THE EFFECT OF CHANGED HEALTH CARE FINANCING ON LEVELS OF
MALARIA SPECIFIC MORBIDITY AND MORTALITY IN KERICHO DISTRICT,
KENYA.

By

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This thesis is my original work and has not been presented for an award of degree in any other university.

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DEDICATION

To the Lord my God, who is my light and my salvation, my joy and blessing, I give you the sacrifice of thanks giving. To my beloved husband Dr John Kipkorir Limo, I thank him for his love, this opportunity to pursue a higher education, moral support, financial assistance and constant encouragement during the course of this work.

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Malaria has remained the main cause of morbidity and mortality over the last twenty years contributing to about 40% of all illnesses in Kenya. The increasing resurgence and severity of malaria is not well understood. Global warming and vector conquest of hitherto malaria-free Highlands of Kenya could be contributing factors, but it is difficult to ignore the possible contribution of changed health care financing (cost sharing) to malaria resurgence and increased mortality.

This study was aimed at establishing the possible effects of cost sharing on levels of malaria morbidity and mortality in Kericho District. Kericho district has a large population of relatively poor people and malaria is endemic in its lowlands and experiences epidemics in the highlands. The introduction of structural adjustment programmes including cost-sharing (user charges) in health facilities could have a devastating impact on the poor members of this community with consequent exacerbation of malaria related morbidity and mortality. This is because the effect of price demand for health services is higher for low-income groups than in high-income groups.

The results from Hospital records questionnaires and focus group discussions showed that malaria was leading among the top ten diseases in the district, and was the main cause of the disease burden in Kericho District. The majority of the study subjects (74.2%) lived within 4kms from the nearest health facility and yet attended the health facility infrequently when sick. The reasons given for irregular attendance was lack of finance in (50.7.6%) or lack of medical facilities (30.5%). The introduction of user charges contributed to less use of medical services as given by 69.1% of study subject resulting in delay in seeking health care as a response to the
introduction of user charges. The study subjects who opted to go for cheaper over the counter
drugs that were probably not effective against malaria infection were 87.5%, this may have
lead to admission of more severe cases of malaria in the health facilities subsequent to the
introduction of user charges.

The information from this study is useful in designing malaria control programmes
aimed at reducing morbidity and mortality and related economic losses associated with
human malaria in the study area and elsewhere in Kenya. The study on the effects of user
charges on malaria morbidity and mortality is second to none and it forms a base for future
researches on effects of introduction of user charges in Government health facilities,
especially on the poor in malaria endemic areas of Kenya.
CHAPTER 1.0: INTRODUCTION AND LITERATURE REVIEW

1.1: General introduction

Malaria is caused by a haemoflagellate protozoan parasite of the genus *Plasmodium* and is transmitted to humans by female mosquito vectors of the genus *Anopheles*. Anopheline vectors are aquatic breeders and adult females bite human hosts almost exclusively at night and early mornings. Approximately sixty female Anopheline species may transmit malaria in the tropical and sub-tropical areas of the world (Bruce-Chwatt, 1985). These vectors vary widely in their preferred breeding sites, biting behaviours and susceptibility to insecticides.

Out of the four plasmodia species that cause human malaria, *Plasmodium falciparum* accounts for the most serious infections and also causes the most acute form of malaria (Toure and Coluzzi 2000). Acute *Plasmodium falciparum* malaria is accompanied by severe life threatening complications such as cerebral malaria, severe anaemia and sometimes death. Malaria affects almost exclusively non-immune individuals, young children, pregnant women, and migrant workers in highly endemic and residents of unstable endemic areas. (WHO, 1996, 2000). The other three species namely *Plasmodium vivax*, *P. malariae*, and *P. ovale* also occur in Kenya but are usually sporadic and cause less severe forms of malaria.

Following the world economic recession of the 1980s the World Bank introduced structural adjustment programmes (SAPs), which emphasised reduced role by the state in social spending including health and education. This contributed to a fall in real public health budgets especially in developing countries. The Kenya Government could not meet the cost of health care in Government health facilities, therefore a policy of cost sharing was introduced in response to the crisis in health service financing (McPake, 1993; Haddad and Fournier, 1995).
1.2: LITERATURE REVIEW

1.2.1: Malaria: A global picture

Malaria affects human populations in 103 countries of the world. (Remme et al; 1993) with an estimated 2.8 billion people at risk (Agyepong, 1992). It is presently estimated that there are 300-500 million people infected annually in the world of which 275 million are in Africa (WHO, 1997). The number of clinical cases approximates 120 million with 110 million in Africa, while 90% of the annual global mortality of 1.5 million from malaria is in Sub-Saharan African (Snow et al; 1993). In most of Sub-Saharan Africa, pregnant women, young infants and children under five years of age are the most at risk in areas of heavy and continuous transmissions of *Plasmodium falciparum* malaria (White and Cook, 1996). Malaria infection accounts for 20-30% of deaths before age of five years in Africa (Cattani and Lengeber, 1997).

It has been recognised that malaria is a disease of poverty because the rich and economically able people live in sanitary surroundings with easy access to medical facilities. The poor live in crowded urban slums and in remote rural villages, which favour transmission. Furthermore, low level of education, ignorance, apathy, low income, lack of means or access to medication and medical facilities have been recognised as factors that precipitate the occurrence of malaria infections among the economically underprivileged members of some societies, especially women and their children (Reubin, 1992, Agyepong, 1992).

In many parts of the world including Africa, the ability of Governments to provide adequate prevention and treatment for malaria has been compromised by a multitude of factors. These include economic recession and lack of effective control programs, the evolution of insecticide resistant parasite vectors, wars, civil strife, immigrations and the occurrence of multi-
drug resistant strains of *Plasmodium falciparum* (Hoffman and Miller, 1996). Substantial progress has been made since 1957 when a global malaria eradication program was started. The situation however remains serious in many areas, and in Africa the prevalence of malaria has not changed very much in the past 20 years (Saunders and Casver, 1995).

Development practices in the continent including evolving biodiversity of man, his most pathogenic malaria parasite *Plasmodium falcifarum*, and its most anthropophilic mosquito vector, *Anopheles Gambiae*, man-made ecological changes ranging from Neolithic agriculture to current practices of deforestation and irrigation favour the breeding of this mosquito. The outcome is an exceptionally close human-vector association, which produces mean parasite inoculation rates exceeding 100 infective bites per year per person in most rural villages in sub-Saharan Africa (Toure and Coluzzi, 2000). This contributes to significant morbidity and mortality, high cost of treatment to the patient and the health services. Furthermore morbidity and mortality affects the optimum productivity of the people contributing to a negative effect on agricultural, social and economic development (WHO, 1997, World Bank, 1993). Malaria is thus a serious socio-economic problem for endemic countries and strengthening of disease control is the only realistic short-term strategy (Toure and Coluzzi, 2000).

The emphasis now is in the control of malaria mortality for which Africa bears the bulk of the world’s burden (Toure and Coluzzi, 2000). Control of malaria has received worldwide attention over the years following the failure of eradication efforts in the 1950’s; emphasis is now on disease management and prevention as the two strategies, which could be adopted to tackle the problem of malaria (Biritwum, 2001). These strategies could contribute positively to
the socio-economic status of the people especially as they will be healthy and more productive in their activities of daily living.

1.2.2: Malaria situation in Kenya

Malaria is a public health problem in Kenya where approximately 40% of the population is exposed and the menace seems to increase every year encroaching into the highlands, which have all along remained relatively malaria free (Macligeyo, 1998). It is estimated that 72 children under the age of five die of malaria everyday. Malaria is a significant contributor to the worsening burden of diseases and socio-economically; it has become a constraint to human development (Feature, Medical Review, 1999). The commonest species in Kenya is *Plasmodium falciparum* and it accounts for 98% of the cases and is associated with significant morbidity and mortality. Other species, which include *p.malariae, p. ovale*, form 2% of cases. *P.vivax* is very rare, (Republic of Kenya, 1998).

The Ministry of Health in an annual report (Republic of Kenya, 1989a) indicated that malaria was leading among the top ten outpatient diagnosis with 5.7 million cases out of a total of 16.9 million out patients in a population which was then estimated at 21.45 million (Republic of Kenya, 1991). Furthermore the distribution of malaria cases expressed as a percentage of total new cases rose on the average throughout country by 26.7%, with the highest increase at 36.4% in Nyanza and the lowest record of 12.8% in central province (Republic of Kenya, 1989b, 1992). In some parts of Kenya, for example Kisumu, 33% of children under five years and 50% of adult deaths are due to *P.falciparum* malaria (Republic of Kenya/UNICEF, 1992).
The clinical features of malaria include fever, myalgia, joint pains, chills, splenomegaly, mental confusion, abdominal pain, and diarrhea, nausea, vomiting, irritability, and refusal to feed. Malaria may present with complications. The complications of malaria in a child are: - Cerebral malaria with coma, convulsions, severe anaemia (Haemoglobin <5 gm / dl), renal failure, hypoglycaemia (blood sugar < 2.2 mmol/l), fluid, and electrolyte imbalance, pulmonary oedema, hypovolaemic shock, hyperparasitaemia (which varies with immune status), malaria haemoglobinuria (coca cola coloured urine) and disseminated intravascular coagulopathy (DIC - Spontaneous bleeding).

In adults cerebral malaria and anaemia are common complications but other complications may also develop, they include: - Acute renal failure, respiratory distress syndrome (presenting as severe breathlessness), jaundice from severe haemolysis or liver cell damage, intravascular haemolysis causing haemoglobinuria, shock, hypoglycaemia and acidosis (Republic of Kenya, 1994, 1998, WHO, 2000).

Various types of malaria have been described; they are uncomplicated and complicated malaria (Republic of Kenya, 1994), severe malaria and cerebral malaria (Republic of Kenya, 1998, WHO, 2000). These types are used by clinicians to classify malaria during diagnosis. Uncomplicated malaria presents with parasitaemia and the above symptoms without complications. Complicated malaria presents with parasitaemia with any of the complications given, severe malaria presents with parasitaemia and the patient is unconscious or has respiratory distress, he may present with any complications given. In cerebral malaria the patient is comatose with cerebral symptoms for example convulsions, transient abnormalities of eye movement especially disconjugate gaze, fixed jaw closure and tooth grinding. The opening
pressure at lumber puncture is usually normal in adults but may be elevated. Cerebral spinal fluid (CSF) is clear, with fewer than 10 white cells per μl, protein is slightly raised as is the CSF lactic acid concentration, ((Republic of Kenya, 1998, WHO 2000),

Malaria contributes to malnutrition and stunted growth in young children, complications in pregnancy including stillbirths and to increased maternal deaths and reduction in labour-force (Republic of Kenya (1991), Aoko and Barber, (1991). Malaria in pregnant mothers is an acknowledged cause of infection of the placenta and thus of low birth weight, especially in the first and early pregnancies. The reduction in foetal growth comes towards the end of pregnancy, when the brain cells are multiplying rapidly. The child’s potential for intellectual development may be irreversibly impaired (Saunders and Carver, 1995). It is also a common cause of morbidity and low productivity among the economically active members of any rural society in Kenya where peak transmission periods coincide with crop harvesting and planting seasons (Macligeyo, 1998).

Chloroquine (CQ) a drug of choice for malaria infections is no longer effective as resistant strains of *P. falciparum* are widespread in Kenya with a CQ– resistance estimated at 45% at the coast and 15% within Lake Victoria region (Republic of Kenya/UNICEF, 1992).

The drug of choice for malaria treatment should have a sulfa-component and pyrimethamine. This type of drug has been referred to as (SP) and examples of (SP) registered in Kenya are sulfadoxine-pyrimethamine (500mg-25mg) tablets and sulphalene-pyrimethamine (500mg-25mg) tablets. These drugs should be used as first-line treatment in areas, which have registered chloroquin resistance. However (CQ) will continue to be used as first-line treatment in areas
where CQ is still sensitive to malaria and (SP) will be used as second-line treatment (Republic of Kenya 1998).

1.2.3: Malaria situation in Kericho District

Kericho District is malaria endemic in its lowlands, which borders Nyanza, and the highlands experience epidemics along with other highland areas like Nyamira, Nandi and Uasin-Gishu Districts among others. From 1992 to date, Malaria infections have been number one among the top 10 diseases, overtaking upper respiratory diseases in Kericho District (Republic of Kenya, 1997-2001). Cultural and economic factors, like in other parts of Africa may be the main cause of delayed treatment, which is still a major factor of malaria mortality (Toure and Coluzzi, 2000).

Kericho District has also suffered hard economic times especially those imposed by Structural Adjustment Programs (SAPs), and more than 50% of the people in the district live in poverty with the most affected areas being Ainabmoi, Chilchila, Londiani, Kipkelion and Soin divisions. The youth, women, destitute, orphans, single mothers and the aged are the most affected. There has also been observed a decline in literacy levels, as the majority of parents cannot afford the relatively high school fees particularly in secondary school. Generally there has been a decline of health care (Republic of Kenya, 1997-2001). The socio-economic situation in the district has contributed to more poverty, which could worsen the prevalence of malaria a major cause of disease burden in the District.
1.2.4: Health care financing in Kenya

The Kenya Government’s Health objective was in line with the global objective of health for all, (HFA) by the year 2000. In the provision of primary health care, this entails making quality health facilities and services accessible and available to all Kenyans by the year 2000 and beyond, through the encouragement of community participation on the affairs of health care programmes. This was expected to reduce the disease burden caused by all diseases including malaria. The situation in the health facilities however has not changed much compared to 1989, when there was an average health facility per 12,500 people (excluding Nairobi and Mombasa). With the population per health facility varying from 7,895 in the Rift Valley to 22,496 for Western Province (Republic of Kenya, 1992).

Health care services in public health facilities were free to all Kenyan residents since the attainment of independence in 1963 (Rae et al; 1989). However, from 1989 onwards the Government made efforts directed towards strengthening primary health care (PHC) through community initiatives and financing based on the Bamako initiative (BI) of 1987 in which Kenya was a participant and signatory (Republic of Kenya, 1986). The (BI) was aimed at strengthening community–based support and management system in financing, procurement, sale of essential drug supplies and development of a revolving fund to ensure self reliance and sustainability for health care.

In 1989, the World Bank and International Monetary Fund (IMF), initiated SAPs under a budget rationalisation programme package which recommended that the Kenya Government cuts back in budget allocations for both recurrent and development expenditure (Bloom and Segall, 1992). On realisation that there were no softer alternative sources of funds for the health care
The Kenya Government introduced user charges in the health sector in December 1989 in Government hospitals and Health centres. This entailed the introduction of user-fees for out and inpatient care, maternity services, X-ray and laboratory services. An arrangement was made between the Ministry of Health and each health facility that 75% of the revenue generated would remain at the collecting facility for improvement of the quality of services and procurement of essential drugs, equipment and supplies and 25% would be used in PHC services (Bloom and Segall, 1992, Republic of Kenya, 1996).

The Kenya Government abolished the user-charges introduced in December 1989 in August 1990 for a short while due to political pressure. The outpatient fees were abolished but the inpatient and other charges were maintained and a plan to reintroduce the same in phase manner in 1992 and 1993 was announced. The economic realities were not in Kenya's favour during and after this period and the introduction of user charges has been controversial (Bloom and Segall, 1992).

The proportion of expenditure on health of the total National budget increased from 20.6% in 1990/91 to 23.6% in 1991/92, whereas the development budget increased by 83.6% in 1991/92 and by about 300% between 1988/89 and 1991/92 (Republic of Kenya/UNICEF, 1992). In Kenya the introduction of SAPs lead to poor economic performance which continued in its downward trend as evidenced by a decline in Gross Domestic Product (GDP) growth rate from 4.3% in 1990 to 2.3% to 0.5% and 0.2% in 1993 (Republic of Kenya, 1997-2001). The SAPs lead to severe shortages in medical facilities and inadequacies of health service delivery systems as the real benefits of structural adjustment have been enjoyed by the developed world
who were able to import cheap coffee, cotton, and cocoa from the developing world (Abel-Smith, 1993).

1.3: RATIONALE OF THE STUDY

Malaria-related morbidity and mortality continue to increase at an alarming rate since 1989 when user-fees were introduced in the Kenyan health care delivery system. Currently the situation is such that malaria accounts for 30-40% of all patients attending our health facilities (Republic of Kenya, 1998). The genesis of this resurgent malaria related morbidity and mortality has not been well understood. Whereas global warming and vector conquest of hitherto malaria-free highlands of Kenya could be contributing factors to this resurgence, it is difficult to ignore the possible contribution from changed health care financing.

On average charging fees significantly depressed health care utilisation, especially by the poor (Bloom and Segall, 1992). Malaria is an acute illness, which has been declared a medical emergency requiring prompt treatment within 48 h. (Republic of Kenya, 2000), therefore any structural changes involving reduced accessibility to health facilities either through increased cost or other socio-economic factors may favour increased malaria morbidity and mortality (Reubin, 1992). Malaria infection is leading among the top ten diseases in Kericho District and it was necessary to carry out this study here because Kericho is a tea and other cash crops producing area which sustain Kericho and the neighbouring Districts like Nyando, Kisumu, nyamira and Uasin Gishu among others. Increased malaria morbidity and mortality could have serious economic implications for Kericho and its neighbours and the country at large because this area has been described as the granary of Kenya (Republic of Kenya, 1991).
This study therefore sought to assess the effect of changed health care financing on morbidity and mortality due to malaria, and information from this study will be useful in designing malaria control programmes aimed at reducing morbidity and mortality and related economic losses associated with human malaria especially the under privileged members of society notably women and children.

1.4: HYPOTHESIS.

The main hypothesis in this study is based on the premise that increasing malaria related-morbidity and mortality in Kericho District is not due to changed health care financing.

1.5: THE OBJECTIVES OF THIS STUDY

1.5.1: General objective

This study seeks to determine the effects of user-fees policy in health care provision on levels of morbidity and mortality due to human malaria in Kericho District.

1.5.2: Specific objectives

1.5.2.1. To determine the existence of malaria specific changes in morbidity and mortality one year before and one year following the introduction of user-fees.

1.5.2.2. To determine the pattern of utilisation of health facilities by community members in the study area.

1.5.2.3. To identify factors that influence use of health facilities and services among community members.
1.5.2.4. To identify views of community members, community leaders and health care providers on effects of user-fees on malaria morbidity and mortality.  

1.5.2.5. To identify malaria-control measures used by the community members in the study area.  

1.5.2.6. To assess changes that may have occurred in health seeking behaviour after the introduction of user-fees.
CHAPTER 2.0: MATERIALS AND METHODS

2.1: The study area.

The study was conducted in Kericho District, which is one of the 19 Districts in the Rift Valley Province. The map of Kenya in Figure 1 shows the position of Kericho district, it lies between longitudes 35° 02 and 35° 40 east and between the Equator (0°) and Latitude 0.23’S. It borders Uasin Gishu District to the north, Baringo District to the northeast Nakuru District to east and Bomet District to the south. Nyamira and Rachuonyo Districts also border it to the southwest and Kisumu District to the west. Part of Nyando District, which was part of Kisumu is continuous with Kericho District from the west. Kericho District covers an area of 2110 square Kilometres, (Republic of Kenya, 1997-2001).

Kericho is situated in western part of Kenya, an area of tremendous topographic diversity, sharp contrast of spectacular scenic charm. It has great potential for agricultural production and a most congenial habitation area. Ecologically Kericho District is placed in Zone I and has rightly been described as the nation’s granary because here lies some of the richest agricultural land and favourable climate in Kenya. Historically it was the heartland of the famous White highlands of Kenya. The area is typically high with the central part of the District rising eastwards to 3000m high in Mau Ridge. Kericho plateau forms the central part of the District and slopes gently from 2500m to about 1800m above sea level (Republic of Kenya, 1991).

Lying in the lake basin and the rift valley, Kericho is endowed with volcanic as well as igneous and metamorphic rocks that could be exploited for building materials, (Republic of Kenya, 1997-2001). The district slopes towards the west and consequently rivers drain in that direction. The rivers include Kipchorion originating from the western Mau Forest and flowing
KERICHO DISTRICT
HEALTH FACILITIES

FIGURE 2: Health Facilities in the study area.
through Londiani, Kipkelion and Chilchila Divisions to join river Nyando on the Kericho-
Kisumu border. Rivers Kipturet and Timbilil both flow through Londiani and Chilchila Divisions
from Tindiret Forest before joining River Nyando which flows along the Kericho /Nyando
border. Other rivers include Kiptaret Maramara and Malaget. Some of these rivers are
characterised by rapid falls, which could be harnessed for hydroelectric power generation,

The land and soil types in the district are clay and loam. Clay soils are well drained deep
dark reddish brown in colour and are of moderate fertility. It occupies 47% of the District’s
agricultural land and is mainly in the central part of the District. Loam soil has humic topsoil
and has similar profile as the clay soils but is shallow and partly is with lithic contact. It covers
25% of agricultural land and is found in areas bordering Nyando District (Republic of Kenya,

The climate can be described as highland subtropical climate with moderate temperatures
and low evaporation rates. At the upper highland areas, the temperatures are low with low
evaporation and low rainfall. Because of the presence of Lake Victoria this part of Kenya
receives good rainfall, which is high in lower highland areas. Kericho District receives
convectonal type of rainfall and it is influenced by altitude. Rainfall is highest in the lower zone
of Ainamoi and Belgut Divisions, while the upper zone covering Kipkelion and Londiani
(mainly forestland) is drier and receives low rainfall (Republic of Kenya, 1997-2001).

Rainfall is evenly distributed except for the short dry season in January and February.
The wettest months are April and May, though there is no real break between short and long
rains. The annual rainfall ranges from 1700mm to 2020mm per annum. Temperatures range
between 16°C to 20°C with the coldest months being July and August (16.6°C) while the hottest months are December and February with a temperature ranging between 16.9°C and 18.6°C. Temperature variation is dependent on altitude (Republic of Kenya, 1997-2001).

The physical diversity has almost presented man in the area with almost unlimited agricultural opportunity and scope for a wide range of crops and animal husbandry. Thus if put to good agricultural use this part of Kenya has not only got great scope but almost unlimited agricultural potential and possibilities (Republic of Kenya, 1991).

The cash crops in Kericho District are tea, pyrethrum, coffee, maize and wheat, which is grown in the highlands and sugarcane, coffee, potatoes, vegetables, is grown in the lowland areas bordering Nyando District. Maize is both a cash crop and a food crop. Stable food crops grown in the District are maize, beans, pulses, Irish potatoes, millet and sorghum.

Livestock farming is also practised and the livestock reared include dairy and beef cattle, goats, sheep and chicken, for milk, beef, and eggs products. Small holding farms occupy 75% of the total farmland, while large farms occupy 25%. Agricultural activities are important as it plays a role in socio-economic welfare of the population of the District (Republic of Kenya, 1997-2001). The economic activities in the District include farming and raising of the cash crops.

Kericho District has a population of 468,4, which makes a total of 98,867 households, as per 1999 census (Republic of Kenya, 2000). The local community in Kericho District include the Kipsigis, who are one of the Kalenjin sub-tribes. They are also Nilo-hermites. Historically they were solely pastoralists with a main diet of meat, blood and millet, Today however they engage in agriculture and pastoral activities. Their diet now includes the traditional diets plus the food
crops they now grow. Various other Kenyan ethnic groups inhabit Kericho District especially in towns and in large-scale tea farms, they engage in business and gainful employment.

Administratively Kericho District is divided into 7 divisions namely: Ainamoi, Belgut, Kipkelion, Chilchila, Sigowet, Soin, and Londiani. Ainamoi Division has the highest population density of 396 per Km², which has been attributed to its urban status, followed by Belgut Division 345 per Km² whose high population has been attributed to its fertile soils. Soin Division is the least populated (89 per Km²) because it is not as productive as the other divisions. Population density in Kericho District in 1989 was 184 per km² and today it is 222 per km² (Republic of Kenya, 1989, 1999).

Kericho District has a total of 54 Government health facilities, 4 Mission Hospitals and 8 Non Governmental Health facilities. Out of the 54 government facilities 2 of them are hospitals, Kericho district hospital situated in Ainamoi Division and a sub-district hospital situated in Londiani Division. There are five Health centres one situated in each division, the rest are dispensaries. These health facilities are evenly distributed with most people living within 4kms from a health facility.

The economic activities in the District include farming and hence sale of the cash crops, dairy and other livestock products, business and gainful employment. Maendeleo ya Wanawake, the National women’s body in Kenya has organised women groups for the purpose of improving their economic status. They are engaged in economic activities like milling maize, bee keeping, cattle and sheep rearing, construction of residential homes, commercial housing, butcheries and horticultural farming. These activities had improved the economic status of women in Kericho. However most of these activities have now slowed due poor income following the bad economic
times which may have been aggravated by the introduction of the structural adjustments programmes.

All the divisions except Londiani division have one day a week market day where farm produce and other items are sold. There is also a cattle auction once a week at Ainamoi and chpeson trading centres. Finances from these activities assist the people to meet their economic needs. The District contributes to the country’s economy through Tourism and tourist hotels, which cater for the tourists visiting wildlife managed by the Kenya Wildlife Services in the forestlands where there are wildlife animals which include buffaloes, antelopes, wild pigs, numerous species of monkeys, baboons and birds.

The main churches in Kericho District are Africa Gospel Church, African inland Church, Seventh Day Adventist and Catholic Churches. There are also Mosques for the Muslim immigrants and for those who have converted to Islam. These worship centres are used to teach people the word of God as well as to disseminate useful information in health education and agricultural practices that promote healthy living.

2.2: Research methodologies

This research was a retrospective cross-sectional survey carried out to determine the effects of user-charges on levels of malaria specific morbidity and mortality in the study area. The design was primarily interview survey since many of the informants were not sufficiently literate to read and interpret the research questions themselves. The following research methods were used:

- Primary data collection
- Secondary data collection
- Focus group discussions
- Key informant interviews
- Questionnaires
- Literature review
2.2.1: Interviews with community members.

A total of 504 Household heads were interviewed in the 7 divisions to determine their views on impact of cost sharing in their households and to determine factors that influence health-seeking behaviour in the area of their residence. In addition, 179 community leaders were also interviewed to collate their views with those given by the household heads.

2.2.2: Informant interviews with health care providers.

A total of twenty seven health care providers were interviewed from the health facilities to determine the effects of cost sharing on health care provision and health seeking behaviour, drug utilisation and to assess any changes in malaria admissions after the introduction of user-charges.

2.2.3: Focus group discussions (FGDs)

A total of eight FGDs comprising of 9-16 members were carried out in the seven divisions and the composition of the groups included:

(a) Government Administrators who included chiefs and assistant chiefs.

(b) Counsellors

(c) Health care providers – Clinical officers, Nurses, Public health officers.

(d) Community health workers and Traditional birth attendants.

(e) Youth leaders (both male and female).

(f) Women leaders.

(g) Village elders.
Pastors/Priests for churches and denominations.

Focus group discussions provided qualitative data for presentation in triangulation with information from questionnaires and interviews.

2.2.4: Hospital records and reports

Health records were collected from a total of seven Government health facilities, out of these two were hospitals and five are health centres. These health facilities effected the government policy of cost sharing through user charges from Dec 1989. Records from the years 1989 to 2000 of the top ten diseases were collected to determine the trend and prevalence of these diseases in the district and to compare the year before and the year after the introduction of user-charges.

2.3: Sampling procedure.

The minimum sample size was derived using the formula by Fisher et al; (1998) as follows:

\[
N = \frac{Z^2 \cdot pqD}{d^2}
\]

where:

- \( p \) = Proportion of the target population estimated to have a particular characteristic prevalence.
- \( Z \) = Standard normal deviate (1.96) which corresponds to the 95% confidence level.

The estimated malaria prevalence of 40% will be used.
D = Degree of accuracy desired (0.05), q = (1-p) = 1-0.4 = 0.6 and D = 1 (design effect) therefore,

\[ N = \frac{1.96^2 \times 0.4 \times 0.6 \times 1}{0.05^2} = 369 \]

* = Multiplication sign.

The minimum sample size was 369 but a total of 504 household heads, 179 community leaders and 25 health care providers were interviewed. Eight Focus group discussions involving 102 members were also carried out.

2.4: Data management

Data was analyzed using the computer package SPSS and the responses were presented using: frequency distribution tables, cross tabulations, polygons and bar charts as appropriate. Chi-square was used to test relationships between variables.

2.5: The demographic characteristics of the respondents.

A total of 504 household heads, were interviewed in all the divisions and the sampled proportions were made from preliminary 1999 census reports showing the number of households per division in Kericho District. All the villages are represented in each division. Two Divisions, Sigowet and Soin were created in the District. They are not shown on the map of the study area as well as the boundaries of newly created Kericho District. New maps showing the location of these divisions and the new Kericho District were not available yet at the time of writing this report. The maps shown in Figure 1 and 2 are old maps before the creation of Bureti District.
from Kericho District. Ainamoi Division had the highest number of households sampled, which were 162 representing 28,181 households for both rural and urban areas. Ainamoi was divided into urban and rural areas because the urban community, which is the main town in the District, is different from the rural communities in all the divisions who are predominantly Kipsigis. Kericho town comprises of different ethnic groups who form the business community, Government workers, Tea estate workers, and even the destitute. It was necessary to determine whether there was any difference in their healthcare and health seeking behaviour from that of the rural community. Soin had the least sampled households (28) representing 5,289 households.

Study subjects were household heads mainly men, although some women who had become household heads due to various reasons such as death of a spouse, divorce or separation were included. Household heads were persons responsible for their household administratively and financially; they therefore represented their families. Table 1 is a summary of the distribution of sampled the households in all the divisions in Kericho district.

In addition 179 Leaders, 22 representing each division were also interviewed. These were leaders representing the Provincial Administration, churches, and the informal sector, women groups, and youth leaders. Table 2 shows the distribution of the 27 interviewees from all the health facilities in the study area. These were health providers from one district hospital one sub district hospital and five health centres who were in charge of the health facilities and divisions in the study area.

A total of 8 focus group discussions were carried out, one in each division and one representing the urban community at Kericho town. The later was done to take care of differences between urban and rural communities. Interestingly there were no female government administrators
### TABLE 1: Distribution of respondents by division within the study area.

<table>
<thead>
<tr>
<th>Division</th>
<th>Population size</th>
<th>No of households 1999 census</th>
<th>No. of respondents. 1999 census</th>
<th>Proportion (%)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Ainamoi rural</td>
<td>54,687</td>
<td>15,294</td>
<td>76</td>
<td>17.1</td>
</tr>
<tr>
<td>Ainamoi urban</td>
<td>65,009</td>
<td>14,332</td>
<td>86</td>
<td>15.1</td>
</tr>
<tr>
<td>Sigowet.</td>
<td>61,778</td>
<td>10,828</td>
<td>61</td>
<td>12.1</td>
</tr>
<tr>
<td>Soin.</td>
<td>25,793</td>
<td>5,140</td>
<td>28</td>
<td>5.6</td>
</tr>
<tr>
<td>Chichila.</td>
<td>36,983</td>
<td>6,442</td>
<td>34</td>
<td>6.7</td>
</tr>
<tr>
<td>Londiani.</td>
<td>59,111</td>
<td>10,180</td>
<td>53</td>
<td>10.5</td>
</tr>
<tr>
<td>Kipkelion.</td>
<td>64,447</td>
<td>9,669</td>
<td>53</td>
<td>10.5</td>
</tr>
<tr>
<td>Belgut.</td>
<td>100,325</td>
<td>20,673</td>
<td>113</td>
<td>22.4</td>
</tr>
<tr>
<td>Health facilities</td>
<td>No of respondents</td>
<td>Proportion (%)</td>
<td></td>
<td></td>
</tr>
<tr>
<td>--------------------------------------------</td>
<td>-------------------</td>
<td>----------------</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Medical Officer of Health, office</td>
<td>3</td>
<td>11.1</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Kericho District Hospital</td>
<td>8</td>
<td>29.6</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Londiani sub District hospital</td>
<td>3</td>
<td>11.1</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Ainamoi Health centre</td>
<td>2</td>
<td>7.4</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Soin (Kipsitet)Health Centre</td>
<td>2</td>
<td>7.4</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Chilchila Health Centre</td>
<td>2</td>
<td>7.4</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Sigowet Health Centre</td>
<td>3</td>
<td>11.1</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Belgut (Sosiot) health centre</td>
<td>2</td>
<td>7.4</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Kipkelion Health Centre</td>
<td>2</td>
<td>7.4</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Total</td>
<td>27</td>
<td>100.0</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>
TABLE 3: Distribution of the participants in the 8 FGDs by position in the community.

<table>
<thead>
<tr>
<th>Position in community</th>
<th>Male</th>
<th>Female</th>
<th>Number</th>
</tr>
</thead>
<tbody>
<tr>
<td>Government administrators</td>
<td>21</td>
<td>0</td>
<td>21</td>
</tr>
<tr>
<td>Councillors</td>
<td>4</td>
<td>1</td>
<td>5</td>
</tr>
<tr>
<td>Health care providers</td>
<td>21</td>
<td>5</td>
<td>26</td>
</tr>
<tr>
<td>Community health workers</td>
<td>5</td>
<td>2</td>
<td>7</td>
</tr>
<tr>
<td>Youth leaders</td>
<td>6</td>
<td>7</td>
<td>13</td>
</tr>
<tr>
<td>Village elders</td>
<td>12</td>
<td>3</td>
<td>15</td>
</tr>
<tr>
<td>Women leaders</td>
<td>0</td>
<td>7</td>
<td>7</td>
</tr>
<tr>
<td>Pastors/priests</td>
<td>8</td>
<td>0</td>
<td>8</td>
</tr>
<tr>
<td>Total</td>
<td>77</td>
<td>25</td>
<td>102</td>
</tr>
</tbody>
</table>
This study was set out to answer the following questions:

1) The existence of malaria specific changes in morbidity and mortality one year before and one year after the introduction of user charges.

2) The pattern of utilisation of health facilities by community members in the study area.

3) Factors that influence use of health facilities and services among community members.

4) Views of community members, community leaders and health care providers on effects of user-fees on malaria morbidity and mortality.

5) Malaria-control measures used by the community members in the study area.

6) Changes that may have occurred in health seeking behaviour after the introduction of user-fees.

The reported cases of malaria morbidity at Karatu District Hospital is shown in Figure 4. This has been presented to show the trend of cases in the district hospital, which acts as a referral centre where all cases of severe malaria were referred from health facilities. Between 1990 and 1994 there was an increase in reported malaria deaths; the temporary stoppage of the user-charge period. From the 1990 data, public use of health services may not have decreased due to the change in health financing policy at that period. People were not used to the new system and many people died after the introduction of user-charges because they could not afford to pay.
CHAPTER THREE: 3.0: RESULTS

3.1: Malaria specific changes in morbidity and mortality one year before and one year after the introduction of user charges

The record of reported cases malaria in the health facilities in Kericho District since the introduction of user charges between the years 1989 to 2000 is shown in Figure 3. The user charges were introduced in December 1989 in Kericho district but stopped temporarily for a short while because of political reasons in August 1990. The user-charges were reintroduced again between 1992 and 1993 in phase manner were completed in 1994. Between 1990 and 1991 there seems to have been a steady increase of malaria cases after the introduction of the user charges. This increase persisted even after the user charges were temporarily stopped in August 1990 and continued rising between 1992 and 1993 with a concomitant steep increase of reported malaria cases between 1993 and 1995. This was followed by a steady decline and stabilisation towards the year 2000 but as can be observed higher than the pre-user charge period.

The reported cases of malaria mortality in Kericho District hospital is shown in Figure 4. This has been presented to show the trend of cases in the district hospital, which acts as a referral centre where all cases of severe malaria were referred from health facilities. Between 1990 and 1994 there was an increase of reported malaria deaths, the temporary stoppage of user-charges between September 1990 and 1991 did not reverse the health seeking behaviour to pre-user-charge period. From the FGD findings, utilisation of health services may have been hampered by the change in health financing policy as one member reacted that “Free medical services should never have been given in the first place because people got used to free services and many people died after the introduction of user charges because they did not have money to pay
immediately they became sick. Looking for money before going to the hospital caused delay in seeking health care, this wasted precious time and many people died. It has taken us ten years to get used to cost sharing and even when we are willing to pay there is no money because we can no longer sell our maize and milk as before”.

An analysis of the causes of malaria-specific deaths one year before introduction of user-charges (December 1988 to November 1989) and one year after the introduction of user-charges (December 1989 to September 1990) established that these deaths resulted from both complicated and uncomplicated malaria as shown on Table 4. Cerebral malaria was the main cause of death followed by severe malaria, these malaria complications occur mostly because of delayed treatment. This was confirmed by 96.3% of health care providers interviewed during this study. Therefore there was a significant relationship between the increase in malaria morbidity and mortality and the introduction of user-charges at $\chi^2 = 41.1231$, df = 1, $P < 0.001$.

3.2: FACTORS THAT INFLUENCE THE USE OF HEALTH SERVICES

3.2.1: Availability of health services in the study area.

Figure 6 shows the availability of the health services in the study area. 66.5% respondents reported that health services were sometimes available meaning that they did not get all their treatment requirements at the nearest health facility. In total 68.2% of the community leaders rated the health facilities as inadequate where “inadequacy” meant lack of drugs and services. 56% of the health providers said that the health services were adequate.

Contrary to what is believed infrastructure alone is not enough according to the community members, there has to be in addition, qualified staff with the right attitude and
equate services in the health facilities including the availability of drugs. In this study there is a significant relationship between attendance and availability of drugs at $\chi^2 = 514.1371, \text{df} = 3, p < 0.001$. 
Figure 3: Trends in reported malaria cases in thousands between 1989-2000 in Kericho District.
FIGURE 5: Number and causes of reported malaria deaths in the year before (Dec. 1988 to Dec. 1989) and the year after (Dec. 1989 to Sept. 1990) the introduction of the user charges.
FIGURE 6: Availability of health services
3.2.2: Distance to the nearest health facility

The respondents were asked to indicate how far they lived from nearest health facility and 74.2% lived within 4kms and 25% lived more than 5km from the nearest health facility as shown in Figure 7. On cross tabulation on Table 4 approximately 71.0% of the respondents from Ainamoi urban live within 2km from the health facility, 27.7% lived between 5km and 8km. Only 1.0% live more than 9km from the nearest health facility. The majority of the respondents in all the divisions lived within 4km, (Ainamoi 65%), (Sigowet 71.1%), (Soin 67.8%), (Chilchila 58.9%), (Londiani 98.1%), (Kipkelion 60.4%) and (Belgut 73.4%). 20.6% of the respondents in Chlichila lived more than 9km from the nearest health facility; this is a large proportion of respondents who were affected by distance to the nearest health facility.

3.3: Utilisation patterns of the nearest Health facility by community members in the study area.

Utilisation patterns of health facilities and services by the study Respondents were vital to determine attendance, optimal use and identify factors, which influence utilisation. The results presented in Figure 8, reveal that 32.5% of the respondents attend and used health facilities and services each time they were sick, 64.3% visited the health facility irregularly and 3.2% never used the health services, nearest to them. In establishing the utilisation pattern of these health facilities and services the participants had three possible responses to make. Regular attendance and use implied visiting such health facilities each time they were sick, irregular denoted infrequent attendance and use even when sick while never indicated non-attendance and use of these services.
The result shows a significant difference in the way the community members made use of the nearest health facility at $\chi^2 = 282.4762$, $df = 2$, $P < 0.001$.

3.3.1: Factors that hinder the use of health services among the community members

The study subjects were asked to give reasons or factors that influenced non-regular attendance and use of health services in their divisions. As shown in Figure 9, the factors that contributed to low attendance and use of health services were lack of money (48.7%), lack of medical facilities/supplies (29.5%), lack of transport (20.2%) and religious teachings (1.6%). These findings show a significant relationship between lack of money and irregular attendance to the nearest health facility at $\chi^2 = 187.8147$, $df = 4$, $P < 0.001$.

Reasons for non attendance of health services by division as shown on Table 6, gives lack of money as the most important reason in all the divisions followed by lack of medical facilities/supplies and lack of transport respectively. Religious reasons played an insignificant role in this respect. It was interesting to note that even in Ainamoi urban where Kericho town is located also registered lack of money as a factor in low use of health services despite the fact that money should be circulating in the business community in town.

The health care providers interviewed said that women and children formed the majority of patients attending the health facilities. Some 68% of the community leaders interviewed said that there was inadequacy of the health services. This was determined by lack of adequate drugs and preventive and curative services in the health facilities.
FIGURE 7: Respondents distance from the nearest health facility
**TABLE 4: Cross tabulation of % of respondents’ distance to the nearest Health facility by Division**

<table>
<thead>
<tr>
<th>STANCE</th>
<th>Less than 1km</th>
<th>1-2km</th>
<th>3-4km.</th>
<th>5-6km.</th>
<th>7-8km.</th>
<th>8-9km.</th>
<th>9km &amp; above</th>
<th>No of Respondents</th>
</tr>
</thead>
<tbody>
<tr>
<td>namoi al.</td>
<td>5.8</td>
<td>43.0</td>
<td>22.1</td>
<td>10.5</td>
<td>10.5</td>
<td>1.2</td>
<td>7.0</td>
<td>86</td>
</tr>
<tr>
<td>namoi ban.</td>
<td>36.8</td>
<td>34.2</td>
<td>14.5</td>
<td>6.6</td>
<td>6.6</td>
<td>0.0</td>
<td>1.3</td>
<td>76</td>
</tr>
<tr>
<td>gowet.</td>
<td>4.9</td>
<td>27.9</td>
<td>36.1</td>
<td>13.1</td>
<td>1.6</td>
<td>3.3</td>
<td>13.1</td>
<td>61</td>
</tr>
<tr>
<td>in.</td>
<td>7.1</td>
<td>21.4</td>
<td>39.3</td>
<td>17.9</td>
<td>7.1</td>
<td>0.0</td>
<td>7.1</td>
<td>28</td>
</tr>
<tr>
<td>ilchila.</td>
<td>11.8</td>
<td>14.7</td>
<td>32.4</td>
<td>11.8</td>
<td>5.9</td>
<td>2.9</td>
<td>20.6</td>
<td>34</td>
</tr>
<tr>
<td>ndiani</td>
<td>11.3</td>
<td>56.6</td>
<td>30.2</td>
<td>1.9</td>
<td>0.0</td>
<td>0.0</td>
<td>0.0</td>
<td>53</td>
</tr>
<tr>
<td>pkelion</td>
<td>5.7</td>
<td>18.9</td>
<td>35.8</td>
<td>17.0</td>
<td>15.1</td>
<td>7.5</td>
<td>0.0</td>
<td>53</td>
</tr>
<tr>
<td>lgut.</td>
<td>23.9</td>
<td>28.3</td>
<td>21.2</td>
<td>11.5</td>
<td>8.0</td>
<td>2.7</td>
<td>4.4</td>
<td>113</td>
</tr>
<tr>
<td>tal</td>
<td>78</td>
<td>163</td>
<td>133</td>
<td>54</td>
<td>36</td>
<td>11</td>
<td>29</td>
<td>504</td>
</tr>
<tr>
<td>of respondents</td>
<td>15.5</td>
<td>32.3</td>
<td>26.4</td>
<td>10.7</td>
<td>7.1</td>
<td>2.2</td>
<td>5.8</td>
<td>100.0</td>
</tr>
</tbody>
</table>
FIGURE 8: Utilisation patterns of health facilities by the respondents.
### TABLE 5: Cross tabulation of attendance and use of health services by Division.

<table>
<thead>
<tr>
<th>Division</th>
<th>Regularly</th>
<th></th>
<th>Irregularly</th>
<th></th>
<th>Never</th>
<th></th>
<th>Total</th>
<th>%</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Respondents</td>
<td>%</td>
<td>Respondents</td>
<td>%</td>
<td>Respondents</td>
<td>%</td>
<td>Respondents</td>
<td>%</td>
</tr>
<tr>
<td>inamoi rural</td>
<td>54.0</td>
<td>62.8</td>
<td>29.0</td>
<td>33.7</td>
<td>3.0</td>
<td>3.0</td>
<td>86</td>
<td>17.1</td>
</tr>
<tr>
<td>inamoi urban</td>
<td>12.0</td>
<td>15.8</td>
<td>60.0</td>
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<td>4.0</td>
<td>5.3</td>
<td>76</td>
<td>15.1</td>
</tr>
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<td>23.0</td>
<td>45.0</td>
<td>72.8</td>
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<tr>
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<td>20.0</td>
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<td>0.0</td>
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<tr>
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<td>6.0</td>
<td>11.3</td>
<td>46.0</td>
<td>86.8</td>
<td>1.0</td>
<td>1.9</td>
<td>53</td>
<td>10.5</td>
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<td>26.0</td>
<td>49.1</td>
<td>27.0</td>
<td>50.9</td>
<td>0.0</td>
<td>0.0</td>
<td>53</td>
<td>10.5</td>
</tr>
<tr>
<td>elgut</td>
<td>29.0</td>
<td>25.7</td>
<td>78.0</td>
<td>69.0</td>
<td>6.0</td>
<td>5.3</td>
<td>113</td>
<td>22.4</td>
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<td></td>
<td></td>
<td></td>
<td></td>
<td>504</td>
<td>100.0</td>
</tr>
</tbody>
</table>
FIGURE 9: Reasons that hinder attendance to the nearest health facilities

- Lack of money: 50%
- Medical facilities: 40%
- Lack of transport: 30%
- Religion: 10%
TABLE 6: Cross tabulation of reasons for non-attendance at the health facility by Division

<table>
<thead>
<tr>
<th>Division</th>
<th>Lack of medical facilities (%)</th>
<th>Lack of Transport (%)</th>
<th>Lack of money (%)</th>
<th>Religion (%)</th>
<th>Total (%)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Ainamoi Rural</td>
<td>11.0</td>
<td>40.7</td>
<td>48.0</td>
<td>0.0</td>
<td>9.2</td>
</tr>
<tr>
<td>Ainamoi Urban</td>
<td>28.0</td>
<td>6.0</td>
<td>66.0</td>
<td>6.0</td>
<td>17.1</td>
</tr>
<tr>
<td>Sigowet</td>
<td>41.3</td>
<td>23.9</td>
<td>43.5</td>
<td>0.0</td>
<td>15.8</td>
</tr>
<tr>
<td>Soin</td>
<td>10.0</td>
<td>20.0</td>
<td>60.0</td>
<td>10.0</td>
<td>3.4</td>
</tr>
<tr>
<td>Chilchila</td>
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<td>30.0</td>
<td>50.0</td>
<td>0.0</td>
<td>6.8</td>
</tr>
<tr>
<td>Londiani</td>
<td>28.9</td>
<td>11.1</td>
<td>57.8</td>
<td>2.2</td>
<td>15.4</td>
</tr>
<tr>
<td>Kipkelion</td>
<td>30.8</td>
<td>26.9</td>
<td>42.3</td>
<td>0.0</td>
<td>8.9</td>
</tr>
<tr>
<td>Belgut</td>
<td>39.7</td>
<td>23.5</td>
<td>42.6</td>
<td>0.0</td>
<td>23.3</td>
</tr>
<tr>
<td>Total %</td>
<td>30.5</td>
<td>20.9</td>
<td>50.7</td>
<td>1.7</td>
<td>100.0</td>
</tr>
</tbody>
</table>
3.3.2: Factors that influence attendance to the health facilities.

Table 7 outlines the factors that affect utilisation of health care facilities from the health care providers’ perspective. Finances (21%) and lack of drugs (17%) were the main factors that influenced attendance to the health facility, only 1.6% of responses said poor roads influenced attendance. Other important factors that influenced attendance either negatively or positively included severity of disease, qualification of staff, distance from the health centre, attitude of the health care provider, ignorance, and quality service.

3.4: IDENTIFIED METHODS USED TO CONTROL MALARIA BY COMMUNITY MEMBERS

3.4.1: Top five diseases common in the study area according to community members.

The study subjects were asked to list down the top five diseases that were common in their area of residence. The results are presented in Figure 10. Some 85.2% of the respondents ranked malaria number one disease in the community and when all these responses were put together as a set, 99% respondents gave malaria as a major disease burden. This was followed by URTI (65.4%), Typhoid was third (57.8%) while diarrhoeal diseases represented (34.5%) of the cases and STI/HIV/AIDS accounted (12.7%). The respondents gave a total of 18 diseases common in their area of residence. The first ten diseases compare very closely with the actual top ten diseases in the District.

On cross tabulation by division, Table 8 shows the top five diseases as given by respondents by division. Malaria was ranked first in all the divisions showing that it is the main cause of disease burden in the District. This ranged from 97.7% in Ainamoi to 100% in Sigowet,
Soin, Chilchila and Kipkelion. Upper Respiratory infections were the next disease burden distributed in all the division the least was the intestinal worms.

Malaria was the major disease burden in the District but how do they know that it is malaria and not other diseases? To answer this question the respondents were asked to identify at least three symptoms that made them identify was malaria from other diseases. The respondents gave the symptoms as shown on Figure 10. Fever topped the list in 70.3% of cases followed closely by headaches in 68.6% of cases Vomiting 48.7% joint pains in 36%, general body weakness 19.9%, stomach upset and diarrhoea 12.4%. This was an indication that the respondents were well acquainted with malaria symptoms, which could be instrumental in malaria control activities, especially as prompt treatment is vital for containing the malaria infection. Knowledge of malaria symptoms by division was observed to be high and well distributed in all the divisions as given on Table 9. The most common symptom given was Headaches and the least was stomach upset.
TABLE 7: Factors identified by health care providers as affecting utilisation of health facilities

<table>
<thead>
<tr>
<th>Reasons</th>
<th>Number of responses</th>
<th>Proportion in %</th>
</tr>
</thead>
<tbody>
<tr>
<td>User-charges</td>
<td>21</td>
<td>32.8</td>
</tr>
<tr>
<td>Availability of drugs</td>
<td>17</td>
<td>26.6</td>
</tr>
<tr>
<td>Transport</td>
<td>7</td>
<td>10.9</td>
</tr>
<tr>
<td>Qualification of staff</td>
<td>7</td>
<td>10.9</td>
</tr>
<tr>
<td>Severity of disease</td>
<td>5</td>
<td>7.8</td>
</tr>
<tr>
<td>Attitude service provider</td>
<td>3</td>
<td>4.7</td>
</tr>
<tr>
<td>Ignorance</td>
<td>3</td>
<td>4.7</td>
</tr>
<tr>
<td>Better managed private clinics</td>
<td>1</td>
<td>1.6</td>
</tr>
<tr>
<td>Total responses</td>
<td>64</td>
<td>100.0</td>
</tr>
</tbody>
</table>
FIGURE 10: Top seven diseases as given by respondents (n = 504)
### TABLE 8: Cross tabulation of the top five diseases by division in the study area

<table>
<thead>
<tr>
<th>Division</th>
<th>Malaria %</th>
<th>URTI %</th>
<th>Typhoid %</th>
<th>Diarrhoea %</th>
<th>STI/HIV/AIDS %</th>
</tr>
</thead>
<tbody>
<tr>
<td>Anamoi Rural</td>
<td>97.7</td>
<td>73.2</td>
<td>45.3</td>
<td>41.8</td>
<td>24.4</td>
</tr>
<tr>
<td>Anamoi Urban</td>
<td>98.7</td>
<td>73.8</td>
<td>63.2</td>
<td>23.7</td>
<td>14.5</td>
</tr>
<tr>
<td>Ligoet</td>
<td>100.0</td>
<td>45.9</td>
<td>62.3</td>
<td>41.1</td>
<td>11.5</td>
</tr>
<tr>
<td>Joloin</td>
<td>100.0</td>
<td>57.1</td>
<td>60.7</td>
<td>35.7</td>
<td>0.0</td>
</tr>
<tr>
<td>Chilchila</td>
<td>100.0</td>
<td>61.7</td>
<td>76.5</td>
<td>44.2</td>
<td>2.9</td>
</tr>
<tr>
<td>Condiani</td>
<td>98.1</td>
<td>73.6</td>
<td>58.5</td>
<td>28.0</td>
<td>11.3</td>
</tr>
<tr>
<td>Kipkelion</td>
<td>100.0</td>
<td>81.1</td>
<td>50.9</td>
<td>24.0</td>
<td>1.9</td>
</tr>
<tr>
<td>Belgut</td>
<td>99.1</td>
<td>86.5</td>
<td>57.7</td>
<td>35.1</td>
<td>15.3</td>
</tr>
</tbody>
</table>
FIGURE 11: Malaria symptoms as given by respondents
TABLE 9: Knowledge of malaria symptoms by division.

<table>
<thead>
<tr>
<th>Division</th>
<th>Fever</th>
<th>Lack of appetite</th>
<th>General weakness</th>
<th>Joint pains</th>
<th>Vomiting</th>
<th>Headache</th>
</tr>
</thead>
<tbody>
<tr>
<td>inamoi Rural</td>
<td>30.9</td>
<td>37.2</td>
<td>16.3</td>
<td>33.7</td>
<td>61.6</td>
<td>70.0</td>
</tr>
<tr>
<td>inamoi Urban</td>
<td>59.2</td>
<td>21.1</td>
<td>34.2</td>
<td>36.8</td>
<td>30.3</td>
<td>73.0</td>
</tr>
<tr>
<td>Sigowet</td>
<td>62.3</td>
<td>32.8</td>
<td>9.8</td>
<td>23.0</td>
<td>63.9</td>
<td>65.0</td>
</tr>
<tr>
<td>Soin</td>
<td>78.6</td>
<td>10.7</td>
<td>3.6</td>
<td>28.6</td>
<td>57.1</td>
<td>64.0</td>
</tr>
<tr>
<td>Chilchila</td>
<td>76.5</td>
<td>26.5</td>
<td>50.0</td>
<td>38.2</td>
<td>29.4</td>
<td>55.0</td>
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<tr>
<td>Londiani</td>
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<td>20.8</td>
<td>15.1</td>
<td>62.3</td>
<td>35.8</td>
<td>71.7</td>
</tr>
<tr>
<td>Kipkelion</td>
<td>37.7</td>
<td>24.5</td>
<td>24.5</td>
<td>45.3</td>
<td>43.4</td>
<td>69.0</td>
</tr>
<tr>
<td>Belgut</td>
<td>70.5</td>
<td>26.8</td>
<td>13.4</td>
<td>28.6</td>
<td>55.4</td>
<td>67.9</td>
</tr>
</tbody>
</table>
3.5: METHODS OF MALARIA CONTROL USED BY THE COMMUNITY MEMBERS

Subsequently respondents were asked to identify the control measures they practised and Table 10 shows that 47.2% cleared bushes and 42% carried out drainage activities. This indicated that community members were aware of common control measures against malaria. The distribution of household malaria control measures by Division in the study is shown in Table 11. 50.6% of the respondents in Ainamoi urban used drugs and 41.2% used bednets to control malaria. In Chilchila 41.2% used bednets, the least practised method was spraying 9.1% in Aiamoi urban and 0% in Chilchila. Different control methods were practised in each division; this may have been influenced by the motivation of the Public Health Officers and the Non Governmental organisations operating in the divisions.

The constraints in malaria control activities from all the divisions are given on Table 12. The main constraint of malaria control was finance affecting 43% of the study subjects, Chilchila was worst hit affecting 83% of the respondents. The least affected was Londiani 16.7%. Flat land that made water stagnant during rainy seasons was a constraint in Soin affecting 34.8% and Londiani 45.2%. Lack of cooperation in community participation was a factor across the divisions 29.2% with 18.4% respondents in Sigowet division. These constraints cut across all the divisions depending on the topography, vegetation and the agricultural activities practised.
3.5: METHODS OF MALARIA CONTROL USED BY THE COMMUNITY MEMBERS.

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<table>
<thead>
<tr>
<th>Control methods</th>
<th>Number of responses</th>
<th>Proportion of cases %</th>
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<tr>
<td>Cut bushes</td>
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<tr>
<td>Drainage</td>
<td>199</td>
<td>19.4</td>
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<td>Drugs</td>
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<td>18.0</td>
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<td>Sanitary practices</td>
<td>137</td>
<td>13.4</td>
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<td>Use of bed nets</td>
<td>123</td>
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<tr>
<td>Spraying</td>
<td>80</td>
<td>7.8</td>
</tr>
<tr>
<td>Use repellants</td>
<td>57</td>
<td>5.6</td>
</tr>
<tr>
<td>Herbal medicine</td>
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<td>1.9</td>
</tr>
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<td>Total responses</td>
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</tr>
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</table>
TABLE 11: Distribution of household control methods of malaria by division

<table>
<thead>
<tr>
<th>Division</th>
<th>Bed nets</th>
<th>Drugs</th>
<th>Spraying</th>
<th>Drainage</th>
<th>Clear compound</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>%</td>
<td>%</td>
<td>%</td>
<td>%</td>
<td>%</td>
</tr>
<tr>
<td>Ainamoi Rural</td>
<td>40.3</td>
<td>50.6</td>
<td>9.1</td>
<td>20.8</td>
<td>35.1</td>
</tr>
<tr>
<td>Ainamoi Urban</td>
<td>34.2</td>
<td>35.6</td>
<td>20.5</td>
<td>46.6</td>
<td>42.5</td>
</tr>
<tr>
<td>Sigowet</td>
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<td>28.8</td>
<td>33.9</td>
<td>44.9</td>
<td>61.0</td>
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<td>18.5</td>
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<td>74.1</td>
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<td>55.9</td>
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<td>46.9</td>
<td>61.2</td>
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<tr>
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<td>12.8</td>
<td>40.4</td>
<td>51.1</td>
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<td>49.0</td>
<td>34.2</td>
</tr>
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<td>% of respondents</td>
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<td></td>
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<td>13.6</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Wampy Land</td>
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<td></td>
<td></td>
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</tr>
<tr>
<td>Incooperative communities</td>
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<td>12.5</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Climate</td>
<td>40</td>
<td>7.2</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Too drugs at Health facility</td>
<td>36</td>
<td>6.4</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Food crops</td>
<td>34</td>
<td>6.1</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Transport</td>
<td>34</td>
<td>6.1</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Rush</td>
<td>27</td>
<td>4.8</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Too drains</td>
<td>3</td>
<td>0.5</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Resistance to drugs</td>
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<td>0.4</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Traditional /Religious Beliefs</td>
<td>2</td>
<td>0.4</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Total responses</td>
<td>559</td>
<td>100.0</td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>
3.5.1: Suggested control methods by the community members

Community members were asked to suggest malaria control measures that could be put in place. They came up with 9 control methods that could be adapted in their area of residence as shown on Table 13. Adequate treatment in the Health facilities (23.8%) and health education (22.3%) were highly rated. The least control methods practiced included use of mosquito repellents 1.1%, fogging 1.8% and Spraying 7.3%.

3.6: CHANGES IN HEALTH SEEKING BEHAVIOUR AFTER THE INTRODUCTION OF USER CHARGES.

3.6.1: Malaria morbidity and mortality in the households during the past year and the action taken.

Table 14 shows responses from community members in which they gave the age group 11-24 forming 65% as the most affected in their household, both male and females were equally affected by malaria infection. 14.8% of the under five years old were affected with malaria infection followed by the 11-24yrs. The results show that malaria affected the children and the youth mainly.

The single preferred action by the community members on the event of malaria infection was to visit the health facility by 72.4% of the respondents, 19.4% would buy over the counter drugs and only 0.8% said they would seek the services of a traditional healer.

Figure 12 shows the results of what actually happened on the event of sickness, the preferred treatment seeking options for community members. 83.9% of the respondents visited the health facility for treatment when they became sick. This was statistically different, \( \chi^2 = 659.9014, \text{df} \)
=3, P > 0.001, from what would be expected after the introduction of user charges, meaning the people have now accepted user fees. This concurs with what FGD members came up with, that though it was difficult to pay for health services they preferred to do so if it would help them to get the appropriate treatment for malaria rather than risk death. They said treatment in government hospitals was still much cheaper than in private hospitals. It is therefore necessary to avail all the medical services at the health facilities to meet this single preferred action for malaria treatment.

3.7: EFFECTS OF USER CHARGES ON MORBIDITY AND MORTALITY OF MALARIA: VIEWS OF COMMUNITY MEMBERS

Effects of user charges were reflected in the use of health services, 49% of the respondents reported less use of health services 20.1% thought it was expensive, 13% delayed going for treatment because at the time of malaria infection there was no money to pay for treatment. Some 10% said that user charges improved services in that drugs and supplies were made available in the health facilities. Many deaths may have occurred especially due to delayed treatment as a result of user charges, according to the FGDs.
**TABLE 13: Suggested methods of malaria control**

<table>
<thead>
<tr>
<th>Suggested control methods</th>
<th>No of respondents</th>
<th>% Of respondents</th>
</tr>
</thead>
<tbody>
<tr>
<td>Adequate treatment</td>
<td>171</td>
<td>23.8</td>
</tr>
<tr>
<td>Health education</td>
<td>163</td>
<td>22.3</td>
</tr>
<tr>
<td>Use of bed nets</td>
<td>104</td>
<td>14.4</td>
</tr>
<tr>
<td>Clearing bushes</td>
<td>85</td>
<td>11.8</td>
</tr>
<tr>
<td>Environmental sanitation</td>
<td>55</td>
<td>7.6</td>
</tr>
<tr>
<td>Draining water</td>
<td>70</td>
<td>9.7</td>
</tr>
<tr>
<td>Praying</td>
<td>53</td>
<td>7.3</td>
</tr>
<tr>
<td>Jogging</td>
<td>13</td>
<td>1.8</td>
</tr>
<tr>
<td>Use mosquito repellants</td>
<td>8</td>
<td>1.1</td>
</tr>
<tr>
<td>Total responses</td>
<td>722</td>
<td>100.0</td>
</tr>
</tbody>
</table>
TABLE 14: Household malaria morbidity in the last one year

<table>
<thead>
<tr>
<th>Age of household members who became sick</th>
<th>No of household members</th>
<th>% of household members</th>
</tr>
</thead>
<tbody>
<tr>
<td>under 5yrs</td>
<td>153</td>
<td>14.8</td>
</tr>
<tr>
<td>6 to 10yrs</td>
<td>168</td>
<td>16.3</td>
</tr>
<tr>
<td>11 to 24yrs</td>
<td>350</td>
<td>33.9</td>
</tr>
<tr>
<td>25 to 40yrs</td>
<td>249</td>
<td>24.1</td>
</tr>
<tr>
<td>41 to 55yrs</td>
<td>65</td>
<td>6.3</td>
</tr>
<tr>
<td>56 to 80yrs</td>
<td>41</td>
<td>4.0</td>
</tr>
<tr>
<td>Total</td>
<td>1032</td>
<td>100.0</td>
</tr>
</tbody>
</table>
### TABLE 15: Preferred treatment-seeking behaviour for community members

<table>
<thead>
<tr>
<th>Treatment options</th>
<th>No of respondents</th>
<th>% Of respondents</th>
</tr>
</thead>
<tbody>
<tr>
<td>Go to Health Facilities</td>
<td>365</td>
<td>72.4</td>
</tr>
<tr>
<td>Buy drugs</td>
<td>98</td>
<td>19.4</td>
</tr>
<tr>
<td>Health/social Worker</td>
<td>30</td>
<td>6.0</td>
</tr>
<tr>
<td>Herbal Medicine</td>
<td>4</td>
<td>0.8</td>
</tr>
<tr>
<td>Total</td>
<td>504</td>
<td>100.0</td>
</tr>
</tbody>
</table>
FIGURE 12: Single preferred actions taken by households for malaria treatment.
FIGURE 13: Effects of user charges on malaria morbidity and mortality.
CHAPTER 4.0: DISCUSSION

4.1: MALARIA SPECIFIC MORBIDITY AND MORTALITY ONE YEAR BEFORE AND ONE AFTER THE INTRODUCTION OF USER CHARGES

Trends of malaria cases since the introduction of user charges show that the effect of price demand for health services is higher for the low-income groups than for high-income groups. This study agrees with other studies done in Ghana, Nepal, Zaire, Zimbabwe, Zambia and Kenya as discussed hereafter.

In this study it was observed that there was an increase of reported cases of malaria morbidity and mortality in 1990 when fees were being charged and this scenario continued between 1991 and 1992 when fees were abolished due to political reasons. This increase continued between 1992 and 1993 when fees were re-introduced again with a concomitant increase between 1993 and 1994 of malaria cases akin to an epidemic. It appears that there was a shift in the health seeking behaviour of the community members so that there was delayed treatment a fact known to be a major cause of mortality in malaria infection (Toure and Coluzzi, 2000). Studies in Ghana, and other countries elsewhere showed that there was a substantial drop in attendance on introduction of user charges (Okyere-Asenso 1995). In Nepal there was a significant drop in patients attending the health posts when user-charges were introduced (Cheulagai 1995). In Zambia between 1980 and 1984 at the height of implementation of that country’s structural adjustment programmes showed that hospital deaths due to malnutrition rose from 2.4% to 5.7% of infants under one year and 38% to 62% of children aged 1-4 years (Kanji and Manji, 1991).
Malaria infection occurs when an infected mosquito bites a susceptible host. When a patient is not treated promptly he becomes a source of infection for others, where mosquitoes get their infective bites, which is then spread among the susceptible hosts as they have their blood meal (Brandley, 1994). This increases the number of malaria cases especially in non-immune poor communities. Furthermore poorly managed malaria cases remain sick hence affecting productivity, which leads to an increase in poverty and loss of family income. Any disease is linked to poverty in a vicious cycle, people become poorer because they are sick and they become even more ill as their poverty increases (Okyere-Senso, 1994). Malaria is a medical emergency and any form of delay in treatment causes serious forms of malaria which are life threatening which according to (Ward, 1986) neither price nor the customers income has any effect on the demand for requisite care. This outcome may have been the reason for the increased reported cases of malaria at the health facilities in Kericho district. There was an intervention for the increased cases of malaria and a sharp decline was observed between 1995 and 1996 and this declined further and stabilised towards the year 2000 but at higher levels compared to the period before the introduction of user charges.

Through focus group discussions, it was observed that people have come to terms with user charges as they realised that Government hospitals were still the cheapest in comparison with private hospitals. The community members expect the cost sharing money to be used to avail essential drugs and improve services so that they can get most of their treatment requirements at the nearest health facility. This concurs with (Haddad and Fournier, 1995) who observed that the relatively longstanding practice of the Church-mission facilities gives fairly
Conclusive evidence that people will pay for quality care. There is evidence that even the poor will pay for some of these services.

Malaria specific deaths were due to severe types of malaria, which could have occurred due to, delayed treatment; cerebral malaria is the leading cause of death (38.5%) followed by uncomplicated malaria 26.2%and severe malaria 23.8%. These deaths could have been prevented if prompt and effective treatment was given because uncomplicated malaria is normally easy to manage when patients seek prompt treatment.

4.2: FACTORS THAT INFLUENCED THE USE OF HEALTH SERVICES AMONG THE COMMUNITIES IN KERICHO DISTRICT

The distance travelled to the nearest health facility for 74.2% of the respondents was within 4km and 25.8% live beyond 9km this means that Kericho district is better served with health facilities than the rest of the country. 42% of Kenyan population live within 4kms while 75% live within 8kms (Republic of Kenya, 1999). It was also observed that these buildings with minimal facilities/supplies did not serve the people of Kericho adequately.

These health facilities were not fully utilised, 32.5% used the health facilities regularly while 64.3% used it irregularly. The main reason for irregular use of the health facilities was finances in 50.7%and lack of medical services in 30.5% transport 20.2%. Finances seems to be the main reason for delayed treatment, and for this reason there is need to explore other alternative methods of payments to the present which require patients pay at the point of use. Some form of pre-paid health insurance where the well rather than the sick pay for health services should be initiated. People should be allowed to pay using what they own like goats
cows maize beans, which is equivalent to the cost of treatment. In areas where there is a lot of poverty the government should ensure that there is equity by putting in place waiver guidelines.

The Kenya’s health policy framework implementation and action plans recommended alternative methods of payments (Republic of Kenya, 1996) but these methods were not yet implemented in Kericho District at the time of this study. These methods included health insurance, which was thought to be crucial in shifting part of the curative burden to private health care providers. Restructuring the existing National health insurance (NHIF) to involve the various stakeholders in its management, it will also be expanded to cover both inpatient and outpatient. The government will take care of equity issues by availing funds for safety nets to cover waiver and exemptions for the poor and vulnerable. The Bamako initiative (BI) also known as community financing of primary health care is an important strategy in mobilising additional community financial resources. These measures when implemented will have a beneficial economic effect for the country because people will be healthy and more productive. Investment in health is therefore essential for economic growth based on a productive workforce.

The FGDs gave the topography of the land as the main reason for transport problems especially in parts of Ainamoi, Chilchila, Sigowet and some parts of Kipkelion where there are steep hills and the sick have to be transported using gunny bags downhill to where the roads are. In Ainamoi division community members have been mobilised to construct a road into the interior were roads do not reach so that they have a shorter distance to walk to where they can access a vehicle easily. This is a commendable community action and it should be encouraged in areas of similar topography and at the same time other community preventive primary health care activities can be started in the same spirit.
The health providers reported that the availability of drugs in the health facilities (63%) and the user charges (59.3%) influenced the use of health facilities so that now with user charges in practice they observe more severe cases of malaria than before. These cases may have been caused by delay in seeking health care. This study concurs with a study in Volta Region Ghana where use of basic services in the rural areas fell substantially and did not subsequently recover after the establishment of user-charges in 1985 (Mcpake, 1993). In Zimbabwe use of recommended maternal and child health services decreased by 30% after intensified enforcement of user-charges in 1991 (WHO, 1996). In Kenya the effects of user fees on attendance at a government referral centre for sexually transmitted diseases recorded reduced attendance during the user charge period and even after user-charges were abolished in August 1990 the levels rose to 64% of pre user charge period. At the same time it was observed that in conditions where TDs were endemic a decrease in the cure rate for given STDs could bring about a substantial increase in disease incidence and prevalence levels (Moses et al; 1992).

The health services were not adequate according to 66.5% of the household leaders who said that services were only available sometimes, 23.8% said they got all their treatment needs at the health facility and 6.3% said there were no services given. The community members were not satisfied with the services offered and suggested improvement of these services by the government especially by availing drugs, improving staff competence and attitude toward patients. This came up very strongly during the FGD meetings where the members called on the government to improve services at the health facilities.
3: UTILISATION PATTERNS OF THE NEAREST HEALTH FACILITY

Utilisation patterns of the nearest health facility showed that a large percentage (64.3%) of the respondents visited the health facility irregularly and (3.2%) never used the health facility. This was attributed to finances, lack of medical facilities, attitude of staff and their qualification.

Kericho District improving the interpersonal relationship of the health providers would improve the pattern of utilisation of health services in Government facilities.

Rejections of these services have been associated with lack of medical facilities and negative attitude of some of the health workers as reported by the FGDs. This study agrees with studies done in Benin Guinea and Mauritania (Haddad and Fournier, 1995) that the availability of drugs, competent qualified medical staff is important in determining use of health services. It so suggests that revitalisation of the public sector and general improvement of the quality of services is capable of stimulating utilisation of these services. There is need to actively improve these health services as suggested to enhance their utilisation by communities in Kericho district. Improved services will enhance adequate and effective treatment, which remains the single preferred action and a recommended choice for malaria treatment for the community members.

4: IDENTIFIED MALARIA CONTROL METHODS BY COMMUNITY MEMBERS.

The study population was asked to list down the top five diseases in their area of residence and they gave a total of 18 diseases. It is interesting to note that the first top ten of these diseases compare very closely with the actual top ten diseases in the district. 85.2% ranked malaria as number one and when all these responses were put together 99% of the respondents
Malaria was the commonest disease in the area of their residence. On cross tabulation 97% of respondents in Ainamoi division and 100% in Sigowet, Chilchila, Soin, and Kipkelion divisions recorded malaria as the main disease burden in the District just like in the whole country (Republic of Kenya, 1999).

The study population gave nine symptoms of malaria to confirm that they were able to differentiate malaria from other diseases. The symptoms recorded were headaches 68.6%, fever 8.6%, vomiting 48.7%, joint pains 36%, lack of appetite 26.6%, General weakness 19.9%, Chills 1.2%. These symptoms are similar to those given in the National guidelines for treatment and prevention for health workers (Republic of Kenya, 1998). The community members were conversant with the symptoms. This can be very useful in educating members to recognize malaria infection so that they can seek health care immediately. It has been recognised that identification of malaria symptoms improves malaria diagnosis and treatment, which then reduce morbidity and prevents more severe manifestations of malaria and mortality. Furthermore it is essential to prevent severe malaria especially in the advent of HIV/AIDS pandemic because of the risk of transfusing HIV during treatment of severe anaemia a complication of severe malaria in children in most parts of Africa (Bjorkman, 1994).

The study population gave eight control methods for malaria, which they practised; they include clearing of bushes (47.2%) drainage of stagnant water (42.1%) use of Prophylaxis 38.8% sanitary practices (28.7%) use of bednets (25.8%) spraying (16.8%) use of mosquito repellants (11.9%). The methods practised are similar to those given in the national guidelines to he health workers (Republic of Kenya, 1998). It appears that community members practice some effective control methods as recommended by the ministry of health and as such require
motivation and follow up. The FGDs reported common beliefs in the community like eating ripe manas, sugarcane, being rained on and the flowering of maize as causes of malaria infections. His ignorance may affect negatively the efforts taken by community members in the control of malaria. To counteract this the community members need to be given health education on the use of malaria.

The FGDs explored traditional malaria control methods practised by some members of the community as well like placing dried cow dung in the fireplace to smoulder over night, this was reported to act as mosquito repellant. The efficacy of this method needs to be tested because it is a cost effective method for this pastoral community in these hard economic times. His method may be helpful especially as the contemporary preventive practices were not always one because of constraints that the community members experienced.

The main constraint was finance (43%), others included ignorance (19.9%) flat swampy and that was difficult to drain (18.6%). Some community members were uncooperative. Preventive services are a public good for which benefits are for all and increasing their consumption would require substantial motivation and education effort. Health education is a necessity in Kericho District considering the high percentage of ignorant community members in malaria transmission. The need for health education in the District and need to mobilise community members to community participation in the practise of recommended preventive methods could reduce the number of malaria infections in Kericho District.

The principles of social marketing can be applied in the implementation of preventive services because according to (Ward, 1986) health is a consumer product and people can be
persuaded and motivated to adopt specific courses of behaviour generally accepted as being beneficial. He divided health services into three categories.

- Emergency or life saving for which neither price nor the consumer’s income has any effect on the demand for the requisite care, people will seek for health care whether there is money or not in time of emergency.

- Ordinary curative and restorative for which demand is like any commodity in the open market if the price is high or the consumer’s income is low demand is less, but if the price is low or the consumer’s income is high demand for them can be stimulated.

- Preventive services are the least in demand and unless they are free it is doubtful whether demand for it can be stimulated.

The Government through the ministry of health should take an aggressive stand in preventive services using the cost-sharing revenue allocated for this purpose so that they can support the communities and Non-Governmental organisations already involved in these programmes so that crisis intervention can be avoided during epidemics.

It was observed that willingness to pay was not ability to pay as one focus group participant stated that the problem was not cost sharing but the fact that people were poor and could not get the money when they became sick. The more expensive recommended sulfa drugs compound this problem of finances. If these drugs were not available at the health facility where cost is subsidised patients would opt to buy cheaper over the counter drugs, which in most
instances were not effective. The use of these cheaper ineffective drugs and taking of an under
dose of antimalarials could contribute to drug resistance to malaria infection. Resistance to
sulfadoxine-pyrimethamine (SP) has been reported in areas of intense use, particularly Thailand
and Cambodia (Bjorkman, 1994).

The emphasis given by the FGDs on the need for drugs at the health facility could help
curb the possibility of resistance because availability of drugs will facilitate the administration of
the correct dosages of antimalarials to patients. These findings concur with a study done in
Ghana which observed that availability of drugs at the health facility was crucial effective
treatment of malaria especially for “the free for service status” because this group of patients had
difficulties in purchasing the more expensive sulfa drugs at the time of sickness, even if the
employer did arrange for a refund for money used at a later date (Biritwum, 2001) this group had
some prepaid insurance.

4.5: CHANGES IN HEALTH SEEKING BEHAVIOUR AFTER THE INTRODUCTION
OF USER CHARGERS

The study population who became sick during the last one year shows that the age group
11-24yrs are the most affected, 14.9% of the under five are affected. Both male and female were
equally affected. The action taken for malaria treatment was visiting the health facility for
treatment in 87.2% of cases 13.8% bought drugs over the counter 2.2% visited the traditional
healer. The number of patients visiting the health centre especially when they had malaria was
high but happened after they had tried over the counter drugs. User-charges appear to have
contributed to a shift in health seeking behaviour and as a result, severe forms of malaria
nfections were observed. This may have led to increased number of deaths due to malaria. There is a relationship between the introduction of user-charges and a change in health seeking behaviour of the community members in Kericho District. Community members should be encouraged to go for treatment promptly in the health facilities to reduce the number cases and the severity of malaria.

1.6: EFFECTS OF USER CHARGES ON MALARIA MORBIDITY AND MORTALITY

The main effect of user fees in Kericho district was irregular use of medical services. 49%, 20.1% of the study population said that it was expensive. There was delayed treatment in 13%, 10.4% resorted to using cheaper over the counter drugs. There was an increase in complicated forms of malaria, cerebral malaria was the major cause of malaria deaths; this complication is known to occur partially in cases of delayed treatment. Uncomplicated malaria is normally easy to manage when patients seek prompt treatment. It caused approximately 26% of all malaria deaths after the introduction of user-charges suggesting a possible shift in health seeking behaviour by the communities in Kericho District.

The observation that increased incidence of malaria morbidity and mortality after 1990 by 364.3% could have been due to the introduction of user charges in health facilities in Kericho District. A considerable number of community members (11%) said it improved services, this happened occasionally when cost-sharing money was used to purchase the drugs and to improve other services at the health facility. This was confirmed by the FGDs who complained that there is a possibility that money collected through cost sharing was misappropriated. This may have led to lack of essential drugs in the health centre. This concurs with observations from other
tudies that user-fees were difficult to implement without hurting the most vulnerable groups. It was also observed that reinvesting user-fees in improved quality of local services have been an elusive goal (WHO, 1996). A study by Haddad and Fournier, (1995) found that direct costs are among the principal criteria which health system users take into account in their decisions, this suggests that user-charges impacted on use of health services in this study so that there was delay in treatment. Delay in treatment has been observed to be a major factor in malaria mortality (Toure and Coluzzi, 2000).

The National priority packages have put malaria prevention and treatment package top on the list of six high priority packages in Kenya. These packages will be delivered from the lowest level (household) to the highest national referral hospitals (Republic of Kenya, 1999-2004). In highly endemic situations found in sub-Saharan Africa, three interventions could be introduced within a year or two even where the infrastructure is very poor. These are; Distribution and use of insecticide treated bed-nets, Rapid first-line treatment of all suspected malaria cases and routine intermittent presumptive malaria treatment of all pregnant women. These strategies combined could reduce the burden of malaria morbidity and mortality by halve in the most vulnerable groups (Alnwick, 2000).

The Ministry of health emphasises preventive and promotive activities as priority and management of malaria from the grassroots through the village health workers and community health workers. Reproductive health package is second in priority list (Republic of Kenya, 1999-2004). Management of malaria in pregnancy should be incorporated especially in endemic areas. Traditional birth attendants could be given basic skills in the management of malaria in pregnancy in the villages in Kericho District and other endemic areas. This will help to reduce
ie number of cases of malaria in pregnancy, a serious situation that causes maternal deaths (Republic of Kenya, 1991).

The factors that influenced use of health services among women are the role of medical technocrats, types and sets of reports, other factors like residing whether or not to the health care were severity of the diseases, attitude of the families, and the health attitude towards patients.

From the study it is observed that malaria is the main cause of maternal death, and there are different levels of signs and symptoms associated with malaria. The symptoms include fever, headache, which all are ways to notice malaria in patients.

The estimated malaria cases per annum in Kenya were not high but it continues to be a disease of malaria that requires urgent attention. Both government and private sectors are needed in the cause of mistakes and in the control of malaria. The workers need to be motivated and to have more information about malaria so that malaria should be controlled.
CHAPTER 5.0: SUMMARY OF CONCLUSIONS

- The introduction of user-charges in Kenyan public health facilities in December 1989 to 1994 may have caused a decline in attendance especially of malaria patients in Kericho District. This may have caused severe forms of malaria and deaths due to delayed treatment, which is known to be a main factor in malaria mortality.

- The factors that influenced use of health services among community members are finances, lack of medical facilities/supplies, and lack of transport, other factors that were important in deciding whether or not to seek health care were severity of the disease, staff qualification and their attitude towards patients.

- From the study it is observed malaria is the main cause of disease burden, and the correct identification of signs and symptoms ensures that community members seek prompt treatment, which is the only way to manage malaria effectively.

- The community members practise some form of preventive methods but lack knowledge on the cause of malaria was reported during the FGDs. Community members require health education on the cause of malaria and what to do in the event of malaria infection. The community members need motivation and encouragement to use the control measures they are taught by the health workers so that malaria control can be effective in the community.
Community members have explored traditional methods; There are herbs used to treat malaria and control methods such as smouldering of dried cow dung which acts as a mosquito repellant. These are cost effective methods that need to be researched on to assist the community as cow dung is readily available in this pastoral community.

The Government needs to be more concerned preventive services by taking a lead in initiating community actions in collaboration with existing research programmes, so that support for cost effective traditional methods can be obtained especially as malaria affects 40% of the Kenyan communities.

The preferred action for malaria infection in the community was visiting the health facility for treatment, there is need to improve these facilities by providing drugs, supplies and appropriate services so that community members get most of their treatment services at the nearest health facility.
CHAPTER 6.0: RECOMMENDATIONS AND SUGGESTION FOR FUTURE RESEARCH WORK,

6.1: RECOMMENDATIONS

- User-charges has had an effect on levels of malaria morbidity and mortality mainly because of poverty. It is therefore necessary for the Government to strengthen and implement poverty eradication strategies such as

- Intersectoral collaboration as a way of improving household incomes has been suggested severally by leaders but no implementation was observed in Kericho District. There is need to strengthen and implement intersectoral collaboration afresh in Kericho District. Health services are important but they will not have sufficient impact to reduce health inequities. Experience throughout the world has demonstrated that education, housing, employment, nutritional supply, and transportation have profound effects on health care and that joint planning and resource-sharing among the different administrative sectors in charge of these areas are needed for effective and efficient action. WHO (1996). The ministries such as health, Agriculture, Education, Water and others that are relevant need to come together to discuss how each can contribute to the improvement of the quality of life in Kericho District. This will enable the residents of Kericho to purchase health services and education with ease. Good health is by definition an integral part of social development. WHO (1995a)

- Kericho district is considered rich because the land is productive and the community members are motivated to improve their household incomes through farming, dairy
products and the sale of cash crops for example tea, coffee, and sugarcane. The economy of the people has gone down due to the impact of structural adjustment programmes, which brought about poor market prizes for produce. It is therefore necessary to seek better market prizes for produce.

- The Government has a responsibility to take charge of preventive services by allocating a higher percentage from cost sharing revenue for use in primary health care to strengthen the preventive services. Cost sharing revenue should be used for the intended purpose. From the FGDs there seems to be improper use of cost sharing revenue so that patients continue suffering inspite of payment.

- Malaria is an endemic disease in most parts of Kenya affecting (40%) of the population. This contributes to a decline in the overall economy of the country because malaria morbidity and mortality coincides mostly with the economically productive during the planting and harvests seasons. It is necessary for Government to explore and implement alternative methods of pre payments for example various forms of Health insurance that communities can use so that they can make their payments after harvest and sale of their produce rather than pay at point of use. Other methods of payments can be explored such as using chicken, goats and sheep to pay because on the event of sickness individuals may not have cash but these commodities.
6.2: SUGGESTIONS FOR FUTURE RESEARCH WORK

• There is need to carry out a similar research in other malaria endemic districts of Kenya to determine the effects of user-charges especially after the introduction of structural adjustment programmes, and to come up with recommendations that are specific to each district in the control of malaria.

• There is need to research on the efficacy and cost effectiveness of traditional methods for malaria treatment and prevention that are used by the community members. Though it was not reported much in the questionnaires it came up during the FGDs that there were herbs used for the treatment and dried cow dung used as a mosquito repellant.

• The communities are now used to the user-charges but it very necessary to research on the use of the revenue collected to determine how it is used for patient care.

The FGDs questioned its use and they may have a valid question which could only be answered through research.
REFERENCES.


APPENDIX 1

RESEARCH QUESTIONNAIRE FOR COMMUNITY MEMBERS.

DIVISION....................................................................................................................................

LOCATION....................................................................................................................................

SUB-LOCATION.........................................................................................................................

VILLAGE....................................................................................................................................... 

1. How far is your village from a health facility?
   - Less than 1 km [ ]
   - 1-2 km [ ]
   - 3-4 km [ ]
   - 5-6 km [ ]
   - 7-8 km [ ]
   - 8-9 km [ ]
   - More than 9 km [ ]

   How often do you go to the nearest health facility for medical care?
   a) Regularly [ ]
   b) Irregularly [ ]
   c) Never [ ]

2. Give reason(s) for your answer to question 2 b, c.
   a) Lack of medical facilities [ ]
   b) Lack of transport [ ]
   c) Lack of money to pay [ ]
   d) Religious reasons or lack of faith in healing powers from the health facility. [ ]

3. List in the Order of frequency of occurrences five of the most common diseases in your area of residence.
   i) ........................................................................................................................................
   ii) ........................................................................................................................................
   iii) ........................................................................................................................................
4. Name at least three symptoms that distinguish Malaria from these other disease:
   i) ........................................................................................................................................
   ii) ........................................................................................................................................
   iii) ........................................................................................................................................

5. How do you control malaria infections in your household?

6. What are some of the constraints inherent in malaria control in your area of residence.
   i) ........................................................................................................................................
   ii) ........................................................................................................................................
   iii) ........................................................................................................................................
   iv) ........................................................................................................................................

7. How readily available are medical services and drugs in your health facility.
   a) Very readily available
   b) Sometimes available
   c) Always not available
   d) I have no idea

8. What would be your single preferred action in malaria treatment from this list tick one
   a) Buy anti-malaria drugs from over the counter
   b) Use herbal preparations from traditional sources
   c) Go to a health facility for advice and professional service
   d) Obtain help from a health/social worker away from health facility

9. What in your opinion is the effect of user fees in the management of malaria in your household?
   i) ........................................................................................................................................
   ii) ........................................................................................................................................
   iii) ........................................................................................................................................

10. Kindly list down any member of your household who has had malaria during the last one year.
<table>
<thead>
<tr>
<th>Name</th>
<th>sex</th>
<th>age</th>
</tr>
</thead>
<tbody>
<tr>
<td>i)</td>
<td></td>
<td></td>
</tr>
<tr>
<td>ii)</td>
<td></td>
<td></td>
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<tr>
<td>iii)</td>
<td></td>
<td></td>
</tr>
<tr>
<td>iv)</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

(b) For those who became well again, kindly indicate what they did in order to get well.

- Visited a medical facility for treatment
- Bought drugs over the counter
- Visited a traditional healer
- Did nothing about the problem
- Other specify

11. Indicate the person listed in (11) above who die from their sicknesses.

<table>
<thead>
<tr>
<th>Name</th>
<th>sex</th>
<th>age</th>
</tr>
</thead>
<tbody>
<tr>
<td>i)</td>
<td></td>
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<td>ii)</td>
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<td></td>
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<tr>
<td>iii)</td>
<td></td>
<td></td>
</tr>
<tr>
<td>iv)</td>
<td></td>
<td></td>
</tr>
<tr>
<td>v)</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

12. What alternative or complementary malaria control strategies would you suggest to handle the spread this disease?
APPENDIX II.
INTERVIEW GUIDE FOR HEALTH PROVIDERS

NAME HEALTH FACILITY ..................................................

LOCATION..........................................................................

1. Please explain trends in malaria prevalence in the communities in which you have worked. (Pay attention to the period before and after 1989).

..................................................................................
..................................................................................
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2. Do many members in communities where you worked visit health facilities for treatment. (Pay attention to gender and age differences)

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3. In your view, what are some factors that influence attendance to health facilities in the area where you worked? (Probe for effect of introduction of user charges and when introduced).

4. In your own opinion do you think cases of malaria have increased, decreased or remained stable after the introduction of the user fees in your health facilities?

   Increased. ______ Decreased ______ Remained the same. ______

5. How many health facilities serve the area of your jurisdiction (probe for adequacy of health facilities and services)

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6. What proposal do you have to control malaria in the area where you work, pay attention to preventive and curative measures?
APPENDIX III.

INTERVIEW GUIDE FOR COMMUNITY LEADERS.

AREA OF JURISDICTION

1. Would you say that cases of malaria in your area have increased or decreased or remained about the same (probe for changes since 1989 and before)?

2. Who are mainly affected by malaria infections in your area (pay attention to women, children, men, youth, the elders)?

3. Do you think health facilities in your area are adequate (probe for reason for various opinions/views)?

4. What measure would you propose for controlling malaria infection in your area (pay attention to preventive and curative measures)?
APPENDIX IV

ABSTRACTS FOR CONFERENCES/WORKSHOPS/SEMINERS

FORUM: 7TH POSTGRADUATE SCIENTIFIC CONFERENCE

VENUE: SCIENCE COMPLEX BOARDROOM

THEME: BIOLOGICAL SCIENCES FOR DEVELOPMENT IN

THE NEW MILLENIUM

KENYATTA UNIVERSITY

DEPARTMENT OF ZOOLOGY


TITLE: THE EFFECT OF CHANGED HEALTH CARE FINANCING ON MALARIA MORBIDITY AND MORTALITY IN KERICHO.

BY FLORENCE C KIPKORIR, REG NO 156/8834/99.

SUPERVISORS: Prof. ALLOYS S. ORAGO and Prof. PAUL P.W ACHOLA.

THESIS ABSTRACT

Malaria has remained the main cause of morbidity and mortality over the last twenty years contributing to about 40% of all illnesses in Kenya. The increasing resurgence and severity is not well understood, whereas global warming and vector conquest of hitherto malaria free highlands of Kenya could be contributing factors, it is difficult to ignore the possible contribution of changed health care financing, also revered to as cost sharing.
This study is a descriptive cross-sectional survey and retrospective study aimed at establishing the effects of cost sharing on levels of malaria morbidity and mortality in Kericho District. Data was collected using questionnaires to community members, personal interviews of community leaders and health providers. Health records from the health facilities which effected the policy of cost sharing from 1989 were collected and a total of eight Focus group discussions were carried out in the seven divisions of the District. From this, quantitative and qualitative data was collected.

Data analysis was done using the Statistical Package of Social Sciences (SPSS) and the findings have been presented in text, percentages, charts and graphs as appropriate. The results through Hospital records show that malaria is leading among the top ten diseases, while 85% of the respondents rated it as No 1 in the top five most commonly occurring diseases in their area of residence. Malaria therefore is the main cause of disease burden in the District.

Majority of the respondents (73.2%) lives within 4kms from the nearest health facility and yet attends the health facility only sometimes when sick. The reasons given for less or non-attendance was lack of finance in 44.6% of respondents while 28.5% gave “lack of medical facilities”.

Cost sharing effects can be observed as it resulted in less use of medical services as given by 28.6% of respondents. Another 28.6% said that health services were expensive resulting in delay in seeking health care. 87.5% go for cheaper over the counter drugs that may not be effective against malaria infection and this resulted in admission of more severe cases of malaria in the health facilities. Malaria has been termed a disease
of poverty because it requires prompt treatment and any delay to seek treatment will result in increased morbidity and mortality.

The information from this study could be useful in designing malaria control programs aimed at reducing morbidity and mortality and related economic losses associated with human malaria, especially among the poor who have increasingly become poorer due to various factors following the introduction of structural-adjustment programs, in a District that is malaria endemic in its lowlands and experiences epidemics in its highlands. The researcher came up with recommendations and identified further research areas that could be useful in malaria control.