The effects of cost-sharing on healthcare services provision in public hospitals in
Kenya: a case study of Kangundo District, Eastern Kenya

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DECLARATION

I certify that this is my original work and has not been presented for a degree in any other university.

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DEDICATION

I dedicate this work first to my two late brothers, Leonard Mweu Muiya & Albanus Kimeu Muiya, and Angeline Mwikali and Christine Mukui, my daughters. You all gave me the inspiration to write this work.

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Abstract

The focus of this study was to determine the effects of cost-sharing on healthcare services provision in public hospitals in Kenya by examining a case study of Kangundo District Hospital in the Eastern Provision of Kenya. In this regard, the study was guided by three objectives, namely: a) To establish whether cost sharing led to a diverting demand of health care from public to private health care providers in Kangundo District. b) To determine how aspects on ability to pay by patients affect revenue generation by health care facilities in Kangundo, and c) find out how user fee charging has affected household access to health care services from public health care facilities in Kangundo.

Two hypotheses were tested in this study. The first hypothesis stated that the demand for healthcare services offered in hospitals in Kangundo District was influenced by the social and demographic backgrounds of patients. The second hypothesis postulated that cost sharing on health care had led to provision of quality health care by public health facilities in Kangundo District.

The study was conducted out in Kangundo District, Eastern Kenya which covers an area of 178.2 km^2. Survey research design was used to collect data and was supplemented by field research (qualitative approach). 150 household heads were sampled to generate quantitative data while 10 health care providers from Kangundo District Hospital were interviewed as key informants. A standardized questionnaire was used to interview household heads in the three research sites. Multi-stage cluster sampling was used to select household heads while non-probability (purposive) sampling was used in the selection of the three locations and three sub-locations, respectively. An interview guide was used to collect qualitative data from the key informants. The researcher supplemented quantitative and qualitative data with observational data which he collected during the fieldwork. The findings of this study are based on two levels of analysis viz. univariate and multivariate regression. The study has used multiple regression analysis and applied inferential statistics (such as regression coefficient and P-Value) in testing its two hypotheses.

The study established that the introduction of cost sharing has not led to diverting demand of health care from public to private health care providers in Kangundo District, though patients still utilized private health care facilities in the district. Patients in Kangundo

District utilized public health care facilities more than private ones. This means that public hospitals were popular compared to private ones

Another finding of the study was that the study established that the patients preferred public health care facilities since the charges were comparatively cheaper. The data generated indicated that 92% of respondents in Kangundo were not in reliable employment. This means that they did not have the ability to pay for health care and therefore this affected revenue generation.

User fee charging has an effect on household access to health care in Kangundo District. The low income status of respondents meant that they can ill-afford to pay for health care and meet other family needs like the basic necessities. The respondents might not find it easy to access health care facilities due to proximity of the health care facility. This is because patients consider the costs incurred in acquiring health care services.

The researcher makes the following recommendations: The hospital management committee should ensure that the revenue generated is fully utilized to ensure that public health care facilities can provide quality health so as to ensure that there was no diversion of demand for health care.

Public hospital should provide safety nets to ensure that patients who are unable to pay for health care are catered for. The government needs to provide means to cushion the residents of Kangundo from poverty so as to give them the purchasing power. More health care facilities should be constructed to ensure even access of health care services by patients. Government budgetary allocations should cater for health care infrastructure in the district.

There is need for further research on situation analysis on Health Insurance programs as a supplement to cost sharing in health care, factors that influence health-seeking decisions at the household level; as well as in the potential for enhancing alternative financing mechanisms. Research should also be done to assess progress towards the attainment of alternative goals of cost-sharing in health.

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LIST OF ABBREVIATIONS

BCG-Bacilu

BI-Bamako Initiative

COPE-Client Oriented Provider Efficiency

DHMBs-district Health Management Boards

DHMY-District Hospital Management Team

DMOH-District Medical Officer of Health

GoK-Government of Kenya

GST-Genera systems theory

HCFS-Health Care Facilities

HMB-Hospital Management Board

IBEA -Imperial British East Africa

KANU-Kenya African National Union

KDHS-Kenya Demographic and Health Survey

KEMSA-Kenya Medical Supplies Agency

KHFC-Kenya Health Care Financing

KHHEUS-Kenya Household Expenditure and Utilization Survey

KIPRRA-Kenya Institute of Research and Policy Analysis

KNH-Kenyatta National Hospital

MOH-Ministry of Health

NARC-National Rainbow Coalition

NHA-National Health Accounts

NHSIF-National Social Health Insurance Fund

PHC-Primary Health Care

PMO-Provincial Medical Officer

SAPs-Structural Adjustment Programme

TRF-Total Fertility Rate

UNICEF-United Nations Children's Education Fund

UNDP-United Nations Development Programme

USAID-United States Agency for International Development

WHA- World Health Association

CHAPTER 1: INTRODUCTION

1.1 : The background of the problem

Health sector reforms have been carried out in most countries in Sub-Saharan Africa for the

more than two decades now. Indeed, the early 1990s was a decade of market reforms in

healthcare not only in Africa but the world over. During this time, most European countries

initiated market reforms aimed at expanding healthcare coverage at a lower cost. Quaye

(2004: 95) notes that "the UK chose to expand consumer choice and reduce supply-side

inefficiencies." The idea was to separate the purchaser from the provider of hospital and

community health services, as well as the creation of general practitioners and the

formation of hospital trusts in order to create competition. There were also the Dekker and

Blum reforms in Netherlands and Germany respectively which focused on the introduction

of market-oriented systems in the delivery of healthcare (Quaye 2001, 2004). In the 1980's

and 1990's, African governments adopted the Western healthcare service delivery system-

which was started way back before independence in the 1950's and 1960's- a model whose

emphasis is on hospital based and curative care.

Cost-sharing in Kenya's health sector is a policy initiative where the patient and the

government or other healthcare providers share the cost incurred in the provision of health

services. This is contrasted to the situation after Kenya's independence (1963), whereby the

government provided free health care to her citizens. On a populist stand, the government

came generously after independence and promised free medical care. According to Collins

et al. (1996:113), after independence in 1963, "the Kenyan government committed itself to

providing universal access to medical services." This was intended to improve the health

status of her citizens. In 1964, a pre-independence fee of KSh 5 per attendance was

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abolished while nominal in-patient and selected outpatient charges were retained. In 1989, however, the National Development Plan (1989-'93) advocated for expanded user fees in health, which was announced in October 1989. In December 1989, expanded user fees were introduced as cost-sharing. The new fees were introduced at Kenyatta National Hospital, the then 80 provincial and district hospitals, and the 320 health centres with health care services in dispensaries remaining free (Quick and Musau 1994).

Collins et al. (1996) has outlined the government's aim of initiating cost-sharing. The programme was specifically aimed at improving effectiveness and efficiency of health programmes, generate more revenue for the health sector, improve the quality of health care, improve equity in the health delivery system and control expenditure in the public sector spending on curative care (Collins et al.1996, and Lopez 1998). There could be several possibilities why this has been the case. It not yet provided complete access to modern health care. Another possibility is that there might not have been corresponding improvement in the quality of health care with the generation of additional funds. Since the inception of cost sharing, health care facilities have generated revenue by charging user fees (Wasuna and Okatch, 2000). It is crucial then to focus on financial management in public health care facilities. There is likelihood that financial management systems could be characterized by ineffectiveness due to structural and institutional weaknesses. This can have a great effect on efficiency in the collection and utilization of revenue generated by health care facilities.

According to the Ministry of Health (2002:11), the cost-sharing operations are such that the revenue generated from user charges and insurance claims (e.g., from National Hospital

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Insurance Fund) were to be deposited in the Health-care Service Fund, commonly known as Facility Improvement Fund (FIF). These revenues were retained separately by the Hospital Management Boards to supplement the budget allocations from the Treasury. Hospitals were allowed to use 75% of the revenue collected while 25% is for preventive/promotive activities in the district in which the funds are collected (KIPPRA, 2004). The cost sharing revenue was to be used to improve the quality of health services in the facilities and to support district level and preventive health care (P/HC) services. These funds are managed by management boards. After collection at the facility level, the funds are banked in an account managed jointly by the District Health Management Boards (DHMBs) and the District Accountant. For health care facilities to access the funds, the Hospital Management Team has to present their budgets which are approved by the DHMBs.

However, the expectation that cost-sharing in health would improve provision of quality health care seems not to have been met. This is because despite the improvements made in health-care in Kenya after independence, mortality rates have increased. Kimalu (2001:10) argues that although the health situation in Kenya improved progressively between 1963 and 1992, there appears to be a reversal in the direction of the change in the health status of the population as reflected by increase in morbidity and mortality indicators.

The Kenya Demographic and Health Survey (KDHS) confirms the reports by Kimalu and Collins et al. According to KDHS (2003:114), "both infant and under-five mortality rates are increasing." The increases were more pronounced between the mid-1980s and mid-1990s. Results from the 2003 KDHS indicate that under-five mortality had increased from

110 deaths per 1,000 live births to 115 deaths per 1,000 live births between 1997 and 2003. Besides child mortality, life expectancy in Kenya has decreased. Kimalu (2001) indicates that life expectancy in 2003 for both females and males was 46 years. It is with this background that questions arise on whether or not cost sharing has enabled public hospitals to generate sufficient revenue. Apparently, generation of revenue is expected to lead to provision of quality health care by government hospitals, holding other factors constant. However, it is highly probable that the increased mortality rates and the decrease in life expectancy is as a result of the reduced access by the poor to healthcare services in public health institutions due to charging of user fees. This therefore suggests a need for fundamental changes in the manner in which public hospitals provide healthcare to Kenyans.

Since the revenue generated by public health care facilities is retained by the Hospital Management Boards to supplement allocations from treasury, it is important to establish how the 75% retained by health care facilities is utilized. To date, some studies have established that the Hospital Management Boards are ineffective (Shauri, 1999) due to poor management. There could be two issues; adequacy of the funds that the DHMBs could access to as well as the extent to which the DHMBs are prudent in using the Facility Improvement Funds (FIF). The use of these funds depends on the capacity of the management boards. There is a possibility then that the members of these management boards lack the necessary skills to manage the cost-sharing programme in respect to generation and utilization of revenue. This study therefore attempted to establish the relationship between revenue generation whether there was any relationship between revenue generation and management by the DHMBs in the provision of quality health care services in public health facilities.

When health care facilities don't provide the expected quality health care, there are quite a number of implications. A major issue of concern is whether health care facilities generate sufficient revenue; and if so, how has the implementation of cost sharing been done by hospital managers. Most of the existing studies on cost-sharing in health are based on rapid assessment of public health facilities, factors that influence health-seeking decisions at the household level, e.g., income, household structure, facility-specific variables and other competing needs for scarce household resources. (Mbatia, 1996, Mwabu, 1998 and Shauri, 2000) Research gaps exist on the on management of the cost sharing programme. This study was therefore intended establish efficiency in the collection and use of revenue generated.

Available literature indicates that even with the generation of revenue the expected gains in quality of health care have not been achieved fully (Shauri 1999:136; Kimalu 2001:17 and Mbatia 1996:219). Shauri shows that "quality of public health care has not improved", even with the formation of District Health Management Boards (DHMBs). In addition, the study revealed that in Kilifi and Taita Taveta districts, health facilities faced problems of lack of drugs and other essential medical supplies. Mbatia observed that "despite the introduction of user fees, public health facilities in Murang'a (and in Kenya) still remained inefficient and unreliable." He goes further to state that the quality of their services remained poor. This therefore means that the main objective of the cost-sharing programme, which was to encourage increased cost recovery and improve the quality of health care services from users of public health facilities, has not been met so far since its inception in 1989. This study therefore intended to establish why, despite revenue generation, the implementation of cost sharing has not matched the provision of quality health care by public health care

facilities. This was done by establishing the relationship between generation of revenue and its management in provision of quality health care.

1.2: The problem statement

As indicated in 1.1, cost-sharing within Kenya's health sector was meant to reduce government spending on provision of health as well as ensuring that public health became self-sustaining. Outside the public sector, other groups like church and non-governmental organizations have supplemented the government's efforts in provision of healthcare. However, it has been observed that most public health institutions have not developed any additional facilities and infrastructure even after the introduction of the cost-sharing. This might raise consideration regarding training in management skills for medical staff and administrators concerning collection and management of revenue generated through user fees. This relates to problems of management of both the process of revenue generation and utilization in order to meet the objective of provision of quality health care. In an effort to achieve quality health care, health care facilities need to be rehabilitated so as to offer quality services and meet extra demand. There is also need for development of quality standards for medical equipment and strengthening of the capacities of public health institutions to carry out promotive health care.

Even though Kenya had to pursue adjustment policies due to the poor performance of the economy and donor pressure, the effects have been reduction in per capita expenditure on health and increase in user fees and in their enforcement. According to Lopez (1998:1) these factors "have contributed to deterioration in health status and a decline in health utilization among the poorer socioeconomic groups." The researcher therefore attempted to

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establish how cost-sharing has affected potentiality of public hospitals in provision of quality health care to the public. In this regard, the study is guided by the following research questions.

1) Has cost sharing led to a diverting demand of health care from public to private health care providers in Kangundo District?

2) What aspects on ability to pay by patients affect revenue generation by health care facilities in Kangundo?

3) How has user fee charging affected household access to health care services from public health care facilities in Kangundo?

1.3: Objectives of the study

The general aim of this study was to establish the nature and impacts of cost-sharing on the provision of healthcare in public health institutions in Kangundo District. The specific objectives were:

1) To establish whether cost sharing led to a diverting demand of health care from public to private health care providers in Kangundo District.

2) To determine how aspects on ability to pay by patients affect revenue generation by health care facilities in Kangundo.

3) Find out how user fee charging has affected household access to health care services from public health care facilities in Kangundo.

1.4: The rationale of the study

A study on the effects of cost-sharing on healthcare services provision in public health hospitals is significant in that health is a basic human need. The current demographic trends in Kenya raise a lot of concern considering statistics on population and development

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indicators from the 1999 Kenya Population and Housing Census. For instance, the crude death rate was 11.7 per 1,000 population and infant mortality 77.3 per 1,000 live births (CBS: 2002). Though no documentary evidence links such trends to cost-sharing, past studies (Mbatia, 1996) suggests that some people have been unable to access health due to inability to pay. Therefore, there is need to establish why introduction of user charges in health care has not fully achieved major increases in efficiency in health care delivery which would ultimately result to provision of quality health care.

Good health is vital in enhancing human development and is both a fundamental right and a requirement for rapid socioeconomic development. A healthy population is a basic requirement for successful industrialization. Thus a sound healthcare delivery system is a condition that would produce healthy people capable of participating in a country's economic, social and political development. This suggests a direct relationship between the health of a population and its productivity.

Additionally, the study attempts to provide a database for understanding the effects of cost-sharing on healthcare services provision in Kangundo District. This study is intended to generate new knowledge on significant spheres of health care interests not covered by previous studies. These include: efficiency in the collection and use of revenue generated, as well as approaches for overcoming weaknesses in the implementation of the programme. Further, it seeks to provide knowledge in the potentiality of public health care facilities to generate revenue through cost-sharing as well as the potentiality of patients in paying for the services offered. Therefore, the study provides data that inform current and future policies in the health sector.

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Kenya's population has increased from 23.2 million in 1989 to 28.7 million in 1999 (National Bureau of Statistics, 2001) and consequently the need for healthcare services continues to increase. This necessitated the Kenyan Government in 1989 to adopt policies on the healthcare sector in which case it became necessary to supplement health expenditure with other sources, one of them being cost-sharing. The public has indicated willingness to pay for good quality healthcare services (Mbatia, 1996) and therefore the government should place emphasis on value for money. It is therefore important to establish whether government health care facilities have the required capacity to provide quality health care services to patients. It is also important to establish whether all Kenyans have access to health care from public health institutions. This is because mortality rates have increased (Quaye, 2004) thus posing severe policy implications for the health sector in Kenya.

1.5: The scope of the study

While the wider literature review served to guide the conceptualization of the study, the research limited itself to Kangundo District. The conceptual scope of this study is to be considered at two levels: the national (macro) and the divisional (micro) level. At the national level, the study focuses on how health care services provision has been affected by cost-sharing since its inception. To achieve this, the researcher used the available literature in order to delineate the performance of the public health system in Kenya in the provision of health care.

At the micro level, the focus of this study was to establish how generation of revenue and management affect provision facilities. This would then enable the researcher determine

impediments for achieving quality improvements in health care. It is also the concern of this study to understand the management of the programme after the government adopted the Nationalization policy in health care.

1.6: Organization of the Study

This study is organized in five chapters. Chapter one has the introduction, objectives or the study, the rationale, scope and justification of the study. In this part, the foundation of the study is stated as the need to understand and document the experiences of cost sharing through examining the impact of user fee on quality of service in public health care institutions.

Chapter two is a review of the relevant literature on cost sharing from a global and historical perspective. It examines the rationale behind the introduction of cost sharing in Kenya, its organization, as well as the social context of health and illness. In addition, the review considered the health sector reforms and how the cost sharing program has worked in the past. Through the General Systems Theory and The Social Exchange Theory, the researcher accounts for the different forms of health seeking behavior. Finally, two hypotheses are formulated from the reviewed literature for testing.

In chapter three, the research methodology is presented organized into site selection and description, research design, sampling techniques, sources of data and techniques of data collection. The units of analysis and observation units are stated in this section. Likewise, the chapter includes the methods of data analysis, ethical considerations and the problems encountered in the field.

Chapter four is the data presentation and analysis. The socio-demographic data on the respondents is summarized in the form of percentage tables. A second level of analysis was done-multivariate analysis-to establish how the independent variables influence the dependent variables. The study adopted multiple regression analysis. The final part of the chapter is a summary of findings.

Chapter five is the final part of this study. It presents a summary of findings, the recommendations on issues affecting cost sharing in health care as well the suggestions for further research in cost sharing in health care.

CHAPTER TWO: LITERATURE REVIEW

2.1 Introduction

This chapter presents the relevant literature on cost-sharing in an attempt to understand the nature of impacts on cost-sharing in public hospitals in the provision of healthcare. The major concern was the relationship between elements of quality and the generation of revenue in the provision of quality health care as well as the challenges faced by health care providers in the implementation of cost sharing.

From the onset, the researcher examined the development of Kenya's health system from pre-colonial Kenya through independence to the current times. This was important in the study in order to understand the factors leading to cost-sharing in health care. After tracing the historical background of the health system, the next concern was examining its organizational structure and the financing of health care in Kenya in the wake of cost-sharing. This then made it necessary to understand the health care seeking behaviour of patients as is dictated by the social context of health and illness. The review also concentrated on the broad aspect of health reforms in Kenya with a bias on Nationalization in order that the study informs the discourse of performance and management of cost-sharing. All this was geared towards understanding the key determinants towards the provision of quality health care by government hospitals.

The last part of this chapter presents the theoretical framework and reflects on the Exchange and General Systems Theory (GST) in the context of the cost-sharing programme in health care. The final part presents the hypotheses of the study.

2.2: The development of Kenya's health system

Kenya's current health care system is as a result of policies made more than four decades ago. However, the development of the healthcare system in Kenya can be traced to the pre-colonial era. The history of modern health services and policies in Kenya dates back to the establishment of the religious mission in the 1890's and the arrival of the imperial British East of Africa company (IBEA) in 1888. It was not until 1901, when a proper health care system was initiated in colonial Kenya. A medical department was created as one of the civil developments of the National administration (Owino and Okach, 2000). This became the first colonial medical organization supported and controlled by the State. The colonial health system established then, however, was to preserve the health of the European while ensuring that the African and Asian labour force was in good working condition. The organization was also charged with the responsibility of preventing the spread of tropical diseases.

In 1963, an independent Kenyan government took the responsibility for the health of its citizens. One prominent change in provision of healthcare was the expansion of rural health facilities (Ministry of Health 2003, Oyaya et al 2003). In 1964, the pre-independence fees on medical service were discontinued (Kimenyi et al 2004). At independence, therefore, Kenya inherited from the colonial government a three-tier health system. The National government provided services at district, provincial and national levels; missionaries provided health services at sub-district levels; and local government provided health services in urban areas. This system operated until 1970 when the government established a system of comprehensive rural health in which health centres became the focal points for comprehensive provision of preventive promotive and curative services (Quick and Musau, 1994).

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Over the years, health policy reform in Kenya have drawn a lot from several health charters like the 1977 World Health Assembly (WHA) "Health for all by the year 2000", the 1978 Alma-Afa Declaration on Primary Health Care (PHC) and the 1981 WHA "Global Strategy for Health for All by the year 2000". Subsequently, in 1986 the Kenyan government published the "National Guidelines for the implementation of primary health care in Kenya". This new health policy resulted in major re-organization and reorientation of the existing health system based on the principles of Nationalization, unity, participation and inter-sectoral collaboration. The policy was meant to shift from purely government provision of services to sharing of costs with those seeking for health care. In the Policy Guidelines, the government pledged to increase alternative financing mechanisms for healthcare (Ministry of Health, 1986). A cost-sharing policy in the health sector was introduced in 1989 with a brief suspension of the policy in 1990, only to be re-introduced a year later in August 1991 (Mwabu, 1995 and Kolehmaina-Ailcen , 1999)

The preparatory work for cost-sharing in healthcare in Kenya was coordinated with donor assistance from the US Agency for International Development (USAID), the World Bank and other major donors. Two initial preparatory studies were carried out. The first was on health financing alternatives (Stevens, 1984) while the second was on health sector expenditure and financing (World Bank, 1987 b). USAID funded other studies like the *Nairobi Area Studies*, the Provincial and District Health Service Study-Guidelines for Implementation of User Fees, and the Kenya Ministry of Health Preventive and Primary Resource Gap Study. These studies were concerned with the supply and demand for health services, the efficiency and quality of care of government and private-sector health services as well as the regional allocation of resources. A joint World Bank, USAID and UNICEF

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group conducted additional research in 1989 in order to establish health-financing priorities (Collins et al., 1996). Essentially, these studies were an initiative to determine viable alternatives as well as set donor funding conditions and targets for health reforms in Kenya.

In the 1989-1993-development plan, the government confirmed the health financing reform, leading to a five-year national policy. One major objective was to make health services accessible to all Kenyans by the year 2000 (Collins et al. 1996). This plan also recognized health financing as a constraint to this goal. Consequently, emphasis was on developing alternative financing mechanisms, which included introduction of user fees in Ministry of Health facilities. In August 1989, the USAID-funded project- the Kenya Health Care Financing (KHCF) Project was initiated to implement specific health financing reforms and assist in defining the reform agenda in other areas. In December 1989 (Quaye, 2004), the Ministry of Health in Kenya established cost-sharing in government hospitals and health centres. Kenya adopted the standard model. According to Gilson and Russell in Quaye (2004:96), "the standard model has among its objectives the need to make health services more efficient and equitable." The goal was to introduce sector changes besides use of other inducements, which would ensure efficient delivery of health services by healthcare providers.

In the 1990s, there was a further shift in health policy geared towards structural reforms and market orientation of the health services. This move was implemented in line with the recommendations by the World Development Reports by both the World Bank and the Ministry of Health. These Reports were: "Investing in Health" (The World Bank, 1993), "The Kenya Health Policy Framework" (GoK, 1994) and "The National Health Sector

Strategy Plan-1999-2004 (GoK, 1999). In the Kenya Health Policy Framework (KHPF,1994), the government restated its commitment in providing health care services to its entire citizenry and to equity to ensure that healthcare reaches the most vulnerable groups and the underserved areas (Demographic and Health Survey, 2003; Ministry of Health, 2002; Kimenyi et al. 2004). The new health policy modeled on the World Bank's report 1993 (World Bank, 1993) emphasized the role of the non-governmental sector and sought to transfer the provision of curative care to this sector. The government of Kenya therefore pledged to provide an enabling environment for private and community involvement in health care service provision and financing.

Presented with this chronological development of the health care system in Kenya, certain issues emerge that contrast the policy statements on the provision of healthcare by the state. For example, the KHPF health policy frame work does not seem to have been achieved since the government expenditure on health care is more on curative than preventive healthcare (Kimenyi et al., 2004, Collins et al., 1996). The policy agenda presented in the KHPF is broad and can be termed ambitious. This is due to the fact that Kenya has high levels of poverty and a majority rural population. For instance, poverty levels have increased to a level where over 50% of the population living below the poverty line (GoK, 2000). The relative poverty of the population translates to a scenario where it becomes insufficient for many to finance their own health care. The key issue at this particular point is whether through cost-sharing the universal goal of "health for all" declared in Alma Ata in 1978 has been attained. If there are high levels of poverty as alluded, is it possible for government hospitals to generate sufficient funds? There is a possibility that generation of funds could be affected and therefore the focus of this study was to establish if public

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hospitals had achieved quality improvements in health care provision after the implementation of the cost-sharing programme and also assess income generation potential of public hospitals, taking Kangundo as a case study.

2.3: Organization and structure of the healthcare system in Kenya.

The health sector in Kenya comprises the public (state), private, missionary health, as well as the traditional sub-sector system, with the major player being the Ministry of Health (GoK, 2003; Murray, 2000). It also includes all the activities whose primary purpose is to promote, maintain and restore health responsiveness, and fairness in health resources distribution (Oyaya and Rifkin, 2003). Kenya has a pluralistic health system whereby healthcare services are produced by the government and a host of non-governmental providers. The non-governmental providers include religious organizations, the for-profit private sector, pharmacists/chemists, traditional healers and community healthcare workers (Ministry of Health, 2002, Derman 1995). The private sector can be categorized into both for-profit and non-profit health care providers.

The public health care system in Kenya is implemented through a network of facilities (Figure 1). The network starts from dispensaries and health clinics at the bottom, through to health centres, sub-district hospitals, district hospitals and provincial general hospitals. At the apex there is Kenyatta National Referral Hospitals (Ministry of Health 2001-2002) Kenya's health system and decision making structure is organized into four broad tiers: National, provincial, district and facility (Figure 1). Health care services are delivered through a network of about 4,500 facilities with the public health system accounting for 52% of total facilities (Ministry of Health, 2003). Public healthcare services are delivered

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through a hierarchical structure) with the hospital system being the backbone of care

provision. The facilities that comprise the hospital system range from the national referral,

specialized provincial: district and sub district hospitals, which provide integrated curative

rehabilitative care and supportive activities for peripheral facilities (Collins et al, 1996;

Ministry of Health, 2004; Berman et al, 1995). Basic health care to the rural areas is

provided by a network of health centres and dispensaries, which are the first contact points

with the country.

Figure 1: Structure of the healthcare system in Kenya
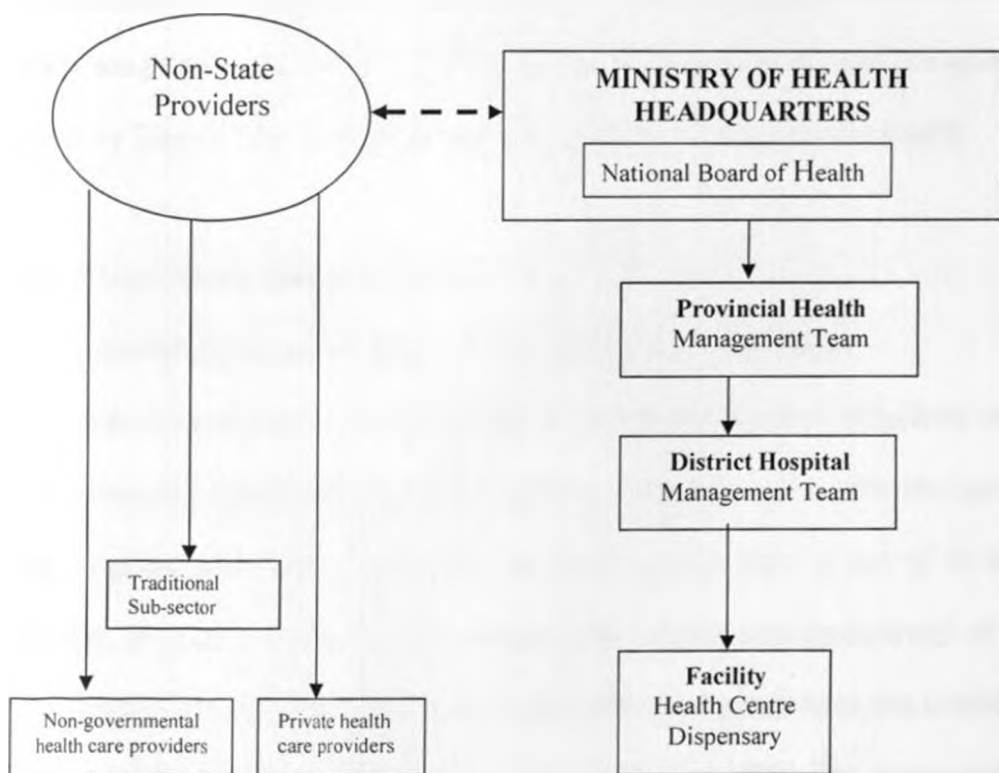
Source: A modified version from Oyaya and Rifkin, 2003

The MOH is divided into two: Public Health and Sanitation, and Medical Services each

consisting two wings: the administrative wing headed by a permanent secretary and the

professional wing each headed by directors. There are two PSs responsible for planning,

budgeting and development, while the directors are responsible for hospitals and other health facilities, training and medical research (Berman et al, 1995). At each level of the system, decision making, management and service delivery function require close interactions among the key health sector and health related stakeholders (Oyaya and Rifkin 2003). This is aimed at facilitating better understanding of the planned activities for effective utilization of resources for maximum health outcomes.

From the several levels in the structure of the Ministry of Health, this study concentrates on the management and service delivery functions. Since all the functions are interrelated, the study sought to establish the how the cost sharing programme affected management of user funds by District Hospital Management Boards in provision of quality health.

2.4: Health Sector Reforms in Kenya

2.4.1: Health financing in Kenya: The Cost Sharing Programme

This part gives an overview on who pays for health care services of patients in Kenya. As the researcher has already stated on attaining independence in 1963 the government of Kenya committed itself to providing free health care services as part of its development strategy to alleviate poverty and improve the welfare and productivity of the nation (Ministry of Health, 2003). However, in the 1980s, the government was unable to provide unlimited free healthcare (Oyaya and Raflcin 2003 et al 1996). The major problem for the health sector was lack of adequate resources and this had a great impact on the financing for health due to "significant high demands for health service as well as constraints on the resources available from all sources (MOH 2003:3). Additionally, the emergence of complex diseases and increasing populations as well as economic pressures and

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subsequent implementation of Structural Adjustment Programmes (SAPs) and donor fatigue, meant that the government could not wholly finance the provision of health care to her citizens (Oyaya and Rifkins, 2003; MOH, 2003).

Faced by socio-economic crises, the Kenyan government took to the restructuring of mode of provision of health care in public health care facilities. The government gradually introduced a series of health financing policy changes. In 1989, user fees, or cost-sharing' were introduced. User fees were abolished for outpatient care in 1990, inspired by concerns about social justice, but re-introduced in 1992 because of budgetary constraints. The user fee system was significantly altered in June 2004, when the Ministry of Health stipulated that health care at dispensary and health centre level be free for all citizens, except for a minimal registration fee in government health facilities.

At the inception of the policy, patients paid some fees on registration, which differed by facility type. The highest fees were, however, charged at the national referral hospital—Kenyatta National Hospital (KNH)—while the lowest were at health centres. Whereas the referral hospital charged an outpatient treatment fee of Ksh. 40 per visit, the provincial and district hospitals charged Ksh.20 and health centres Ksh. 10. Meanwhile, medical services at dispensaries remained free. Fees for inpatient services ranged from Ksh. 20-100 in district and provincial hospitals. Patients were also required to pay for diagnostic tests, depending on the nature of the test. As a policy, 75 per cent of the fees collected are retained at the facility to facilitate improvements while the remaining 25 per cent is remitted to the district for the preventive and primary health care (P/PHC) activities. During the period, facilities could not use the revenues they retained without obtaining spending authority from the HCFD (Dahlgren, 1990; Quick and Musau, 1994; MoH, 1994).

The registration fee structure remained in force until August 1990 when the government suspended it because the fees were denying a large proportion of the population access to medical care. Another reason extended was that the anticipated improvements in anticipated quality of care weren't forthcoming as evidenced by among others. frequent complains of shortage of essential drugs and other medical supplies. It was also observed that funds raised during the initial period of the programme were tied up in bureaucratic bottlenecks instead of being used to improve the quality of health services and that weak management and administrative structures for implementation; (Mwabu et. al., 1992; Collins et. al., 1996; Abdille, et. al., 1999; Mbugua, 1993).

In April 1992, the government reintroduced and implemented new fees in various phases, starting with Kenyatta National Hospital (KNH). followed by the provincial hospitals (in July 1992) and district hospitals (in January 1993). As in the previous phases, no fees were charged in dispensaries. But contrary to the initial structure, patients paid the fees after receiving treatment. The re-introduction of the programme also marked the establishment of District Health Management Boards (DHMBs) in May 1992 to oversee its operations at the district level, ensure effective control of the funds, and enhance effectiveness and efficiency in health care delivery. Meanwhile, through the Nationalized decision-making process, the HCFD controlled revenue generated nationally from the programme and authorized the expenditures (MoH, 1994). Planning and allocation of resources were developed and implemented Nationally. However, the formation of DHMBs brought in the aspect of Nationalization, which meant that planning on generation and utilization of revenue was the full responsibility of particular hospitals.

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In the Nationalised framework, the District Health Management Board (DHMB) was to be responsible for reviewing, approving and forwarding expenditure plans to the Provincial Medical Officer's (PMO) office, co-ordinating district health programmes, advocating government health policies among the general public, and making health policy recommendations to the MoH. Though the DFMS in the pilot provinces was envisioned to take five months, it took much longer due to problems at the implementation stage (Owino and Munga, 1997: 5). These included the fact that adequate funds were not available for training, that top MoH officials and DHMBs were not well briefed about the new programme and would not support it, that inadequate infrastructure, computers and equipment and trained personnel constrained the process, and that contrary to the expectations, the PMO's team did not remain an integral part of the implementation process.

The most significant event since 1989 was the government's interest in social health insurance (SHI). The purpose of the latter is to ensure access to outpatient and inpatient health care for all Kenyans and to significantly reduce the out-of-pocket health care expenditure of households, especially the poorest. An intersectoral taskforce was established to prepare a national strategy and legislation as a first step in the preparation of Kenya's National Social Health Insurance Fund (NSHIF) Parliament passed the NSHIF Bill in December 2004, but the president decided it still needed amendments and returned it to parliament for debate.

Restructuring has had certain significant impacts on health care delivery some which include revenue generation which was expected to improve health care provision. At the inception of cost-sharing in Kenya's health sector, there was recognition that some

members of the Kenyan society could not afford the charges levied at public health facilities. To this end, a system of waivers and exemptions was introduced as a safety net for the poor and other vulnerable groups. It can be argued that this was important for political acceptability of the cost-sharing programme at the inception as well as for ensuring the government's equity principle that all citizens should have access to basic medical services. In studying the effectiveness of waivers and exemptions in addressing the equity and access objectives Owino and Were (1998) found that most of the facilities are driven by a 'financial sustainability'motive. The result of the reforms in health care were witnessed in the affected health care seeking behavior of patients (Mbatia,1996 and Shauri, 2000). This is due to the fact that previously, health care services were free of charge and cost-benefit considerations by patients did not matter a lot.

When considered in the light of revenue generation, health care seeking behavior of patients is of paramount importance in as far as revenue generation is concerned. Households have been the main sources of health financing after the implementation of cost sharing. This is from out of pocket expenses when they pay for health care services from public health care facilities (Berman, 1995; Mwabu and Wang'ombe, 1998). The National Health Accounts (NHA) survey shows that in 2001/2002 financial year, "households contributed 51% of the total healthcare expenditure" (Ministry of Health, 2001-2002:XII) while the government was the second major source of funding contributing approximately 30% with donors providing 16% of the total health financing. The various sources of health care financing in Kenya are presented in figure 2.

Figure 2: Sources of health care financing in Kenya in 2001/2002
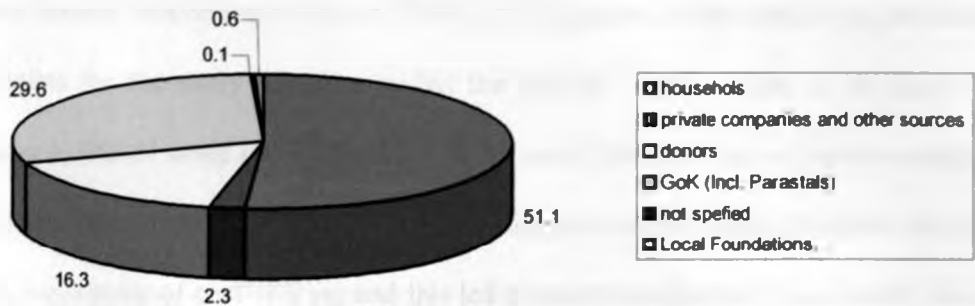
From Figure 2, it is apparent that households are the leading in funding public health care facilities. This being the case, it is important that facilities provide quality health care in order to ensure sustainable revenue generation through user fee charging. From the economic point of view, there could be a possibility of shifts across the facilities in search for health services that would yield utility equivalent to the fee charged. As such, it could lead to reduced revenue generation despite the demand for health care services. This would be so since health care providers would not be able to achieve quality in health care provision. This then brings into focus the generation and management of revenue in view of quality health care provision.

2.4.2: Performance of the cost-sharing programme

Differing views on the performance of cost-sharing emerge in the reviewed literature. Two camps were identified, the first (Mwabu-1987 and Collins et al.-1996) advancing the view that cost-sharing has met its objectives. The second, (Shauri-1999, Mbatia-1996, and Odada and Odhiambo-1989, Quaye-2004, and Lopez -1998) highlight divergent problems, which have led to the poor performance of cost sharing. In this study, it was therefore important to establish the potentiality of patients in paying for health care services as well as the potentiality to generate revenue by public health care facilities in Kangundo District.

One of the reform strategies adopted in cost-sharing was to give autonomy to the management boards. According to Shauri (2000), the formation of the boards may not have been a solution for the many solutions within the Kenyan health sector. In his study in Coast Province, Shauri notes the inefficiency in the use of the revenue to improve quality of the services. This came about due to the ineffectiveness of the boards for there was no supervision machinery of cost-sharing and this led to poor management. As a result, there was no noteworthy improvement in the quality of health care services. However, there could be other issues that lead to inefficiency of the boards and not necessarily lack of supervision. In fact, with the organization of the management boards, supervision should not be the only key parameter to measure the performance of cost sharing. As documented in this study in the organization of cost sharing, generation and allocation (utilization) of revenue are delinked. Though we should not disregard supervision, other underlying factors combine to affect revenue generation.

Interestingly, even the first school of thought notes that there are problems affecting cost-sharing which need to be addressed. Mwabu (1994) argues that if user fees are imposed selectively and at appropriate levels, they encourage health services quality and efficiency in addition to promoting equity in provision of health services. However, Mwabu, in his dissertation, "A model of household choice among medical treatment in Kenya" (1994), acknowledges that the implementation of cost-sharing has proved to be very difficult. If cost sharing did not affect attendance, Mwabu's dissertation here has validity. This is because demand for health care remained high despite charging of services. The resultant would be high performance in revenue generation by the programme which would be expected to lead to quality health care. The cost sharing programme has existed for almost

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two decades now and this provides fertile ground for this study to establish how this far the programme has been managed by the DHMBs.

Collins et al. (1996) observe that the main objectives of cost-sharing have been met with the programme generating substantial revenue. with relatively low administrative costs. Besides this they are of the view that new fees have not resulted in significant declines in attendances and there does not seem to have been a major impact on the poor. Shauri (1999), however reports that cost-sharing has been afflicted by numerous problems. For instance, lack of effective supervision machinery of cost-sharing activities as well as lack of commitment on the part of the District Hospital Management Boards. In addition, there has been misappropriation of funds and therefore the quality of public healthcare services has not improved. Mbatia (1996) notes that government healthcare services continue to deteriorate, with a possibility of the poor being adversely affected when they are forced into the private sector. He also advances the view that introduction of user fees has not made public health institutions efficient.

Two aspects in Mbatia's study lead to the fact that cost-sharing has not fully been successful. These are: the fact that there have been behavioural changes in the patterns of seeking for health care and that actors in heath care have devised new patterns of seeking for health care in an environment of scarcity and lack of state support (Mbatia. 1996:18). Among other issues, the public health system in Kenya has been faced by the problem of funding and hence effectiveness and maintenance standards are compromised (Odada and Odhiambo. 1989). This makes it impossible to promote equity. a major goal of the cost-sharing policy. Since Mbatia (1996) and Shauri (1999) indicate that there were no major

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improvements in healthcare despite the sector changes that came with cost-sharing, it is imperative to ask why these changes could not bring in this anticipated in healthcare. It would only be appropriate to hypothesize that cost-sharing has affected the potentiality to generate revenue by public health care facilities. As discussed elsewhere, the researcher attempted to establish what measures the Hospital Management Committees had put in place to cope with the changing trends of effectiveness of cost-sharing in health care.

From the reviewed literature, it has emerged that cost-sharing, one of the major health care sector reforms by the government experienced several implementation problems. As such, the programme was introduced with a backdrop of majority citizens being poor and therefore ill prepared to pay for the services. Since patients' payment for health care services constitutes the largest source of health financing (Figure 1), the services offered should ensure that potentiality to generate revenue is guaranteed. This would enable public health care facilities cope with the changing dimensions of quality in health care service provision. From the reviewed literature, the researcher has generated two hypotheses for testing.

2.5: The social context of health and illness

Since health seeking behavior of patients was definitely affected by charging of user fees, it was important to examine the theories about health and illness. This would give an insight into "the ideas people use to explain how to maintain a healthy state and how they become ill" (Murdock, 1980:37). Murdock points out that ideas about illness causation include such ideas as breach of taboo, soul loss, germs, upset in the hot-cold balance of the body, or a weakening of a body's immune system. Consequently, theories of illness causation derive

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from the underlying cognitive orientation of a cultural group, and therapeutic practice usually follows the same cultural practice.

A typology of theories of illness exists based on criteria derived in past from modern medical science and in part from anthropological experience. When trying to explain health and illness, a basic dichotomy emerges between theories of natural causation and theories of supernatural (personalistic) causation (Murdock, 1980). Naturalistic theories of disease causation tend to view health as a state of harmony between a human being and his or her environment; when this balance is upset, illness will result. Biomedicine (modern traditional medicine) is founded on a naturalistic set of theories about the body. One of the core theories of contemporary biomedicine, is the germ theory of disease. A core assumption of the value system of biomedicine is that diagnosis and treatment should be based on scientific data. On the other hand, personalistic theories explain health and illness from the point of view of societal norms. If someone has violated a social norm or breached a religious taboo, he or she may invoke the wrath of a deity, and sickness—as a form of divine punishment—may result. Recovery from an illness arising from personalistic causes usually involves the use of ritual and symbolism, most often by practitioners who are specially trained in these arts (Helman. C. (1990). In this view then, it is important to bear in mind that the provision of health care happens in a society that has divergent influences into making its members seek for health care.

The pluralistic approach to explaining health and illness in relation to provision of health care becomes useful when we appreciate the fact that society understands illness causation from different perspectives. In his work, Cocks (1996), argues that although the

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intertwining of medical systems is acknowledged, "there is a tendency to characterize medical systems as existing within statistical vacuum." The result of this has been the portrayal of medical systems as distinctive and unchanging (Alubo. S.1990; Minocha, 1980). As already mentioned in a different part of this study, patients have multiple healthcare systems from which to choose. It is important therefore for health professionals to accept and appreciate the key role that individuals and households play in their own healthcare (Whyte, 1997). There is, then, a possibility that the deNationalization (part 2.3 of this study) of healthcare services has resulted to an increase in the use of the multiple health services consequently denying public hospitals revenue (Harpman and Grant 2002).

For managers public hospitals to reap the benefits of revenue generation through cost sharing there is need to fully understand the multiple choices available to patients in solving their health care problems. The issue of revenue generation in hospitals can be understood from Kleiman's (1995) point of view that identifies three overlapping and interconnected sectors of healthcare: the popular, folk, and professional sectors. In the popular sector, there is the lay, non-professional, and non-specialist domain of society in which self-treatment and self-medication are carried out. In the folk sector, local healers specialize in forms of healing which are either sacred, secular or a mixture of the two. The focus is on the social causes of ill health, witchcraft and supernatural cause.

The professional comprises the organized, legally sanctioned healing profession such as Western scientific medicine. However, the western dichotomy does not capture the complexity of the changes that have taken in the health systems of most African countries. For instance, modern medicine cannot recognize the belief by a patient that one can be

bewitched, for instance, and become mad, a phenomenon that can hinder the endeavour by health care providers in managing cost sharing. This implies that the existence and role of various beliefs and practices that are part of the culture of a particular population should be taken into account when designing measures and programmes aimed at improving the health situation in that population.

All theories of health and illness serve to create a context of meaning with which the patient can make sense of his or her bodily experience. A meaningful context of illness usually reflects cultural value, and allows the patient to bring order to chaotic world of serious illness and to regain some sense of control in a frightening situation. Often, people invoke the personalistic and naturalistic types of causation in explaining an episode of illness, and treatment mainly entail one or either two corresponding types of therapy.

The ensuing argument sheds light into the way Kenyans seek for healthcare. If a patient's understanding of disease causation is personalistic, seeking for healthcare from hospitals is unlikely. This is because social and cultural factors influence many aspects of health and disease. Such factors not only affect patterns of morbidity and mortality, but also utilization of medical care. Social factors determine the response society and the individual to many health problems. The meaning of illness, its perception and definition, and behavioural response are basic factors influencing the reactions of the public to public health programmes. For example, amongst the Kamba, there were diseases that were classified as God's diseases. Such diseases would not be treated through modern medicine. A mother whose child had measles, for instance, would do all that was considered appropriate so that the rush would erupt. The child's head would be covered with a Kamba basket (*kyondo*) to

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hasten the process of the disease. The child would also be smeared with mud prepared from ash an anti-hill, or with ashes from the fireplace mixed with certain herbs. The mud would remain until it dries up and falls off by itself. Egg yolk was also applied to the eyes to prevent loss of eyesight. Additionally patients might encompass a quasi-type of explanation of disease causation. Differently put, there are those patients who encompass both the personalistic and naturalistic causation of illness. Patients who lack access to healthcare services from hospitals might opt for recovery through the use of ritual and symbolism, as advocated for by the personalistic theories.

When health is considered as a social value, it translates to the fact that it is often judged relative to other social values. Health and the preservation of life are not negotiable since as human beings we pay great homage to the preservation of life and health. This notwithstanding, even as we place great importance to health and illness as values, it is not always the case that a patient adapts the various ways available for preserving health due to the conflict that exists with other values and needs of the patient. Thus, it is important to understand the needs of the populace in order to understand their health care seeking behaviour. Surprisingly, at certain times, patients have got no option but to consider their health care needs as secondary. In other words, they are unable to seek for health care due to lack of funds and therefore it is not considered as a priority. The costs of health care are usually weighed against other societal and personal needs (Mechanic, 1968). The more reason then that in society patients receive varying amounts and quantities of medical care, and many receive inadequate health care. The explanation to this is that resources are limited and patients thus do weigh their health relative to other social needs. Even though it is worrying when health is compromised, scarce resources limit public expenditure on

health. Another plausible reason as to why health care seeking behaviour differs is that the sick role is not a single concept that applies equally to everyone claiming to be sick. Being sick varies with the person, the conditions involved, and the social context within which the illness is claimed.

After the excursion on the perception of illness, it is noteworthy that the health seeking patterns of healthcare services in Kenya are dictated by numerous factors. Information on health seeking behaviour and health care utilization has important policy implications in health system development. Factors which influence treatment sources that patients use when symptoms occur include socio-cultural factors like beliefs and family decisions to seek for health care. The social networks, gender and economic status as well influence treatment sources (Markides, S. 1992; Fournier and Haddad 1995).

The introduction of user fees and cost of treatment care should also be considered as a determinant of health seeking behaviour (Gilson, et al 1995; Moses, et al 1992). There are indications that introduction of user fees in public hospitals have made a shift in the utilization of public services, increasing the use of other treatment sources such as private health facilities, drug vendors and traditional healers (Mbatia, 1996; Gilson et al 1994). This is because "the regular supply of drugs and the improvement in the technical quality of the services was not enough to attract patients to fully utilize health care services from public health facilities after the introduction of user fees (Uzochukwu and Onwujekwe; 2004:11).

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Demographic characteristics of patients have influenced the utilization patterns in Kenya and elsewhere in Africa (Tanner and Vlassoff 1998; Nyamongo, 2002). This observation leads to the need to establish what demographic characteristics lead to demand for healthcare services. It is imperative to find out how people seek for treatment when they or members of their households fall sick in the light of increased cost of treatment resulting from the changes in the healthcare financing scheme.

2.6: Theoretical framework

The research was guided by the general systems theory and the exchange theory. The general systems theory considers society as consisting of parts that are interdependent. Change in any one part affects the other parts. Cost-sharing was a change in public health since initially healthcare services were provided free by the government. The general systems theory shall be used to highlight how patients have tried to cope with this change.

On the other hand, the exchange theory advanced the idea that patients consider the quality of services offered by public health institutions before paying for healthcare services. Exchange theory was used to explain why some patients seek for healthcare services from privately owned health institutions or other sources and not from public health institutions.

2.6.1: Application of the General Systems Theory to Health Care Reforms in Kenya

Abrahams (1992) traces the origin of the term 'system' to Greek antiquity. He points out that "a system consists of two or more units that relate to each other in a structural relationship and form an entity whose elements are functionally inter-dependent." The units are of an orderly arrangement characterized by structural integration and relational isomorphisms.

The development of the modern systems theory is associated with a number of persons including Henderson, Cannon, and Von Bertalanffy (Abraham: 1992). Henderson's ideas centered on societal equilibrium, by viewing the organism as possessing a self-regulating mechanism for maintenance of equilibrium. Cannon developed the concept of homeostasis. He identified principles of stabilization that help maintain the homeostasis in the social organism. According to Cannon, "there are mechanisms in society such as state, prison, or cultural organization that deal with the problem of social disruption" (Abraham, 1992:46).

While Henderson and Cannon laid the foundation of systems theory, Bertalanffy formulated the open system. He attempted to build the foundations for systems thinking on a biological basis. According to Von Bertalanffy, "an open system exchanges materials with its environment and maintains itself in a steady state" (Abrahams, 1992:40).

Abrahams identifies the fundamental assumption of the general systems theory as that of interconnectedness'." Bertalanffy in Abrahams (1967:117) emphasize on change by pointing out that "a change of any one measure within the system is a function of all other measures within the system; conversely, change of any one measure entails change of all other measures and of the system as a whole." Abrahams (1967:41) sums up the general systems theory "as involving the consideration of such issues as the degree of wholeness ... goal seeking, self- regulation, structural integration, adaptation and 'pattern-maintenance'".

Preto in Abrahams (1992:42) laid the foundation of system analysis. He formulated the concept of society as a system in equilibrium. He conceived of system as a "whole consisting of inter-dependent parts." In a system, when change occurs in one part, it affects other parts as well as the whole system. Preto uses the term 'social system' to mean the

state which a society takes both at the specified moment and in the successive transformations it undergoes within a period of time.

There are pertinent issues emerging from the foregoing discussion that directly touch on cost sharing. First is the idea of change and interdependence of parts in social systems postulated by Bertalnffy and Preto. Public health institutions are part of the social system hence part of the society society. That the Kenyan State had provided free health care to its citizens, the introduction of cost-sharing brought change and thereby this affected several other parts of the society. Abraham's contribution on the systems theory (regularization and self-maintenance of behaviour in continual change) is an insight into the way society and its actors have regulated itself in the wake of cost-sharing in health. Members of the society have to adjust themselves so as to be able to acquire healthcare services from providers whom they take to provide adequate and quality services.

In addition, those who cannot afford to pay the user fees charged by public health institutions make adjustments. Such adjustments would include seeking for alternative sources of medication (Helmon, C. G. 1994; Kleiman, A.1995; Landy, D. 1997). On his part, Parsons considers a system as having social actors in interaction. He points out "the motivation of the actors is out of the tendency to optimize of gratification". In seeking for health care services, members of the society choose to visit health institutions that they would consider to satisfy them in terms of services offered. In Anthias and Kelly (1995), Parsons argues that "the problem of health is intimately involved in the functional prerequisite of the social system...Health in that matter is included in the functional needs of the individual members of the society "so that from the point of view of the functioning

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of the social system, too low a general level of health, too high an incidence of illness, is dysfunctional" (Anthias and Kelly Parsons 1995: 417).

A critical evaluation of the General System theory reveals that two important aspects form the fabric of the theory. These are organizational behaviour and the interdependence of the functions of the units of any organization. As already stated, the behaviour of the parts of a social system forms a reciprocal relationship between the various units of the organization. At the district hospital level for instance, the hospital management board (HMB) there was the creation of the position of the medical superintendent, hospital secretary, the clinical officer in charge, the nursing officer in charge among the members in the organizational structure. If the hospital secretary does not execute his/her roles properly, the functions of other position holders are likewise affected.

For the purposes of this study, the social systems theory is used to understand the management and utilization of cost-sharing revenue by the HMBs. When cost-sharing was initiated in 1989 some weakness were noted (discussed elsewhere in this chapter) leading to Nationalization. At district hospitals, the HMBs oversee the success of the cost-sharing programme. The board is composed of members of the medical staff as well as representation of various groups in the local communities like churches and the local administrations. All these individuals are therefore taken as parts of a system. If then, any of them lacks relevant skills in management; their performance would be negatively affected. Consequently, the performance of any other member of the board would also be affected.

Public hospitals need to develop cultures that serve managerial interests. This form of theorizing can be traced back to Selznick in Watson (2003) who contrasts between the mechanical idea of an organization and the more culturally developed notion of an institution. Further, Selznick views organizations as a setup to act as tools to meet certain purposes. A process of institutionalization occurs whereby the organization becomes a more responsive and adaptive social organism with an identity and a set of values. These integrate the organization in such a way that it has significance for its members, which is far greater than simply being involved in fulfilling tasks.

From Selznick's argument it would be prudent for medical staff involved in the generation of the revenue to fully understand the patients they handle and go beyond fulfilling their job requirement so as to ensure that patients feel satisfied with healthcare provision by public hospitals. As an organization, several key features would characterize the generation of user funds by public hospitals. According to Watson (2003:129) such features "are not the rigorous use of techniques, of organizational design of financial planning, or of computerized control systems... but from reliance of simple structures, simple strategies, simple goals and simple communication." This argument by Watson implies the goals; strategies and structures that are put in place by the hospital management have great implications on revenue generation. Importantly, members of the HMBs should possess relevant skills and expertise in order to ensure generation of sufficient funds.

In summary, the major ideals of the General Systems Theory in regard to the performance of the HMBs can be seen as a social system's behaviour being a reciprocal relationship between the various units of the organization. This is due to the fact that organization

behaviour is directed to achieve a goal (Weber 1946, 1967), in this case, provision of quality healthcare. Additionally, it is noted that a social system is made up of the actions of the persons and activities that make that system and that these actions are directed towards specific roles (Parsons in Abraham 1992:60). Therefore, the members of the HMBs have to perform their roles well in order that the hospitals goal of providing quality healthcare is achieved as well as for its survival.

2.6.2: Exchange theory and the changing dimensions of quality in health care

The exchange theory is not one coherent theoretical system but a mixture of utilitarian economics, functional anthropology and behavioral psychology (Abraham, 1992). The classical proponents of the exchange theory are James Frazer, Malinowski, Mercel Mauss and Levi-Strauss. George Homans and Peter Blau developed the contemporary variations of the theory.

According to Abrahams (1992:144), exchange theory "views men as rationally seeking to maximize their material benefits from transactions with others in a free and competitive market place." He goes on to point out that one chooses between available alternatives based on a calculation of cost and benefits. The essential assumption in all exchange theories is that men always seek to make some profits in exchange transactions. The considerations of costs and benefits, material or non-material, governs any form of exchange.

George Homans, the most outstanding spokesman of the current individualistic exchange theory, has laid emphasis on value proposition. He argues that one is more likely to

perform approving behavior, and the results of such behavior become more valuable to him. This then makes it more likely that a person will perform a particular act.

Homans in Abrahams (1992:152) on rationality proposition agues that:

> in choosing between alternative actions. a person will choose that one for which the value of the result, multiplied by the probability of getting the result is the greater.

In health care, patients will consider the gains (the perceived quality of health care) from the health care providers-both private and public. before they pay for health care services from them.

In his analysis of social exchange, Peter Blau distinguishes between social and economic exchange. Blau (1964:152) takes social exchange to refer to "voluntary actions of individuals that are motivated by the returns that they are expected to bring from others." In Turner (1986:266) Blau labels this perception to derive rewards from an exchange as *social attraction*. According to him. social life is predominant with people's competitive efforts to impress each other in order to extract valuable rewards.

He further postulates that:

> as interaction proceeds, it inevitably becomes evident to the parties in an exchange that some people have more valued resources to offer than others, putting them in a unique position to extract rewards from all others who value the resources that they have to offer.

Considering this, health seekers would and do opt to pay for services from health providers whom they deem to offer best quality services. In his consideration of exchange relations, Blau points out:

> that groups of individuals become differentiated in terms of the resources that they posses and the kinds of reciprocal demands they can make on others.

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Health seekers in Kenya have often considered services offered by public health institutions as insufficient compared to other healthcare providers like private hospitals. Consequently, they would abandon the exchange (seeking for health services) with the public health institutions. In Turk and Simpson (1971:56), Blau recognizes that "people establish expectations about what level of reward particular exchange relations should yield." He points out that the expectations are normatively regulated. Turner (1986:265) terms such norms as *norms of fair exchange* in that they are the determinants of proportion of rewards to costs in an exchange relation.

Blau goes beyond the functional analysis of social integration through shared values. In society, there are values that are not institutionalized into the exchange system. Due to these opposing values, there is a counter-institutional component, which generates forces of dissensus and imbalance. Blau in Abrahams (1992:160) argues that:

> the aspect of equilibrium in a system should be looked at critically...the very forces that restore equilibrium in one respect, or in one segment of the social structure, are typically disequilibriating forces in other respects, or in other segments.

This argument by Blau would mean that if those who command valued resources tend to show exploitative or oppressive exercise of this power, this provokes social disapproval. In addition, resistance to change by vested interests and powers also serve as a source of strain and imbalance. In this respect, we need to view public health care facilities as this system with the providers commanding the valued resources. If the patient is not satisfied with the health care services, disequilibrium has to occur to the health care system if the patients avoids the facility just in the same manner health care providers would achieve equilibrium through provision of quality and acceptable health care services.

Institutions are therefore accepted only as long as they are instrumental in extracting payoffs to individuals engaged in complex systems of exchange. If then these values were unrealized in institutional exchange relations, those who have internalized them would feel deprived. This is because they would derive little payoff from existing structural arrangements. Those in the exchange therefore resort to strategies of change.

These three proponents of exchange theory have laid emphasis on human beings taking into consideration the benefits they would acquire form any form of exchange. If there were no payoffs, individuals would change to other forms of exchange. People choose between the available alternatives. Seeking for healthcare from public health institutions can be considered as a transaction between the health seeker and the provider. Before the introduction of cost sharing, health seekers would not have placed a lot of consideration to the value proposition in the services offered. However, now that one has to pay for the services, questions on the quality of the health services arise. Health seekers are bound to choose from the various alternatives of health care providers available.

The exchange theory can as well be applied within the context of cost-sharing in which case health seekers have often considered services offered by public health institutions as insufficient when compared to other health care providers. Consequently, patients would abandon the exchange, which in this case is paying for health care services, with the public health institutions when they consider that it is not of good quality. According to Blau (1964:224), "social organizations are established to meet specific objectives." As a result, institutions are accepted as long as they are useful to individuals engaged in the exchange. Overall, the exchange theory advances the idea that communities consider the quality of

health care services that the provider is offering. This theory then reveals an important tenet for consideration by the hospital management committees: that it is important to constantly review the changing dimensions of quality of health care in order to sustain patients in public hospitals.

2.7: Study Hypotheses

From the reviewed literature, the researcher has formulated two hypotheses for testing. These are:

H_1: The demand for healthcare services offered in hospitals in Kangundo District is influenced by the social and demographic backgrounds of patients.

H_2: Cost sharing on health care has led to provision of quality health care by public health facilities in Kangundo District.

2.8: Summary and Conclusions

Though the government of Kenya to provide an enabling environment for private and community involvement in health care service provision and financing, poverty of the population implies that many cannot easily finance their own health care and therefore it is not quite practical to achieve the universal goal of health for all.

High levels of poverty can affect generation of revenue. This has given ground for the study to establish if public hospitals had achieved quality improvements as well as assess income generation potential of public hospitals, taking Kangundo as a case study.

It has been established that health care seeking behavior of patients is related to revenue generation. Households have been the main sources of health financing after the implementation of cost sharing and so it becomes important to establish the utilization patterns of public health care facilities in Kangundo District.

The reviewed literature has indicated that some studies have established that cost sharing has met it objectives while others show that it has not. Even those who argue that the programme has succeeded note that there are problems which need to be addressed. The researcher shall therefore try to determine how the programme has performed in Kangundo.

In this study, the researcher considered health from a social context. This was done by examining the theories explaining health and illness whereby health is explained from a pluralistic approach meaning that society understands illness causation from different perspectives.

Other studies have documented that demographic characteristics of patients have influenced the utilization patterns elsewhere in Africa. The researcher considered this as an important manner to establish how respondents' social and demographic attributes affected revenue generation in Kangundo District.

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CHAPTER THREE: RESEARCH METHODOLOGY

3.1: Site selection and description

The study was carried out in Kangundo District, Eastern Kenya. Kangundo District is on the northeastern side of Machakos District and covers an area of 178.2 km². The district headquarters of the district is Kangundo town, which is located about 65 km east of Nairobi, the capital city of Kenya. It has a population of 91,238 with 44,420 males and 46,818 females and a population density of 512 people per km² and 18,065 households. It is bordered by Mwala District on the eastern side and Kathiani on the southern side. Administratively, Kangundo District is divided in five Divisions: Kangundo, Kakuyuni, Kawethei, Kivaani, and Kanzalu (Ministry of Planning and National Development, 2002).

The selection of Kangundo was done purposively. Kangundo, like most other areas of Kenya, has a large population of the poor having limited access to healthcare services as well as high rates of unemployment among school leavers. Indeed, the statistics by the World Health Organization (WHO) paint a bleak picture in as far as provision of healthcare in Kenya is concerned. Therefore, it is most likely that the health system does not address the needs of the population. It has been observed that the delivery of healthcare is often profoundly anti-poor. Health services are rarely designed with poor in mind. For instance, aspects like distances and transport costs are not taken into consideration, which affects access to healthcare services for the poor. The efficiency, quality and equity of government healthcare service providers have all suffered. For instance, lack of resources and mismanagement of health institutions rank high among the problems afflicting healthcare institutions. The Ministry of Health (MoH) in Kenya faces constraints at all levels of the healthcare service system right from the headquarters to the rural health centres and

dispensaries. It is also evident that the poor have limited options in seeking for healthcare. This study therefore intended to capture the particular elements of quality of health care that influenced seeking of health care by patients and how this affected revenue generation.

3.2: Research design of the study

This section presents the research design that was adopted for the study. According to Kothari, (2004:31), research design "is the arrangement of conditions for collection and analysis of data in a manner that aims to combine relevance to the research purpose with economy in procedure." The survey research design was used to collect data and was supplemented by field research. The study was an ex-post fact design. It entailed the examination of the effects of cost-sharing in health fifteen years after its implementation in Kenya. This was done by collecting data through survey research. More data were also collected using qualitative research methods to supplement quantitative data.

The survey research method was used to collect data from three locations of Kangundo District. This enables one to make inferences later about the entire nation. There are three features about survey design that made the researcher consider it appropriate. According to Singleton et. al. (1988:239), "…surveys permit one to describe large and heterogeneous populations accurately and economically." The researcher was therefore able to choose a large number of respondents from the division through probability sampling procedures. This ensured a true representation of the entire population in Kangundo District. Two, it was possible to use interview procedures to obtain information from the respondents in a reliable and unbiased manner.

Through survey, the researcher managed to collect data on the personal attributes of the respondents. More importantly, it was possible to collect data on the utilization patterns of the local government sub-district hospital, as well as the other public health institutions throughout the division. These were health centres and dispensaries. Kangundo District has one health centre-Kakuyuni, and two dispensaries-Mukunike and Kivani. The third reason why survey research design was used in this study was that it enabled the researcher gather respondents' views on the cost of health care as well as their perception on the cost-sharing programme. The researcher was also able to apply sophisticated statistical techniques to analyze the data generated from the field.

The researcher used the cross-sectional survey design. A survey of household heads in Kangundo District was conducted to generate quantitative data. The data generated was used to establish whether health institutions in Kangundo District were in a position to collect sufficient funds through charging user fees. In addition, the data was analyzed to establish patients' response to the changing trends of quality in health care provision. In addition, the quantitative data was used to establish measures taken by the government in protecting the poor against negative impacts of user fees.

The researcher chose to cover households who are potential users of health care and not patients to ensure reliability of data generated from respondents. This is due to the fact that respondents would provide information regarding members of their families who had used the public health care facilities or respond about seeking for their health care while not at the facility. This would eliminate the element of subjectivity on the part of the household respondents since their responses would not be influenced like in a situation where they

would for instance be interviewed at the health care facility. In addition to this, other studies have also adopted the same approach in studying health care in Kenya. These include: Mbatia, 1996. "Provision of health care by the state in Kenya: A fragile state vs. civil society", Ngugi, 1999. "Health seeking behaviour in the reform process for rural households: The case of Mwea division, Kirinyaga district, Kenya" and Mwabu, 1994. "A model of household choice among medical treatment in Kenya"

The researcher also collected qualitative data from Kangundo District Hospital. Qualitative data was collected through interviewing by use of unstructured questionnaire. The researcher organized for interviews with the selected members of the hospital staff, with each of them being interviewed separately. Secondly, data was obtained from the hospital records. Data pertaining the hospital charges as well as revenue generation in both 2005 and 2006 was obtained from the Record's Department of Kangundo District Hospital.

The qualitative aspect of the study was used to focus the study on administrative skills on the part of the Hospital Management Boards and establish how acquisition or lack of these skills affected management and utilization of funds generated through the cost-sharing programme in Kangundo Sub-district Hospital. As already mentioned, the qualitative data collected was used to supplement quantitative data generated through survey research.

3.3: Units of analysis and observation units

According to Singleton et al (1988:69). "units of analysis are the activities (objects or events) under study." Beker (1994:102) defines unit of analysis as the social entities whose social characteristics are the focus of the study. Schutt (1996:88) indicates that units of

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analysis "represent the level of social life on which the research question is focused, such as individuals, groups, towns, or nations." In this study, the units of analysis were: the potentiality of respondents to pay for health care services provided by public hospitals; the potentiality of public hospitals in Kangundo District in generating revenue through charging user fees.

The observation unit which is also known as the unit of data collection is the element or aggregation of elements from which one collects information. The observation units were patients, healthcare service providers, and the hospital management committee. The observation units or this study were the heads of households-both male and female, healthcare providers who included the medical staff and the medical administrators.

3.4: Sampling techniques

The target population were the senior members of households, preferably the father or mother, and health care providers. The study adopted both probability and non-probability sampling techniques. Non-probability sampling was appropriate in that Kangundo District was selected purposively while selection of household heads was through random sampling.

In selecting the household heads multi-stage sampling was used, more specifically multi-stage cluster sampling was used. According to Singleton, et al. (1988:147), in cluster sampling, "the population is broken down into groups of cases called clusters, and a sample of clusters is selected at random." In this respect then, to get the required sample size,

Kangundo District was considered as the primary area. Initially, the researcher had intended to interview a total of 250 respondents. However, for reason observed in part 3.6 of this study, the researcher settled for 150 respondents.

Kangundo is divided into administrative areas consisting of locations. These are Kawethei, Kangundo, Kakuyuni, Kanzalu and Kivaani. These five administrative units formed the clusters from which three locations were randomly sampled. These were: Kangundo, Kawethei, and Kanzalu locations. The next step was to draw one smaller unit from each location-the sub-locations. Again, through simple random sampling, three sub-locations were selected, one each from the sampled locations. These were the units from which respondents were drawn. Random selection yielded Isinga, Kawethei, and Kikambuani sub-locations. The final stage involved the selection respondents for the study. Since the total number of family units was available (GoK; Machakos District), the researcher proportionately selected 150 from the three sub-locations as follows: Isinga 62, Kikambuani 47, and Kathaana 41. The household heads, the respondents in this survey, were randomly selected. A list of households from the office of the Divisional Officer was used as the sample frame in order to select the respondents to be interviewed.

Table 1 shows the distribution of households by Sub-locations.

Table 1: Distribution of households in the three sampled sub-locations

Sub-location	Households	Number of respondents covered	Percentage of population size
Isinga	1,454	62	41.2
Kikambuani	1,112	47	31.5
Kathaana	960	41	27.2
Total	3,526	150	100.0

Figure 3 shows the locations and sub-locations drawn as well as the total households in each cluster.

Figure 3: A sketch map of Kangundo District showing sampled sub-locations

Key

Kangundo Location	☐	Kanzalu Location	(hatched)
Kakuyuni Location	(lines)	Kawethei Location	(cross-hatch)
Kivaani Location	(diagonal)		
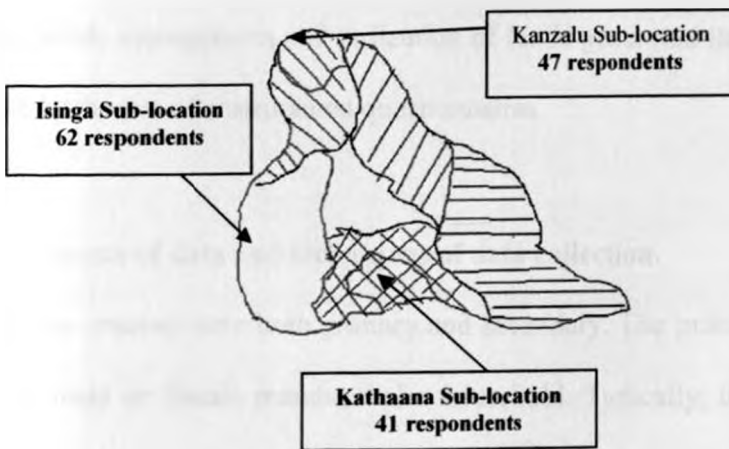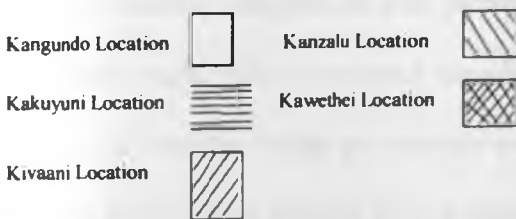
Source: GoK; Machakos District

The sample was made up of households with members who were not necessarily seeking medical attention at the time of the interview but who may have done so in the past one

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year. Selection of households was done at the sub-location level. The researcher came up with a sample frame by listing the households in each sub-location with the assistance of the local administrators, in this case the Assistant Chiefs. Simple random sampling was used to select households from this sample frame in each sub-location. Respondents' responses to questionnaire items would then be recorded as keenly as possible. Survey data were largely quantitative in nature.

The healthcare providers were selected purposively since qualitative data was collected from Kangundo District Hospital. The term healthcare provider in this study was used to include the medical staff on one hand and the medical administrators on the other. In total, the researcher interviewed ten members of the Hospital Management Team (HMT) on generation, management and utilization of funds generated through cost-sharing. This was done by the use of unstructured questionnaires.

3.5: Sources of data and techniques of data collection.

The data sources were both primary and secondary. The primary sources of data were the senior male or female members of a household. Typically, this was either the mother or father of the family. Another source of primary data was public health care providers in Kangundo District Hospital, as well as through direct observation. The researcher and the enumerator made visits to selected households and interviewed one of the family heads. However, if both the father and mother were present, prevalence of asking the questions would be given to the mother. This is because in most Kenyan communities, it is usually the case that the responsibility of health care matters is the concern of mothers, more so the health care needs of the young children. As such, mothers would be well versed with information on health care.

The tool of data collection was the questionnaire. This instrument of data collection was useful in that the research purpose was to test hypothesis. As such, it was crucial to use the structured questionnaire in order to minimize measurement error (Singleton, et al.; 1988:242). This is due to the fact that through the questionnaire, one can greatly control or minimize changes in wording of questions as well as the behaviour of respondents.

Secondly, the researcher collected more primary data from hospital staff through unstructured interviews. The researcher interviewed 10 members of staff from Kangundo District Hospital who are directly involved in the cost sharing programme. These included 4 departmental heads, the District Medical Officer of Health (DMOH), District Clinical Officer, District Public Health Officer, District Surveillance Officer, District Health Records and Information Officer, and the Medical Superintendent.

Direct observation method was also used. The researcher made observations on the infrastructure and equipment in Kangundo Sub- district Hospital. Other observations were made on outpatient attendance and the condition of inpatients by visiting the wards.

The secondary sources of data were from the hospital records. The researcher obtained data from the Records' Department in Kangundo District Hospital, documenting revenue collection by the hospital's departments. The other source of secondary data was the reviewed literature.

3.6: Data analysis

The data generated by the study were both qualitative and quantitative in nature. After the fieldwork, data were edited and coded. Quantitative data was then entered in the computer for processing using the Statistical Package for Social Sciences Programme (SPSS). According to Cohen and Manion (1980:17), editing of responses "is intended to identify and eliminate errors made by the interviewer or respondents. Consequently, data was edited for completeness and consistency before analysis.

The purpose of this survey carried in Kangundo District was both descriptive and explanatory. At the initial stage of the questionnaire, question items were intended to seek to describe how the population was distributed. This was in terms of certain characteristics like age, sex and employment types among other as well as their attitudes and experiences on relation cost sharing in health care. Through this descriptive part of the survey, the social indicators of the respondents reveal important social conditions which are relevant in policy decisions of the government. Through it, it was possible to establish the aspects like family life, health, satisfaction with health care services offered in public health institutions. It was possible to compare and contrast income levels and employment in order to determine any influence on health care seeking behavior of patients.

The explanatory aspect of survey was useful in investigating relationship between variables and how such relationships affected cost sharing in heath care. Essentially it attempted to establish how variables like employment, ones level of education, age, and sex affected demand for certain health care services in Kangundo District. The data generated through the survey design was analyzed by means of descriptive and inferential statistics.

According to Baker (1988:378), descriptive statistics refers to "simple statistical methods, which do not support or falsify a relationship between variables but simply help in description of data." Descriptive statistics was useful in summarizing and organizing data in an effective and meaningful way. This is because information was reduced to an understandable way. According to Schutt, (1996:404), inferential statistics "are used to make decisions about whether it is likely that an association exists in the larger population from which the sample is drawn." Further, Baker (1988:378) points out that inferential statistics enable one to infer or falsify hypothesis. It was therefore possible for the researcher to make inferences on the relationships between the variables of the study in order to make informed statements on the study findings.

Two levels of data analysis were done. First, univariate data analysis was done where the data were summarized in the form of percentage tables. This made it possible to study each variable at a time thus giving a general picture of the composition of the respondents. The second level of analysis was multivariate analysis to establish how a set of selected independent variables influence the dependent variables of the study simultaneously. In particular multiple regression analysis was used to establish whether the independent variables explained the variance in the dependent variable.

Besides data that were collected through survey, the researcher made use of both qualitative and observational data. Qualitative data were generated from healthcare providers in which case the researcher noted key themes that emerged from opinions by healthcare providers. The researcher identified actions and statements from healthcare providers that supported the hypotheses of the study. Through observation, the researcher

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gathered data on the state of infrastructure of Kangundo Hospital. This involved making visits to patients' wards, making observations of the out-patients, as well as the general state of the hospitals' buildings. Both qualitative and observatory data were primarily used to supplement data that were obtained through survey.

3.7: Problems encountered in the field.

Data for this study were collected by the researcher assisted by one enumerator. The enumerator, a female, was recruited on the following basis: that she had completed her undergraduate studies as well as having qualifications in research methodology, a unit she had studied at the university. Besides, she was computer literate and was therefore considered competent in keying in data that were collected from the field. Another consideration for recruiting this particular enumerator was that she hailed from Kangundo District. Consequently, she was conversant with the area thereby giving her an advantage of easy access to the locality than an enumerator from outside the district. After recruitment, the researcher trained the enumerator for three days on the process of data collection, ranging from sourcing for information from respondents through recording of responses to research ethics.

This study was conducted between April and May 2005 for a period of three weeks. This time span made it possible for the researcher and the enumerator to reach the targeted respondents. The targeted sample for this study was 250 respondents. However, several factors made the researcher to reduce the target population to 150. The researcher had intended to recruit three enumerators to assist in data collection. However, due to financial constraints, I finally settled on one enumerator and therefore it was not possible to reach all

the targeted 250 respondents within the time frame for the study.

During the entire period of data collection, the researcher encountered three major problems: transport, accessibility to respondents and finance. On transport, there were areas that were inaccessible. For instance, most parts of Kikambuani are hilly and there are no good access roads. This meant covering fewer respondents per day than in the other areas. Consequently, the allocation for the budget had to be adjusted in order to cater for data collection from the region in more days than previously planned.

Another problem was accessing the respondents. Some household heads, both men and women, would decline at first and refuse to be interviewed until they were assured of financial gains. However, the researcher and the enumerator assistant overcame this by pointing out to them the importance of the study findings. In one case, however, a respondent could not give responses to all question items. This was taken care by the fact that the survey was not to be carried out in particular households. The researcher had the option of selecting another household until the required number of households in a particular sampled area was achieved.

CHAPTER FOUR: PRESENTATION AND ANALYSIS OF DATA

4.1: Introduction

This chapter presents data on the social and demographic aspects of the respondents. In addition, the data was analyzed by the use of tests for statistical significance and Measures of Association. The Chi Square test of significance was used to determine the existence of relationships between variables while correlation tested on the strength of the relationships. In addition multiple regression analysis was used to establish whether the independent variables explained the variance in the dependent variable. These three tools of data analysis were used in testing the two hypotheses of this study. Qualitative data generated was used purely to supplement quantitative data.

4.2: Social and demographic background aspects of respondents

This part is devoted to the discussion of the personal attributes of the family heads covered. These attributes include age, sex, level of education, occupation, income levels and family size. By analyzing the social and demographic variables, it was possible to make inferences on what implications they have on health care delivery by public health institutions. Variables like level of education, employment type, income levels, and sources of financing of health care were useful in determining utilization of various different health care facilities. For instance, with very many respondents having high income levels, it was likely that they would seek for health care from private hospitals more than public ones. Such data is useful in that it would definitely have an effect on generation of revenue through charging of user fees. Consequently, the researcher was in a position to make informed decisions on the effects of cost-sharing in provision of health care in Kangundo District.

4.3: Distribution of respondents by sex and age

The respondents' age in the survey ranged between 18 to 70 years. The minimum age of 18 years had been set for this study since respondents were family heads, and generally, 18 years is regarded as the legal marriageable age in Kenya. From the total sample of 150 respondents, 41 (27.3 %) were within the 25-43-age bracket. The mean age was 40 while the modal age was 24 with the median age being 37.5 years. This finding was not unique in that Kenya's population has a very young age structure (Shauri, 1999; GOK of Kenya, 1999; and Kenya Household Health Expenditure and Utilization Survey report-{KHHEUS}, 2003). With nearly 13% being aged less than 5 years, those under 15 years constituting 41% and 65 years and older 3.4%, the Kenyan age structure is a broad-based pyramidal one (KHHEUS, 2003:15).

This young age structure of the population is the function of high level of fertility that exists in Kenya (4.9 children per woman (Opiyo, 2006). It was not a strange finding that the modal age was 24 in that the mean age at first marriage in Kenya is 26.5 and 22.3 years for males and females respectively. In the rural areas, the mean age for females is even lower at 21.9 years. In Machakos District, the mean age at marriage is 27.5 and 23.4 for males and females respectively (GoK, 2004).

This age structure has very important implications for the delivery of health care to the population. Other studies have shown that the relationship between age and health care utilization was U-shaped: that the young and the old population had a higher prevalence of illness and higher per capita visits to health care facilities than the other population groups (GOK, 2003). The possible explanations for the pattern of utilization of health care are that

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the very young and elderly are more likely to be ill. Too, they have more access than others since they are more dependable on other people for financial resources.

4.4: Distribution of respondents by family size

The variable household size was important in that it determines the ability of household heads to pay for healthcare services. The distribution of the household size is presented in Table 2.

Table 2: Distribution of respondents by family size

Size	Frequency	Percent
3 and below	28	18.7
4-5	63	42.0
6 and above	59	39.3
Total	150	100.0

From Table 2, it is evident that majority households in Kangundo had between 4-5 members, of the household, which is a true reflection of the situation in Kenya where the average household size is 4.4 while in Machakos District it is 4.8. This confirms a declining trend in birth rate in Kenya. The Total Fertility Rate (TFR) has been falling over the years. For instance, TFR declined from 8.1 in 1978 to 5.2 in 1992 and further to 4.7 in 1993 (GOK,2004:3). This has certain implication to the health sector. With the modern family size comprising of an average of four members, it would mean less constrain in the public health care facilities. In essence, health care facilities should be able to provide quality health care and the system too should enable equity and access to health care seekers.

4.5: Distribution of respondents by level education.

Respondents visiting health care facilities in Kangundo District had attained various education levels, ranging from those who had no formal education to those who had university education. This distribution is tabulated in Table 3.

Table 3: Distribution of respondents by level education

Education level	Frequency	Percent
No schooling	8	5.33
Primary incomplete	15	10.0
Primary	69	46.0
Secondary	45	30.0
College/University	13	8.7
Total	150	100.0

The largest proportion of the respondents (46.0%) had only completed primary school while 30.0% of the total had completed secondary school. Additionally, 15.3 % were categorized as having either dropped out of school before completing primary school or had not been to school. It was only 8.7% of the total respondents that had attained college education. These findings reflect the national trend in that Kenya's population aged 10-14 that was out of school by the year 2004. This is congruent with the learning levels of the Kenyan populace up to the year 2004. Nationally, 8.1% of the Kenyan population had further dropped out of school or had not attained any schooling at all. In Machakos District, this category was represented by 6.5% of the total population. Consequently, this explains why the total population of those respondents who had only attained primary school level of education was the highest (46 %).

The education level of respondents has implications to healthcare seeking behaviour patterns. First, in most cases, it is likely that those with informal, primary or secondary education have to rely on public hospitals for their health care needs or that of their family members. This is due the fact that such low levels of education do not easily guarantee one employment. With low incomes or none at all, it becomes difficult for them to seek for health care from private hospitals which charge high fees. From the reviewed literature, it emerged that restructuring health care provision by introducing user fees affected patients' health care seeking behaviour. Patients would opt for various modes of health care that are available.

4.6: Distribution of respondents by employment status

Using employment status, the researcher intended to establish the ability of the respondents to pay for healthcare services. Respondents' employment statuses were categorized into employed, farming, business, and unemployed. Majority respondents falling under the category "business" were involved in unreliable business activities. Respondents under the category "employed" on the other hand represented those in salaried employment, either in the government or private sector.

Table 4: Employment status of respondents

Employment	Frequency	Percent
Salaried	12	8.00
Farming	47	31.33
Business	38	25.33
Unemployed	53	35.33
Total	150	100

From Table 4, only 8.0% of the total respondents were in formal employment while 31 % were involved in various farming activities. There is need to point out that the major farming activity is coffee growing which has been neglected in the area due to poor performance in the market. 25% of respondents were in business, majority of whom were in micro-business activities.

Employment is likely to have a direct relationship with seeking of health care in that with no means of livelihood, patients might have difficulties paying for their health care or that of their family members. This corresponds with findings by Shauri (1999), the Poverty Reduction Strategic Paper (PRSP) 2001-2004 and the Kenya Demographic and Health Survey (KDHS 2003). From the reviewed literature, 50% of Kenyan's live below the poverty line, which then led to the general observation that most of the respondents had modest ways of earning their livelihood and as such, they were considered poor.

The foregoing is supplemented by qualitative data generated from Kangundo District Hospital. The study established that poverty levels in the region negatively affected revenue generation through charging of user fees. The observation by the Hospital Superintended though, was that this did not have a very great impact on utilization of health care from public health facilities in Kangundo District. The effects of poverty were however felt more by those who lived far from Kangundo town. The District Health Records and Information Officer indicated that every year the number of patients deserving waivers was on the increase, an indication that at least a few patients had difficulties paying for health care from public facilities. An inspection of records in Kangundo District Hospital (Table 7) supports this assertion since the hospital gave waivers amounting to

KSh. 89,160 in 2006, up from KSh 48,020 in 2005. The Hospital superintendent indicated that:

waivers were a major drawback to revenue generation through user fee charging compared to exemptions

4.7: Distribution of respondents by income

This study used income levels of respondents determine their financial status. This variable is important since income influences patients' ability to pay and consequently, the utilization of healthcare facilities (Mwabu 1994, Shauri 1999). The distribution of respondents by income is presented in Table 5.

Table 5: Distribution of respondents by monthly income

Income	Frequency	Percent
1,000 and below	23	15.3
1,000-1,500	29	19.3
1,500-2,000	18	12.0
2,000 and above	71	47.3
Non Response	9	6.0
Total	150	100

The mean income per month was 2,987 shillings, with the modal income at KSH. 1,000 while the median income was KSH. 2,000. Additionally, it emerged that 6 % of the respondents did not have any source of income.

With majority of respondents earning less than 2,000 (52 %) per month, this confirms that poverty is widespread in Kangundo. This is another pointer to the fact that for a certain group of people, health care is not easily accessible. According to the Kenya National

Health Accounts (NHA) study (GoK, 2003) "the number of people living below poverty line is estimated to have risen from 48% of the population (11 million) in 1990 to 56% of the population (17 million) in 1997". A representation of the Kenyan population living below the poverty line is presented in Figure 4.

Figure 4: Comparative Data on population living below poverty line in East African Countries
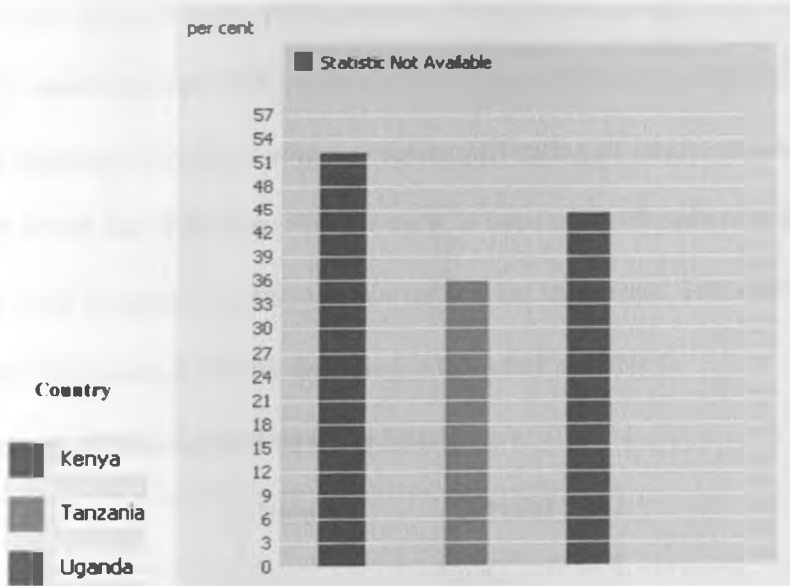
From Figure 6, more than 50% of the Kenyan population lived below the poverty line by the year 2006. As already stated, this has implications to health care in that it could mean that majority patients have difficulties assessing health care from public hospitals and even from private hospitals. Other patients are totally unable to pay for their health care as is indicated by the waivers in Table 8. Kenya had the majority of its citizens living below the poverty line in 2006 compared to the East African countries. From Figure 6, Tanzania and Uganda had 36% and 45% respectively of its population living below the poverty line in 2006.

4.8: Sources of income for financing healthcare

The way in which patients financed healthcare was important for this study since inability to cost-share would have implications towards the success of the cost-sharing policy. If a bigger proportion of patients are unable to pay for their own healthcare services, then generation of funds in public hospitals is affected. Studies cited imply that inability to cost-share would lead to a shift to other healthcare systems; or patients might not seek health care at all (MOH, 2003, Mwabu, 1999, Mbatia, 1996). Indeed, according to a survey by the MOH (2003), results showed that the proportion of population that reported being ill and did not seek treatment increased with worsening self-rating of health status. This finding gives support to the fact that those who are most in need of healthcare may not necessarily be receiving it as a result of difficulties in paying for treatment. The distribution of the respondents by the source of health financing is tabulated in Table 6.

Table 6: Sources of income for financing health care.

Source	Number	Percent
Salary	12	8.0
Earnings	103	68.67
Assisted by Relatives	18	12.0
Sell household goods	10	6.7
Salary/health insurance	7	4.7
Total	150	100.0

From Table 6, 115 out of the 150 respondents (76.7 %) indicated that they financed health care services either through salary or other earnings. However, there is a need to observe that those who financed health care through salaries were a small proportion (refer to Table

4.3 on employment status). Respondents who financed health care through earnings were involved in small scale income generating activities, which were not reliable as a means of livelihood.

It is also evident that 18 (12.0%) respondents had been assisted by either relatives or well-wishers for they could not afford to pay for health care services. The question asked was: How do you finance health care for your family? The choices of responses given in the questionnaire were: Salary, Earnings, Assisted. Sell Property, and Health Insurance. In this category, some indicated that they had not been charged in Kangundo sub- district hospital due to poverty. Another category of respondents (6.7%) revealed that they go to an extent of selling household goods in order to be able to pay for healthcare services. A paltry 7 (4.7%) respondents finance their healthcare either through health insurance or through salaries. Out of a sample size of 150, 138 respondents (92%) percent were not in reliable employment. This was not a surprising finding in that in Machakos District, the labour force participation rates for population aged 15-64 years was 79.7 %. This then means that 20.3% of the population expected to be in the work force were unemployed. With these unreliable sources of income and the fact that over 50% of the Kenyan population lives below the poverty line (Figure 6), patients might not adequately access health care due to financial constraints despite the high demand for health care.

4.9: Health care spending by patients

This part presents selected indicators that determine utilization patterns of health care services. This discussion is important in that one of the study's hypothesis states that the utilization of services in Kangundo Sub-district Hospital is influenced by the social and

demographic attributes of the patients in Kangundo District. Drawing from the reviewed literature, it is important to mention that patients have plural/several alternatives in seeking for health care, since the health care system is structured in a dichotomous way (Kleiman, 1995). According to Machelory and Townsend (1996), patients can try any approach that they deem fit in solving their health care problems. The following presentation in part 4.10 and 4.11 gives a picture of how patients utilized public health institutions in Kangundo District. This was captured through establishing the frequency of visits to public health facilities as well as the status of drug availability in these facilities.

4.10: Frequency of visits to public and private hospitals

To determine the frequency of visits to both public and private hospitals, the following two questions were asked: How many times have you or a member of your family sought for healthcare services from a public health institution in the last one year?, and How many times have you or a member of your family sought for healthcare services from a private health institution in the last twelve months?

The number of times a patient visited a public hospital compared to a private one is important in accessing how cost-sharing had affected the various sectors of healthcare. (See Kleiman, 1995; Landy, 1997; Karengo, 2000; and Mbatia, 1996). As already stated, non-utilization of public hospitals might have negative implications on patients who are unable to pay for health care from private hospitals. Some might opt to go for unconventional healthcare sectors (Maclerory and Townsend 1996; Mbatia, 1996). The distribution of respondents by frequency of visits to public and private health facilities in Kangundo District is given in Table 7.

Table 7: Number of visits by patients to public and private health facilities in Kangundo District in a year

Times of visits	Public		Private	
	Frequency	%	Frequency	%
1-2 times	61	40.7	50	33.3
3-6	57	38.0	36	24.0
More than 6	31	20.7	7	4.7
None	1	0.7	57	38.0
Total	150	100.0	150	100.0

Data presented in Table 7 was collected from household heads. They were required to indicate the number of members of their family who had visited public health facilities as well as private hospitals in Kangundo District in the past one year. Data collected indicated that 50 (33.3 %) household members had sought for healthcare services from a private health institution between 1-2 times for a period of one year while 36 (24.0 %) had been to a private health institution between 3-6 times. Those who had visited for more than 6 times were 7, a paltry 4.7 % and a further 57 (38.0 %) had not received healthcare services from a private health institution.

These differences can be explained by the fact that higher income earners are associated with a higher propensity to seek for treatment from private hospitals. This means that inability to pay for the services may have contributed to less utilization of public health care facilities for the low income earners. There might be financial barriers to access and that health care might be distributed inequitably thus an indication of inaccessibility to health care for the poor.

The comparison on the visits to hospitals in Table 7 shows that patients visit public hospitals more than private ones. This is because 40% households (Table 7) had a member visiting public health facilities hospital for between 1-2 times within one year while 33.3% had visited private health institutions for the same frequency. The frequency of visiting hospital between 1-2 times was the highest for both private and public hospitals. This trend was expected in Kangundo District since the area has more low income earners compared to high income earners (Refer to section 4.7). As such, public health care facilities attracted more visits due to the fact their charges are low compared to the private ones.

From the Table 7, 61 households out of the 150 indicated that a member of the household had visited public health facilities in Kangundo District between 1-2 times within a year. This represented 40.7%, while the second largest group 57 (38.0%) had visited the health institution for between 3-6 times. In 31 families, 20.7%, members had visited public health facilities in Kangundo District for more than 6 times. It was only in one case (0.7%) of households in which no visit had been made to public health care facilities in Kangundo District within a period of 12 months. From this, the general conclusion is that by the virtue of the frequency of visits, public health facilities in Kangundo District had a potential of generating funds through charging of user fees.

Indeed, available records from the hospital confirmed that funds generated through user funds for the period 2005/2006 were an indication that patients were utilizing the hospital. The revenue generated by Kangundo Sub-district Hospital through the cost-sharing programme are tabulated in Table 8.

Table 8. Yearly Revenue collection in Kangundo District Hospital 2005 and 2006

KANGUNDO SUB-DISTRICT HOSPITAL		
Departmental revenue collection-2005-2006		
DESCRIPTION	2005	2006
CLINICS	272,520.30	375,470.00
DENTAL	256,140.00	313,410.00
E.N.T.	19,730.00	20,090.00
INPATIENT	875,400.00	1,560,420.00
LABORATORY	487,890.00	890,290.00
MARTENITY	1,387,960.00	1,646,980.00
MORTUARY	1,094,500.00	1,415,000.00
N.H.I.F	776,000.00	1,030,400.00
OUT PATIENT	461,350.00	736,350.00
PAEDIATRIC	30,760.00	52,610.00
PHYSIOTHERAPHY	114,420.00	196,010.00
PHARMACY	551,450.20	814,540.00
PLASTER	0.00	100.00
S.T.I	60,090.00	69,270.00
THEATRE	41,000.00	270,500.00
WAIVER	-48,020.00	-89,160.00
WARD 1	0.00	20.00
WARD 2	0.00	400.00
WARD 4	0.00	1,200.00
XRAY	438,000.00	574,400.00
Total	6,819,190.50	9,878,300.00

Data from Table 8 were obtained from Kangundo Hospital. The researcher sought for authority from the Doctor-in-charge of the hospital in order to use the data on revenue generation. With this authorization, data in Table 8 were extracted from the hospital's Records' Department.

In the year 2005, the cost-sharing programme in Kangundo District Hospital generated revenue amounting to KSH 6.8 million while 9.8 million was raised in the year 2006, an increase of 44%. The hospital waived fees for patients amounting to KSH 48,000 and KSH 89,000 in 2005 and 2006 respectively. This data leads to the conclusion that the cost-sharing programme in Kangundo District Hospital had the potentiality of generating income revenue through the charging of user fees.

Patients opted to visit both private and public hospitals due to two reasons. One of the questionnaire items (Item 22) sought to know why respondents or members of their families sought for healthcare services from a private health institution and not a public one. Majority of the respondents indicated that the higher preference for public hospitals was due to the fact that fees charged by public hospitals were lower compared to private hospitals even though they pointed out that the services offered by private hospitals were better than those offered by public ones. These findings therefore imply that utilization of public hospitals by patients was still higher. Therefore, public hospitals have the potential of raising more revenue than realized if they catered for the category of patients seeking for health care services from private hospitals.

However, it is prudent to mention that other factors would affect revenue generation apart from out-of pocket payments by patients. For instance, government procurement procedures also affected revenue generation through cost sharing programme. The interview with the head pharmacist, Kangundo District Hospital indicated that supplies from the Kenya Medical Supplies Agency (KEMSA) often delayed due the bureaucracy involved. As a result, when patients don't get the

prescribed drugs, this creates the impression to patients that public hospitals lacked essential drugs. This opinion was shared by the head pharmacist and the hospital superintended in Kangundo District Hospital.

According to the Head Pharmacist,

when the clinical officer of doctor prescribes a certain drug to a patient and it is not in stock due to delay in supply, it is not easy to convince the patient to have an alternative. The patients takes this to mean that the hospital lacks drugs and consequently erodes their confidence in the efficiency of our services and this can negatively affect revenue generation.

4.11: Availability of drugs in public health care facilities versus private health care facilities in Kangundo.

Table 9 compares the number of respondents who received drugs from Kangundo District Hospital with private healthcare facilities. Drug availability is a very strong indicator for patient's satisfaction for provision of health care services (Shauri: 1999). Respondents were also required to indicate the number of times the prescribed drugs were available in pharmacy of the public health care facility they had sought for treatment. When they were required to give reasons for seeking for health care from private hospitals and not public ones, non-availability of drugs in public hospitals was a major reason cited.

Table 9: Availability of drugs in public health facilities in Kangundo District

Drugs available in the pharmacy	Frequency	Percentage
Yes	120	80.0
No	30	20.0
Total	150	100.0

The study attempted to establish the status of drug availability in public health institutions. For a long time, public health institutions have been associated with a perennial problem of lack of drugs. The problem was very serious before NARC government took over from KANU in 2002. It was therefore important to determine the status on the availability of drugs since it had been cited as one measure for utilization of health care facilities (Shauri, 1998).

From Table 9, 120 respondents (80.0%) indicated that they had bought drugs from public pharmacies in health care facilities in Kangundo District while 30 (20.0%) had not bought drugs. The reason advanced by those who had not bought drugs from public health care facilities in Kangundo District was that the prescribed drug was not available. From the arguments by Mbatia (1996) and Shauri 1998, drug availability boosts patients' confidence in the reliability of a healthcare facility. The fact that majority of the respondents indicated that public health care facilities in Kangundo stocked drugs can be used to explain the high prevalence of visits by patients to these facilities. The consequence of this is increases utilization of the facilities and consequently more revenue generation.

From the foregoing, it is prudent to note that there are certain dimensions of quality of health care that patients considered so as to seek for health care from public hospitals. Since it was only a quarter of the respondents who reported that they had opted for services from private hospitals due to unavailability of drugs, this means that public hospitals are now better stocked than before. This argument is supported by records from Kangundo Sub-district Hospital. From Table 8, the Pharmacy Department ranked amongst the highest in revenue generation, emerging fifth in both 2005 and 2006 (KSH. 551,450 and 814,540 respectively).

4.12: Distribution of respondents by distance covered to the nearest health care facility

The study established the distance respondents covered to the nearest public health care facility. As noted, Kangundo District has four public heath care facilities – one Hospital, one health centre and two dispensaries. The responses of respondents or distance covered presented in Table 10.

Table 10: Distance covered to the nearest health care facility

Distance Covered in kilometers	Frequency	Percentage
Less than 1	0	0
1-5	9	6.00
6-10	97	64.66
10 and more	44	29.33
Total	150	100.00

From Table 10, majority of the respondents (64.66%) covered a distance of between 6-10 kilometres to the nearest health care facility. Another 29.31% covered more than 10 kilometres while only 6% were within a radius of between 1-5 kilometres to the nearest health care facility. None of the 150 respondents travelled for less than a kilometer to the nearest health care facility. Generally put, most respondents don't live near health care facilities. This has implications on the health care of respondents especially the rural poor since they do not have easy access to health care services. In addition, it can also affect the potentiality of public health care facilities in the generation of revenue. According to the Kenya Human Development Report in Mwabu et al. (2004), utilization of health services is affected by among other factors, absolute access to the services. This is determined by the distance covered or cost incurred to reach the facility.

The study also further sought to establish what means respondents used to reach the health care facilities. The question that respondents were required to answer was: How do you or members of your family get to the health care facility? The choices of responses given by respondents are presented in Table 11.

Table 11: Accessibility to health facilities by respondents.

Means of getting to facility	Frequency	Percent	Valid Percent	Cumulative Percent
Walk	102	68.0	68.0	68.0
Sometimes use public transport	43	28.7	28.7	96.7
Always use public transport	4	2.7	2.7	99.3
Personal Means	1	.7	.7	100.0
Total	150	100.0	100.0	

The data generated indicated that 102 (68.0%) of 150 respondents walked to the health care facility while 43 (28.7%) indicated that they sometimes used public transport and at other

times walked to the health care facility. On the other hand, only 4 (2.7%) always used public transport. 1 (0.7%) had their own means of transport to public health care facilities. Therefore, the cost incurred-whether through walking to the health care facility or through fares- definitely affects utilization of health care facilities in Kangundo District.

4.13: Hypotheses testing

In this section, the two hypotheses of the study were tested. The study set out to test the following two hypotheses:

H_1: The demand for healthcare services offered in hospitals in Kangundo District is influenced by the social and demographic backgrounds of patients.

H_2: Cost sharing on health care has led to provision of quality health care by public health facilities in Kangundo District.

In order to understand the effects of cost-sharing on healthcare services provision in Kangundo District, the study established whether patients utilized the various healthcare services offered by health care facilities. For this study, the services considered were: laboratory tests, dental services, physiotherapy, maternity, and x-ray services. The rationale behind this was hospitals generated funds through charging for these services. Consequently, if patients did not utilize the services, it would negatively impact on revenue generation and thus, health care facilities in Kangundo District would not meet the objective of providing quality healthcare services.

From H_1, (The demand for healthcare services offered in hospitals in Kangundo District is influenced by the social and demographic backgrounds of patients), the dependent variable

is demand for healthcare services. The indicator for this variable was whether or not patients utilized the services that have been outlined. On the other hand, the demographic and social attributes of respondents formed the independent variables. For this study, the attributes considered were: gender, age, employment status, income, and educational level.

In testing this hypothesis of the study the following variables were conceptualized thus:

Sex refers to the quality of either being male or female.

Age is the number of years of the residents since birth. In this study, the minimum considered was 18 years since it is what the Kenyan law considers an individual to be an adult. Since the respondents were household heads, it was therefore deemed logical that the average marriage age was 18 years for both males and females.

Household size refers to the number of members in a family. This variable was measured using three values: (1) 3 and below, (b) 4-5 members, and (6) 6 members and above.

Employment status is the kind of job a respondent was involved in. It was measured on a scale with two variables, (1) Employed, and (2) Unemployed.

Monthly income is the amount of money one earned in a month.

Highest level of education means the sage of learning one has attained in education. To capture these levels, the study categorized respondents into: 1. Primary incomplete/No schooling 2. Primary 3.Secondary 4.College.

4.14 Creation of Dummy Variables

Since some of the predictor variables were qualitative, it was necessary to transform them into dummy variables in order to use them in regression analysis (Kachigan, 1996; Singleton, 1988). Sex was transformed into a dummy variable with the numerical value

1=male and 0=female. There were three categories on employment types and then the fourth category was that of those who were unemployed. To create a dummy variable, the three employment types formed one category so that the variable employment has two variables: employed vs. unemployed. As a result, the dummy variable created was 1=employed otherwise 0. Those who were in business and farming were put in the category of 1=employed.

Dummy variables were created to categorize respondents' responses into either "services received" or "services not received". Such services would determine whether the social and demographic background aspects of patients determined the utilization of health care services from public health care facilities in Kangundo District. This is important since utilization of health care services from public hospitals is expected to lead to high revenue generation. Consequently, this would enable the hospital management committees provide quality health care to patients.

Each of the variables was converted into a binary variable. Sex was measured into a dummy variable representing maleness (male vs not male), with the numerical value 1 for male and 0 for not male, thus yielding the following dummy:

(i) 1= male Otherwise 0

In the questionnaire, education had been given categories as follows, 'No schooling', 'Primary incomplete', 'Primary', 'Secondary', 'College', 'University'. For the purposes of data analysis, education level was made into a dummy representing high education level, i.e. high education level vs low education level. Those who had indicated that they had 'No Schooling', 'Primary Incomplete', and 'Primary' were categorized as having 'low

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education' while 'Secondary', 'College', or 'University' were categorized into 'high education level. The dummy variable created was thus:

(ii) 1 = high education level   Otherwise 0

The use of respondents' level of education in the analysis was influenced by the fact that several other studies have advanced opinion that one's level of education enhances utilization of modern health care (Caldwel 1992).

For the employment categories, respondents were categorized into: 'Employed', 'Farming', 'Business', and 'Unemployed'. Employment was transformed into a dummy variable to represent employed (employed vs. not employed). The numerical value 1 was for employed and 0 for not employed. Respondents who were under the categories 'Employed', 'Farming', and 'Business' were treated as employed thus leaving out one category, 'Unemployed'. Thus, the dummy variable created is:

(iii) employed = 1, otherwise 0

In testing the second hypothesis (Cost sharing on health care has led to provision of quality health care by public health facilities in Kangundo District), the dependent variable was quality health care. Quality of health care was measured through how patients rated medical staff and the health care services offered by public hospitals. The two questions that were posed to respondents were:

(1). How would you rate staff in public health institutions Kangundo District in as far as the provision of health care is concerned?

(i)   Quite effective   (iii)   Less effective

(ii)   Effective   (iv)   Not effective at all

The responses generated from the respondents were categorized into: Effective Vs Not effective and coding for rating of staff being: rating of staff was coded: 1 "effective", 0 Not Effective",

(2) Rate the health care services in the public health institution that you have sought treatment in Kangundo District.

(i)   Extremely good   (ii)   Very good

(iii)   Good   (iv)   Bad

(iii)   Very bad   (vi)   Extremely bad

These six categories were collapsed into two, thus; Good Vs Bad in which case rating of health care services was coded 1 "Good", 0 "Bad"

4.15: Regression models

This section presents the regression models that were used to in making statements about the two hypotheses of the study. Multiple linear regression has been used in order to understand how dependent variables related to the independent variables. The general purpose of multiple regression is to learn more about the relationship between several independent or predictor variables and a dependent or criterion variable.

Regression analysis was considered an important tool in this study in that the regression equation captures change in the dependent variable due to one unit change in one of the independent variables while holding the others constant (Miles and Mark, 2001; Fox, 2000b; and 1991; and Allison, 1999). By using the values from data generated in this study, the researcher developed a model so as to predict the value of the dependent variable, Y for given values of X.

An analysis of simultaneous effects of the five independent variables on the dependent variable (demand for health care) was done as the final test of the hypothesis testing. This was achieved through multiple regression analysis using the linear regression model in which "the dependent variables is assumed to be a linear function of one or more independent variables plus an error introduced to account for all other factors" (Levin, 1999). Regression analysis was taken to be important unlike other techniques like Chi square and correlation coefficient which do not go beyond establishing the existence and strength of a relationship between variables. Multiple regression analysis can establish a set of independent variables explain a proportion of the variance in a dependent variable at a significant level , and can establish the relative productivity importance of the independent variable (Tabachnick and Fidel, 2001:117). Six variables were entered in the regression model. These were: sex, age, education level, monthly earnings, employment status, and family size.

Multiple regression analysis was used to establish whether age, sex, household size, employment, level of education and monthly income explained the demand for health care services in Kangundo Sub-district Hospital at a significant level. This is because the scope of data analysis in this study went beyond establishing the existence and strength of relationships between the study variables.

From the regression models, two sets of statics were used in hypothesis testing. These were the beta weights and the F statistic, a value whose probability enables the researcher to reject or retain the null hypothesis, i.e., to conclude whether or not the differences in the scores on the dependent variable are statistically significant or due to chance. The beta

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weights statistic, which, according to Cortina, et al., (2000), "estimate the relative predictive power of each independent, controlling for all other independent variables in the equation of a given model...It is the average amount the dependent increases one standard deviation and other variables are held constant".

The significant 'F', on the other hand tells how confident one can be that each individual variable has some correlation with the dependent variable. This study, attempted to establish how much effect age, level of education, employment status; gender, and, income have on utilization of health care services. This study has taken alpha risk as 5% and therefore the null hypothesis shall be rejected if p value is equal or less than 0.05. If it is more than 0.05, then we fail to reject the null hypothesis.

The formula for a multiple regression equation is:

$$Y = a + b_1x_1 + b_2x_2 + ... + e \qquad \text{(Formula 1: Allison, 1999)}$$

Where y is the dependent variable, x represents the independent variables, the b values are partial regression coefficients or partial slopes, the value a is the y intercept, and the value of e is the prediction error or residual. Three variables: sex, education level, and employment status are qualitative in nature. As earlier mentioned, in order to add their values into the regression model, the variables were transformed into quantitative dummy variables.

At this stage we construct the regression equation using the all regression method (Kachigan, 1988:186) in which case, we get the best equation based on predictor variables which account virtually for all the variance. The regression model therefore is:

$$Y = a + b_1x_1 + b_2x_2 + bx_3 + bx_4 + bx_5$$

Where X_1 = Age, X_2 = Education Level, X_3 = Employment Status, X_4 = Earnings and

X_5 = Family Size.

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4.16 Utilization of health care services in public hospitals in Kangundo District

This part presents a discussion on the model that explains utilization of health care services. The results of Table 12 show the values of the regression coefficients for the five predictor variables included in the regression model.

Table 12: Effect of background aspects on utilization of services.

The results in Table 12 show how the respondents' background aspects (age, education, employment, earnings, family Size) influenced utilization of health care services in public health care facilities in Kangundo District. This made it possible to understand what influenced utilization of public health care services.

Model	Unstandardized Coefficients		Standardized Coefficients	t	Sig
	B	Std. Error	Beta		
(Constant)	1.752	.234		7.470	.000
age	-.2560	.076	-.268	-3.227	.001
education	-.049	.082	-.048	-.599	.550
employment	.238	-102	.229	2.337	.021
earnings	-.057	-097	-.056	-.584	.560
family Size	.009	-044	.016	.203	.840
F = 3.852	Sig = .001(a)				

The results of Table 12 show that utilization of health care is inversely related to age. Increasing age by 1 unit decreases utilization by 0.27. This means that the higher the patient's age, the less the utilization of health care services from public health care facilities in Kangundo District. This finding was not strange since it would be expected that as ones age increases. visits to hospitals become less compared to when one is young. For instance, children under five would visit hospitals more frequently than. compared to say, one at the age of 25.

The fact that utilization of public hospitals in Kangundo is more by young children does not necessary mean that older people neglect their health. The most plausible explanation would be that older people might opt for self-medication through over-the-counter drugs from private chemists. Another reason for this is that children, especially under-fives, would make more visits to hospitals compared to older people due to the mandatory post-natal care like vaccination for Diphtheria, Tetanus, and Whooping Cough, and Bacillus Calmette-Gurin (BCG vaccine).

From the regression model, it can also be observed that utilization of health care is directly related to employment. If employment is increased by 1 unit, utilization of health care services increases by 0.23. In other words, being employed means utilization of health care is more than being unemployed. When respondents were categorized according to their employment status, (Table 4) it was observed that 35% were unemployed while 56% were either in business or farming. Though this is an indication that the respondents in these two categories were in employment, such employment is that which would raise their ability of utilization of health care services in public hospitals and not private ones. In other words, the fact that one's employment increases utilization of health care services in public hospitals only means that the patients move out of the category that would get waivers and exemptions.

Utilization of health care and education level were inversely related. This means that increasing education level by 1 unit decreases utilization of health care services in public hospitals in Kangundo District by 0.05. It can therefore be argued that the higher the education level, the less the utilization of public health care facilities. This can be explained

by the fact that it is expected that the higher the education level, the more critical a patient is on the quality of health care provided by public hospitals. Higher educated patients would be less satisfied with the services and would most likely seek for health com private hospitals. This is due to the fact that they are likely to have higher incomes since higher levels of education are more likely to be associated with high incomes. This agrees with Caldwel (1992) whose findings show that one's level of education enhances utilization of modern health care.

Finally, this model shows that utilization of health care services in public hospitals is directly related to family size. 1 unit change in family size increases utilization by 0.02. This would imply that the bigger the family, the higher the utilization of health care services. The explanation for this is that households with many members are likely not to afford health care services offered by private hospitals due to high charges. When respondents were categorized according to monthly income (Table 5), 46.6% indicated that they earned KSh. 1,000 and below. From Table 2, the average family size was 4.4. When these two factors combine (low income and big family sizes), such patients therefore have to seek for health care from public hospitals. This though cannot be interpreted to mean that public hospitals are popular.

The second statistic of interest is the F test. The F-test statistic in Table 13 shows that the F value is 3.85 and p equals .001. We apply the rule that if $p \leq 0.05$, we reject the null hypothesis of no relationship. Therefore, since Sig. is less than .05, in this case .001, we therefore reject the null hypothesis of no relationship. According to Tunner and Julian (2001), "a probability value of .05 or less on the F test conventionally leads to the

conclusion that the effect is real and not due to random chance". This therefore means that utilization of health care services in public hospitals in Kangundo District is influenced by the patients' background attributes. In other words, monthly earnings, age, education level, employment status, and family size influence demand for health care services offered by public hospitals in Kangundo District. Therefore, this model is considered significantly better than would be expected by chance. The equation that explains utilization of health care services from facilities in Kangundo District therefore is:

$$Y = 1.75 + .27x_1 + .23x_2 + .06x_3 + .05x_4 + .02x_5$$

Where X_1= Age, X_2 = Employment Status, X_3= Earnings, X_4 = Education Level and X_5 = Family Size.

4.17 Provision of health care services by public hospitals in Kangundo District

The next task involved testing the second hypothesis of the study. This was achieved through an analysis of how patients visiting health care facilities in Kangundo District rated the medical staff and services offered by public hospitals in Kangundo District. Besides this, the opinion the respondents hold on charging of user fees also contributed to the testing of the hypothesis.

Patients' opinion on staff performance and the condition of health care facilities greatly influences the overall assessment by patients on the quality of health care provided by public hospitals. It is expected that generation of more revenue would lead to improvement quality health care and overly better health for the residents of Kangundo District. Several studies hold the opinion that quality of service influences revenue generation. For instance; Shauri (2000), Collins et al., (1994), HCFS (1994; 1995)) attempted to show that

improvement on quality of services offered ensured acceptability of user fees and consequently utilization of services offered. This study then attempted to establish how cost sharing had affected quality of health care, by testing the second hypothesis (Cost sharing on health care has led to provision of quality health care by public health facilities in Kangundo District).

Respondents were asked to rate the staff and health care services in hospitals in Kangundo District. The questions asked were: How would you rate staff in public health institutions Kangundo District in as far as the provision of health care is concerned? and Rate the health care services in the public health institution that you have sought treatment in Kangundo District. The variable: rating of staff was coded: 1 "effective", 0 Not Effective", while rating of health care services was coded 1 "Good", 0 "Bad". The following part presents the values yielded by two regression models whose analysis of the beta weights and the F-test would lead to the conclusion statement about the second hypothesis.

Table 13: Effectiveness of medical staff in health care service delivery

Table 13 presents a model attempting to predict how effectiveness of hospital staff in service delivery as measured by patients' opinion.

Model	Unstandardized Coefficients		Standardized Coefficients	t	Sig
	B	Std. Error	Beta		
(Constant)	1.366	.230		5.925	.000
age	.057	.075	0.065	.764	.446
education	.226	.081	0.232	2.801	.006
employment	.032	.100	0.032	.319	.750
earnings	-.078	.095	-0.081	-.812	.418
family Size	-.057	.044	-0.108	-1.302	.195
F = 2.333	Sig = .045(a)				

The regression coefficients in Table 13 show that there is a direct relationship between rating of staff and education level. Increasing education level by 1 unit improves rating of staff by 0.23. This means that the higher the level of education, the more favourable the respondents' rating of the medical staff. As already stated, education is a key determinant in rating of staff since those respondents with high levels of education are more likely to give a critical and unbiased rating of the staff in public health care facilities. The manner in which patients rate hospital staff has got major implications on utilization patterns. Should patients rate services as ineffective. this would mean reduced utilization and in effect it would negatively affect revenue generation.

It also emerged from the model that age had a direct relationship with the rating of staff. The regression coefficient for age was 0.065 and this means that one unit change in age

increases rating of staff one unit change in age increases rating of staff by 0.065. Therefore, this means that the higher the age a patient, the more favourable the rating of medical staff. This is a valid conclusion in that it is expected that as one ages, they can make a comparative evaluation of provision of health care over time. For instance, an older patient would be in a position to evaluate health care provision before and after introduction of cost sharing.

When employment status was considered, it emerged that there was a direct relationship between rating of staff and a patients' employment status. For 1 unit increase in employment, rating of staff increases by 0.03. This implies that as the employment status of a patient changes from unemployed to employed, the more favourable their rating of medical staff. However, it should be noted that the relationship between employment and rating of staff is very weak since the regression coefficient is only 0.03 compared to other variables.

On the other hand, earnings and family size were inversely related to rating of staff. The results in Table 13 show that the regression coefficient for earnings per month was -0.08. This means that for 1 unit increase in earnings, rating of staff decreases by 0.08 units. This is to say that the higher the earnings of a patient, the more unfavourable their rating of medical staff. This is expected since higher earnings gives one purchasing power and therefore high income patients are most likely to rate medical staff in public hospitals as ineffective since they have an option of seeking for health care services from private hospitals. On family size, it emerged that 1 unit increase in family size decreases rating of medical staff by 0.11. This is to mean that the larger the family size, the more the

unfavourable the rating of medical staff is. However, a regression coefficient of 0.11 means that family size and rating of staff are weakly rated.

When we consider the F-test, the results of one way ANOVA yielded an F-value of 2.33 with $p = 0.05$. The rejection rule is that reject Ho if p is less than or equal to .05. Since in this case the significance is .05, we reject the null hypothesis of no relationship between the five independent variables and rating of staff. This therefore means that cost sharing in health care has led to provision of quality health care by public health facilities in Kangundo District. The equation explaining the rating of staff in health care facilities in Kangundo District is:

$$Y = 1.37 + .23x_1 + .11x_2 + .08x_3 + .07x_4 + .03x_5$$

Where X_1 = Education Level, X_2 = Employment Status, X_3 = Earnings, X_4 = Age, and X_5 = Family Size

Data generated from the medical staff in Kangundo Hospital through the unstructured interviews was used to supplement quantitative data. For instance, the hospital superintendent indicated that revenue generation was not greatly affected, since the hospital had organized seminars on efficient management for hospital staff geared towards strengthening staff-patient relationship. The District Medical Officer of Health (DMOH) pointed out that:

> *all hospital personnel in Kangundo District Hospital-all cadre ranging*
>
> *from grounds men to drivers through to medical personnel-attend*
>
> *seminars on Client Oriented Provider Efficiency (COPE).*

According to the DMOH, such seminars emphasized on the need to treat patients in public health care facilities as clients. Hospital personnel are equipped with skills on how to deal with patients in the cost sharing era. Efficiency in health provision for the patient is greatly

emphasized. In Kangundo District Hospital for instance, the researcher established that issuing a card to the patient should not take more than five minutes at the reception desk. The hospital staff interviewed was in agreement that the COPE seminars had influenced them positively in terms of health care provision.

4.18. Factors influencing rating of services

Before making the conclusive comment on whether to reject the null hypothesis, we considered a second regression model on the rating of services. By considering the manner in which patients rated services, the researcher attempted to measure whether public hospitals provided quality health care.

Table 14: Quality of health care services

The model presented in Table 14 was intended to measure how patients rated services provided by public health care services in Kangundo District. Through the regression coefficients, this model made it possible to make statements on how patients rated the quality of services offered.

Model	Unstandardized Coefficients		Standardized Coefficients	t	Sig
	B	Std. Error	Beta		
(Constant)	.919	.213		4.310	.000
age	-.099	.069	-.123	-1.428	.155
education	-.072	.075	-.081	-.967	.335
employment	.126	.093	.140	1.361	.176
earnings	-.054	.088	-.062	-.614	.540
family Size	-.006	.040	-.013	-.153	.879
F = 1.310	Sig = .023(a)				

The regression coefficients presented in Table 14 show that it was only employment that had a direct relationship with rating of services with a regression coefficient of .14. When employment changes by one unit, rating of services increases by 0.14. This means that being employed is likely to make one rate health care services favourably. As earlier stated, the form of employment the respondents were engaged in was that which would enable them pay for services from public hospitals and not private ones. As such, it is most likely that such patients would lack a basis for comparison.

The other independent variables had an inverse relationship with rating of services. For instance, rating of services was adversely related to age. An inspection of the regression coefficients shows that increasing age by 1 unit decreased rating of services by 0.12. This means that the higher the age, the more unfavourable the rating of services. This can be explained by the fact that it is more likely that older patients have had an opportunity to gauge quality of health care services during pre-cost sharing and during the cost sharing era.

Another inverse relationship is between rating of services and education level. A regression coefficient of -0.08 means that when education level increases by 1 unit, rating of services decreases by 0.08. It therefore means that the higher the level of education, the more unfavourable the rating. This is not a strange finding since it is expected that patients of higher levels of education would be critical on their evaluation of quality of services offered by public hospitals.

Rating of services was also adversely related to respondents' earnings per month. When

earnings were increased by 1 unit, rating of services decreases by 0.06. This means that the

higher the earnings of a patient, the more unfavourable their rating. The reason for this is

due to the fact that patients with higher incomes are more likely to utilize services offered

by private hospitals and so would be in a position to compare them with those offered by

public hospitals. Finally, family size is inversely related to rating of health care services. A

regression coefficient of -0.01 means that rating of health care services is negatively related

to family size. For every 1 unit increase in family size, rating of services decreases by 0.01.

The implication is that the bigger the family size, the more unfaourable the rating. it should

be noted, however, that the regression coefficient for family size is of very low magnitude,

-0.01, almost 0, and this influence on rating of health care services can be taken to be

negligible.

The analysis of variance indicates that the $p = .023$, a value below the .05 probability level

used in this study as the basis for rejecting the null. We therefore reject the null hypothesis

of no relationship between the independent variables and rating of health care services. The

equation explaining the rating of services offered in health care facilities in Kangundo

District is:

$$Y = .92 + .14x_1 + .12x_2 + .08x_3 + .06_4 + .01x_5$$

Where X_1 = Employment Status, X_2 = Age, X_3 = Education Level, X_4 = Earnings,

and X_5 = Family Size

Data generated through the unstructured interview supplemented quantitative analysis. The

departmental heads interviewed indicated that funds generated through cost sharing were

well utilized. The head of the laboratory department, for instance, indicated that the departmental heads meet and give their budgets. They then deliberate and make recommendations to the hospital management committee depending on priorities.

The sentiments of the Hospital Superintendent also lend support to the utilization of generated revenue. He pointed out that there were committees appointed by the hospital to give reports to the main board. For example, there was a committee on drugs. These committees advised the DHMT on what to prioritize, in cases when there were emergencies in the departments. This made it possible for the management team to meet and approve acquisition of such emergencies. The Hospital Superintendent agreed that there were delays due to the bureaucracy in government procurement as pointed out by the head pharmacist and that is why the hospital had formed committees to advise the board.

The pharmacist also indicated that drugs could lack in the hospital pharmacy due to lack of prioritizing by the District Hospital Management Team (DHMT). Besides that, bureaucracy has also hindered the generation of more funds than is being realized at Kangundo Sub-district Hospital. If ideas put forth to the hospital management committee departmental heads were considered, the benefits of cost-sharing would be fully realized, for instance, the pharmacist elaborated on a revolving drug fund which would alleviate shortage of drugs in Kangundo District Hospital.

The concept would work if: -

> *Part of the money raised by the hospital pharmacy was saved to purchase*
> *essential drugs. For instance, out of the total sum generated by the*
> *pharmacy department in 2006 [KShs 814,540.00(Table 8)] part of it would*
> *go to the maintenance and the rest goes to the revolving fund. This would*
> *ensure that drugs were always available.*

The pharmacist was however categorical in claiming that purchases made on drugs do make returns and that the pharmacy does not just buy drugs to stock. When they draft their budget, consideration is given to the commonly prescribed drugs in the hospital, i.e. what the patients need most. This report by the pharmacist is supported by the available data from the records department of Kangundo Sub-district Hospital. For instance, in 2005 and 2006, the Pharmacy Department of Kangundo Sub-district Hospital raised KSh. 551,450.20 and KSh. 815,540.00 respectively.

According to the doctor in-charge,

> *User funds had been utilized in refurbishing the hospitals infrastructure as*
> *well as stocking of the required supplies and equipment. More so, physical*
> *facilities like buildings had been repaired through revenue generated*
> *through cost sharing.*

Through observation, this was confirmed to be true since the researcher established that the facilities in the wards were in good condition. The duty nurses indicated that they did not lack basic facilities like gloves. In addition, the medical officer-in-charge pointed out that revenue generated through cost-sharing had been used to acquire facilities in the dental department, which was confirmed by the dentist-in-charge. Besides, user funds had been used to construct two gates fencing the hospital compound, and payment of causal laborers. This is an indication that revenue generated through cost-sharing was being utilized well.

The F tests in the two regression models have clearly demonstrated that the variance that exists between the five predictor variables and rating of staff, and rating of health care services was not by chance occurrence. Through establishing covariance between the background demographic characteristics the researcher attempted to establish utilization of health care services in public health care facilities in Kangundo District. The study has established that despite patients' background characteristics, public health care facilities in Kangundo District have been able to generate funds through charging user fees and this was expected to lead to improved quality health care provision, one of the objectives of cost sharing.

This kind of conclusion is not without challenges though. The data generated from the selected hospital staff identified challenges faced by the health care providers in an attempt to provide quality health care. From the interview with the District Medical Officer of Health (DMOH), the researcher established that from the funds generated through cost sharing, 75% is retained by the hospital to supplement the government allocation through the Ministry of Health. According to the DMOH, the funds allocated to public hospitals by the ministry fall far below their budgetary requirement. The remaining 25% of the generated funds are allocated to the District Medical Officer of Health for Primary Health Care activities in the district.

Even with this kind organization, the Hospital Superintendent indicated that there were challenges faced in the endeavour to provide quality health care. One major hurdle that the hospital faced was allocating funds to non-generating departments. Each department in the hospital gets an allocation of money from the 75% of revenue retained by the hospital on priority basis. Departments like transport, for instance, get a substantial amount of money

they don't contribute at all in terms of revenue generation.

4.19: Summary of Findings

The results of the study revealed that public health care facilities in Kangundo District were popular compared to private ones. This is because respondents indicated that they visited public facilities more than private ones. For instance. 38% of household heads indicated that they or members of their households visited public health care facilities between 3-6 times in a year. compared to 24% who had indicated that they had visited private health care facilities at the same frequency. This could possibly be due to the fact income levels were low and so most respondents could easily afford to pay for health care from public and not private health care facilities. The conclusion that we make from this is that public health care facilities in Kangundo District had the potential to generate funds through charging of user fees. For instance. data from the Finance Department in Kangundo District Hospital supports this conclusion in that in the year 2005, the hospital generated 6.8 million shillings while in 2006; revenue collection went up to 9.9 million. This therefore means that despite charging user fees. public health care facilities were still popular. The study established that patients preferred public health care facilities to private ones because their (public) charges were lower compared to private health care providers.

Data on availability of drugs showed that not all patients bought the prescribed drugs from public health care facilities' pharmacies. Respondents had indicated that they had not bought some of the prescribed drugs from public health care facilities since at times the drugs were lacking in the facilities' pharmacies. This was a different finding from respondents who had visited private health care facilities since they had indicated all

prescribed drugs were available in the facilities' pharmacies. This can be explained partly by the bureaucracy of supplying drugs to public health care facilities by the Kenya Medical Supplies Agency (KEMSA). According to the head pharmacist, delays in supplies of drugs create the impression to patients that drugs were not available in the hospital pharmacy.

A higher percentage of respondents indicated that health care facilities in Kangundo District had the prescribed drugs. From the data collected, 85 of the respondents had bought the drugs prescribed for them from public hospitals' pharmacies. This implies that the facilities were better stocked than before. For instance, in Kangundo District Hospital, the Pharmacy Department was among the highly ranked in revenue generation, having collected KSh. 551,450 and KSh. 814,540 in 2005 and 2006 respectively.

The findings of the study also revealed that majority of the respondents covered long distances to reach the nearest public health care facility. 94% of respondents covered a distance of 6 kilometers and more to the nearest health care facility. It also emerged that the bigger proportion of respondents walked to get to the public health care facilities. 102 (68%) out of 150 respondents interviewed indicated that they always walked to get to the nearest health care facility.

The results of the regression model showed that only 13.5% of the variance in utilization of health care in public facilities in Kangundo District is attributed to the independent variables. The regression model further showed that generally all the independent variables were weak predictors but age was relatively the best. An inspection of the partial regression indicated that utilization of health care was inversely related to age (0.27) and this means

that older patients utilized health care services from public health care facilities in Kangundo District fewer times compared to young ones.

Health care utilization was directly related to employment, with a coefficient of 0.23. Patients who were in employment utilized health care more than being unemployed. Of importance here is that the form of employment the respondents were involved in was just sufficient to enable them pay for services from public hospitals.

The study also established that health care utilization and education level were inversely related (0.05). Patients of high levels of learning, for instance college and university levels utilized health care services provided by public health care facilities less compared to those of low levels of learning.

Finally, this model shows that utilization of health care services in public hospitals was directly related to family size (0.07). Bigger families the appeared to utilize health care services more than smaller ones. The explanation for this is that households with many members are likely not to afford health care services offered by private hospitals due to high charges. This is bearing in mind that patients' monthly incomes were low.

The F test confirmed that this effect of the dependent variables on utilization of health care was real and not due to chance. With p less than .05. that is .001 the regression model was significant. In this case, the overall conclusion is that we reject the null hypothesis of no relationship. Even so, the influence that age, employment status, monthly earnings, education level, and family size had on utilization of health care was very minimal. Thus we affirm the first hypothesis of the study that: *the demand for healthcare services offered in hospitals in Kangundo District is partially influenced by the social and demographic background aspects of patients.*

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From these findings, we then concluded that patients utilized health care services in public health care facilities in Kangundo District irrespective of their demographic aspects. The study established though that health care facilities are comparatively cheaper compared to private ones. This is why patients preferred them more as they (patients) could easily afford the services the public health care facilities offered.

The second hypothesis of the study was: *Cost sharing on health care has led to provision of quality health care by public health facilities in Kangundo District*. The two regression models for rating of staff, and rating of services revealed that the predictor variables did not have a major influence on the two dependent variables. For instance, it emerged that age, education level; earnings per month, employment status, and family size explain rating of staff by only 7.5%. The beta weights showed that it was education level and employment that were directly related to rating of staff with coefficients of 0.23 and 0.03 respectively and this means they had minimal influence on rating of staff. The other three predictor variables were inversely related to rating of staff and the influence too, was minimal. Family size had a coefficient of 0.11, earnings per month 0.08, and age 0.06. The analysis of variance shows that the regression model is significant at 95% confidence level and so we can reject the null hypothesis of no relationship.

The analysis on factors influencing rating of services shows that the predictor variables explain only 4.4% of the variance in rating of health care services. The regression coefficients indicate that employment status was the only variable which was directly related to rating of services at 0.14. This implies that employment had low influence on rating of services provided by health care facilities in Kangundo District. Age, education level, monthly earnings, and family size were inversely related to rating of health care services, with coefficients of 0.12, 0.08, 0.06, and 0.01 respectively.

From the foregoing, it has emerged that the three regression models were significant at 95% confidence level and therefore we reject the null hypothesis of no relationship. The overall conclusion that we make in this study is that through cost sharing, public health care facilities in Kangundo District can provide quality health care to the residents. This claim was supported by the qualitative data generated from interviews conducted in Kangundo District Hospital.

From the interview with the hospital staff, we established that funds allocated to public hospitals by the ministry fall far below their budgetary requirements of public health care facilities. Public health care facilities were faced with challenges in the endeavour to provide quality health care. For instance, funds generated through charging user fees were allocated to non-generating departments which were a constraint to the cost sharing programme.

The study also established that poverty levels in the region negatively affected revenue generation through charging of user fees even though the impact on health care utilization in public health facilities was not very great. The effects of poverty were however felt more by those residents who lived far from Kangundo town.

CHAPTER FIVE: SUMMARY, CONCLUSION AND RECOMMENDATIONS

5.0: Introduction

This is the last part of the study and is divided into three sections. The first part gives a summary of findings by highlighting the effect of background aspects on health care utilization, and the effects of user fee charging on provision of quality health care. The second part presents the recommendations on issues affecting cost sharing in health care that were established by the study. Finally, the chapter ends with suggestions for further research in cost sharing in health care.

5.1: Summary of Findings and Conclusions

The focus of this study was health care service provision by public hospitals within the context of cost sharing by doing a survey of Kangundo District, Eastern Kenya. The researcher attempted to establish how cost-sharing has affected potentiality of public hospitals in provision of quality health care to the public. This was done through three objectives and the following is the summary of the findings.

From the study findings, it emerged that patients in Kangundo District utilized public health care facilities more than private ones. This means that public hospitals were popular compared to private ones though this should not be used to mean that the services were better than in private ones. This therefore means that the introduction of cost sharing has not led to diverting demand of health care from public to private health care providers in Kangundo District, though patients still utilized private health care facilities in the district.

The second objective of the study was to determine how aspects on ability to pay by patients affect revenue generation by health care facilities in Kangundo. The researcher intended to determine whether patients had the ability to pay for health care services from public health care services. Though data generated indicates that public institutions were popular, it is not an indicator that patients in Kangundo District had purchasing power of health care services. The study established that the patients preferred public health care facilities since the charges were comparatively cheaper. Ability to pay for health care services determines revenue generation. The data generated indicated that 92% of respondents in Kangundo were not in reliable employment and therefore this affected revenue generation.

Another objective was to out how user fee charging had affected household access to health care services from public health care facilities in Kangundo. The low income status of respondents meant that they can ill-afford to pay for health care and meet other family needs like the basic necessities. The respondents might not find it easy to access health care facilities due to proximity of the health care facility. This is because patients consider the costs incurred in acquiring health care services. We therefore conclude that user fee charging has an effect on household access to health care in Kangundo District.

5.2: Recommendations.

From the summary of the research findings, the researcher made the following recommendations.

The hospital management committee should ensure that the revenue generated is fully utilized to ensure that public health care facilities can provide quality health so as to ensure that there was no diversion of demand for health care.

The public hospital should provide safety nets to ensure that patients who are unable to pay for health care are catered for. This means providing more waivers and exemptions to poor patients. In addition, the government needs to provide means to cushion the residents of Kangundo from poverty so as to give them the purchasing power.

There is need for more health care facilities to ensure even access of health care services by patients. Government budgetary allocations should cater for health care infrastructure in the district.

5.3. Areas of further research

Further research is important in order to provide insights in such areas as:

1. Situational analysis on Health Insurance programs as a supplement to cost sharing in health care in order to strengthen the quality of policy decision making regarding access and equity in health care.

2. Factors that influence health-seeking decisions at the household level, e.g., income, household structure, facility-specific variables and other competing needs for scarce household resources. At the household level, we are yet to establish the extent to which families are being impoverished by selling assets and/or borrowing to obtain health care.

3. The potential for enhancing alternative financing mechanisms such as social insurance, employer sponsored medical schemes, community-based prepaid insurance schemes, household out-of pocket payments, and payments-in-kind.

4. Assessing progress towards the attainment of alternative goals of cost-sharing in health.

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APPENDIX 1. HOUSEHOLD QUESTIONNAIRE

Study Title

The effects of cost-sharing on healthcare services provision in public health hospitals in Kenya: a case study of Kangundo District, Eastern Kenya.

Please provide responses to the following questions by either ticking or filling in the required information.

SECTION ONE: BACKGROUND INFORMATION

Please provide responses to the following questions by either ticking or filling in the required information.

1. Name

2. Ethnic group

3. Place of residence: Rural   (   )   Urban   (   )

4. Gender: Male   (   )   Female (   )

5. Age

6. Village

7. Sub-location: Kathaana   ( )   Isinga   ( )   Kikambuani ( )

8. Location: Kawethei   ( )   Kangundo   ( )   Kanzalu   ( )

9. Highest level of education: No schooling ( ) Primary incomplete ( ) Primary ( )

   Secondary ( )Tertiary ( ) University ( )

10. Denomination. Catholic   ( )   Protestant   ( )

11. Marital status: Widowed ( )   Married ( ) Single ( ) Divorced ( )

      Separated ( )

12. Employment ?

Employed   ( )   Farming   ( )   Business ( ) Unemployed ( )

13. State your earnings per month.

_____

14. How many are you in your family?

2   ( ) 3   ( ) 4 ( ) 5   ( )   6 and above   ( )

15. What position do you hold in your family?

Father ( )   Mother ( ) Guardian   ( )   Other:

Mention_____

SECTION TWO: HEALTHCARE SEEKING BEHAVIOUR OF PATIENTS

16. How many times have you or a member of your family sought for healthcare services
from a public health institution in Kangundo District in the last one year?

     (i) 1- 2 times   ( )

     (ii) 2 - 4 times   ( )

     (iii) 4 – 6 times   ( )

     (iv) More than six times   ( )

     (v) None   ( )

17. If your answer to 16 above is none, give reasons.
_____

18. For the time(s) you sought for healthcare services from a public health institution in
Kangundo District, which of the following services did you receive?

1 Laboratory test   2 X-ray   3 Dental   4 Other: Name_____

19 (a) Roughly how much money was spent for the services received from the public health institution visited.

Not charged   ( )

19(b) If your answer to Q 19 (a) above is 'Not charged' explain why.

_____

_____

20. How many times have you or a member of your family sought for healthcare services from a private health institution in the last twelve months?

(i)   1-2 times   (   )

(ii) 2 - 4 times   (   )

(iii) 4 –6 times   (   )

(iv) More than six times   (   )

(v) None   (   )

21. Roughly how much money was spent for the services received from the private health

   _____

Not charged   (   )   Not applicable   (   )

22. Why did you seek for healthcare services from a private health institution and not a public   one?

_____

_____

23. What other sources of healthcare, apart from those in 17 and 18 have you used before?

(i)   _____

(ii) _____

(iii) _____

24 How do you finance healthcare for your family?

Salary   (   )   Assisted   (   )   Sell property   (   )   Health Insurance (   )

SECTION THREE: COST-SHARING

25. What do you understand to be the meaning of the cost-sharing programme?

_____

_____

26(a) For the time or times you have sought treatment in a public health facility in Kangundo District, have you:

(i)   been given drugs from the health facility's pharmacy or,

         Yes ( )   No ( )

(ii)   If your answer to 25(a)(i) is yes, how many times did you get the drugs?

            All   (   )   Once   (   )

            Twice   (   )   More than twice   (   )

(b) (i)   bought drugs from a private chemist ?

            Yes ( )   No ( )

(ii)   If yes, how much money was spend?   _____

(iii) Give reasons for your answer in (ii) above.

_____

27. What is your opinion towards the charging of user fees in public hospitals?

(i)   Should not have been implemented in the first place

(ii)   Should be scrapped immediately and other alternatives to finance health to be

         sought

(iii)   Should continue to operate in the current manner

(iv)   Should continue but be strengthened

(v)   State any other _____

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28. How would you rate staff in public health institutions Kangundo District in as far as the provision of health care is concerned?

(i)   Quite effective   (iii)   Less effective

(ii)   Effective   (iv)   Not effective at all

29. Rate the health care services in the public health institution that you have sought treatment in Kangundo District.

(ii)   Extremely good   (ii)   Very good

(iii)   Good   (iv)   Bad

(iii)   Very bad   (vi)   Extremely bad

30. How far is the nearest health care institution from your area of residence?

(i)   Less than one kilometer

(ii)   Between one to five kilometers

(iii)   Between six to ten kilometers

(iv)   More than ten kilometers

31. How do you get to the health care institution?

(i)   Walk

(ii)   Sometimes use public transport / walk

(iii)   Always use public transport

(iv)   Use personal means of transport

(v)   Any other? Name_____

Thank you so much for the time you have given me as well as the responses you have offered to my questions.

APPENDIX 2

UNSTRUCTURED QUESTIONNAIRE USED TO COLLECT QUALITATIVE DATA.

1. What department do you work?

2. What position do you hold in Kangundo District hospital?

3. For how long have you worked in Kangundo District Hospital?

4. How would you rate health care provision by public health care facilities before and after cost sharing?

5. How does the cost sharing programme operate in this hospital?

6. How many members comprise the Hospital Management Board?

7. From where are the members of the Hospital Management Board drawn?

8. How often does the Hospital Management Board meet?

9. How is the cost sharing revenue allocated to the various departments?

10. (a) How would you rate the cost sharing programme in Kangundo District Hospital?

    1). Successful

    2). Unsuccessful

    (b) If successful, explain how.

    (c) If unsuccessful, why?

11. How would you rate your department in as far as revenue generation is concerened?

12. Which mode of payment is common with patients for their health care in this hospital?

    ➢ Out-of pocket, Health insurance, Waivers

13. Do patients have problems in paying for their health care in Kangundo District Hospital?

14. Briefly explain how you would rate the hospital in the endevour to provide quality health care.

15. What particular problems do you face in provision of health care?

16. Have you attended any seminars/workshops on cost sharing management or any other related to health care?

17. What suggestion can you make on any improvements towards revenue generation?

Thank you so much for the time you have given me as well as the responses you have offered to my questions.

APPENDIX 3. Maps

Map 1: A map of Kenya showing the location of Machakos District.
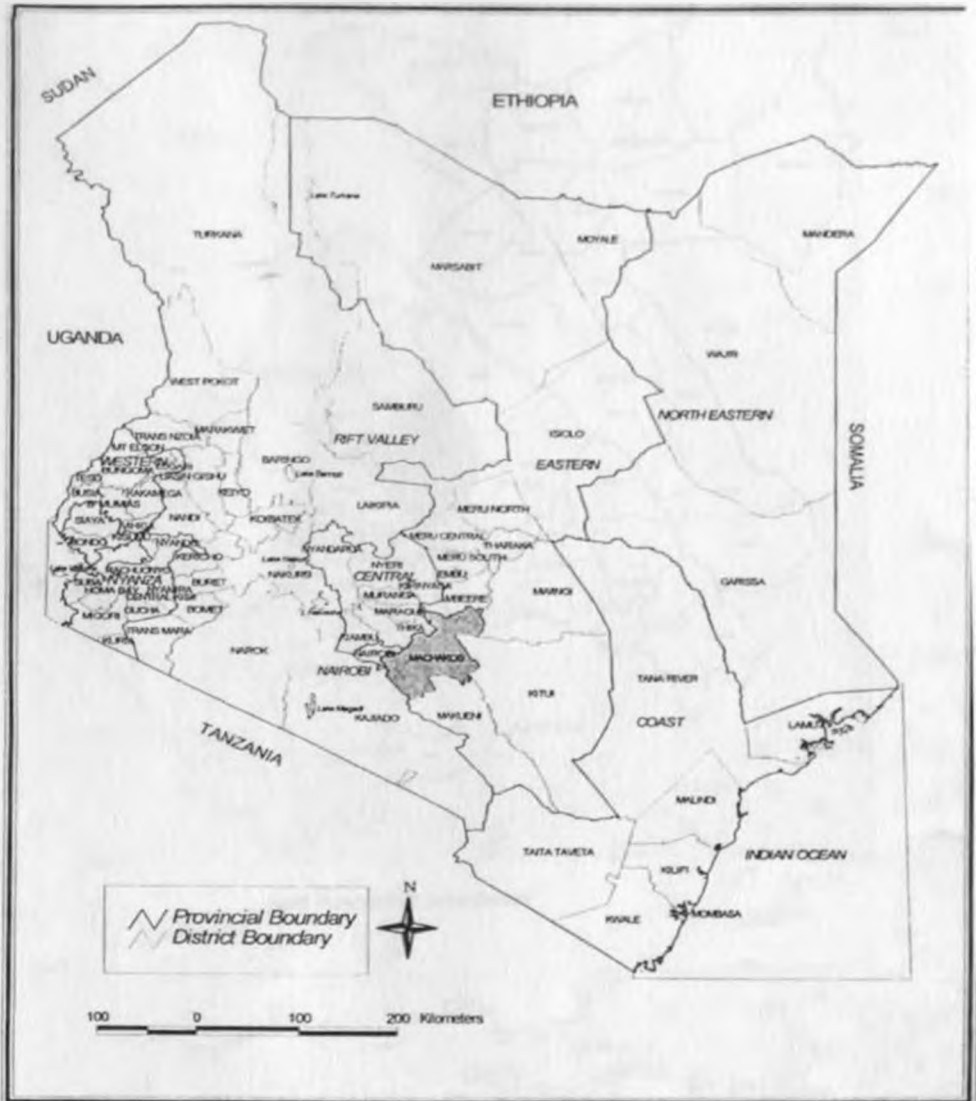
Map 2: A map of Machakos District showing Kangundo Location

Note: Kangundo District shaded