FACTORS INFLUENCING COMMUNITY HEALTH FUND PREPAYMENT ENROLLMENT IN IGUNGA DISTRICT, TANZANIA.

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ABSTRACT

In Igunga district of Tanzania, community health fund (CHF) has been in operation since 1996. CHF is a form of community based health care financing that involves household prepayment for health care on an annual basis.

CHF household membership in 1998 was 5.6%. The target for that year was 65%. In 1999, the CHF household membership was 22.5%. Hence, there was a wide discrepancy between level achieved and target. Therefore, the main study objective was to assess factors that influence the level of CHF household enrollment. To achieve the objectives, a cross-sectional descriptive study, which was also partially analytic, was adopted.

The study findings revealed that: the level of CHF awareness at the household level was sub-optimal. Travel time from the villages to the health facility was negatively correlated to both CHF awareness and CHF membership levels. The current (2000+) CHF household membership rate was 27.3%. Other findings in relation to membership included a CHF membership continuation rate of 24.5% and a dropout rate of 9.4% in the period 1996-2000. The rate of new membership recruitment was 2.7% in the year 2000.

Based on the findings, it is recommended that sustained CHF promotional campaigns especially in villages that are located far from health facilities be initiated.

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LIST OF ABBREVIATION

CBD Community Based Distribution

CHF Community Health Fund

DMO District Medical Officer

DOH Department of Health

DPGS Director Post Graduate Studies

GTZ German Technical Cooperation

HSR Health Sector Reform

IDS Institute of Development Studies

IMF International Monetary Fund

IPH Institute of Public Health

Mmed Master of Medicine

MOH Ministry of Health

MPH Master of Public Health

Msc CHHM Master of Science in Community Health and Health Management

MUCHS-Muhimbili University College of Health Sciences

PHD Doctor of Philosophy

TDHS Tanzania Demographic and Health Survey

TSH Tanzanian Shilling

UBC United States Bureau of Census

WB World Bank

WHO World Health Organization

DEFINITION OF TERMS

Adverse selection: This occurs when the chronically ill or those with a higher probability of developing an illness or injury joins insurance plans and the low risk individuals do not.

Cost efficiency: To obtain greater value for money from health spending

Cost sharing: Is a system of paying for health services delivered and the rest of the cost is met by a third party (government, insurance etc).

Effectiveness: Means that the application of any health good or service has some beneficial impact on a health condition.

Equity: In relation to health care, equity can be considered to be the "equal likelihood of obtaining access to adequate and affordable preventive, promotive or curative care when it is needed."

Household: In relation to implementation of community health fund, a household is defined as a nuclear family including the father, mother, and children under 18 years of age.

Kitongoji: Is a sub-division of a village (sub-village)

Prepayment: Paying in advance for health care.

Ward: An administrative sub-division in a district. In Tanzania, a district is subdivided into divisions, divisions into wards, wards into villages and villages into Kitongoji.

DEDICATION

to my wife Beatrice Monyenche and my daughter Moraa Nyatichi Magoma

to my mother Mary Gesare and my father Nelson Ongwae Aondo

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DECLARATION

I hereby declare that the work contained herein is my original work, and that it has not been submitted for a similar degree in any other university.



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1 EXECUTIVE SUMMARY

Health care financing initiatives have been commenced in several developing countries, within the framework of health sector reforms. Varying degrees of success have been achieved. In Igunga district of Tanzania, community health fund (CHF) had been in operation since 1996. CHF is a form of community based health care financing that involves household prepayment for health care on an annual basis. CHF household membership in 1998 was 5.6%. The target for the same year was 65%, hence there was a wide discrepancy between level achieved and target.

The broad objective for the study was therefore to assess factors that influence CHF prepayment enrollment at the household level in Igunga District. The specific objectives of the study included determining: CHF prepayment membership; willingness to enroll as members of CHF prepayment scheme among non-members and perception towards CHF prepayment scheme at the household level in Igunga District during the period May-June 2000.

Several factors may influence CHF enrollment, hence the need to focus on the important ones, if any meaningful improvement on enrollment is to be achieved. The study findings will therefore facilitate the formulation of evidence based targeted interventions aimed at improving CHF household enrollment rate. By so doing this study is expected to contribute to the overall improvement in performance and sustainability of CHF in Igunga district, and elsewhere.

The study adopted a cross-sectional approach with both descriptive and analytical components. The study population constituted heads of household in Igunga district. In this respect, a household was composed of a man, one wife or single parent/ guardian and children who are less than 18 years of age. In case of polygamous relationships, the different wives were regarded as belonging to different households. The household definition conformed to the one used by the CHF program of Igunga district.

Multistage random sampling was used in selecting households for structured questionnaire interviews. In each stage, the selection was done using simple random sampling starting with the ward level and then villages in the selected wards. A total of 5 wards were selected and in each of the wards, two villages were also selected. In total 766 questionnaire interviews were conducted.

The data was analyzed in Epi info program, version 6.04 and SPSS. Where appropriate, Chi-square test, T-test, logarithmic transformation, use of non-parametric tests (Kruskal-Wallis H) and multivariate analysis were used in analysis. The 0.05 cut off point was used in the interpretation of P value. If the P value was less than or equal to 0.05, it was regarded as significant. Otherwise, it was regarded as not significant

The study findings revealed that most households were close to a nearby dispensary. For most of these households, the median travel time to the dispensary was 40 minutes. At the household level, slightly more than half of the study population were aware of CHF (55.6%). Although their contributions were low, health facilities and village meetings

were identified as the main source of awareness information. Overall, male heads of household had significantly higher levels of awareness on CHF than female heads of household. Whereas females relied on health facilities for such awareness, the males relied on both health facilities and village meetings.

The study findings revealed a current (2000+) household membership rate of 27.3%. Other findings in relation to membership include a CHF membership continuation rate of 24.5% and a dropout rate of 9.4% in the period 1996-2000. The rate of new membership recruitment was 2.7% in the year 2000.

When the household characteristics were assessed, travel time between villages and nearest health facilities was inversely related to both CHF awareness and membership. Hence, the study finding suggested that CHF membership level may have been a function of awareness in which, higher awareness levels were associated with a higher CHF membership levels. On the other hand, the study findings based on self-reported income strongly suggested that household income was not a forefront determinant of CHF membership in Igunga district. In a related finding financial constrains were identified as a "favorite" excuse for non-CHF enrollment.

The study findings indicated that public health facilities ranked high both as first and second choice place of seeking treatment. The private facilities featured high only in the third place choice. A possible explanation could be based on the fact that most study households (76.3%) had a nearby dispensary and hardly any other choice.

Easy accessibility of services, reduced costs and drug availability were identified as perceived benefits and reasons for joining CHF. Further to that, CHF members cited availability of drugs as a reason for satisfaction with health care in past cases of sickness. On the other hand, laboratory services were ranked low as a CHF benefit. The service was instead identified as a CHF problem and further as a reason for dissatisfaction with health services.

It is concluded that:

- ✔ The level of CHF awareness at the household level was far from being optimum. Use of village meetings and health facilities as sources of such awareness had not been satisfactorily effective.
- ✔ Even among CHF members, the accruing CHF benefits had not been internalized to the extent of being expressed outright.
- ✔ Provision of laboratory services was a major problem affecting health care provision in Igunga district.

It is recommended that:

- ✔ Sustained CHF promotional campaigns are initiated in the district. The campaigns should be based on the easily perceived benefits of CHF e.g. easy accessibility of services and drug availability.

2. INTRODUCTION

2.1. Statement of the context

Following the need for a reduction in basic imbalances in the global economy after the World War II, economic reforms in the form of structural adjustment programs were introduced. The primary aim of the structural adjustment programs was to correct the economic imbalances through adjustment of domestic demand to the reduced level of external resources. The adjustment programs were first introduced in Latin America in 1950s and then in Africa in the 1980s (Mwanza, 1992). The economic reforms led to among other things a reduction in subsidies. There was also reduction in public spending on social support that included the provision of health care services. As a result, the social sector was most adversely affected. The result of the financial cutback in the social sector was shifting of social service costs to families and individuals.

The structural adjustment programs therefore led to a crisis in the health sector. The need for fundamental changes in health care delivery became imperative, hence Health Sector Reforms were borne (Cassels, 1995). Jointly, the International Monetary Fund (IMF) and the World Bank (WB) are the principal advocates of Health Sector Reforms. The reforms largely constitute packages of non-prescriptive guidelines aimed at promoting the achievement of overall health policy objectives.

In Tanzania, following local adaptation of the health reform packages (Cassels, 1995), the following categories were subsequently adopted (MOH, 1994): Ideological reforms,

Organizational reforms, Managerial reforms, Financial reforms, Public / Private mix reforms, Review of Health Policy reforms, Research reforms and, Nutrition and Population reforms. Along each of the reform agenda, are proposals that collectively aim at:

(a) empowering district, community and household initiatives through development and implementation of proper district health plans.

(b) seeking alternative financing options which will bridge the existing financing gap in the health sector and

(c) continuous revision of the implementation of various acts, ordinances and regulations pertaining to health management and administration.

It is within the background of financial health sector reforms that community health fund (CHF) has been introduced in Tanzania since 1996. CHF is a form of community based health care financing initiative. The fund was introduced first, in Igunga as the initial pilot district with later rollout to 9 other districts by the end of 1999. Igunga district was selected for the initial piloting of community health fund because of being one of the poorest districts in Tanzania (Ilomo, 1999, MOH, 1999). Also, it has well functioning public health facilities that had been rehabilitated and with regular availability of drugs and other supplies.

The Igunga CHF model (Ilomo, 1999) has the following characteristics: it in-cooperates pre-payment for medical care as risk sharing, has an exemption criteria for the poor and indigent and, community leadership on both management and financial matters. Funds so

collected are pooled together at the ward level and may be used to improve quality of service at the public health facilities within the respective wards.

Table 2.1 below shows the 1996 to May 1999 CHF membership recruitment pattern in all wards in Igunga district (Kapinga and Kiwara, 1999, MOH, 2000). According to the original targets, a total of 65% of households in the district were expected to enlist as CHF members by prepaying for health care in 1998. As shown in table 2.1 below, the target was never achieved. According to Kapinga and Kiwara (1999), health workers preference for fee-for- services appears as one of the reasons for the low CHF household membership.

Table 2. 1 CHF membership recruitment pattern in Igunga district

	1996	1997	1998	1999
No. of prepaid households	2448	2948	3085	11293
% of prepaid households (Total=50142)	4.8%	5.9%	6.1%	22.5%

Source: (Kapinga and Kiwara, 1999, MOH, 2000)

Several other factors may be responsible for the low CHF membership in Igunga district. In a qualitative evaluation of community health fund (CHF) that involved three villages in the district, some reasons as to why some households do not join as CHF members were identified (Robles et al., 1999). The identified reasons included: financial constrains, distance from health facilities, poor quality of health services in general and bad staff attitude in particular. In addition, some members of the community were still

not clear of the prepayment policies in relation to paying in installments and the exemption procedures. In some cases, CHF has been linked to government tax collection and involuntary memberships, for example in case of local government employees (Robles et al., 1999, Musau, 1999). According to Robles et al. (1999), the same reasons as outlined above also are responsible for the CHF membership dropout.

Further to the above, Robles et al. (1999), described some characteristics of families who may not enlist as CHF members even in the best of circumstances. They included: relatively wealthy families, relatively healthy families, families with older or no children and small families with between one and three members. Some of the perceived benefits of CHF membership include increased access to health services, reduced cost and improved quality of services. Some of the perceived problems, which could also lead to reduced membership, are related to quality of service, management and administration of the CHF (Robles et al., 1999).

Once a household (a man, one wife and children who are less than 18 years of age) prepays TSH. 5000, a health card is issued that entitles the household members to free outpatient services for one year. On the other hand members of non-prepaid households are expected to access health care services on a fee-for-service basis. Based on the laid down exemption procedures, poor households exempted from paying are issued with a health card that is fully subsidized by the district council. According to the district CHF management, the CHF ward committee exempts up to but not exceeding 5% of total CHF members in order to maintain financial sustainability. Musau (1999) reports that very few

poor people have benefited through the exemption mechanism because of the cumbersome nature of the procedures involved. In addition to the CHF exemption mechanism and in line with Ministry of Health policy, members of the community are exempted from paying fees for maternal and child health care, and family planning services (MOH, 1999).

In a paper titled " How will the poor fare in the CHF program (Is equity being abandoned) Njau and Shirima (1999), acknowledged the difficulties involved in answering the question on how the poor households are faring in the CHF districts. Musau (1999), observed that impact of CHF on poorer members of community and the health care seeking behavior of a majority of community residents who are at the same time non-members of community health fund has not been fully investigated.

2.2 Statement of the problem

In Igunga district, community health fund (CHF) had been in operation since 1996. Preparations for initiating CHF involved; community sensitization/awareness campaigns, renovation of health facilities and improvements in medical supplies and equipment. Despite the above improvements, the household CHF enrollment pattern in 1996, 1997, 1998 and 1999 was 4.8%, 5.9%, 6.1% and 22.5% respectively (Kapinga and Kiwara, 1999, MOH,2000). The target for 1998 was 65%, hence there was a wide discrepancy between level achieved and the target. (Estimated total number of households=50142).

Some of the possible reasons for the low membership of CHF, have been identified qualitatively (Robles et al., 1999). Quantitatively, the relative importance of these reasons in influencing the performance of CHF in Igunga district as a whole has not been established. In a quantitative evaluation of CHF in Igunga, Kapinga and Kiwara (1999) recommended that "the key determinants of acceptability of CHF must be identified so that campaign strategies may be based on them".

Since several factors may influence CHF enrollment, there is need to focus on the important ones, if any meaningful improvement on enrollment is to be achieved. The assessment of factors that are important in influencing CHF enrollment at the household level formed the core of the study problem.

2.3 Purpose of the study

By the end of 1999, CHF scheme had rolled out to 9 other districts in Tanzania. The districts are Nzega, Singida rural, Iramba, Hanang, Songea rural, Songea urban, Mbinga, Kilosa and Iringa rural districts. Kapinga and Kiwara (1999) documented a household enrollment rate of 4.1% in Singinda rural district in 1998. Although documented evidence from the other 8 roll out districts is not available, existence of similar low enrollment patterns cannot be ruled out.

Low CHF household enrollment has negative implications on both revenue generation and exemptions for the poor. Kapinga and Kiwara (1999) observed that revenue collected through both prepayment and fee-for-service could have been able to fund 39% of non-

salary health sector expenditure in 1998 in Igunga district. Since the revenue collected through prepayment and fee-for-service in 1998 was almost of equal proportion, TSH. 15,425,000 and TSH. 15,074,000 respectively (Musau, 1999), prepayment revenue alone could have been able to fund 19.5% of non-salary health sector expenditure in 1998 in Igunga district. The amount of money raised through CHF prepayment is a function of paid up CHF prepayment membership, hence the low prepayment revenue generation is a direct consequence of the low CHF prepayment membership.

According to the district CHF management, the CHF ward committee exempts poor households up to but not exceeding 5% of the CHF prepaid households (Robles et al., 1999). The exemption restriction therefore implies that with the low household enrollment, very few deserving households are benefiting from the exemption mechanism.

In order to counter the negative effects of low household enrollment, prioritization of the underlying reasons is important. The study findings will therefore facilitate the formulation of evidence based targeted interventions aimed at improving CHF household enrollment rate. By so doing this study will make a contribution to the overall improvement in performance and sustainability of CHF in Igunga district, and elsewhere.

2.4 Location of the study and its appropriateness

Igunga district was selected as the study area because of the following reasons. Being the pilot district for CHF, prepayment as an option for health care financing has been in

operation for 4 years. This is longer than in any other district in Tanzania. The district is also among one of the poorest and is located far in the interior of Tanzania mainland. Lessons and experiences from the district are therefore likely to be reflective of what to expect if similar strategies were implemented in districts with similar disadvantages in Tanzania and elsewhere.

2.5 Host institution

At the district level in Igunga, the hosting institution for this study was the Ministry of Health. The activities of the Ministry of Health are run by the District Health Management Team (DHMT) with the District Medical Officer (DMO) as the team leader. In relation to community health fund, the District Health Management Team has representation at the district CHF board.

2.6 Study questions, objectives and approach

2.6.1 Main study question

What factors are important in influencing CHF prepayment enrollment at the household level in Igunga District.

2.6.2 Specific study questions

The specific study questions were as follows:

1. What was the CHF prepayment membership at the household level in Igunga District during the period May-June, 2000?

2. What proportion of households were willing to enroll as members of CHF prepayment scheme among non-members at the household level in Igunga District during the period May-June 2000?
3. What were the perceived benefits and problems towards CHF prepayment scheme at the household level in Igunga District during the period May-June 2000?
4. How did the perceived benefits and problems towards CHF prepayment scheme between CHF members and non-members at the household level in Igunga District during the period May-June 2000 compare?
5. How important are the factors that influence the level of CHF prepayment enrollment at the household level in Igunga District during the period May-June, 2000?

2.6.3 Broad objective

The broad objective for the study was to assess factors that influence CHF prepayment enrollment at the household level in Igunga District.

2.6.4 Specific objectives

The specific objectives of the study were as follows:

1 To determine CHF prepayment membership at the household level in Igunga District during the period May-June, 2000.
2. To determine proportion of willingness to enroll as members of CHF prepayment scheme among non-members at the household level in Igunga District during the period May-June 2000.

3. To determine the perception (perceived benefits e.g. increased access to health care, reduced costs, improved quality of services and perceived problems e.g. poor management of CHF scheme e.t.c.) towards CHF prepayment scheme at the household level in Igunga District during the period May-June 2000.
4. To compare the perception (perceived benefits e.g. increased access to health care, reduced costs, improved quality of services and perceived problems e.g. poor management of CHF scheme e.t.c.) towards CHF prepayment scheme between CHF scheme members and non members at the household level in Igunga District during the period May-June 2000.
5. To assess factors (e.g. awareness of CHF, financial ability, cost of care, availability of drugs, staff attitude, geographical accessibility of health facilities, level of illnesses e.t.c.) that influence the level of CHF prepayment enrollment at the household level in Igunga District during the period May-June, 2000.

2.6.5 Study approach

The study adopted a cross-sectional approach with both descriptive and analytical components. The study employed quantitative data collection procedures. However, this study was designed with full realization that a combination of both qualitative and quantitative study methodologies is often desirable. Most of the studies conducted on community health fund in Igunga district in the recent past have mostly yielded qualitative findings or a mixture of both qualitative and quantitative findings (Robles et al, 1999; Musau, 1999; Kapinga and Kiwara, 1999 e.t.c.). The predominantly qualitative nature of the findings of previous research work in Igunga has therefore created the need

for quantification of some of the predominantly observed qualitative findings. The quantification will facilitate priority setting in future interventions.

In terms of literature review, findings from the above studies have therefore, acted as building blocks for this study hence completing the complementing circle between qualitative and quantitative study methodologies.

2.7 Country profile

2.7.1 Geography, demography, social and administrative setup

The United Republic of Tanzania is located in East Africa. It lies between latitude 1° and 12° south of the equator and between longitude 29° and 40°. The country covers an area of 940000 square kilometres. It borders Kenya to the northeast and Uganda to the northwest. Rwanda, Burundi and Democratic Republic of Congo border it in the west. To the south, it borders Zambia, Malawi and Mozambique. On the eastern border is the Indian Ocean.

The climate is characterized by a period of rainfall from November to April followed by a dry spell from May to October. The country is partly home to Lake Victoria, the world's second largest lake, Lake Tanganyika and several rivers.

Currently, the total population is projected to be 32 million (MOH, 1997). The annual population growth rate is 2.8% and the projected population density is 34 people per square kilometer. About 15% of the population live in urban areas while the remaining 85% is based in rural areas. 46.8% of the population is below 15 years of age, 49.2% is

between 15-64 years old. The remaining 3.9% of the population is aged 65 years and above.

Tanzania mainland is divided into 20 administrative regions. The regions are further subdivided into about 134 districts. Each of the districts is sequentially subdivided into divisions, wards and the villages. Presently, there are about 9500 villages in the country. Each village has an estimated population of about 3500 people (based on year 2000 projection).

2.7.2 Economy

The main economic activity in Tanzania is agriculture. It accounts for 80% of the total export earnings. Coffee, tea and sisal are the main cash crops. Tourism and mining are the other important source of foreign currency.

The economy of Tanzania suffered major set backs following the global economic crisis of the 70's. Further set backs followed the break up of East African common market and war with Uganda. Over the years, the population growth has out paced the growth in the economy. The mismatch between economic growth and population growth rate has resulted into gross national produce (GNP) per capita of about US$90. Following such dismal economic performance, Tanzania was categorized as being one of the poorest countries in the world.

2.7.3 Health sector

The health sector in Tanzania has undergone major changes both before and after independence (Titmus et.al, 1964). In 1949, a review of the medical policy of Tanganyika was undertaken by Dr (late Sir Eric) Pridie. The review recommended concentration of resources on curative services, gradual development of dispensaries into health centers and development of training institutions. Further recommendations were on management and organization of social and preventive medicine. The review also recommended payment for treatment on a standard scale by all patients except the indigent. The review proposals were then accepted as policy by the then colonial government.

In a subsequent review concluded in 1964, the Titmus commission recommended a balanced development of health services within an overall national plan. Other recommendation included closer integration of services and a radical shift of emphasis from curative to preventive medicine and to the development of services specially adapted to the needs and resources of Tanganyika.

After independence, health services were considered an integral part of the overall national development plans. The objectives of the first five year development plan (1964-1969) for Tanzania were (MOH, 1990); to increase the per capita income of the population, to be self-sufficient in health personnel requirement and, to increase life expectancy from 35/40 years to 50 years. The second five-year development plan (1969-1974) was developed within the framework of the Arusha declaration of 1967. Emphasis was placed on the policy of self-reliance and equitable distribution and access to various

social services and resources in the country. Preventive health care services were promoted as a way of curbing the spread of communicable diseases.

In the third five-year development plan (1976-1981), the government gave priority to environmental sanitation and good nutrition, construction of rural health centers and dispensaries, expansion and strengthening of preventive services and education for both adults and children. The third year development plan overlapped and at the same time acted as an impetus for the Primary Health Care approach initiated at Alma -Ata, a state of the former USSR in 1978.

The Primary Health Care approach and the achievements of the development plans form the basis of health care delivery in Tanzania. Currently, there are a total of 4844 health facilities in the country (224 hospitals, 344 health centers and 4276 dispensaries). Of the hospitals, 19 are district-designated hospitals, 4 referral hospitals and 2 special hospitals. There are 106 health training institutions and an estimated work force of 41338. The doctor patient ratio is about 1:23,188. On average, there is 1 health facility to a total of 6200 inhabitants. Presently, 72% of Tanzanians are within 5 kilometres and 90% within 10 kilometres of a health facility.

One of the major problems in the health sector is under funding. The government's per capita expenditure on health is US$3(GTZ, 1997), as compared to the recommended World Bank estimate of US$12. The household expenditure on health account for 1.9% of the total health budget, most of which (about 90%) is donor funded. Consequently,

health care financing is a priority issue in the current Health Sector Reforms in the country.

In 1999, Tanzania had a crude death rate (CDR) of 17/1000 people, infant mortality rate (IMR) of 98.8/100000, crude birth rate (CBR) of 40/1000, maternal mortality ratio of 770/100000 and a fertility rate of 5. A summary of vital statistics for the country is presented in table 2.2 below.

Table 2. 2 Vital statistics for Tanzania, 1967, 1978, 1988, 1996, 1999, 2000

	1967	1978	1988	1996	1999	2000
CDR/1000	24	19	15	17	17	17
IMR/100000	155	137	115	88	98.8	94
CBR/1000	47	49	46	40.8	40	40
MMR/100000	*	*	*	529	770	*
FR	6.6	6.9	6.5	5.8	5	5
Population	12.3M	17.5M	23.1M	*	31M	31M

Source: TDHS, 1996, 1999; Bureau of Statistics, 1967, 1978, and 1988; UBC/WHO,2000
* Reliable figures could not be accessed

2.7.4 Profile on Igunga district

2.7.4.1 Location , size , climatic conditions

Igunga district is one of the six districts of Tabora region . The district is bordered on the north by Shinyanga district, in the south by Tabora rural district, in the east by Iramba

and in the west by Nzega district. The district covers an area of 4499 square kilometres. It is divided into 4 divisions, 26 wards and 97 villages.

Igunga has temperatures varying from 20° to 30°throughout the year. It has two seasons namely, rain season from November to April followed by dry season May to end of October. Average rainfall per year is between 300mm to 700mm. The rains are mainly received in the afternoons and at night.

2.7.4.2 Demographic and social economic profile

The total population of Igunga district (projected for 1997) is 263,992 people in 50142 households. Children below 5 years account for 24% of the total population.

Main economic activities include livestock keeping and crop farming. Subsistence crops include maize, rice, millet, groundnuts, cassava, legumes and sweat potatoes. Cash crops are cotton and groundnuts. Animals commonly kept are cattle, goat and sheep. The average annual income per person is TSH. 39000/=(US$48). Most roads in Igunga district are seasonal. They are passable by motor vehicles only during dry season. Other natural resource potential includes water, forests and gold at Choma ward.

2.7.4.3 Health

The district has one government district hospital, one mission hospital, 4 government rural health centers, 20 government dispensaries, 6 private owned dispensaries and 2 dispensaries owned by a voluntary agency. There is a health center in each division and a dispensary in all wards except Ntobo, Mwashiku and Nkinga.

The management and organization of health services in the district starts from village health post through the dispensary, health center to the district hospital. The district health management team with the district medical officer as the team leader undertakes the planning, monitoring, supervision and evaluation of health services from the dispensary to the district hospital level.

As of 1997, there were 330 health personnel distributed in various health facilities in the district. The ideal staffing at that time was estimated to be 550 hence there was a shortage of 220 personnel. Some of the dispensaries are therefore missing key health staff but at health center level, staffing pattern was as per establishment except for non-medical support staff.

Financing of health services in the district is the responsibility of the central government. To narrow the health care financing gap, the government introduced cost sharing in the district in 1993 and community health fund in 1996.

The major causes of morbidity are malaria, diarrhoea, acute respiratory infections and HIV/AIDS. Malaria, diarrhoea and respiratory infections are the major causes of mortality in children under five years of age.

3 LITERATURE REVIEW

3.1 Health care financing strategies in Africa: a general overview

In most of the African countries, governments have previously dominated provision and funding of health care services. Most governments financed health care expenditure to the tune of over 60%, literary providing "free" health care (Ogbu and Gallagher, 1992). In view of the current economic recession, such a situation could not continue. As a result and in line with the health sector reforms, most health care financing burdens are being shifted to individuals, communities and the private sector.

Most of the health care financing options incorporate the strategies of cost sharing, risk sharing and rationalization of resources separately or as a mix (Korte et al., 1992). Examples of some health financing alternatives that are based on the above strategies include (Onoka and Kuyoh, 1996, MOH, 1999):

-Pre- payment schemes, a form of risk sharing e.g., CHF

-Fixed payment per sickness episode, a form of user fees

-Fee-for-service (payment at service, user fees, user charges)

-Community health insurance

-Payment in kind

Direct payment by users has also been observed to affect utilization of health services by the poor and other vulnerable groups (Stierle et al., 1999). Onoka and Kuyoh (1996) reported a dropout of as much as 17% among family planning clients of community based distribution agents (CBD) in Kenya due to inability to afford fee-for-service. Osuga and Nordberg (1993), Mwabu et al.(1995) and Collins et al. (1996) have also

documented a drop on the utilization rate of public health facilities following the introduction of cost sharing in Kenya.

In Tanzania, (Hussein, 1994, Hussein and Mujinja, 1997) documented more than 50% decline in utilization of outpatient services in public health facilities in Dar Es salaam region, following introduction of user charges in 1993. By comparing the period before and after introduction of cost sharing, 88.5% decline in utilization of services at Mpwapwa District Hospital in Tanzania has been noted (Gembe, 1996). Explanations put forward for the decline in utilization of the hospital includes: some users not willing to pay, poor quality of health services and inability by some of the potential health care user to pay.

In general cost sharing measures through direct payment of fees have been noted to have a potential of increasing efficiency in quality of health service provision. However, only a small proportion of total health care cost is recovered through cost sharing. Most of the cost sharing schemes are also associated with poor administration of exemption mechanism and its abuse (Mwabu et al., 1995, Janowitz et al., 1999, Gilson et al., 1995). It is possible that deserving poor patients are denied access to health care services by implementing the cost sharing measures. It is therefore necessary for health policies to focus on both the twin objectives of equity and greater efficiency in the provision of health care services (Prabhat et al., 1998). Consequently, there is renewed interest on insurance and prepayment schemes. Both are based on the principal of risk sharing and hence have a potential for more equity in health care access.

3.2 Community based risk sharing health care financing schemes

Several community based risk-sharing schemes are in operation in several developing countries. Toonen (1995) documents prepayment schemes in Bolivia. A similar concept, community health fund (CHF) operates in the Philippines (DOH/GTZ, 1996) where it empresses the philosophy of empowering people in proper utilization of resources in achieving good health and well being. Elsewhere, in the low-income countries of Sub-Saharan Africa workable risk sharing schemes have been identified as pillars for sustainable health care systems (Korte et al., 1992). Several variations of risk sharing schemes ranging in complexity can be identified. Most are not health insurance schemes in a strict sense but operate on the principals of risk sharing and prepayment. Specific examples include (Atim, 1999):

-Prepayment/ local health insurance in Ghana.

-Traditional solidarity networks involving clans or ethnic groups in Cameroon.

-Health associations/ movements involving professional associations and trade unions.

-Complex/ high participation community financing models, with community participation in management.

-More advanced medical Aid societies in Zimbabwe and S. Africa. They involve professional staff and borrow techniques from private commercial insurance.

Other examples of risk sharing schemes have been reported from Burundi and Gabu region of Guinea-Bissau (Arhin, 1995). In Muyinga province of Burundi, Arhin (1994)

observed that the schemes had attracted low membership of about 23% over a period of eight years (1984-1992). In Niger, Leighton (1995) reports that health financing schemes based on risk sharing may have access and quality advantages over fee-for-service. When compared to other health care financing strategies, Yazbeck and Wenner (1994) had observed that the schemes in Niger are preferred due to pooling of risks and involve lower costs. In East Africa, Musau (1999), documents Kisiizi hospital health society in Uganda and Chogoria hospital scheme in Kenya. He also documents Atimani and Mburahati health insurance schemes in Tanzania.

In most risk sharing schemes reviewed, low enrollment rates have been noted. Possible explanations advanced included:

a) Poor administration of the schemes (Korte et al., 1992, Bloom et.al., 1999).
b) Problems in assessing ability to pay at the initiation of the schemes (Korte et al., 1992).
c) Difficulties in determining affordable premia (Korte et al., 1992).
d) Low community ownership of the schemes (Atim, 1999).
e) Poor design (Creese and Benneth, 1999)
f) Members feeling that they are not getting value for money (Bloom et. al., 1999).
g) People being too poor to afford paying (Abel-Smith et. al., 1988).
h) People have more pressing priorities e.g. food and shelter (Abel-Smith et. al., 1988).

In summary, health care reform processes are in motion and in all countries of the world. In Tanzania and in the rest of the developing countries, the processes have been initiated

and already some outcomes have been noted. Some of the adverse outcomes range from difficulties in reorganization of central Ministries of Health (Mogedal et al., 1995, Kutzin, 1995), to inequities associated with user charges (Abel-Smith and Rawal, 1992, Mbugua et al., 1995). Exemptions for the poor and indigent have proved difficult to execute (Litvack and Bodart, 1993, Gilson et al., 1995, Sangana, 1998). Most of the prepayment schemes have only managed to attract very low membership, hence hardly any risk sharing and are exposed to negative effects of adverse selection (Musau, 1999).

3.3 Review of study methodology

Cross sectional studies are carried out at a certain point in time and in a given geographical area (Kapiga et. al., 1998). In such studies, a cross-section of the population is examined by means of a questionnaire and/or through laboratory tests and/or physical examination e.t.c. According to Kapiga et.al.(1998), cross sectional studies can be used for the following purposes:

1. To determine the magnitude of the outcome variable(s) in a community in form of prevalence.
2. To study preliminary associations between outcome variable and other factors through comparisons. As such, cross sectional studies are considered partially analytical.

Cross sectional studies are limited because it is not possible to precisely determine causal association between outcome variable and other factors.

In order to identify households for questionnaire administration, multistage random sampling was used. Multistage random sampling contains the element of randomness, and so samples are representative of the population in the district (Bland, 1996). However, not all samples have an equal chance of being chosen.

Once at the household, information was elicited using a structured interviewer administered questionnaire. Administered questionnaire has the following advantages

- There is greater likelihood of obtaining a good sample from the population
- There is no dependence on motivation and ability of respondents to read questions and write responses.
- There is greater likelihood of establishing rapport with respondents.

However, administered questionnaires have disadvantages, which include:

- Higher costs since individuals are interviewed
- Study progression is slow
- There are potential threats to anonymity
- There is pressure on a respondent for immediate responses and,
- There is the potential danger of interviewer bias.

In general, a questionnaire directed at individual respondents remain a convenient and flexible device for finding out what people know, think and do (Ferguson et.al.,1999). Questions in a questionnaire can be open or closed. Open questions usually allow the respondent to make a response, which is recorded verbatim, in whole or part. Open

questions require more time for answers to be recorded, and need to be coded after the fieldwork. They have the advantage of eliciting more free and precise responses.

Closed questions anticipate quantitative responses. Basically, the more exploratory the questionnaire the greater the proportion of open questions which are necessary. The fewer open questions there are, the faster the interview will progress, with the possibility that detail and elucidation will be missed. There is therefore a trade off between speed and convenience on the one hand, and a possible loss of detail, on the other. In this study, the questionnaire largely contained closed questions. Where applicable, allowance was made for open-ended responses.

4 METHODOLOGY

4.1 Introduction

In this section, the study type is restated followed by details on finance and logistics, study site, study population, sampling and all the data management stages.

4.2 Study approach

The study adopts across sectional approach with both descriptive and analytical components. The study employs quantitative data collection procedures.

4.3 Finance and logistics

The financial support for the study was provided as part of the sponsorship for the Master of Public Health course by the MOH/GTZ-Reproductive Health Project, Kenya. Ethical clearance and introduction to the host institution was facilitated by the Director of Postgraduate Studies (DPGS), Muhimbili University College of Health Sciences (MUCHS). The District Medical Officer, Igunga district assisted with field support and logistics.

4.4 Time frame

Proposal preparation for the study commenced in November, 1999 and was approved for implementation in April, 2000. The fieldwork commenced on 2nd June, 2000. During the first two days of fieldwork, sampling procedures to identify study sites were conducted. The sampling exercise was then followed by selection and training of interviewers, who subsequently assisted in administration of the study questionnaire. The subsequent 5 days

were used in data collection, questionnaire checking and coding. At the end of the fieldwork, 1 day was spent on preparing a debriefing report. The report was then presented to the District Executive Director and the District Health Management Team (DHMT) by the investigator before leaving the district (Appendix 6).

4.5 Study population

4.5.1 Definition of study population

The study population constituted heads of household in Igunga district. The household therefore formed both the units of data collection and analysis. In this respect, a household was composed of a man, one wife or single parent/ guardian and children who are less than 18 years of age. In cases of polygamous relationships, the different wives were regarded as belonging to different households. The definition conformed to the one that is currently being applied by the CHF program of Igunga district.

4.5.2 Selection criteria

The household respondents met the following eligibility criteria: they had to be members of households in villages that were randomly selected irrespective of whether they were exempted from paying for a CHF card and had to be heads of household or any other active household caretaker. Verbal consent was sought by the interviewers before enlisting the household respondent in the questionnaire interviews.

4.5.3 Sample size determination

The formula for calculating sample size for two proportions was used (Fleish TL, 1981,

formula in the Epitable calculator of the Epi Info version 6.04b). The formula is shown below:

$$N=n'/4*[1+\sqrt{1+2(c+1)/(n'c\,|\,p2-p1\,|)}]^2$$

With

$$n'=\frac{[Z(1-\alpha/2)\sqrt{(c+1)p(1-p)}+Z(1-\beta)\sqrt{c*p1(1-p1)+p2(1-p2)}]^2}{c*(p2-p1)^2}$$

$p=(p1+cp2)/(1+c)$, p1 =prevalence in group 1 , p2 =prevalence in group 2, c =ratio of group1/group2, $Z\alpha$ = alpha risk and $Z(1-\beta)$ = desired power.

The following information was used to arrive at the required sample size:

1. An expected proportion of 21% among CHF members who perceived CHF to have benefits such as more availability of drugs(Robles et al,1999). This is equivalent to p1 in the formula above.
2. An assumed proportion of 11% among CHF non-members who perceived CHF to have benefit(10% difference from CHF members). This is equivalent to p2 above.
3. The dependent variable for the study was the CHF household enrollment. A figure of 22.5% had been reported for the year 1999 (MOH,2000). A ratio of about 5 CHF non-members to 1 CHF member was therefore anticipated at the household level in the district. This is equivalent to c in the formula above.

At the confidence level of 95% ($Z\alpha$-alpha risk) and desired power of 80% ($Z(1-\beta)$-desired power) a desired sample size of 768 was hence, obtained.

4.6 Sampling

Multistage random sampling was used in selecting households for structured questionnaire interviews. In each stage, the selection was done using simple random sampling starting with the ward level and then villages in the selected wards. A total of 5 wards were selected and in each of the wards, two villages were also selected. The selected wards included; Kininginila, Mwamashimba, Kinungu, Itumba and mbutu (Appendix 2).

Kininginila, Mwamashimba and Kinungu wards occupy the northern part of Igunga district. The Sukuma people predominantly occupy this part. The economic activities in the area include, subsistence farming; cultivation of cotton and livestock rearing. Mbutu ward is located in the central part of Igunga district. The Sukuma people also predominantly inhabit it. Itumba ward is located in the southern part of the district. Both Sukuma and Nyaturu people occupy the area. The Nyaturu are predominantly pastoralists.

According to previous district statistics, the five wards widely vary in terms of community health fund household membership (DMO, 2000). They range from good performance in Itumba ward, fair performance in Mwamashimba to poor performance in Kinungu and Mbutu wards. The sampled areas covered the major socioeconomic divide in the district. The areas are also well spread geographically. It was therefore felt that the yield of the sampling process was a fair representation of the entire district.

Sampling by proportion was used as a basis for allocating the number of study households among the selected villages. The weight was the number of households in each village. To that effect, information available at the district level based on the 1996 district household census was used. Mbutu village in Mbutu ward had the highest number of households while Mwanyagula village in Kininginila ward had the lowest number of households.

4.7 Data source

The study data source was household interviews that were conducted using a structured questionnaire.

4.8 Method of data collection

The structured questionnaire was made up of three parts. Part A collected information on particulars of the head of the household. The particulars included age, sex, marital status, occupation and religion of head of household. Other particulars include age specification of household members, total annual income for the household, occupation of spouse and available health facilities.

Part B of the questionnaire contained questions covering community health fund prepayment scheme. The areas covered included awareness of the CHF scheme, perceived benefits of the scheme, and perceived problems of the scheme, CHF membership, willingness and ability to enroll for the non-members.

Part C of the structured questionnaire contained questions on utilization of health services following sickness episodes in the household in the past one year. The questions included particulars of the household member(s) who was sick, approximate cost of treatment and source of funds. Subsequent health seeking behavior in relation to place for seeking care and reasons for the preferences and satisfaction with quality of service in the health facilities were also covered.

4.9 Data collection resources

The data collection resources that were used included; 1 Vehicle, 11 personnel namely, 8 interviewers, 1 research assistant, 1 driver, the investigator; a total of 800 six page questionnaires, pens and plastic hard cover pocket files.

4.10 Selection and training of interviewers

A total of 8 interviewers, who were local residents of Igunga district, conversant in both Kiswahili and Kisukuma and with at least secondary school level of education were selected to assist with the interviews. Their selection process involved an interview and application of an aptitude test. They underwent 1 day of intensive training in interview techniques that also included questionnaire pre-testing.

4.11 Questionnaire pilot testing

A structured household questionnaire in Kiswahili language was used in data collection (Appendix 4). Before being administered, the questionnaire underwent two-stage pilot testing. The first stage took place in one of the CHF schemes located in Dar es Salaam

region of Tanzania. A total of 10 questionnaire were pre-tested and served the purpose of detecting any major problems with the questionnaire. Following the pre-testing problems with logical flow of the questionnaire were detected and subsequently rectified. The pretest also revealed problems of language used on the questionnaire. Based on inputs from the pretest and further consultations, the language problems were also rectified so as to conform to the universally accepted standards in Kiswahili. The second stage of questionnaire pretests took place in Igunga district. The interviewers conducted the pretests. The pretests served the purpose of adapting the questionnaire to the local settings and familiarizing the interviewers with the questionnaire. For that purpose, 16 questionnaires were completed during the second stage pilot-testing exercise.

4.12 Data collection procedures

At the time of the interviews, household sampling was done as follows: Starting point for the interviewers in all the villages was the office of the village executive officer. The survey team then worked in four different directions going from one willing household to its nearest neighbor, until a pre-determined household number, based on size of village was reached. During the field interviews, the investigator and the field assistant supervised 4 interviewers each and on a rotational basis.

4.13 Data processing, entry and analysis

The following procedures were followed in data processing, entry and analysis. In the course of the fieldwork the investigator assisted by the district AIDS control coordinator, Igunga district (field assistant), checked all questionnaires. Any errors detected were

brought to the attention of the respective interviewers for correction and if necessary the concerned household was revisited. All the properly filled questionnaires were then coded and double-checked by the investigator.

A questionnaire field for data entry was prepared in Epi info program, version 6.04 for entering the coded data. Analysis was done using both Epi Info and SPSS. Using the two soft-wares was necessary since Epi Info program does not have a provision for executing multiple logistic regression. During the analysis, a number of techniques described below were employed.

Comparison of responses, which were recorded as frequencies, was done using Chi-square test. The P value for the test was quoted if all cells had expected frequencies of not less than 5. Comparison of means was done using T-test. When there was need to analyze asymmetrical quantitative data, logarithmic transformation was attempted first. If symmetry was achieved then the data was analyzed in the logarithmic scale. In case logarithmic transformation failed to achieve symmetrical distribution, the data was analyzed in the normal form using non-parametric tests (Kruskal-Wallis H) and the corresponding P values were quoted.

Multivariate analysis (multiple logistic regression model) was fitted to determine the contribution of household variables in predicting membership status. Most of the household characteristics were then fitted into the model. The model was based on the backward stepwise method (Wald). The method functions by first fitting all the selected

variables. Eventually, the variables that best predict the outcome variable are left in the equation. The result presented will therefore show only variables found to have significant contribution in predicting the response variables and their attributes i.e. P value, Beta (β), standard error (SE), odds ratio of Beta (EXP (β)), degrees of freedom (DF), Wald statistic and partial contribution(R). In all the above tests the P value of 0.05 or less was regarded as being significant.

4. RESULTS

4.1 Background household characteristics

Included below is a description of the social demographic profile, social economic profile and access to health facilities of 766 households spread among 10 villages in 5 selected wards in Igunga district (Appendix 2, for details on wards and village samples).

5.1.1 Social demographic profile of study population

The interviews involved a total of 547(71.4%) male and 219(28.6%) female heads of household. The median age for all heads of household was 36 years and the range was between 17 and 107 years. As shown in table 5.1 next page, the female heads of household tended to be younger.

A total of 215(28.1%) heads of household belonged in Catholic, 148(19.3%) belonged in Islam, 113(14.8%) were Protestants while the remaining 290(37.9%) were pagans. As shown in tables 5.1 next page, more male heads of household (42.6%) were pagans as compared to the female heads of household (26.0%).

A total of 374(49%) heads of household regarded themselves to be in legally or traditionally recognized monogamous marriages, 162(21.2%) were cohabiting whereas 131(17.2%) were in polygamous marriages. The remaining percentage (12.6%) were either ever married or never married. Table 5.1 below shows that more male heads of household (56.8%) were in monogamous relationships than female heads of household

(29.2%), whereas 31.9% of female heads of household were cohabiting as compared to 17.0% of male heads of household.

Table 5. 1 Age, religion and marital status of heads of household according to sex

Social demographic variables	Male		Female		TOTAL	
	NO.	%	NO.	%	NO.	%
Age distribution of head of households in years						
<20	3	0.5	8	3.6	11	1.4
20-29	87	16.0	75	34.2	162	21.1
30-39	231	42.3	72	32.9	303	39.6
40-49	110	20.1	33	15.1	143	18.7
50-59	67	12.2	17	7.8	84	11.0
>60	49	8.9	14	6.4	63	8.2
TOTAL	547	100	219	100	766	100
Religion of head of household						
Pagan	233	42.6	57	26.0	290	37.9
Catholic	148	27.0	67	30.6	215	28.1
Islam	84	15.4	64	29.2	148	19.3
Protestant	82	15.0	31	14.2	113	14.8
TOTAL	547	100	219	100	766	100
Marital status of head of household						
Monogamous	311	56.8	63	29.2	374	49.0
Cohabiting	93	17.0	69	31.9	162	21.2
Polygamous	106	19.4	25	11.6	131	17.2
Ever married	6	1.1	41	19.0	47	6.2
Never married(Divorced, separated, widowed)	31	5.7	18	8.3	49	6.4
TOTAL	547	100	216[1]	100	763	100

[1]Data on marital status of 3 female household heads were not recorded.

There were a total of 3794 household members in the 766 households covered by the study. Findings on the age distribution revealed that those over 18 years of age constituted the highest proportion of 43.3%. The under 5 years and 5-18 year's age group accounted for 24.6% and 32.1% of the population respectively. On average, there were

4.9 members per household (3794/766). The age distribution of members of the study households is shown in table 5.2 below.

Table 5. 2 Age distribution of members of study households (N=766)

Age group in years	No. household members	%
Under 5	934	24.6
5-18	1218	32.1
Over 18	1642	43.3
TOTAL	3794	100

5.1.2 Social economic profile of the study population

Among all heads of household, 585(76.4%) were subsistence farmers and 100(13.1%) were large-scale farmers. The remaining 81(10.5%) were spread between skilled workers, business people and unskilled work. Among the spouse, 480(72%) were subsistence farmers and 80(12%) were housewives. The remaining were spread between business, formal employment and unskilled work. A summary of the profile on the occupation of both heads of household and spouse and, main sources of household income is presented in table 5.3 in the next page.

Table 5. 3 Occupation of both head of household and spouse and, source of household income

Social economic variables	NO. of households	%
Occupation of heads of household(N=766)		
Small scale farmer	585	76.4
Large scale farmer	100	13.1
Professional	39	5.1
Business	33	4.3
Housewife	5	0.7
Unskilled worker	4	0.5
TOTAL	766	100
Occupation of spouse (N=667)[1]		
Small scale farmer	480	72.0
Housewife	80	12.0
Large scale farmer	71	10.6
Professional	21	3.2
Business	13	1.9
Others	2	0.3
TOTAL	667	100
Main source of household income(N=765)[2]		
Farming	698	91.2
Employment	30	3.9
Business	29	3.8
Others	6	0.8
Artisan	2	0.3
TOTAL	765	100

[1] 99 heads of household had no spouse, they were either ever married (divorced, separated, widowed) or never married(single).
[2]Main source of income for 1 household was not recorded

In relation to all sources of household income, an estimated total was computed using self reported income. For the 525 households that self reported on their annual income, farming was the main source (89.1%). The median annual income from farming was

TSH. 70,000. As shown in table 5.4 below, despite farming being the main source of income to most of the households, its median annual income per household was the lowest. When all sources of income were taken into account, the median amount of self reported income of TSH. 70,000 per household per year was the same as for farming alone.

As shown in table 5.4 below, 241 households did not report on their income. Some of the reasons for the non-reporting included cases where the household respondents were the spouse who did not have full information on household income. In some cases, the respondents considered income a sensitive matter hence declined to give figures.

Table 5. 4 Self reported annual income (TSH) according to the main source and number of households

Source of income	NO. of households that self reported	%	Total self reported annual income(TSH)	Median self reported annual income per household (TSH)
Farming	468	89.1	75,134,000	70,000
Business	33	6.3	8,510,000	120,000
Employment	20	3.8	9,468,000	574,500
Artisan	2	0.4	585,000	292,500
Others	2	0.4	670,000	335,000
TOTAL	525[1]	100	94,367,000	70,000

[1] 241 households did not self-report their annual income and were therefore excluded from household income analysis.

5.1.3 Access to health facilities

Geographical nearness of health facilities to the households was determined by documenting the type of nearby[1] health facility and travel time in minutes between the household and the facility. It was revealed that 564(74.4%) of the households had a dispensary nearby, 90(11.9%) had health center nearby and 88(11.6%) had hospital nearby. The remaining 14(1.8%) and 2(0.3%) households were near a chemist shop and traditional medicine practitioner/ healer respectively. The median travel time to the dispensary, health center and hospital was 30, 30 and 90 minutes respectively. Combined, the health facilities were on a median travel time of 40 minutes from the households. Table 5.5 below gives a summary of type of health facilities and travel time between households and the facilities.

Table 5. 5 Travel time (Min.) between households and health facilities according to the type of health facility(N=758[2])

	No. households near the health facility		Travel time(min) to the health facility	
	NO.	%	Median	Range
Dispensary	564	74.4	30	0-300
Health center	90	11.9	30	1-130
Hospital	88	11.6	90	3-240
Chemist shop	14	1.8	5	1-60
Traditional healer/ Medicine practitioner	2	0.3	16.5	3-30

[1]Nearby was taken to mean health facility which is nearest to the household irrespective of the geographical distance involved

[2]Travel time to nearest health facility was not recorded for 8 households

5.2 Awareness about CHF

Out of the 766 household interviews, 426(55.6%) were aware of CHF while 340(44.4%) were not aware. A total of 341(44.5%) male and 85(11.1%) female heads of household were aware of CHF (Table 5.6). More male heads of household were aware of CHF than females and the P value for the difference was 0.000.

As shown in table 5.6 below, the source of information on community health fund was identified as health facility in 200(26.1%) of the cases and village meetings in 179(23.4%) of the cases. Village leaders, neighbors, friends and radio accounted for 27(3.5%), 14(1.8%), 4(0.5%) and 2(0.3%) of the information source respectively.

Table 5. 6 Awareness of CHF according to sex of heads of household and source of information(N=766)

Source of Information	Male heads of household		Female heads of household		TOTAL	
	NO. aware	%	NO. aware	%	NO. aware	%
Health facility	155	20.2	45	5.9	200	26.1
Village meeting	149	19.5	30	3.9	179	23.4
Village leaders	21	2.7	6	0.4	27	3.5
Neighbors	11	1.4	3	0.4	14	1.8
Friends	3	0.4	1	0.1	4	0.5
Radio	2	0.3	0	0.0	2	0.3
TOTAL aware[1]	341	44.5	85	11.1	426	55.6

[1] P=0.000 for the difference in awareness between male and female heads of household

5.3. CHF membership at the household level

Household respondents that were aware of CHF (N=426) were further asked whether their households have been CHF members in the past (1996- 2000) and currently (2000+). These periods take into account the year CHF was initiated in Igunga district. The first year of membership was 1996/1997 followed by second, third and forth years of membership in 1997/1998, 1998/1999 and 1999/2000 respectively. Past CHF membership therefore refers to the four-year period 1996-2000 while current membership refers to the period 2000 and beyond denoted above as 2000+.

Over the past four years (1996-2000), 260(33.9%) of all the households (N=766) interviewed had been members (188+72). During the current year, 209(27.3%) of all households interviewed were found to be members (188+21), hence the current CHF membership rate in Igunga district was 27.3%. The CHF household membership continuation rate over the period 1996-2000 was 24.5%(188/766%) with a drop out rate of 9.4%(72/766%). Rate of new membership recruitment in the year 2000+ was 2.7%(21/766%). The above membership patterns are shown in table 5.7 below.

Table 5.7 **CHF household membership pattern in the past (1996-2000) and currently (2000+) among household that were aware of CHF expressed as a percentage of the total number of households(N=766)**

CHF membership pattern	NO. of households	%
Past CHF members, also current CHF members	188	24.5
Past CHF members, currently non-members	72	9.4
Past CHF non-members, currently CHF members	21	2.7
Past CHF non-members, also current CHF non-members	145	18.9
TOTAL	426	55.6

5.4 Household characteristics and CHF membership

5.4.1 The influence of household characteristics on current CHF membership.

Comparisons were done between current (2000+) CHF membership status and, the background household characteristics. The annual self-reported income was not normally distributed and was normalized through logarithmic transformation.

Two samples T-test was used in the comparisons except for the income in which non parametric test (Kruskal-Wallis H) was most appropriate. As shown in tables 5.8 below, the P values for comparison of total number of household members was 0.04 for current CHF membership. In these cases, CHF member households reported more household members than households that were CHF non-members.

Other characteristics of the head of the household e.g. sex; religion; marital status; occupation of head of household; occupation of spouse; source of income; number of household members under 5 years of age, between 5-18 years and above 18 years were also compared between CHF members and non-members. In all these cases, the P values were >0.05, implying that the comparisons did not establish any significant differences between CHF members and non-members. A summary of the comparison of selected household characteristics between CHF members and non-members is shown in table 5.8 below.

Table 5.8 Comparison of selected household characteristics between current CHF members and non-members

	Mean	Variance (SD^2)	No. house-holds	P value
1. Annual self-reported income TSH.				
Current CHF members	99,483	5579	135	
Current CHF non-members	82,269	3068	156	0.364
2. NO. of under 5 years old children				
Current CHF members	1.95	$(1.1)^2$	163	
Current CHF non-members	2.08	$(1.0)^2$	149	0.26
3. NO. of household members 5-18 years old				
Current CHF members	2.7	$(1.5)^2$	160	
Current CHF non-members	2.8	$(1.9)^2$	121	0.65
4. NO. of household members over 18 years old				
Current CHF members	2.3	$(1.2)^2$	209	
Current CHF non-members	2.3	$(1.2)^2$	217	0.662
5. NO. of all household members				
Current CHF members	5.9	$(2.8)^2$	209	
Current CHF non-members	5.3	$(2.8)^2$	217	0.04

Further to the above, the trend in travel time from the villages covered by the study to the respective nearest health facility was compared with CHF household membership and level of CHF awareness at the village level. As shown in table 5.9 below, one of the lowest median travel time of 15 minutes and the highest CHF membership of 45.8% were both recorded in Ibutamisuzi village. Similarly, one of the highest level of CHF awareness (64.6%) was registered in the same village.

On the other hand, in Ipembe village, the median travel time recorded was among the highest (60 minutes) and at the same time, the village recorded the lowest CHF household membership of 9%. Similarly, the lowest level of CHF awareness of 37.2% was registered in the village. The general trend shown in table 5.9 below is that as the median travel time increases, the CHF household membership and level of CHF awareness at the village level decreases. In other words, as the level of CHF awareness decreases, CHF membership also decreases. Kinungu and Iyogelo villages were exceptions to the above general trend. A summary of the CHF membership, level of awareness and median travel time from the villages to the nearest health facility is shown in table 5.9 below.

Table 5.9 Comparison of level of CHF awareness, CHF household membership and median travel time (Min) from villages to the nearest health facility

Name of Village	Total No. of households interviewed	% house-holds aware of CHF	% of CHF member households	Median travel time(Min)	Range of travel time(Min)
Ibutamisuzi	48	64.6	45.8	15	0-120
Kinungu	81	49.4	30.8	15	5-62
Lugubo	87	65.5	41.4	15	1-180
Mbutu	144	56.3	31.3	40	1-180
Itumba	90	68.9	36.7	45	1-180
Mwamakona	84	58.3	17.8	45	15-150
Jogohya	57	42.1	19.2	60	5-180
Iyogelo	50	68.0	16.0	60	3-300
Mwanyagula	47	40.4	10.6	60	1-240
Ipembe	78	37.2	9.0	60	10-120

5.4.2 Further analysis of the influence of household characteristics on current CHF membership using multivariate logistic regression

Travel time to the health facilities was fitted in a CHF household membership multiple logistic regression model alongside other variables namely: sex, age, marital status and religion of head of household. Total self reported annual income was converted into logarithmic scale first before being fitted into the model. Also fitted into the model were: the number of household members under the age of five years, 5-18 years and over 18 years of age. The resulting equation for the model was as follows:

$$\text{Ln}(p/1-p) = a + b1x1 + b2x2 + b3x3 + b4x4 + b5x5 + b6x6 + b7x7 + b8x8 + b9x9$$

Where, p: probability of a household being a member of CHF

1-p: probability of a household not being a member of CHF

x1: sex of head of household (1=Male, 2=Female)

x2: age of head of household in years

x3: religion of head of household (x31=Catholic, x32=Islam, x33=Protestant, x34=Pagan)

x4: marital status of head of household (x41=Monogamous, x42=Cohabiting x43=Ever married (Divorced, Separated, Widowed), x44=Polygamous, x45= Never married)

x5: annual household income (TSH) log transformed

x6: travel time to the health facilities (Min.)

x7: number of members under the age of five years in the household

x8: number of members aged 5-18years in the household

x9: number of members aged over 18years in the household

Tables 5.10 below shows that p values for travel time (x6) and numbers of household members aged 5-18 years (x8) were 0.00 and 0.09 respectively. Marital status (x4) remained as a variable in the equation although P values for its' various categories (x41-x45) were all >0.05. The p value for travel time was significant. Also, the travel time was negatively correlated with membership implying that as travel time increased, CHF membership decreased.

Table 5.10 Results of multiple logistic regression analysis on possible influence of household characteristics on current CHF membership

	B	SE	DF	WALD	Significance P value	R	EXP(B)
Current(2000+) CHF membership							
Variable labels							
x4			5	6.4881	0.26	0.0000	
x41	0.4796	0.3196	1	2.2527	0.13	0.0251	1.6155
x42	-0.4275	0.3407	1	1.5742	0.21	0.0000	0.6522
x43	-7.0732	12.4687	1	0.3218	0.57	0.0000	0.0008
x44	-0.8007	0.9395	1	0.7264	0.39	0.0000	0.4490
x45	-0.3089	0.5555	1	0.3091	0.58	0.0000	0.7343
x6	-0.0145	0.0036	1	16.1103	0.00	-0.1874	0.9856
x8	0.1188	0.0700	1	2.8794	0.09	0.4680	1.1261
Constant	0.3391	0.2670	1	1.6139	0.20		

5.5 Perceptions on CHF

Both the perceived benefits and perceived problems of CHF were investigated at the household level. The following are the respective findings.

5.5.1 Perceived benefits of CHF

Household respondents who were aware of CHF (55.6%=426/766%) were further asked about the perceived benefit(s) of the same. The responses on CHF perceived benefits were stratified according to the CHF membership patterns as shown in table 5.11 below.

From the responses obtained, 161(37.8%) households perceived easy accessibility of health services as a benefit. Good services in general, drug availability and reduced costs were cited as benefits by 28.9%, 27.9% and 21.1% of the households respectively. Statistical comparisons were carried out between CHF members and non-members in relation to the perceived benefits. The P values were 0.93, 0.83, 0.49 and 0.54 for comparisons on easy accessibility of health services, reduced costs, drug availability and provision of good services in general, respectively. Similar comparisons were not possible incase of the other perceived benefits due to the low frequency of responses obtained.

Table 5.11 Responses obtained on perceived benefits of CHF among households that were aware of CHF according to household CHF membership status (N=426)

	CHF members		CHF non-members		TOTAL	
Perceived benefits	NO.	%	NO.	%	NO.	%
Easy accessibility of health services	82	19.2	79	18.5	161	37.8
Provision of good services in general	67	15.7	56	13.1	123	28.9
Drug availability	68	16.0	51	12.0	119	27.9
Reduced costs	52	12.2	38	8.9	90	21.1
Prior preparation for illness	7	1.6	13	3.1	20	4.7
Availability of laboratory services	9	2.1	5	1.2	14	3.3
Good staff attitude	6	1.4	7	1.6	13	3.1

5.4.2 Perceived problems with community health fund (CHF)

Household respondents who were aware of CHF were further asked about perceived problem(s) with CHF (n=426). The responses on CHF perceived according to CHF membership are shown in table 5.12 below. Lack of laboratory services, lack of drugs, poor management of CHF and non-examination of the patients were perceived by 77(18%), 74 (17.4%), 69 (16.2%) and 45 (10.6%) of the households that were aware of CHF as problems of CHF respectively.

Statistical comparisons were carried out between CHF members and non-members in relation to the perceived problems. The P values were 0.97, 0.93 and 0.76 for comparisons on lack of laboratory services, poor management of CHF and lack of drugs, respectively. Similar comparisons were not possible with the other perceived problems due to the low frequencies obtained.

Table 5.12 Responses on perceived problems of CHF among households that were aware of CHF (N=426)

	CHF members		CHF non-members		TOTAL	
Perceived problems	NO.	%	NO.	%	NO	%
Lack of laboratory services	39	9.2	38	8.9	77	18.1
Lack of drugs	33	7.7	41	9.6	74	17.4
Poor management of CHF	39	9.2	30	7.0	69	16.2
No examination of patients	21	4.9	24	5.6	45	10.6
Lack of money for pre-payment	20	4.7	15	3.5	35	8.2
Poor staff attitude	13	3.1	15	3.5	28	6.6

5.6 Reasons for enrollment and non enrollment with CHF

Respondents of households that were current members of CHF were asked to give reason(s) for enrolling with CHF (n=209). Easy accessibility of health services, reduction in costs of health care, provision of good services and drug availability were given by 105(50.2%), 73(34%), 60(28.7%) and 53(25.4%) of the respondents of CHF member

households as reasons for enrolling with CHF respectively. The respective responses are shown in table 5.13 below.

Table 5.13 Reasons for CHF household enrollment

Reasons for CHF enrollment(N=209)[1]	NO. of households	%
Easy accessibility of health services	105	50.2
Reduced costs	73	34.9
Provision of good services	60	28.7
Drug availability	53	25.4
Availability of laboratory services	14	6.7
Good staff attitude	5	2.3

[1]A household could give multiple responses; hence the responses tabulated are more than the specified household totals.

Respondents of households that were non-members of CHF were asked to give reason(s) for not enrolling with CHF. Financial constraints were cited as a reason for non-enrollment with CHF by 167(76.9%) of the CHF non-member household respondents. Further to that and as shown in table 5.14 below, distance from health facilities (9.6%) and lack of drugs (6.9%) were the other reasons given for non-CHF household enrollment.

Table 5.14 Reasons for non-CHF household enrollment

Reasons for non CHF enrollment(N=217)[1]	NO. of households	%
Financial problems	167	76.9
Far from health facility	21	9.6
Lack of drugs	15	6.9
Not conversant with CHF	10	4.6
No physical examinations	9	4.1
Not yet decided to join	7	3.2
Poor staff attitude	6	2.8
Health workers prefer fee for service	4	1.8

[1]A household could give multiple responses; hence the responses tabulated are more than the specified household totals.

5.7 Willingness and financial ability to enroll as CHF members

The willingness and financial ability of CHF non-member households to enroll as CHF members was investigated. In terms of willingness to enroll as CHF members, 192(88.5%) of the households were found willing to enroll as members (n=217). Another 25(11.5%) households were however not willing to enroll as CHF members. Among the households that declared that they were financially able to enroll as CHF members, 142(94.7%) were also found to be willing to enroll as community health fund members (n=150). The later finding contradicts an earlier one (Table 5.14 above) in which financial problems were cited as a major reason for non-CHF household enrollment. The cross tabulations of willingness and financial ability are summarized in table 5.15 below.

Table 5.15 Willingness and financial ability to enroll as CHF household members among non-member households that were aware of CHF.

	Financially able		Not financially able		TOTAL	
	NO.	%	NO	%	NO	%
Willing to enroll	142	94.7	50	74.6	192	88.5
Not willing to Enroll	8	5.3	17	25.4	25	11.5
TOTAL	150	100	67	100	217	100

As shown in table 5.16 below, a total of 108(76.1%) of the financially able and willing households still gave "financial constrains" as a reason for not enrolling as CHF members thus, contradicting their affirmative responses on willingness and financial ability. Distance from the health facilities and lack of drugs were given by 7% and 5.6% of the households respectively.

Table 5.16 Reasons given by the willing and financially able households for not enrolling as CHF members (N=142)[1]

Reasons given	No. households	%
Financial constrains	108	76.1
Far from health facility	10	7.0
Lack of drugs	8	5.6
No physical examinations	6	4.2
Not yet decided	6	4.2
Lack of laboratory services	5	3.5
Not conversant with CHF	5	3.5
Poor staff attitude	3	2.1

[1] A household could give more than one reason, hence the total responses given were more than 142.

Out of 25 households who were not willing to enroll as CHF members, financial difficulties were given by 18(72%) of them as part of the reasons. Other reasons given included lack off physical examinations at the health facilities, lack of drugs and poor staff attitude and distance from health facilities in 28%, 28%, 24% and 20% respectively. The responses obtained according to the number of households are shown in table 5.17 below.

Table 5.17 Reasons for non willingness to enroll as CHF members (N=25)[1]

Reasons for non-willingness	No. households	%
Financial constrains	18	72
No physical examinations	7	28
Lack of drugs	7	28
Poor staff attitude	6	24
Far from health facility	5	20
Lack of laboratory services	5	20
Health workers prefer fee for service	3	12
Not conversant with CHF	2	8

[1] A household could give more than one reason, hence the total responses given were more than 25.

5.8 Sickness episodes and health care seeking behavior

Health care seeking behavior in relation to occurrence of sickness, particulars of the sick household member and subsequent satisfaction with quality of care in the past one year was investigated. The following are the findings.

5.8.1 Sickness episodes at the household level

A total of 396 sickness episodes were reported from among 298 households during the past one year. In 4 reported cases, age was not recorded. Among the sickness episodes, 50.6%(198/392) were males while 49.4%(194/392) were females. As shown in table 5.18 below, most of the episodes (32.9%) were reported from the 0-4 years age group. The median age of the sick household members was 7 years. The sickness episodes occurred a median of 4 months prior to the interview. The sex and age distribution of the reported household sickness episodes is shown in table 5.18 below.

Table 5.18 Distribution of the reported household sickness episodes in the past one year according to age and sex (N=392)[1]

Age group of the Sickness episodes in years	Male		Female		TOTAL	
	NO. sick	%	NO. sick	%	NO. sick	%
0-4	63	31.8	66	34.0	129	32.9
5-9	47	23.7	47	24.2	94	24
10-14	20	10.1	16	8.2	36	9.2
15-19	17	8.6	13	6.7	30	7.7
20-24	10	5.1	9	4.6	19	4.8
25-29	9	4.5	9	4.6	18	4.6
30-34	3	1.5	15	7.7	18	4.6
>35	29	14.6	19	10.0	48	12.2
TOTAL	198	100	194	100	392	100

[1] In 4 reported sickness cases, the respective ages were not recorded.

The reporting of sickness episodes was further tabulated against CHF membership status. In the current CHF memberships, 112(53.6%) of the sickness episodes involved members (N=209) whereas, 105(48.4%) involved non-members (N=217). When the frequencies of sickness episodes between CHF members and non-members were compared, the P value was 0.28. Hence, there was no significant difference in reporting of sickness episodes between current CHF members and non-members.

Table 5.19 Reporting of sickness episodes in the past one year and CHF membership pattern at the household level

CHF membership pattern	Sick		Not sick		TOTAL	
	NO.	%	NO.	%	NO.	%
Current CHF membership(2000+)						
Current CHF members	112	53.6	97	46.4	209	100
Current CHF non members	105	48.4	112	51.6	217	100
TOTAL	217	50.9	109	49.1	426	100
P value=0.28						

The ages of the sick household members were compared among the CHF membership patterns. The current CHF members reported a mean age of 11.8 years. The non-members reported a mean age of 16 years. A P-value of 0.02 was found when age of the sick cases between current CHF members and non-members were compared. As shown in table 5.20 below, current CHF members tended to report younger sickness episode than current CHF non-members.

Table 5.20 Comparison of the age of the reported sick household members in the past one year and CHF membership pattern

CHF membership pattern	Sick members NO.	Age (yrs) descriptions in years of the sick household members Mean	Median	SD
Current CHF membership(2000+)				
Current CHF members	153	11.8	6	13.6
Current CHF non members	136	16	7	18.7
P value 0.02				

The first, second and third choice places for seeking treatment for the reported sickness episodes were investigated. The first place for seeking treatment was in a public health facility for 291(73.5%) of the cases. Chemist shops and private health facilities accounted for 52(13.1%) and 23(5.8%) of the other cases respectively. Second choice treatment was public health facility for 66(16.6%) of the cases, traditional healers in 12(3.0%) of the cases and private facility for 11(2.7%) of the cases. Third choice place was private facility for 17(4.3%) of the cases and public health facility for 11(2.7%) of the cases. These findings are summarized in table 5.21 below.

Table 5.21 Place for seeking treatment for the reported sickness episodes according to the order of choices (N=396)

	First choice[1]		Second choice[2]		Third choice[3]	
	NO.	%	NO.	%	NO.	%
Public health facility	291	73.5	66	16.6	11	2.7
Chemist shop	52	13.1	9	2.3	1	0.3
Private health facility	23	5.8	11	2.7	17	4.3
Mission health facility	9	2.3	9	2.3	5	1.3
Traditional healer	9	2.3	12	3.0	1	0.3
Self prescription	7	1.8	1	0.3	8	2.1
Community health worker	2	0.5	3	0.8	4	1.0

[1] In 3 of the sickness episodes, the first choice place of treatment was not recorded.
[2,3] Not all the sickness episodes required to seek second and/or third choice treatment.

The respondents of households that reported sickness episode were asked about reasons for preferring first choice place of treatment. As a general reason, 43.2% and 40.4% of the CHF members and non-members cited provision of good treatment services respectively. Other reasons that were cited were, nearness to the health facility in 23% and 24% respectively and enough drugs was cited in 17.3% and 19.2% of the cases respectively (Table 5.22). The P value for the difference between CHF members and non-members in relation to the reasons cited was 0.41.

Table 5.22 Reasons given by households for preference of first choice place of treatment according to CHF enrollment status and type of health facility

Reasons for the preference according to CHF Membership pattern	Public health facility		Mission health facility		Private health facility		TOTAL	
	NO	%	NO	%	NO	%	NO	%
1. CHF member households								
Good treatment services provided	56	42.4	0	0.0	4	66.7	60	43.1
Near	31	23.5	0	0.0	1	16.7	32	23.0
Enough drugs	23	17.4	0	0.0	1	16.7	24	17.3
Member of CHF	13	9.8	0	0.0	0	0.0	13	9.4
Other reasons	7	5.3	0	0.0	0	0.0	7	5.0
Availability of laboratory services	1	0.8	1	100.0	0	0.0	2	1.4
Cheaper	1	0.8	0	0.0	0	0.0	1	0.7
TOTAL	132	100	1	100	6	100	139	100
2. CHF non-member households								
Good treatment services provided	31	34.8	4	66.7	7	77.8	42	40.7
Near	25	28.1	0	0.0	0	0.0	25	24.0
Enough drugs	19	21.3	0	0	1	11.1	20	19.2
Other reasons	8	9.0	0	0.0	1	11.1	9	8.7
Availability of laboratory services	2	2.2	2	33.3	0	0.0	4	3.8
Cheaper	4	4.5	0	0.0	0	0.0	4	3.8
TOTAL	89	100	6	100	9	100	104	100

5.8.2 Satisfaction with health care

Among 298 households whose member(s) attended any public health facility, 252(84.8%) households were satisfied with the services provided whereas 45(15.2%) of the households were not satisfied. One household response was not recorded; hence the total number of responses was 297 instead of 298.

Patient recovery as a reason for being satisfied with health care services was cited in 169(67.1%) of the cases, enough drugs in 78(31%) of the cases, good reception in 33(13.1%) of the cases and laboratory services in 19(7.5%) of the cases. Other reasons e.g. good health workers, less waiting time and qualified staff accounted for 20(7.9%) of the cases. When CHF members and non-members were compared in relation to the reasons for satisfaction, the P value was 0.514. A summary of the reasons for satisfaction is shown in table 5.23 below.

Table 5.23 Reasons for being satisfied with public health care according to CHF membership pattern.

Reasons for satisfaction	CHF members (N=100)		CHF non-members (N=152)		TOTAL (N=252)	
	NO.	%	NO.	%	NO.	%
Patient recovery	67	67.0	102	67.1	169	67.1
Enough drugs	38	38.0	40	26.3	78	31.0
Good physical examination	30	30.0	43	28.3	73	29.0
Good reception	15	15.0	18	11.8	33	13.1
Others	7	7.0	13	8.6	20	7.9
Laboratory services	11	11.0	8	5.3	19	7.5

The reasons for not being satisfied with treatment were given as: lack of drugs in 18(40%) of the cases; lack of laboratory services in 13(29%) of the cases; poor reception in 10(22.2%) of the cases; not being listened to in 12(26.7%) of the cases and long waiting time in 4(8.9%) of the cases (n=45). No significant difference in satisfaction could be established between CHF members and non-members.

6 DISCUSSION

The discussion on study findings below is presented in six parts. Some of the household characteristics are discussed first; followed by CHF awareness and membership at the household level. Then, possible relationships between the household characteristics and CHF membership is discussed. A discussion on perceived benefits of CHF and main reasons for enrolling with the same and perceived problems of CHF and main reasons for non-enrollment with the same is next. A discussion on health care seeking behavior and CHF enrollment at the household level is lastly followed by a brief discussion on some limitations, which the study faced.

6.1 Household characteristics

According to the study findings, 71.4% of the households were headed by males while the other 28.6% were headed by females. For Tanzania as a whole the number of households headed by males increased from 70% in 1988 to 81% in 1991-1992 before decreasing to 78% in 1996 (TDHS, 1988, 1991-1992, 1996). The national trend indicates that increasingly more households are being headed by females (22% in 1996). The study established an even higher figure of 28.6% in Igunga district. As indicated in table 5.1, the female heads of household tended to be younger than the males (P value=0.000).

The age distribution of members of the study households was found to closely conforms with the 1997 Igunga district projections and to the 1996 national estimates (MOH, 1999, TDHS, 1996). According to the study findings, children under the age of five years

accounted for 24.6% of the total population and an average household consisted of 4.9 members (Table 5.2). In the district projections, children under the age of five accounted for 24% of the total population and the estimated size of household was 5.3 members. Nationally, there were on average, 4.2 and 4.9 persons per household in 1988 and 1996 respectively. The mean household size was 5.1 in the rural areas in 1996 (TDHS, 1996).

With reference to household size, the study estimate was however at variance with other previously reported estimates. Kapinga and Kiwara (1999) reported an average figure of 6 persons per family and Robles et al (1999) reported an average figure of 5.9 persons per family. The Tanzania Bureau of Statistics (1993) reported an average figure of 6.4 persons per family for the whole of the Tabora region.

The difference in the above estimates could be explained on the basis of the methodologies used in estimation, source of the data, representativeness of any samples used and, precise definition of a family or household. In this study, the term household strictly applied to one man, one wife and their children under 18 years of age or a single parent/ guardian and children under 18 years of age. The definition conforms to the official definition of a household in the Igunga CHF program (MOH,1999, Robles et.al.,1999).

A higher proportion of male heads of household was found to be pagan in comparison to the female heads of household who tended to belong in Islam and Catholic (Table 5.1). More male heads of household were in monogamous relationships whereas the females

tended to be spread between monogamous relationships and cohabitation. Also more female heads of household were represented in the ever married category (divorced, separated, widowed). A probable explanation for the latter observation is the tendency for most males to remarry soon after divorce, separation or bereavement.

The findings on the social economic profile of the study population (Table5.3) identify small-scale farming as the main preoccupation and hence main source of household income in Igunga district. Similar observations have been documented by other sources (MOH, 1999). On computing the total amount of self-reported income per annum, the small-scale nature of the farming activities was reaffirmed. Despite being the main source of most of the total income, the median income per household per annum is least when compared with the other sources of income (Table 5.4). This implies that although most households are engaged in small-scale farming the monetary returns are little.

The findings on geographical access to health facilities reveal that most households are close to a nearby dispensary (Table 5.5). For most of these households, the median travel to the dispensary was 40 minutes. The findings conformed to the geographical distribution of health facilities in the district and previous estimates of travel time. All wards in the district except 4 had at least one health facility. Most of these health facilities were dispensaries (Kapinga and Kiwara, 1999). Further to that, most people lived 5-10 kilometers from a health facility (MOH, 1999).

6.2 CHF awareness and membership at the household level

At the household level, slightly more than half of the study population were aware of CHF (55.6%). Health facilities and village meetings were identified as the main source of the awareness information. Even then, the contribution of health facilities and village meetings as source of CHF awareness was low. The mere fact that radio accounted for 0.3% of the information source indicated that the mass media through the radio had not been explored as a possible strategy for raising awareness about CHF in the communities (Table 5.6).

Overall, male heads of household had significantly higher levels of awareness on CHF than female heads of household. Whereas females relied on health facilities for such awareness, the males relied on both health facilities and village meetings. It is on record that in Igunga district few females venture into public meetings (Robles et. al., 1999). It is also documented that most rural health facilities in Igunga are understaffed (MOH, 1999). Hence, heavy workload may not allow health workers to be consistent in spreading awareness about CHF at the health facilities. These two reasons could explain the disparity in awareness between male and female heads of household.

The study findings revealed a current (2000+) household membership rate of 27.3%. According to district based sources the household membership rate for the current year is 43%(DMO, 2000). The district estimate is based on membership recruitment data as the numerator and total number of households of 50142 as the denominator The denominator was worked out in 1996 but has not been revised since then (DMO, 2000).

According to Tanzania Bureau of statistics (1988), there were 31793 households in Igunga district in 1988. In 1996, the households had increased to 50142 (MOH, 1999). It is likely that the total number of households in the district has significantly increased since the last household census of 1996. Therefore, use of the 1996 household figures as the denominator most likely led to an overestimation of CHF recruitment rate by the district sources (DMO, 2000). Based on the past CHF recruitment sequence of 4.8%, 5.9%, 5.6% and 22.5% in 1996, 1997, 1998 and 1999 respectively (Kapinga and Kiwara, 1999; MOH, 2000), a rate of 27.3% as established by the study in the year 2000 is prudent.

Other findings in relation to membership included a CHF membership continuation rate of 24.5% and a dropout rate of 9.4% in the period 1996-2000. The rate of new membership recruitment is 2.7% in the year 2000 (Table 5.7). The implication of the membership patterns is that with minimum recruitment of new members, most of the current CHF member households have also been members before. It is sensible to assume that its after having been a CHF member that the benefits are appreciated hence the tendency to renew membership on expiry.

Based on the original CHF membership recruitment target of 65% for the district by 1998 (Ilomo, 1999), the current enrollment rate of 27.3% is still low. However, the growth rate in CHF membership over the past four year period (1996-2000) is faster than was observed in Muyinga province of Burundi, where a similar scheme had attracted a

membership of about 23% over a period of eight years, as from 1984 to 1992 (Arhin, 1994).

6.3 Household characteristics and CHF membership

Further assessment was done on the association between a few selected household characteristics and CHF membership (Table 5.8, 5.9 and 5.10). Study findings based on self-reported income strongly suggested that household income may not have been a forefront determinant of CHF membership in Igunga district. Considering that households were expected to prepay TSH. 5000 per year for CHF membership relative to a median annual self-reported income of TSH. 70,000 per household, the findings were as expected. The finding was therefore at variance with work done by others in the district suggesting that relatively wealthy families are likely to prefer direct payment incase of sickness (Njau and Shirima, 1999; Robles et.al., 1999).

In addition to the finding on income, assessment of the other household characteristics did not reveal any statistically significant influence on CHF membership except the total number of household members and travel time. As shown in table 5.8, CHF member households recorded more members in the household than the non-members ($p=0.04$). The CHF card covers parents/guardians and children under 18 years of age. Since children under five years of age were exempted from cost sharing for health services, the age category 5-18 years therefore assumed more importance in influencing CHF membership.

Although it remained as a variable in the multiple logistic regression equation the p value for the age category 5-18 years was however not significant (Table 5.10). This later observation together with a marginal P value of 0.04 for total household members (Table 5.8) suggests that the influence of total number of household members and especially the age category 5-18 on CHF membership was minimal.

When CHF awareness, membership and travel time were considered together, the study evidence suggested that CHF awareness and membership decreased with increase in travel time from the health facilities (Table 5.9). Findings from other studies do also indicate that the impact of awareness creation and mobilization by the CHF representatives hardly reached villages that are located far from the health facilities (Robles et.al.,1999). Consequently, CHF awareness was higher in villages close to health facilities and lower in far off villages.

Going by the negative correlation between travel time and CHF membership (Table 5.10) it is logical that since awareness was higher near health facilities, households in the nearby villages were likely to enroll as CHF members. Hence, the low recruitment of new members was likely to be a function of the level of CHF awareness in the villages. It is possible that membership in villages near the health facilities was already saturated and villages located far off were not yet adequately mobilized to join CHF thus the low CHF membership.

6.4 Perceived CHF benefits and main reasons for enrolling with CHF

For the CHF members, the main reason for enrolling as members was easy accessibility of health care services (Table 5.13). To the members easy accessibility meant that once prepaid, the household members enjoyed unlimited access to medical care for one year without being bothered about treatment costs. Other specific reasons for enrolling as members included reduction in costs and drug availability.

The reasons for CHF enrollment closely mirrored the perceived benefits of CHF (Table 5.11). The specific benefits included; easy accessibility of health care services, reduced costs and drug availability. As a general benefit, provision of "good services" was also cited. Laboratory services, prior preparation for illness and good staff attitudes were only cited in few responses.

By design, CHF members were expected to benefit from free access to health care without having to pay at each visit to the health facilities. The low annual household premium of TSH 5000 was expected to confer some cost reduction benefits as compared to TSH 1000 for each health facility visit for the non-exempted CHF non-members. Other benefits include free referral for outpatient services to the district hospital (MOH, 1999).

However, few responses in relation to benefits of CHF were given, even from among the CHF members. On inspection of table 5.11, small differences are noticed at first sight between CHF members and non-members and this is further confirmed by statistical testing in which the differences were not significant. This together with the finding on

few response rates implies that, the communities had not been adequately sensitized on CHF and its' accruing benefits. Hence, for both CHF members and non-members, the benefits of CHF had not been internalized to the extent of being expressed outright. This finding was in line with an earlier study finding described above in which CHF awareness in the district was established to be sub-optimal.

The benefits above and the established order closely agree with what has been established in previous studies. The ability to prepay and receive access to health services for one year, reduced health care costs and availability of drugs as part of improved health care have been identified as major benefits and hence reasons for joining CHF (Robles et.al, 1999).

6.5 CHF perceived problems and reasons for non-enrollment with CHF.

Financial constrains were the prominent reasons given for non-CHF enrollment for both willing and non-willing households (Table 5.14). However in terms of perceived CHF problems, financial problems were not highly ranked. Lack of laboratory services and poor management of CHF and lack of drugs were perceived by both CHF members and non-members as problems with CHF. At first sight, small differences are noticed between responses given by CHF members and non-members (Table 5.12). These are further confirmed by the non-significant nature of the differences on statistical testing.

The findings on laboratory service tallies with the low perception of availability of laboratory services as a benefit by both CHF members and non-members (Table 5.11).

However, for CHF non-members, the perceived CHF problems were not prominently highlighted as reasons for non-enrollment with CHF (Table 5.14). Hence, perceived problems with CHF and reasons for non-enrollment with CHF among non-members did not conformity.

Further to the above, it was noted that among households that are aware of CHF, most (69.2%) of the non-member households declared that they were financially able to enroll as members. When financial ability and willingness were combined, 94.7% of the non-members households who are aware of CHF were both willing and financially able to enroll as CHF members (Table 5.15). Yet, both willing and non-willing CHF non-members identified financial constrains as the main reason for non-CHF enrollment. Even more contradictory, the willing and financially able households still cited financial constrains as reasons for non-enrollment (Table 5.16). It is therefore possible that financial constrains may be just but a "favorite" excuse. The observation closely correlates with an earlier study finding in which income was observed not to be a forefront determinant of CHF enrollment in Igunga district. These findings therefore, closely agree with Robles et al (1999) in which the role of "financial burdens" was down played and prominence given to the perceived problems of quality of care.

6.6 Health care seeking behavior and CHF membership

There was no significant difference in reporting of sickness episodes in the past one year between CHF members and non-members (Table 5.19). The finding therefore suggested absence of adverse selection in current CHF membership (2000+). Adverse selection has

been documented as being a potential threat to community based risk-sharing schemes (Ilomo, 1999; Musau, 1999). But evidence from the study indicates that for Igunga CHF, that was not likely to be the case.

On comparing the age of the reported sick cases, it tended to be lower among current CHF members an indication that families with younger members were likely to enroll with CHF. As indicated by the median ages (Table 5.20), these members were likely to fall in the 5-18 age category. These finding therefore reinforces an earlier one in which the number of household members in the age category 5-18 was shown to have some influence on CHF membership at the household level.

In Igunga district, the study finding indicated that public health facilities ranked high both as first and second choice place of seeking treatment. The private facilities featured high only in the third place choice. A possible explanation could be based on the fact that most study households (76.3%) had a nearby dispensary and hardly any other choice (Table 5.21). For both CHF members and non-members, the reasons for preferring first choice place of treatment included; provision of good treatment services in general, provision of adequate drugs and nearness to health facilities (Table 5.22). The citing of quality factors like provision of enough drugs irrespective of CHF membership status implies that all users of health services appreciated the benefits of CHF.

Irrespective of membership status, reasons given for being satisfied with public health care services included patient recovery, provision of adequate drugs and good physical

examination of the patients (Table 5.23). These reasons were similar between the CHF members and non-members.

The reasons for dissatisfaction with health care services irrespective of membership status included lack of drugs, lack of laboratory services, poor reception and not listened to while being attended by health workers. These reasons were also similar between CHF members and non-members.

In terms of overall consistency and on the basis of a series of observations above, easy accessibility of services, reduced costs and drug availability were identified as perceived benefits and reasons for satisfaction with health care in past cases of sickness. All these factors contributed to patient recovery, hence it's prominence as a reason for satisfaction with health care.

On the other hand, laboratory services were excluded as a CHF benefit (Table 5.11). The services were instead identified as a CHF problem (Table 5.12) and further as a reason for dissatisfaction with health service. Other studies done in the district have also identified lack of laboratory services as a major problem facing provision of health services in Igunga district. On the other hand, health workers preference for direct payment over CHF card has not been established as being of prime importance in the Igunga CHF contrary to what other studies had suggested (Kapinga and Kiwara, 1999; Robles et. al., 1999).

6.7 Study biases and limitations

The 1996 Igunga district household census was used in the allocation of number of study households in the selected villages since an update of the census has never been done since that time. Definitely between 1996 and 2000 there must have been changes in number of households in the villages. Use of the 1996 census figures was therefore likely to have introduced sampling biases into the study, especially at the level of allocating number of study households to the randomly selected villages.

Estimation of income from the various sources at household level was done using self-reporting method. The method did not include precise wealth ranking for each household and, some households could not give an estimate of their income or quantity of farm produce. Errors in income under-estimation were therefore likely.

A number of questions in the questionnaire had allowance for both spontaneous and prompted responses. Most of the prompted responses were affirmative and some contradicted each other. For example, a respondent affirms that drug availability was one of the benefits of CHF. When prompted again on problems of CHF, the same respondent still affirms that lack of drugs was a problem with CHF As a result of high frequency of such contradictory prompted responses, only spontaneous responses were taken into account in presentation of results and discussion.

7. CONCLUSIONS AND RECOMMENDATIONS

On the basis of easy accessibility of the dispensaries to most households in Igunga and with the limited choice on health facilities, it is concluded that, the dispensary plays a central role in health care delivery in Igunga district.

In relation to CHF awareness at the household level, slightly more than half the households in Igunga district were aware of CHF. Female heads of households were less aware of CHF, compared to male heads of households. It is therefore concluded that level of awareness about CHF at the household level is far from being optimum.

CHF awareness was found to be higher in villages that were near health facilities. The awareness decreased with increasing distance hence travel time from the health facilities. Further to that, although health facilities and village meetings were the commonest source of CHF awareness information, their respective contributions were found to be low. It is therefore concluded that past use of village meetings and health facilities as the source of CHF awareness information in Igunga district had not been satisfactorily effective.

As far as CHF household membership was concerned, low rate of new member recruitment for the year 2000 was revealed. Also, travel time between villages and health facilities was established to be inversely related to both CHF membership and level of CHF awareness in the villages. On that basis it is concluded that the low rate of new CHF

membership was a likely function of limited and low level CHF awareness efforts especially in villages that were located far from the health facilities.

Easy accessibility of health care services, reduced costs and drug availability were identified as perceived benefits of CHF and reasons for joining the same. Further to that availability of drugs and patient recovery were identified as reasons for satisfaction with health care. However, the responses so obtained were low. Hence it is concluded that for both CHF members and non-members the accruing CHF benefits have not been appreciated to the level of being expressed outright.

The study findings revealed that laboratory services were ranked low as a CHF benefit. The services were instead identified as a CHF problem and further as a reason for dissatisfaction with health service. It is therefore concluded that provision of laboratory services is a major problem likely to be affecting health care provision in Igunga district.

Based on the above, the following recommendations are made:

In view of the short falls revealed in CHF awareness, a sustained CHF promotional campaign strategy is recommended. The strategy should entail the following:

- ✔ Enlist the mass media e.g. radio in the promotional campaigns.
- ✔ The campaigns should target villages located far from public health facilities.
- ✔ Women should be targeted and,
- ✔ The promotional campaigns should be explicit on the benefits of CHF.

For future research the following recommendations are made:

- The role of the dispensary within CHF context needs to be assessed. In that regard, the assessment should involve establishing the most appropriate staff requirement and competency.
- The effectiveness of village meetings, rural based health facilities and CHF village representatives as sources of CHF awareness information needs to be assessed.

Last but not least, there is need to assess the provision of laboratory services in the district health care delivery system.

APPENDIX 1 REFERENCES

Abel-Smith B. and Rawal P. "Can the poor afford "free" health services? A case study of Tanzania". Health Policy and Planning, 1992 Vol.7(4):329-341

Abel-Smith B. and Dua A. "Community financing in developing countries: the potential for the health sector". Health Policy and Planning, 1988 Vol.3(2):95-108

Arhin D. " Health insurance in Africa". Lancet,1995 Vol. 345(8941): 44-45

Arhin DC." The health card insurance scheme in Burundi: a social asset or a non viable venture". Soc.Sci.Med.,1994 Vol.39(6):861-870

Atim C. " Social movements and health insurance: a critical evaluation of voluntary, non-profit insurance schemes with case studies from Ghana and Cameroon". Soc.Sci.Med., 1999 Vol.48(7):881-896

Bland M. An Introduction to medical statistics Oxford Medical publications,1996

Bloom G and Shenglan T. " Rural health prepayment schemes in China: towards a more active role for government". Soc.Sci.Med., Vol.48(1999):951-960

Cassels A. " Health sector reforms: key issues in less developed countries". Journal of International development, 1995 Vol. 7(3): 329-347

Collins D; Quick JD; Musau SN; Kraushar D; Hussein IM. "The fall and rise of cost sharing in Kenya: impact of phased implementation". Health Policy and Planning, 1996 Vol. 11(1): 52-63

Creese A and Bennett S. "Rural risk sharing strategies in health". A paper presented to an international conference sponsored by the World Bank, innovations in health care financing, March 10-11, 1997, Washington D.C in Atim C. " Social movements and health insurance: a critical evaluation of voluntary, non-profit insurance schemes with case studies from Ghana and Cameroon". Soc.Sci.Med., 1999 Vol.48(7):881-896

Department of Health (DOH)/GTZ."Community health fund". A resource book of HAMIS winners in the Philippines, 1996.

DMO, Report on CHF Igunga district, 2000

Ferguson A, Omondi O and Hombergh H." Baseline Survey. An essential and rapid tool in the planning and evaluation of a CBD program. The Kenya example". MOH/GTZ- Reproductive Health Project Kenya and GTZ Sector Project Community Based Services, 1999.

Fleiss JL. "Statistical methods for rates and proportions" 2nd edition, John Wiley and Sons,1981 in Epitable, Epi Info version 6.04b,1997

Gembe CJ."Utilization of the district hospital after introduction of cost sharing". Scientific conference of the Tanzania Public Health Association. Nov 11-15Morogoro, Tanzania, 1996 pg. 132-135

Gilson L, Russell S and Buse K."The political economy of user fees with targeting: developing equitable health financing policy?" Journal of International Development , 1995 Vol. 7(3): 369-401

GTZ. "Support for health sector reforms in Tanzania". 1997.

Hussein AK and Mujinja PG." Impact of user charges on government health

facilities in Tanzania". East Afri. Med.J., 1997

Hussein AK."The effect of user charge policy and other non price factors on the utilization of health services in Dar-es-salaam region". M.med. Thesis, 1994, Muhumbili university college of health sciences

Ilomo P."Community health fund and national health insurance in Tanzania". 1999, (Unpublished).

Janowitz B, D.Meashan and C.West."Issues in financing of family planning services in sub-Saharan Africa. Family Health International, 1999

Kapiga SH, Killewo JZJ, Kwesigabo G, Mnyika KS and Semali IAJ. "Lecture notes in Epidemiology and Research Methodology". Muhimbili University College of Health Sciences, Institute of Public Health, Department of Epidemiology and Biostatistics, Dar Es Salaam, 1998.

Kapinga AM and Kiwara AD."Quantitative evaluation of community health fund Igunga pretest(Including Singida rural district)" Health and Nutrition Project, Component1, MOH, United republic of Tanzania, 1999.

Korte R, Richter H, Merke F and Gorgen H."Financing health services in Sub-Saharan Africa: options for decision-makers during adjustments." Soc.Sci.Med., 1992 Vol.34(1):1-9

Kutzin J. "Experience with organizational and financing reform of the health sector". SHS Paper No.8, WHO, 1995.

Leighton C."Overview: Health financing reforms in Africa". Health Policy and Planning , 1995 Vol.10(3): 213-222

Litvack JI and Bodart C."Quality of health care equals improved access: results of a field experiment in Cameroon." Soc.Sci.Med., 1993 Vol. 37(3)369-383 in Kutzin J."Experience with organizational and financing reform of the health sector". SHS Paper No.8, WHO, 1995.

Macintyre K and Hotchkiss RD." Referral revisited: community financing schemes and emergency transport in rural Africa". Soc.Sci.Med., 1999 Vol.49(11):1473-1487

Mbugua KJ, Bloom HG and Segall MM."Impact of user charges on vulnerable groups: The case of Kibwesi in rural Kenya". Soc.Sci.Med., 1995 Vol. 41(6)829-835

Mogedal S, Steen SH and Mpelumbe G."Health sector reform and organizational issues at the local level: lessons from selected African countries" Journal of International development ,1995 Vol.7(3) 349-367

MOH."Proposals for health sector reforms". Report of the health sector working group, MOH, United Republic of Tanzania,1994.

MOH."Community health fund: Operations guidelines". MOH, Tanzania, 1999
MOH."Community health fund: design". MOH, Tanzania, 1999.
MOH. "CHF pretest financial monthly report". MOH, Tanzania, march, 2000

Musau, S N. 1999. "Community-based health insurance: experiences and lessons learned from East and Southern Africa." Technical report, 1999 No. 34 Partnerships for health reforms, Abt associates inc.

Mwabu G, Mwanzia J and Liambilila W."User charges in government health facilities in Kenya: effect on attendance and revenue". Health Policy and Planning, 1995 Vol. 10(2):164-170

Mwanza EM. "Structural adjustment programmes in SADC, experiences and lessons from Malawi, Tanzania, Zambia and Zimbabwe". 1992.

Njau FN and Shirima RM. " How will the poor fair in the CHF program (is equity being abandoned)." Technical paper No.2 on CHF pre-testing. MOH, republic of Tanzania, 1999.

Ogbu O and Gallagher M."Public expenditure and health care in Africa" Soc.Sci. Med., 1992 Vol.34(6):615-624

Onoka CJ and Kuyoh MA."Evaluation of CBD fee-for-service pilot test". Family Planning Association of Kenya, Nairobi Kenya, 1996.

Osuga B and Nordberg F. "Effects of new service charges on attendance at rural health facilities in Kenya." East Afri. Med. J. 1993 Vol. 70(10): 627-631

Prabhat JHA, Bangora O and Ranson K." The cost-effectiveness of forty health interventions in Guinea". Health Policy and Planning, 1998 Vol. 13(2):249-262

Robles A, Chuwa V, Mkini A, Mwinyi M, Urrio T, Mushi C and Sadalah S. "Qualitative evaluation of community health fund (CHF) Igunga district" Health and Nutrition Project, Component1, MOH, United republic of Tanzania, 1999.

Sangana GS."Community participation towards financing programs in Tanzania: experiences of community health fund in Igunga District." MPH Thesis, 1998, University of Leeds, U.K.

Tanzania Bureau of Statistics, 1967, 1978, 1988, 1993

Tanzania Demographic and Health Survey (TDHS), 1988, 1991-1992, 1996

Toonen J.“ Community financing for health care: a case study from Bolivia” Amsterdam Netherlands, Royal Tropical Institute, 1995, 80p. Bulletin 337

TitmusRM, Mackdonald G, Abel-smith B, Wood CH. “ Health services of Tanganyika” London Pitman Publishing Co. Ltd. , 1964

United States Bureau (USB) of Census/ WHO, 2000

Wahner-Roedler DL, Knuth P and Juchems RH."The German health care system". Mayo Clin Proc,1997 vol 72:1061-1068

Yazbeck AS and Wenner M.“Social financing and fee-for-service cost recovery in Niger.” Major applied research paper, 1994 No. 15, Health financing and sustainability project, Abt Associates.