start your study.

Note that this approval is for 1 year; it will thus expire on 3rd April 2019. If it is necessary to continue with this research beyond the expiry date, a request for continuation should be made in writing to KABU IREC secretariat two months prior to the expiry date.

You are required to submit progress report(s) regularly as dictated by your proposal. Furthermore, you MUST notify the committee of any proposal change(s) or amendment(s), serious or unexpected outcomes related to the conduct of the study, or study termination for any reason. The committee expects to receive a final report at the end of the study.

Yours faithfully,

Dr Wesley Too,

Chairman

KABU Institutional Research and Ethics Committee.

C.C: Registrar- Academic Affairs and Research
Dean SMHS

- Director, Institute of Postgraduate Studies
- HoD, Family Medicine

Kabarak University Moral Code

As members of Kabarak University family, we purpose at all times and in all places, to set apart in one's heart, Jesus as Lord. (1 Peter 3:15)



Kabarak University is ISO 9001:2015 Certified

Appendix IV: Research Permit from NACOSTI



NATIONAL COMMISSION FOR SCIENCE, TECHNOLOGY AND INNOVATION

Telephone: +254-20-2213471,
2241349, 3310571, 2219420
Fax: +254-20-318245, 318249
Email: dg@nacosti.go.ke
Website: www.nacosti.go.ke
When replying please quote

NACOSTI, Upper Kabete
Off Wanyaki Way
P.O. Box 30623-00100
NAIROBI-KENYA

Ref No: NACOSTI/P/19/94209/27381

Date: 29th January, 2019

Dr. Elijah M Yulu
Kabarak University
Private Bag - 20157
KABARAK.

RE: RESEARCH AUTHORIZATION

Following your application for authority to carry out research on "*Influence of health insurance on clinical decision making among Kenyan Doctors*" I am pleased to inform you that you have been authorized to undertake research in **all Counties** for the period ending **29th January, 2020**.

You are advised to report to **the County Commissioners, the County Directors of Education and the County Directors of Health Services, all Counties** before embarking on the research project.

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

GODFREY P. KALERWA MSc., MBA, MKIM
FOR: DIRECTOR-GENERAL/CEO

Copy to:

The County Commissioners
All Counties.

The County Directors of Education
All Counties.