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# Health insurance cost escalation and containment: the study case employer medical scheme.

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# HEALTH INSURANCE COST ESCALATION AND CONTAINMENT: THE STUDY CASE EMPLOYER MEDICAL SCHEME.

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# ABSTRACT

This study sought to examine the cost drivers of health care and cost containment measures in employer sponsored medical scheme. A retrospective case study was carried out. The study included the entire population of the scheme beneficiaries. Both quantitative data and document review were used. Quantitative data was expenditure in Kenya shillings, secondary data collected from the Electronic Medical Record (EMR) from 2011 to 2015. Document review of policy document and operation manual of the medical scheme was done to establish cost containment measures put in place by the medical scheme in study.

A descriptive analysis was done on the data. The finding were, chronic conditions, pharmaceutical, medical technology, administration expenditure, length of hospital stay, doctors consultation had an upward trend. Doctors' consultation expenditure was the highest in the five years. Chronic conditions had higher share than pharmaceutical expenditure. Higher escalation of cost was demonstrated in all the variables in 2013.This study contribute to the understanding of expenditure growth trends in an employer sponsored medical scheme. The study found that utilization policies and use of guideline play a big role to a scheme expenditure output. From the literature review, Cost containment measures have been used in different countries and have yield positive results. These measures range from government policies to incentives for both health care givers to patients. The study recommends policy reform and utilization of committees to contain cost.

There is need to explore cost drivers individually in detail especially doctors' consultation, chronic conditions, pharmaceutical, administrative and medical technology expenditure in different employer sponsored medical schemes.

**Key words:** Cost Drivers, Containment Measures, Health care cost, Employer Sponsored Medical Scheme

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# DEDICATION

This dissertation is dedicated with love to Almighty God, my loving husband Charles Mathenge, my beautiful children Sylvia Wandia, Shawn Munene and Simon Baraka.

# ACKNOWLEDGEMENTS

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**ACO:**     Accountable Care Organization

**EMR:**     Electronic Medical Records

**GDP:**     Gross Domestic Product

**MOH:**      Ministry of Health

**OECD:**    Organization for Economic Cooperation and Development

**PMB:**     Prescribed Minimum Benefits

**THE:**     Total Health Expenditure

**WHO**:     World Health Organization

# CHAPTER 1: INTRODUCTION

## 1.1 Background of the Study

Health care has tremendously evolved since the 19<sup>th</sup> century. Studies have shown that, globally the evolvement has come with increased health care costs due to advancement in technology, new diagnostic approaches, and innovation in therapeutic and surgical interventions as well as demographic changes. The growth of health care spending and GDP of a country correlates, this according to Fuchs, (2013). He continues to state that from 1950 health care expenditure grew at a rate of 4.4% and continued to increase to 17.9% in 2011. Health care spending has been increasing and expected to continue rising in both developed and developing countries (Porter, 2013).

According to the WHO (2014), a country's health expenditure goes high as its gross domestic product (GDP) rises. Erixon & Van der Marel, (2011) acknowledged that there was no available data to conduct quantitative research to quantify this phenomenon. From Organization for Economic Cooperation and Development (OECD) health data, health expenditure has been growing higher than the annual mean growth rate of per-capita GDP in most countries except Ireland and Sweden. This is different in Portugal, Spain and Greece where health care expenditure growth rate has been higher compared to other countries while their GDP is mean(Erixon & Van der Marel, 2011).

Wealthy countries globally, have struggled with cost escalation and control in their health systems. Since 1970, per-capita expenditure on healthcare has been growing approximately 4% in real terms. Norway at approximately 5.5%, Japan and Spain at 4.9%, and Ireland at 4.5% while Netherland and Canada have grown at a rate of 2.5% (Erixon & Van der Marel, 2011) . With time some countries have actually managed to control health expenditure growth rates, meaning that it is practical to arrest healthcare costs with the right policies. For example, Greece registered negative growth rate; i.e. from 5.4% (2005-2009) to -7.2% (2009-2013) and Ireland from 5.3% (2005-2009) to -4% (2009-2013) (OECD, 2015).

The reduction in health care costs for Greece and Ireland was due to reduced spending on pharmaceutical, preventive care and improved on primary health care.  Cost cutting measures included, policies that changed entitlement, benefits and user charges as well as structural reforms. Other measures in the pharmaceuticals was delisting of drugs

and imposing cuts on ex-factory prices on patent and or generic drugs. In particular Greece cut the prices paid and promoted the use of generic drugs and reduced outpatient care spending. While Ireland introduced incentives and information to patients on generic drug including incentives to pharmaceutical and doctors dispensing and prescribing generics respectively (OECD, 2015).

WHO (2014), the period 2005 to 2014, generally Sub Saharan Africa countries have had a steady growth in total health expenditure as percentage of the GDP, slightly above the trend exhibited by Europe and Central Asia and way above Middle East and North Africa. For instance, South Africa spent about 8.8% of its GDP on health in 2012 up from 8.4% in 2009, slightly below the OECD mean of 9.3%, Swaziland spend 9.3% in 2014 up from 8.5% in 2009 and Guinea, 5.6% in 2014 up from 3.8% in 2009. In Kenya, health expenditure growth rates have been equally rapid. Total health expenditure (THE) increased from Kshs 82.2 billion in 2001/02 to Kshs 122.9 billion in 2009/10, (MOH, 2011). Translating to 5% of the GDP in 200/02 and 4% of the GDP in 2009/10, (WHO, 2014). THE per capita increased by 49%, from Kshs 2,636 in 2001/02 to Kshs 3,203 in 2009/10. In 2014, THE of the GDP was at 5.7% (WHO, 2017). Expenditure on Pharmaceuticals has majorly contributed to the increase in health care spending in Kenya. For example in 2016 Kenya spend Kshs 83.84billion up from Kshs 73.35 billion in 2015, representing 14.3% annual growth rate (World Bank, 2016). There is no evidence that specific measures have been taken to control cost escalation in the Kenyan health sector.

### 1.1.1 Brief History of in House (employer-based) Medical Scheme

Following the World War I, Workers could not pay for their medical care due to the hyperinflation. As a result administration instituted control in wages and price that led to many labour groups to react resulting to strikes. In concession to the labour groups and to end the strike, the War Labour Board exempted the employer who extended health benefits to their employee from income tax. The tax advantage was the employers' incentive to put in place health insurance plans for their employees. As a result the employers received a 100% tax deduction while the employees were exempt from federal, state, and city taxation. In 1940, the employer sponsored health care model was started (Lindquist, 2014).

In a different scenario, industries with high occupational injury rates employed company doctors and nurses to treat workers. A good example was Kaiser Permanente which grew out of employer-sponsored clinics to provide care for workers in shipyards and steel mills before World War II (Royse, 2015).

According to (Doherty & McLeod, 2002), medical schemes have evolved over time because of escalating health care costs. As a result the government (South Africa, made it compulsory for schemes to have packages of both hospital and outpatient services. This package was referred to as Prescribed Minimum Benefits (PMBs) and viewed to be superior services to those offered in public hospitals. However the beneficiaries to this scheme contribute on basis of salary and number of dependants.

An escalation in the cost of health is not only felt by governments but also by households, employers and insurance firms.

No available data on employer- sponsored medical schemes in Kenya. This study is about employer-sponsored medical cover with a focus on an organization in Kenya. This organization has in-house Clinics in major towns in the country. The beneficiaries to the medical scheme have been growing over time as the policy allows. The scheme too has escalating health care spending that is of concern to the management.

## 1.2 Problem Statement

The medical scheme in study covers staff members and their dependants. The period between 2010 and 2015 has seen a significant growth in the number of beneficiaries at mean rate of 6% per annum. 2015 registered 4786 scheme beneficiaries from 3572 members in 2010. This growth has been accompanied by a decrease in expenditure from 145m in 2011 to 139 in 2013 and a significant escalation in cost to Kshs. 182m in 2014 and 183 million in 2015, Medical scheme analysis(2010-2015). The 2014 expenditure growth rate represented a whopping 30.9% increase over that of 2013, Electronic Medical Record (2017). This scenario translates to a per capita expenditure range of Kshs. 29,024 in 2011 to 36,211 in 2015 which invariably is way above the national per capita of Kshs. 3,203, a situation that has increasingly been of great concern to management.

Literature suggests that some of the health care cost drivers include demographic changes, pharmaceuticals, administrative cost, inflation cost, chronic diseases, uncoordinated care and long hospital stay, price inflation, medical fraud, long term

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care and physicians' consultation. As demonstrated by studies by (Erixon & Van der Marel, 2011) and Fuchs, (2011) among others. So this study intends to investigate the key cost drivers for this study case from 2011 to 2015 and the measures in place to contain cost. As it is currently like any other payer of health care, there is concern with the rising health spending in the medical scheme in study. To ensure sustainability of the medical scheme to her staff, it is critical to intervene and contain the rising cost of health care in the beneficiary scheme.

If this trend of escalating cost is not contained it will lead to the employer experiencing added cost and eventually result to measures like closure of the clinics. Subsequently, this would lead to loss of workforce, low productivity, loss of man hour because staff would go to seek for health services within working hours, increased absenteeism. (Quelch, 2016), medical scheme is important because the medical services lowers overall healthcare costs through screening and early detection of chronic diseases, less absenteeism, employee retention, fewer workplace injuries, stronger growth, enhanced corporate reputation, productivity and reduced mortality rate. Because "The more robust your company's 'culture of health.' And, importantly, companies with robustly healthful cultures reap other, more quantifiable benefits" (Fortune, 2016 pg. 1).

At institutional level, a thorough exploration of the key cost drivers of the medical scheme is undertaken. The findings of this study will be useful to management of other employee medical scheme by providing appropriate suggestions on optimal strategies for medical care cost containment. There is no available data on employer- sponsored medical schemes in Kenya.

## 1.3 Research Objectives

### 1.3.1 Overall objective

To examine the cost drivers of health care for study case employer medical scheme.

### 1.3.2 Specific Objectives

1. To critically analyze the cost drivers for healthcare in the study case employer medical scheme.

2. To explore the strategies for cost containment in the study case employer medical scheme.

## 1.4 Significance of the Study

Employer-medical scheme benefits both the employer and the employee and by extension the staff dependants and therefore containing health care cost is an important effort. This study contributes to the understanding of expenditure growth trends in an employer sponsored medical scheme and the role of utilizing policies and guidelines to control the expenditure of the scheme.

These research findings will assist the management of employer sponsored medical scheme to make informed decisions and contain the medical expenditure. This study will also inform the organization's medical team, as gatekeepers of health care spending, on areas to improve on and also be informed when advising the policy makers.

# CHAPTER 2: LITERATURE REVIEW

## 2.1 Introduction

Literature review is evaluating information from the literature that is related to study area,(Libbie Blanchard,2017)This section reviews empirical literature on health care cost drivers and strategies to control costs. Literature review was conducted through review of the published and grey literature from the internet

## 2.2 Causes of Cost Escalation in the Health Sector

This section presents review of the global cost drivers and appreciates how they contribute to cost escalation. In this section the researcher has focused on reviewing the common cost drivers that other scholars discovered.

### 2.2.1 Pharmaceutical Expenditure

Many studies have attributed pharmaceutical expenditure growth with economic growth, new drugs and aging population. Pharmaceutical spending has been a major cost driver for health care, it takes up to a fifth of total health expenditure that is; for every one dollar on health is spend on pharmaceutical OECD, (2015). To demonstrate this, in 2009 the pharmaceutical spending in OECD was more than USD 700 billion equivalent of 19% total health spending OECD, (2011). While in 2013 the pharmaceutical spending was USD 800 billion equal to 20% of the total health spending in OECD countries Indicators,( 2011). Pharmaceutical spending in United States was highest per capita, USD 947 in 2009, double the OECD mean of USD 487 (OECD, 2011).

 Pharmaceutical spending as a percentage of the total health expenditure:

**Table 2.2.1 Pharmaceutical Spending**

|  | 2009 | 2010 | 2011 | 2012 | 2013 | 2014 |
|---|---|---|---|---|---|---|
| Hungary | 32.9 | 33.3 | 35 | 32.6 | 30.3 | 30.2 |
| Greece | 29.7 | 30.4 | 34.8 | 29.4 | 29.3 | 28.4 |
| Canada | 17.8 | 18.4 | 18.2 | 17.8 | 17.4 | 17.2 |
| Germany | 15.3 | 15 | 14.3 | 14.2 | 14.1 | 14.5 |
| Ireland | 15.1 | 14.8 | 14.4 | 14.1 | 14.5 | 14.1 |
| U.S | 12.9 | 12.4 | 12.2 | 11.8 | 11.8 | 12.3 |

Source:(OECD, 2017c)

Profit seeking behavior of health care service providers, waste, and inefficiencies are cause of increased health care resulting to reduced access and increased medical impoverishment. For instant, China prescribes antibiotics to 75% of common cold cases way above the international mean of 30%. China's health care spending has been growing at a rate of 16% per annum cited from Zhou, 2008 (Yip & Hsiao, 2008).

Sub- Saharan Africa relies a lot in importing pharmaceuticals. With increase in non-communicable diseases and increase in health care costs has led to the increase trend of manufacturing medicines (BMI, 2015). Developing countries often manufacture analgesics and import medicines like for Tuberculosis making them very expensive (Mysorekar, 2013)

In Kenya, there are 45 licensed pharmaceutical manufactures with a market share of 28% was registered in 2010. The total pharmaceutical expenditure (TPE) in 2006 was 26,796 million, accounting for 36.64% of the total health expenditure (MOH, 2010) compared to TPE in 2010 that was.

### 2.2.2 Demographic Shift

Aging was a trend for the developed countries but this has changed now to a global phenomenon. In developed countries, the share of those aged 60 years and above was 22% of the population in 2012 up from 12% in 1950 and is expected to rise to 32% (418 million) by 2050. While developing countries the share of those 60 years and above was 9% in 2012 up from 6% in 1950 and is expected to reach 20% (1.6 billion) by 2050.  (Beard et al., 2012)

Health care spending grows everywhere because of aging of the population. Age distribution of U.S has added 0.2% to the rate of health care expenditure growth rate. Those  who were born between 1945 and 1964 (  Baby boomers) will increase the effect (Fuchs, 2011b).

(Canizares et al. 2016) and (Neuman, Cubanski, & Damico, 2015),   health care spending increases with age. Above 80 years individuals are likely to have chronic illnesses and hence several the specialist care, inpatient or emergency department thus increase in health care spending which compared baby boomers and other generations

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on utilization of health care services, older individuals utilized health services more than younger ones.

In low income and middle income countries have overall increase in health care spending because of increasing population and higher proportion of the elderly(Gottret & Schieber, 2006). Kenya  population is estimated to be 46 million, growing at an mean of 1 million per year with a median age of 19years (Kenya Healthcare Federation ( & Task Force Health Care, 2016). Gottret & Schieber argue that in Sub-Saharan Africa which is characterized with high population growth rate increase their health care spending by 52% overall, of this 43% is as a result of population growth and 9% as a result of age sex structure changes. in Europe and Central Asia with almost no population growth rate and long life expectancy, increase in health spending is by 14% overall, of this 1% is as a result of population growth and 13% as a result of age sex structure changes.

### 2.2.3 Medical Technology Expenditure

Medical technology refers to procedures, equipment, and processes by which medical care is delivered, Goyen & Debatin, (2009). Technological change is one of the driving forces behind rising of health care spending (Fuchs, 2011).

Several factors are blamed for the growth of health care spending as a result of medical technology. The overuse of the new technology in attempt to treat what was not treatable before, increase patients' demand, substituting treatment strategy that was cheaper,  new knowledge on diagnosing conditions and accumulation of patients requiring the same particular treatment hence a growing population, (Goyen & Debatin, 2009)

 In 1960 to 2000, a study by (Cutler & McClellan, 2001),  medical technology was found valuable if the benefits of medical advances exceeded the costs. The study analyzed heart attack, depression, cataract and low birth weight infants and how medical technology benefits outweighed costs. In these conditions, technological change was much greater than the cost because life expectancy increased seven-fold.

Different findings were noted from March et al., (2008) and Sorenson, Drummond, & Bhuiyan Khan, (2013) that medical technology did not have a significant role in health care expenditure.  March et al found out that medical devices account for a relatively small share of national health expenditures (3%–5%). The study observed that, post-

operative costs were lower compared to preoperative costs for total knee replacement or total hip replacement. Out-of-pocket costs of osteoarthritis total knee replacement patients decreased from $379 for the 3 months preoperatively to $306 and $128 at 3 and 12 months postoperatively respectively.

More is needed to understand the real expenditure per head for every medical technology advanced. From the literature, there is no clear cut on how much the medical technology contributes to the growth of the healthcare expenditure. There are no direct measures of health care spending regarding medical technology but rather by exclusion of the impact that were measurable like, increased insurance uptake, increase per capita income, increased life expectancy, supplier-induced demand and then the unexplained residue increase would be regarded as increase due to medical technology.

### 2.2.4 Administrative Expenditure

Administrative costs are made to improve the overall economic performance of a hospital as well as its medical care (HealthManagement.org, 2016).

Hospitals Total Administrative Cost among six countries showed; United States, at 25.3%,Netherland at 20%, England at 16%, Scotland at 12%, Canada 12%, Wales at 14% of the US hospital expenditure. Total hospital costs were highest in the nations that had the highest hospital administrative costs and yet there was no evidence that high administrative costs translated into superior care (Himmelstein et al., 2014)

According to (NHA, 2010),Eastern and southern Africa countries, ranged differently in administration cost in 1997/98 among the NGOs and for profit private institutions. This report stated as; Kenya 2.53%, Rwanda 23.92%, Ethiopia 7.19%, Uganda 4.75%, Malawi 11.18%, Tanzania 11.9% and South Africa 6.11% as percentage of total expenditure.

### 2.2.5 Chronic Diseases Expenditure

Chronic diseases in this study include cancers, heart conditions (Ischemic heart disease heart failure), diabetes, hypertension, hyperlipidemia, pulmonary conditions, Arthritis, mental conditions (Depression, Schizophrenia, and other psychotic disorders, human immunodeficiency virus, acquired immunodeficiency syndrome, chronic renal conditions and musculoskeletal disorders (Nolte & McKee, 2008). The estimated nationwide costs of chronic disease range from 0.02% up to 6.77% of GDP, (Nugent, 2008).

By 2020 the number of Americans living with at least one chronic condition is estimated to be 157 million growing from 133 million in 2005.This will increase the cost burden of chronic illness beyond 78% of total health spending. (Bodenheimer, Chen, & Bennett, 2009) .

In Sub-Saharan Africa, HIV/AIDs, Tuberculosis and Malaria have been prevailing but now the trend is changing and non-communicable diseases (NCDs) are emerging as the current burden. These NCDs include; injuries 12%, sense organ disorder 3%, cardiovascular diseases 4%, neuropsychiatric disorder 7% of the global burden disease (Gottret & Schieber, 2006)

According to (World Health Organization, 2014), Africa communicable diseases like HIV and Tuberculosis contribute to 2/3 of the total disease burden while the rest is due to NCDs and injuries. These NCDs including diabetes, cardiovascular disorders and cancers are increasing cause of death and health care costs.

## 2.2.6 Uncoordinated Care and Long-Stay Expenditure

All other things held constant mean length of hospital (ALOS) stay is an indicator; a shorter ALOS is less costly. In 2014, ALOS was 16.9days, 8.3days, 7.6 days, 5.1days, 3.8days for Japan, Korea, Germany, Israel and Turkey respectively (OECD, 2017b). Many studies show that uncoordinated care can lead to longer hospital stay, complication of diseases, duplication of treatment and drugs, poor customer experience and hence high cost of health care services. As stated by Girod & Weltz, (2015),that providing health care is like building a house and a task that requires experts, expensive equipment and materials, and coordination.

According to, (Hibbard & Greene, 2013) "Bed blockers" referring to patients staying in hospital bed awaiting appropriate follow up care and what is perceived as shortage of non-acute care beds. This is scenario of failure in efficient coordinated care which is common in many OECD but frequent in Germany, Greece, Ireland and Korea. This never happens in Belgium, Hungary and Mexico. More study is required to understand how Bed blocking increases in health care expenditure.

In Nigeria a study done by (Somotun, Osungbade, Akinyemi, Obembe, & Adeniji, 2017), showed that different medical condition detected different length of Hospital stay. For example, in mean diabetic stayed 14.03 days compared to Ghana whom the

diabetic stayed for 6.2 days, ischemic stroke stayed 14.4 days (plus or minus 9.8 days) compared to UK and India whom ischemic stroke stayed 7days.

### 2.2.7 Price Inflation

From medical data, the medical care Consumer Price Index (CPI) increased by 1.8% annually above all prices of all other items CPI between 1960 and 1999 (Cutler & McClellan, 2001). According to (Folland, Goodman, Stano, & others, 2007) the possibilities of inflation in health could be utilization of health care services resulting to more consultation, or more tests being ordered by the health care providers and or prescribing more drugs. Two, health care services may be higher in quality including products and services that didn't exist before. For example, laser surgery, organ surgery that was not there until in 1960. These new interventions are costly and of more quality, cause people to be willing to pay more for better quality. Thirdly, the health care inflation could be higher than the general inflation because for example in the U.S the income is higher for service provider and prevalence of insurance is higher. Increase in demand for healthcare services is cause for growth in health care cost. Demand alone cannot explain the large share of medical care expenditure. Inflation rate was found to be the substantiated findings for price growth in France, Sweden and the UK. Increase in general physicians was higher than the inflation rate in the three countries (Erixon & Van der Marel, 2011).

### 2.2.8 Long Term Care Expenditure

Long Term Care (LTC) in this study refers to the assistance a patient receives as a result of chronic illness or disability that leaves a patient unable to care for themselves in prolonged period of time (Rider, Stum, & McNamara, 2004).In this study, the researcher refers LTC as more than 100days in a single hospital admission or Home-care with or without a social worker.

LTC spending continued to grow even after 2009 exceeding pre-crisis years in nearly a third of OECD countries, Japan and Germany inclusive. In Portugal, long term care spending increased by around 7% annually. In Korea expenditure for long term care increased as a result of measures to expand coverage in their LTC system (OECD health statistics, 2015).(Werblow, Felder, & Zweifel, 2007), in the analysis of Swiss data, stated that health care cost was due to medical technology which is lavished on to patients with considerably a short time to live.

Contrary to many other studies that aging contribute to increasing health care costs (Palangkaraya & Yong, 2009), a study done in Australia stated that aged population may not be the main driver of health care spending. Proximity to death is a more important variable than aging population. Medical technology use on the terminal cases should be reduced by government putting a public policy on medical technology. Further acknowledges that such decision would be more of social choice rather than medical or economical because technologies have prolonged lives but leaving those behind with huge medical bills.

Bedside rationing has been defined as occurring when a physician withholds services that are, in the physician's best clinical judgment, in the patient's best medical interests, in order to promote the financial interests of someone other than the patient. Bedside rationing is prevalent in European countries and varies with physician attitudes and resource availability. The prevalence of physician bedside rationing, which presents physicians with difficult moral dilemmas, highlights the importance of discussions regarding how to ration care in the most ethically justifiable manner (Lauridsen, 2009).Empirical studies on LTC is very limited and the clinical practice on rationing.

**2.2.9 Doctors' Consultation Expenditure**

The health care service provider plays a big role cost reduction. They act as the gatekeepers in health care. According to (Lauridsen, 2009) "administrative gate keeping" is the alternative available for physicians to be involved in rationing of healthcare cost without violating their true advocacy of their patients that is not denying his patient quality of care. In OECD countries doctors' consultation per year per capita in 2014 was; 14.9 per capita,11.8 per capita,11.3 per capita, 2.6 per capita,2.9 per capita,4.2 per capita in Korea, Hungary, Slovak Republic, Mexico, Sweden and Finland respectively (OECD, 2017).

The physician has broader power in making decision pertaining patient care utilization virtue of his knowledge and authority by law. He admits and discharges patient from the hospital, recommends on surgery, requests for laboratory tests, radiology as well as prescribing drugs. All this roles add up to contributing to health care costs.(Fuchs, 2011a)

**2.1.1.10 Medical fraud**

Oxford dictionary define fraud as a wrongful or criminal deception intended to result in financial or personal gain. European countries spend more than 1 trillion Euros a year on healthcare services for their citizens. Yet 56 billion Euro of this budget gets lost to fraud annually and 180 billion Euros ($260 billion) globally. This study reported, range of percentage losses Rate (PLR) was found to be between 3.29% and 10.00% with an mean PLR of 5.59 that is the proportion of expenditure lost to fraud and error (Gee, Button, & Brooks, 2010).

Medical fraud range from collision between providers and pharmaceuticals sector, kickbacks given by pharmaceuticals to hospitals for moving their products. The kickbacks are extended to the prescribing doctors. Unethically, doctors buy expired and counterfeit drugs and sell them at a profit as valid products (Yip & Hsiao, 2008). Fraud and abuse accounted between 3 to 15% of the annual expenditure for health care. Per year the cost of fraud and abuse ranged from 100 to 170 billion with only recovery of less than 5%. This can be due to misrepresentation of services with incorrect Current Procedural Terminology (CPT) codes; billing for services not given; altering claim forms for higher payments; or false information in medical record documents (Rudman, Eberhardt, Pierce, & Hart-Hester, 2009).

## 2.3 Potential Strategies for Cost Containment

"One force motivating convergence is that almost all the countries face a common problem –how to slow the rate of growth of health care spending" (Fuchs, 2011b) the researcher reviewed cost containment measures that have been used elsewhere and yielded results.

### 2.3.1 Pharmaceutical Control Measures

Expenditure for pharmaceuticals has been cut annually by nearly 2% after positive annual increases of 2% in the pre-crisis years still down on previously strong growth in pharmaceutical spending in the 1990s and early 2000s. Cost containment measures like price cuts, the introduction of references pricing, compulsory rebates, reduction of pharmacy margins and value added tax, the end of patents and the rise use of generics have all contributed to the reduction in pharmaceutical spending. (OECD health statistics, 2015).

Between 2009 and 2013, some countries had taken measures to reduce cost escalation from pharmaceutical expenditure. For example, pharmaceutical expenditure declined

by 3.2% on mean across the OECD countries. Steeper declines in pharmaceutical expenditure were registered in Portugal (-11.1%), Denmark (-10.4%), and Iceland (-9.9%). The reduction of public pharmaceutical spending in OECD countries was due to a range of policy measures and reforms that aimed at shifting some burden of pharmaceutical spending to private payers. For instant, Ireland introduced a 50-cent prescription fee for medical card holders in 2010. Drug reimbursement threshold was raised by 20% in every month for non-medical card holders, increased the use of generic and termination of patents. Most of the OECD countries took measures that included pharmaceutical regulations, reduction of wages in public hospitals, delaying to replace staff and in developing the hospital infrastructures

France, Germany, Sweden, and the United Kingdom each use different types of policies for controlling prescription drug spending. Until recent years, these policies have relied heavily on regulating prices charged by drug manufacturers, with different systems providing varying degrees of pricing freedom. While these policies appear to have brought some degree of price restraint, they have not prevented continued growth in prescription drug spending. As a result, each country is supplementing its policies with measures aimed at physicians and consumers and targeted at reducing a perceived over-utilization of pharmaceutical products.(Dj, J, J, & Sl, 1994)

(Doherty & McLeod, 2002), use of formularies in control of cost in medical scheme has been used. Formularies are determined list of drugs that are clinically effective and cost effective. Reimbursement by the scheme is only those that are in formulary. However, beneficiaries can take up other products outside the list if they are willing to pay for the difference. In this list most schemes prefer generic as opposed to brand name drugs. Particularly the use of generic drugs in chronic medicine it has proven to be successful in reducing cost escalation in many schemes. (Purcell, 2009) states that, tiered co-payment by beneficiaries would be used as a measure to control cost. Tiered co-payment is where by beneficiary pays for the extra money outside the formulary mainly the for the brand drugs. This is made to encourage utilization of generic prescription and therefore this means the beneficiaries should be made aware of the drug costs.

**2.3.2 Administrative Gatekeepers**

It is argued by (Doherty & McLeod, 2002) that most mechanisms are made to encourage appropriate utilization of the services. As stated by (Purcell, 2009) the beneficiaries decisions drive most of the health care costs and therefore their decisions should be influenced in order to lower health care costs. In addition to influencing the beneficiary decisions, Purcell redirects attention to be focused on the plan of the scheme, arrangements on payments towards the scheme and factors that influence demand for services in the scheme.

Having administrative control and planning in place as measures to contain cost. This can include having utilization committees, drug formularies, and wages and price ceilings (Fuchs, 2011a).

Managed care, refers to use selective networks of contracted providers as means of encouraging beneficiaries to use the networks and share risks with these providers. Network of providers under this strategy are paid monthly a fixed fee to provide care to a group of patients. This is referred to as Capitation. Capitation caters for the negative incentives brought about by fee-for-service. Further, (Doherty & McLeod, 2002) states that the provider assumes some of the scheme risks and limits overuse. Under capitation the provider is bound to under-supply which therefore calls for monitoring from the administration.

Risk-sharing and the provision of low-cost options can be used by the administration to control cost. In this case, hospital risk- sharing is done through per diem (Doherty & McLeod, 2002). In per Diem charges are per day or per case basis and not per item. The quality of care from these contracted hospitals became of concern.

(Purcell, 2009) administration being proactive by auditing eligibility of the beneficiaries periodically to avoid providing health care services to e.g. espouses, adult child. Recommends that fulltime students should be required to present documents from school to proof they are in school. Further, Purcell encourages the administration to encourage spouses to disclose other medical scheme within their disposal and give incentive for those who utilize the other scheme for primary use.

Schemes can negotiate for stability multi yearly contracts to ensure the scheme gets competitive market pricing. Audit claims trends and find out which in more.

Encourage contracts of lower prices for consistent purchase of drugs and other consumables from vendors (Purcell, 2009).

The scheme beneficiaries are encouraged to utilize the network of providers with whom the scheme has negotiated prices with and reimbursement is only costs incurred through these providers. Together with networked providers a scheme can add on capitation in order to gain risk sharing and provision of low-cost options. The advantage to this arrangement is it limits unnecessary care from suppliers and making them choose effective treatment and prevention of ill health to beneficiaries. While limitation, is that the provider can under supply (Doherty & McLeod, 2002).

Pre-authorization measure is where a beneficiary requires an authorization to a hospital before services by the managed care organization. This measure minimizes overuse by the supplier and does not deny access for health care. In addition to pre-authorization and case management it is important to audit the hospital bills (Doherty & McLeod, 2002).

**2.3.4 Need and Demand Reduction**

Reducing the need and demand of medical services by improving the health of individuals would lead to reducing the cost of health. Some of the ways of improving the health of individuals include the introduction of health promotion programs, reform health policies, health education that is providing information to empower individuals to help enhance confidence in making decision on health matters and avoid unnecessary and under use of the medical services, improving of individuals' environment, and preventive medicines (Fuchs, 2011a)

Audit claims trends and find out which are in more demand and which can be trimmed (Purcell, 2009).

A drawback to cost reduction has been from the advocates of health promotion who have caused delay by not putting cost reduction as a primary goal and neglecting vigorous economic evaluation. Some of the mentioned companies that used health promotion program included Johnson and Johnson, DuPont, Tenneco, Blue shield of California, Travelers, Southern California Edison, the County of Ventura and Coors. Different health promotion program put in place in this workplace, were reported to bring savings (Fries et al., 2016).

Besides health educating the beneficiaries on healthy living and improving their habits and behavior that affect their health, the employers can engage the employee with activities that contribute to wellness e.g. walking clubs, hiking trips etc. initiatives prevent employee suffer from conditions that can be controlled by lifestyle (Purcell, 2009)

Cost reduction can also be achieved by attracting the young, those below 40years, before the onset of lifestyle illnesses. It is a discriminatory design because premiums go higher as beneficiaries advance in age and exposed to chronic conditions. (Doherty & McLeod, 2002)

Disease management programs as a cost reduction measure is achieved by better data collection of the beneficiaries medical condition and best practice information sharing by the health care providers. Disease management program involves active management by prevention, diagnosis and treatment of specific conditions e.g. diabetes, Asthma. A common disease management program is HIV/AIDS, this program benefits are standard and beside cost containment they are accessible by beneficiaries on confidential basis (Doherty & McLeod, 2002).

**2.3.5 Incentives to Health Care Provider and Patient**

The desire to control health care costs has led to considerable variation in how employers and health insurance providers structure formularies (how drugs are classified), design benefits, and provide incentives to both physicians and patients. Many of the tools such multitier plans for drugs with introduction of co-payment, used to influence pharmaceutical use since 1994, were effective in reducing drug expenditures for working-age enrollees with employer-provided drug coverage. For example adding the 3-tier with increase of $ 10 co-payment reduced the drug expenditure by 4%. (Joyce, Escarce, Solomon, & Goldman, 2002).

The main challenge with using formulary is changing prescribing habits of doctors, (Doherty & McLeod, 2002).However, Medical scheme like Medscheme  curbed this by introducing formulary for both acute and chronic medicines and encouraged primary health care doctors to use the Medscheme price list. This was used as incentive and integrated in their performance based reimbursement program (PBR).

According to (Doherty & McLeod, 2002), Doctors performance can be monitored from data on consultation, prescription and subsequent referrals. Recommended

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setting up a system of provider-driven peer review, in order to review practices pattern of their colleagues.

**2.3.6 Policy Reforms**

There is need for policies to be changed, if not countries like Germany is expected to represent more than 20% of GDP in its health expenditure in 15 to 20 years from now. This increase may not be similar to other countries but then its worthy close examining why healthcare costs are increasing and how health care can improve in efficient utilization of resources. The policymakers are not interested in doing so. The strategy has been to contain health care expenditure increase so as to make healthcare affordable for governments. Cost-containment can only achieve marginal effects, especially if such policies continue along current lines by addressing new and additional healthcare spending rather than the bulk of total spending represented by delivery of healthcare services. (Erixon & Van der Marel, 2011).

In matters of the policy, seeking second opinion reduces cost. This is done with quality care in mind. Second opinion explores offers and appropriate medical benefits before a scheme incurs cost. (Barr, 2014)

(Cutler & McClellan, 2001) warned concerning medical policies in attempts to reduce spending, stating that policies that eliminate waste and increase the incremental value of treatment may also retard technological progress either directly or indirectly. Therefore there is need to balance.

**2.3.7 Innovation and Review Business Model**

Innovative adjustments to the scheme benefits plan can help reduce costs. For instance, Prescribed Minimal Benefits (PMBs) resulted from a study that used cost data for in-house health care services for a mining industry. PMBs exclude expensive services, ineffective cost services, non-urgent and non-life threatening conditions. PMBs innovative design came to address the "dumping" of beneficiaries to the public facilities when they exhausted their limit allocation in the scheme(Doherty & McLeod, 2002).

Comparing health care with other industries, like telephones, cameras, planes, cars and investment management, health care has not taken up the challenge of changing their technology, value network of companies and business model to affordability to their products and services. Referred to as "disruptive innovation" in health care. Changing

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technology and business model and revising the value network is all health care requires. Disruptive innovation has been applied at Quad/Graphics, a Wisconsin-based printing company in-house medical clinic and proved to work. This company set up a clinic in 1990 for their employee and dependants for the primary health care and contracted hospitals and physicians for more specialized care. The company has managed to spend an annual mean of $6,500 in a region where other firms are spending mean of $9,000 annually. This was achieved by health care regulators reorganizing reimbursement practices and favoring discounted prices with valued services, taking up the lowest price for the hospitals and physicians, encouraging disruptive innovation to achieve economy and accessibility. While employer provided incentives for behaviors that were conducive to health (Christensen, Grossman, & Hwang, 2009).

**2.3.8 Care Coordination and Patient Focused**

Countries like Finland, Germany, Spain and Sweden share electronic information for diagnosis and treatment between physicians and other health providers. These countries their care coordination is by use of disease management programs or case management program for patient with complex conditions requiring prolonged care. These diseases include coronary heart disease, breast cancer, diabetes type 1 and 2, asthma and obstructive pulmonary disease. Other countries like Australia, Denmark, France and the United Kingdom use clinical guidelines or practice protocol. Physicians get financial incentives to comply with guidelines. Australia physicians comply without financial incentives. According to OECD 2008, as cited by (Wei et al,2010), the government use a variety of tools that range from benchmarking, therapeutic referencing, pharmaco-economic evaluation and difference types of risk sharing agreement (Wei, Paris, & Devaux, 2010) .

A measure suggested to American health care by (Roberts, 2014) and tested at state level, the U.K and Germany health care system, was use of Accountable Care Organization (ACO). It is an integrated patient care model that is composed of physicians, hospitals and other health care service providers that come together to share the responsibility of giving quality health care at reduced cost. In this model pay is for performance as opposed to fee for service model. ACO addresses the problem of fragmented health care services where patients see the primary care physician, specialist and tests done in different locations. In ACO all are done at one location

minimizing repetition of tests and promoting coordinated patient care. ACO focuses on prevention and changes mode of payment from fee –for service by creating saving incentives of bonuses when providers keep costs down and meet specific quality benchmarks. A similar highly coordinated system like ACO is Mayo Clinics (Roberts, 2014).

According to Roberts (2014), Mayo Clinics collects revenues from the hospitals and doctors and then pays salary to their doctors and other health workers, refocusing their workers to their goal "needs of the patient come first". Physicians at Mayo Clinics do not do unnecessary procedures to their patients as their counterparts who are paid fee-for service. Other successful and similar systems as Mayo Clinics include Geisinger Health System in Danville, PA; Marshfield Clinic, in Marshfield, WI; International Healthcare, in Salt Lake City; and Kaiser Permanente in CA.

According to (Michiels et al., 2007), the perception of the terminally ill patient on the role of the General practitioner in providing continuity of care is key. Good coordination and effective communication from the health care providers promotes home care. The study emphasized on informational and relational continuity. Sharing of holistic information is as important as giving medication to the terminally ill patient. (Doherty & McLeod, 2002) argue that case management, which is active monitoring of patients once in the hospital to ensure beneficiaries receive clinically appropriate care at the right setting per the Medical Scheme. (Purcell, 2009), on managed care, states that it provides case management for long term care by coordinating care and improving continuity and quality of care which lowers cost. For instance, cancer patients can be provided with homecare and social worker instead of hospital administration.

### 2.3.9 Patient Information/ Active

Patient engagement is an important strategy for health care reforms. Highly engaged patients had lower rates of costly use such as hospitalizations and emergency department visits, compared to less engaged patients (Hibbard & Greene, 2013).

Patient representation and involvement in decision making is common practice among the OECD countries. For instant, Czech Republic, Denmark, Sweden Patients are represented in decision making pertaining licensing of pharmaceuticals. Australia, Canada, Czech Republic, Denmark, Korea, Netherlands, Switzerland, patients are

involved in decisions on coverage of health (Wei et al., 2010). Denmark, Iceland, Norway and United Kingdom involve patient representatives on hospital planning. In making decision on matters of public health the patient representatives are involved in Hungary, France, Denmark, Mexico, Iceland, Norway, Portugal, Turkey and United Kingdom (Wei et al., 2010).

The role of communication in health care cost reduction cannot be overemphasized. Beneficiaries should be briefed at least yearly about the schemes benefit plan, the scheme limitations, changes, employee and employer costs and the value to employee (Purcell, 2009).

### 2.3.10 Monetary Limits, Levies, Co-payments and Savings Accounts

(Christensen et al., 2009), encourage the regulators of health care to reorganize reimbursement practices and favor discounted prices with valued services, take up the lowest pricing for the hospitals and physicians, encourage disruptive innovation to achieve economy and accessibility and employers to provide incentives for behaviors that are conducive to health.

Scheme funding arrangement of a scheme is worth focusing with intention of containing costs. (Purcell, 2009) shares the strategy of "cost shifting", a co-payment by beneficiaries in order to reduce cost from the employer. In other scenarios the employers have Health reimbursement arrangements. According to Purcell, the employer makes the contribution instead of the employee. This strategy influences the beneficiaries to change behavior in the utilization of the scheme.

According to (Doherty & McLeod, 2002) and (Barr, 2014) both encourage co-payment by the scheme beneficiaries. They argue that it is incentive to control utilization by the beneficiaries. Doherty and McLeod and Purcell, (2009), further states that Monetary limits and savings account are strategies that have been used. Monetary limits are annual limits of amount of money that a scheme can reimburse in a year according to categories stated in the medical scheme. While saving account is when a beneficiary contributes monies which part of it is held in a personalized account and they can make decision on when to use this account towards paying for their health care. According to (Doherty & McLeod, 2002), Monetary limits allows only legitimate beneficiaries to use the medical scheme. While also it is has the disadvantage of possible denial of access for health care to low income groups. This was countered with introduction of

Prescribed Minimal Benefits (PMBs) by Medical schemes. Purcell, (2009) points out that Health Saving Accounts (HSAs) are tax advantaged. HSA also benefits the low risk beneficiaries because they do not need to cross subsidize for the non-hospital care for the members who are very sick. Unfortunately HSAs design has no shown to address cost control and not an incentive against over supply created by fee-for-service. It targets higher income earners who are able to pay out-of-pocket the account is used up (Doherty & McLeod, 2002).

Levies on the other hand are fixed amounts reimbursed per claim and different from co-payment in that in co-payment reimbursement is a proportion of the claim. Like monetary limit, it is bias to the low income. Whichever method a medical scheme chooses, Purcell, (2009) recommends frequent review preferably biannually. This allows to for example factoring in changes around demographic.

## 2.4 Empirical review

Somewhat close study to this one is by (Barros, 2010). In this study Barros compared health care determinants of health care cost growth and containment in different 24 countries. The findings were that aging population was significant to growth of health care expenditure, while the type of organizational framework (fee-for-service, capitation etc. ) and existence of gate keeping procedures are non-significant to containing health expenditure growth but rather have implication to levels of health expenditure other than the growth rate. This study found out that the higher a country's per capita of the GDP the higher was the health expenditure. New drugs and medical technology was not excluded as a cost driver in these countries but encouraged more studies in future with better data would explain different on medical technology.

Barros study contradicted with OECD and Gerdthan et al on earlier studies on organizational framework. OECD found that public reimbursement system was more expensive while Gerdthan et al found it less expensive. Regardless of the findings the organizational framework had impact on the health care expenditure as opposed to Barros findings.


## 2.7 Conclusion

In this section literature review was done. Several common global cost drivers in health care and cost containment measures were identified form different scholars.

Among the common healthcare cost drivers identified include pharmaceutical, demographic shift, medical technology, administrative, chronic diseases, long hospital stay, long term care, doctors' consultation expenditures and price inflation. The highest health care expenditure are pharmaceutical, old age and chronic diseases. Pharmaceutical expenditure is blamed highest than any other health expenditure. Old age is associated with high health expenditure because older population is argued to be likely to have chronic illnesses which require specialized care and more emergencies hence high expenditure. While chronic diseases like NCDs increase cost burden because of the prolonged care. Because of retirement age in employment this may not be a cost driver in employer sponsored medical scheme. Chronic conditions are neither due to old age in employer sponsored medical scheme. What are the cost drivers in an employer sponsored medical scheme?

Several containment measures have been used globally. They range from pharmaceutical controls, administrative gate keeping, reduction of need and demand of services, use of incentive to health care providers and clients, policy reforms, innovation of business models, coordinated patient care, empowering of clients with information and scheme funding arrangements.

Considering that an organization has control on utilization of the medical scheme, how are the expenditure trends in employer sponsored medical scheme? This study finds the cost drivers and how do they contribute to raising health expenditure in employer sponsored medical scheme. The study further reviews the employer sponsored operation process and policies on utilization of the scheme.

## CHAPTER 3: RESEARCH METHODOLOGY

### 3.1 Research Design

The research design was a retrospective case study. A case study has been defined as an empirical inquiry that investigates a contemporary phenomenon within its real life context. According to (NEDARC, 2016), in retrospective study the researcher uses database available because the outcome of interest has occurred at the time of the study. The researcher assessed the organization medical scheme expenditure for the period between 2011 and 2015.

## 3.2 Population and Sampling

The unit of analysis of this study was the medical scheme, which constituted the population. This included the scheme and its in-house clinics. Data was collected from the EMR, of the medical scheme for 6518beneficiaries between 2011 and 2015.

## 3.3 Data Collection Tools

Data on the costs of the medical scheme and its drivers was collected retrospectively from the EMR as secondary data.  The data was collected for the period 2011 to 2015. This is because the EMR was introduced in 2010 and hence more reliable to use data from 2011. The EMR gave extensive information on (Appendix 1)  demographic data, length of hospital stay, physician's visits and consultations, chronic diseases, medical Technology expenditure (MRI,CT scans), pharmaceutical expenditure, administrative expenditure and  long term care.

Data on cost containment measures was collected through a review of policy document; policy No.72.0 Medical Scheme and the Medical Scheme operation manual. (Appendix 2), was used to guide in the documents review.

## 3.4 Conceptual Framework

Figure 3.4.1 shows the conceptual framework that was developed after a comprehensive review of literature. The conceptual framework assumes that the costs of a medical scheme (box D) are driven by a range of cost drivers (box A). However, the relationship between the cost drivers and medical scheme costs is influenced by the absence or presence of cost-containment measures (box B and C). The conceptual framework is linked to the study objective given that it shows the relationship between cost drivers (objective 1) and cost containment measures (objective 2). The cost drivers in health care are indicated. The cost drivers align with the first objective of the study which is to examine the cost drivers. The containment measures are the external and internal measures taken that affect the functional output of a medical scheme, either by increasing or reducing scheme expenditure. External measures are the government interventions while the internal are the measures put in place by the institution hosting a medical scheme.

**Health care cost drivers**

**A**
1) Pharmaceutical Expenditure
2) Demographic Shift
3) Medical Technology Expenditure
4) Administrative Expenditure

**Containment measures**

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**B**
**INTERNAL MEASURES**
- Gatekeeper policy
- Use of Guidelines

**D**

**Outcome**

↓
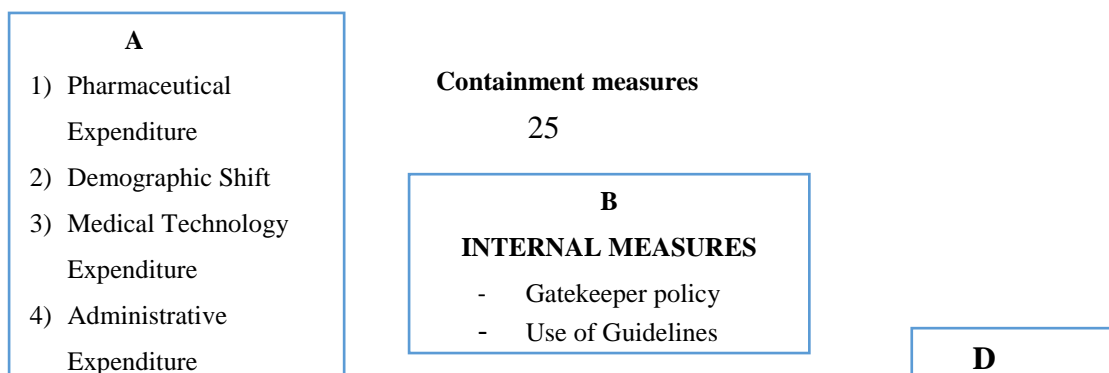
**Figure 3.4.1 Conceptual Framework**

**3.5 Data Analysis**

Descriptive statistical techniques (summary statistics, tables and diagrams) were used to analyze the collected data. A regression model was not fitted because the study had a sample size of 1 (1 employee scheme) and data was collected annually.

The researcher reviewed the medical scheme operation manual and the scheme policy document. The aim of reviewing these documents was to examine content on cost containment measures employed in medical scheme, if they are employed and identify gaps on cost containment. Document review is collecting data from existing documents, (CDC, 2009).

**3.6 Research Quality**

Given that this was a case study with a sample of 1 and a purposive sampling approach, it did not aim for statistical generalizability. Statistical validity and reliability therefore does not apply for such studies. Rather, study quality is assured by using measures that enhance the trustworthiness and rigor of the study.

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A number of strategies were employed to ensure research quality. First was the use of theory. This study developed a conceptual framework based on a comprehensive review of literature. The conceptual framework guided the development of research tools, data collection, and data analysis. A second strategy that was employed was methodological triangulation. This study collected data using two strategies to triangulate the findings. These strategies are EMR record and review of medical scheme policy and operation manual. A third strategy that was employed to ensure the content validity of the data collection tools was to involve an expert who reviewed and gave his input on the validity of the tools.

## 3.7 Limitations of the Study

This study has without doubt significantly contributed findings on cost drivers and containment strategies for employer insurance medical schemes. However, much has remained to be done in future because this study was not without limitation. The present study has nevertheless yield usable findings.

It was recognized that there were other cost drivers that would significantly contribute to the growth of the health care cost. However, the scope of this study addressed those which in the opinion of the researcher were relevant in the context of the organization being studied. For example the proposed methodology was not able measure some of the drivers such as medical fraud, increased demand and price inflation among others.

## 3.8 Ethical Issues

Due to confidentiality concern, the name of the medical scheme was anonymzed. The researcher sought for ethical clearance from IRB United States International University- Africa and ensured that the information accessed and the findings of the research study were kept confidential and was only used for academics award.

**CHAPTER 4: RESEARCH FINDINGS**

**4.1 Introduction**

The current chapter presents the findings, interpretation and discussion. Data analysis was carried out according to study objectives from which patterns were examined, interpretations done, conclusions drawn and discussion. The main objective of the study was to examine the cost drivers of health care for study case medical scheme. An initial examination revealed that, long term care expenditure was only incurred in one year, in the five year under examination. To achieve the first objective, to analyse the cost drivers of the study case, descriptive and inferential analysis were used to analyse the data which was presented in figures and tables. The second objective of exploring cost containment measures, document review was done on the policy and operation manual of the medical scheme.

**4.2 Descriptive Analysis**

In the study demographic shift, pharmaceutical cost, medical technology, chronic diseases cost, inpatient cost, chronic condition expenditure, doctors' consultation were hypothesized to be the greatest contributors of medical cost. Summary statistics of the annual costs of each of the cost drivers are presented in table 4.2.1. Further results on the trends and contribution of each of the cost drivers are presented in individual sub-sections thereafter.

**Table 4.2.1 Descriptive Analysis of the Medical Scheme**

|  | N | Minimum | Maximum | Mean | Std. Deviation |
|---|---|---|---|---|---|
| Beneficiary growth rate | 5 | 5 | 7 | 6 | 1 |
| Pharmaceutical Cost | 5 | 19,278,557.82 | 60,223,901.34 | 33,544,319.08 | 15,701,410.79 |
| Medical Technology cost | 5 | 3,791,659.50 | 17,443,061.00 | 9,962,668.07 | 5,148,226.32 |
| Chronic Diseases | 5 | 40,434,570.94 | 52,723,851.65 | 47,761,296.33 | 4,482,439.67 |

| | | | | | |
|---|---|---|---|---|---|
| Length of hospital stay in days | 5 | 4 | 9 | 6 | 2 |
| Cost of Hospital stay | | 31,984,260.90 | 115,983,498.89 | 83,480,724.24 | 33,011,328.38 |
| Administrative expenditure | 5 | 42126862.2 | 76024164.7 | 56977000.0 | 13369800.0 |
| Long term care expenditure | 5 | 0 | 78,800 | 15,760 | 35,240 |
| Doctors consultation | 5 | 5,414,726.15 | 154,367,946.40 | 91,420,858.28 | 59,168,820.98 |
| Total Medical expenditure | 5 | 139,164,926.75 | 182,743,467.90 | 158,084,663.61 | 22,164,157.62 |

Further in Table 4.2.2 and figure 4.2.1a summary was prepared to show the percentage cost per annum to total medical cost incurred in the in-house medical scheme. There has been consistent upward trend among all the cost drivers of the in-house medical scheme. The analysis revealed that administrative costs contributed to 15% of the total cost in 2011 which declined to 13.2% in 2013 and increased to 14.6% in 2015. The doctors' consultation contributed to 29% of the medical cost in 2013 and had the highest contribution in 2015 which clearly stipulated that there were many referral cases of employees as well as their dependants. The mean pharmaceutical costs was at 10.3% in 2011 and declined to a low contribution of 5.8% in 2012 after which it reversed the trend and increased up to 11.5% in 2015.

**Table 4.2.2 Expenditures as Percentage of Medical Scheme Expenditure**

| Year | 2011 | 2012 | 2013 | 2014 | 2015 |
|---|---|---|---|---|---|
| Pharmaceutical costs | 10.3 | 5.8 | 6.6 | 7.3 | 11.5 |
| Medical Technology expenditure | 4.4 | 1.1 | 2.2 | 1.6 | 3.3 |
| Chronic illness | 17.7 | 14.5 | 9.9 | 10.8 | 10.1 |
| Length of stay (Expenditure in Kshs.) | 11.6 | 21.7 | 22.9 | 25.6 | 19.9 |
| Long term care expenditure | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 |
| Doctors consultation | 2.0 | 17.7 | 28.5 | 27.0 | 29.6 |

| Administrative Expenditure | 15.3 | 14.6 | 13.2 | 14.2 | 14.6 |
| --- | --- | --- | --- | --- | --- |
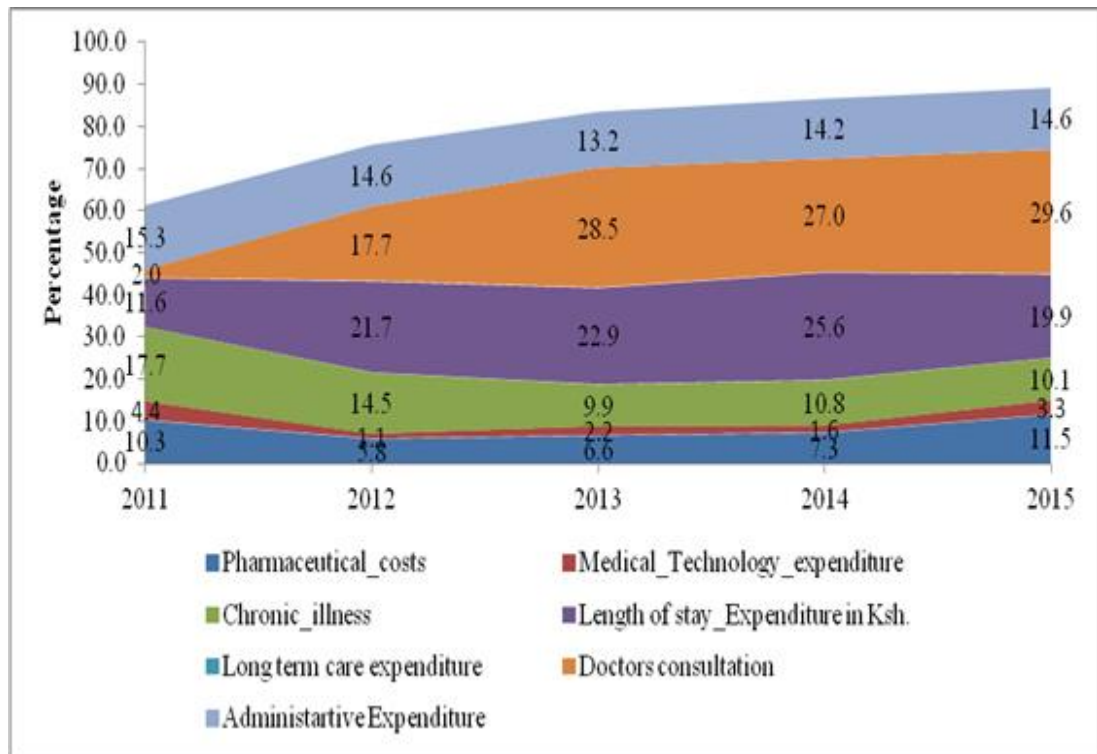


**Figure 4.2.1 Trend Analysis on Percentage of Component Cost**

*Pharmaceutical expenditure*

Further, the study examined the trend analysis of the pharmaceutical cost from 2011 to 2015, although there was a downward trend from Kshs. 28.3 million in 2011 to Kshs. 19.3 million in 2012, an upward trend was recorded from 2012 to 2013 with Kshs. 27 million, the cost escalated consistently to Kshs. 60 million in 2015 as demonstrated in figure 4.2.2 below. In relation to the pharmaceutical expenditure as percentage of the total scheme expenditure, it was 10.3%, 5.8%, 6.6%, 7.7%, and 11.5% in 2011, 2012, 2013, 2014 and 2015 respectively as shown in fig 4.2.1 above. In this period pharmaceutical expenditure never took lead as the highest expenditure. Nevertheless there is need for cost minimization strategy to be developed more so on access to pharmaceutical services.
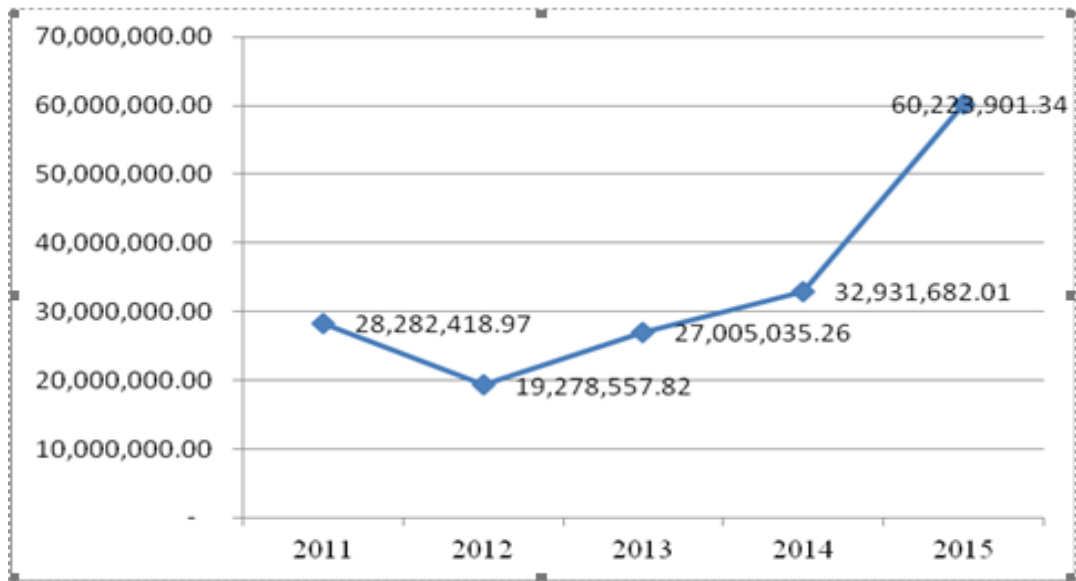
**Figure 4.2.2 Pharmaceutical Cost**

*Demographics Shift*

Demographic shift was examined in age, gender and growth over the study period. Figure 4.2.3 indicates that majority (53%) of the in house medical scheme beneficiaries were female and male accounted for 47%. Further, table 4.2.3 shows the distribution of gender changes within the period under investigation, in the year 2012 the increase of medical cover beneficiaries was the same at 50%, in 2013 more female's (52.3%) benefited as compared to male though the pattern was revised in 2014 and 2015 where male increased to 51.7% and 50.9% respectively.



**Figure 4.2.3 Gender**

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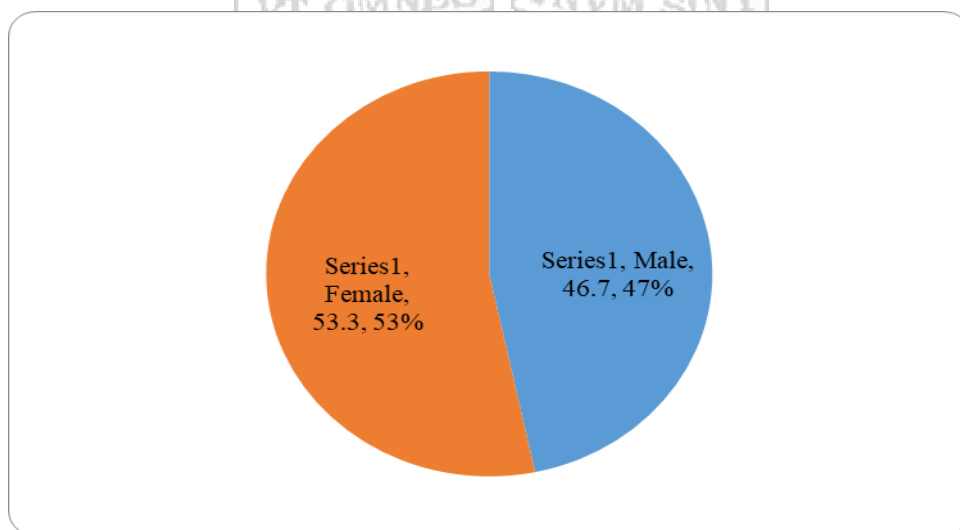
**Table 4.2.3 Gender Shift**

| Year | Gender | Frequency | Percent |
|------|--------|-----------|---------|
| 2011 | Male | 2515 | 46.1 |
|      | Female | 2944 | 53.9 |
|      | **Total** | **5459** | **100** |
| 2012 | Male | 99 | 50 |
|      | Female | 99 | 50 |
|      | **Total** | **198** | **100** |
| 2013 | Male | 123 | 47.7 |
|      | Female | 135 | 52.3 |
|      | **Total** | **258** | **100** |
| 2014 | Male | 136 | 51.7 |
|      | Female | 127 | 48.3 |
|      | **Total** | **263** | **100** |
| 2015 | Male | 173 | 50.9 |
|      | Female | 167 | 49.1 |
|      | **Total** | **340** | **100** |

Age distribution as demonstrated in table 4.2.4, majority 14.3% of the beneficiaries scheme was aged between 0-4 years, followed by 11.9% who aged between 11-14 years, 10.6% aged between 15-20 years and 10.1% aged between 5-9 years. There is need for the provision of affordable pediatrician medical services so as to optimize utilization of the available medical services as provided by the in-house medical scheme.

**Table 4.2.4 Age Distribution**

| Age Groups | Frequency | Percent |
|------------|-----------|---------|
| 0-4 | 930 | 14.3 |
| 5-9 | 658 | 10.1 |
| 11-14 | 777 | 11.9 |
| 15-20 | 690 | 10.6 |
| 20-24 | 595 | 9.1 |

| | | |
|---|---|---|
| 25-29 | 311 | 4.8 |
| 30-34 | 402 | 6.2 |
| 35-39 | 514 | 7.9 |
| 40-44 | 540 | 8.3 |
| 45-49 | 478 | 7.3 |
| 50-54 | 438 | 6.7 |
| 55-59 | 147 | 2.3 |
| Above 60 | 38 | 0.6 |
| **Total** | **6518** | **100** |

A close scrutiny of beneficiary's trend analysis table 4.2.5, revealed that those aged between 0 to 4 years were the greatest beneficiaries across the five year period under investigation, which implies that most of the employees have many young children who could be in constant need of medical attention.

**Table 4.2.5 Age Distribution in the Five Years**

| | 2011 | | 2012 | | 2013 | | 2014 | | 2015 | |
|---|---|---|---|---|---|---|---|---|---|---|
| | F | % | F | % | F | % | F | % | F | % |
| 0-4 | 522 | 9.6 | 94 | 47.5 | 97 | 37.6 | 105 | 39.9 | 112 | 32.9 |
| 5-9 | 549 | 10.1 | 21 | 10.6 | 21 | 8.1 | 18 | 6.8 | 49 | 14.4 |
| 11-14 | 725 | 13.3 | | | 22 | 8.5 | 12 | 4.6 | 18 | 5.3 |
| 15-20 | 667 | 12.2 | | | 6 | 2.3 | 7 | 2.7 | 10 | 2.9 |
| 20-24 | 560 | 10.3 | | | 8 | 3.1 | 18 | 6.8 | 9 | 2.6 |
| 25-29 | 159 | 2.9 | 35 | 17.7 | 28 | 10.9 | 38 | 14.4 | 51 | 15 |
| 30-34 | 273 | 5 | 26 | 13.1 | 40 | 15.5 | 30 | 11.4 | 33 | 9.7 |
| 35-39 | 424 | 7.8 | 12 | 6.1 | 20 | 7.8 | 20 | 7.6 | 38 | 11.2 |
| 40-44 | 504 | 9.2 | 4 | 2 | 9 | 3.5 | 12 | 4.6 | 11 | 3.2 |
| 45-49 | 466 | 8.5 | 3 | 1.5 | 4 | 1.6 | 1 | 0.4 | 4 | 1.2 |
| 50-54 | 430 | 7.9 | 2 | 1 | 2 | 0.8 | 1 | 0.4 | 3 | 0.9 |
| 55-59 | 144 | 2.6 | 1 | 0.5 | 1 | 0.4 | | | 1 | 0.3 |
| Above 60 | 36 | 0.7 | | | | | 1 | 0.4 | 1 | 0.3 |
| Total | 5459 | 100 | 198 | 100 | 258 | 100 | 263 | 100 | 340 | 100 |

*F- Frequency % - Percentage*

Further, the study used population pyramid to examine the population distribution within the five year period as summarized in Figure 4.2.4. Although, male population was high in 2011, female beneficiaries grew at a faster rate compared to male and the retention of female employee till retirement age is higher compared to male employees.
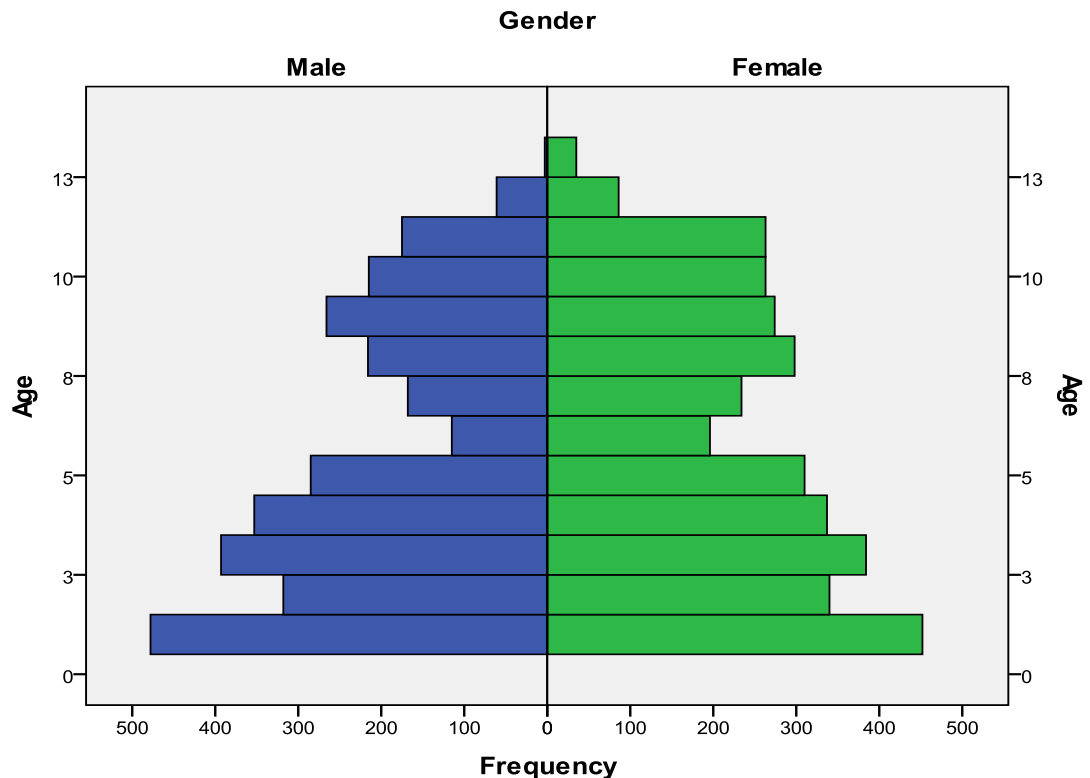


**Figure 4.2.4 Pyramid of Age Distribution**

*Medical Technology Expenditure*

Although, there are different technologies which have been adopted in the provision of quality medical care, the current study examined annual costs incurred on CT (Computed Tomography) Scan, U/S (Ultra Sound), Magnetic Resonance Imaging (MRI), endoscopy/colonoscopy and x-ray that were found to be commonly used technologies in the study case Table 4.2.2 above, demonstrates that medical technology as a percentage of Medical Scheme expenditure varied over time. In 2011 it was at 4.4% of the total medical scheme expenditure the highest in the study period,

declining to the lowest in 2012 at 1.1%. In 2013 it was 2.2%, 1.6% and 3.3% in 2014 and 2015 respectively. Results of the study were tabulated as shown in Table 4.2.6 using range, mean and standard deviation. The mean cost incurred on CT scan was Kshs. 1.2 million with a minimum of Kshs. 0.6 million and a maximum of Kshs. 2.9 million. This implies though in some period the CT scan cost was high, in some periods it was not preferred. Secondly, although U/S had a mean of Kshs. 1.4 million, its cost across the period reduced since it had a mean deviation of Kshs. 0.9 million as compared to CT scan with a mean deviation of Kshs. 1 million. Thirdly, MRI had a mean of Kshs. 1.3 million. Concerning adoption of endoscopy/colonoscopy the mean cost was Kshs. 0.9 million, moreover, it recorded the minimum cost of Kshs. 106, 000. Finally, X-ray charges had a mean cost of Kshs. 5.1 million which indicates it was the most preferred medical technology by the medical providers; this could be attributed to its cost and the indications of X-rays compared to the use of other alternatives.

**Table 4.2.6 Medical Technology Expenditure**

| | N | Minimum | Maximum | Mean | Std. Deviation |
|---|---|---|---|---|---|
| CT scan | 5 | 526,965.00 | 2,987,562.00 | 1,207,024.40 | 1,020,755.77 |
| U/S | 5 | 596,200.00 | 3,022,588.00 | 1,421,991.20 | 937,510.99 |
| MRI | 5 | 209,000.00 | 3,360,682.00 | 1,333,320.40 | 1,191,346.21 |
| Endoscopy/ colonoscopy | 5 | 106,000.00 | 2,890,035.00 | 889,010.60 | 1,151,350.33 |
| x-ray | 5 | 1,460,794.50 | 8,927,081.60 | 5,111,321.47 | 2,765,673.57 |

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Further, the study sought to examine the percentage contribution of CT scan, U/S, MRI, Endoscopy/colonoscopy and X-rays to the overall medical technology cost from 2011 to 2015 as shown in figure 4.2.5 below. In all the years, X-rays contributed the highest percentage. In 2011 it had 73.5% as compared to endoscopy/colonoscopy showing dominance of X-ray technology, through to 2015.Diversified medical technological approaches have been adopted by health practitioners as they endeavor to provide quality medical care. Although, U/S had increased to 35.9% in 2012 it recorded a huge decline in 2013 to 10.9% but the trend reversed in 2014 and 2015 with an increase to 15.4% and 17.3% respectively. There is need for evaluation of the triggers of downward trends in medical technology in 2012 to 2013 though reversal trends were recorded in 2013 to 2015 with only X-rays declining to 29.7% in 2015 with an initial percentage of 73.5% in 2011.
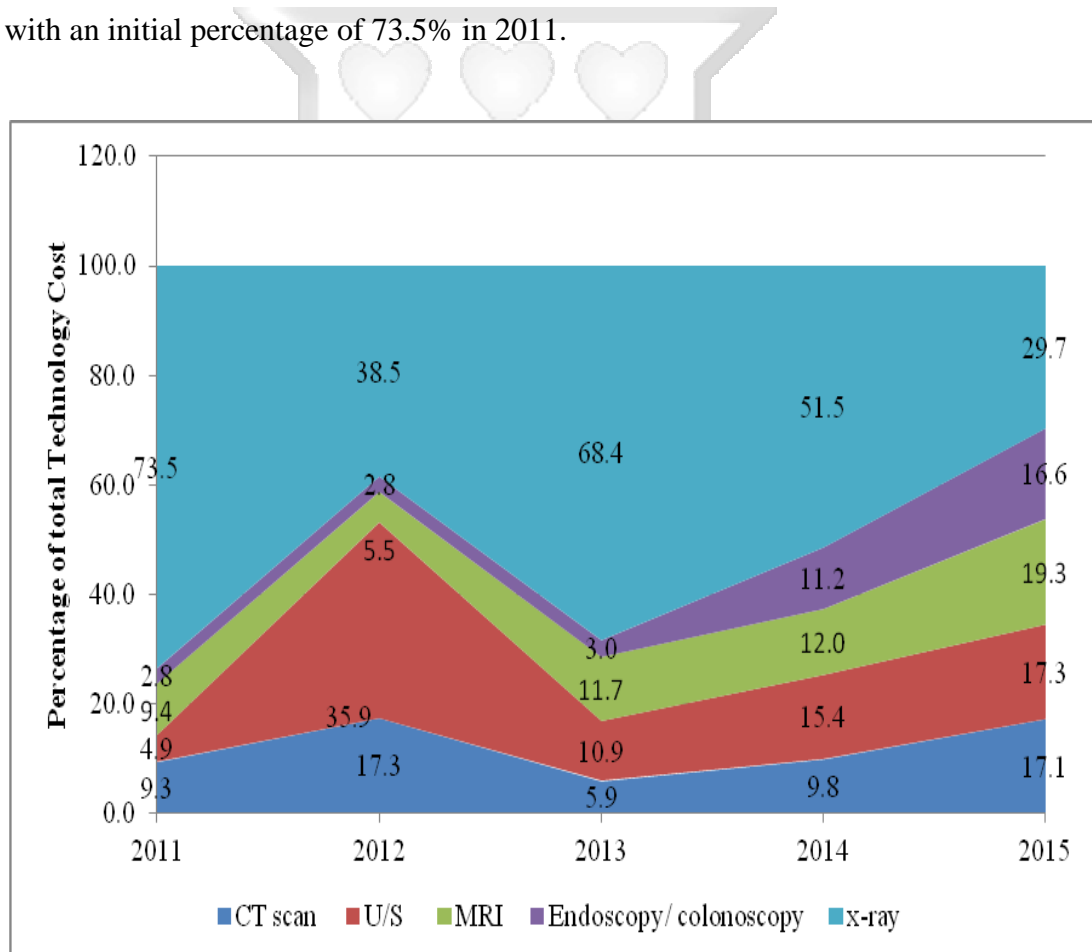


**Figure 4.2.5 Medical Technology as Percentage of Overall Technology Expenditure**

*Chronic Diseases*

An examination of cost charges incurred on chronic diseases was summarized in Table 4.2.7 using descriptive statistics. The mean annual medical charges on heart and blood conditions was Kshs. 10.8 million with a minimum of Kshs. 7.8 million and a maximum of Kshs. 15.8 million. Diabetes mean costs was Kshs. 6.8 million. There is cause for alarm on the high annual costs associated with musculoskeletal conditions which had a mean of Kshs. 21.9 million with a minimum of Kshs. 14.9 million and a maximum of Kshs. 33.7 million. Although, mental illness recorded the least mean among the chronic condition, annual cost with a minimum of Kshs. 1 million and maximum of Kshs. 5.4 million calls for evaluation of strategies to minimize possibilities of contracting mental illness and seeks measures to control those who are already suffering from it. Finally, the mean cost incurred on cancer treatment had the elephant share on chronic illness cost with a mean of Kshs. 6.1 million and maximum of Kshs. 33.4 million which call for measures to mitigate this cost which can have constraining effect on medical expenses.

**Table 4.2.7 Chronic Diseases in Kshs**

| | N | Minimum | Maximum | Mean | Std. Deviation |
|---|---|---|---|---|---|
| Heart & blood conditions | 5 | 7,817,556 | 15,760,258 | 10,776,016 | 3,239,593 |
| Diabetics | 5 | 3,646,299 | 12,002,440 | 6,827,325 | 3,378,777 |
| Musculoskeletal conditions | 5 | 14,887,052 | 33,662,546 | 21,863,085 | 7,052,294 |
| Mental illness | 5 | 1,030,507 | 5,349,848 | 2,665,193 | 1,863,149 |
| Cancers | 5 | 6,036,082 | 33,337,674 | 16,917,509 | 10,168,310 |

In aggregate chronic conditions as a percentage of the total medical scheme expenditure was highest in 2011 at 17.7% and lowest at 9.9% in 2013. While in 2012

it was 14.5%, 10.8% in 2014 and 10.1% in 2015 Table 4.2.2 above. These findings suggest some decline trend over time though not sustained.

The pictorial presentation in Figure 4.2.6 the percentage of the chronic disease cost to the overall medical cost, both cancer and musculoskeletal conditions need to be examined carefully since they contributed the highest percentage of the total cost. Measures taken to curb the spread of diabetes ought to be intensified as such to minimize diabetes cases and ultimately save on cost incurred to manage these conditions.
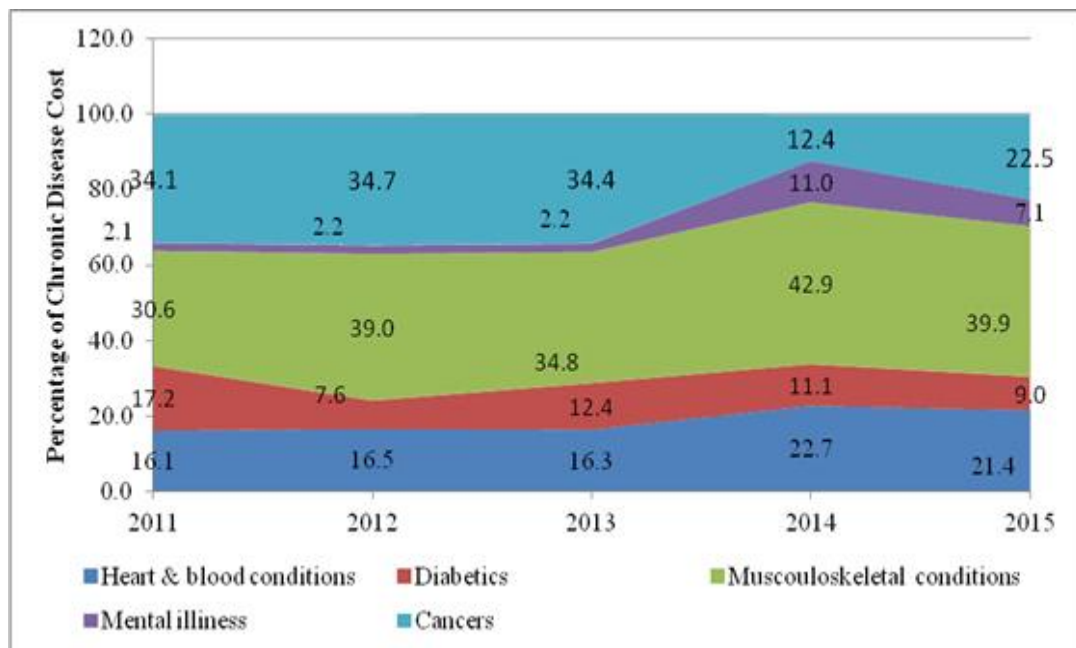


**Figure 4.2.6 Percentage of Chronic Disease Cost to Total Chronic Diseases Expenses**

*Length of hospital stay*

Although, the length of stay in a health facility as summarized in figure 4.2.7 has recorded a downward trend from 8.8 days in 2011 to 5.0 days in 2015, there was a reversal in 2013 since the days increased from 4.4 to 6.5 days in 2012. The current status should be managed so as to minimize cost since throughout the period the number of days are lower compared to global statistics from Japan and Germany where a maximum of 16.5 days has been recorded.

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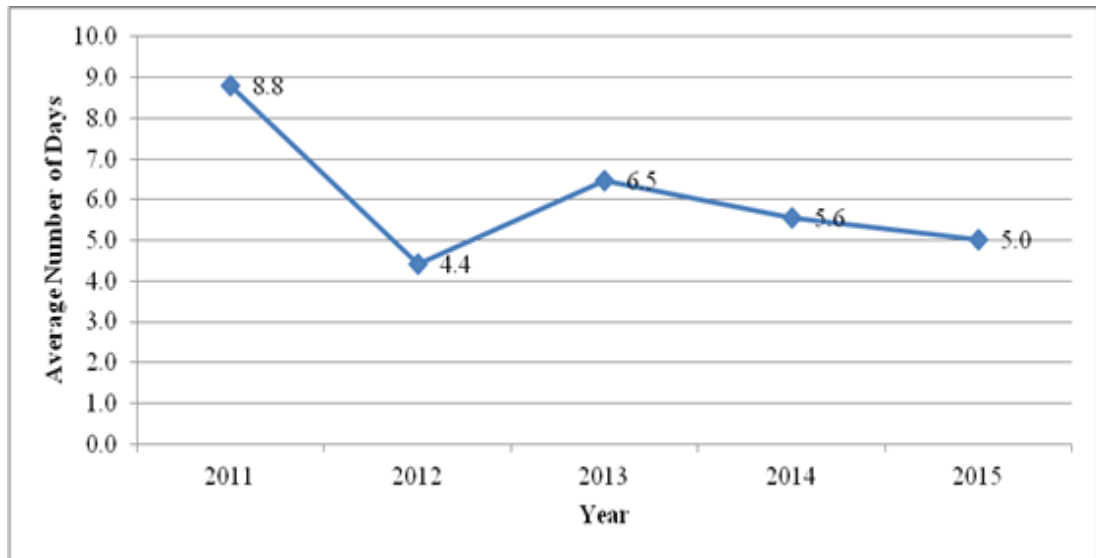
**Figure 4.2.7 Length of Hospital Stay in Days**

The expenditure for hospital stay was calculated as total direct cost. Figure 4.2.8 shows the upward trend in hospital admission. In 2011 the expenditure was Kshs 42 million and 48 million, 54million, 64million and 76million in 2012, 2013, 2014 and 2015 respectively. This translates to 11.6%, 21.7%, 22.9%, 25.6% and 19.9% of the total medical scheme expenditure as demonstrated in Table 4.1 above. Cost due to the length of hospital stay is a significant cost driver in this medical scheme.
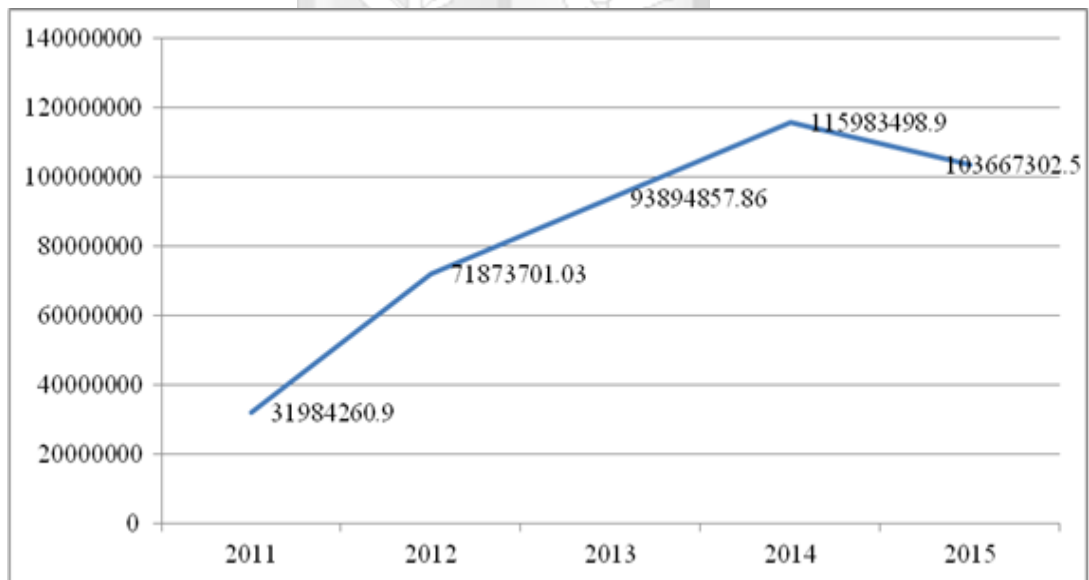


**Figure 4.2.8 Length of Stay Expenditure**

*Administrative expenditure*

The pictorial presentation in Figure 4.2.9shows, there was a consistent upward trend on annual medical administrative cost. A thorough administrative cost evaluation

ought to be carried since there is a mean monthly cost increment of at least Kshs. 10 million. Further, as time elapses administrative cost increases at a faster rate compared to initial periods. Administrative cost as a percentage of the total medical scheme expenditure was found to be of significance as shown in Table 4.2.2above. It was 15.3%, 14.6%, 13.2%, 14.2% and 14.6% in 2011, 2012, 2013, 2014 and 2015 respectively.
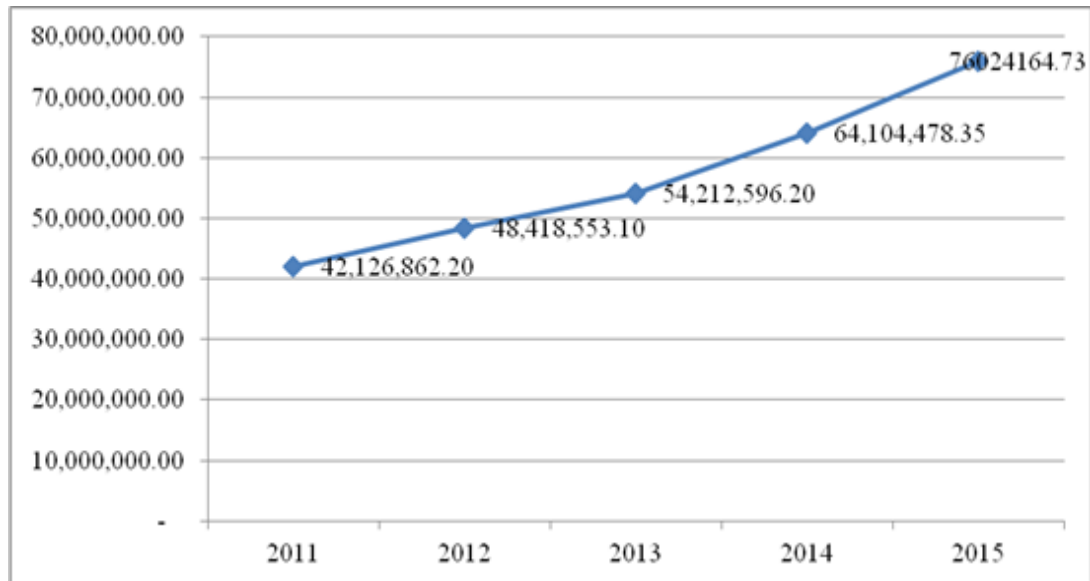


**Figure 4.2.9 Trend Analysis of Administrative Cost**

*Doctor's Consultation Fees*

Doctors' consultation was the highest in expenditure all through the 2011 to 2015 as demonstrated in figure 4.2.1 above. In 2011, 2012, 2013, 2014 and 2015 it was 2%, 17.7%, 28.5%, 27.0% and 29.6% respectively. A whopping 49.64% increase in 2013 recording from Kshs 58,679,485 in 2012 to Kshs 116,531,261.40 in 2013 as shown in figure 4.2.10.
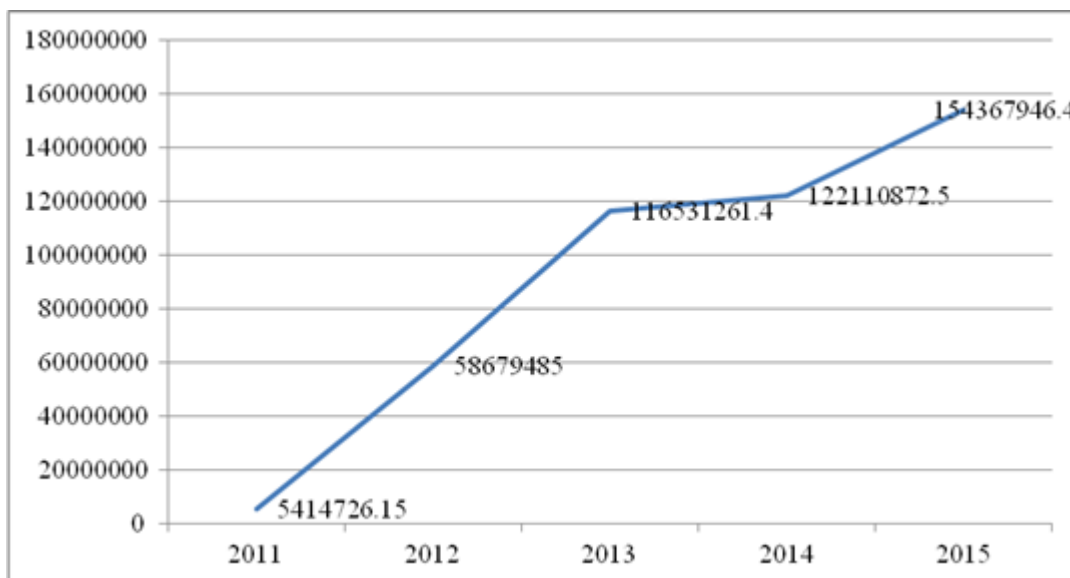
**Figure 4.2.10 Trend Analysis on Doctor's Consultation Fees**

## 4.3 Qualitative Analysis of Cost Containment Strategies

The Medical Scheme policy document and its operations manual were reviewed. During 2011 to 2015 the July 1996 edition was in use and was later reviewed in November 2014. The medical scheme operation manual hereby referred to as an operations manual was revised after the installation of the EMR in 2010. The following findings on medical scheme and cost control policy were extracted from these documents.

*Pharmaceutical measures*

The medical scheme allows use of both branded and high quality generic drugs, dressings and other medical or surgical materials purchased on recommendation through the procurement policy. Branded drugs are expensive and contribute to high costs compared to high quality generic drugs which are cheaper. The policy is not clear on what extend of use of branded drugs in terms of drug tiers. Neither are there healthcare provider incentives on more use of generic drugs in order to contain cost.

A list of drugs is prepared by the pharmacist from the previous financial usage. This is then presented to committee to formulate the formulary. The drug formulary with specifications is issued to the procurement office. A drug formulary is a cost containment measure because that is what the procurement office uses to purchase the drugs.

Before dispensing, the pharmacist counterchecks the prescription in terms of dosage and duration. However the scheme lacks prescription audit which should be periodically carried out to avoid overuse. Besides that, the scheme lacks control measures on number of drugs per prescription and particularly on non-chronic conditions. Antibiotics add to the high costs due to misuse when not regulated. The Medical Scheme needs to develop a policy on antibiotic use, as a cost measure and secondly, to avoid resistance to antibiotic treatment brought on by misuse.

The policy does not state on claims arising from self-referral prescriptions or drugs dispensed over the counter. It does not limit on drug costs or number of day's supply of drugs to be dispensed. Claims on drugs from external hospital outside Clinic hours are honored and reimbursed.

The documents do not state on patient request on drugs without a prescription. This can be a cause of high drug expenditure. The documents do not also define expiry of allowed number of days a single prescription can be dispensed especially for chronic conditions. This is a cost measure which minimizes wastage.

Loss of drugs or breakage of bottles containing newly dispensed drugs is not addressed in either document on how the matter should be handled. This would ensure accountability. Cost sharing on replacement would be cost containment.

*Administrative gate keeping*

A number of administrative gate keeping measures are taken. Claims are only paid after an audit process that scrutinizes the invoices to ensure that prescriptions are from approved medical service providers, and have the correct amount, date of referral, staff number and name of patient. Secondly, the scheme can only honor a claim that had a pre-hospital authorization, and where the services rendered were in line with the benefits and entitlements that are outlined in the policy. Thirdly, the scheme only pays after in-patient NHIF rebate. Lastly, the scheme only offers medical services in the areas indicated in the schedule and exclusions as listed in the schedule. Admission to private ward must be justified by the admitting institution because the scheme caters for beds in the general ward. An eligible employee who does not contribute to the National Hospital Insurance Fund or an eligible member of his family may only be admitted, at the organization's expense to a general ward of a government. The Scheme in these cases, meets the admission fees and other charges incurred on

production of receipts. If the employee referred above, is admitted to a private ward, he will be required to pay the difference between the charges in the general ward.

The scheme maintains a list of approved medical service providers. The terms and conditions with the contracted health service providers are not provided in these documents. On admission the letter for undertaking states the amount that should not be exceeded and items that the scheme does not pay. For individual service provider, the scheme enters into a negotiated consultation fee and also informed of limitation of services. On Beneficiary legitimacy, frequency and contribution the scheme has a synchronized system. The members of the staff medical scheme have the facility extended to their spouse (1) and children below twenty five years (25) of age. Staff members are allowed free cover fora maximum of four children below 18 years of age. The scheme allows additional children above the four and over 18 years on a token contribution of Kshs.500 per month per child. Refunds will only be considered for services received from any medical facility when the scheme clinic is closed and the condition is considered an emergency.

Other administrative measures to control and monitor cost is by sending summary of the invoices amounting to Kshs. 100,000 and above to one beneficiary is prepared and approved. The summary is manually sent for approval and authorization to the Director, of Finance. The budget is monitored on a continuous basis with variance analysis carried out on monthly basis.

Budget variance reports are accessed on line from the Hyperion system, and a printout is obtained for analysis on monthly basis. Variances both positive and negative from 5% are analyzed and accounted for.

Risk sharing and low cost options are not discussed. Other omissions include, terms and condition of services on fee arrangements with Hospitals and doctors' consultation.


*Need & demand reduction*

There are programs in place to improve fitness they include; wellness programs and health education (talks, seminars etc.) as Preventive Health services. Limitation of two caesarean section is allowed to both staff and spouses of staff. No information on incentives for the beneficiaries for cutting health care cost was found.

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*Incentive to health care providers and beneficiaries*

Guidelines for management of certain conditions would not only control cost but also motivate the health workers as a result of improved cure rate and better outcome. No information regarding appraisal of the doctors' performance in terms of number of drugs per prescriptions or number of referrals. While consultations and drugs are cost drivers in medical scheme health care, workers should be motivated to cut cost.

*Patient coordination care*

Discussions with the referral doctors on patients with complex or chronic conditions have been encouraged in these documents. There is however, no policy on disease management programs, which empowers the patient to learn about their condition and how to manage themselves around the chronic conditions. There is no policy on terminally ill patient on length of care besides the stated services. Seeking for second opinion is part of patient care which besides giving quality care, cuts cost by avoiding unnecessary care.
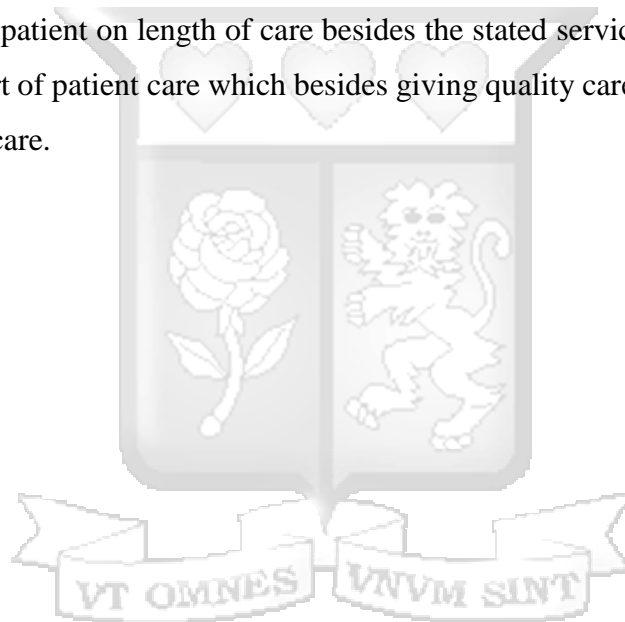
# CHAPTER FIVE: DISCUSSION, CONCLUSION AND RECOMMENDATIONS

## 5.1 Introduction

In this section the study presents the discussion, conclusion and recommendations. In this chapter all sections are arranged according to the study objectives.

## 5.2 Discussion of Findings

The current study sought to examine the cost drivers of health care for in-house staff medical scheme of an organization. The study adopted descriptive designs and secondary data was collected from in-house medical records. Descriptive analysis using mean, standard deviation, range, frequency and percentage were used to analyse the data. It was found that, most of the beneficiaries were females who aged between 0-4 years and most of the female employees had low attrition rates from the organization employment as compared to males. All medical costs registered an upward trend throughout the period under investigation. There is cause for alarm since most of the beneficiaries are suffering from chronic illness which calls for continued attention which may strain in-house medical budget.

A spot check on all cost drivers considered in the study revealed that pharmaceutical cost was second to chronic illness costs. This contrasted OECD (2015) which found that pharmaceutical expenditure is the key driver of medical cost which takes almost 20% of the total medical health care cost of a given country.

Although medical technology cost had a minimum of almost Kshs. 4 million, with maximum cost of Kshs. 17 million, there were chances of overusing technology driven treatment approaches or the medical scheme beneficiaries have switched to it as they seek to treat untreatable conditions by substituting traditional methods. Moreover, discovery of new diagnosing approaches may have been adopted by different medical providers serving the organization in-house Medical Scheme beneficiaries Goyen & Debatin, (2009). Although, a heathy working population may trigger motivation in the work force, there is need to monitor medical costs and advocate the use of technology driven treatment when the condition deserves so.

Even if the chronic diseases costs had the highest average it did not record the highest costs all the years as compared to pharmaceutical costs. Since this cost was mostly

incurred through consultants there is need to organize in-house training sessions on lifestyle diseases which include diabetes and cancers, among others. The organization should sensitize its workforce on how to mitigate these diseases which seem to be on the rise among the workforce and their beneficiaries. These results seems to mirror Bodenheimer et al., (2009) who argued that in America the recorded cases of chronic illness seem to be on upward trajectory and there are high chances of them increasing cost burden to almost 80% of health spending by the year 2020.

Although, the average annual hospitalization cost averaged at Kshs. 83.4 million, annual cost charges differed so much which indicated possibilities of some period recording least hospitalization cost as compared to others. From the global and regional statistics on length of stay, the average period is in agreement with OECD (2017c) which has recorded lengths of stay ranging from 5.1 days to 16.9 days. Although, there is no documented evidence on uncoordinated care in this medical scheme there is need to regulate the period and consequently minimize medical expenditure associated with length of stay. This can be achieved through a coordinated pool of experts from different sectors who develop cost minimization strategies.

Although, there was recorded evidence on provision of long term care it was offered only in one year. To the employees, provision and subsequent withdrawal of this service after one year is not clear because in the policy review there was no documentation that would explain this: yet long term care can be used to minimize hospital admission and encourage homecare. In contrast, the management may perceive low uptake of this service as indication of low social support whereby patients don't prefer to be at the comfort of their home and loved ones as opposed to being in hospital.

Demographic shift data trend conflicted the global trends on population growth rate which are currently projected to be 9% though expected to grow asymptotically to 20% by the year 2050 (Beard et al., 2012). Through this growth, the expectations on the demand of health care services will ultimately increase health care costs in the in-house medical scheme.

The management will be able to monitor patient coordinated care as a cost containment measure and manage medical cost inflation since Folland et al., (2007) argued that

there are possibilities of escalating medical charges owing to more consultation, test and over drug prescription. Owing to these charges there is need to evaluate independent costs drivers and devise mechanisms aimed at minimizing medical costs without compromising quality care and altering employees' motivation upon triggering fringe benefits associated with provision of medical cover.

The scheme policy and guidelines on medical cost containment were explored with a check list developed from the literature review on pharmaceutical cost containment measures. The procurement process is a key measure that has helped the scheme save on drug expenditure because of drug formulary use. Competitive price of drugs is encouraged by the public open tender that the scheme applies to acquire suppliers of the drugs. Though this poses the risk of low quality, it is a cost saving measure and spreads risk among different suppliers as opposed to having single source. However; there are gaps on utilization of drugs. The scheme should limit number of days' routine drug are dispensed on discharge from the hospital and limitation of claims; for example, indicate number of claims a staff can make per month. Due to the lack of these limitations, there have been cases of double purchases of same drugs. Other measures that were not stated in these document were measures on drug utility, terms and condition of drug reimbursement and periods to expiration of prescriptions from external doctors. Luck of filling these gaps in the two documents has contributed to minimal control on drug usage.

Administration gate keeping is well defined compared to the other containment measures discussed in this study. Auditing of membership legitimacy has been discussed and therefore adhered to as demonstrated from the demographic shift. Exit from the scheme was either through attaining retirement age, overgrowing the scheme by turning 25years, job termination, or death. Contribution from the 18th birthday is prompt. The scheme allowing a limited number of children covered by the scheme is cost containment measure which has encouraged copayment as a token. Though Kshs. 500 is very minimal considering the price inflation, it is a source of funding for the scheme. The scheme has a referral system in place; however, doctor's consultation expenditure has been noted to rise over the study period. More study needs to been done to establish which specialty is the scheme spending more on and strategies developed towards containing these costs. For instant, hiring visiting consultants to the

clinic and contract them on hours worked can be encouraged as opposed to service for fee.

Another measure that has worked for this scheme is the pre- hospital authorization. This has controlled the self-referral cases apart from instances of emergencies. Under administration gate keeping a gap was found, the documents did not state the risk sharing and low cost option. Charge arrangement with hospital for inpatient is not documented. There is no system in place that encourages admitting hospitals to communicate to the scheme about new admission cases. This is important because in case of emergency admission, the scheme staff can do a follow up and observe coordinated care for the patient. This eliminates unnecessary tests and treatment. The documents do not state who's to make hospital visits to monitor care and cost. In researcher's view the medical doctor would be in better position to monitor each patient's treatment from the principle doctor. The terms of contract for external health care providers is not stated. For instance number of review visits posts e.g. caesarian section or surgery the documents lack this control of visits. In addition the documents do not state the expiry of a single referral letter in case a patient is sent for laboratory tests or radiography by the doctor referred to. It should be clear whether a patient should present a fresh referral if within e.g. 48hours or 72hours.

Need and demand control has programs in place to ensure for example physical fitness. Though no evidence, the organization policy on health programs like gym and sports have gone a long way in reducing cases of chronic conditions. The scheme documents do not give any information on how the scheme beneficiaries can be involved to make decisions on how to contain cost. It would be commendable to have a suggestion box or a portal that the beneficiaries can use to air their views. The beneficiaries can introduce ideas that can benefit the scheme and the management can involve the beneficiary in times when they are making decisions that directly affect them.

From the documents, appraisal of the health care providers in regard to cost containment is not discussed. Though this requires care, to ensure that quality of patient care is not compromised.

The scheme documents have no documentation on patient care guidelines, disease management programs, terminally ill patient care or use of second opinion before arriving to a concluded treatment. Guidelines and management programs would

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address the cost escalation on chronic conditions. This ensures safety and quality of drugs supplied.

## 5.3 Conclusion

The cost drivers in this scheme reflected differently from what gathered from the literature review. Traditionally an aging population has been associated with high health care cost. For this study above 60years where very few yet chronic diseases expenditure was significant even higher than pharmaceutical expenditure. The numbers of beneficiaries steadily grew at a rate of 6% and therefore a justification for increase in health care expenditure. The growth in the expenditure was not proportional to the population growth, more so in 2013. Population is composed of more between o to 4 years and 11to 14 years with very few above 60 years. The chronic diseases are therefore not as a result of old age. This findings agreed with (Barros, 2010), that aging population had no significant to health expenditure.

Doctors' consultation was the highest all through the study period, indicating many referrals to the external doctors. Pharmaceutical expenditure was contrary from literature review of 20% of the total scheme expenditure. Length of hospital was way below majority of countries but the hospital admission cost was significant to the scheme. There was high cost in musculoskeletal conditions which needs to be investigated further since the organization does not directly prone to physical injuries. The musculosketal injuries explain the high cost of x-ray in the scheme.

The employer has a pivotal role on managing cost; several cost drivers considered in the study have registered an upward trend which is cause for alarm since in some instances the costs have increased very fast.

Though (Barros, 2010), did not find the role of gatekeeping and institutional features significant in containing cost, the findings in this study case differed. Policies have a big role in cost containment because they dictate utilization of the scheme as while as use of guidelines .This scheme lacks water tight policies that control wastage and incentive to the health workers who are key gatekeepers in health and the scheme beneficiaries. The increase in doctors' consultation would be associated with uncoordinated care.  The overuse of X-ray would be probably be due to lack of guideline use.

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Medical scheme is a powerful tool for staff welfare. Policies that minimize misuse and waste without compromising quality of care are a great foundation for a sustainable scheme.

**5.4 Recommendations**

Following the identifying the key cost drivers of the study case, there is need for policy reforms for the medical scheme. Policies need be reviewed and implemented after three years. This is because the medical field is dynamic and hence the need to keep with policies that keep the scheme guarded and guided. For instant more policies on drug utilization is key considering that it has been a significant cost driver in this medical scheme and involve all stakeholders of the scheme when reviewing the policies. This can be done by beneficiary representatives.

Administrative keeping on developing measures to minimize medical cost from different cost drivers. For instance; pharmaceutical products can be accessed on wholesale rather than retail method, execution of horizontal alliances with other government parastatals and ministries, lifestyle seminars, workshop and short courses should be held continuously as such to manage the spread of lifestyle related diseases especially diabetes which seems to be on upward trends. Encourage the organization to continue hiring employees of below 40years because majority are not associated with chronic conditions.

Preventive health care, provision of both sporting and psychological amenities amongst employees at no cost and all employees should be encouraged to participate. Copayment to the scheme by the beneficiaries has proven to be incentive to cost control, because it changes the behavior in utilization. The management can involve the stakeholders concerning copayment or capitation in order to sustain the scheme in future.

Encourage spouses to disclose other medical scheme. Hospital admissions should be monitored closely because they are contributing to high percentage of expenditure. The scheme needs considers having number of days expected for each medical condition so closer monitoring of hospital stay. Utilization of committees which can oversee different utilities, for example there can be committee for referrals, admissions, drugs etc. to monitor expenditures.

## 5.5 Suggestions for Further Studies

Although, the current study adopted use of secondary data, future research should adopt the use of primary data as such to examine the qualitative cost drivers of medical cost amongst beneficiaries of in house medical scheme. From this study it will be appropriate to retrieve the first hand information from beneficiaries on their perception on costs drivers and the respective cost containment measures to be taken.

Secondly, though the study adopted the use of annual secondary data, future study should examine the causal effect between medical cost and cost drivers using monthly or daily data so as to examine both short and long run relationship between the respective cost drivers. Moreover, through this approach, in-house medical providers would be in a position to examine regular trends and seasonal approach solutions would be developed.

Interestingly, the management has to consider motivational roles on their employees as they provide medical cover and minimize annual medical costs incurred. There is need to examine the effect of provision of medical cover, its influence to employees motivation and the ultimate effect on employee performance and commitment.
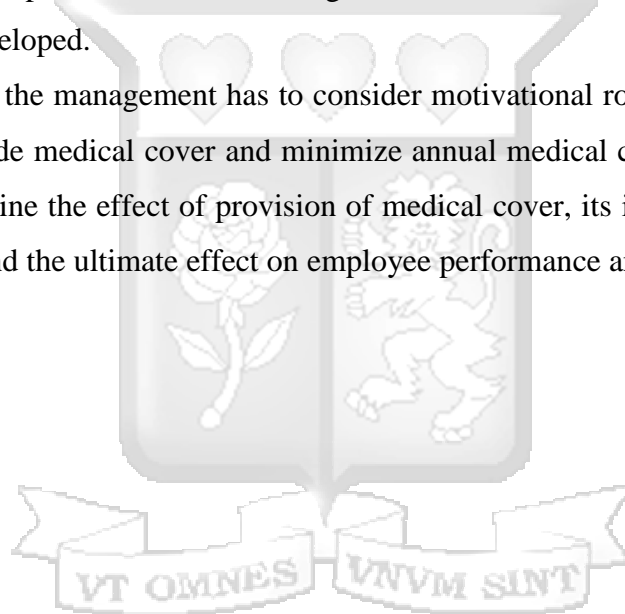
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**APPENDICES**

## Appendix I Research Data Collection Instrument

## Population Growth

| Year | Staff | dependents | Total |
|------|-------|------------|-------|
| 2011 | | | |
| 2012 | | | |
| 2013 | | | |
| 2014 | | | |
| 2015 | | | |

## Population in age range in years

| Age Range | 2011 | 2012 | 2013 | 2014 | 2015 |
|-----------|------|------|------|------|------|
| 0-4 | | | | | |
| 5-9 | | | | | |
| 10-14 | | | | | |
| 15-19 | | | | | |
| 20-24 | | | | | |
| 25-29 | | | | | |
| 30-34 | | | | | |
| 35-39 | | | | | |
| 40-44 | | | | | |
| 45-49 | | | | | |
| 50-54 | | | | | |
| 55-60 | | | | | |
| 60> | | | | | |

**Appendix C: Length of hospital stay**

| Year | 2011 | 2012 | 2013 | 2014 | 2015 |
|---|---|---|---|---|---|
| LOS | | | | | |
| Expenditure | | | | | |

**Physician's visits and consultations (referrals)**

| Year | 2011 | 2012 | 2013 | 2014 | 2015 |
|---|---|---|---|---|---|
| Expenditure | | | | | |

**Medical Technology expenditure**

| Expenditure on | 2011 | 2012 | 2013 | 2014 | 2015 |
|---|---|---|---|---|---|
| CT scan | | | | | |
| MRI | | | | | |
| X-rays | | | | | |
| scans (abdominal, pelvic | | | | | |
| PET scan | | | | | |
| TOTAL | | | | | |

**Pharmaceutical Expenditure**

| Year | 2011 | 2012 | 2013 | 2014 | 2015 |
|---|---|---|---|---|---|
| Internal Drug expenditure | | | | | |
| External drug expenditure | | | | | |
| TOTAL | | | | | |

**Chronic diseases expenditure**

|  | 2011 | 2012 | 2013 | 2014 | 2015 |
|---|---|---|---|---|---|
| Heart & blood diseases |  |  |  |  |  |
| diabetics |  |  |  |  |  |
| musculoskeletal disorders |  |  |  |  |  |
| Mental disorders |  |  |  |  |  |
| cancers |  |  |  |  |  |
| Total |  |  |  |  |  |

**Administrative cost**

This is inclusive of salaries & wages, Pensions Fund, pensions Fund contribution, gratuities for contract staff, duty and special allowance, NSSF contributions, tax-top allowances, leave allowance, fringe tax and AC and DC contributions

| Year | 2011 | 2012 | 2013 | 2014 | 2015 |
|---|---|---|---|---|---|
| Expenditure |  |  |  |  |  |

**Long term care**

Number of cases admitted in different facilities for more than 100 days in single admission either as Hospital admission, Home care with nurse aid, Rehabilitation Centre or Mental Hospital.

| Year | 2011 | 2012 | 2013 | 2014 | 2015 |
|---|---|---|---|---|---|
| Expenditure |  |  |  |  |  |

**Appendix II Document Review for cost Containment Measurement tools**

| | |
|---|---|
| **Pharmaceutical measures** | |
| ·      Procurement of drugs | |
| ·      Formulary (use of generic versus branded drugs) | |
| ·      Reimbursement of drugs | |
| ·      Medicine utilization | |
| **Administration Gate keeping** | |
| ·      Auditing beneficiary legitimacy &frequency | |
| ·      Referrals | |
| ·      audit of claims | |
| ·      Pre-hospital authorization | |
| ·      risk-sharing and low cost-options | |
| ·      charge arrangements to the hospitals | |
| ·      contract terms and conditions with providers | |
| ·      contract terms and conditions with hospitals | |
| ·      beneficiary contribution | |
| **Need & demand reduction** | |
| ·      Health programs in place for the scheme beneficiaries | |
| ·      beneficiary involvement in decision making | |
| **Incentive to health care providers & patients** | |
| ·      performance appraisal on cost containment | |
| **Patient coordination care** | |
| ·      patient care guidelines | |
| ·      disease management programs | |
| ·      terminally ill patient care | |
| ·      take on second opinion | |