



PART I

**SOCIOECONOMIC AND HEALTH BACKGROUND
INFORMATION**



Chapter 1

INTRODUCTION

In Cameroon families are expected to pay for the cost of malaria treatment more from their own pockets as a result of health care financing reform. Consequently, family's ability to pay for health care expenditures on malaria treatment, or the affordability of malaria treatment costs, has become a critical policy issue in Cameroon because families now face combined user fee burdens from various essential social sectors such as health, education, food and water (Adams and Hartnett, 1996).

Cameroon has adopted policies to share some the costs of publicly-financed health care. These policies assumed increasing importance in the 1990s as government faced slower economic growth and rising deficits that made public expenditure levels unsustainable. The need to diversify financing and reshape public spending became widely evident as government found it increasingly difficult to pay for the curative health services demanded by citizens. Families as users pay some of the costs of these health services through out-of-pocket payments. The latter, broadly defined, include : various cash payment for both services and drugs; transportation costs; in-kind contributions; and illicit fees that users sometimes have to pay, for example, tipping someone to see a doctor.

Greater out-of-pocket payments, it was hoped, would help the poor because it would mobilize resources from better-off groups and those resources could then be used to improve health services for poorer groups. For this goal to be achieved, though, the poor needed to be exempt from fees or otherwise protected. Experience in the 1990s has shown that the poor have not been effectively protected in many cases. The widening of cost sharing with the expansion of out-of-pocket payments in the 1990s presented a new threat to the poor and their ability to afford health care without making sacrifices of other basic needs such as education and food consumption. Experience shows that while protecting the poor from the cost of medical treatment is achievable, it is not a simple task. Careful

attention has to be given to design and implementation issues, including which particular diseases or services should be highly subsidized by the public. What role families should play in health care financing, and how the children and gender dimensions of the policy are handled.

Health economic analysis can improve policy design. More analytical work should be focused on the question of family ability to pay for health care expenditure on a specific disease. The aim of this study is to address the methodological approach of these issues in the light of malaria treatment in Cameroon.

The purpose of this chapter is to present the rationale of the study. What are socioeconomic, health and health policy indicators underlying this study? The present chapter addresses this question in the following ways :

(a) Background information about public health care in Cameroon is briefly described in relation to the problem and its significance. Emphasis is given to the burden of malaria and key socioeconomic, and health related indicators(Section 1.1).

(b) Health policy indicators are analyzed in relation to public and private roles in health care financing. The analyses here focus on national policy of exemptions based on the patients' ability to pay for health care costs(Section 1.2).

(c) Research questions and objectives are defined in the latter part of this chapter(Section 1.3).

Section 1.1 - Problem and its significance

1.1.1 - Malaria burden in Cameroon

Malaria is acknowledged to be by far the most important tropical parasitic disease, causing great suffering and loss of life. Control is becoming increasingly difficult under health care financing reform in Africa and the epidemiological situation is likely to continue to deteriorate over the next few years.

Malaria in humans is caused by single-celled plasmodia protozoa, transmitted by the bites of *Anopheles* mosquitoes. There are 4 species of *Plasmodia* that infect man causing many species of *Anopheles*, resulting in different clinical patterns of disease. According to TDR (1995), the real drama and tragedy of the disease is caused by the combination of *Plasmodium falciparum* transmitted by the extremely persistent and efficient *Anopheles gambiae* complex of mosquito vectors, which is responsible for a high proportion of the morbidity and mortality due to malaria in Africa each year.

Africa is the hardest hit of all regions. "Some 80 - 90% of malaria cases worldwide are found in Africa and 1.5 - 2.7 million people die from malaria every year. Even in non-fatal cases, malaria produces considerable impact on the health of African children, mostly during their first five years of life, leaving neurological sequelae, increasing susceptibility to other infections, and generally hampering their development. Malaria is also a serious problem when associated with pregnancy, contributing to maternal and neonatal death in non-immunes and to low birth weight". Malaria infection causes "about 300 - 500 million clinical cases each year, undermining the health and welfare of families, endangering the survival of children, debilitating the active population and straining both countries and peoples scarce resources by excessive individual and public health costs" (WHO/AFRO, 1996).

In Cameroon, malaria is an important public health problem. It constitutes the first cause of morbidity and mortality. "The annual number of malaria cases notified each year varies between 800,000 and 900,000 over the last ten years. The incidence rate notified is 85 per 1000 people. The annual mortality rate due to malaria case notified is 8 per 100,000 people. Children under five years old constitute the most infected group. Malaria represents about 35%-40% of medical consultations in different health facilities, and about 20% of hospitalizations in Cameroon today" (MOPH/DCH/NMCPC 1997). These numbers are certainly under-estimated, because they come from various health facilities which might not notify all cases. "Malaria is the cause of about 25-30% of total deaths in the different health facilities, about 30% among children under one

year old and about 35% among children aged 1 to 4 years. The most infected people are children, pregnant women and aging'' (MOPH/DCH/NMCPC 1997). Both morbidity and mortality due to malaria are increased since the results of Cameroon Demographic and Health survey undertaken in 1992 showed that for a sampling of about 3,800 children, the malaria fever morbidity rate was about 22.8% and the mortality rate due to malaria was estimated to represent just 15.7% (Barrière et al, 1991). The problem of malaria is aggravated by the problem of the resistance of *P. falciparum* to some malaria drugs, especially to chloroquine. The types of plasmodia found in Cameroon can be classified as follows : - *P. falciparum* : 96-97%; - *P. malariae* : 3%; and *P. ovale* : 1%. There are four areas in the country of eco-epidemiologic stratification which correspond to bioclimatic areas associated with different patterns of drug resistance. In the coastal area, chloroquine-resistance (RI+RII) is about 18-30%; in the forest area of Sud Cameroon, resistance to chloroquine (RI+RII) is 9-28%; in the savanna area, the resistance to chloroquine (RI+RII) is 6-15%; and finally in the sahelien northern area of Cameroon, the resistance (RI+RII) is 7-20%. Thus, malaria has become an increased threat to children, pregnant women and the aged due to single drug resistance in *Plasmodium falciparum*. The results of in vitro sensitivity of *Plasmodium falciparum* to chloroquine, quinine and mefloquine, and evaluation of drug consumption conducted in four areas concluded that there is a 'southern' type of *P. falciparum* submitted to high chloroquine drug pressure inducing a secondary cross resistance, whilst a 'northern' type submitted to a relatively high quinine drug pressure exhibits primary quinine resistance and secondary cross resistance to mefloquine (Brasseur et al, 1992). In Yaounde, the in vitro chemosensitivity of 22 isolates of *Plasmodium* was assessed by an isotopic semi-microtest; 54.5% were resistant to chloroquine, 28.6% to amodiaquine, 4.8% to quinine and 4.55% had a decrease of sensitivity to mefloquine. In vivo 7-day essays performed with chloroquine at a dose of 25mg/kg in 389 individuals from the southwestern part of the country confirmed RII-RIII levels of resistance in 18-52% of cases, depending on the location studied (Brasseur et al, 1992). Chloroquine-resistant *Plasmodium falciparum* has been also reported in the sahelian and forest regions of Cameroon. In vivo response to chloroquine treatment was assessed in 19 patients with malaria in the savanna North-

west province. 58.5% of the cases showed RII resistance to chloroquine (Ndifor et al, 1992).

The interaction between malaria and pregnancy was investigated in an epidemiologic study conducted in the Centre of Cameroon. The results showed that Plasmodium falciparum infections occurred more frequently in pregnant(45%) than in nonpregnant(31%) women in terms of parasite rates($p=0.03$) and density(p less than 0.003), especially in primigravidae as compared with multigravidae matched for parity and age(Mvondo et al, 1992). Malaria prevalence and drug resistance, now seems to be well established and widespread in Cameroon. Its spread and the prevalence of resistance have implications for economic resources allocation at the family level.

Malaria thus has disastrous social consequences and is a heavy burden on economic development. It is estimated that a single bout of malaria costs a sum of equivalent to over 10 working days in Africa. The cost of treatment is between \$US 0.08 and \$US 5.3 according to the type of drugs prescribed as determined by local drug resistance. Hence, the greatest challenge to malaria control must still be Africa, where the burden is not only medical and social. In 1987 the annual direct and indirect costs of malaria in Africa were estimated to some \$ US 800 million, and were expected to exceed \$US 1,800 million in 1995 (TDR, 1995). While the burden of the disease rose, tightened budgets have forced African countries to introduce or increase user fees, so that patients pay a larger share of the health care's costs (Adams et al, 1996).

Malaria control is an important component of the health system in Cameroon, due to its social and economic consequences. Unfortunately, the resources available are so limited at the government level. Thus, the health sector financing reform has relied heavily on the family economy to tackle malaria treatment and prevention.

1.1.2 - Socioeconomic information about Cameroon

Cameroon, situated at the middle of West and Central Africa, has about 13 million inhabitants, of which more than 57

percent live in rural areas. It is generally considered that Cameroon is the middle income country with about a per capita GNP more than US\$1,000 a year. But health indicators reflect this lower middle income level. The Cameroon socio-economic, health and demographic indicators are presented in Table 1.

Table 1 : Socioeconomic, health and demographic indicators

Indicators : Cameroon	Description and proportion
- Population	- 12.8 millions : (Rural 57% and urban 43%) - Majority young : (Less than 20 years 56%: <5 years 19%) - Natural growth rate : 3.1 per 1000 - Crude birth rate : 42.5 per 1000 - Crude mortality rate : 14.8 per 1000 - Infant mortality rate : 86 per 1000 - Under five mortality rate : 135 per 1000 - Maternal mortality rate : 34 per 1000 - Life expectancy at birth : 56 years
- Education	- Adult literacy rate 57%
- Income	- GNP per capita(1991) : \$US 1400*
- Budget(1996-1997)	- Total Cameroon : 546 billions CFAF - Operating budget: 410 billions CFAF - Investment budget: 136 billions CFAF
- MOPH(1996-1997)	- Staff : 16,802 personnel -Operating budget : 25.946 billions CFAF -Investments budget : 3.2 billions CFAF

Source : MOPH/DCH/NMCPC. January 1997

Continued Table 1 : Socioeconomic, health and demographic indicators

Indicators : Cameroon	Description and proportion
	-Staff central level : 13
	-Budget over 5 years :
	(in CFAF 1996)
- Malaria Control Program (1996-2000)	- 1996 : 263,940,080
	- 1997 : 248,524,640
	- 1998 : 200,509,840
	- 1999 : 172,558,700
	- 2000 : 160,923,325

Source : MOPH/DCH/NMPCPC, January 1997

* This GNP per capita is from the National Statistics Bureau's estimation in 1991/1992 (quoted in Barrière et al. 1991). The real value of GNP per capita today should be less than this, since the CFA Franc was devaluated in 1994 at a high rate of 50%. Thus, the current value of real GNP should be slightly more than half of its value in 1991.

Faced with severe imbalances in its economy Cameroon started structural adjustment programs in 1987. The adjustment package included tight fiscal and monetary restraints and resulted in a significant fall in domestic output, real wages, and private consumption. Some observers have argued that austerity measures have put an unacceptable burden on the poor in Africa, especially through cuts in spending on social services such as subsidies of health care and education (Cornia et al. 1987).

In fact, the most notable change in health care financing during the late 1980s, was the introduction of and increase in out-of-pocket payment for government services. *"The greatest changes have probably taken place in Sub-Saharan Africa, where many countries have either increased or introduced fees for government-provided health services"* (WHO, 1993). This change in health care financing has been interpreted as entailing greater responsibility for individuals, families and communities. The affordability of health care costs, in consequence, the health status of various population groups may be changed. The financing method has affected the growth of health care costs. Consequently, the necessity for local malaria control action must not be emphasized at the expense of need to

understand how the affordability of treatment has been affected by changes in health care financing.

1.1.3 - Question of family ability to pay for health care

Malaria occurs in most families. Family's members usually unite and help one another when this occurs. For a short time most families can adapt to the necessary changes. The expense of the illness may mandate that resources be reallocated. Coping strategies are utilized and improved, and family goals change to include the need for giving care. *"(F)amilies do, on occasion, encounter great difficulty in paying for health services. They persist in using the services because they do not see that they have any choice if they are to save their relatives. The money used to pay for health care may otherwise have been used for food, education or agricultural development. Payment for health services is thus made at considerable social cost to the family and scarcely be said to represent a 'willingness' to pay in the normal sense of the word"* (Waddington and Enyimayew, 1989).

In Cameroon, the question of affordability is particularly urgent because families now face combined cost-sharing burdens from various essential service sectors such as health, education and water, while food prices are rising and employment and real wages are falling. A previous study has shown that malaria represents a dominating endemic for which the yearly financial effort consented by each family amounts to \$US 230 which represents medical care and services as well as the purchase of chemicals for anti-vector control (Louis et al, 1992). These payments coincided with the reopening of schools, creating financial difficulties : *"The money spent on my wife's illness was earmarked for the payment of the children's school fees and buying of school uniforms"* . Since 1992 however, the macroeconomics conditions have changed over time. The national currency was depreciated to 50% of its value. In fact, in January 1994 Cameroon and other countries in the CFA Franc zone devaluated the parity of the CFA Franc from 50 to 100 CFA franc to the French franc. The high rate of inflation following the devaluation of the currency involved the rise in prices of goods and services. Thus the health services were especially affected

in relation to the imported nature of essential drugs and medical equipment. At the same time the rate of unemployment is high among the urban population and is particularly acute amongst women and youths; a survey carried out in late 1993 estimated unemployment in Yaounde, the capital, at about 25% (World Bank, 1994). The Cameroonian urban population represents 43% of the total population. In the rural areas, poverty and unemployment have been on the rise because of the decline in agricultural output. Following structural adjustment macroeconomics policy, the government reduced both the number of civil servants and the high standard level of monthly salaries earned in the public sector. The effects of these measures and their implications combined together reduced considerably the consumers' purchasing power parity. Although health indicators are slightly better than those of the lowest-income regional countries, access to health services is a recurrent problem amongst women and children, in both urban and rural areas. Thus, in 1988, about 15% of the total population had access to health services in Cameroon. The effect of this poor health care accessibility and delivery, in addition to widespread adult female illiteracy is reflected in the high rates of maternal and infant mortality. Consequently, in the health sector, consumers may be more sensitive to any increase in user fees. Gender is an important issue in the design and implementation of cost-sharing for health care. Although in Africa women tend to have the primary responsibility in families for health care, they do not necessarily have access to family income and control over how it is used. Intrafamily obstacles to health inputs may arise from patterns of allocation of resources for food, education, and the financial means to access medical care services that discriminate against women and girls. Studies suggested that many families are less willing to commit resources for health care of female family members, with the result that the costs of using health services (including user charges, travel expenses, and the opportunity costs of the patient's and family care taker's time) often present a greater barrier for females than for males. Thus, women tend to resort to the use of traditional practitioners and self-medication.

Section 1.2 – Public and private roles in health care financing in Cameroon

1.2.1 – Partners in health care delivery system in Cameroon

This section presents socioeconomic information that can be used as background for the empirical analyses. Cameroon has a mix of public and private health care. The major provider of public health care is the Ministry Of Public Health(MOPH) which operates hospitals, health centers, and health posts. Health centers offer limited services, have some laboratory equipment, and are often staffed by a doctor. Health posts have little equipment and are attended primarily by nurses' aides. The next largest provider is represented by various non-governmental organizations (NGOs) which operate hospitals, health centers, and even health posts, mostly in remote rural areas. But, NGOs health services are not free at all to users. Their charges include diagnosis, therapy, and drugs for out-patients, as well as fees for medical procedures and beds for in-patients. The Cameroonian National Insurance Fund(Social Security) constitutes the third provider of health services. It operates hospitals in urban areas generally free of charges only for insured workers, pensioners, and their dependents. Despite the health care financing reform, the private for-profit sector constitutes the fourth provider of health care in Cameroon today. It is followed by the traditional healers and self-medication(fifth). This informal medical care is still very prevalent in Cameroon. The number of people consult in the street pharmacists or drugs hawkers varies with economic trends and increased during the economic crisis of 1988-1995.

Indeed, the Bamako Initiative announced at a 1987 meeting of African ministries of health sponsored by the World Health Organization and UNICEF saw user fees as playing an important role. This initiative focused on the attainment of universal accessibility to primary health care (PHC) in Africa through community-level financing and management, with emphasis on essential drugs. Since then, more than 20 out of 49 districts in Cameroon are participating in Bamako Initiative. The 1990 law has introduced or significantly increased user fees for all public health facilities. The charges in place nationally in

hospitals were increased, and the health centers were allowing to charge for services and drugs. The structure of user fees in Cameroon includes, for out-patients : fees for consultation, fees for tests, and fees for drugs, or prepayment. For in-patients, it includes both fees for medical procedures and fees for drugs. The extent to which user fees are currently in place in public health facilities has led some analysts of cost recovery to range Cameroon in category 1 among the African countries (Nolan and Turbat, 1995).

1.2.2 - Public and private shares of health care expenditures

The preceding paragraph shows that the distribution of overall health spending between public and private sectors was changed since the introduction or increase of user fees in 1990. Unfortunately, it is extremely difficult to estimate how private expenditure is divided; few data are available for Cameroon. However, considering the income-related expansion of health insurance, it is evident that as income decreases or is still low as observed in Cameroon since 1989, out-of-pocket financing tends to take over from insurance. This is expected as health insurance is a "normal" good, meaning that people buy less of it as their incomes decrease. We estimate that out-of-pocket expenditure is half or more of health expenditure in Cameroon. Private insurance is still relatively rare (but growing) and nearly all private spending is out-of-pocket, whether it is a large or a small share of total expenditure. Table 2 classifies health expenditure as public and private shares in some African countries, while Table 3 presents the real per capita government expenditure.

Table 2 : Health expenditure and public/private shares

Country	Purchasing power parity in US (dollars)	Total health expenditures as share of GDP %	Public Expenditures on health as shares of total health Expenditures %	Private Expenditures on health as shares of total health Expenditures %
Mozambique	600	6	75	25
Tanzania	570	5	68	32
Cameroon	2400	3	38	62
Zimbabwe	2160	6	52	48
South Africa	>3000	6	57	33

Source : Philip Musgrove 1996

Table 3 : Real per capita health spending (constant 1987 US \$)

Country	Population with access to health services % in 1988	Annual average real per capita health spending 75-84	Annual average real per capita health spending 85-89	Annual average real per capita health spending 90-MR
Botswana	86	17.1	29.8	34.0
Cameroon	15	6.9	9.1	-
Zimbabwe	85	12.3	16.7	-

Source : World Bank's African Development Indicators. April 1996

1.2.3 - User fees and the poor in Cameroon

In addition to the financing patterns, the equity implications of user fees in public health services have been among the most hotly debated aspects of cost recovery. The research and policy literature has focused primarily on the impact of user fees on utilization, especially utilization by the poor, which we will discuss briefly in relation to an experimental field study in Cameroon in the next chapter (literature review). First, however, it is important to consider

how cost recovery structures in Cameroon attempt to "protect the poor" via exemptions. The questions of interest here are whether there are formal or informal exemptions or reduced fees for the poor, how there are administered, and how widely exemptions are actually given. Protecting the poor, which is among the general aims of "Health for All by the Year 2000", can be approached in numerous ways, and as will be discussed in this study, whatever strategy is adopted can have major implications for patients and their families.

The cost-sharing scheme was increased without adequate consultation. No mechanisms were put in place for assessing the impact on the family's ability to pay for health care. Even the most optimistic studies of people's willingness to pay find that some proportion of the population requires assistance. The central problems are defining information criteria on such people to whom government might provide subsidies, and effectively administering exemptions.

Table 4 shows whether some African countries listed have a national policy or system of exemption related to the Ability To Pay, and if they do not, what practice is followed at the health facility or community level. Many countries exempt patients on other grounds (for example, if they are civil servants, have served in the military, or are insured workers from social security, or if they have specified illnesses such as leprosy, HIV/AIDS or tuberculosis), but this study is confined to exemption on the grounds of poverty or the Inability To Pay. The criteria used to determine who is exempt (whether there is an explicit system for identifying such cases, or whether such broad terms as "the poor", "the indigent", or "those unable to pay" is used and must be interpreted at the point of collection), who has the discretion to make such decisions, and the extent to which exemptions are in fact given

Table 4 : User fees and the poor in some African countries

Country	Poor exempt from fees?	How defined?	Who decides?	Percent exempt?
The Gambia	National exemption provision but no formal guidelines	'Unable to pay'	Facility staff	Patients "seldom" exempted
Kenya	National policy	'Unable to pay'	Community leaders and administrators	Not known
Lesotho	National policy	"Paupers" with no assets or means	Village chief or health workers	Very few
Mozambique	National policy	"Too poor to pay"	Not clear	Not known
Zimbabwe	National policy with formal guidelines	'Unable to pay' based on income and assets	Local officials and facility staff	Most of rural population + urban unemployed
Benin	Exemption system being framed	"Indigent"	Local management	To be about 2 percent
Cameroon	No national system, but those unable to pay are generally treated	Not clear	Varies	Not known
Congo	Yes	'Unable to pay'	local management	Not known

Source : Nolan and Turbat 1995

Table 4 c'tnued User fees and the poor in some African Countries

Country	Poor exempt from Fees?	How defined?	Who decides?	Percent exempt?
Mali	Yes	Indigent or 'unable to pay'	Health committee	Up to 30-50 percent at some hospitals (not all because of poverty)
Niger	Yes	Certified as 'unable to pay'	Administrat or	Not known

Source : Nolan and Turbat 1995

Some recent and current studies have been looking explicitly at whether the access of the poor can be improved through exemption mechanisms in developing countries. Gilson et al (1995) emphasized that very little is known about the effectiveness of exemption policy, and concluded that lack of information on the family's ability to pay limits the success in protecting the poor. Kutzin (1994) is also sceptical about the success of exemption policy to date, arguing that it has often benefited the non-poor more than the poor. He quotes Weaver et al (1990) who reported that the income of non-exempt patients was lower than the average in Niamey Hospital, Niger. However, Willis (1995) reports findings from the HFS project in Niger that after introduction of cost-recovery, the poorest 25% of households were less likely to pay fees than the rest of the population, and in one district, these poorest households were 80% less likely to pay than the others. Ensor (1995) found that exemption mechanisms did not effectively exempt the poor in Vietnam but rather prioritized other groups such as those wounded or losing family members in the war.

Data from Table 4, based on a survey of official cost-recovery policies for health care systems in African countries (including Cameroon), also suggest that exemptions are

remarkably uncommon. Their national health policy provides for exemptions but they have no clear criteria for determining who qualifies for them. The limited capacity to administer exemptions in most African countries may well be explained by the lack of knowledge about family ability to pay for health care, and is the most important explanation for their infrequency and ineffectiveness in reaching the truly poor (Shaw and Griffin, 1996). The picture of exemptions policy remains incomplete. Unfortunately, no one formula is likely to suffice to determine who should be justly exempt from user fees. If a family by paying the health care expenditure, is forced to reduce its investments in human capital, and its consumption of other essential commodities, it may be considered indigent or unable to pay.

Targeting the policy of exemptions by type of service rather than to broad groups is considered as one of the possibilities. This approach would heavily or fully subsidize those services needed disproportionately by low-income families, such as treatment for communicable diseases. Malaria is likely to be the main target for the exemption policy in Cameroon, since it is the number one in both epidemiologic and financial burdens to poor families.

Section 1.3 - Research questions and objectives

1.3.1 Research questions

- 1 - What are the determinants of family ability to pay for health care expenditures on malaria treatment in Cameroon?
- 2 - Which population and illness groups are least able to cope with health care expenditures on malaria treatment?
- 3 - How should public health policy initiatives should be defined to assist families facing difficulties of paying for health care expenditures on malaria treatment?

1.3.2 - Research objectives

General objective : To investigate the family's ability to pay for health care expenditures on malaria treatment in Cameroon.

Specific objectives :

1 - To develop an appropriate methodology for identifying the determinants of family ability to pay for health care expenditures on malaria treatment in Cameroon;

2 - To determine how limited resources of families are allocated to malaria treatment needs of individuals, especially women and children;

2 - To define the appropriate design of health policy interventions for decision-makers in the context of malaria control in Cameroon.