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Case Studies from Sub-Saharan Africa

Edited by
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CONTENTS

FOREWORD

Investments in health are a key ingredient to the formation of human capital and the sustainability of social and economic development. This point has been firmly established in the *World Development Report 1993, Investing in Health*, as well as the World Bank's more regionally focused *Better Health in Africa*. Yet government expenditures on health have often been lamented as being inadequate, inefficient, inequitable, and unsustainable in countries of Sub-Saharan Africa. Cost-sharing, involving cost-recovery efforts and self-financing health insurance can help ameliorate the situation.

The studies in this volume highlight the prospects and the potential for user fees and self-financing health insurance not simply as a way of raising more money, but as tools to help improve efficiency, equity, sustainability and private sector participation in national health systems. User fees take prominence because private expenditures on health in Africa are thought to account for almost half of total health expenditures. Health insurance is of interest because it protects the welfare of individuals who fall seriously ill and, if self-financing, can simultaneously free up government resources for public health goods and services.

The central problem in expanding cost-sharing in Sub-Saharan Africa is how to jointly maximize the desires and needs of households seeking health care, on the one hand, and the goals of national health care systems on the other. This collection if studies provides a largely positive interpretation of the potential role of user fees and health insurance, while acknowledging that many critical issues remain under-investigated and unresolved. It therefore provides direction to the design and implementation of effective cost-sharing strategies and flags issues requiring further policy analysis and research.

Kevin Cleaver
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ABSTRACT

The case studies reported in this volume focus on user fees and self-financing health insurance as a means of contributing to improved health sector efficiency, equity, and sustainable financing. The challenge facing policy-makers is how to tap resources that African households seem ensuring that people receive good value for money. User fees are emphasized as a form of cost-sharing because private, out-of-pocket expenditures for health account for nearly one-half of total health expenditures in Africa. The country experiences presented here distill lessons learned on does and don'ts, as well as benefits to be gained by carefully designed user-charge policies. Self-financing health insurance is emphasized because this type of insurance enables many people to pool their resources to provide coverage for catastrophic illness or injury. The evidence presented here suggests that self-financing insurance is more prevalent than had been previously thought in many countries. Nurturing such insurance offers previously unexpected opportunities to develop better health care systems in Sub-Saharan Africa.

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CHAPTER 1

INTRODUCTION AND OVERVIEW

In 1987, the World Bank recommended increased cost recovery as part of an agenda for financing publicly provided health services in developing countries (World Bank 1987). In Sub-Saharan Africa (SSA), government health services were often free of charge or offered with high subsidies. Chronic shortages of finance for recurrent inputs, such as drugs, were severely reducing the effectiveness of existing health services. Furthermore, health systems had not achieved complete coverage of the population, particularly in rural areas. Revenues from increased cost recovery from clients were therefore proposed as a means of improving the quality, effectiveness and coverage of health systems.

Introducing or raising user fees was also envisioned as a way to improve the efficiency and equity of health systems. Price signals can be used to direct clients to obtain services where they can be provided at lowest cost, and to discourage excessive use of health care. Higher-income groups tend to consume more health care and more expensive services; charging those who are most able to pay frees up resources for subsidizing the poor and will divert wealthier clients to private sources of care. Fee exemptions were advocated for those too desititute to pay. It was thought that the improved effectiveness and quality of health care possible with higher user fees might actually raise the use of medical care, despite higher prices. Thus, increased revenue, improved efficiency and equity were the most compelling arguments for introducing or augmenting user fees in African countries (see 1.1).

Since 1987, there has been a flurry of debate and analysis on the financial and social implications of charging for health services in government facilities (World Bank, 1987, 1993a, 1994a). In countries of Sub-Saharan Africa, there is growing agreement that some kind of cost-recovery is needed, in view of escalating health costs and the limited capacity of Ministries of Health to finance or deliver highly subsidized health services to all citizens. This capacity has been undermined by unstable economic performance, unprecedented rates of population growth, and the immense cost that the HIV epidemic is beginning to exact on health budgets. Many countries have in fact introduced fees where they formerly did not exist.

Concern remains widespread, however, that increased user fees in government-operated facilities or expansion of health insurance may not be affordable, thus denying the poorest people access to modern health services. Household surveys reveal that more than half of those who fall ill do not seek care at modern health facilities but, rather, "self-treat," drawing on their own remedies, locally purchased drugs, or traditional healers. In some cases, the price of consultations, the cost of transport and drugs, and employment earnings foregone while seeking

modern medical care may be responsible for this situation. In a region where about 48 percent of the population, or 216 million people, were poor in 1990, the ability to pay for essential health care takes on immense importance (World Bank 1994a). However, another reason for the seemingly low utilization of modern care appear to lie with the deteriorating quality and effectiveness of public health services in many countries, often due in part to inadequate finance. The decline in the effectiveness of care also may disproportionately affect the poor.

Table 1.1: The Potential Benefits of Increased Cost Recovery for Government Health Services

Revenues and Quality of Services
• Increased revenue from user fees can: • Augment financing of under-financed recurrent inputs, such as drugs, improving the quality and effectiveness of services. • Free up resources to expand the availability of services.
Efficiency
Pricing of services: • In line with their unit costs, clarifies the benefits expected for any given service, whether the government should be financing it, who is likely to use it, and who will pay. It also creates incentives among administrators to minimize costs. • Reduces *excessive* use of services and can bring supply capacity in line with willingness and ability to pay. • Can improve efficiency in the referral system. Pricing differentials can direct clients to lower cost sources of basic preventive and curative care at lower level facilities, while higher-level facilities provide higher cost curative treatments with higher user charges.
Equity
User fees can improve the equity of health systems: • By charging those who make most use of curative care and who are most able to pay, channeling health care subsidies to those least able to pay and who are less likely to seek care (the poor). • By supplementing public coffers to help subsidize the poor. Exemptions can be implemented for the most destitute.
Public-Private Collaboration
User fees for government services: • Foster greater competition between private and public providers and improved efficiency of both. • Divert demand to private providers, freeing up government resources for more purely public health services.

Debate over these and related issues has yielded several positive outcomes. First, the underlying principles, rationale and modalities of increased cost recovery have become clearer in the public debate. This is important because too much emphasis in the past has been placed on raising revenues and less on how cost recovery can contribute to improved efficiency, equity, and sustainability of national health systems. Second, empirical assessments of the impact of the price, availability and quality of services on the demand for medical care in Africa[1] have been launched, shedding new light on prerequisites to successful cost-recovery strategies. Third, as revenues accrue from user fees, households, providers of health care and donors are appropriately asking "more revenue for what"? The cost and quality of health services have come under increasing scrutiny. Recent studies show that government expenditures on health can be allocated far more efficiently, offering the prospect of extending basic services to larger numbers of people in Africa (World Bank 1994a). It is time for a stocktaking of experiences and lessons learned on these issues.

This volume presents a collection of recent empirical studies on health finance in Sub-Saharan Africa, with a focus on two mechanisms -- increased user fees for public services and expansion of self-financing health insurance (see Box 1.1). *User fees* are already the major form of health finance in Sub-Saharan Africa: private, out-of-pocket expenditures for health account for nearly half of total health expenditures. Government expenditures account for about 34 percent, financed through import duties, sales taxes, and income taxes. Donors and charitable contributions account for the remaining 19 percent, most of which maintains capital or developmental budgets. The studies in the first half of this volume address the impact on health systems and clients of increased user fees for public health services in Sub-Saharan Africa, and the lessons learned from implementing these schemes over the last several years.

Box 1.1: Mechanisms for Resource Mobilization for Health

There are five main options for financing better health in Sub-Saharan Africa:

- User fees
- General systems of taxation
- Health insurance
- Charitable contributions
- Donor assistance earmarked for health.

The main source of funds for the first three options and perhaps much of the fourth is, directly or indirectly, individuals and households. These resources finance three main providers of health care -- government providers, private-for-profit providers, and private non-profit organizations.

The studies in this volume focus on user fees as a source of finance in health facilities operated by the government, and the prospect of health insurance for financing all three types of care.

Self-financing health insurance is highlighted as well, because increased user fees for curative care may lead to unaffordable costs in the event of catastrophic illness or injury. Health insurance allows people to pool contributions to cover the treatment costs of those who experience low probability, high cost medical problems. Without access to such insurance, many people would be unable to obtain treatment, or would have to incur major debts to pay hospital bills. Of course, many African governments in theory have been providing "health insurance" to their populations for years in the form of free

1 In this study, Africa refers to Sub-Saharan Africa.

services, financed by tax dollars. However, rising costs, limited funding, and increasing inefficiency have greatly weakened the ability of public systems to provide effective care and universal coverage. The studies in this volume review the benefits of and prerequisites for self-financing health insurance and review the results of several ongoing insurance schemes in Sub-Saharan Africa.

When combined, user fees and self-financing health insurance can reinforce each other's contribution to sustainable health finance. User charges are a stimulus to self-financing health insurance schemes. Countries cannot jump into self-financing health insurance schemes without first passing the hurdle of imposing user fees in government facilities, especially hospitals. The reason is simply that when people have the option of obtaining health services at zero or low cost, they are unlikely to have much incentive to pay insurance premiums to cover unexpected health hazards.

ORGANIZATION OF THE VOLUME

Chapter 2 of this volume provides an overview of the rationale for user charges, their implementation, and their contribution to cost recovery, efficiency and equity in Sub-Saharan Africa, setting the stage for the country case studies that follow. The lessons learned in implementing increased user fees for medical care in Zimbabwe are reviewed in Chapter 3, including issues such as setting fee levels, improving billing and collection of fees, and implementing fee exemption policies for the indigent.

The next three chapters address the impact of increased user fees on the demand for medical care. The study in Chapter 4 attempts to assess the impact of a past nationwide increase in public user fees in Lesotho, using routinely-collected utilization data from health facilities. The results reveal that utilization of health care did decline, but that it is impossible to determine how much of the decline was due to fees and how much due to other factors, such as changes in the quality of care, household incomes or the prevalence of disease. The studies of demand for health care in Kenya and Ghana in the next two chapters examine the relative importance of many different factors in patients' choice of the type of medical care: user fees, the availability of services, the "quality" of services, household income, and individual characteristics, such as age, gender and education. While increased user fees, lower service availability and lower incomes reduce the demand for medical care, these two studies suggest that demand may respond positively to the improved service quality that can be financed from user fee revenue. They also reinforce the point that when fees are raised for public services, demand is often shifted to private providers, particularly among those who are not poor.

In the absence of a full-fledged, randomized experiment, the studies of Kenya and Ghana rely on cross-sectional household data to infer what might happen were user fees, availability or quality of care to be altered. Chapter 7 reports on the results of a cost recovery "experiment" in Cameroon. Three health centers implemented a "package" of increased user fees and improved quality of care (drug availability), while two other health centers served as controls with no change in services. Utilization of health care actually rose among people in the experimental communities, despite the increase in fees, because the effectiveness of treatment improved. Furthermore, the poorest patients were proportionately more likely to benefit from the intervention.

Chapter 8 of this volume provides an overview of the objectives, benefits and prerequisites for health insurance policies in Sub-Saharan countries. One of the key problems facing such programs is adverse selection -- the tendency of people most likely to be ill to enroll in the program. A second problem encountered after enrollment is moral hazard -- the tendency of those enrolled in an insurance program to use services more than they would have in the absence of the scheme. Either of these two problems can ruin the long-run viability of a self-financing insurance scheme.

Although experience with self-financing health insurance is limited across much of Sub-Saharan Africa, experience is growing and there are lessons to be learned from ongoing and past efforts. Chapter 9 describes the design, management and operational efficiency of four health insurance programs in rural and urban Zaire, a country where government health services are already largely financed through user fees. In reviewing these programs, the chapter concludes that decentralized, locally managed plans have good prospects for success. Chapter 10 reviews the experience of a village-level prepayment program for drugs in Guinea-Bissau. Because the entire community is involved, these programs have the potential to reduce adverse selection. The willingness to participate in the program is linked to improved service quality, namely the improved availability of drugs.

The concluding chapter summarizes the policy implications of the studies and suggests areas that warrant further investigation. While increased user fees for public health services hold the prospect of improving the efficiency and equity of health systems, simply raising fees will by no means guarantee this. There are many policies with respect to the way that public health systems are organized and operated that will be necessary to ensure these outcomes. Nor will user fee policies and self-financing health insurance rescue national health systems in Sub-Saharan Africa from all their financial woes. Average per capita expenditures on health from *all* sources are only about $8 per capita in countries comprising about 60 percent of Sub-Saharan Africa's population. This is considerably below an estimated $13 per capita, on average, that would be required to provide a cost-effective package of basic preventive and curative services, including safe drinking water and improved sanitation (World Bank 1994a). Governments have a critical role to play in promoting better health, and there is ample evidence they can do so by: improving the efficiency of resource use; reallocating funds to preventive services that benefits and that benefit the poor; increasing health's share in total government expenditures; encouraging greater private sector involvement in providing care; and mobilizing additional support from donors.

The studies in this volume suggest that the important issue today is not whether user fees or self-financed health insurance should be implemented in Sub-Saharan Africa. They are already widely implemented or advocated, with sure signs of expansion in the future. The important issue is how to structure and implement user fees and health insurance in ways that *jointly* meet the needs of potential clients on the one hand, and ensure the efficiency, equity, and sustainability of health care systems on the other.

PART I

USER FEES

CHAPTER 2

USER FEES IN SUB-SAHARAN AFRICA: AIMS, FINDINGS, POLICY IMPLICATIONS

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ABSTRACT: This chapter develops a largely positive view of user fees and their potential contribution to cost-sharing in countries of Sub-Saharan Africa. The debate today centers less on whether user fees are warranted and acceptable in Africa, than on ways of enhancing their contribution to more efficient, equitable and sustainable health care. At the heart of the issue is to tap resources that households seem generally willing and able to pay, while simultaneously making people feel they are getting value for money. With appropriate quality adjustments, and perceived "value for money," the studies reviewed here suggest that commonly hypothesized, negative effects of higher prices on use of health services can be largely offset. The chapter goes on to review administrative practices and collection procedures relevant to operationalizing a user fee policy.

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INTRODUCTION

Although governments have primacy in overall policy-making and strategic planning for health, that does not mean that they should also be the major actors in health expenditures and financing. Private out-of-pocket expenditures on health represent about 43 percent of *all* expenditures on health in SSA, compared with 37 percent from government, and about 20 percent from donors (World Bank, 1994a). Strategies to mobilize private and out-of-pocket resources are a means for increasing revenues and alleviating budgetary shortfalls among public providers, stimulating private financing, and freeing up public resources for public ends, contributing to equity in the process.

Countries in Sub-Saharan Africa have considerable experience with user fees for the simple reason that private-for-profit and private voluntary clinics, including church missions, must recover costs to survive. In Tanzania, with a per capita income of only $100 in 1990, nine of eighteen non-governmental dispensaries recovered 100 percent of their operating costs from user fees, and seven of twenty-one NGO hospitals recovered more than 75 percent of their operating costs (Mujinja and Mabala, 1992).[2] In Uganda, with a per capita income of $170, four mission hospitals recovered 78-95 percent of their operating costs, the balance being provided by donors (World Bank, 1993a). In the Central African Republic, with a per capita income of $390, two private hospitals recovered 55-80

2 The average rate of cost recovery in the eighteen dispensaries was 79 percent; the average for the twenty-one hospitals was 56 percent.

percent of their recurrent costs, whereas another two recovered 22-30 percent (Central African Republic, 1992).[3]

The beginning of this chapter concentrates on user charges in public health facilities and the substantial impact they can have on increasing efficiency, equity and sustainability of health financing in Africa. By charging fees for services that primarily benefit the user, such as tertiary-level curative care, governments can free up and reallocate tax-financed health expenditures to activities that yield benefits that extend beyond the individual. These include public health services directed to community health, immunizations, and communicable diseases.

Also assessed is the impact that fees have had on the utilization of health services in many SSA countries, the prevalence of exemption procedures for the poor, and the practicalities of administering and collecting fees. Particular attention is paid to studies that examine the simultaneous impact of higher prices and improved quality, using complex multi-variate techniques. The lesson from these studies is that "willingness to pay" for government health services is heavily conditioned by perceived quality and "value-for-money."

GOALS OF USER FEES

MOBILIZING REVENUES

A recent World Bank survey covering thirty-nine Sub-Saharan African countries found that national systems of user fees are operating in seventeen countries, whereas they play a relatively small role, or are not enforced effectively in another eleven countries. In the remaining eleven countries, user fees are not part of a national system but are collected on a facility or community basis in 6 countries, and are not in place at all in 5 countries (Table 2.1).

Of twenty-seven Sub-Saharan African countries with some kind of *national* system of user fees in place (Category I and II Countries), about one-third see revenue mobilization as their primary objective. These include Ghana, Kenya, Lesotho, Malawi, Mozambique, Namibia, Zambia, and Zimbabwe. The remaining two-thirds emphasize improvements in primary health services such as staff incentives or drug availability, as the primary objective of user fees. Many countries in this group -- particularly the Francophone countries -- participate in the "Bamako Initiative". A major objective of the Bamako Initiative is to employ cost-sharing to improve primary health care services.

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3 Caution needs to be exercised when interpreting the contribution of user fee revenues to the operating or recurrent costs of health facilities. In some cases, true recurrent costs are under-represented, such as when the salary of a surgeon in a mission hospital is paid by a charitable organization, or free drug supplies are received. Such omissions tend to overstate revenues from user fees as a proportion of "true" recurrent costs. Often these "accounting problems" are impossible to adjust for, especially when secondary data sources are being cited and those compiling the expenditure information have not defined "recurrent costs" explicitly.

Table 2.1: Cost-Recovery in Public Health Facilities in Countries of SSA, as of 1993

Category I Cost Recovery is in Place & Dominated by National System of User Charges	*Category II* Some National System of Fees but Minimal or Not Enforced Effectively	*Category III* No National System of User Fees but Some Facilities/Communities Collect Fees	*Category IV* No Apparent Forms of User Fees or Cost Recovery in Place
		Anglophone/Lusophone Countries	
The Gambia Ghana Kenya Lesotho Malawi Namibia Mozambique Swaziland Tanzania Zimbabwe	Equatorial Guinea Ethiopia Guinea-Bissau Nigeria Sierra Leone Sudan Zambia	Uganda	Angola Botswana Malawi Sao Tome Tanzania[a]
		Francophone Countries	
Benin Burundi Cameroon Côte d'Ivoire Guinea Mali Senegal	Burkina Faso Mauritania Togo Rwanda	Central African Republic Congo Madagascar Niger Zaire	
16 Countries	11 Countries	6 Countries	5 Countries

Source: Derived from Nolan and Turbat (1993), and World Bank Population, Health and Nutrition Sector Reports.

The contribution of user fees to government revenues is summarized in Table 2.2. First impressions are that revenues from user fees represent a small, if not insignificant, share of government recurrent expenditures on health. However, performance appears to improve over time, as has been the case in Côte d'Ivoire, Ethiopia, Lesotho, and Zimbabwe. When fees were initially introduced in these countries, charges for services were very low, and revenues amounted to only 2 to 12 percent of government expenditures. Over time, however, revenues have risen to between 4 and 20 percent.

It is also important to acknowledge that fees are likely to perform appreciably better as the gap between *actual* fees collected and "potentially collectable" fees narrows. Factors resulting in larger potential revenues include

- Improved billing and collection procedures, especially at hospitals;
- Stricter exemption policies, with particular attention to subsidies currently "captured" by relatively well-off households, such as civil servants and members of the medical establishment;

- Progressively higher charges for relatively expensive hospital in-patient visits, particularly for people who by-pass the referral system; and

- Systematic increases in out-patient charges, which were only $.22-.33 per outpatient visit in SSA, on average, in the mid-1980's (Griffin 1988).

Health Centers

The experience of community health centers and hospitals is more indicative of *potential* revenues. Because costs per unit of service tend to be much lower at a health center than at large hospitals (where most government funds are concentrated), community health facilities can set prices at levels that more closely reflect operating costs. There also appears to be a greater willingness to pay for tangible products such as drugs (USAID 1993) at the community level. This is particularly apparent in a variety of countries participating in the Bamako Initiative (BI). An operating principle of the BI is that "everyone can pay something." In more than 220 of 1,100 districts in eighteen countries, fees are retained at the point of collection, and revenues are used for quality improvements covering drugs, operating costs, and worker incentives at the facility of collection.

Such principles are at work in Senegal which adopted the Bamako Initiative in 1991 to help pay for pharmaceutical products through user fees. A nationally representative sample revealed that the contribution of user fees to public health facilities ranged from 5 to 11 percent of hospital funding; 8 to 23 percent of health center funding; 14 to 35 percent of health post funding; and 87 percent, on average, of health hut funding. Health huts perform minimal functions at village levels, however, and appear to be on the decline as a means of providing health services (Bitran et al. 1993).

In Benin, community contributions through user fees have consistently contributed between 42 and 46 percent of the overall operating costs of the first 44 health centers participating in the Bamako Initiative. In Guinea, the community contribution has been between 38 and 49 percent of operating costs of the first 14 participating health centers. In the Gabu Region of Guinea-Bissau communities have been able to contribute 39 percent of the running costs, equivalent to 87 percent of drug costs of health units (UNICEF 1992).

Another revealing example of the potential for user fees is the experience of the Central African Republic. Financial analysis of thirteen public health centers found cost recovery rates ranged from 110 to 138 percent of recurrent costs in one group (excluding salaries), to 5 to 75 percent in another group (Central African Republic, 1992). In the former group, health centers were characterized by self-management, control over the sale of drugs, and systematic cost recovery on all health services provided to the public. Their decision-making power, particularly with respect to drug acquisitions, not only rationalized the management of drugs, but helped avoid the enormous waste evident in the second group of facilities. Health centers in the latter group provided a wider range of free services, charged only for medical certificates, but had limited control over the sale of drugs.

Hospitals

User fees tend to make a significantly lower contribution to the operating costs of hospitals for several reasons. First, charges tend to be a small fraction of the relatively costly clinical services provided. Second, people referred to hospitals tend to suffer from acute problems requiring expensive care, yet tend to be less able to pay for "catastrophic" events (sickness, accidents). This is the principal argument for health insurance, taken up later. Third, hospitals often have difficulty collecting outstanding debts, especially when those who owe money live in distant places and are unknown to the hospital staff.

Table 2.3 conveys the performance of user fees at selected public and private hospitals. In Lesotho, between 1991-93, user fees represented only 4.5-5.3 percent of the operating costs of Queen Elizabeth II hospital, a government-operated central hospital located in the capital city. This is considerably less than the 13-22 percent collected by publicly-operated, district-based health services (district hospitals and health centers). In Ethiopia, user fees represented 23 percent of the operating costs of ten rural public hospitals and 32 percent in eight urban public hospitals. In the Central African Republic, 4 regional and 5 prefectural hospitals recovered 45 and 26 percent of operating costs (excluding salaries and drugs), respectively. Two maternity hospitals recovered upwards of 80 percent of such operating costs (McInnis 1993). The immense impact of unpaid bills on cost recovery is particularly relevant here, and will be addressed later.

A final perspective on the potential of user fees derives from a study of Bwamanda District, Zaire, by Shepard et al (see Chapter 9). Health services in Zaire are organized into zones or districts, each with ten to twenty satellite health centers centers and a reference hospital. Analysis of financial information on Bwamanda zone reveals that user fees accounted for 109 to 111 percent of the operating costs of healthcenters between 1986-1988. In Bwamanda Hospital, on the other hand, the share of operating expenses covered by user fees was 24-30 percent between 1986-88. These were supplemented by insurance payments, accounting for 22 - 33 percent of

Table 2.2: Revenue from User Charges as a Percent of Recurrent Government Expenditures on Health

Country	Average Revenue as a Percent of Recurrent Government Expenditure on Health (%)
Botswana,	
- 1979	1.3
- 1983	2.8
Burkina Faso,	
- 1981	0.5
Burundi,	
- 1982	4.0
Cote d'Ivoire,	
- 1986	3.1
- 1993	7.2
Ethiopia,	
- 1982	12.0
- mid 1980's	15.0-20.0
Ghana,	
- 1984	5.2
- 1987	12.1
Kenya,	
- 1984	2.0
Lesotho,	
- 1984	5.7
- 1991/92	9.0
Malawi,	
- 1983	3.3
Mali,	
- 1986	2.7
Mauritania,	
- 1986	2.7
Mozambique,	
- 1985	8.0
Rwanda,	
- 1984	7.0
Senegal,	
- 1986	4.7
Swaziland,	
- 1984	2.1
Zimbabwe,	
- 1986	2.2
- 1991/92	3.5

Source: Vogel (1989 and 1990); Nolan and Turbat (1993); World Bank 1994a.

operating costs, and employer billings accounting for 13-22 percent of operating costs. Total operating costs at the hospital therefore ranged from 59 to 75 percent from 1986 and 1988.

The high levels of cost recovery in Bwamanda District can be attributed to the organization of health services, whereby people willingly joined the insurance program at the health centers in a concerted effort to pay for referral services and sustain the referral hospital financially. Approximately 60 percent of the rural population were voluntarily enrolled.

Were public hospitals to recover even 40 percent of their operating costs, on average, significant strides could be made to boost the quantity and quality of services elsewhere. A crude illustration of the magnitudes involved can be derived from information contained in *Better Health in Africa* (World Bank 1994a). On average, Ministries of Health in countries of SSA spend about $4.70 per capita on health -- the majority on operating costs. One-half of this amount, on average, goes to operating public hospitals. Were 40 percent of these hospital operating costs recovered through cost-sharing, almost $1 per capita could be "freed up" ($4.70 X 50% X 40%), amounting to a total of more than $400 million for SSA.[3] According to the *Better Health in Africa* study, about $1 per capita is sufficient to provide almost full coverage of essential drugs for primary health care.

Summing up, time and experience are required to develop a well-functioning system of fees. Actual contributions of fees seldom reflect their *potential* because fee policies tend to be poorly administered, facilities often perform poorly in collecting unpaid bills, patients are unwilling to pay for low quality services, and abuse of exemption policies is widespread. Were public hospitals to recover even 40 percent of their operating costs, on average, relatively huge sums could become available for allocation elsewhere. Lest such a target sounds far-fetched, China recovers 90-97 percent of hospital costs from user fees, and more than 80 percent for all health facilities combined. China's per capita GNP

Table 2.3: User Fee Revenue as a Percent of Recurrent Hospital Expenditures, Selected Countries[a/]

Country	Year	Number of Hospitals	Average Revenue as a Percent of Recurrent Expenditures (%)
Central Africa	1990		
Prefectural	(Public)	5	26
Regional	(Public)	4	45
Maternity	(Public)	3	94
Private		4	46
Ethiopia	1984/85		
Urban	(All)	8	32
Rural	(All)	10	23
Ghana	1991		
Central		1	15
Lesotho	1991/93		
Urban		1	5
Niger	1986/87	1	15
Private		3	58
Nigeria	1986		
Private Maternities		3	20
Public Maternities		9	82
Senegal	1993		
Public		3	8
Swaziland	1988/89		
Public		4	5
Mission		2	13
Tanzania	1992		
Mission		22	56
Uganda	1992		
Mission		5	72
Zambia	1989		
Public		42	3
Zaire	1986		
District		1	17
China	1990		
Public		All	90-97

a/ All hospitals in this table are publicly operated unless otherwise indicated (e.g., private, mission).

Source: Barnum and Kutzin (1993), Bitran et. al. (1993), Central African Republic (1992), Smithson (1993), World Bank (1991), Criel and Van Balen (1993), Mujinja and Mabala (1992), McInnes (1993) World Bank (Uganda,1993).

3 Derived as follows; ($4.70 per capita on health) multiplied by (50% going to public hospitals) = $2.35; then $2.35 multiplied by (retrieval of 40% of hospital costs from cost sharing) = $.94; then $.94 x 425 million people in Sub-Saharan Africa = $400 million.

of $370 in 1991 is almost identical to the average for Sub-Saharan Africa of $350.

PROMOTING EFFICIENCY

By sending the appropriate "price signals", user fees can make the referral system work better and, thereby, user fees help restore efficiency in health care delivery. Ideally, a client's first point of contact in the health system will be a lower level facility such as a health post or health clinic where services can be provided relatively cost-effectively. Should a client have a problem beyond the capacity of the health post or clinic, trained health personnel are responsible for referring the client to a "first referral hospital" where treatments and personnel are increasingly specialized and costly.

User fees help reinforce this system of referrals by providing clients with "price signals." When prices are zero or uniformly low across a health care system, from the most expensive hospital services to the least expensive immunization, consumers have no reason to pay attention to costs when they use the health system (Griffin 1988). They might just as well converge on most expensive facilities/services, even when afflicted with relatively minor or inconsequential problems. Moreover, "price signals" can serve as fair warning that people who choose to by-pass the referral system, heading directly for more costly care in hospitals, should be prepared to pay the entire cost of services rendered.[5]

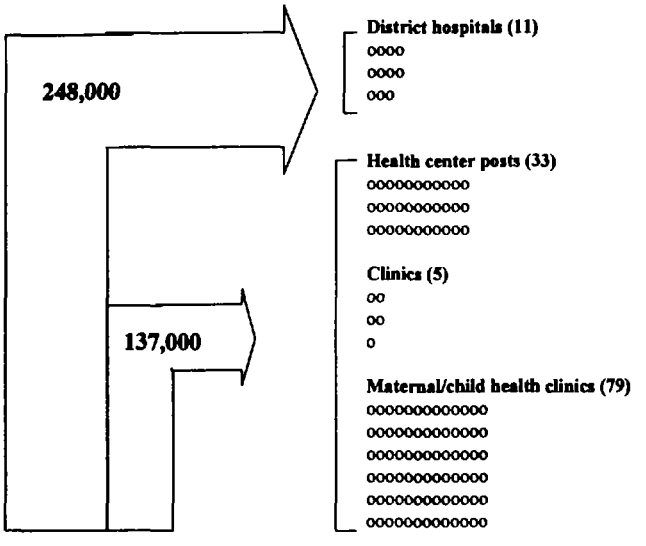
Referral systems do not work well in many countries of SSA, as has been widely observed. The World Bank survey of thirty-eight SSA countries referred to earlier revealed that only a minority of anglophone and francophone countries with cost recovery have structured fees to promote appropriate use (Nolan and Turbat 1993). Most evident are higher fees for outpatient services at higher level facilities. Least evident are fee waivers at hospital out-patient clinics for those who were appropriately referred upwards from local health centers. Only Niger appears to provide free care for referrals. Conversely, some countries charge at lower level facilities but not at higher-level facilities. In Senegal, for example, there is no cost recovery at large national hospitals. User fees generally apply at the primary level of the health care system, and are being introduced only at some regional hospitals. In each of these cases, the system is sending the wrong signals to potential clients. When people can easily take a bus into Dakar and receive free care from the Danetc central hospital, they may be inclined not to seek care at a health center in a suburb of Dakar.

Ghana provides a striking perspective on the failure of the referral system when fees are imposed *but without quality improvements* at community-level health facilities. In 1991, eleven government hospitals saw almost twice as many outpatients as the rest of the government health network combined -- which included 33 health centers/posts, five clinics, and seventy-nine Maternal and Child Health clinics (see Figure 2.1). As Smithson (1993) observes, there is little point in maintaining an infrastructure and human resource base at the sub-district level if these resources result in minimal delivery of services. Moreover, using higher-level medical specialists and technology as a "first point of contact" in the health system is undoubtedly more expensive to

5 A more severe requirement -- assuming people by-pass quality services at lower levels for higher priced services at hospitals -- would be to charge even more than 100 percent of costs, and use the proceeds to "cross subsidize" services at health centers for those least able to pay.

governments and patients alike, than providing quality services at near-by health centers and health posts.

Figure 2.1: Disproportionate Use of Higher-Level Facilities in Akim Region, Ghana, 1991



Note: Of the 2,100,000 inhabitants of the region, 385,0000 (18.4 percent) received out-patient care in 1991.
Source: Derived from Smithson (1993).

Reform to fee structures are clearly needed to restore efficiency to referrals. Change in the right direction is exemplified by Zimbabwe (see Chapter 3). The structure of hospital fees in the late 1980's was such that the basic outpatient charge for adults was Z$1.50 in a district or first referral hospital, Z$3 in a provincial general hospital, and Z$5 in a central hospital. Maternity ward fees in a provincial hospital were Z$15 compared with Z$20-30 in a central hospital (1US$=2Z$). These charges are currently being revised upward. As the authors point out, "individuals are given incentives to enter the health system at the lowest level appropriate for the services required. MOH health care should be priced in a manner that encourages restraint in the use of scarce financial resources, while not exceeding households' ability to pay."

Malawi provides another example where government plans to implement a phased cost-sharing strategy. One of the goals is to discourage the population from using hospitals as their entry point to the health system. In an endeavor to strengthen the referral system and to reallocate MOH funds from tertiary-level care to primary health, cost sharing would be extended from central hospitals to general and district hospitals, and finally to health centers. To help establish prices, studies were undertaken to differentiate unit costs of services at the central hospital versus district hospitals, and urban versus rural health centers (see Table 2.4).

Table 2.4: Unit Cost of Average New Out-Patient Attendance and In-Patient Days at Selected Hospitals and Health Centers in Malawi, 1990/91

Region and facility	*Unit cost per new outpatient (MK)*	*Average number of outpatients a day*[a/]	*Unit cost per inpatient day (MK)*
Southern Region			
Central hospital/QECH	9.40	1441	15.80
District hospital/Mulanje	1.62	1114	9.72
Urban health centre/Limbe	1.03	429	—
Rural health centre/Mpemba	0.78	549	—
Rural health central/Thuchila	0.31	373	—
Central Region			
Central hospital/KCH	7.55	1716	19.23
District hospital/Kasungu	1.71	1186	10.80
Rural health centre/Bua	0.71	126	—

– Not available

Note: The unit costs covered here include all costs associated with the operation of a facility. This is different from estimates of "direct patient care unit cost", which covers items directly related to patient care and do not include costs of general administration or common services costs. Unit costs are (a) out-patient for new attendances and (b) for in-patients, per patient day. Average number of out-patients per day includes the treatment of under-five year olds and adults, but not visits made to maternal antenatal checks. Annually, clinics operate 280 days per year.

a/ Includes the treatment of children under five and adults but not maternal antenatal checkups. Clinics operate 280 days a year.

Source: Ferster and others (1991).

In Kasongo District in Zaire, implementation of user fees has simultaneously reduced utilization of the district hospital as a first-line source of service, and increased attendances at health centers. Patients using the hospital's out-patient clinics as their first access to a health facility fell from 11,800 in 1973 to 1,050 by 1989. Corresponding increases in people attending health centers and out-patient clinics climbed from 13,522 in 1973 to 54,400 in 1987 (Criel and Van Balen 1993). In this case, the way fees were structured not only created effective financial dis-incentives against direct hospital utilization, but greatly strengthened the district health system's appeal and effectiveness in promoting primary health care closest to where people live.

Appropriate user fees can benefit *both* providers and clients by strengthening the referral system and providing better signals about appropriate points of entry to the health system. Cost-effectiveness is enhanced because (i) highly-expensive technology and personnel are reserved for more complex, referred cases, and are not squandered on easily detectable and treated illnesses. and (ii) less costly services at the health center level can be better "packaged" to combat preventable illnesses (World Bank 1994a). An important caveat, of course, is that the adoption of user fees to reinforce use of lower-level facilities must be accompanied by improvements in the quality of care provided. Clients must perceive they are getting value for services that are no longer free. The issue of quality is a major one and is taken up in a subsequent section.

FOSTERING EQUITY

User fees in public health facilities make sense on equity grounds because the demand for health care more than proportionately rises with income, and better-off people are more able and willing to pay for costly services. Charging wealthier people for services they demand and can afford, particularly at hospitals, and pooling revenues to subsidize those least able to afford care is thus a means of helping the poor. Such prospects would be ruled out, of course, were rich households making *exclusive* use of private fee-charging facilities, and were the destitute and poor relying solely on free or heavily-subsidized government providers. Evidence is to the contrary, however.

A survey of health facility utilization in Ogun State, Nigeria, revealed that about one-half of the households in the richest income quintile benefited from free or heavily subsidized services in public health clinics and hospitals. As would be expected, the richest quintile was about five times as likely to use private hospitals as those in the poorest quintile -- thus demonstrating greater willingness and ability to pay. The reverse, however, was not observed in the use of public hospitals. Again, the rich prevailed, representing 27 percent of the users compared with only 22 percent from the poorest quintile.

A 1993 household survey in Tanzania provides striking evidence that relatively rich households are capturing disproportionate shares of public health subsidies. Table 2.5 shows the incidence of relatively well-off clients among the users of fee-charging versus publicly-subsidized government facilities. Richest patrons clearly make greatest use of in-patient and out-patient services in *private, fee-charging* hospitals, health centers and dispensaries -- as would be expected. This is conveyed in panel A of Table 2.5, where about half of the clients are from the richest quintile. They are also in greater numbers among patrons of fee-charging mission facilities. This is evident in Panel B of Table 2.5, where the richest quintile represents abut 28-35 percent of in-patients and 25-29 percent of out-patients in Mission hospitals, health centers and dispensaries. What is surprising is the extent to which the rich also predominate in-patients and out-patients in government hospitals. As Panel C of Table 2.5 shows, 35 to 37 percent of the users of in-patient and out-patient services at government hospitals are from the richest quintile. This source of health care represents a significant share of all in-patient care in the country. Were public subsidies for health benefiting the poor, we would expect to find a far greater representation of clients from the lowest quintiles making use of free services in government facilities.[6]

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6 That the poor are on the "losing end" would appear to be reinforced by the nature of the tax system in most SSA countries. More than 70 of percent of national tax revenue -- the major source of Ministry of Health financing -- derives from taxes on products that are consumed domestically and exported. Given the large representation of agriculture in exports and the large share of household expenditures that go to food in poor countries, it is likely that the overall structure of taxes is regressive. That is, personal income taxes contribute only about 30 percent of national tax revenues in the 25 countries, on average, whereas taxes on commodities produced for domestic consumption and export free or heavily subsidized services in government facilities are financed by taxes that tend to be regressive -- falling disproportionately on the poor (Shalizi and Squires 1988). Were data sufficient to match tax rates with health facility utilization rates (by quintile), it would be possible to show explicitly how much income is taken disproportionately from the poor to pay doctors and nurses to treat (disproportionately) the more affluent.

Table 2.5: Incidence of Relatively Well-Off Clients Making Use of Fee-Charging Versus Publicly Subsidized Government Health Facilities

PANEL A Expenditure Quintile	*Private Hospitals*		*Private Clinics/Dispensaries*	
	Share of In-Patients (%)	Share of Out-Patients (%)	Share of In-Patients (%)	Share of Out-Patients (%)
Poorest	53.1	5.9	9.5	6.9
2nd		6.7	34.1	8.9
3rd		14.2		12.8
4th		17.9	20.6	23.1
Richest	46.9	55.2	35.8	48.2
Totals	100.0	100.0	100.0	100.0
PANEL B	*Private Voluntary (Mission) Hospitals*		*Private Voluntary Clinics/Dispensaries*	
	In-Patients	Out-Patients	In-Patients	Out-Patients
Poorest	16.2	15.4	9.7	8.6
2nd	12.8	11.5	10.5	19.1
3rd	28.1	18.5	19.1	17.9
4th	21.0	30.0	20.2	25.1
Richest	35.2	24.6	27.6	29.3
Totals	100.0	100.0	100.0	100.0
	Government Hospitals		*Government Health Centers & Dispensaries*	
	In-Patients	Out-Patients	In-Patients	Out-Patients
Poorest	16.2	8.7	16.6	17.7
2nd	12.8	14.9	45.5	19.3
3rd	14.8	15.8	10.5	19.0
4th	21.0	23.6	11.7	22.2
Richest	35.2	37.1	15.7	21.8
Totals	100.0	100.0	100.0	100.0

Source: 1993 Human Resource Development Survey, Tanzania, World Bank. Washington, DC.

Another reality is that relatively well-off households tend to benefit more from higher-cost, publicly-subsidized, curative services in tertiary level hospitals. This is because more affluent households tend to be concentrated in urban areas in close proximity to central and teaching hospitals. Again, the evidence from Tanzania confirms this point. Forty-seven percent of clients using government in-patient services were from urban areas. Among these urban clients, 62 percent were from the top two income quintiles.

Structuring fees so that higher rates of cost-recovery are imposed in tertiary facilities would enable Ministries of Health to recover costs from those most able and willing to pay. This is precisely the rationale behind cost-sharing strategies in several countries, where fees are being

introduced at central hospitals first, followed by gradual implementation of cost-sharing at lower-level facilities. The demand for curative care also tends to be price inelastic, meaning an increase in user fees will result in a less than proportionate drop in demand, and an increase in revenue.

User fees can also foster equity when some portion is retained at the point of collection, especially among lower-level facilities. It is at the health center, for example, that budgetary shortfalls tend to be felt hardest, when drug stock-outs, interrupted salaries, and failed maintenance and equipment result. Because these facilities are in closest proximity to relatively poor households in rural or remote areas, any endeavor to boost local-level revenues is likely to have a positive impact on the quality of care. This reasoning finds support in the positive impact of local fee retention in Cameroon, Central African Republic and Swaziland (McInnis 1993). Facilities that retained revenues generally performed substantially better than facilities that remitted revenues to the Treasury. Health center use increased, with the poor benefiting proportionately more than the rich.

Several governments are now implementing cost-recovery policies which permit retention of fees at point of collection. In Kenya, for example, revenues from fees are beginning to be treated as *supplementary* to Ministry of Finance allocations to the Ministry of Health. Seventy-five percent of the revenues collected are to be retained by the facility, whereas 25 percent are to be used by the Ministry of Health. The MOH share is for improving and extending preventive and primary services at the *district level* through activities such as environmental health, family planning and immunizations. The overall level of government funding will therefore not be reduced, and cost-sharing through user fees is expected to raise overall commitments to health and financial sustainability of the sector.[7]

A lesson regarding equity is that the proceeds from charging people who are willing and able to pay for more costly services, can be used to help subsidize those least able to pay. With higher fees imposed at tertiary facilities than lower level facilities, Ministries of Health also have the prospect of recovering part of the huge budgetary commitment to hospitals, thus freeing up funds for public health goods and services, and primary health care.[8] Simply increasing expenditures on public health goods and services, such as immunizations, malaria control, safe drinking water, and health education, are likely to promote equity because no one can rightfully be excluded from the benefits of such goods and services, regardless of income.

DECENTRALIZATION AND SUSTAINABILITY

Decentralization and sustainability of public health services can result from the approaches advanced thus far in three important ways. First, by rationalizing the referral system with price signals, user fees will direct people to patronize district-based facilities -- first referral hospitals,

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7 A potentially important caveat to the equity benefits envisioned here is that some communities might do far better in raising fees at the local level than others -- due to greater relative community wealth -- with the risk that cleavages could widen between relatively poor communities and relatively wealthy communities. Often, this argument is raised without evidence, in support of the practice of collecting and remitting user fee revenues to the Treasury, under the assumption that central government authorities alone are empowered to spend revenues more equitably, namely, on public health goods and services with positive externalities.

8 Although this is clearly the trend that policy analysts would like to see more of reallocation on this basis is uncommon, suggesting that strong political will and a decisive political decision or act may be necessary to bring it about.

health centers and health posts-- in closer proximity to where they live, rather than flocking to regional and central-level hospitals in urban areas. Second, by re-couping MOH funds which are now being swallowed up by tertiary-level facilities, user fees can help free up government revenues for reallocation to district and community-level primary health care. Third, by allowing retention of fees at point of collection, the reins of *control* over budgetary matters and expenditures can be partially shifted from central government levels to districts. This latter point is key, because true decentralization implies control over money, health system inputs, local monitoring and evaluation, and responsiveness to local needs.

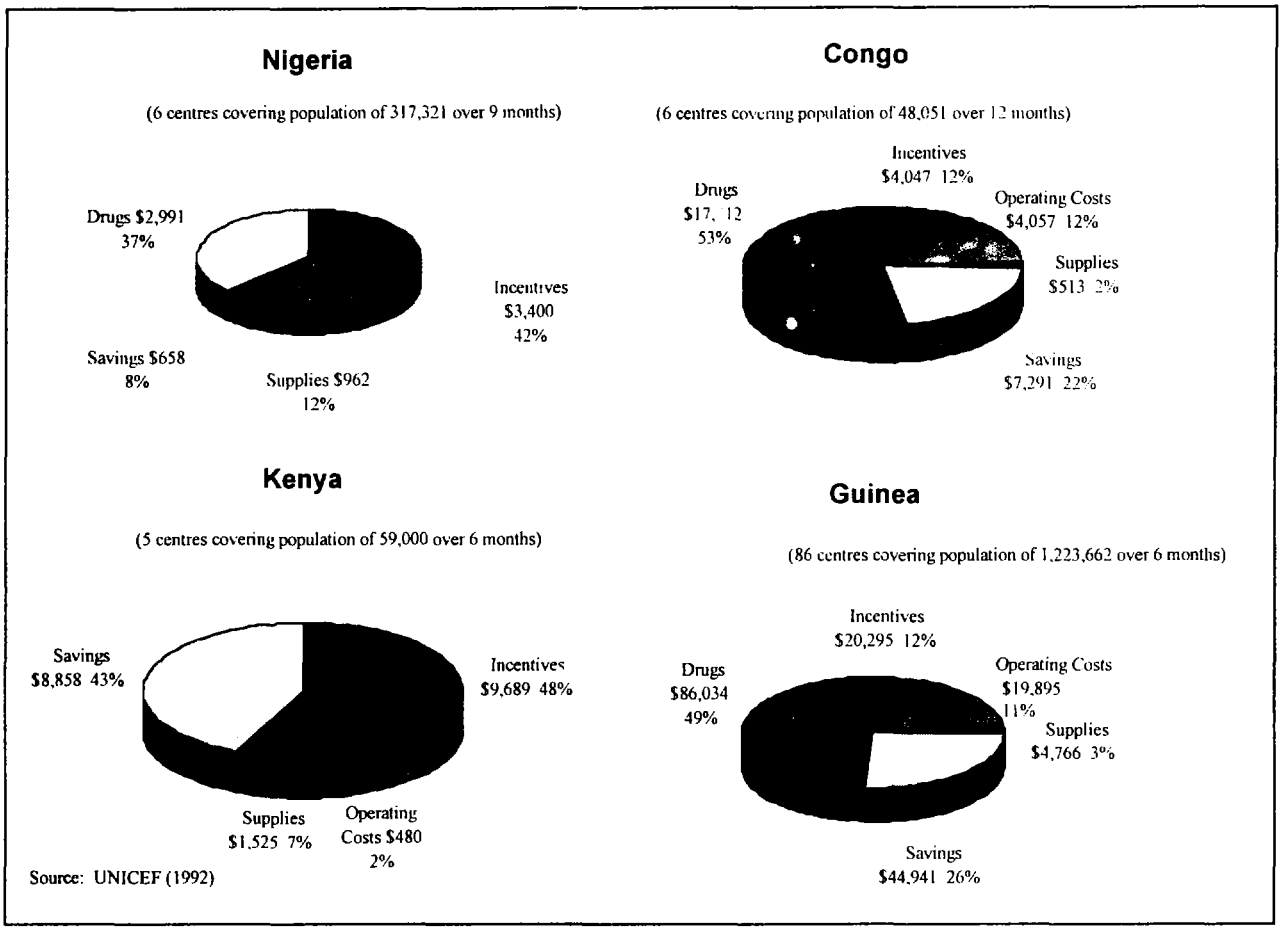
Such benefits are important to the success of decentralization to district-based systems, which is widely advocated in countries such as Botswana, Ghana, Lesotho, Tanzania, Zaire and Zimbabwe; advocated to some extent in countries such as Benin, Guinea, Mali, and Nigeria, and proposed on an experimental basis in such countries as Burundi and Senegal (World Bank 1994a). In many cases, the health sector is leading the way in plans to devolve government authority down to district and local levels. A major challenge is to empower District Management Committees, comprising the heads of local departments of health, education, and public works with greater control over budgetary matters. Within the district, District Health Management Teams are being encouraged to work with Community Management Committees, to promote local involvement in cost-sharing strategies and wise use of revenues in health centers (World Bank 1994a).

Local-level resource mobilization, especially at community health centers, can also contribute to sustainability of drug supplies, particularly in countries with poorly-functioning central medical stores. A popular form of community financing is the so-called "drug revolving fund". Its main features include (i) an initial stock of drugs donated by the community, government or other donor, (ii) sale of drugs to community members, (iii) pricing for the full recovery of drug supply costs, and (iv) use of sales revenue to replace stocks and finance other operating and distribution costs. In SSA, such funds are operating in Benin, Cameroon, the Central African Republic, Chad, Liberia, Mali, Niger, Nigeria, Senegal, Sierra Leone, Sudan, Tanzania, and Zaire. About half the "drug revolving funds" in seventeen countries were able to cover drug costs with revenues from drug fees and user charges, with positive drug margins in 49 to 83 percent of the funds, depending on the specific margin analyzed. Utilization statistics revealed an increase in seven countries after cost-recovery was introduced, compared with decreases in four (World Bank 1992).

As noted previously, resource mobilization in the service of decentralization and sustainability has been most widely practiced and thoroughly documented in countries participating in the Bamako Initiative (BI). As part of the BI philosophy, community financing is concentrated on parts of the health system that depend least on high levels of technology -- those where people understand and can take part in the health care choices, and results are clearly visible (Pangu and Van Lerberghe 1990; Criel and Van Balen 1993). Communities have also been willing participants in cost-sharing in the interests of promoting greater transparency and community control over use of revenues (McPake et al. 1993a).

Acknowledging that better services are likely to draw more clients, Community Management Committees in several countries -- the Congo, Guinea, Kenya and Nigeria for example -- have even been willing to pay incentives to raise the motivation of health workers and to tackle the increased workload following greater community involvement in the delivery of services. This is evident in the expenditure profiles of on-going community health center activities in the Congo, Guinea, Kenya and Nigeria in Figure 2.2.

Figure 2.2: Use of Community Health Center Funds in Four African Countries



A lesson is that learned from recent experiences in SSA regarding decentralization, user fees can be structured and revenues retained to promote decentralization and district-based delivery of health services. Involving communities in cost-sharing strategies can empower Community Management Committees to make decisions about expenditures, exemptions policy, and accountability.

Second, regarding sustainability, cost-sharing strategies can help supplement MOH budgetary allotments, and sustain desired improvements in drugs, personnel performance, and maintenance of community health centers. This is especially important because quality improvements spur greater demand for preventive health services (see section on the "price/quality trade-off").

FOSTERING PRIVATE SECTOR DEVELOPMENT

When clients have the option of obtaining services at zero or uniformly low charges at public health facilities, private facilities can hardly compete. An example of disparities in charges between

public and private fees is provided in Table 2.6 for small hospitals, maternities, and health clinics in Ogun State, Nigeria (World Bank 1991). Price differences cannot be attributed solely to the need for publicly subsidized care for the poor. As noted previously, the relatively rich as well as the poor, make use of public facilities in Ogun state.

It comes as no surprise, therefore, that free services at government health facilities undermine to efficiency in the health sector as a whole. How can the private sector expand and compete under such circumstances? The answer is: with great difficulty. That is one reason why private-for-profit providers are almost impossible to find in rural areas, and are concentrated instead in urban and more well-to-do areas. The reason that private voluntary providers, such as mission facilities, continue to have as many rural clients as they do, despite the fact that they charge fees, is often attributable to the dismal *quality* of services in many rurally-based government facilities.

Table 2.6: Average Charges for Various Services Rendered in Public and Private Facilities in Nigerian Naira[a/]

	Small Hospital		*Basic Health Clinic*	
	Public (Naira)	Private (Naira)	Public (Naira)	Private (Naira)
Setting Broken Arm	12.50	20.00	11.25	54.50
Malaria Treatment	7.08	23.00	2.57	15.00
Dressings	1.75	3.88	3.10	5.70
Room and Board	2.50	20.00	1.17	5.00
Appendectomy	23.33	187.50	32.50	0.00
Basic delivery	7.50	26.25	8.33	23.37
Chest X-ray	20.00	18.75	0.00	16.25
Blood count	3.50	5.25	1.00	10.00
Paracetamol	1.00	9.00	0.58	0.07
Immunization	0.00	2.50	0.00	4.00

a/ Average service charges for those facilities which have a non-zero fee for the service.
Source: World Bank (1991).

Without a tradition of cost recovery in public facilities, households are unlikely to be predisposed to pay for private or public health insurance (see Chapter 8). When user fees become an established practice in the public sector, however, households begin to take interest in spreading the risk of substantial health expenditures over time and across a wider population. This can give rise to prepaid health insurance plans, operated by private or public providers, where all participants regularly pay a fixed amount. Funds can then be pooled, allowing insurance providers to pay for all members needing care, especially costly hospital-based curative care. User fees in public facilities can therefore help stimulate private insurance providers to rise to the challenge.

ABILITY AND WILLINGNESS TO PAY

If user fees are to have the kinds of positive effects described thus far, people must be willing and able to pay for services. Otherwise, initial revenue gains from cost-sharing will be offset by drop-offs in utilization rates to the extent that fewer people will participate in modern health care. If such people are disproportionately poor and are underutilizing health care *that they need*, then equity goals will also suffer a serious blow.

Attempts to shed light on people's ability and willingness to pay for health services in SSA have been stymied for one critical reason. Assessments have failed to be clear about the ability and willingness to pay "for what." Some people clearly are able to pay for health services but are unwilling to do so because the perceived value (quality) of services is too low. Others are not able to pay under current circumstances, but might be more able to do so were health services "packaged" more cost-effectively, thus resulting in a lower average price to treat an episode of illness.

The importance of the latter point is illustrated by the study *Better Health in Africa* which maintains that a cost-effective package of health services could be provided in a *typical* low income African country for about $13 per capita (World Bank 1994a). This amount comprises (i) about $9 per capita for public health and clinical services offered through district health centers and a first referral hospital, and (ii) about $4 per capita for community-based safe drinking water and sanitation provisions. The $9 figure for health services in `Better Health in Africa' compares with about $14 per capita, on average, that is currently being spent on health (from all sources) in the lowest-income countries in SSA. This comparison suggests that ability to pay is less important than the process of reallocating current expenditure levels to more cost-effective packages of health services. Of course, not all of the $14 per capita currently spent is at the disposal of households to pay user fees. About half of the $14 figure, on average, is comprised of out-of-pocket expenditures by households; about $5 per capita, on average, is spent by governments; and about $2 per capita, on average, derives from donors.

According to household expenditure surveys, households make substantial out-of-pocket payments for health -- including direct payments to private practitioners, traditional healers, and private pharmacists (Table 2.7). In Côte d'Ivoire where per capita GNP was about $900 in 1985, household expenditures on health averaged about $19 per capita, compared with central government expenditures of about $8.20 per capita. In Ghana, with a considerably lower per capita GNP of $240 in 1987-88, per capita expenditures for health care were also relatively high at about $7.30 in 1986, compared with central government expenditures of about $4.20. In Nigeria, where per capita GNP was $400 in 1985-86, average per capita household expenditures for health care were about $15, whereas central government expenditures were in the vicinity of $1 to $2 per capita. These substantial differences between public and household expenditures further suggest the potential for cost-sharing and redirecting household expenditures in support of basic packages of care.

Table 2.7: Per Capita Household Expenditures on Health in Selected African Countries

Household Quintile	*Côte d'Ivoire 1985*	*Ghana 1987/88*	*Guinea-Bissau 1991*	*Nigeria 1985/86*	*Senegal 1991/92*
Lowest	3.99	2.55	2.44	2.58	4.90
2nd Quintile	6.59	4.25	3.88	5.88	10.27
3rd Quintile	14.33	6.19	4.38	10.07	13.44
4th Quintile	17.04	8.54	4.63	14.08	25.34
5th Quintile	46.38	14.83	8.34	35.16	61.82
Average	18.88	7.27	4.74	15.05	23.14
Per Capita Income	911.31	239.00[a]	196.00	400.00	393.00
Average expenditure as a share of per capita income (percent)	2.1	3.0	2.4	3.8	5.9

Note: Household expenditures include traditional and modern health services and medicines.
Source: World Bank (1994a).

Additional evidence supporting the premise that people are open to paying for services, includes the following;

A nationally representative survey in the Central African Republic has determined that 64-81 percent of respondents were willing to pay the estimated costs of seven quality improvements in public health services. Rural respondents were willing to pay considerably more, on average, than urban residents. This is presumably because the gaps between "wants" and existing services in rural areas were larger. Furthermore, the median amounts that respondents were willing to pay for quality improvements generally exceeded the estimated costs of making such improvements. Indeed, differences were such that the authors concluded that revenues from a user fee program could be used to subsidize those least able to pay. Judging from information on consumption patterns, approximately 25-30 percent of the population may be in need of some kind of subsidy (Weaver, et al. 1993).[9]

- Prior to implementing user fees in Tanzania, opinion polls revealed that 87 percent of respondents agreed with the statement "People will pay, provided they are assured of good service": 76 percent also agreed that "If good service is provided, people will give what little they have to pay for treatment" (Mujinja and Mabala 1992). In a household survey in Zambia, only about four percent of families cited "inability to pay" as a reason for not seeking care. In Sierra Leone, the majority of families were able to pay the fees imposed, as though poorer households found it more difficult to mobilize cash during the rainy season (Forsberg 1993).

9 Caution should be exercised when interpreting results of "contingency evaluations" however as "willingness to pay" responses are linked to hypothetical situations which are not always fully understood by respondents, or represent a sound basis for forming judgments (Wouters, et al. 1993).

- Clients of facilities in more than 200 districts participating in the Bamako Initiative are charged at least something for basic health services, regardless of income level. An evaluation of five participating countries estimated that problems with affordability are probably limited to 10-30 percent of households when minor fees are required (Forsberg 1993).

- People are willing and able to pay for traditional healers. Household surveys in Ethiopia suggest that expenditures on traditional medicine were 20 percent of total household expenditures on health, compared with 33 percent for private doctors, and 47 percent on "modern" medicines (Dunlop and Donaldson 1987). In Mali, the average household spent the equivalent of 13 percent of its total household health expenditures on traditional medicines (Brunet-Jailly, 1988). In rural Kenya, the average treatment cost per patient for a visit to a traditional healer was 46 Kenyan shillings (Ksh), which was far more than the mean charges of 14.2 Ksh for treatment even in private health facilities (Mwabu, et al. 1990). In Tanzania, rural people paid 2009 Tanzanian shillings (Tsh), on average, to traditional healers compared with 2860 Tsh for the cost of admission to NGO mission facilities. In urban areas, the respective payments were 5,110 Tsh and 4,147 Tsh (Abel-Smith and Rawal 1992). Income-in-kind payments, such as livestock, are also common among patients of traditional healers.

- Even where services in government facilities are ostensibly "free," it is not uncommon for people to pay "under the table" as has been documented in Guinea, Uganda and Tanzania (Abel-Smith and Rawal 1992; McPake, et al. 1992). In such cases, formal implementation of fees is seen as a way of improving both transparency and accountability between providers and clients.

In summary, it is clear that households typically pay substantial out-of-pocket sums for health care. Whereas ability to pay is obviously related to income level and economic well-being, consumers willingness to pay may be equally, if not more, contingent on perceived value for money. Prospects for sharing costs for *quality* health services therefore appear positive. Requiring all people to pay at least something, regardless of income, appears to have the added advantage of making providers more accountable to clients for the quality of services rendered.[10] Exemptions and subsidies for the poor are addressed later in this chapter.

THE PRICE/QUALITY TRADE-OFF

Much of the concern over implementing user fees in Sub-Saharan Africa follows from the economic assumption that rising prices will reduce the demand for health services and, therefore, utilization of modern care (all else held constant). If the demand for health services falls at a faster rate (relative to past levels) than prices rise (relative to past price levels), then overall revenues will suffer. If high prices dissuade people from using modern health care -- when they really need it -- then both individuals and society will be deprived of a critical human development investment.

A related concern is that reduced demand can be expected to be higher among poorer people, because price changes take on relatively greater significance when household incomes are low. Women and young children in female-headed households are thought to be particularly susceptible. Pricing policies which may affect discontinuation of modern health care by poor families, women and children, are therefore hotly debated.

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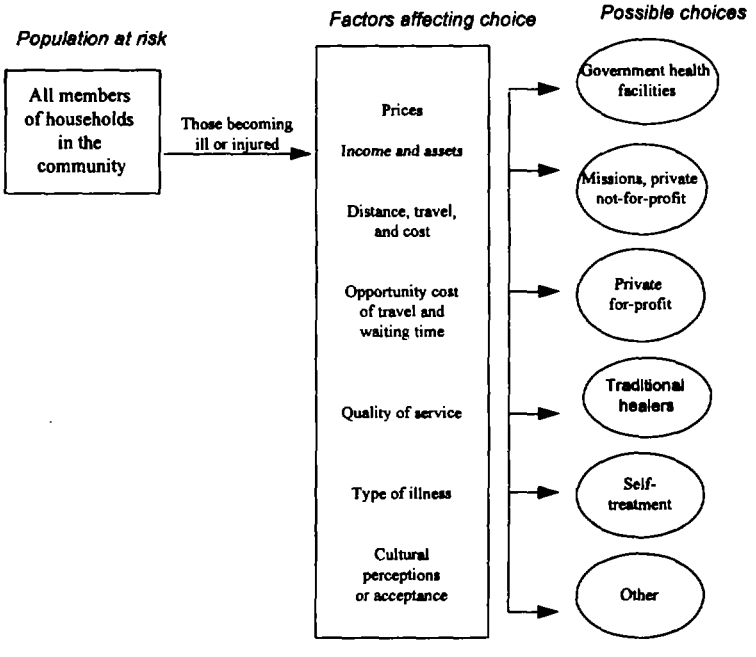
10 The manner in which fees are collected, administered and used, also help ensure that the health facility staff are held accountable to the communities.

Trade-offs that make user fees palatable are of immense interest to policy makers. One possibility is that prices per se are less important to clients than costs of travel, including opportunity costs foregone such as lost earnings. A study with focus groups in Imo State, Nigeria, for example, emphasized the considerable costs associated with travel expenses and time -- such as, waiting in line to register at public health facilities, waiting to be seen by a doctor, waiting for laboratory tests, waiting to fill prescriptions at the pharmacy (Attah 1986). Another possibility, noted in prior sections, is that the negative impact of prices for services can be considerably offset by improving their quality. Put differently, no one would be surprised if demand for a poor quality service fell off sharply when higher prices were charged -- especially if the service had been free in the past.

Figure 2.3 depicts the events that policy analysts typically try to "model" in determining the "price/quality" tradeoff. In Ghana, for example, a household survey revealed that about one-third of a sample of 15,000 people had experienced a period of illness or injury during the previous four weeks. Forty percent of these sought care from government health facilities, private-for-profit, and private-voluntary facilities. The remaining 60 percent self-treated, relying on pharmaceutical outlets for drugs, traditional healers, or self-knowledge. The challenge facing health researchers is to decipher which factors affecting client choice are most important, and which are most amenable to policy intervention.

Figure 2.3: The Process of Choosing Type of Curative and Preventive Health Care



Much of the evidence on the price elasticity of demand for health services is mixed, piecemeal, and of questionable validity. Research methodologies tend to vary greatly between studies; data sources vary in quality and coverage; the causal variables assessed are rarely consistent between studies; and results are sometimes interpreted carelessly.

Case studies, including those presented in Chapters 3 through 7, are briefly reviewed here with two goals in mind: to help clarify matters and to identify priorities for future in-country policy

analysis. They have been classified, into five "types" in Table 2.8, according to the degree to which this author perceives they shed light on the crucial issues involved. The balance of this section discusses the advantages and disadvantages of the different methodological approaches involved, summarizes findings, and attempts to assign policy significance to the most important results.

Table 2.8: Assessing the Relationship between Utilization and Rising Prices

Type	*Countries*	*Factors Assessed*	*Type of Assessment*	*Author*
I	Ghana Lesotho Swaziland	- Price Changes	Before/After Analysis of Changes in Utilization Based on Health Service Statistics	- Matji et. al. (Chapter 4) - Waddington and Enyimayew (1989) - Yoder (1989)
II	Côte d'Ivoire	- Distance to Facility - Personal Characteristics	Multi-variate Statistical Analysis with Control Variables and "Policy Simulations"	- Gertler and van der Gaag (1990)
III	Zaire	- Price - Distance to Facility - Personal Characteristics	Multi-variate Statistical Analysis with Control Variables and "Policy Simulations"	- Bitran (1992)
IV	Ghana Kenya Nigeria	- Price - Distance to Facility - Personal Characteristics - Facility Characteristics	Multi-variate Statistical Analysis with Control Variables and "Policy Simulations"	- Lavy and Germain (see Chapter 6) - Mwabu et al (see Chapter 5) - World Bank (1991)
V	Cameroon	- Price - Distance - Personal Characteristics - Facility Characteristics - Direct Quality Improvements	Pre-Test and Post-Test of Communities Undergoing Quality Improvements compared to Control Group, Multi-variate Statistical Analysis	- Litvack and Bodart (Chapter 7)

Type I

Studies in this category make use of time-series data on health facility utilization rates "before" and "after" the introduction of user fees. An advantage of this approach is that utilization statistics tend to be plentiful, permitting "rapid" assessment of pricing policies by government officials. The major disadvantage of studies in this category is that very little information is available on the socio-economic characteristics of the clients, or the quality of services provided by the facility. Unfortunately, without controls for other critical variables, the effects of prices per se are likely to be greatly overstated.

In Ghana, a major increase in user fees between 1983 and 1985 was associated with a sharp drop in utilization at all government health facilities. Attendances gradually rose back to their pre-1985 levels over a two-year period in urban areas, whereas the drop in utilization rates at rural health units was sustained over a three-year period (Waddington and Enyimayew 1989). In Zaire, a rapid increase in the price of health care led to a sharp fall in the demand for curative services as well as pre-natal and under-five clinic visits. The overall utilization rate fell from 37 to 31 percent in a defined population, and the coverage rate for pre-natal contacts fell from 95 to 84 percent (De

Bethune, et al. 189). In Mozambique, a similar drop in utilization patterns was observed (World Bank 1994a). In each of these cases, however, a major share of the revenue collected went to the central treasury *with little accompanying improvements in the quality of services offered.* In the case of Ghana, revenues retained at point of collection tended not to be spent on improving health facilities or services.

In Lesotho, the government raised fees for outpatient consultations in all public facilities in 1988 with the explicit intention of (i) eliminating excessive demands on higher levels of the referral system, and (ii) inducing a shift in demand from MOH facilities to private providers. Analysis of time series data for two districts reveals a drop in utilization rates after the fee increase, and there is evidence of substitution with other facilities (see Chapter 4). However, authors of the Lesotho study are careful not to attribute falling utilization entirely to increases in user fees. They note that several other factors -- not controlled for -- could have produced the same qualitative result individually or in combination. These include declining household incomes at a time of drought; a 50 percent increase in bus fares; natural disasters that inhibited travel around the time of fee increases; and a decline in the quality of health care in government facilities.

Other studies making use of service statistics demonstrate that without analysis of changing utilization patterns -- involving shifts to private sector versus self-care -- the tendency to overstate drop-offs in utilization or revenue will prevail. In Swaziland, for example, the "narrow" effect of a 300-400 percent price increase at Ministry of Health facilities was a 32 percent drop in MOH clientele. The "broader" effect, however, was a substantially lower overall drop in clientele because 30-40 percent of the prior MOH clients switched to private facilities (Yoder 1989).

Type II and III

Studies in these categories make use of multi-variate statistical analysis of cross-sectional household data to separate out price versus distance effects on utilization, while also controlling selected personal characteristics of clients. They quantify price effects in terms of elasticities that can be compared across studies with a similar research design. They also control for several influences in addition to price, thus producing more rigorous estimates of price effects per se. For example, with appropriate control variables it is possible to "disaggregate" an average price elasticity of demand pertaining to all people in the study, specific to people with the same gender, age, income, or type of residence (rural/urban).

A disadvantage of studies in this category is that results are sometimes used by both authors and policy analysts to make claims that cannot be supported by the data. This frequently results from the use of inappropriate proxy variables to test key hypotheses. Also problematic is that policy inferences tend to be based on computer-type simulations of what people are likely to do -- according to results of the multi-variate statistical model -- rather than what people actually do in response to a real policy change.

A study of the demand for medical care in Côte d'Ivoire illustrates these issues (Gertler and van der Gaag 1990). On the basis of a multi-variate analysis of household demand for hospital and clinic care in 1985, the authors concluded that the poor are two to three times more negatively affected by the price of medical care than are the non-poor. This result has been used to imply that modest user fees might be regressive. However, it is important to keep in mind that at the time of the study there were no user fees for public clinics or hospitals in Côte d'Ivoire. Rather, Gertler and van

der Gaag had to introduce a proxy for the cost of obtaining care by multiplying the client's round-trip travel time by a wage rate. The study shows that distance and travel times are a barrier to health facility use, and that building facilities in closer proximity to the poor would help remove that barrier. *However, the authors were not able to identify the likely impact of introducing public user fees, since none were in existence.* Such user fees are likely to be a much smaller share of the total cost of seeking medical care than are time and transportation costs. The study also was not able to control for the quality of care at nearby health facilities.

A study of user fees in Zaire by Bitran (1992) provides a more rigorous assessment of actual price effects on utilization while simultaneously controlling for the effects of travel time, waiting time, and personal income levels. This study was motivated by a finance survey that found 80 percent cost recovery among para-statal health facilities in ten health zones. Such a high rate of cost recovery for public health care was considered to be quite unique for a developing country such as Zaire, ranked as one of the poorest nations in the world in 1987.

In the Zaire study, the price of consultation had a statistically significant, negative effect on usage rates, as hypothesized, more so for relatively expensive health centers but less so for relatively inexpensive pharmacies. Travel distance also had the expected statistically significant, negative effect on choice of health facility, but appeared to be considerably less important than the price of the consultation per se.

Differences between Bitran's study and Gertler and van der Gaag's analysis of Côte d'Ivoire are striking. First, Bitran explicitly sets out to assess income effects on utilization rates by "interacting price with income." He shows that firm conclusions about more deleterious effects of prices on the poor are not warranted. Second, Bitran shows that distance or travel time to the different health facilities would not be an important rationing mechanism due to people's low opportunity cost of time, on the one hand, and their apparent strong revealed preferences for quality care on the other. Third, Bitran finds that older people frequent health facilities more than younger people, and speculates this may be because old people are aware of their bodies' weakened ability to fight disease, as well as the lower opportunity cost of time. Gertler and van der Gaag report the opposite, and speculate that families may prefer to invest scarce resources in the health of younger people -- from whom the economic return is likely to be higher.

Such disparate conclusions prompt the question: are the peoples and cultures of Côte d'Ivoire and Zaire so different?[11] The answer probably has less to do with cultures than with differences in quality of health services available and people's perceptions of those quality differences. Neither study controls for "quality" differences, though it is known that functional health zones in Zaire have been offering cost-effective and responsive packages of health care for years.

Low price sensitivities to charges in medical care prices have also been observed in Ethiopia (-.05 to -.50), Sudan (-.37), and for outpatient care by Jimenez (1989). Similar low price elasticities

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11 Returning to the issue of price per se, Bitran uses his model to simulate differences in utilization of health facilities if all prices were eliminated on the one hand (a free scenario), versus the average pricing scenario which prevails currently (a charge scenario). In the case of the most expensive facility in Bitran's study, the health center, the simulation reveals that a shift from a "free" to a "charge" scenario would reduce utilization rates for males aged 14-44 years by only 5 percentage points, from 35 percent to 30 percent. For 14-44 year old females, however, utilization rates would drop from 64 to 40 percent. This suggests a significant gender difference in the price elasticity of demand for health services.

of demand have been found for Mali (Birdsall and Orivell 1983), and for Rwanda (Shepard, et al. 1987). This kind of evidence has been used to lend support to the policy of charging fees for primary health services.

Type IV

Studies in this category go beyond those in Type II and III by complementing survey data on client characteristics with a full survey of *facility characteristics*, thus allowing more rigorous assessment of quality of services. Earlier studies on the demand for services proxied "quality" by the availability of a physician, though this variable was not found to influence utilization (Heller 1982; Akin, et al. 1985). Indeed, one study asked households, physicians, traditional practitioners and pharmacists what would be most important to improve health services. Only physicians included "more physicians" among their choices (Abu-Zeid and Dann 1985).

Having information on a fuller range of quality variables such as numbers and composition of health personnel, variety and consistency of drug supplies, and the physical condition of the health facilities allows researchers to get at the heart of the quality/price tradeoff.

A disadvantage of these particular studies is the high cost involved in gathering and processing the detailed surveys of both clients, and health facilities. And, even then, these cross-sectional studies do not lead to firm conclusions, because ultimately they simulate client responses to changes in surrogate measures of quality. These simulated changes rarely "add up" to the kinds of specific quality dimensions that policy analysts want to evaluate. Furthermore, no study in this category measures or simulates the response of clients to a basic package of cost-effective services offered in a well-functioning health center. It is when services are packaged in cost-effective ways and delivered by efficient health providers that real quality differences become apparent.

The study on rural Kenya by Mwabu et al. (see Chapter 5) stresses the importance of including quality variables in price studies, and pays particular attention to regular supplies of drugs at health facilities. Both user fees and distance to facility were found to have negative effects on utilization, as hypothesized by the authors. However, both variables fall short of being statistically significant.[12] The authors further report that use of all facilities also rises with income, particularly among mission and private facilities, indicating that higher incomes offset the effects of price increases on falling utilization.

Availability of drugs is also positively related to use of facilities in the Kenya study, with aspirin supplies showing the greatest statistical significance. On the other hand, a counter-intuitive finding -- that lack of malarial drugs is positively related to use of facility -- leads the authors to warn of an "endogeneity problem." That is, the lack of malarial drugs might not be due to supply problems, but may arise precisely because they are so much in demand. The significance of this finding is *methodological*, because no studies to date have controlled for endogeneity, but rather have interpreted drug shortages and their effect on demand as solely a supply-side problem. Another finding of note is that selection of treatment is not significantly affected by gender, at least not in any

12 The low levels of statistical significance can be partially attributed to the small sample size of 251 adult patients -- implying that statistical confidence in the negative effects of prices and distance would likely rise with a larger sample.

consistent way. This finding reverberates throughout most of the multi-variate analyses reviewed here, suggesting that this topic requires closer examination and a more systematic treatment.

To illustrate the impact of prices per se on utilization rates, the authors estimate the number of people who would likely stop using government facilities after an increase in user charges. Assume that before any policy change, 1000 people were sick. Based on the utilization patterns of the Kenya sample prior to fee changes, 536 would be using government services, 40 would be using missionary health services, 135 would be using private care, and 290 would not seek modern treatment. As a result of the increase in user fees, about 97 people could be expected to abandon government health services after the fee increase. Eight of these people would seek treatment from missionary health facilities; 28 would shift to private clinic, and 61 people would self-treat. In this case, 61 people (not 97) drop out of the modern health care system following user fees.

The authors conclude that user charges in public clinics have two important functions in a pluralistic health care system. The first is to divert demand for modern medical care from government to non-government facilities. The second is to reduce demand for modern medical care altogether, by forcing a segment of those who previously used inexpensive or free government facilities to rely on informal medical care, including home remedies. It is the "demand reduction effect" of user fees, rather than the "demand diversion effect" that is the source of much concern about user fees in low-income countries. As the simulation results reported here show, the negative demand effect of user charges is overstated when diversion effects are not considered. Similarly, the positive consequence of user charges, in terms of revenue generation, is exaggerated when "demand reduction effects," such as people with serious illness dropping out of the modern health care system, are ignored.

The study on Ghana by Lavy and Germain (see Chapter 6) takes up several of the themes visited above, but with the added advantage of a nationally representative socio-economic survey of the population, and a more comprehensive survey of facility characteristics. This study aims to shed greater light on the dramatic decline in utilization of health services in Ghana from 1973 to 1987, when the number of outpatients fell from 10-11 million to 5 million. It is informed by several prior studies which show a fall-off in government expenditures on health, reflected in a sharp deterioration in quality of services.

According to simulations performed by Germain and Lavy, policy changes that can be expected to have the greatest impact on utilization at public facilities are, first, quality improvements in drugs, services and infrastructure (all else held constant). These are likely to raise attendances at public facilities, and when combined with similar improvements in private facilities, could result in a decline in people opting for self-care by about 15 percent. Second, measures to reduce distance to public facilities are important (all else held constant), accomplished for example, by building more facilities in closer proximity to people, or adding public transport. Third, increases in user fees at public facilities alone, or at both public and private facilities, are likely to have a relatively small effect on the category of people opting for self-care.

The important conclusion from Germain and Lavy's analysis is that the direct price effect of user fees on the utilization in Ghana is of a lower magnitude than the effects of distance and travel costs. Moreover, the strong, positive effect of quality improvements on utilization -- relative to the weaker, negative effect of fees -- suggests there is ample opportunity for financing quality improvements in the public health sector by raising fees without compromising utilization.

Finally, a study of the demand for health care in Ogun State, Nigeria, confirms several of the impressions reported above (World Bank 1991). Multi-variate analysis was used to assess choices among public, private and self-treatment options of approximately 1,800 adults in rural and urban areas. The results strongly support the views that (i) price affects health care choice but has an impact that is small in magnitude, (b) quality as measured has a large impact on health care choices, and (c) higher prices can be offset by higher quality. People in Ogun state prefer health facilities that have a higher per capita spending on care, higher drug availability, and a relatively good physical condition. The authors conclude that if public facilities were to offer private sector levels of both drug availability and improved physical conditions (assuming constant public and private sector spending per patient), they could raise outpatient prices to the level of the private sector and still increase usage.

Type V

Studies in this category are especially valuable because they involve real world experience, as well as the scientific imperative -- a control group. The impact of a "policy change" can be assessed in terms of behavioral changes induced in one group, compared with the behavior of a similar group that has been excluded from the policy. Equally important, this approach is most akin to testing a "package" of integrated health services that policy makers believe are important to preventing and curing illness. In the delivery of quality health care, it is indeed the "packaging" of services that makes a difference to efficiency, equity and sustainability (World Bank 1993c; World Development 1993b). Assessing client reactions to a higher quality package of services affords greater insights into the relative role of prices versus quality than does a multi-variate analysis of loosely-defined facility attributes.

The disadvantages of this approach include the costs as well as time-consuming field work. Setting up a real life experiment involving hundreds of households, including major improvements to health facilities, is not feasible for most researchers. Nor is it always politically acceptable to make improvements in one area while depriving another.

The pre-test, post-test controlled experiment reviewed here is based on a "natural experiment," conducted in 1991 in Adamaoua province, Cameroon (see Chapter 7).[13] Three of five public health facilities introduced a user fee *and* quality improvements, compared to two health facilities where such improvements were not made.[14] For purposes of the pre-test, post-test study,

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13 It is a "natural experiment" in the sense that the Government of Cameroon was systematically expanding user fee and quality improvements into new areas versus others, and these former areas were drawn upon to analyze performance and differences. No claim is made that this represents a statistically "random" test or experiment.

14 The introduction of fees involved a 200 CFA ($.075) consultation fee and a fee for drugs which varied with prescription, but averaged 1000 CFA ($4.00). The health centers were stocked with an initial supply of drugs, with sales revenue used to purchase additional drug supplies. The mark-up on the replacement cost of the drugs was approximately 250 percent. Revenue generated from the consultation fee and the surplus on drug prices was also used to support other primary health care activities (e.g., community outreach), as well as to sustain the system (supervision, vehicle maintenance etc.). In addition, community health and management committees were established and trained to oversee these cost recovery activities. The "quality component" of this policy is therefore the combination of improved availability of drug supplies, the increased motivation of the health center staff due to the availability of supplies, and a motivated community. This notion of "quality" is roughly in keeping with principles of the Bamako Initiative, and agrees with the experience of other countries participating in the Bamako Initiative such as Benin, Guinea, and Sierra Leone (Knippenberg, R. et al. 1990).

these five facilities were selected as "treatment" centers. The two comparable facilities that had not introduced such changes represented the "controls".

Results indicate that income does indeed affect utilization differently in the control versus treatment areas. However, in the treatment group, it appears that the poorer one is, the *greater* the likelihood of using the health center. Conversely, in the control areas, the poorer one is, the less chance of using the health center. The authors argue that when low-cost, efficacious care became available locally, people no longer had to incur the travel and time costs of the alternative sources of efficacious care. The fact that proportionately more poor people sought good care when it became available at the nearby "treatment" centers suggests that it was simply not available to them before. It seems quite certain from this experiment, therefore, that poorer people are not being hurt by the fee policy in Cameroon. Rather, they appear to be benefiting proportionately more, compared to their prior situation as well as the control areas, than wealthier people.

Summing up, the lessons learned from the studies classified in Taole 2.8 are the following;

- Early and widely-cited studies have made the exaggerated and imprecise claim that while user fees may be a good way to raise needed funds, they inevitably harm the poorest people and impede their access to facilities. Although most of these studies acknowledge that *quality of care* is a significant factor influencing demand, few examine the effects that user fees have on demand when simultaneous improvements are made to improve the quality of services.

- More recent studies making use of multi-variate statistical analysis have shed more light on the issues involved, especially those using both client characteristics and facility characteristics. Indeed, prices do exhibit negative effects on utilization, as distance and travel time to facilities. Yet, results based on actual quality improvements and simulated improvements show that negative price and distance effects can be significantly offset by positive quality effects.

- The best way to assess the price/quality relationship is through controlled experiments where some semblance of a qualitative "package" of health services can be put in place, charges levied, and utilization rates observed. Evidence for Cameroon provides hope that the net outcome for poorer people need not be negative. Rather, the poor appear to benefit proportionately more from joint quality/price policies than even wealthier people. This suggests that the client's desire for better services is sufficiently strong to counteract the negative effect that price increase alone would have on health facility utilization.[15]

- In the final analysis, the policy response to a high price elasticity of demand for health services will depend on assumptions about "what is wrong with the country's health care market." If utilization of services falls rapidly (say, by 20 percent) with a 5 percent rise in prices, and the quality of services is known to be generally poor, then the consumer response could well be interpreted as entirely rational.[16] In such contexts, endeavors to maintain utilization levels and reduce the price elasticity of demand may well neglect consumer good sense, reinforce inefficiencies, and distort the health care market. On the other hand, if it is realistic to assume

15 Another study which should shed light on these issues -- in a similar vein as the Cameroon study -- is being completed in Niger by Abt. Associates for the USAID Health Financing and Sustainability Project. For an overview of on-going activities, see Diop (1993).

16 Furthermore, were it believed that consumers "over-use" services for minor problems, then the policy objective of an increase in prices might well be to reduce superfluous use.

that all people are ignorant of the value of all health services, and that they will be uniformly discouraged from seeking care by user charges, then perhaps a case could and should be made for no fees (or, alternatively, full subsidies for everyone). Fortunately, there is plenty of evidence to disqualify this extreme view -- people not only value clinical services, but the demand and willingness to pay for those services is observed to rise with income levels.

- If the utilization of health services changes relatively little with price increases (even large price increases), then consumer behavior is providing a signal that such services are valued and people are generally willing to pay. From the perspective of mobilizing revenues, this kind of response suggests that user fees can be used to boost revenues because higher fees will not be proportionately offset by falling utilization. Revenues can then be used to finance quality improvements and expand services. From an equity perspective, subsidies also make sense in such contexts -- targeted to the poor, whose demand for valued services is likely to be affected relatively more by price increases. The challenge in this instance is to use the funds mobilized from fee-paying clients to cross-subsidize the poor, and clearly define funding shortfalls that government should try to fill.

EXEMPTIONS FOR THE POOR

Even the most optimistic studies on "willingness and ability to pay" find that some proportion of the population will require assistance. Obvious cases include those who are mentally ill and unable to care for themselves; paupers and the indigent; those unable to raise cash, or even in-kind payments when severe illness strikes; and so on. The central problems are: defining such people, working out an acceptable formula for providing subsidies, and effectively administering exemptions. Known, tested, and low-cost models for identifying those who simply cannot afford to pay user charges are as rare today as they were a decade ago in most countries.

A survey of official cost-recovery policies in countries of SSA suggests that exemptions due to poverty or inability to pay are remarkably uncommon (Table 2.9). Of twenty-five countries, only one has an official income ceiling, below which people are exempt. Fourteen countries report that exemptions are part of national health policy, but provide no clear criteria. The remaining ten countries provide exemptions as part of local level projects or facilities, with criteria determined on an ad hoc, or community-by-community basis. The extremely limited capacity to administer exemptions in most countries may well be the most important explanation for their infrequency and ineffectiveness in SSA.

A closer look at existing exemption practices also raises questions of rationale and fairness. In Lesotho, for example, relatively severe criteria have been used to distinguish between the poor and non-poor, awarding exemptions only to people with no means of income, land, livestock and other belongings. These individuals must be certified by village chiefs and district officers as being "paupers," and there are only about 200 of them certified in the country. This implies that other hardship cases, such as poor female-headed households with sick children, might be denied treatment if they cannot afford to pay. On the other hand, there is a "no fee paying exemption" extending to almost 30,000 people, comprising 99 doctors, 620 nurses, 5120 Village Health Workers, and all their children aged less than 10 years. An imbalance of this magnitude clearly prevents an exemption policy from playing any meaningful role in promoting equity.

Table 2.9: Crude Classification of Countries by Exemptions Policies

Exemptions Policy	*Countries*
1. National Policy and Income Ceiling Criteria	Zimbabwe
2. National Policy but Criteria Not Clear e.g. unable to pay indigent paupers	Burundi, Congo, Ethiopia, Gambia, Ghana, Kenya, Lesotho, Mauritania, Mozambique, Nigeria, Rwanda, Swaziland
3. Local Level Policy e.g. Project related Community by Community ad hoc	Cameroon, CAR, Equatorial Guinea, Guinea-Bissau, Nigeria, Uganda, Zaire, Zambia

Source: Nolan and Turbat 1993.

Distortions are apparent in other countries as well. In Ghana, in 1986, most statutory exemptions from payment of user fees were granted to Ministry of Health employees and their dependents. The revenue that would have been collected, without exemptions, represented about 21 percent of total collections for that year (Waddington and Enyimayew 1990). In Central African Republic, health care for civil servants is supposed to be up to 80 percent covered by their respective Ministry, with the other 20 percent paid by the patient. Yet, a great deal of potential revenue is lost because ministries do not pay for their employees who use health services. Furthermore, the 20 percent payments due from patients are seldom paid, and relatives of civil servants manage to receive free or highly-subsidized care despite regulations requiring them to pay (Central African Republic 1992).

Consequently, the picture on exemptions policy remains incomplete. Unfortunately, no one formula is likely to suffice to determine who should be justly exempt from user charges. Rather, countries and communities are in the best position to work out their own scheme of exemptions. The following examples suggest promising alternatives:

- The Government of Malawi is considering low-income exemptions as part of its "phased" user-fee program, first in central hospitals, then district hospitals, and finally health centers. The "core poor" are to be exempt from fees, and the government is examining the landholding structure to determine those who qualify. The core poor, defined as families farming less than 0.5 hectares, comprise an estimated 500,000 households, or about 19 percent of all households in Malawi (Ferster et al. 1991). Rather than working out a complicated sliding fee schedule in areas where the poor predominate, a lower and more affordable schedule of fees is being determined in collaboration with the communities served.

- Private voluntary hospitals and dispensaries in Tanzania report that up to half of their patients, in everyday practice, may have some difficulty making *full* payments. Most facilities accept alternative forms of payment, including deferred payment, payment in-kind with crops, temporary employment (without pay), or assigned tasks for the client to perform. Ninety percent of hospitals and 20 percent of dispensaries exempt the disabled; 36 and 30 percent, respectively, exempt children under five; and 23 and 5 percent, respectively, exempt people with chronic diseases (Mujinja and Mabala 1992).

- The *World Development Report 93* as well as *Better Health in Africa* have identified several components of a basic package of services that are believed to contain strong public benefits, with the

implication that charges for such services should be exempt, or at least heavily subsidized for the poor (World Bank 1994a; 1994b). Targeting by type of service, rather than to broad groups (the "poor), is also discussed as a possibility, where services needed disproportionately by low- income households would be offered free of charge or heavily subsidized. Among these are prenatal and delivery services, management of the sick child, and STD and tuberculosis treatment.[17]

The central problem is to determine (i) which services should be publicly subsidized or exempt from fees since many health services yield both private and public benefits and (ii) which authority should be charged with carrying out and administering exemptions policy. Take the example of vaccinations for polio or tetanus. Clearly, these offer "private" benefits because they reinforce the immune system of individuals not wanting to contract communicable diseases. People should be, and are willing to pay for such private benefits. Yet, vaccinations offer public benefits as well. Communities will not be protected from the hardships associated with communicable diseases unless vaccinations are made universally available to all of their members. Thus, governments often advocate broad-based vaccination campaigns and are willing to provide such services at highly subsidized rates, especially to people who would otherwise be unable to afford them.

ADMINISTERING AND COLLECTING FEES

The contribution of user fees to cost recovery programs tends to fall far behind potential because charges are not administered and collected efficiently. Best practices in this area are only beginning to emerge, however, because operations research on bottlenecks in SSA remains highly underdeveloped. Six points on which some agreement is taking shape include the following;

- *Households tend to be far more receptive to user fees when they know what charges to expect when they seek care. As mentioned earlier, this can be aided by posting simple pricing structures for out-patient services in clearly visible places at clinics and hospitals.*

Many clients at health facilities in SSA are likely to be illiterate and poorly acquainted with fee schedules and billing procedures. They may also have reason to be suspicious of those requesting payments, especially when standards and procedures are not widely known. One way of dealing with this problem is to launch an information campaign -- prior to introducing or raising fees -- so as to explain why changes are necessary and how the system will function. In Sierra Leone, for example, a study concluded that clear information on the menu of charges would help make fees more comprehensible to illiterate people, reduce the incidence of overcharging, and increase the confidence of the community in the benefits of cost-sharing (Fabricant and Kamara 1990).

- *Health facility staff tend to be far more motivated to administer and collect fees when they perceive professional and personal benefits to doing so.*

As mentioned previously, when revenues from user fees are retained at point of collection, they can be used to improve quality of care (especially drug supplies), maintain facilities, and help to "top up" recurrent expenditures on salaries. Provisions in this regard have important motivational impacts on staff who want to provide higher quality services to their clients (World Bank 1994a).

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17 In countries like Ethiopia, Ghana, Mali, Niger and Zimbabwe, treatment of tuberculosis is provided free in government health facilities, whereas charges are imposed to treat STDs, which are also communicable.

Incentives might also take the form of prizes, with health facilities competing to recover the largest share of expenditures. In Lesotho's system of district-based health care, for example, a prize of 20,000 Maluti (1US$=3 Maluti) is shared by staff of the district which attains the highest level of cost-recovery through user fees.

- *Efficient collection and administering of fees takes on immense importance at public hospitals in view of the expensive care provided and subsidies that Ministries of Health seek to reduce.*

Because charges for in-patient care at hospitals tend to be large relative to those for out-patient services at health centers, failure to collect fees when in-patients are released can add up to huge amounts. In Zimbabwe, cost recovery performed poorly at hospitals and health centers during the late 1980s due to a combination of low fees, poor billing and lax collection procedures. The proportion of hospital bills collected nationally was 62 percent, on average, ranging from 13 to 100 percent among different hospitals (see Chapter 3).

Fortunately, hospitals are in the advantageous position of having "gatekeepers" responsible for admissions, relatively well-developed admission procedures, accountants, procedures for financial control, and access to the banking system. This should put them in a relatively good position to deal with administrative tasks of cost recovery. Based on a survey of hospital fee collection systems in West Africa, Vogel (1988) recommends the following practices;

a) Well-defined entrance points for the hospital;

b) The issuance of receipts, with duplicate copies, to serve as evidence of payment;

c) A rigorously enforced system for determining those eligible for exemption;

d) Training for all staff to confirm the importance of enforcing collection;

e) Periodic spot checks to establish that the above recommendations are being carried out by all staff; and

f) Periodic audits of the financial transactions and flow of funds.

- *The contribution of user fee policies to cost-recovery will be undermined without appropriate adjustments for inflation, on the one hand, and protection of collected revenues through appropriate investments, on the other.*

One of the most important mechanisms for maintaining the revenue potential of user fees is to regularly adjust the level of prices to keep pace with inflation (Barnum and Kutzin 1993). When an act of government was needed to change fee levels, however, prices remained unchanged for many years in several countries, for example in Botswana, Lesotho and Zimbabwe. As Barnum and Kutzin point out, maintaining the real level of prices does not negatively affect equity, so there are good reasons to recommend that periodic adjustment of fees be "built into" any system of user charges. Such a policy is most likely to be successful if price changes are an administrative, rather than a political act (USAID 1993).

In Guinea-Bissau, the failure to adjust user fees for inflation reduced revenues to an almost insignificant share of total recurrent expenditures (see Chapter 10).[18] The fee for a consultation at a national or regional hospital during the 1980s was 100 Pesos, on average (1US$=1130 Pesos); 50 Pesos at district hospitals; and 30-50 Pesos at health centers. These fees, set in 1978, were not adjusted despite *annual* inflation of about 100 percent between 1986 and 1988 alone. To put these figures in perspective, it cost 1,000 Pesos for a kilo of rice, and 4,000 to 6,000 Pesos for a chicken in July, 1989.

Failure to protect revenues from the eroding effects of inflation has been further observed in countries as diverse as Ghana, Zambia and Zaire. In their study of Zaire, Shepard et al. (see Chapter 9) warn that revenues collected through district-based insurance programs could be rapidly eroded by inflation rates of up to 100 percent per year, unless invested wisely. They recommend investing in a responsible local institution rather than retaining the revenues in cash, or perhaps investing in essential drug supplies, which are usually imported and may gain value if national exchange rate devaluations take place.

- *The way fees are structured for services can influence client perceptions of value-for-money, utilization of facilities, and thus total revenues from user fees.*

A flat fee or fee-per-visit is common at health centers in many SSA countries, including Central African Republic, Côte d'Ivoire, Ethiopia, The Gambia, Ghana, Guinea-Bissau, Mali, Rwanda, Senegal, Swaziland, Uganda, and Zimbabwe (Nolan and Turbat 1993). Flat fees have the advantage of being simple (see Box 2.1). However, without due attention to the quality of treatments or services delivered, they also run the risk of being unpopular. In Uganda, for example, people reacted negatively to a flat fee in facilities because understaffing and drug stock-outs were known to be frequent (McPake, et al. 1992).

One way around this problem has been to separate charges for drugs and other treatment costs from the flat fee. This approach is more akin to fee-for-services rendered. In Kenya, a sustained negative reaction to the government's flat, out-patient consultation fee resulted in its suspension in September 1990. Subsequently, the out-patient consultation fee was replaced with a treatment fee for services actually rendered. Levying fees in this way is more complicated administratively, but it has met with great success. Combined with other improvements (but no additional fee increases), monthly revenue tripled at provincial hospitals in Kenya between April and June 1991, and subsequently doubled at district hospitals from October 1991 to the fourth quarter of 1992 (Collins and Hussein 1993).

Charging fees for an "episode of illness" is also common in SSA countries including Benin, Congo, Guinea, Lesotho, Mozambique, Namibia, Nigeria, and Zaire (Nolan and Turbat 1993). One advantage of this approach is that it is believed to motivate patients to complete treatment (see Box 2.1). A second advantage is that charges are linked to a "package" of services required for effective treatment, including costs of personnel, equipment, medicines, and overhead, rather than only single facets -- such as drugs -- that clients may be more willing to pay for. Better health care cannot be sustained financially by only generating revenues for, say, drugs, and neglecting operating costs and incentives for critical health care personnel. Finally, charging fees for an episode of illness also

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18 This anecdote derives from an earlier version of the paper by Shepard et al. 1990. "Health Insurance in Zaire", WPS 489. Washington, D.C.: World Bank.

makes it easier to manage public subsidies for expensive *treatments*, as opposed to numerous individually priced services (World Bank 1992).

Box 2.1: Payment Options in Central African Republic

According to the Ministry of Public Health and Social Affairs, there are a number of payment options that private and public health facilities use the costs of health services. Their respective rates of use by the health facilities in 1991 were:

- payment of fee-for-service 62%
- payment per illness episode 22%
- payment per visit 13%
- pre-payment for year of service 3%

Flat Fee Per Visit

This option requires a lump-sum payment for each visit to the health facility. The sum may or may not include the price of drugs. The sum to be paid for consultation fees is determined by dividing the average cost of an illness episode by the likely number of visits, to find the amount that patients should pay for each visit. Imposing consultation fees for each visit would lead to more effective resource allocation for health facilities. Under this option, patients have to pay the marginal cost for use of the system, which will reduce the likelihood of abuse in utilization of health services. This option requires a well-run accounting system and sound management to work well. Unlike per-episode payment schemes, there may be a tendency for patients not to return for follow-up treatment because of the additional fees they must pay.

Fee-For-Service

This option requires patients to pay out-of-pocket at the time of service. The prices of the various services, like consultations, outpatient diagnostic exams, and hospitalization are totaled, and the patient must pay this full sum in order to receive the services. This option has the advantage of promoting better resource allocation in health facilities, but it requires more effort in management and accounting. It is therefore best to have staff who are specially trained in this area to take responsibility for the cost recovery activities. A problem that limits the advantage of this option is the amount of money the patient has when he or she arrives at the hospital. There is a growing problem in that poor people do not have the means to pay for health services, and are therefore often not served. This situation is especially apparent in private health facilities, which seldom have procedures for recovering fees from non-paying patients, but rather exclude these patients from hospitalization and treatment after a few days. The poor patient is then induced to pay his or her debt. This still seems to be the health facilities' favorite payment option, but the population should be surveyed to determine their perceptions of such policies.

Fee Per Illness Episode

Another possibility is to make the patient pay the total cost of consultations and care for an episode of illness during the first visit, and then all subsequent visits are free of charge. There are two main methods for setting prices under this option. The first is to set a one-time price (lump sum) for all illnesses based on the average cost of all illness episodes. The problem with this single-price method is that patients whose treatment costs less than this fixed price will eventually not want to pay this price, and may use self-medication instead. In addition, patients whose treatment costs are covered by this price will continue to use the health facilities, but will likely stop using them when rising costs result in price increases. Gradually, a process of adverse selection will ensue, and patients with mild illnesses will be discouraged from seeking treatment, while only those who have more severe illnesses and the means to pay will use the services. The second method of setting prices links the cost of the treatment required per patient to the price charged to the patients. In this case, various prices are set, in proportion to the severity of the patient's illness. This method seems to work reasonably well and patients are motivated to complete treatment in the process.

Pre-Payment for a Year of Service

This payment option is not very common, but it is found in some private health facilities, like the Boguila medical center, and is essentially reserved for a certain category of patients. Under this option, the students of the Yaloke Evangelical High School, the students in the Bata Theological Faculty, and infants pay a lump sum at the beginning of the year, which allows them to use all services free of charge for the year. This option, although well thought of, is merely a measure of privilege, and does not permit resources to be allocated efficiently. Even the leaders of the Boguila medical center admit that it is one of the main reasons for their tendency for chronic deficit problems.

Source: Central African Republic 1992.

Beyond these generalizations, much remains unknown, suggesting that understanding the advantages of various pricing mechanisms is a priority area for future research (Creese 1991). One hypothesis is that fee-for-service providers may recommend more services than are actually needed

in their endeavor to maximize revenues. This may result in over-charging clients and possible cost-escalation in facilities that fail to collect payments. On the other hand, health care providers who charge for an episode of illness may provide fewer services than are merited, because the cost (and efforts) of doing so are borne entirely by the provider. Perhaps the best learning environment in which to assess, and emulate, sustainable practices is the private sector.

- *Permitting different forms of payment may enhance willingness and ability to pay, as well as prospects of collecting debts.*

As mentioned earlier, low-income households have more difficulty paying for health services during some times of the year than others. In particular, farm households are likely to have more access to cash after harvesting crops than during planting season . They are also likely to be in a better position to pay for services with "income-in-kind", such as a bag of grain or poultry. In-kind payments are a prevalent form of payment to traditional healers.

Accommodating in-kind payments is, of course, more awkward and time consuming than cash transactions. However, permitting some form of alternate payment from low-income households opens options for the poor to seek services from modern health facilities (McPake et al. 1993a). In Tanzania, for example, privately-operated hospitals and clinics allow alternate forms of payment for the poor, including payment with crops, temporary employment, and assignment of specific tasks to perform (Mujinja and Mabala 1992). In Guinea-Bissau, community-based pre-payment insurance plans allow villages to make in-kind contributions of agricultural products. In 1988, four villages contributed the value of a crop, produced through joint labor on a common field (see Chapter 10).

CONCLUSION AND RECOMMENDATIONS

Debate today centers less on whether user fees are warranted and acceptable, than on ways of enhancing their contribution to more efficient, equitable and sustainable health care. At the heart of the issue is to find acceptable ways to tap resources that African households seem generally willing and able to pay, while simultaneously making people feel they are getting value for money. It is equally important that quality improvements associated with cost-recovery can benefit the morale of health care personnel, thus making them more effective agents in health care delivery.

Assessing "how much can be raised by fees" is only one of many important concerns surrounding the broader issue of cost-sharing and its purposes. Through pricing signals, user fees can help rationalize the referral system. Appropriate structuring of fees, with higher charges for in-patient services and complementary health insurance, can help free up government expenditures on expensive tertiary-level care and cross-subsidize primary and preventive care. Retention of fees at points of collection and greater perception by community members of related service improvements can contribute to the sustainability of health services -- particularly essential drugs at lower level facilities. Systematic increases in very low levels of fees over time can foster more competitive environments, raising chances that private providers can survive. And growing familiarity with fees -- as a fact of life -- can help prepare people for health insurance and the critical role it will almost certainly have to play if expensive hospital care is to be covered.

User fee policies still have a long way to go to realize their potential contribution to cost-sharing in countries of Sub-Saharan Africa. It is important to stress that several actions must be taken *simultaneously* if user fee policies are to *jointly* maximize the desires and needs of households

seeking care, on the one hand, and the goals of national health care systems, on the other. These include the following:

FORMULATE AN EXPLICIT POLICY ON USER FEES

In response to the question "more resources for what," government should be explicit about the revenue mobilization and reallocation goals it expects to accomplish through user fees. This process can be facilitated by assessing the costs of providing a basic package of essential services -- including the costs of the referral and supervision system -- and determining the appropriate levels of fees to be charged for these services. Government should be clear about (i) the relative contribution that user fees can be expected to play in total financial needs, (ii) how it plans to reallocate MOH funds "freed up" by cost-recovery to primary health care and public health goods, and (iii) additional steps needed to ensure there will be adequate government subsidies to cover budgetary shortfalls in the provision of these services.

RETHINK TARGETING OF SUBSIDIES

Government needs to be clear about its user-fee exemptions policy and the kinds of mechanisms that can best achieve targeting goals. An "intervention approach," for example, may stress exemptions for health services with strong public externalities -- such as reduced or zero fees for immunization or treatment of sexually communicable diseases. On the other hand, a more distinctly "targeting approach" may focus on core poor groups who otherwise might be excluded from a range of benefits offered by a "basic package" health services. When exemptions are provided at health facilities, both staff and clients should be well informed about the exemption policies, with a clear community consensus on who qualifies as "poor."

WIDELY DISSEMINATE INFORMATION AND PROMOTE CONSENSUS BUILDING FOR THE POLICY

Health care providers will be in a better position to assess and appreciate the benefits of user chargers if government and its partners actively communicate the rationale and expected objectives of cost-sharing. Clients are far more likely to be willing to pay for services if they understand that value-for-money is involved, with fee structures clearly posted and related to services and medicines provided. Consensus building requires participatory approaches so as to promote "ownership" of the policy right down to the district and community level

EMPHASIZE FACILITY MANAGEMENT

Well-managed health facilities are clearly a linchpin of successful user-fee policies. Unless fees are accompanied by quality improvements in the maintenance of facilities and provision of services, utilization rates are likely to decline. Ministries of Health should endeavor to empower facility management through appropriate management boards, more autonomous planning and control over budgets, and options to purchase inputs at competitive prices. Additional priority areas for facility management include improved incentives for staff to collect fees from clients; follow-up on unpaid bills; and closer scrutiny of exemption loopholes. Unless procedures are in place to administer and collect fees efficiently, revenues will be a shadow of their potential.

PERMIT FACILITIES TO RETAIN A PORTION OF FEES COLLECTED

This practice helps to empower managers and staff of health centers and hospitals to make qualitative improvements to their facilities that will be readily perceived by clients -- such as maintenance improvements and stocking a continuous supply of essential drugs. A retained portion of fees can be used for staff incentive payments. On adopting fee retention policies, governments need to take appropriate steps to (i) combat "leakage" of resources at the point of collection by promoting more transparent fee schedules, strong supervision and control systems, and (ii) improve MOH institutional capacity and financial procedures to insure that government subsidies are allocated to match the financial needs of each facility, district and region.

GIVE COMMUNITIES A VOICE ON HEALTH FACILITY MANAGEMENT BOARDS

Communities have a vital interest in the relationship between their out-of-pocket payments and the quality of services they receive. Involving communities in the management of health facilities is a proven way of fostering accountability and transparency in the management of funds, and increasing consensus and support for cost-sharing.

STRESS BETTER PROCUREMENT PRACTICES, ESPECIALLY FOR DRUGS

A pre-eminent criteria for a successful cost-sharing strategy is whether increased revenues result in more regular supplies of essential drugs. In combination with improved facility management and additional control over revenues (through fee retention), more sophisticated and flexible procurement procedures need to be available to health centers and hospitals. For example, administrators of health facilities in Kita, Mali estimated they could cut their current expenditures on medicines in half if the country used competitive international bidding (Vogel 1988). Cumbersome "procurement and allotment" procedures that tend to saddle Central Medical Stores might be effectively replaced by a system that "contracts out" fixed-priced deliveries of essential drugs to facilities upon demand.

PROMOTE A STRATEGY FOR PRIVATE SECTOR DEVELOPMENT

Adoption of user fees in public health facilities can be expected to provide stimulus to private sector development if, and when, clients switch to private-voluntary and private-for-profit providers. A similar impetus to patronize the private sector will develop as clients take a greater interest in private health insurance schemes, and as public facility managers increasingly deal with private suppliers (for example, for drugs). Stimulus to private sector development might take the form of subsidies to cover start-up costs or subventions to fund relocation to more marginal areas. Subsidies to private sector providers might also be contingent on their compliance with appropriate public health standards and norms pertaining, for example, to use of essential drug lists and other quality procedures.

BUILD AN INFORMATION BASE FOR POLICY ANALYSIS

The impact of user fees on revenue levels, utilization rates, efficiency, equity, and sustainability of national health systems requires continual monitoring and evaluation. The tasks

involved require that appropriate training programs be instituted to produce skilled personnel in the areas of health finance and health economics.

Policy analysts will also want to turn their attention to important gaps and enigmas in our understanding of cost-sharing issues including;

(i) How governments perform in reallocating public funds from tertiary level services to primary and preventive care, as a desired and often touted by-product of cost-sharing strategies;

(ii) Examples of proven and politically acceptable procedures for "means testing;"

(iii) Possibilities that fee retention policies might exacerbate inequalities between communities that differ considerably in resources and wealth (and thus compensatory steps government might take to correct such inequities);

(iv) Socio-economic differences between those who seek care from modern providers *at times of serious illness or injury*, versus the 40-50 percent that do not, and implications for policy and, perhaps, special targeting measures; and

(v) Implications of AIDS - related illnesses on sustainability of health finance and the role cost-sharing can play.

CHAPTER 3

HOW COST RECOVERY CAN HELP RATIONALIZE T HE HEALTH CARE SYSTEM: LESSONS FROM ZIMBABWE

Robert Hecht, Catherine Overholt and Hopkins Homberg

ABSTRACT: This chapter discusses the strengths and weaknesses of Zimbabwe's cost recovery system, its potential for improvement, and obstacles to revising the fee structure and billing and collection procedures. It argues that cost recovery can help to achieve Zimbabwe's health objectives, but only in conjunction with other measures to redirect public spending to essential public health and clinical care and to improve efficiency of government services. This study finds that during the 1980s, the fee schedule became badly misaligned with actual medical care costs, thus creating distortions in patient referral patterns. Billing and collection were also weak, because of deficiencies in personnel and information systems and lack of incentives for revenue generation. The study concludes that if key steps were taken to raise the collections-to-billings ratio, recover fees from privately-insured patients, and adjust fees in line with medical cost inflation, revenues could increase fourfold, from 5 percent to 20 percent of government spending for clinical care. At the same time, access to government health services for the poor could be maintained by improving exemption procedures.

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INTRODUCTION

An important policy debate is taking place over the advantages and drawbacks of employing user charges to recover costs in the health sector. Those advocating more widespread adoption of user charges argue that they yield benefits that go well beyond revenue mobilization. If user charges are linked with an effective system of exemptions for the poor, they can improve equity. They can also enhance efficiency by deterring consumers from seeking unnecessary "free" care, and by encouraging hospital and clinic managers to be more cost-conscious (Vogel 1988). User charges for drugs and other clinic-based services can ensure adequate funding for cost-effective preventive and primary care, improve service quality by making clinic managers more

accountable to their clients, and promote community involvement and "empowerment" vis-à-vis the government (UNICEF 1989).

Skeptics say that fees affordable to most Africans will not generate significant revenues and that the administrative costs will offset revenues. Further, they argue that user charges can seriously reduce access to health care, especially for the poor, with important negative effects on health status (Creese 1991). They point to specific country examples where an increase in fees in government health centers led to a decline in use of services (Waddington and Enyimayew 1989).

To achieve the objectives of increasing revenues and improving efficiency, equity and quality, while simultaneously avoiding the adverse effects of user fees, it is critical to consider:

- *The fee structure*: Are fees progressive with respect to income, thus tapping those more able to pay? Are the poor protected? Are public goods (e.g. water and sanitation, health education) provided free; are services with significant externalities (e.g. immunizations, family planning) provided at reduced cost?

- *How fees are collected*: Are fees retained at the point of collection? Are collection systems consistent with administrative capacity? Are health workers motivated to collect fees? Are financial information systems in place to monitor collections and to relate them to the cost of services?

Zimbabwe offers an interesting example of an African country that has had a long tradition of levying fees in government health facilities. In the 1980s, enforcement became lax, whereas more recently, policy-makers have resolved to resuscitate and strengthen the cost recovery system. This paper reviews specific problems that the Ministry of Health encountered in revising and reforming the fee structure, as well as its billing and collection procedures. This permits the identification of important obstacles and recommendations to overcome them.

PERFORMANCE IN THE 1980S

Following independence in 1980, Zimbabwe made enormous strides in expanding and improving its health system. Consistent with its first health policy paper, entitled "Equity in Health" (1982), the country sought to extend preventive and basic curative care to rural areas that had hitherto been neglected or badly under-served. During the 1980s, more than 500 rural health centers (RHC) were either constructed or upgraded; over 7,000 village health workers and thousands of state-certified nurses and midwives were trained and deployed; and thousands of village wells, boreholes and pit latrines were installed to improve rural water and sanitation. At the same time, a number of important national programs were launched to reach the rural poor: the Zimbabwe Essential Drugs Action Program; the Expanded Program of Immunization; village-based food production and nutritional supplementation; and the community-based distribution of family planning.

Much of the improvement in health service coverage and the expansion of preventive care during the 1980s can be attributed to substantial investments by the Zimbabwe central government.

Zimbabwe's health system remained institutionally diverse during this period, with municipal and local governments, church missions and other NGOs, mining and industrial companies, private practitioners and traditional healers all playing important roles. However, during the 1980s, the central government expanded its involvement considerably. By 1988, the central government was providing 48 percent of all health care in the country (in expenditure terms), and was directly financing 53 percent of all health spending. The new rural hospitals and clinics, major health worker training programs and preventive health activities were virtually all Ministry of Health (MOH) initiatives, many of them partially funded by external donor agencies.

At the same time that the government was investing substantially in health, family planning and nutrition services, little effort was made to recover costs directly from the users of these services. While the country had a history of charging for health services, the post-independence government made a conscious decision to de-emphasize cost recovery, mainly on grounds of improving equity. Households earning cash incomes of less than Z$150 per month[19] were exempted from paying fees. In the early 1980s, this meant that a large number of families, especially in rural areas, could receive health care free of charge. In practice, MOH facilities generally placed low priority on collecting fees from patients earning incomes in excess of the Z$150-a-month threshold. There was also a lack of MOH interest (and political support for) adjusting user fees to keep abreast of inflation. Fees were adjusted only once during the 1980s, so that their real value was seriously eroded. As a result, cost recovery fell from about 5 percent of central government expenditures for health at independence to around 2 percent by the end of the decade.

Policy-makers began to realize that the system of free government-provided and financed health care, which had brought many benefits to Zimbabweans during the 1980s, was undergoing serious strains. Central government revenues were stagnant or even contracting in real terms, as overall economic growth slowed. The MOH's share of the budget was remaining constant at about 5 percent, with little prospect of an increase. Per capita public spending for health (about Z$30 or US$17 in 1988) was likely to stay constant or decline in the coming years. This would make it virtually impossible for the publicly-funded health system to continue to expand, and might even adversely affect the quality of care being provided in MOH facilities.

Caught in a bind between stagnant financial resources, rising unit costs and increasing service demands, the government decided it would be appropriate to review its health financing policies and develop a series of policy reform options. The MOH therefore asked the World Bank in 1988 to collaborate with it in preparing a report entitled "Zimbabwe: Financing Health Services". Options explored included: improving allocative and technical efficiency; promoting private and NGO provision of health services; privatizing some ancillary services to the MOH (laundry, catering, ambulance driving); increasing cost-sharing with local and municipal governments; and boosting cost recovery from both insured and uninsured patients.

Cost recovery from user fees was thus seen as one of several options for ensuring the financial sustainability of Zimbabwe's health sector and for improving the range and quality of services over time. It was recognized from the outset that cost recovery would, even under the best

19 Exchange rate: US$1.00 = Z$0.65 (1982); US$1.00 = Z$1.80 (1988); US$1.00 = Z$4.90 (1992).

of circumstances, only generate a modest portion of the financial resources spent by the MOH--perhaps a quarter to a third. Nevertheless, MOH and World Bank staff who participated in the policy study argued that some improvement in cost recovery would be an important part of any health finance reform program, because: (i) increased fee revenues would strengthen MOH's hand in its annual budget battle with the Ministry of Finance; (ii) eventual retention of fees at the point of collection could be an incentive to hospital and clinic managers to enhance both revenue collections and service quality; (iii) purely on equity grounds, patients from higher income households (most of whom had health insurance) should be required to pay for the health care they received; and (iv) research revealed that even middle and low-income households were prepared to pay for most curative services, especially if service quality was positively affected.

OBJECTIVES OF REFORM

In evaluating the existing user charge system, the MOH and World Bank study agreed that reform should be guided by the following key objectives:

- *Revenue generation*: Cost recovery from user charges as a share of MOH recurrent expenditures should rise substantially, from their level of 2 percent in 1990 to 5 percent of expenditures by 1993 and 8 percent by 1995.

- *Equity*: Higher-income groups, especially the 5 percent of the population (about half a million persons) covered by health insurance schemes, should pay a larger share of the actual costs of health services provided to them, phasing out the various subsidies they continued to receive during the 1980s. At the same time, very low-income households should be able to obtain basic health care at little or no cost. They should not be denied access to such care because of inability to pay.

- *Efficiency*: Prices in MOH facilities should be structured to encourage efficiency. Individuals should be given incentives to enter the health system at the lowest level appropriate for the services required. MOH health care should be priced in a manner that should encourage restraint in the use of scarce financial resources, while not exceeding households' ability to pay. Charging for drugs, for example, might limit wasteful physician prescribing and patient consumption behavior.

- *Pricing and type of service*: To the extent possible, prices should reflect the type of service offered. Those with a "public goods" character, such as general health education, should be free because benefits to society are relatively immense, and may not be forthcoming without appropriate government investment. Health services such as immunization and family planning should also be free or provided at reduced cost because their positive effects tend to spill over to benefit all members of society (e.g. by minimizing chances of epidemics). And health services that largely provide private benefits, such as curative care, should be priced at or near cost.

In pursuing these objectives, the government agreed to adopt an *incremental approach* to cost recovery reform. That is, fees would be restructured and increased gradually. The effects of

these changes would be closely monitored, and price levels adjusted as part of a fine-tuning process. This incremental approach was taken in part for political reasons; a more radical shift in the fee structure would likely have negative political repercussions that would make reform unsustainable. In view of the weak data base on household demand for health care, on the price elasticity of demand and on the costs of providing services, it was felt that an incremental approach would also be more effective in avoiding serious policy errors and in building confidence in the changing cost recovery system.

It was further agreed that fees for health services should be set in a *managerially-oriented* manner. In other words, MOH should apply fee levels in a way that encouraged health planners and managers of different health facilities to set and achieve their own revenue and utilization objectives. The process for setting and revising fees and informing health workers and the public should also be consistent with existing administrative capacity. An incremental approach to levying fees would allow MOH and facility-level administrative capacity to expand gradually and the skills of facility personnel to be upgraded. For example, it might introduce the new fee structure in a limited number of health institutions and expand them to cover all MOH facilities over time.

STRATEGY FOR REFORM

Zimbabwe's present fee schedule contains many positive features that are consistent with the revenue generation and other objectives reviewed thus far (see summary in Table 3.1). These include the following:

- *Efficiency*: Fees increase according to the hierarchy of facilities, so that consumers seek care at appropriate levels and incentives are provided for efficient resource use. Lower fees are charged to consumers who enter for services at health centers rather than at the hospital level. The basic out-patient charge for adults, for example, is Z$5 in a central hospital, Z$3 in a provincial general hospital and Z$1.50 in a district hospital. Maternity ward fees are Z$20-30 in a central hospital and Z$15 in a provincial facility. The fee schedule also has minimal administrative complexity for charges at lower-level facilities and is increasingly complex at apex facilities, consistent with existing capacities. A large number of prices enter into patient charge calculations at central hospitals, while only about fifteen prices have to be manipulated at district hospitals and six prices at rural hospitals.

- *Equity*: Individuals earning less than Z$150/month receive free care. In addition, the fee schedule is progressive with regard to income at the central hospitals, with higher charges for the relatively well-off and lower charges for lower income households. The MOH circular establishes seven income bands for daily in-patient ward charges and two simple bands (Z$150-800 and above Z$800 per month) for out-patient fees. Private ward charges are two to five times higher than general ward rates.

- *Pricing and type of service:* The hierarchy of prices in the 1985 schedule correspond, in very crude terms, to the costs of delivering services in MOH facilities, with lower-

level hospitals charging lower prices than higher-level hospital facilities. The schedule assigns charges to most personal care services of a curative nature, while preventive care is provided free on an out-patient basis. Chemotherapy for tuberculosis and leprosy, which has similar public health benefits, is also classified as free in the 1985 circular. Despite these strengths, implementation of the MOH fee schedule has revealed a number of serious weaknesses in the cost recovery system.

INADEQUATE REVENUE

Cost recovery has declined in recent years in part because the government has allowed fees to fall behind inflation. Fee levels have not been adjusted since 1985, yet inflation has greatly increased the cost of health services. The two Consumer Price Indexes (CPI) maintained by the Central Statistical Office rose by 64 percent and 74 percent between 1985 and mid 1990. The fee levels that would apply if the 1985 schedule was adjusted in line with inflation are shown in Table 3.1.

Cost recovery has also declined in recent years because fees have been set well below the cost of services. MOH has not attempted to estimate the true unit cost of the services it delivers, and does not have cost data readily available in a form that would permit cost analysis. Without accurate cost information, underpricing may well continue, with all patients--including those from higher-income groups--continuing to benefit from some degree of subsidization. The result is a major loss of potential fee revenue and the continuation of an inequitable system of charges. One rough indicator of costs, at least in the high-quality MOH central hospitals, is the price charged by the private hospitals that compete with them. Table 3.2 provides a comparison of charges at Parirenyatwa Hospital (the MOH central hospital in Harare) with those of similar private hospitals. The charges at the private hospitals are typically two to five times higher. Thus, there appears to be considerable scope for MOH to increase its charges in line with the existing market for this type of medical care.

OMISSIONS FROM THE FEE SCHEDULE

The 1985 Circular is sometimes ambiguous and has omitted fees for important services. A prime example is the omission of professional charges for doctors' in-patient services. When a doctor performs an appendectomy, for example, MOH charges the patient for the use of the operating theater and for anesthesia, but not for the doctor's services. If a government doctor performs the operation, there is no charge for professional services; if a private doctor operates, he bills the patient separately.

Table 3.1: Fee Schedules

Service	*Current Rate (set in 1985)*	*Rate adjusted for inflation (mid 1990)*
FEE SCHEDULE FOR CENTRAL HOSPITALS		
WARD FEE (per day)		
Private Wards	$60.00	$100
Private Wards, Non-resident	$80.00	$130
General Wards, Non-resident	$60.00	$100.00
General Wards, Adult		
Income $151-300	$5.00	$8.00
301-400	$10.00	$15.00
401-500	$15.00	$25.00
501-600	$20.00	$35.00
601-700	$25.00	$40.00
701-800	$30.00	$50.00
801+ or Medical Aid	$25.00	$40.00
General Ward, Children		
Income $151-300	$3.00	$5.00
301-400	$6.00	$10.00
401-500	$9.00	$15.00
501-600	$12.00	$20.00
601-700	$15.00	$25.00
701-800	$20.00	$30.00
801+ or Medical Aid	$25.00	$40.00
Maternity Ward		
Booked cases	$20.00	$30.00
Unbooked cases	$30.00	$50.00
Emergency or complicated cases transferred from government hospitals and fees were paid	$10.00	$15.00
Private Ward	$60.00	$100.00
Non-resident	$175.00	$290.00
Intensive Care and Coronary Unit		
Income $151-300	$20.00	$35.00
301-400	$35.00	$60.00
401-800	$50.00	$80.00
801+ or Medical Aid	$80.00	$130.00
SURGERY FEES		
General Anaesthetic		
First 15 minutes	$24.00	$40.00
Each subsequent 15 minutes or part thereof	$12.00	$12.00
Major operations	$50.00	$80.00
Minor operations w/ general anaesthetic	$20.00	$35.00
Minor operations w/ local anaesthetic	$10.00	$15.00
Minor operations w/o anaesthetic	$8.00	$15.00

Table 3.1 (cont'd)

Service	*Current Rate (set in 1985)*	*Rate adjusted for inflation (mid-1990)*
OUT-PATIENT AND EMERGENCY FEES		
Adult attendance inclusive of consultation		
Income $151-800	$5.00	$10.00
800+ or Medical Aid	$13.00	$20.00
Child attendance inclusive of consultation		
Income $151-800	$3.00	$5.00
800+ or Medical Aid	$5.00	$10.00
Attendance for injection given by doctor	$5.00	$10.00
Attendance for treatment/injection by SI	$5.00	$10.00
Injection given during consultation	$2.00	$5.00
Dressing complex requiring doctor	$5.00	$10.00
Yellow fever inoculation	$5.00	$10.00
PLASTER OF PARIS FEES		
Application/reapplication/reinforcement	$10.00	$20.00
Application w/o anesthesia	$10.00	$20.00
Application w/ anesthesia	$10.00/15.00 min	
HEMODIALYSIS	$44.00	$70.00
DIETITIAN CLINIC		
Initial consultation	$7.50	$10.00
Subsequent consultation	$5.00	$10.00
Weighing only	$3.50	$5.00
OCCUPATIONAL THERAPY		
Individual therapy for 30 minutes	$5.55	$10.00
Individual therapy for 60 minutes	$10.00	$15.00
Supervised therapy for 30 minutes	$2.80	$5.00
Supervised therapy for 60 minutes	$5.00	$10.00
FEE SCHEDULE FOR GENERAL AND DISTRICT HOSPITALS		
WARD FEES		
Private Wards, per day	$35.00	$60.00
Private Wards, non-resident, per day	$50.00	$85.00
General Wards		
Adult per day to 14 days	$10.00	$15.00
per day after 14 days	$5.00	$10.00
Children per day to 14 days	$3.00	$5.00
per day after 14 days	$1.50	$5.00
Non-resident	$30.00	$50.00

Source: Ministry of Health.

Table 3.2: Comparison of Fees at Ministry of Health Central Hospital and Private Hospitals (Z$)

	MOH Central Hospital	Private Hospitals						
	Parirenyatwa*	Avenues	St. Anne's	Montagu	Matarde	CASU	Gelfand	Triangle
Ward Fees/day	(Z$)	(Z$)	(Z$)	(Z$)	(Z$)	(Z$)	(Z$)	(Z$)
Private	$60	$300	$93-100	NA				
2 Bed	NA	$158	$80	$132		$120	$125	$70
General	$5-35	24-142	$72	$102	$92	$110	$110	$50
Maternity Charges	$20-30	$158 + ROOM	NA					
ICU	$20-80	$330	NA					
Surgery Charges	$20-80	$46/15 min	$50/ 15 min					
Recovery Room	None	$20	$12					
General	$24/1st 15	$92/1st 15	$50/ 1st 15					
Anesthesia	$12/sbq 15	$46/sbq 15	$25/ sbq 15					
Pharmacy Charges	Wholesale cost +50%	Wholesale cost+50%+ Pharm. fee						

NA = Not available at this hospital.
* Parirenyatwa fees are used for comparison since they are highest of the public sector fees.

One of the most serious ambiguities concerns *charges for drugs*, which are referred to only in a footnote in the current MOH guide on user fees: "An out-patient/casualty fee is inclusive of the drugs and medical supplies used during the treatment, but does not cover supplies for the patient to take away, unless otherwise authorized." This has led to a wide variety of practices in charging for out-patient drugs. Some facilities charge Z$0.50 for all the medications that a patient takes home, while others charge cost-plus-50 percent for each item that a patient takes away. In-patient drugs are not explicitly covered in the circular. Individual facilities have developed a range of idiosyncratic practices. These ambiguities have resulted in important revenue losses, lost opportunities to curb unnecessary consumption of drugs, and inconsistent and inequitable financial demands on MOH clients, unrelated to their ability to pay.

UNEVEN APPLICATION OF EXEMPTIONS

Establishing eligibility for fee exemptions has been problematic and is largely left to the discretion of admission clerks. Further, since the exemption policy was set in 1980, inflation has sharply reduced the number of people who qualify.

MENU OF ADJUSTMENTS

MOH could improve the fee schedule by: (i) modifying the price structure and services charged; (ii) adjusting overall price levels; and (iii) strengthening communication and institutional capacity, so that the revised schedule is correctly interpreted and applied in practice.[20]

20 Options for improving implementation of exemptions are discussed in the subsequent section.

DRUG CHARGES

MOH facilities need clear, unambiguous instructions on charges for drugs, both for in-patients and for outpatients. In principle, patients should be charged for each item they receive at the government Medical Store (GMS) list price, plus the cost of overhead (administration and transport). This would encourage the parsimonious use of resources and raise revenues. Many Zimbabwean patients already pay substantial amounts for drugs obtained from traditional healers, private pharmacies and modern private practitioners.

Where patients are charged less than full cost for drugs, the rationale should be clearly articulated, the criteria for eligibility should be established and practical directions for their application should be unambiguously stated. Alternatives to full-cost pricing might include offering drugs free or at reduced price for low-income households or for certain treatment/diagnostic categories (e.g. leprosy and TB patients). Lower-level, remote health facilities could also use a single flat rate for all drug items, for administrative simplicity. For similar reasons, it probably makes sense to establish standard overheads for each category of health facility. The GMS has indicated that it can provide revised drug price lists to MOH twice a year without difficulty.

PROFESSIONAL FEES FOR IN-PATIENT CARE

Private doctors charge for the time they spend rendering care to patients. For those covered by private insurance, these charges are determined by the Relative Value Schedule (RVS), negotiated regularly by the National Association of Medical Aid Societies and the Zimbabwe Medical Association. When these physician services are provided in government hospitals, the MOH should also levy charges. If the doctor is employed by the government, the same (RVS) schedule should apply to medical aid (insured) patients. Graduated fees should be established for non-indigent patients not covered by medical aid. If the doctor is in private practice but has had the patient admitted to an MOH hospital, an overhead charge should be levied on the medical procedure to meet the cost of nursing care and medical supplies. Two advantages of using the RVS are that it differentiates between specialists and general practitioners and is periodically adjusted upward in line with inflation.

ADJUSTMENTS FOR INFLATION

To maintain the real value of revenues collected from fees assessed on the same number and mix of services as in the past, user charges need to be increased substantially and regularly to take account of inflation. The current fee schedule should be raised by at least 75 percent, as shown in Table 3.1. MOH should also establish a procedure by which fee levels can be routinely adjusted for future inflation. As a practical matter, fee changes at facilities below the central hospitals could be delayed, while the revised prices are first implemented at higher levels. Not only would this simplify the billing, collection, and monitoring problems, but the increased differential in fees between the central and general/district hospitals would also provide an extra incentive to patients to seek care at lower level facilities.

RELATIVE INCREASES FOR INSURED PATIENTS

The bed charges for medical aid and private ward patients in MOH hospitals should be increased to cover the full cost of service. Crude estimates can be made initially, but a proper cost analysis should be undertaken soon thereafter. Costs should be compared with prices in the private sector, and prices adjusted accordingly. Similarly, full-cost rates for medical aid members should be incorporated into the fee schedules for general and district hospitals (that is, an additional category for ward charges). Charges for children who are covered by medical aid should be at full rather than half rate.

"USER FRIENDLY" FEE SCHEDULE

Improving the user charge schedule is not simply a matter of revising prices to achieve more efficient and equitable outcomes. Once revised, the fees need to be faithfully applied in a way that minimizes administrative costs. To do so, each MOH facility needs a concise, clearly-defined, readily-accessible and easy-to-read fee schedule. Each level of facility (central, provincial, district, etc.) should have its own self-contained schedule for patients and health workers to use. Patients should be aware of the fees they are being charged. Administrative staff should understand clearly the rules for assessing user charges -- for example, which fees to apply to patients referred from lower-level facilities, which fees to apply to medical aid patients and so forth.

CAPACITY BUILDING

It is impossible for MOH to reform user charges without a basic capacity to formulate health financing policy. MOH must be able to monitor the actual cost of services, analyze the shortcomings of existing fees in terms of their revenue, efficiency and equity effects, make simple (inflation-related) and more complex adjustments and assess their impacts. At present, MOH does not have sufficient health administrators, economists, planners and financial analysts to carry out these tasks. A program that combines creation of additional posts in these areas, provision of better salaries and incentives and in-service training for MOH staff will be required to build the needed capacity.

EXEMPTION POLICY

MAJOR PROBLEMS

Following independence in 1980, the government decided that patients with household income of less than Z$150/month would be eligible for free care, and those who earned between Z$150 and 800/month could obtain reduced price care for some services at central and provincial hospitals. This policy was adopted to give the bulk of the population, which had been the targets of discrimination during the colonial period, improved access to health services. In practice, however, this equity objective has been imperfectly achieved.

Erosion of the exemption threshold

During the 1980s, Zimbabwe's income-based exemption rule was applied only to persons engaged in "formal" sector wage employment--about 38 percent of economically active population. In 1982, all of the roughly 550,000 workers on commercial farms and in domestic employment and 46 percent of the remaining 750,000 wage earners had incomes of less than Z$150 a month and thus qualified for free care. Over time, this income threshold remained unchanged even as general wage and salary levels increased. By the end of the decade, fewer than 5 percent of non-agricultural and non-domestic workers qualified for free care and the government was moving to raise minimum wages for farm and domestic labor to Z$150 a month or more. In other words, inflation had basically eliminated the exemption for the country's entire wage labor force.

Applying exemption criteria to non-wage earners

With wage or cash earnings as the sole basis for assessing household income, the exemption rule overlooked 62 percent of economically active persons, including self-employed Zimbabwean farmers with in-kind and cash incomes. MOH facilities have never attempted to assess the ability of these households to pay. It is not known how many smallholder households actually have consumption and marketed production with a value less than or exceeding Z$150 per month. And, it is clear that at least some of these individuals who should have been paying for MOH health services have not been charged.

Uneven implementation

The government's equity goals have been undermined by the MOH practice of evaluating eligibility for free care at individual MOH facilities. In theory, the burden of proof for eligibility for free or reduced price care rests on the patient. This principle, however, has been difficult to enforce. Few patients who claim eligibility for free care provide the necessary proof -- either a pay slip or a letter from the Department of Social Services. In most facilities, clerks from Medical Records or from the Accounts Office are responsible for collecting or waiving payment at the facility entrance. They must decide whether a patient should be charged based on where the patient claims to work, how long he/she has been unemployed and where the patient lives. Clinical staff often do not want to be involved in this decision, and sometimes discourage the clerical workers from pressing for payment. Thus, it appears that a number of the non-indigent are actually being excused from paying fees.

Free care for non-poor groups

Finally, since independence the government has accorded free care to several special groups, including members of the Armed Forces, Police and Prison Services, ministers and members of religious orders, and clinical staff of the Medical School. There does not seem to be any equity argument for such special exemptions.

IMPROVING PERFORMANCE

The system of exemptions and its equity-enhancing features could be substantially strengthened. If the government truly wishes to continue exempting the poor from fees, at least for unpredictable and expensive hospitalization, then the income threshold should almost certainly be raised from the Z$150 level. The appropriate level should be based on a household income survey that can establish a poverty threshold for Zimbabwe. At the same time, the special exemptions for the non-poor mentioned previously should be eliminated. If it is important to offer health care to these individuals as an employment benefit, then their employers should assume the costs or share these with their workers.

The system for determining eligibility for free or reduced price care should also be revised, to make it both simpler to administer and easier to enforce. Reducing the number of categories of people who qualify for free care would help significantly. So would the use of social workers from the Ministry of Labor to assess patients' ability to pay, since these government workers are already involved in determining eligibility for other free public services. This would relieve MOH of this administrative burden and minimize conflicts between MOH clerical and clinical workers. Eligibility for free care could be established for a limited period (e.g. six months), reducing administrative costs further.

A related way of ensuring access to health services for lower-paid wage earners would be to mandate that their employers help pay for these services. The employers might purchase health insurance for their workers. A more limited alternative for out-patient care would be for employers to buy health cards that would entitle their workers and their dependents to a specified number of out-patient visits and medications at any government health facility other than central hospitals.

To simplify the payment system for out-patient care, options are available to the MOH such as charging everyone a modest flat fee for basic curative care or a fee linked to the number of drugs prescribed. Experience from other developing countries suggests that even low-income patients are willing to pay a nominal amount for routine curative out-patient care. Most preventive services (such as immunizations, growth monitoring, ante-natal care, family planning) and a few curative services (such as ambulatory TB and leprosy therapy) should remain free.

HOSPITAL BILLINGS AND FEE COLLECTION

BILLING AND COLLECTION PROCEDURES

Official MOH billing and collections procedures at hospitals are guided by four general rules:

- *Referral and exemption*: Central hospitals are not supposed to accept non-emergency walk-in patients unless supported by a referral letter. The burden of proof for income status is placed on the patient, with billing at full rates if financial status cannot be proven. Full patient disclosure is required, including residential and employment address.

- *Payment*: Cash payment is required for out-patient and emergency visits and a deposit is required for in-patient and maternity admissions. The signature of a financial guarantor is needed upon admission for non-emergency hospitalization. A token and receipt system provides cash control procedures at collection points.

- *Follow-up*: Patients are supposed to be invoiced by the health facility once if payment is not received. Patients are issued two reminders before the account is referred to the Head Office or State Attorney for collection. Central hospitals have permission to write-off bills under Z$20; district hospitals must seek the approval of the MOH Head Office.

- *Monitoring*: Monthly reports are to be submitted to the Head Office, noting each facility's financial information and activity level. There is supposed to be a regular audit of all facilities by Head Office.

While some aspects of performance match the established policies and procedures, non-compliance is also quite widespread. For example, of the four central hospitals, only one attempts to enforce its role as a referral hospital and not as a provider of primary care. It redirects walk-in patients that do not have referral letters to a municipal clinic. The other three hospitals accept walk-ins without enforcing any penalties, resulting in long queues at out-patient and emergency desks.

The *central hospitals* also use different systems for capturing x-ray, laboratory, surgery and physical therapy charges, with varying degrees of effectiveness. None of the hospitals fully consolidate patient bills. For example, Mpilo sends separate patient bills for each in-patient charge. Harare's central hospital has recently consolidated billing but sends lab work to Parirenyatwa Hospital for billing. The United Bulawoyo Hospital consolidates all in-patient charges except for the pharmacy. The Parirenyatwa Hospital is able to consolidate all charges for one stay but cannot link separate stay billing to the same patient. None of the hospitals can produce timely patient accounts, with delays ranging from two to nine months.

Nor are the hospitals uniform in implementing official charges. They tend to be in compliance with ward, out-patient and emergency room rates but not with other service rates. Some hospitals charge drugs on a fixed fee basis, others at "cost plus." Some hospitals have not instituted charges for physiotherapy and surgery. In late 1990, one hospital was using obsolete forms that listed inaccurate ward rates.

In terms of payment, all of the central hospitals are successful in securing deposits for maternity cases, but none enforce deposits for general patient stay. The hospitals also vary in their billing follow-up and write-off procedures. Some central hospitals exceed the recommended number of reminders to patients before handing over the account to the State Attorney.

The performance of provincial, district, and rural hospitals has been undermined by similar problems. While many such hospitals attempt to follow standard admitting procedures, the burden of proof for patients to verify income is not enforced and patients are often classified at the discretion of an admission clerk. The hospitals receive some deposits for maternity care, but rarely

obtain deposits for other patient stays. They have difficulty obtaining adequate supplies of standard forms. Blank paper is used to create out-patient cards when forms are not available. In general, these hospitals do not adhere strictly to billing and write-off procedures. Some do not maintain a collection history by dating reminders. Bills that are several years old still have not been written-off.

REVENUE LOSSES

As a result of the problems noted thus far, MOH billings and collection performance at hospitals was lackluster during the 1980s. While revenues from fees increased considerably in nominal terms during the 1986 to 1990 period (see Table 3.3), expenditures also increased. Thus, cost recovery stagnated at 2-3 percent of total MOH spending and about 5 percent of hospital-based outlays. The ratio of collections to billings also showed serious shortcomings. On average, 62 percent of billings were collected, with great variation among facilities (see Table 3.3). The two central hospitals in Harare, which have a relatively large proportion of paying patients and correspondingly large administrative staffs, had collection/billings ratios below the national average.

Yet another measure of performance -- the ratio of actual billings to estimated billable expenditures -- shows weakness. Though more difficult to estimate, it appears that billings efforts at two of the central hospitals (Harare and Mpilo) may have been weak, since the billings/expenditure ratios for 1990 were only 3-4 percent, whereas at least 10 percent of patients at these two hospitals were covered by medical insurance.

In summary, MOH revenue losses from inadequate hospital billing and collection procedure can occur for many reasons (Box 3.1). Patients who should be paying according to the existing guidelines may be incorrectly classified as eligible for reduced-cost or free care. Paying patients may be incompletely billed for the services they consume. Bills issued may not be fully paid, either because of non-compliance by the patient or a third-party payer, or weak collection effort by the health institution. Inefficient admissions, billing and collection activities entail administrative costs -- sometimes substantial -- that further diminish the net revenues accruing from the application of user charges. In addition, a loss of potential revenues occurs when fee levels are below what they "should" be.[21]

Finally, incentives to improve billings and collections are weak at all levels of the MOH system. Hospitals have few incentives to intensify their efforts, since they are not allowed to retain fee revenues and their annual budget allocations are unaffected by revenue performance. Individual clerical and other administrative staff also have no incentives to do their jobs better, as their revenue collection activities do not form a basis for decisions regarding salary reward or promotion. Conversely, these staff are not penalized for poor performance or abuse of the user charge system. And there is no financial penalty or other sanction against patients who deliberately misrepresent themselves as indigent or fail to pay a bill.

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21 Of course, if fees were raised, demand for health services could be expected to fall in response. Depending on the new fee level and the price elasticity of demand, total revenues might increase, remain the same or fall.

Table 3.3: MOH Hospitals—Comparisons of Expenditures, Billings, Collections (Z$)

Hospital	*Expenditures 1989*	*Billings 1989*	*Collections 1989*	*Billings as a part of Expenditures (%)*	*Collections as a part of Billings (%)*	*Collections as a part of Expenditures (%)*	*Expenditures 1990*	*Percent growth in expenditure, 1989-1990 (%)*
Antelope	1,164,544	7,639	6,187	0.7	81.0	0.5	1,673,912	43.7
Banket	1,283,464	13,108	9,623	1.0	73.4	0.7	1,701,366	32.6
Beit Bridge	1,017,055	16,557	15,587	1.6	94.1	1.5	1,631,534	60.4
Bindura	3,941,849	138,630	95,456	3.5	68.9	2.4	4,757,381	20.7
Binga	909,729	5,532	4,923	0.6	89.0	0.5	1,182,732	30.0
Bulawayo	11,850,207	3,318,049	2,320,214	28.0	69.9	19.6	16,931,671	42.9
Chegutu	1,525,513	56,035	44,961	3.7	80.2	2.9	2,044,458	34.0
Chinhoyi	3,302,511	113,796	76,833	3.4	67.5	2.3	4,417,240	33.8
Chipenge	1,983,716	44,530	26,997	2.2	60.6	1.4	3,482,373	75.5
Chiredzi	3,267,271	107,283	89,826	3.3	83.7	2.7	3,654,572	11.9
Chitungwiza	6,325,218	361,624	172,178	5.7	47.6	2.7	9,145,617	44.6
Chivhu	3,168,923	48,036	34,316	1.5	71.4	1.1	3,741,119	18.1
Concession	896,255	26,542	24,663	3.0	92.9	2.8	1,381,775	54.2
Dental Bulawayo		69,730	116,945		167.7			
Dental Harare		136,081	116,728		85.8			
Esigodini	515,406	5,619	2,077	1.1	37.0	0.4	1,161,406	125.3
Filabusi	1,007,514	12,764	14,092	1.3	110.4	1.4	2,027,258	101.2
Gwanda	2,816,352	64,720	76,026	2.3	117.5	2.7	3,236,571	14.9
Gweru	6,583,646	613,453	271,109	9.3	44.2	4.1	7,409,356	12.5
Gokwe	2,313,531	40,003	66,644	1.7	166.6	2.9	3,240,809	40.1
Harare	25,343,189	973,328	420,555	3.8	43.2	1.7	34,095,073	34.5
Head Office		1,011,437	456,454		45.1			
Mberebga	944,047	70,956	9,042	7.5	12.7	1.0	1,391,788	47.4
Hwange		380,053	274,209		72.2			
Ingutsheni	4,962,092	36,500	18,687	0.7	51.2	0.4	5,185,547	4.5
Kadoma	3,150,140	137,943	100,608	4.4	72.9	3.2	4,214,631	33.8
Kariba	1,374,841	54,504	47,680	4.0	87.5	3.5	1,657,588	20.6
Karoi	1,899,662	35,738	27,326	1.9	76.5	1.4	3,157,995	66.2
Kwekwe	3,836,419	258,802	150,427	6.7	58.1	3.9	4,821,930	25.7
Makumbe	855,413	12,730	8,330	1.5	65.4	1.0	1,515,865	77.2
Marondera	4,253,805	152,735	113,886	3.6	74.6	2.7	5,471,574	28.6
Masvingo	5,550,941	242,314	174,448	4.4	72.0	3.1	7,177,333	29.3
Mpilo	18,981,781	560,829	303,171	3.0	54.1	1.6	24,331,127	28.2
Mureliwa	990,681	44,970	43,219	4.5	96.1	4.4	1,941,597	96.0
Mt Darwin	1,170,130	23,027	22,406	2.0	97.3	1.9	2,643,607	125.9
Mutare	7,565,793	482,784	258,073	6.4	53.5	3.4	9,287,872	22.8
Mutoko	1,501,264	53,210	47,699	3.5	89.6	3.2	2,536,932	69.0
Mvuma	735,649	27,787	25,333	3.8	91.2	3.4	1,502,263	104.2
Mvurwi	1,611,792	32,527	25,857	2.0	79.5	1.6	2,710,851	68.2
Ndanga	1,144,827	17,247	15,715	1.5	91.1	1.4	1,606,381	40.3
Nyanga	1,168,830	21,682	18,855	1.9	87.0	1.6	1,470,189	25.8
Nyathi	1,343,377	8,502	5,050	0.6	59.4	0.4	2,449,842	82.4
Parirenyatwa	38,200,000	6,285,430	3,808,000	16.5	60.6	10.0	50,000,000	30.9
Plumtree	1,283,170	9,496	9,601	0.7	101.1	0.7	1,983,074	54.5
Rusape	5,757,991	74,230	53,093	1.3	71.5	0.9	7,385,891	28.3
Sakubva		18,454	13,171		71.4			
Shurugwi	1,690,030	27,965	21,790	1.7	77.9	1.3	1,826,323	8.1
Tasholotsho	1,489,491	3,552	3,437	0.2	96.8	0.2	1,912,120	28.4
Zvishavane	2,309,034	35,997	29,233	1.6	81.2	1.3	2,490,015	7.8
TOTAL:	192,987,093	16,294,460	10,090,740	8.4	61.9	5.2	257,588,558	33.5

Notes: Expenditure information based upon year-end financial printouts.
Actual supply data by hospital was used; salary costs were estimated using weighted average.

Source: Ministr of Health.

Box 3.1: Sources of Loss in Hospital Fee Collection Systems

Loss from misjudging the income bracket: During the admitting process, classification of the patient by income is based upon the dialogue between the clerk and patient. Unless documentation is provided, classification is left to the discretion of the clerk. The income level of the patient may be accidentally or intentionally misclassified.

Loss from poor patient information: If the interaction between the MOH clerk and the patient results in poor or incomplete information, MOH will spend time and money sending bills to the wrong addresses, billing medical aid societies for the wrong patients and pursuing financial guarantors with no legal responsibilities for paying patient accounts.

Loss through non-compliance with fee structures and poor billing practices: Many MOH hospitals do not comply with the fee structure. Ancillary charges for lab tests, drugs and medical supplies are not automatically added to the patient's bill each day, creating a situation where charges may never get posted on patient accounts. The practice of sending separate bills to the patient or medical aid society for each charge rather than consolidating charges onto one patient invoice is a related source of loss. Many accounts that should be written off are classified as "outstanding" and continue to go through the costly collection cycle. Outstanding accounts from previous years amounted to Z$7.2 million in 1989, more than the value of total billings in that year (Z$6.7 million).

Loss from delays in preparing invoices: For 1989, it is conservatively estimated that the inflation-related erosion of fee revenues attributable to billing delays was nearly Z$1 million. Additional losses are incurred because patients are no longer willing or able to pay their bills when they finally receive an invoice. Some medical aid societies refuse to pay hospitals bills more than three months old. It appears that millions of dollars have not been billed to medical aid societies for services rendered.

Loss from poor control of service provision: Since the system does not allow for the accurate monitoring of the volume of free care, it is difficult to evaluate the utilization of inputs (manpower, drugs and supplies, transport, equipment and plant) and related financial resources.

POSSIBLE SOLUTIONS

The success of billings and collection procedures at hospitals is fundamentally tied to financial management of the patient admission and stay process. Some key elements of an effective strategy include the following:

Information capture

Accurate and comprehensive information (on patient eligibility for free care, biographical data, services received and fees levied) directly affects revenue collection performance and administrative costs. Information capture should be streamlined and non-duplicative: redundant data entry on patients creates costly labor inefficiencies and increases error rates. This can best be achieved through a set of cost-effective billing and collection practices that minimize redundancy and target collection efforts to areas where greatest net revenue benefits can be realized--for example, consolidation of bills, stratification of billing efforts and automatic write-off policies.

Timely action

A patient account should be opened immediately upon admission. Charges should be posted daily to allow the accounts personnel to have a current invoice available at all times. This permits large, potentially uncollectible bills to be identified at an early date and selective counseling to be initiated if necessary. Daily submission of charges by departments reduces the number of lost charges and creates a record of departmental performance for evaluation. Collections must be swift, since delays have real costs in terms of the level of effort required to obtain revenues and the diminished probability of successful collection. This means striving to collect a cash deposit early in the patient stay and to settle bills before patients leave the premises.

Incentives

Patients or third-party payers must have adequate incentives (such as reduced prices for prompt payment) or sanctions (such as late charges or legal action) to meet their financial obligations. Related to this, health facilities can pro-actively manage patient expectations prior to admission through written or verbal instructions on estimated charges and schedule of payments. Health institutions and their staff will respond positively to incentives such as capital improvements, salary bonuses and career advancement, for increased billings and collections.

Team effort

Effective revenue collection is a team effort affecting every department involved in patient stay. Clear communications channels between wards, ancillary departments and the accounts section enhances timely completion of bills and ensures that missing information is retrieved and emerging billing and collection problems are noted.

To strengthen billings and collections in MOH hospitals, a wide-ranging reform program is required, including: (a) compliance with admission policies; (b) pre-pricing; (c) universal invoicing; (d) accelerated billing; (e) institutional billing; (f) cash payment; (g) strengthened collection practices; (h) enhanced information systems; (i) decentralization of billing and collection; (j) strengthened management; and (k) audit improvement.

COMPLIANCE WITH ADMISSION POLICIES

MOH hospital management must take a more active role in ensuring that admitting clerks comply with admission policies and practices. This means providing greater guidance to clerks on handling cases where referral letters from a lower-level facility are not produced, and on determining patient income classification. Non-emergency patients coming to central hospitals should bring referral letters. A policy for those who do not have such letters needs to be established--such as directing these persons to a municipal clinic or placing them at the end of the queue. Similarly, MOH might consider assessing in-patients without proof of income status at the maximum fee rate, in order to motivate them to produce documentation. Clerks must be trained to obtain full information on patient background, medical aid status and employment, and to ask to see

written verification. The basis for the clerk's decision on income classification should be noted on the financial assessment form.

To carry out these tasks, hospital management needs to allocate clerical staff based on workload and to provide twenty-four-hour-a-day coverage. The hospital information system must capture data on patient volume according to the patient's income categories and the admitting clerk. Medical records supervisors should monitor clerks' propensity to classify patients at reduced rates to check abuse or laziness. Supervisors should also review clerks' relative cash collection rates and general work performance, such as the completeness of patient information.

PRE-PRICING

An important barrier to effective charging and collection is the delay and inaccuracy in determining prices. In many MOH institutions, for example, to determine the price of a prescription, hospital staff must look up the price of the drug from Central Medical Stores, multiply by the number of units and then multiply further by a mark-up. It would be relatively easy to establish the normal unit of issue and do the necessary multiplication in advance. Such systematically prepared price lists could then be periodically adjusted for inflation.

UNIVERSAL INVOICING

Under the current system, charge slips are not raised for patients with incomes under Z$150 per month; it is difficult to assess the services provided. Under universal invoicing, a bill would be produced *for every patient*, even if 'free" or "exempt" were stamped on the patient's medical record. The full cost of services would be charged, according to the price schedule. Any items which are to be billed to other payers, such as other ministries or medical aid societies would be so indicated, showing clearly the balance due from the patient.

An important advantage of universal invoicing is that it would allow expense and inventory control, with one system serving as a test for the other. Patterns of service delivery and resource consumption can be monitored in each facility site. The result should be substantially tighter control, leading to higher productivity. A second advantage is that universal invoicing provides a basis for estimating the cost of specific services and goods. Such cost information is essential to accurate pricing.

ACCELERATED BILLING

At present, it can take considerable time to assemble an invoice. This delay reduces the probability of collection and erodes the real value of revenues. Manual billing systems should not be a barrier to the goal of completing patient invoices within twenty-four hours of discharge, although computerization could help if used correctly. At the time of a patient's discharge, it should be possible to provide a provisional consolidated invoice that includes all bed and ancillary charges through the previous day. This would then be the basis for collecting cash at the time of discharge.

Within twenty-four hours of discharge, each hospital should be able to issue a complete consolidated statement with a request for a final payment, or with a refund cheque in case of overpayment. The practice of sending out multiple invoices for a single patient should be discouraged.

Accelerated billing would be greatly assisted by strengthening the ancillary charge systems currently in place at hospitals for non-ward charges. Hospitals should be encouraged to use charge slip systems, rather than less efficient means such as long departmental charge lists for multiple patients. All charge slips from pharmacy, operating theaters and other ancillary departments (e.g. laboratories) should be delivered to the accounts section daily. Wards should retain charge slips or financial assessment forms in their files.

BILLING OTHER INSTITUTIONS

Government employees should not be exempted from payment: they should pay for health services through medical aid coverage, out-of-pocket payments or through a transfer from their government agency to MOH. If public and private employers are to make health care available to their employees as a benefit, then MOH should bill these employers when the care is provided by a government health facility. If the government wishes to subsidize a part of the cost of such care, the employer could do so, but MOH would be paid in full for services rendered. Similarly, private institutions should be billed. This may evolve into additional health insurance programs and third-party payment systems.

PAYMENT FORM: CASH ON THE SPOT

Hospital staff are often reluctant to insist on cash payment of deposits and bills at the time of hospitalization. Hospital management needs to be much stricter about taking a deposit from patients prior to hospitalization, and collecting payments at the time of discharge. The accelerated billing recommended above will facilitate cash collection.

COST-EFFECTIVE COLLECTION PRACTICES

Collection practices can be made more cost-effective by: (i) automatic write-off of bills under Z$20; (ii) automatic write-off of bills over two years old and less than a standard amount; (iii) a regular review of accounts to send out reminders, with full documentation of collection attempts; (iv) immediate turnover of accounts to the Attorney General for legal action after failure to respond to a second reminder; (v) use of telephone contact where appropriate; and (v) elimination of redundant collection efforts by the MOH Head Office.

COMPUTERIZATION OF HOSPITAL INFORMATION

The four central hospitals are the most complex sites and have the greatest numbers of revenue transactions. The Parirenyatwa Hospital is already using a problem-plagued system

through the government's Central Computing Services. Parirenyatwa has sufficient computer requirements to warrant its own system. At the remaining three central hospitals, some amount of mechanical assistance is also indicated. At a minimum, this might be a central electro-mechanical accounting machine that could be used to maintain a ledger card for each in-patient and record charges generated by various hospital units at the end of every day. The alternative would be to implement a system involving two or more personal computers to maintain the in-patient revenue accounts of each hospital. Computer database software could be designed centrally to be compatible with an overall MOH revenue information system. It would be possible to add applications easily, leading to stronger control systems. Should a computing technology solution later emerge involving more sophisticated hardware, the depreciated physical assets of the computer virtually always find other constructive work in enhancing the hospital management. The same is usually not true of an accounting machine.

DECENTRALIZATION OF BILLING AND COLLECTION

Broad policies, objectives and procedures for billing and collection need to be determined centrally, but local managers should be involved in setting their own revenue targets and developing management plans to achieve those targets. In this regard, a number of important billing and collection functions should be decentralized to the provinces, districts and individual hospitals. The two central hospitals currently without authority to write-off bills should be given this power. Similarly, provincial and district hospitals should hold some level of direct write-off authority and should be able to turn over to the State Attorney accounts exceeding the write-off amount.

On the other hand, managers must also be held accountable for their hospitals' performance. Expenditures, billings, and collections should be monitored monthly. A hospital's performance should be viewed within the context of the relative affluence of the communities it serves, but questions should be asked if unusual patterns or exceptionally low collections occur. Hospital management teams should also be held accountable for any departures from MOH policies and for lapses of good management practices.

INCREASING INCENTIVES FOR COLLECTION

A key step in the decentralization process would be to allow individual health facilities to retain a part or all of the revenues collected as fees. This would be a strong incentive to increase collection efforts. It would also encourage patients to use the health facility and make their payments in a timely manner, if they perceive that there is a direct link between their payments and improved quality of health care. The government may wish, for example, to allow stations to retain up to half of collections. Alternatively, the government could decide to permit facilities to retain all of collections, because it is administratively less complex than retaining only a percentage.

STRENGTHENING MANAGEMENT AT CARE-GIVING SITES

The best-designed hospital revenue system can quickly wither in a site that is poorly managed. MOH managers need to have the skills and motivation to work effectively with their clerical staff to design programs and tools to improve billings and collections. The MOH should publicly recognize good performance and sanction those who perform poorly.

Head Office and hospital managers will have to take the lead in changing staff perceptions and attitudes regarding billing and collection of user charges. There is a widespread perception among clinical staff that the accounts officers are the hospitals' "bad guys" and other hospital personnel should not have to assist them in their wrongful task of charging patients. As a result, there is little cooperation between nurses and doctors on the one hand, and medical records and accounts staff on the other. Related to this, the clerical workers have no expectation of success in their work. To alter these perceptions and attitudes, MOH leadership and hospital managers must accept responsibility for improving cost recovery, and communicate this effectively to both clinical and administrative workers.

Hospital managers also need to work with clinical staff to organize the delivery of health services in a manner that facilitates billing and fee collections. In some hospitals, for example, doctors request out-patient clinics to schedule all patients to arrive at the same time, leading to long queues and extra pressure on medical records clerks to hurry through the processing of individuals. This increases the error rate in classifying patients, invoicing them and collecting payment for billable services rendered. Changes in out-patient scheduling and effective deployment of clerical staff to respond to anticipated patient volumes would help significantly to eliminate these problems and achieve cost recovery objectives.

IMPROVING AUDIT CAPABILITY

The current MOH audit capability is underemployed because of lack of transport and funds for field visits. Additional vehicles and per diems are needed. The extensive delays in audit reports due to the backlog in the MOH typing pool could be overcome by providing each audit team with lap-top computers. Word processing and spreadsheet software would permit preparation of a report at the audit site. Timeliness is essential to effective audits, especially when misbehavior is detected.

CONCLUSION

If Zimbabwe were to adopt the recommendations outlined in this paper, the potential gains could be significant. In terms of *revenues*, an increase in the ratio of collection to billing from the current level of 62 percent to 80 percent (through a combination of taking deposits upon admission, collecting cash upon discharge, etc.) would have raised fee revenues for 1990 from Z$9.16 million to Z$11.82 million. Price adjustments of 70 percent to cover inflation would have further increased these revenues to Z$20.09 million, or 11.4 percent of recurrent hospital spending in 1990. This

would have exceeded the government's cost recovery target of 8 percent of recurrent expenditure for 1994.

In addition, MOH could capture substantial additional revenue if it implemented full-cost pricing for drugs, separate charges for doctors' professional services, appropriate classification of patients by income level and prompt and complete billing. The revenue effects of more timely and accurate billing of medical aid patients for hospitalization can be estimated. Based on the experience of other countries, a minimum of 30 percent of medical aid premiums are for in-patient care. If one conservatively assumes that half of medical aid patients are treated in MOH central hospitals, at least 15 percent of medical aid premiums would be paid to MOH. Data for the four largest medical aid societies reveals that in 1988, only about 5 percent of total premiums of Z$80 million went to MOH. A 15 percent payout would have increased MOH revenues by Z$9.2 million, without adjusting for inflation. Stricter application of guidelines for patient classification by income and strengthened billing and collection from medical aid patients would also help to enhance the equity of the government health system.

A number of the recommendations would also result in important *efficiency* gains. For example, decentralization of the authority to write-off small uncollected bills would reduce the amount of clerical staff time spent on this low-return activity and free up staff to concentrate on more important billing and collection matters. Universal invoicing would make hospital management more cost-conscious and would allow managers to pinpoint more easily areas of wastage, pilferage and other kinds of inefficiency (such as low bed occupancy, excessive length of stay, over-prescribing of drugs, and poor staff deployment).

To carry out a successful reform of the cost recovery system, MOH would have to develop and implement a program consisting of a number of well-coordinated steps. Such a program, to be formulated by the MOH Head Office, provincial/district officials, and hospital managers, might include:

- Setting overall cost recovery objectives and targets;
- Revising the fee schedule;
- Preparing and distributing a simplified manual of rules for charges at government-supported hospitals;
- Designing and carrying out a communications campaign to inform health care workers and the general public about fee policies;
- Arranging for the Department of Social Services to assess patients' ability to pay;
- Improving procedures for timely and accurate billings and collections;
- Establishing procedures for MOH to receive payment from other ministries for training their employees;
- Setting cost recovery targets for each facility, and establishing incentives for facilities to increase revenue collections; and
- Conducting management training programs for MOH staff.

While pursuing a comprehensive national cost recovery reform effort would be highly worthwhile, it may take some time to implement the entire program. Administrative capacity will remain limited and political opposition to some of the reform measures can be anticipated. Even

with the essential support of top government officials, a phased approach may be required. Under these circumstances, it would make sense for MOH to concentrate on two areas: (i) stronger billing, collection and financial management in the four central hospitals; and (ii) community financing of health centers through full-cost charging for drugs.

In pursuing a program to increase cost recovery in government health facilities, it will also be critically important for the MOH to strengthen data collection activities for the health system as a whole. Timely assessment of revenue collections would be the first order of business. A strong information system for monitoring cost recovery might collect information on: (i) total monthly revenue collected for each facility; (ii) total monthly expenditures and commitments by vote for each facility; (iii) monthly revenue by source;[22] (iv) monthly revenue received from medical aid; (v) numbers of patients attended by category (free, medical aid, or cash-paying); and (vi) the number and value of outstanding bills. Appropriate computer spreadsheets and staff training programs would also need to be developed.

Finally, MOH should create the internal capacity or contract with an outside group (such as the national university or a local consulting firm) to measure the impact of cost recovery reform on quality of care and overall facility utilization, especially for the poor. The health status of various income groups should also be monitored. If there are any signs of deterioration in health status, possible linkages with the cost recovery system should be promptly investigated. In this way, MOH can make further adjustments to fee levels and exemption policies to ensure access to basic health care for all segments of Zimbabwe's population.

EPILOGUE

During 1991, a number of these recommendations for strengthening cost recovery were initiated by MOH. These included: (i) setting aggregate and facility-level fee revenue targets; (ii) preparing a revised fee manual for facilities to use; (iii) carrying out a media campaign to inform patients of the fee schedule and of the importance of adhering to it; (iv) training for senior provincial and district MOH staff and facility managers and clerks; and (v) developing a monitoring system. Largely for political reasons, MOH deferred a decision on raising the overall level of fees. However, fee increases were widely anticipated to be implemented.

22 District/provincial hospitals to report revenue by ward beds, out-patients, pharmacy, and all other, while central hospitals to report revenue by all sources.

CHAPTER 4

DO USER FEES REDUCE THE DEMAND FOR HEALTH CARE? INSIGHTS AND LIMITATIONS OF SERVICE STATISTICS IN LESOTHO

Madibata Matji, Palesa Ts'oene, Anne Spencer, Paul Gertler, and Daniel Byrne

ABSTRACT: This chapter assesses the impact of increased fees on the utilization of health services in Lesotho. In addition to mobilizing revenue, the Ministry of Health employed user charges to help rationalize the referral system, and to help revitalize the private sector by inducing a shift in demand from public to private health facilities. Analysis based on health facility "service statistics" shows that higher fees resulted in a drop-off in utilization, while making no improvements in referrals. It is also apparent, however, that firm conclusions cannot be drawn from an analysis of service statistics per se, because such information does not allow "controls" for other critical factors that may have been responsible for falling attendance, or the by-passing of lower-level facilities for hospitals. If quality of services did not improve then reduced utilization of services at a higher cost makes imminent sense from the standpoint of the client. Other factors may also have played a role such as the impact of consecutive droughts on incomes and ability to pay. Results of this study therefore highlight the advantages and potential disadvantages of pinning too much emphasis on "quantitative" reactions to higher prices without complementary assessments of "quality dimensions."

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INTRODUCTION

In July 1988, the Government of Lesotho raised fees for out-patient consultations in all public health facilities to accommodate three specific objectives;

- Recover a larger share of the costs of health care without greatly reducing the access to out-patient care;
- Induce a shift in demand from hospitals to health centers and eliminate excessive demands on higher levels of the referral system; and
- Induce a shift in demand from government health facilities to private providers of health care, especially by those willing and able to pay for care.

The principal concern of this study is to measure the impact of increased public sector user fees on out-patient consultations. In particular, evidence is presented on the extent to which the fee increase resulted in the reduced use of government hospitals and the increased use of both government health centers and private providers of health care. The paper also attempts to identify which patients, in terms of illness and age group, reduced their use of the health system most

following the price change. A second objective of this paper is to assess the potential usefulness and limitations of out-patient data in analyzing the impact of user fees on the demand for health care.

The chapter begins by providing background on Lesotho's health system, levels of health finance, and the structure of the fee change. The methodology of the study, data source and the empirical results are then presented, followed by a discussion of the many factors that could influence levels of out-patient utilization in Lesotho and the problem of attributing causation when statistical analysis is unable to control for other factors affecting demand. The chapter concludes with a summary of the main findings of the study, an assessment of benefits and shortcomings of service-based data for analyzing fee impact issues, and recommendations for future research.

HEALTH CONDITIONS AND POLICY IN LESOTHO

HEALTH CONDITIONS

Among low-income African countries, Lesotho's life expectancy of 56 years is surpassed only by that of Kenya (59) (World Bank 1994b). Infant mortality rates have declined by a third since the 1960s, but remain high at 93/1000. The shortage of health manpower is clearly indicated by the high ratio of population per physician (18,000:1), a figure that has not changed much since 1965 (20,000:1). Contributing to relatively high life expectancy and the progress in reducing child mortality is a high adult literacy rate (74 percent), which is especially high among Basotho women, relative to other Sub-Saharan African countries.

From patient data from government health facilities, it is evident that respiratory conditions and digestive and genitourinary problems are the major reported illnesses in Lesotho. In 1987, the leading causes of death among children 0-4 years were intestinal and respiratory infections (20 percent each) and malnutrition (17 percent). Among the adult population, tuberculosis (TB) was the most common cause of in-patient deaths (18 percent), followed by heart and circulatory system diseases (11 percent), and respiratory infections other than TB (8 percent). According to the World Bank's World Development Report 1993: *Investing in Health*, and *Better Health in Africa* (1994b), these are precisely the kinds of diseases and illnesses best targeted by primary health care of community and district levels.

THE HEALTH SYSTEM

Formal health care in Lesotho is provided by the Ministry of Health (MOH), the Private Health Association of Lesotho (PHAL) -- a voluntary, non-profit organization, the Lesotho Red Cross (LRC) and private practitioners, including private physicians and traditional healers. The country is divided into nineteen Health Service Areas, each with a district hospital. The Ministry of Health and PHAL share responsibility for the main part of the public health system: MOH is responsible for eleven hospitals and sixty-two health centers, while PHAL manages nine hospitals and eighty-six health centers. Services and coverage are roughly profiled in Table 4.1. Health care is brought to the most remote mountain areas through the Lesotho Flying Doctor Service (LFDS).

The health care infrastructure is organized into four main levels. At the base are the Village Health Workers trained to provide primary health care at the community or village level.

Next, there are health centers or clinics operated by the government (MOH) or by private services (PHAL). Although health centers are primarily for out-patient care, some have been equipped to provide both out-patient and in-patient services. The next highest level in the hierarchy of facilities is the government or mission hospital. There is a district hospital in each of the ten districts. At the apex of the health system is the Queen Elizabeth II Government Hospital, the central referral and teaching hospital for the whole country.

Table 4.1: Comparison of Catchment Populations and Prevalence of Health Personnel in MOH-Served HSAs and RHAL-Served HSAs, 1990/1

	MOH HSAs[a]	*PHAL HSAs*[b]
Catchment Population	1,196,000	642,000
Hospital Bed	1414	881
Doctors	67[d]	22
Nurses	372	249
Health Centers	94	78
Village Health Workers (VHW's)	2979	2153
Traditional Birth Attendants	470	538
Average Number of People Per...		
Hospital Bed[c]	846	729
Doctor	17,582	8,233
Nurse	3,214	2,581
VHW[c]	401	298
TBA[c]	2,544	1,194

Sources: a/ Based on Establishment Lists (MOH and PHAL).
b/ Ralitapole and Adu-Boahene, 1992, is cited in Sechaba (1993).
c/ Based on Establishment Lists and data provided in Sechaba (1993).
d/ Includes 22 interns.

Lesotho's geography poses special problems in the delivery of health care. The rural population is widely scattered. Three-quarters (76 percent) of the rural population live more than five kilometers from a hospital, 44 percent live more than five kilometers from a health center, and 70 percent live farther than five kilometers from a private doctor (Government of Lesotho, Bureau of Statistics). As many as three-quarters of the population in the rural mountains must walk thirty minutes or more to find public transportation before they can seek care. In contrast, about two-thirds of rural Basotho households live within one kilometer of a traditional healer (Hall and Malahleha 1989). Traditional practitioners are accessible to patients in rural areas and are popular among all socio-economic groups.

Despite the fact that the waiting time at MOH clinics was shorter and charges had generally been similar to hospitals prior to 1988, MOH clinics and health centers remained underutilized. Patients often preferred to go directly to MOH hospitals, by-passing the health center, since doctors and drugs were more available in hospitals and hospitals are more accessible to public transport. Comparatively, private health care -- both PHAL and private practitioners -- is more expensive than public services, while private modern practitioners are situated mainly in towns. Nevertheless, private care has often been preferred, despite its expense and the long travel time. This has often been attributed to poor attitudes of government health care providers. It has also been suggested

that private doctors spend greater time explaining the illness and prescribing the medicine that the patients desire, such as injections (Hall and Malahleha 1989).

RESOURCE MOBILIZATION

Health facilities run by PHAL and the Lesotho Red Cross rely heavily on patient charges as a source of revenue. In 1986, PHAL was able to recover 87 percent of their recurrent costs (UME 1988). The government on the other hand not only finances over 60 percent of total health expenditure, but partially subsidizes PHAL through partial payment of salaries, financing of clinic improvements, and the procurement of drugs and other medical supplies from the Lesotho Pharmaceutical Cooperation (Table 4.2).

Table 4.2: Subsidies to the Private Health Association of Lesotho (PHAL)

	1987/88	*1988/89*	*1989/90*	*1990/91*	*1991/92*
Amount of subsidy (millions of Maloti)	0.94	1.48	1.54	1.75	6.20
Percent of government health budget	4.5	5.8	4.8	4.8	14.0

Source: Government of Lesotho, Ministry of Health, Financial Management.

Cost recovery in government-run health facilities is relatively low, as a share of expenditures, in comparison with PHAL and Red Cross facilities. Figures in Table 4.3 show that revenue generation through user fees was about 8 percent, on average, in eight districts in 1986, more than doubling to 16 percent in response to fee increases in 1988. Following Lesotho's most recent fee increase, revenues then rose again to 22 percent of expenditures in 1992. In contrast, cost recovery in Maseru district -- which contains Lesotho's only tertiary-level hospital, QEII -- has been disappointing in its highly uneven performance.

Table 4.3: Cost Recovery among Public Health Facilities by District

Year	Maseru District (QEII)	Eight Remaining Districts
	Revenue as % of Expenditures	
1986/87 act.	5.9	7.6
1987/88 act.	12.6	16.2
1988/89 act.	15.8	15.6
1989/90 act.	7.8	14.9
1990/91 act.	10.0	14.0
1991/92 act.	4.5	13.2
1992/93 rev.	5.3	22.0
1993/94 budget.	8.7	24.3

Source: Ministry of Health.

RATIONALE FOR FEE CHANGES

In July 1988, the Government of Lesotho introduced a new fee schedule for out-patient services in all Ministry of Health facilities to bring fees closer to those of private (PHAL) facilities. The specific objectives of the new fee schedule were:

- To increase revenue from M1.2 million to M3.6 million per annum without unduly reducing access to out-patient care;
- To encourage patients to seek care at clinics or health centers as a substitute for or as a pre-requisite to hospital-based care;
- To reduce the overutilization of MOH facilities, especially at the district and national hospital levels, by shifting demand to PHAL facilities.

Prior to July 1988, MOH curative health services had differential fee charges for adults (1 Maloti) and children (0.5 Maloti), but no differential fees were charged by type of service or facility. Services such as antenatal care and immunizations for mothers and children were offered at no charge. The PHAL hospital out-patient user fees ranged from 1.8 to 4 maloti per child and 2.5 to 5 maloti per adult visit, (UME 1988).

In the price increase of July 1988, out-patient fees doubled at government health centers and tripled at hospitals (see Table 4.4). This introduced a differential in the price of out-patient care at health centers and hospitals that was expected to shift use to MOH health centers as a first contact with the health system. It was also expected to encourage some out-patients to shift to PHAL facilities. However, referral charges from the health center to the hospital remained unchanged. Thus, if a patient reported to an MOH health center and was then referred to the MOH hospital, the sum of the charges at the health center and the referral fee would equal the charge for hospital care, not including the additional travel and waiting cost of having to go to two facilities. The 1988 fee policy also allowed exemptions from paying the new fees by the poor. However, eligibility criteria were not specified. Implementation of exemption policy has been left to the discretion of health personnel at each facility.

Table 4.4: Out-Patient Consultation Fees in MOH Facilities

Type of Facility	*Old Schedule*		*New Schedule*		*% Price Change*	
	Adult	Child	Adult	Child	Adult	Child
	(Maloti)		(Maloti)			
Health Center	1.0	0.5	2.0	1.0	100	100
Hospital	1.0	0.5	3.0	1.5	200	200
Referral charges (Health center to hospital)	1.0	0.5	1.0	0.5	0	0

Source: Ministry of Health.

At the same time that revenues from government health services more than doubled in response to the 1988 fee increase, it was also expected that demand for health care would decline. However, the extent to which the demand for government services declined and the extent to which utilization switched from hospitals to health centers and from government to PHAL providers was still unclear. Policy-makers were also keenly interested in knowing how to use of health care by poorest patients and those most vulnerable (such as small children) were affected.

TRENDS IN OUT-PATIENT CONSULTATIONS IN TWO DISTRICTS

DATA AND METHODS

To establish the extent to which overall levels of utilization of health care declined after the increase in user fees, and whether any shift in demand from public to private sources of care took place, this study analyzed the trends in out-patient consultations in two districts -- Mokhotlong and Mohale's Hoek. It made use of statistics on reported symptoms that are routinely collected by all health facilities. The intention was to analyze trends beginning at least twelve months before the fee change and ending at least twelve months afterwards, so as to better isolate the seasonality of demand for health care. However, at various points during 1987, health facilities switched from a monthly to a weekly reporting system, thus adopting a somewhat modified reporting form. Because of the incompatibility of the two reporting systems, plus missing data, much of the 1987 data was not useable. Thus, in most cases the period of analysis is seven months prior to and seventeen months after the July 1988 fee increase.

Before proceeding, it is important to note the shortcomings of the data base. The information collected provides limited information about the users of health care facilities and the services provided. Only the age group of the patient (0-4, 5-14, 15+) and diagnosis is known. Gender and income of patients is not known, nor is it possible to determine the share of patients who were exempted from paying fees before and after the fee change. This means that available data in Lesotho do not permit analysis of the welfare impact on patients of fee changes. Rather, one needs results of a household survey. Furthermore, this study is unable to control for a host of other factors that might have influenced the demand for health care -- such as incomes, the price of private care, and the quality differences across facilities.

Despite these limitations, facility-based data provide rapid information about utilization trends, which can point to areas for further investigation. Facility-based studies are also less costly to implement and can be analyzed routinely and more quickly. Their primary role is to inform short- and medium-term administrative decision-making at the facility level and in the central ministry. Their secondary use in conjunction with population-based household survey data can provide the basis for informative policy research.

Two approaches are used to analyze the time trends in out-patient utilization statistics. First, graphs of weekly utilization counts are used to visually portray changes in the utilization of health facilities over time. To determine the general direction of trends over time, a statistical methodology has been used to produce trend lines in the weekly use of facilities. The trend lines attempt to control for linear time trends before and after the increase in user fees at MOH

facilities.[23] If the regression trend lines before and after the fee increase are both flat (zero slope), then there is no linear time trend.[24]

The second approach is to test for statistical significance of the difference in mean weekly out-patient consultations before and after the implementation of the fees. To determine the net reduction in utilization in the formal health sector within each district, the data are aggregated across government (MOH) and private (PHAL) facilities separately, and the average increases, if any, at PHAL facilities are subtracted from the declines at MOH facilities. Assuming that all of the increase in the utilization of private facilities after the fee increase is comprised of former clients of government facilities, the net decline in use of government facilities provides a lower bound on the number of patients who are no longer receiving care in the formal sector.

EVALUATION OF MOKHOTLONG DISTRICT

Mokhotlong District is situated in the northeastern-most district of the Kingdom of Lesotho and has a population of 74,676. It covers a mountainous area of about 45,000 square kilometers. Twenty-three percent of the district is arable land and 71 percent is grazing area. The villages in Mokhotlong are generally situated on the slopes of the mountains. The rainy seasons last from October to March. The lack of infrastructure in Mokhotlong makes travel impossible during the rainy season, during which time more than half of the health facilities in the district are inaccessible. There is one health worker per 5,344 population. Environmental health hazards, such as polluted drinking water and absence of toilets, are common and typhoid is endemic in the district.

Data for Mokhotlong District were collected from four government health centers, three PHAL health centers and the district hospital (MOH).[25] Time plots of out-patient utilization for the eight health facilities studied in Mokhotlong district were prepared for five MOH facilities and three PHAL facilities. Annex Figure A4.1 illustrates the utilization trend at Mokhotlong District Hospital. The top panel of Figure A4.1 shows the trends for all consultations and adult consultations, while the bottom panel shows trends for children in two different age groups, 0-4 and 5-14. On comparing regression-line time trends before and after the fee increase at these eight facilities, it is clear that all MOH facilities show a decline in out-patient consultations after the fee increase, while all three PHAL facilities show an increase. This suggests that in Mokhotlong district the new fee policy succeeded in shifting some patients from MOH to PHAL facilities.

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23 Trend lines are produced by regressing the weekly use of facilities on a time sequence variable and a dummy variable to capture the onset of increased user fees. However, the analysis does *not* control for other factors which may have influenced the observed utilization levels, such as openings or closures of potential substitute providers, changes in private sector (PHAL) fees, changes in the quality of services (eg, drug availability) or changes in the quality of data collection. These factors are discussed in a subsequent section. Furthermore, utilization graphs do not explicitly control for changes in morbidity patterns or economic conditions.

24 If the trend lines are sloped in the same direction before and after the fee increase, then there is an ongoing time trend which will tend to inflate the size of the difference between means. Conversely, if the trends are different before and after the fee increase, they will tend to counterbalance one another and deflate the difference between means.

25 The sample excludes only one government health center and two PHAL health centers; one of the PHAL health centers is only for children under five years and the other recently closed.

Given the huge swings in utilization from week-to-week, quantification of the drop in utilization following the introduction of user fees should be viewed with extreme caution. However, if one were to compare the means of the "before" and "after" regression lines for the entire district, overall weekly utilization of MOH facilities declined by 51 percent, while PHAL out-patient utilization increased by 35 percent. The net effect on "total" utilization was a decline of 42 percent or 279 weekly cases. It is not known whether these cases resorted to traditional medicine, self-treatment, or simply no treatment. Moreover, it is important to note that not all PHAL facilities were included in the analysis. Some of these cases might have been diverted to facilities not in the sample.

Table 4.5 summarizes the difference in mean weekly utilization before and after July 1988. The value in the first column is the difference in the average number of cases per week before and after the fee increase. For example, there were on average thirty-six fewer cases among 0-4 year olds each week at the Mokhotlong Government Hospital after the fee increase. When expressed in percentage changes, this represents a 72 percent decline in caseload for this age group. The highest proportional decline is observed in the Mokhotlong hospital and Libibing health center. In the private sector, the St. James PHAL dispensary is the closest substitute to the Mokhotlong hospital (thirty minutes), and the Libibing health center (forty-five minutes). It experienced a 26 percent increase in the utilization of children and a 46 percent increase for adults during this period. At St. James, there was no price or staff change reported during this period.

Table 4.5: Difference Between Average Weekly Number of Cases Before and After July 1988, Mokhotlong District

	Age Groups					
	0-4		5-14		15 and over	
Facilities	Cases	%	Cases	%	Cases	%
Government facilities						
Mokhotlong hospital	-36	-72	-25	-71	-148	-60
Libibing health center	- 9	66	- 8	- 56	- 17	-49
Linakaneng health center	- 7	-28	- 5	- 36	- 29	-39
Malefiloane health center	- 7	-39	- 4	- 47	- 11	-38
Molikalike health center	-10	-35	- 7	- 47	- 24	-36
PHAL facilities						
Mapholaneng health center	0	0	-3	-32	4	10
St. James dispensary	6	26	5	40	32	46
St. Martins health center	4	100	5	104	12	75

Note: Cases are the difference between the average number of cases per week before and after the fee increase; % is the percentage change.

Table 4.6 shows the net effect on out-patient utilization by age group for Mokhotlong district after July 1988. The net change in utilization was greater for adults than children in absolute terms, although roughly equal in terms of the proportionate drop in use. By 1989, the overall attendance of Mokhotlong hospital had slightly improved. For Malefiloane, Linakaneng, and Molikalike health centers, all of which have no close substitutes, the average patient attendance once more improved a few months after the price change, although average out-patient attendance never attained its initial levels.

Table 4.6: Net Change in Weekly Out-Patient Utilization, Mokhotlong District, by Age Group

	0-4	5-14	15+	Total
Net # Cases	-60	-39	-180	-279
% Change (net)	-44%	-45%	-40%	-42%

EVALUATION OF MOHALE'S HOEK DISTRICT

Mohale's Hoek is situated in the southwestern district of Lesotho, covers an area of 3,650 square kilometers and had a population of about 164,392 in 1989. Thirty-eight per cent of the land is in the mountains, 28 percent in the foothills, 23 percent in the lowlands, and 11 percent in the Sengu River Valley. About 56 percent of the district is suitable for mixed farming, but only 11 percent is arable. The rural population is unevenly distributed. Landlessness in the district has increased rapidly, from 16.5 percent of rural households in 1980 to 27.3 percent in 1986. Of the rural households, 14.2 percent have neither fields nor livestock. Mohale's Hoek town has some 7,657 inhabitants.[26] The district of Mohale's Hoek has one MOH hospital and twelve health centers, one medical staff per 3,288 population, and one of the lowest population per bed ratios in the country (1 bed per 1,551 population in 1989). The catchment area of the district hospital includes 70,000 to 80,000 people, half of the district's population. The main diseases in 1988 were tuberculosis in adults and pneumonia and gastroenteritis in children.

Data for Mohale's Hoek District were collected from the government district hospital, five government health centers, and five PHAL health centers, or eleven of a total of twelve health facilities in the District. As in Mokhotlong District, this sample provides a fairly comprehensive and representative picture of out-patient health care in Mohale's Hoek District.

Annex Figure A4.2 illustrates the time plots of out-patient utilization for Mohale's Hoek district hospital. The two most striking characteristics are the week-to-week fluctuations and a marked decline in average utilization levels at government facilities after the fee increase. A gradual decline was observed in Mohale's Hoek hospital since the price change in July 1988. By 1989, the average patient attendance stabilized at less than 400 per month, while prior to the price change, average patient attendance had been over 800 per month. The effects of renovation of the hospital and staff change on utilization cannot be assessed, however. The substitution effects between hospitals and clinics and between MOH and PHAL facilities are less pronounced

Table 4.7: Net Change in Weekly Outpatient Utilization, Mohale's Hoek District, By Age Group

	0-4	5-14	15+	Total
Net # Cases	-87	-35	-172	-295-
% Change (net)	-40%	-29%	-30%	32%

Source: Bryne and Gertler (1990), Table 2.2.

26 1986 figure.

in Mohale's Hoek. Overall utilization of MOH facilities fell by 40 percent, while utilization of PHAL facilities rose by 19 percent. This resulted in a net decline of 32 percent of the number of weekly out-patients seeking modern care (see Table 4.7).

Additional data not reported here reveal that utilization of PHAL out-patient services in Mohale's Hoek began to decline before the MOH price change -- Bethel Hospital (31 percent) and Mohalinyane Hospital (61 percent). Of the remaining three PHAL facilities, only two (Holy Cross (26 percent) and Ha-tsepo maternity (58 percent)) showed an upward trend among 15 year olds and over, following the price change at MOH facilities (see Table 4.8). The third PHAL facility had a smaller fall in utilization (sixteen cases or 29 percent).

Table 4.8: Difference Between Average Weekly Number of Cases Before and After July 1988 Mohale's Hoek District

	Age Groups					
	0-4		*5-14*		*15 and over*	
Facility	*Cases*	*%*	*Cases*	*%*	*Cases*	*%*
Government facilities						
Mohale's Hoek hospital	-38	-42	-19	-34	-91	-31
Mootsinyane health center	-10	-49	- 3	-33	-15	-38
Morife health center	-12	-49	-10	-63	-22	-51
Mpharane health center	-10	-32	- 3	-18	-28	-36
Nohana health center (LFDS)	- 1	- 7	- 6	-57	-13	-34
Phamong health center	-22	-57	- 7	-36	-34	-40
PHAL facilities						
Bethel health center	- 7	-42	- 7	-51	-23	-31
Ha-tsepo maternity home	4	24	5	61	14	58
Holy Cross health center	1	3	6	38	16	26
Liphiring health center	- 0	- 3	1	16	- 6	-29
Mohalinyane health center	- 9	-52	-13	-68	-26	-61

Note: Cases are the difference between the average number of cases per week before and after the increase. The % column is the percentage change.

Source: Ministry of Health.

FACTORS AFFECTING USE OF OUT-PATIENT CARE IN MOKHOTLONG AND MOHALE'S HOEK

The previous section assessed levels of utilization of out-patient services in Mokhotlong and Mohale's Hoek districts, before and after the increase in user fees for these services in July 1988. In both districts, utilization of government health services declined. This result comes as no surprise. One of the basic laws of economics is that an increase in the price of a good lowers the demand for it, holding all other factors constant.[27] Restraining "unnecessary" use was in fact

27 That is to say that demand curves are downward-sloping.

one of the objectives of the fee increase, although we have no way of knowing whether those who no longer sought care had trivial problems. The previous section also found evidence that some clients may have switched from government to PHAL health services, at least in Mokhotlong District.

It is tempting to attribute changes in utilization rates in Mokhotlong and Mohale's Districts entirely to the increase in user fees. However, the demand for health care is determined by many factors, of which price is only one. Other factors that might have influenced demand, for example, household incomes, the prices charged in PHAL facilities, and the quality of services in MOH and PHAL facilities -- could not be controlled in this study given limitations of the data base. What has been observed is, in reality, the simultaneous effect of all of these factors. What additional factors, therefore, may have impacted on the demand for out-patient services over the period 1987 to 1989 in each of the two districts.[28]

SOCIO-ECONOMIC CHARACTERISTICS

The out-patient utilization forms used for this analysis recorded very little information on the characteristics of patients, other than their health complaints and their age. However, other characteristics of the individual and his/her household can be very important determinants of the demand for medical care -- in particular, the patient's gender and education, and his/her household's income. Most studies have found that as income rises, households tend to consume more medical care, and may well spend a larger share of their income on medical care. Low-income households, on the other hand, tend to be less healthy and in greater need, but are constrained by the availability of cash income, and may place a lower intrinsic value on health compared to other goods. None of these factors could be controlled for in the current analysis. For example, if household incomes declined in Lesotho over the time period 1987 to 1989, then one would expect a decline in demand for medical care from all sources over this period, based on what one knows from other countries. This effect would be independent of any changes in user fees.

PREVAILING HEALTH PROBLEMS

Changes in morbidity or mortality patterns, due to epidemics or seasonal variations, can also affect the demand for health care. The analysis in the previous section did attempt to control for seasonality when plotting regression lines. However, it was not able to control for sporadic, localized, non-seasonal epidemics. For example, if there had been an epidemic of measles in 1987 that ended in late 1988, this would have resulted in a decline in the utilization of medical care. However, a measles outbreak between May and July 1989 in Mokhotlong does not seem to be reflected in higher utilization of Mokhotlong hospital, nor of St. James dispensary.

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28 An explanation not considered here but quite plausible is that reporting of out-patient utilization statistics became less complete over time.

PRICE OF MEDICAL CARE

A price increase in one facility can be expected to raise demand for services in other facilities, assuming their prices remain constant. Studies of Malaysia by Heller (1982) and of Peru by Gertler, Locay and Sanderson (1987) show that price changes by one of several providers induce large substitution effects across health providers, especially if the alternative health care services were considered to be of similar quality. Thus, holding constant other factors affecting the demand for health care, a move from public to private services can reasonably be expected when user fees in public facilities are raised. One has already seen some evidence of this in Mokhotlong District. However, prices charged in PHAL facilities are not simultaneously controlled by government and may also have risen when public user fees were raised. This could have offset any shifts from public to private providers, such as was observed in Mohale's Hoek. Unfortunately, it has not been possible to document changes in fees at PHAL facilities over this time period.[29]

TRAVEL AND TIME COSTS

User fees are not the only costs involved in health care, nor are they necessarily the greatest costs. In rural Lesotho, where health facilities are distant from most households, roads tend to be poor, the weather is variable, and availability to public transport may be limited The greatest costs to patients may be the time necessary to seek treatment and the out-of-pocket costs for transport. Time costs include both travel time to and from the health provider and waiting time at facilities and for public transport. Between 1986 and 1989, bus fares increased by 50 percent in Lesotho. Because of the long distances to health care, the increase in bus fees may have substantially raised the cost of seeking all health care at government and PHAL facilities alike. Unfortunately, the timing of these price hikes is unknown, making it difficult to assess its impact on utilization rates.[30]

Aside from the impact of normal seasonal fluctuations in the weather, there were several severe weather abnormalities in the two districts in 1988 and 1989 which may have affected access. Rains during February and March 1988 and snow in June and July of the same year, could have raised utilization, by increasing the rate of illness, or lowered utilization by reducing the accessibility of health facilities, due to poor infrastructure. During the snow and rainy seasons in Mokhotlong, and due to the rugged and underdeveloped roads, travel becomes almost impossible, and most health facilities experience a seasonal decline in utilization. Heavy snowfalls were reported for July and October 1988, while heavy rains were reported for the months of February to March of 1988 and 1989.[31] In Mohale's Hoek, heavy rains were reported in February and March 1988 and later in December 1988. The impact of these disturbances on utilization rates were not assessed in this study.

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29 Regardless of possible price differences across government and PHAL facilities, it is also the case that the rugged terrain of Lesotho is a severe constraint to substitution possibilities.

30 Mohale's Hoek District, situated mostly in the lowlands, has relatively greater availability, as there are several scheduled buses that travel between towns. Therefore, demand would be less constrained due to transport in Mohale's Hoek, and there are relatively more substitution possibilities between health facilities, than in Mokhotlong. In the case of Mokhotlong District, there is a scheduled bus service on the route between Mokhotlong and Mapholaneng. Due to this service, it is relatively easy for villagers in the two areas to reach the Mokhotlong hospital, St. James dispensary, and the Mapholaneng PHAL clinic.

31 The Lesotho Flying Doctor Service (LFDS), functioning out of Malefiloane and Linakaneng, had twenty-nine medical team flight cancellations in 1988 due to bad weather.

QUALITY OF SERVICES

Perceptions of the effectiveness of health care providers also influences the utilization of services. Indicators of quality of care include: the supply of drugs and equipment, the number and type of health care providers, the attitude and friendliness of medical staff, the type of treatment provided, and the amount of medicine prescribed. The closing down of particular services that were in demand, and the change in service personnel either through transfer or the introduction of new staff also influences the utilization of those health services. Not much information is available on changes in supply of drugs, training or the quality and number of staff during this period in the two districts under study. What is known is presented in Table 4.9.

Table 4.9: Non-Price Changes in Health Services

District/facility	*End of CRS child feeding program*	*Total (1/89)*	*Staffing Change (year)*
Mokhotlong district			
Government facilities			
Mokhotlong hospital	N/A	14*	+ (1988)
Libibing health center	N/A	2	-
Linakaneng health center (LFDS)	prior to 1987	2	-
Malefiloane health center (LFDS)	September 1989	1	- (1989)
Molikaliko health center	September 1989	2	-
Semenanyana health center	N/A	1	- (1988); + (1989)
PHAL facilities			
Mapholaneng health center	September 1989	1	-
St. James dispensary	September 1989	1	-
St. Martins health center	September 1989	2	- (1988); + (1989)
St. Peters health center	September 1989	1	-
Semenanyana private clinic	N/A	0	(closed September 1988)
Mohale's Hoek district			
Government facilities			
Mohale's Hoek hospital	N/A	47*	- (1989)
Mootsinyane health center	N/A	-	-
Morife health center	N/A	-	-
Mpharane health center	N/A	-	-
Nohana health center (LFDS)	September 1989	-	-
Phamong health center	N/A	-	-(1989)
PHAL facilities			
Bethel health center	September 1989		-
Ha-tsepo maternity home	N/A	-	-
Holy Cross health center	N/A	-	-
Liphiring health center	September 1989	-	-
Lithipeng health center	N/A		(1989)
Mohalinyane health center	September 1989	-	

Notes: Staff includes medical officers (doctors) and nurses. * 2 doctors in Mokhotlong district and 6 in Mohale's Hoek district (3 in hospital). The signs indicate the direction of change in supply: + indicates positive change (increase in supply); -indicates negative change (fall).

Source: Catholic Relief Services, 1990; Health Planning and Statistics Unit.

In Mokhotlong, none of the government health centers had a doctor and the government hospital had only two doctors. In Mohale's Hoek, three doctors were located at the hospital and three others in health centers. All facilities were equipped with at least one nurse, while some also

included health assistants. However, not enough information was available on change in the supply or quality of care during this period to assess impacts on the price/utilization relationship evaluated in this study.[32]

CONCLUSION

The objective of this study has been to assess the impact of the increase in user fees for out-patient attendances in July, 1988, on three Government objectives: (i) raising cost recovery for health services; (ii) reducing over-utilization of government hospitals and encouraging use of health centers; and (iii) inducing patients to switch from government to PHAL facilities.

It appears that the revenue-generating objective has been fulfilled gradually. Since fee increases, user fee revenue in the health sector has doubled as a share of total recurrent expenditure. Over the same period, overall out-patient utilization declined in the two districts examined here. The number of out-patient attendances declined in government hospitals as well as in government health centers. There is no evidence that the functioning of the referral system improved, in terms of the number of out-patients seen at health centers, although this issue was difficult to examine with the available data.[33]

While this study has succeeded in documenting some of these trends in out-patient utilization, it is not possible to attribute them, conclusively, to an increase in fees. When the price of government services rises, the expected decline in attendances in government facilities and an increase in attendances in competing sources, appears to result. It would be tempting to attribute all of these changes to the increase in user fees. However, there are many factors affecting the use of out-patient services in rural Lesotho, of which user fees are only one. We have noted that several other factors -- not controlled for -- could have produced the same qualitative result individually or in combination, such as declining household incomes, reduced morbidity, a 50 percent increase in bus fares, natural disasters between 1988 and 1989 that inhibited travel, and a decline in the quality of health care in government facilities. Further, changes in the accuracy and completeness of reporting by health units may also have been a factor.

In theory, if fees are raised and the resulting revenues are used to raise the quality of health services at the same facilities, the net effect on out-patient utilization could be neutral. However, it

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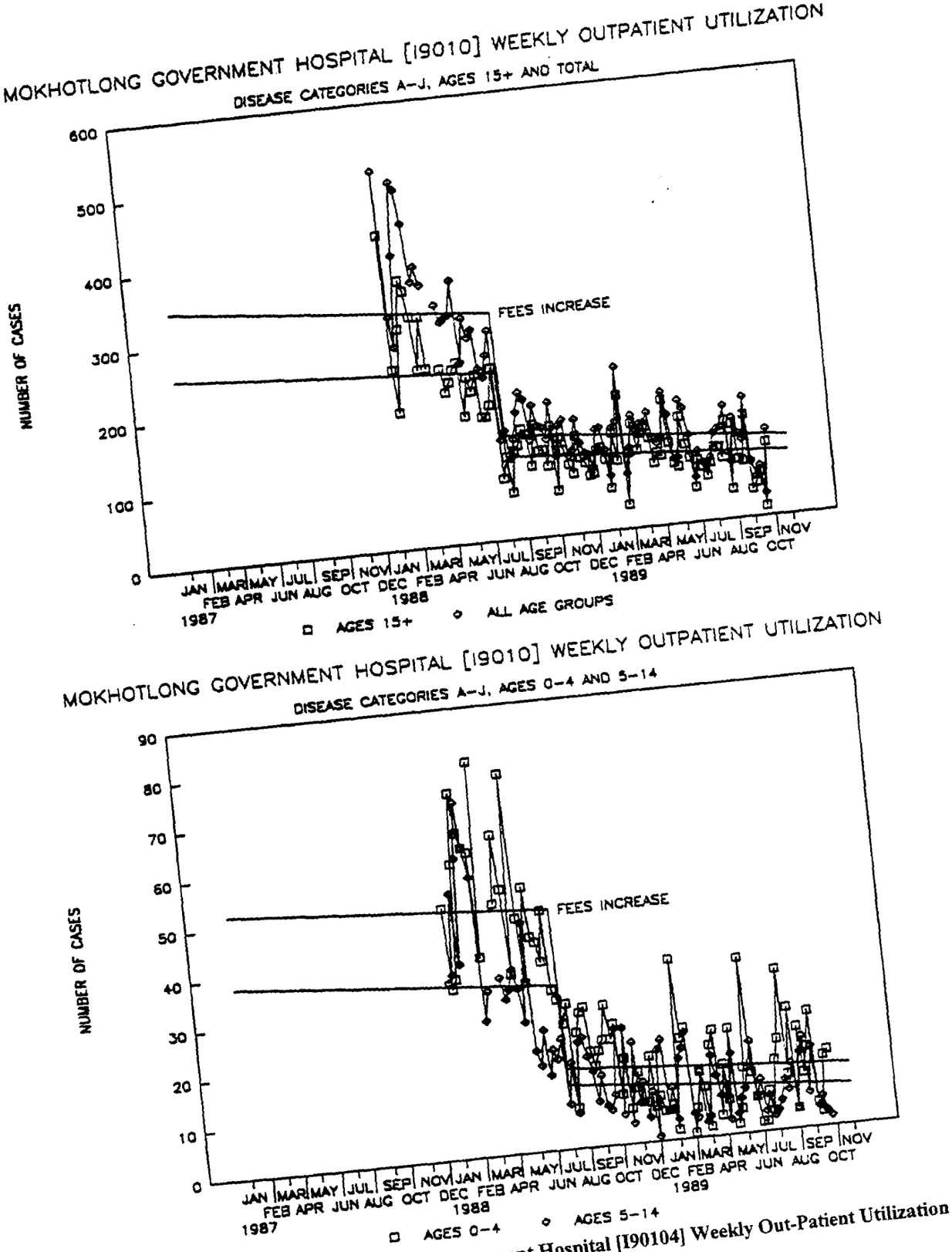
32 Prior to 1989, the Catholic Relief Services (CRS) offered a free supplementary feeding program for children 0-5 in ten of the facilities in this sample. This program was phased out in September 1989. Just before the end of the CRS program, a rise in child attendance was observed in Linakaneng. Mothers no longer received food aid (usually oil and flour) from clinics, and therefore the attendance of children under 4 years who were brought in for growth monitoring while mothers collected their ration, drastically declined after September. Although St. James dispensary also closed down its CRS services, an increase in children's utilization was observed between September and October 1989, perhaps because of patients' perception of benefits from St. James relative to other health clinics. The closing of the Semenanyana private clinic in September 1988 coincided with a rise in utilization at the St. Martins health center. Between December 1988 and May 1989, no change was observed in utilization at St. Martins, even though the nurse clinician was absent.

33 Although the reporting forms had information on the number of referrals, the data were not easily analyzed. There was no tracking system developed. Also, the reasons for referral are difficult to analyze. Referrals can decrease because of the more efficient use of resources or because fewer patients sought care. They can increase as a higher proportion of patients present themselves at a later stage of illness, or if the medical inputs for treatment were out of stock at a health center.

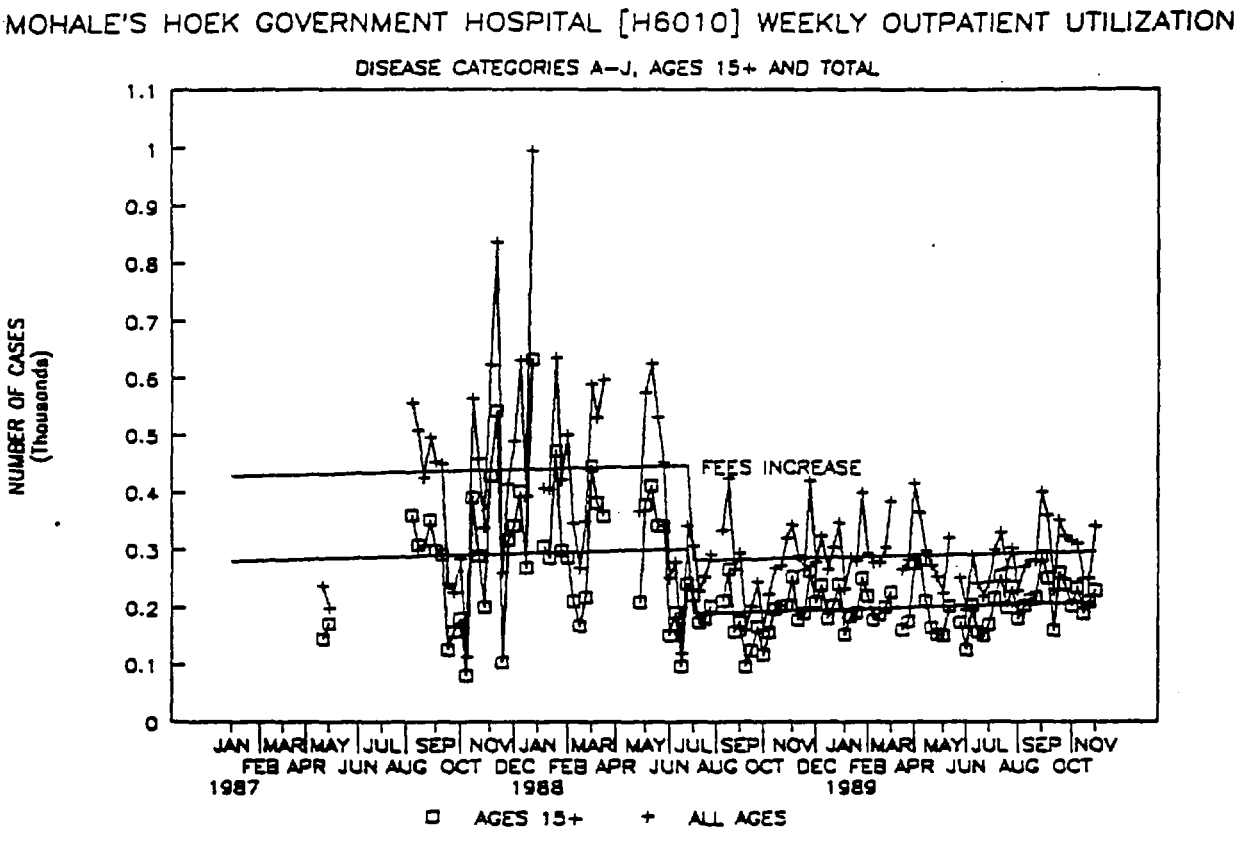
is unlikely that this occurred in government facilities during the 1988 fee increase, since all fee revenues were passed on to the national Treasury and none were retained by the facilities. When this is the case, there is limited incentive for health workers to enforce fee collection, which has an adverse effect on the overall level of cost recovery that can be achieved.

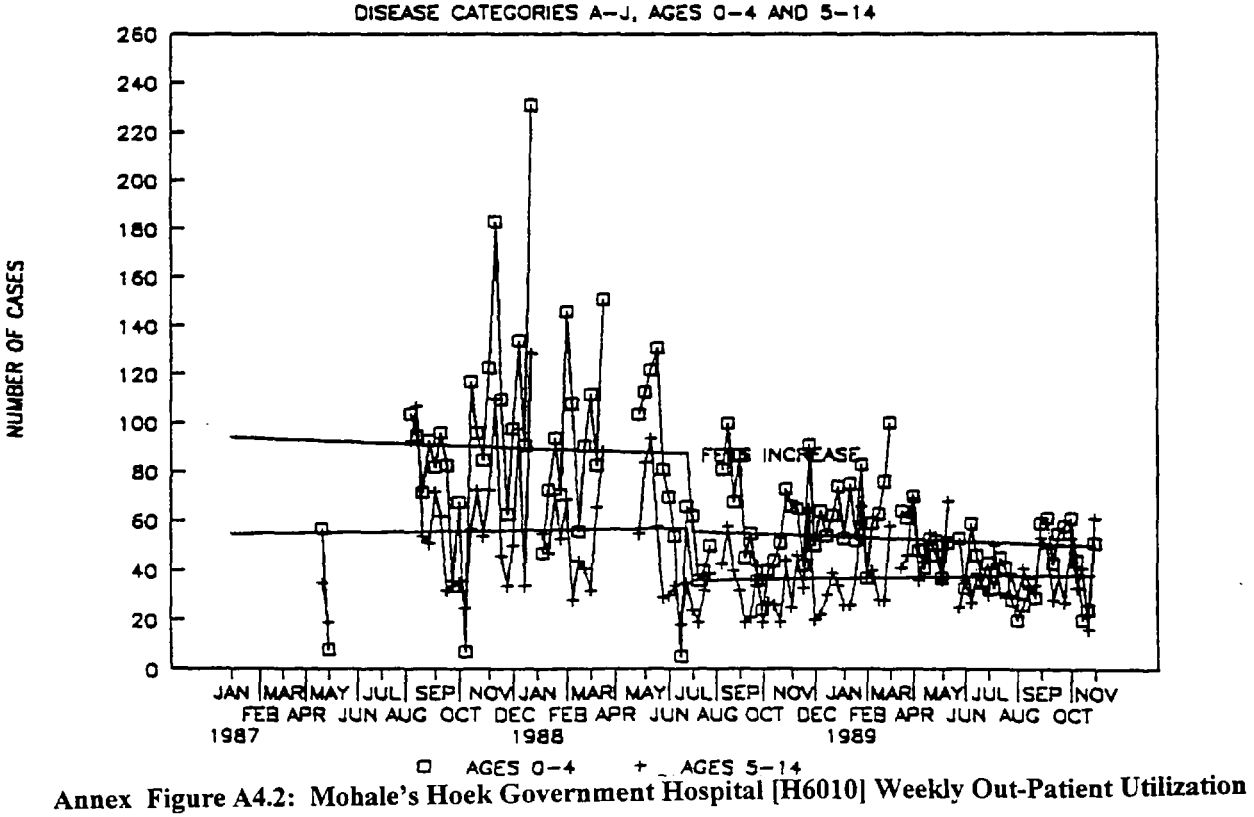
One topic that is of great concern to policy-makers is the impact of the fee increase (as well as other relevant factors) on individual and family welfare. What is the impact of the fee hikes across income groups in the population likely to be, in terms of health outcomes and other foregone expenditures? To what extent were patients diverted to traditional healers or to self-treatment in response to fee increases? Is there evidence that the user-fee policy impacted disproportionately on the poor? How well has the exemption policy worked since 1988, in terms of waiving payment by the most destitute?

Unfortunately, Lesotho's out-patient utilization reporting forms shed little light on these crucial issues, having very little information other than the age of a patient and symptoms. Improvements in these forms would allow a closer examination of (at least) the trends in out-patient utilization according to socio-economic characteristics, such as the patient's gender, an indication of whether the individual was exempted from paying a fee, and the reason for referral. It would also be helpful if more information were routinely collected on the availability of key inputs at all facilities -- like staff and drugs. However, out-patient utilization statistics will never fully satisfy the criteria needed to examine the impact of fee increases on individual and family welfare, not only because of the very limited information that can be collected at the service point, but because the service point is not able to collect information on persons who were sick but did *not* seek modern care. That is, to understand the welfare impact of fee increases, one needs to know what happens to those who stop using health care after an increase in user fees. Adequate study of this issue and an improved ability to ascertain the causal factors can only be achieved through the study of data from a more detailed sample of households (rather than facilities).



Annex Figure A4.1: Mokhotlong Government Hospital [I90104] Weekly Out-Patient Utilization





Annex Figure A4.2: Mohale's Hoek Government Hospital [H6010] Weekly Out-Patient Utilization

CHAPTER 5

THE EFFECT OF PRICES, SERVICE QUALITY AND AVAILABILITY ON THE DEMAND FOR MEDICAL CARE: INSIGHTS FROM KENYA[34]

Germano Mwabu, Martha Ainsworth, and Andrew Nyamete

ABSTRACT: Underutilization of medical facilities in African countries is widely believed to be a result of consumer disappointments with quality of care. This chapter uses data from a randomized household survey, enriched with exogenous information on health facility attributes, to examine more deeply the quality factor in health care demand in rural Kenya. Broad availability of drugs in a medical facility is found to be positively related to medical care use. Health care demand is also observed to decrease with user fees and with greater distance to the provider, but increases with income. Gender is not a significant determinant of the choice of medical care in this dataset - whether considered separately or interacted with service variables. Contrary to intuitive expectations, lack of prescription drugs is also positively related to medical care demand, while lack of aspirin reduces demand. We explain this counter-intuitive result by noting that any measure of availability of a consumable input is evidence of both demand and supply. Demand may be positively correlated with the lack of drugs, for example, precisely because there is excess demand for available supplies. The results indicate the importance of selecting truly exogenous indicators of service quality for demand analysis.

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INTRODUCTION

Quality of medical care is now well-recognized as a key factor in the success of health care financing reforms in African countries.[35] In many developing countries, the often-stated objective of imposing user fees is to seek additional resources to help raise health care quality, particularly in

34 An expanded version of this paper appears as "Quality of Medical Care and Choice of Medical Treatment in Kenya," Journal of Human Resources 28 (4), Fall 1993.

35 See for example Barnum and Kutzin, (1993); Creese, 1991; Denton and others, 1991; Dor, Gertler, and van der Gaag, 1987; Ellis and Mwabu, 1991; Gertler, Locay and Sanderson, 1987; Gertler and van der Gaag, 1990; Lavy and Quigley (1993), Lavy et al. 1992; Reed, 1990; Waddington and Enyimayew, 1989.

peripheral facilities. However, empirical information is lacking as to the joint effect of fee increases and quality improvement on the demand for health care.[36] A given improvement in service quality might increase demand for medical care by attracting new users or by increasing the intensity of service use by existing users. Demand might also move in the opposite direction, however, if the improved service is more effective in dealing with patients' problems or with the underlying illness patterns. There is no a priori basis for predicting demand effects of service improvement.

In spite of the broad consensus among health care workers and policy-makers about the importance of service quality in health care demand, in-depth empirical investigation of this issue has been rare because of data limitations.[37] Consequently, operational actions such as staff redeployment or identification of health facility investments on which additional health resources may be spent to improve service quality have either not been undertaken or have been carried out without the necessary information. In response to this gap in knowledge, an in-depth empirical analysis was conducted of the relationship between medical care quality and the demand for health care using detailed household and facility datasets from a rural district in Kenya. This analysis differs from recent work in this area in two respects.[38] First, in contrast to previous research, various types of drugs and diagnostic equipment were included among measures of facility quality. Second, the effects of different quality measures on the demand for services were separated out, thereby enlarging the policymakers' menu of health facility attributes that can be changed to improve service quality.[39] This study therefore deepens previous research on demand effects of medical care quality in Sub-Saharan Africa.

The following section reviews health care demand literature in developing countries, with a focus on Africa, and presents the basic model of health care demand. The third section describes the data collection methods, specifies and describes the variables to be used in model estimation, and outlines the estimation strategy. Empirical results are then presented and discussed in the fourth section. Simulation results are presented in the fifth section, followed by a concluding section.

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36 Thomas et al; (1992) and Lavy et al. (see Chapter 6 this volume) have recently examined the relationship between disaggregated measures of health care quality and health status of adults and children in Côte d'Ivoire and Ghana, respectively.

37 The results of a natural experiment in Cameroon show that a combination of increased fees and improved quality can result in a net increase in demand for government health care, with the greatest proportionate increase among the poor (see Chapter 7). However, the study results do not make it possible to disaggregate the size of the price and quality effects or, specifically, to determine which components of quality might have an effect on demand. Further, it is unclear the extent to which the increase in demand arose from shifts among care alternatives, as opposed to generation of new demand for health care.

38 See Denton et al. (1991), Lavy and Quigley (1991), Ellis and Mwabu (1991), Litvack and Bodart (1993).

39 This is in contrast to Ellis and Mwabu (1991) who use the principal component method to collapse different measures of facility quality into a composite quality index, and then estimate demand effect of that single variable. This study's approach also differs from that of Denton and colleagues (1990) who employ drug availability as the only measure of facility quality.

HEALTH CARE DEMAND

PREVIOUS LITERATURE

Health care demand modeling has undergone a major evolution since the early 1960s, when economists first became interested in estimating demand for health services. Early health care demand models were simple reduced-form equations derived from the assumption of utility maximization. The demand for a particular health care service, as measured by number of visits to a health facility, was hypothesized to depend on the price of that service, prices of alternative services, household income, and tastes. This formulation excluded from the demand equation variables that measured time costs associated with using the services and demographic characteristics of patients, such as age and education, even though these variables have since been shown to be important determinants of health care use. Acton (1975), and Christianson (1976), and Grossman (1972) altered this formulation substantially to allow for inclusion of demographic and time variables in the demand equation. An additional contribution by Acton and Christianson was the recognition of discrete nature of health care decisions in health care demand.

The quality of medical care was not an important issue in the specification of the earlier models. Akin et al. (1985), Heller (1982), and others studied medical care demand patterns in developing countries using discrete choice formulations of health care decisions originally employed by Acton and Christianson. Quality differences were often invoked in the interpretation of the estimation results, but were infrequently used in the specification of the estimating equations. Results from some of these studies, especially the research done by Akin and others (1985) in the Philippines, showed that contrary to predictions of the theory of consumer behavior, economic variables such as prices and income had little or no impact on medical care use.

These findings stimulated new efforts in health care demand modeling in developing countries. Gertler, Locay and Sanderson (1987) argued that since observed health care demands are based on the postulate of utility maximization, demand parameter estimates must depend on the structure, or specification, of the utility function from which they are derived. Dor, Gertler and van der Waag (1987) and Gertler and van der Gaag (1990), using a conditional utility function, demonstrated analytically using data from rural Peru and Côte d'Ivoire that economic variables such as household income and prices *do* have an influence on health care decisions. Bitran (1991) has provided a comprehensive exposition of past studies on health care demand in developing countries. An excellent review of how findings of these studies have been applied in the analysis and implementation of health care financing policies, especially in Africa, is in Creese (1991).

THE MODEL

A version of the demand model first proposed by Gertler, Locay, and Sanderson (1987), and refined and popularized by Gertler and van der Gaag (1990) has recently been used to study health care demand behavior in Ghana and Kenya Lavy and Quigley (1991); Ellis and Mwabu (1991). A restatement of this model has been adapted for this study. The essentials relevant to understanding the empirical results presented here, are as follows:[40]

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40 For a complete exposition of the models see Mwabu, Ainsworth and Nyamete (1994).

- In the event of an illness, a patient is assumed to seek help from a health care system characterized by many providers. The patient or his/her relative is further assumed to choose the health care alternative that yields the maximum expected utility.

- An individual or his/her relative is presumed to choose treatment from among four different options: the nearest government clinic (G); the nearest mission health facility (M); the nearest private health clinic (P); and a residual self-treatment alternative (S), which includes traditional healers as well as retail shops where patients often buy drugs.

- The maximum expected utility associated with each treatment option (in the eyes of the client) is conditional on: (i) the characteristics of facilities associated with each treatment option, (G, M, or P), such as price, the availability of drugs, and medical equipment; and (ii) the socio-economic characteristics of the person making the choice, such as age, sex, education, and income.

- Following standard assumptions, multi-variate statistical techniques can be applied to discern the relative impact of the characteristics of facilities and socio-economic background on the probability an individual will select treatment option G, M, or P versus the residual self-treatment option. The multi-variate technique used here is a multinomial logit.

- As a general guide to interpreting statistical results, two questions are asked. What socio-economic characteristics differentiate individuals who select treatment option G, M, or P, versus those in the reference group who self-treat? And, among all those who choose treatment options that are different from self-treatment, what facility characteristics determine greater probability of choosing one kind of treatment option over another?

DATA AND VARIABLE DEFINITIONS

DATA SOURCE

The data from this study are from Meru District, a rural district in Eastern Kenya.[41] The data were collected over a fourteen-month period, between January 1980 and April 1981, using a stratified randomized survey procedure. The survey procedure used to collect the data is described in detail in Mwabu (1986, 1990). Two types of datasets are used: (1) data from a population-based survey on use of health services; and (2) data obtained from a survey of health facilities on availability of drugs, types of health personnel, conditions of medical equipment, and fees charged for medical services. These datasets link household and individual characteristics with the attributes of available health facilities.

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41 The Meru data are representative of low-income areas in rural Kenya. Since the data were collected, the boundaries of the district have changed. The survey area covers four present-day districts: Meru; Tharaka-Nithi; Kitui; and parts of Embu.

The probability sample consists of 315 households with 1,721 individuals. Morbidity data and data on treatment strategies were collected for 479 individuals who reported recent illnesses.[42] For each of these individuals, information was obtained for up to four attempts to cure an illness. However, the study uses information on first visits only for 251 household members aged fifteen and older because the focus of the study is on a one-period analysis of health care demand by the adult population. The 228 remaining individuals were children under the age of 15. Analysis of the impact of quality on provider choice among children is being performed as part of another study. In addition to illness-related information, data were collected about the demographic and socio-economic characteristics of all household members.

The dataset for health facilities consists of fifteen facilities, of which eight are government health centers or dispensaries, two are mission clinics, and five are private clinics. These included virtually all the modern facilities closest to the households that were surveyed. For each of these facilities, information was collected about availability of drugs, types of medical equipment (and whether or not the equipment was in good working order), types of health personnel, prices charged for out-patient and in-patient services, physical condition of the facility, among many others.[43] Information on distance and travel time to the nearest health facility of each type was also obtained from providers independently of the information reported by household members. The household dataset is linked to the facility dataset to create an enriched database containing information about facility attributes as well as those of individuals.[44]

VARIABLE DEFINITIONS

The dependent and explanatory variables used in the analysis are described in Table 5.1. Four *dependent variables* indicate the type of provider selected for the patient's first consultation - government, mission, private or self-treatment. As noted previously, the self-treatment option serves as the comparison or base group in this study, against which the behavior of the other groups is compared.

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42 All persons ill at the time of the survey were interviewed. For households in which no one was currently ill, the household member most recently ill was interviewed. Among the 251 adults in this study, 80 percent were ill at the time of the survey and 20 percent had been previously ill. Like many other health demand studies, this sample is conditioned on reporting an illness. Unfortunately, information was not collected on persons who were not ill. Thus, it will not be possible to correct for sample selection bias associated with the endogenous reporting of an illness.

43 A similar type of dataset was collected from fifty-two traditional healers but has not been incorporated into the present analysis.

44 It is important to note that, the facility information in the enriched dataset, such as the charges for medical care, is exogenous. That is, each individual is linked to the characteristics of available services, not the services that were actually used. Thus, the endogeneity problem that arises when this information is collected from respondents is avoided. Lavy and Quigley (1991), for example, provide a detailed exposition and treatment of the endogeneity problem in survey data. On the other hand, individuals are assumed to behave "as if" they (i) perceive the attributes of the facilities; and (ii) make choices among the nearest facilities on the basis of their perceptions. In reality however, some individuals may have by-passed the nearest facilities and selected others. This prospect is not captured by the data set.

There are three groups of *explanatory variables* in Table 5.1. The first group, *access variables*, includes the distance to the nearest facility of each type and the exogenous adult out-patient charge at the nearest facility of each type. The second group includes measures of various aspects of the *quality of services* at the nearest health facility of each type. To construct the access and quality variables, each individual in the sample had to be linked to the nearest facility of each type and to that facility's exogenous quality characteristics. The third group of explanatory variables includes *individual and household characteristics*. Since these characteristics do not vary across providers, they have been interacted with dummy variables for each provider so that they will not drop out of the model. In addition, to assess the impact on the demand for health care of the gender of the patient, the sex of the household member has been interacted with the distance, user fee, and quality at the nearest facility of each type.

Table 5.1: Description of Variables

Dependent variables		
CHOICE_G	= 1	if the sick person sought treatment from government health facility; else CHOICE_G = 0.
CHOICE_M	= 1	if the sick person sought treatment from a mission health facility; else CHOICE_M = 0.
CHOICE_P	= 1	if the sick person sought treatment from a private clinic; else CHOICE_P = 0.
CHOICE_S	= 1	if the sick person chose self-treatment; else CHOICE_S = 0; this option also includes traditional healers and retail shops.
Explanatory variables		
Access variables		
USERFEE_G	-	Adult out-patient charges in the nearest government health facility.
USERFEE_M	-	Adult out-patient charges in the nearest mission health facility
USERFEE_P	-	Adult out-patient charges in the nearest private health facility.
USERFEE_S	-	Adult charges for self-treatment (values have been normalized to zero).
DISTANCE_G	-	Distance to the nearest government health facility, in miles.
DISTANCE_M	-	Distance to the nearest mission health facility.
DISTANCE_P	-	Distance to the nearest private health facility.
DISTANCE_S	-	Distance to 'self-treatment facility' (normalized to zero).

Table 5.1: Description of Variables (continued)

Facility-specific quality variables	
DRUGS_G	Number of different types of drugs available in a government health facility. DRUGS_M and DRUGS_P are defined similarly.
NOMALARIALS_G	Logarithm of the number of days in the last 180 days that a government health facility did not have anti-malarial drugs; similarly defined for NOMALARIALS_M and NOMALARIALS_P.
NOASPIRIN_G	Logarithm of the number of days in the last 180 days that a government health facility did not have aspirin; similarly defined for NOASPIRIN_M and NOASPIRIN_P.
MEDSTAFF_G	Number of health workers in a government health facility; and similarly for MEDSTAFF_M and MEDSTAFF_P.
Individual and household-level variables	
EDUCATION*G	Education of a household member interacted with a government health facility. EDUCATION*M and EDUCATION*P are defined similarly.
INCOME*G	Annual cash income of the household (in natural logarithm) interacted with a government health facility. INCOME*M and INCOME*P are defined similarly.
SEX*G	Sex of household member interacted with government health facility(male=1, female=0). SEX*M is sex of the household member interacted with mission facility and SEX*P interacted with a private facility.
SEX*DISTANCE_G	- Sex of household member interacted with distance to a health facility.
SEX*USERFEE_G	- Sex of household member interacted with out-patient charges at a health facility.
SEX*MEDSTAFF_G	- Sex of household member interacted with MEDSTAFF_G (etc.).
SEX*DRUGS_G	- Sex of household member interacted with DRUGS_G (etc.).
SEX*NOMALAR.'S_G	- Sex of household member interacted with NOMALARIALS_G (etc.).
SEX*NOASPIRIN_G	- Sex of household member interacted with NOASPIRIN_G (etc.).

A PRIORI EXPECTATIONS ON BEHAVIORAL PARAMETERS

The demand effect of user charges and distance -- both of which are "price" variables -- is expected to be negative. Past demand studies generally report this negative relationship.

The "quality" of care (efficacy of treatment) has multiple attributes (Wouters 1991). Improvement in medical care quality from the perspective of health practitioners will have no effect on demand if it is not perceived as a quality improvement by patients. On the other hand, if the improvement is perceived as efficacious in dealing with health problems -- a "benefit in treatment" -- it would increase demand. But to the extent that the improvement reduces population morbidity, its effect would be to reduce medical care demand in the longer run. The observed demand effect of improved medical care quality is thus a *net* effect that depends on which of these two factors is dominant.

Past research has found a positive demand effect of availability of drugs in a health facility (Denton and others 1991). As the drug variety increases in a health facility, utilization is expected to increase. This is because as the variety of drugs increases, people can expect to find medicines for their ailments at health facilities. It may, however, also be the case that over a given time period, availability of drugs may contribute to a reduction in morbidity in a community and hence reduce demand for medical services for any given individual in the community because that individual is less likely to contract an illness. Empirically estimated coefficients for drug availability can thus bear a negative or a positive sign. The same applies to the coefficients of other quality-related variables.

No firm expectations can be made on signs of the coefficients of the individual and household level variables. Income, for example, would have a positive effect if health care services are perceived by the household to be normal goods. The coefficients on income could also bear negative signs, however, if households consider health services to be inferior goods. The signs of coefficients on education and sex are also ambiguous a priori.

DESCRIPTIVE STATISTICS

Among the 251 adult patients examined here, 35.5 percent sought medical care from government health facilities, 5.6 percent from missionary health facilities, 19.5 percent from private clinics and 39.4 percent self-treated or sought help from the informal health care sector. Table 5.2 reports the mean characteristics for the 15 facilities in the sample, by type of provider. Patients faced the highest monetary cost of treatment in private clinics - 14.2 Kenyan shillings (Ksh).[45] All government facilities were nominally free, while the two mission clinics charged a mean adult out-patient fee of only 2.5 Ksh. Shortages in supplies of anti-malarial drugs and antibiotics were most acute in government clinics. Aspirin was in better supply in all three types of facilities, but less available in mission facilities than in the other two types. Overall, private providers have the most different types of drugs in stock (10.4); government and mission facilities did not differ much in this measure of quality (8.0 vs. 8.5 types in government and mission, respectively). The

45 The exchange rate at the time of the survey (1981) was 10.44 Ksh per dollar; in early 1993, the rate had risen to 50 Ksh per dollar.

government facilities were better equipped than mission and private providers in terms of stethoscopes, and less equipped than other facilities in microscopes. Finally, government facilities had many more medical staff -- 14.4, on average -- than did mission or private providers (with 4.0 and 1.4 medical staff, respectively).

Table 5.2: Mean Prices and Quality Indicators for Three Types of Medical Providers

	Type of provider		
	Government	*Mission*	*Private*
Variable	*(n=8)*	*(n=2)*	*(n=5)*
Userfee (for adults)	0.000	2.500	14.200
	(0.0)	(3.536)	(18.130)
No malaria drugs (log of days without)	3.828	2.250	0.666
	(0.888)	(3.182)	(1.143)
No antibiotics (log of days without)	3.660	2.250	0.666
	(0.853)	(3.182)	(1.143)
No aspirin (log of days without)	0.451	1.700	0.139
	(1.277)	(2.405)	(0.310)
Drugs (types)	8.000	8.500	10.400
	(2.204)	(4.950)	(1.817)
Medical staff (number of staff)	14.375	4.000	1.400
	(27.614)	(2.828)	(1.140)

Note: Standard deviations in parentheses.

Among the 99 persons (39.4 percent of the sample) who selected the "self-treatment" option, many consulted a traditional healer. It was not possible to include the traditional healer as a treatment option in this study because of the absence of comparable quality and price variables for the healers and modern facilities. Nevertheless, fifty-two healers were interviewed in the course of the Meru survey. Almost all of the healers were men (94 percent); they were fifty-nine years old, on average, and had twenty-nine years of experience as healers. They estimated that they spent an average of 418 Ksh in out-of-pocket cash costs to obtain healer training. The average patient treatment cost per visit (in cash) reported by the healers was 46 Ksh, far more than average charges even in the private health facilities. In terms of availability of drugs, 74 percent of the healers had malaria drugs available and 56 percent had traditional medicines. On average, the healers had treated seventy patients over the past three months, of which three could not be treated for lack of medicine. Eighty-five percent of the healers referred patients to modern clinics for treatment.

Other notable characteristics of the sample include the following. The average age of the patients was about thirty-eight years and they had slightly more than one year of primary education. About two-thirds (68.5 percent) of the adult patients were females. There are several possible reasons why female adults were more likely to be in the sample: (i) there may be more women than men in the rural population; (ii) they may be more prone to illness (women have obstetrical care needs not relevant to men, for example); and (iii) they may be more likely to accompany children to health care, and thus report and seek treatment for their own conditions at the same time. These hypotheses cannot be confirmed with the Meru data. However, another more recent study of health care demand in South Nyanza district, Kenya, found that 54 percent of the adult population was

female and that women were more likely to report illness than men (41 percent vs. 30 percent, respectively) (Ellis and Mwabu 1991). Conditional on reporting an illness, men and women in the South Nyanza sample were equally likely to seek treatment.

Patients in our Meru data set lived an average of about six miles from a government health facility, ten miles from a mission facility, and eight miles from a private provider. Ninety-six percent of the sample lived within ten miles of a government health facility, while only 40 percent and 61 percent of the sample lived within ten miles of a mission or private facility, respectively. Statistics on the mean values of all variables at the nearest facilities of each type of the patients are presented in Table A5.1.

EMPIRICAL RESULTS

Estimates of the impact of the explanatory variables on the choice of provider are presented in Table 5.3. The results are presented in three specifications, each of which represents a different combination of explanatory variables. The first specification includes variables representing individual characteristics and two "access" or "price" variables -- distance to the facility and the adult out-patient fee. The second and third specifications include two different sets of quality variables. In both of these, the number of medical staff is introduced as a control for the size of the facility. The size of the multinomial logit coefficients are not directly interpretable from the table; simulations are provided in the next section. However, the signs and significance of the coefficients indicate the direction of the correlation between the explanatory variables and the choice of provider.

In all three versions of the model presented in Table 5.3, income exerts a positive effect on the probability of seeking medical care, rather than relying on self-treatment. In particular, higher household income is strongly and positively correlated with seeking care from a mission or private provider. Consistent with other studies, patients with more schooling are more likely to consult a government facility than to self-treat.[46]

The sign on the coefficients for user fees and distance is negative as expected in all specifications. None of the coefficients are statistically significant, however, although the coefficient on user fees has a higher T-statistic than the coefficient on distance. Distance is probably the most important "price" factor from the perspective of households, since it is directly related to the magnitude of the out-of-pocket costs and time costs for traveling to a facility to obtain medical care. In the case of government facilities, where user fees were not charged, one can surmise that travel costs are possibly the most important costs facing households. The same may also be true for mission and private providers.

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46 The theoretical underpinnings of the schooling - health relationship are elaborated in M. Grossman (1972). Grossman shows, however, that the positive effect of schooling on the demand for better health may not translate into a demand for more medical care per se. Indeed, if the benefits of more education for nutrition, sanitation, and prevention are true, more schooling might actually reduce demand for some types of medical care.

Table 5.3: Empirical Results: Access and Quality Variables (n = 251)

	(1)		*(2)*		*(3)*	
	β	*T*	*β*	*T*	*β*	*T*
Individual variables						
Education * G	0.1240	(1.974)	0.124	(1.955)	0.121	(1.907)
Education * M	-0.115	(-0.638)	-0.113	(-0.625)	-0.124	(-0.672)
Education * P	0.0774	(1.008)	0.0790	(1.027)	0.0830	(1.078)
Income * G	0.0511	(1.012)	0.0534	(1.052)	0.0699	(1.356)
Income * M	0.1710	(1.786)	0.173	(1.798)	0.183	(1.886)
Income * P	0.1670	(2.719)	0.169	(2.748)	0.183	(2.962)
Access variables						
Distance	-0.0334	(-1.248)	-0.0276	(-0.990)	-0.0143	(-0.511)
User Fee	-0.0357	(-1.457)	-0.0381	(-1.497)	-0.0288	(-1.185)
Quality variables						
Medical Staff			-0.0115	(-0.346)	-0.0835	(-1.425)
Drugs			0.0293	(0.513)		
No Aspirin					-0.253	(-1.794)
No Malarials					0.385	(2.364)
Intercepts						
Government	-0.199	(-0.763)	-0.344	(-0.560)	-1.088	(-1.435)
Missior	-1.988	(-3.674)	-2.217	(-3.075)	-2.061	(-3.431)
Private	-0.752	(-1.934)	-1.063	(-1.548)	-0.0873	(-0.117)
Log likelihood		-294.6		-294.3		-291.2
X2 (r)		106.8		107.4		113.5

Note: ß is the multinomial logit coefficient on the explanatory variable. A T-statistic of 2.576 or larger indicates statistical significance at .01 or less; a T-statistic of 1.960 is significant .05 or less and a T of 1.645 is .10 or less.

The second specification includes as a measure of quality the number of different drugs available.[47] The positive sign – indicating higher demand when a greater number of drugs is available – is as expected, but not statistically significant. In the third specification, the number of drugs is replaced with two variables indicating the logarithm of the number of days in the last six months in which the facility was out of stock. The two drugs selected represent both non-prescription (aspirin) and prescription drugs (anti-malarials). Drug scarcities were expected to reduce demand. Thus, the result that the lack of anti-malarials is positively and significantly related to the utilization of medical facilities is unexpected and counter-intuitive. The lack of aspirin, on the other hand, is significantly related to lower demand.

47 There were many indicators of service quality collected by the Meru survey, including the availability of several different types of specific drugs, the qualification of medical staff, and the availability of equipment, such as microscopes and stethoscopes. Unfortunately, due to the small sample of facilities (fifteen), multicollinearity across characteristics and sometimes perfect correlations between a characteristic and a service type, prevented the study from examining the independent impact of each characteristic.

A possible explanation for this counter-intuitive result lies with the endogeneity of supply side variables affected by demand. The drug variables measure the availability of recurrent, consumable inputs into health. The availability of a drug on a particular day is thus indicative of the interaction of *both* supply and demand factors: if a drug is available there is excess supply, while if not available there was possibly excess demand. Thus, if a certain drug (like anti-malarials) is out of supply, it might be due to very high demand. This would produce a correlation between the lack of a drug and higher demand (as in the third specification). Drugs for which there is ample supply due to low demand would show the same effect. Because of the possible endogeneity of the availability of specific drugs, the signs might then be the *reverse* of our expectations for exogenous measures of quality that are less likely to be affected by demand, such as the availability of equipment or personnel.

This explanation seems plausible for the results on aspirin and antimalarial medicine. Demand is lower for facilities that don't have aspirin. However, aspirin is easily obtained in the market place. If a patient suspected that he/she needed aspirin, there would be no reason to go to a health facility. The negative coefficient might well be measuring this latter effect, rather than a perception by patients that a facility without aspirin is of lower quality. Antimalarials can also be bought on the market, but not of sufficient dosage to counter a major malaria attack. Obtaining treatment for a major bout of malaria would require going to a health facility. If malaria is common, as it is in Meru district, then this would lead to a very high demand for health services, and possibly shortages of antimalarials in the most popular health facilities. Thus, because of supply-demand interactions, the significant *positive* coefficient on lack of anti-malarials may be evidence that they are in greater demand in health facilities than is aspirin, with a negative sign. Deeper analysis of this issue must be reserved for further research.

GENDER AND THE CHOICE OF TREATMENT

An important issue of policy relevance is whether service access and quality characteristics affect women more than men in seeking medical care. Table 5.4 presents results for the three specifications introduced in Table 5.3 with the *addition* of interactions between gender and the access and quality variables.

The signs on the coefficients on distance and user fees indicate that both factors reduce the demand for health care, but that men are less constrained by distance and user fees than are women. With only one exception, however, none of the gender interaction terms are individually significant, and in none of the three models are gender terms jointly significant.[48] However, the signs on the interactions between gender and the intercepts (SEX*G, SEX*M, etc.) indicate that, controlling for all other factors, women are more likely to consult all three types of providers of modern medical care compared to self-treatment than are men.

48 In other specifications (not shown), gender was interacted with education and income. However, in none of these specifications were the gender interactions individually or jointly significant.

Table 5.4: Gender Effects

	(1)		(2)		(3)	
	β	*T*	*β*	*T*	*β*	*T*
Individual variables						
Education * G	0.138	(2.086)	0.135	(2.029)	0.134	(2.006)
Education * M	-0.124	(-0.663)	-0.122	(-0.652)	-0.154	(-0.803)
Education * P	0.0792	(0.991)	0.079	(0.988)	0.085	(1.054)
Income * G	0.0513	(1.012)	0.054	(1.048)	0.076	(1.452)
Income * M	0.170	(1.770)	0.169	(1.764)	0.184	(1.873)
Income * P	0.167	(2.716)	0.164	(2.679)	0.181	(2.908)
Sex * G	-0.639	(-1.379)	-0.400	(-0.360)	-1.025	(-0.501)
Sex * M	-0.794	(-0.915)	-0.173	(-0.139)	0.090	(0.084)
Sex * P	-0.855	(-1.235)	0.038	(0.029)	3.640	(1.279)
Access variables						
Distance	-0.0597	(-1.807)	-0.050	(-1.480)	-0.042	(-1.229)
Sex * Distance	0.0730	(1.297)	0.050	(0.838)	0.072	(1.191)
User Fee	-0.0460	(-1.477)	-0.050	(-1.522)	-0.043	(-1.379)
Sex * User Fee	0.0302	(0.599)	0.036	(0.699)	0.071	(1.362)
Quality Variables						
Medical Staff			-0.026	(-0.668)	0.044	(0.661)
Sex * Medical Staff			0.058	(0.770)	0.202	(1.252)
Drugs			0.058	(0.839)		
Sex * Drugs			-0.086	(-0.704)		
No Aspirin					-0.239	(-1.438)
Sex * No Aspirin					-0.113	(-0.301)
No Malarials					0.218	(1.170)
Sex * No Malarials					1.099	(1.910)
Intercepts						
Government	0.0186	(0.062)	-0.221	(-0.303)	-0.737	(-0.871)
Mission	-1.694	(-2.843)	-2.108	(-2.561)	-1.898	(-2.793)
Private	-0.457	(-1.034)	-1.042	(-1.301)	-0.437	(-0.536)
Log L	-293.24		-292.09		-285.97	
X2 (r)	109.4		111.73		123.98	
Joint Tests X2 (r)						
Distance, Sex * Distance	2.320	(p=.314)	2.191	(p=.334)	1.911	(p=.384)
Fee, Sex * Fee	3.373	(p=.185)	2.411	(p=.300)	2.367	(p=.306)
Med. Staff, Sex * Med. Staff			0.689	(p=.708)	3.021	(p=.221)
Drugs, Sex * Drugs			0.784	(p=.676)		
No Aspirin, Sex * No Aspirin					2.716	(p=.257)
No Malarials, Sex * No Malarials					6.168	(p=.046)
All Gender Interactions	2.618	(p=.759)	4.301	(p=.745)	8.917	(p=.414)

SIMULATION RESULTS

In Table 5.3, a version of model 2 is used to simulate the ceteris paribus effects of various public policies on medical care demand in government and non-government health care facilities in rural Kenya. It examines the system-wide effects of the following policies:

(i) Increasing user charges in government health facilities from Ksh 0.0 to Ksh 10.00 (i.e. from US $0.0 to US $0.20 at the current exchange rate);[49]

(ii) Reducing the mean distance to government health facilities by 20 percent (from 6.4 to 5.3 km);

(iii) Increasing the number of types of drugs in government health facilities by two;

(iv) Increasing household incomes by 20 percent;

(v) Simultaneously implementing policies 1, 2, and 3.

The simulation results are timely, given the expressed need of the policy-makers to know the probable demand effects of current and planned health care financing reforms. Between April and September 1992, for example, the government reintroduced user charges for out-patient services in government hospitals, ranging from Ksh 20 to 50 (US $0.40 to $1.00). In early 1993, the government planned to introduce user charges for out-patient care of about Ksh 10.00 (US $0.20) in rural hospitals and health centers, the types of facilities for which the results of the current study are most relevant.

Table 5.5 shows new selection probabilities and changes in the base probabilities of selecting the four different types of treatment, consequent upon implementation of each of the policy measures. The sample proportions in Table 5.5 are the proportion of the sample that *actually* selected each treatment option. The base probabilities are the proportion of the sample *predicted* to select each treatment option. This model has not been able to predict perfectly the selection of each option, so the sample proportions and base probabilities differ. In particular, the model over-predicts the selection of government facilities and under-predicts the use of other sources of care, including self-treatment. Reading across the rows for the first policy simulated, raising user charges in government health facilities from 0 to Ksh 10 reduces the selection probability for government health facilities from .536 to .438 or by .097. That is, the share of persons selecting government facilities would decline, from 53.6 percent of all patients to 43.8 percent, an absolute decline of 9.7 percentage points. Other things equal, this means that these modest user fees lower demand in government health facilities in a relative sense by about 18 percent. Simultaneously, health care demand in each non-government health facility (including the self-treatment option) would increase relatively by about 20 percent.

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49 Note, however, that because of inflation a Ksh 10 user fee applied at the time of the survey (1980-81) would now be approximately equivalent to Ksh 25.

As can be seen from Table 5.5, user charges in public clinics have two important functions in a pluralistic health care system. The first is to divert demand for modern medical care from government health facilities to non-government facilities (missionary and private clinics here). The second is to reduce demand for modern medical care altogether, by forcing a section of those who previously used inexpensive or free government health facilities to rely on the informal medical care, such as traditional medicine and home remedies.

Table 5.5: Policy Simulations

			Probability of selecting			
			Government	*Mission*	*Private*	*Self*
	Sample proportions		0.355	0.056	0.195	0.394
	Base probability		0.536	0.040	0.135	0.290
	Policy					
1)	Increase in user fees in Government facilities from 0-10 Ksh	New probability of selecting	0.438	0.048	0.163	0.351
		Absolute change	-0.097	0.008	0.028	0.061
		Relative change	-18.2%	20.9%	20.9%	20.9%
2)	Reduce distance to Government facilities by 20 percent	New probability of selecting	0.544	0.039	0.132	0.285
		Absolute change	0.009	-0.001	-0.003	-0.005
		Relative change	1.6%	-1.8%	-1.8%	-1.8%
3)	Increase the number of drugs in Government facilities by two	New probability of selecting	0.555	0.038	0.129	0.278
		Absolute change	0.019	-0.002	-0.006	-0.012
		Relative change	3.6%	-4.1%	-4.1%	-4.1%
4)	Increase income by 20 percent	New probability of selecting	0.535	0.042	0.143	0.280
		Absolute change	-0.001	0.002	0.009	-0.010
		Relative change	0.1%	5.9%	6.4%	-3.5%
5)	Combination of policies 1, 2, & 3 above	New probability of selecting	0.466	0.048	0.165	0.321
		Absolute change	-0.070	0.009	0.030	0.031
		Relative change	-13.1%	21.7%	22.3%	10.8%

It is the "demand reduction effect" of user fees, rather than the "demand diversion effect," that is the source of much concern about user fees in low-income countries. The best way to see this, is first to convert the absolute drop in the selection probability for government health facilities into the number of people who would likely stop using government health services after the increase in user charges, and then to determine how many people can be expected to drop off from the modern health care system altogether. Assume, for example, that 1000 people were sick. Of these, 536 were using government services, 40 were using missionary health services, 135 were using private care, and 290 did not seek modern treatment. As a result of the increase in user fees, simulated previously, about 97 people can be expected to abandon government health services after the fee increase. Eight of these persons would seek treatment from missionary health facilities, 28 would shift to private clinics and 61 people would self-treat. In this case 61 people (not 97) drop out from the modern health care system following the introduction of user fees. This discussion shows that the negative demand effect of user charges is overstated when diversion effects are not considered. Similarly, the positive consequence of user charges in terms of revenue generation is exaggerated when demand reduction effects are ignored.

The demand effects of the other policies in Table 5.5 are similar to those of the user fees. A reduction in distance to government health facilities increases the rate at which these facilities are utilized. One sees, for example, that a 20 percent reduction in distance to government facilities increases the absolute selection probability for these facilities by about one percentage point, for a relative increase of 1.6 percent. In a community of 1000 sick people, this implies that nine additional people would seek medical care from government health facilities. As can be seen from Table 5.5, four of the new users would be drawn from non-government health facilities (due to the 'demand diversion effect" of improved access to medical care in government clinics) while the other five would come from the informal health care system (due to the "demand creation effect" of the new policy). Notice that the demand creation effect is much stronger than the demand diversion effect. This is also observed with regard to policy 3, increasing the number of drugs in a government facility.

In the case of the composite policy in the last row of Table 5.5, the demand reduction effect of policy 1 outweighs the demand creation effects of policies 2 and 3. This means that the net effect of increasing user fees in government facilities is to increase the number of people outside the formal medical care system, even if distance is reduced and drugs made more available. At the same time, however, it is important to acknowledge that policy 1 -- user fees -- makes it possible to pursue the other policies by enhancing the financial capacity of the government.

SUMMARY AND CONCLUSION

This chapter has empirically examined the effect of the quality of medical care on utilization of medical facilities in rural Kenya. Growth in income shifts demand from the informal health care sector to the modern sector, with much of this demand ending up in private and mission clinics. Although not significant in most specifications, access factors (user fees and greater distance) consistently reduce demand. The elasticity of medical care demand with respect to user fees and distance is greater in mission and private clinics than in government health facilities. In spite of the very low elasticity of demand, modest charges of Ksh 10 lead to a relatively large (18

percent) decline in demand in government facilities. The absolute decline in utilization, from 54 to 44 percent, is not as severe, particularly when only 6 percentage points of those dropping out will self-treat.

No significant differences in the demand for health care were found by gender. Additional research is warranted on this issue, however as the sample size for this study is small. Further, due to data limitations, the study was unable to examine why women seem more likely to report an illness, and what role access and quality of services may play in illness reporting.

The results for quality variables reflecting drug scarcity show that they are significant determinants of demand, but with several important caveats. The total number of drugs available is positively related to demand (as expected), but lacked statistical significance. When disaggregated into the availability of two specific drugs, the absence of aspirin was found to lower demand for modern health care (as expected), but the absence of antimalarials was correlated with higher demand (unexpected). It was in an attempt to explain the unexpected finding on antimalarials that the study invokes the issue of the endogeneity of quality variables that reflect both the supply and demand for drugs. The correlation between more demand and the low availability of antimalarials may be measuring endogeneity; antimalarials are not available precisely because they are in great demand. Researchers will have great difficulty measuring the potential demand effects of quality improvements of this nature using non-experimental cross-sectional data because of these endogeneity issues noted. Measuring the impact of service quality may require an experimental design, in which the inputs are exogenously varied by the researchers.

There are three definite policy implications of these findings. First, reducing the distance to government health facilities will likely raise demand, as will increasing the number of drugs available. Second, the results indicate unambiguously that private and mission health providers are important sources of medical care for high income households in rural Kenya. This implies that improvements in public health facilities would benefit the poor proportionately more than the rich, since the rich have a greater propensity to seek private medical care. Third, the negative demand effect of user charges on use of the modern health care system is overstated when diversion effects are not considered. Rising prices in government facilities will divert some users to mission and private for-profit facilities. On the other hand, the positive consequence of user charges (in terms of revenue generation) will be exaggerated if "demand reduction effects" are ignored.

Annex Table A5.1: Descriptive Statistics--Sample Means (n=251)

Choices	*Choice - G*	*Choice - M*	*Choice - P*	*Choice - S*
Sample Proportions	.3546	.0558	.1952	.3944
Income*G	2.8469	.0000	.0000	.0000
Income*M	.0000	2.8469	.0000	.0000
Income*p	.0000	.0000	2.8469	.0000
Education*G	1.3267	.0000	.0000	.0000
Education*M	.0000	1.3267	.0000	.0000
Education*P	.0000	.0000	1.3267	.0000
Userfee	.0000	1.4542	8.7888	.0000
Distance	5.9761	10.4701	8.0040	.0000
Medstaff	7.9442	3.1633	1.0637	.0000
Nomalarials	3.8279	3.1911	.4204	5.1930
No aspirin	1.3523	2.4120	.3783	3.6109
Drugs (types)	6.5737	7.0359	9.9044	.0000
Sex*G	.3147	.0000	.0000	.0000
Sex*M	.0000	.3147	.0000	.0000
Sex*P	.0000	.0000	.3147	.0000
Sex*Distance	1.6414	3.3068	2.4980	.0000
Sex*Userfee	.0000	.4382	2.6215	.0000
Sex*Medstaff	2.3386	.9801	.3267	.3147
Sex*Drugs	2.1394	2.1873	3.1116	.3147
Sex*No aspirin	.3309	.7724	.1215	1.1365
Sex*Nomalarials	1.2387	1.0219	.1320	1.6344

CHAPTER 6

TRADEOFFS IN COST, QUALITY AND ACCESSIBILITY IN UTILIZATION OF HEALTH FACILITIES: INSIGHTS FROM GHANA

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ABSTRACT: To design effective policy reforms in the public health sector, reliable estimates are required of the effects of improvements in the quality of and access to health services, as well as the extent to which these improvements can be financed by raising user fees. We have utilized household data from a nationally representative sample in Ghana in order to estimate the effect of these policy changes. Improving basic services such as vaccinations, child care and the availability of drugs is likely to have a significant effect on demand for health care. The tradeoff between improvements in quality and an increase in cost suggests that there is a wide scope for financing quality improvements in the public health sector through raising user fees.[50]

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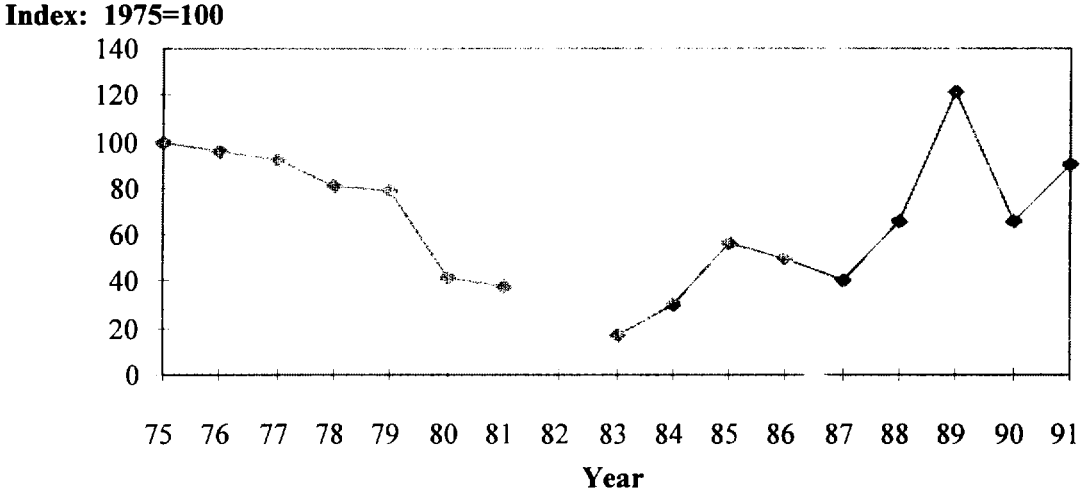
INTRODUCTION

Costs, accessibility and quality of health care are increasingly invoked to explain the low utilization of modern health care facilities in Africa. In Ghana, a review of the health sector by the World Bank pointed to two main problems with regard to coverage of health services: poor access (the present health system effectively reaches only 65 percent of the population), and inequality of access in both urban and rural areas (rural coverage varies by region from 11 percent to 100 percent). The review further raises concerns about the quality of health care in the public sector: inadequately trained staff, uneven geographical distribution of clinical personnel, widespread shortages of drugs and inadequate and improperly used equipment (World Bank 1989a). In describing the deterioration of quality in the public health care system, the report concludes there has been a dramatic decline in the utilization of health services; the number of out-patients was ten to eleven million in 1973, falling to approximately five million in 1987.

50 This chapter does not include two sections that develop the theoretical model and econometric approach used in the study. See Lavy and Germain (1994).

Figure 6.1: Trends in Health Expenditure, Constant 1975 Prices



Paralleling the decline in the utilization of health services, absolute levels of government revenues and expenditures fell precipitously between 1975-83 (see Figure 6.1). In addition, government expenditures on health as a share of total government expenditures decreased from over 8 percent in the mid-1970's to less than 5 percent in the early 1980s. In other words, health spending was affected not only because the cake shrank by 70 percent but also because health's share of that cake was almost halved.

Since 1989, the Government of Ghana has adopted major reforms in an effort to improve the quality of health services and the coverage of the population. For example, the reforms included in-service training of all medical staff, reallocation of personnel to underserved regions, maintenance of drug supplies and replacement of inadequate medical equipment. The World Bank study mentioned previously went on to suggest that in the medium term, most service charges should either be increased or indexed to inflation.[51] Drug prices should be determined by a cost-based formula. The study also recommended setting up a national health insurance scheme to be managed by a new and separate institution that would be independent of the Ministry of Health.

Anticipating the impact of policy changes -- as described here -- on the future utilization of health services in Ghana and other African countries can only be partially informed by results of past studies. One reason is that utilization patterns depend heavily on quality of services offered. Yet the definition of health care quality and the measurement of quality indicators are the subject of much debate, with most methods engendering criticism (Alderman and Gertler 1989; Denton et al. 1990 Gertler and Van der Gaag 1990; Lavy and Quigley 1993). In particular, a number of influential attempts to measure impacts of "quality" changes on utilization have been confounded in multivariate statistical studies because different levels of quality of care have been inappropriately represented by the choice of provider. For example, patients may choose between a doctor and a

51 The costs of consultation and medical care are borne by the individual and there is no system of health insurance in Ghana. The only exception is public sector employees and their families, whose medical expenses are reimbursed by the government if incurred at public health facilities.

nurse; analysts might assume (questionably) that a doctor provides *higher quality* care than a nurse. Treatment in a health clinic might be assumed to be inferior to treatment in a hospital, another questionable assumption. The point then, is that by not measuring quality directly, the sensitivity of consumer demand to various quality characteristics remains blurred, as in past studies. As a result, available empirical findings shed little light on quality improvements that can "pay for themselves" with increased user fees.

A second requirement in sizing up the impact of quality changes on use of health facilities is to simultaneously assess how individual and household level characteristics affect utilization. The choice of one facility over another will be affected not only by perceived facility characteristics (quality of services and cost of using them), but by preferences, tastes and affordability, as measured, for example, by the client's gender, education level, and household income. Yet, scarce information on a broad array of individual characteristics has typically undermined a rigorous interpretation of the quality-price trade-off. Without knowing a client's income, for example, the effects of a change in prices on the client's use of health services or costs of travel involved, cannot be realistically determined because control variables influencing the "ability to pay" will be missing.

Finally, results of multivariate studies of the quality-price relationship in Africa must be treated with caution in view of widely varying sources and quality of data. In some cases, samples are small or specific to geographic sub-regions within countries with the implication that results are, at best, indicative and non-generalizable. In other cases, survey data do not capture recent policy changes affecting the health sector, implying that results of multivariate analysis may well describe relationships at the time of the survey, but not during more current times.

This chapter contributes to the literature on trade-offs between cost, quality and utilization of health services by empirically modeling household decision-making in Ghana, while improving on the methodological and data-related problems described here;

(i) The data base combines a 1988/89 household survey conducted by the Government of Ghana in collaboration with the World Bank's Living Standard Unit,[52] with a detailed health facility survey specially conducted in exactly the same communities as covered by the household survey. The study matches these facility-level data with the household and individual information to create a rich multi-level database.

(ii) The initial structure of the study's empirically estimated model closely resembles the models used in previous studies of the demand for health care. Individuals who fall ill must first decide whether to seek medical care from a modern health facility or "self-treat" (a category that includes consulting a traditional healer). Among those who opt for modern care, each individual must then choose his or her preferred type of medical care. Each provider, on the other hand, offers an expected improvement in health for a certain price.

52 For a description of the survey methodology, see Ainsworth and Munoz, (1986).

(iii) Using results from the multivariate analysis, the study simulates the impact on health care choices of improving various dimensions of quality including the availability of drugs and other services, qualified personnel, and adequate equipment; the impact of improving accessibility by reducing distance to facilities; and the effects of increasing or decreasing user fees in the public sector on use of public versus private facilities.

(iv) An advantage of the Ghana data base over several prior studies is that it allows disaggregation of the *total price* of alternative types of care into (a) the cost of travel to the health facility; (b) the opportunity cost of travel time (e.g. foregone wage-employment while traveling); and (c) the consultation time; and (d) the consultation fee.[53] A unique feature of the analysis is a simulation of the simultaneous influence of price and quality on decision-making. If quality effects are not controlled for in the simulation, then the overall effect of higher costs of health care on the client's choice will be a net (and blurred) effect of negative price effects and positive quality effects, rather than the independent effects of each.

DATA SOURCES

This study uses individual, household- and community-level data collected in 1988 by the Ghana Living Standard Survey (GLSS). The survey comprised 15,000 individuals randomly drawn from the population (see Scott and Amenuvegbe 1989, for details). These individuals were members of 3,200 households located in approximately 200 clusters -- a cluster being a geographic area such as a village or urban neighborhood from which approximately sixteen households were interviewed.

The GLSS collected socio-economic information such as household composition, demographic characteristics, time use, income and consumption, education, and health status. The GLSS also provides a detailed description of health care and the incidence of morbidity of each individual during the thirty days prior to the survey date. This includes information pertaining to the length of illness, choice of treatment (self-treatment, nurse, doctor, traditional healer), type of health facility visited (public or private, clinic or hospital), expenditure on consultation and drugs, travel time and cost.

Approximately one-third of the sample or about 5,000 individuals, experienced a period of illness or was injured during the previous four weeks. Forty percent of them sought some form of modern health care treatment. Conversely, about 60 percent self-treated, relying on pharmaceutical outlets for drugs, traditional healers or self-knowledge. For the most part, this can be interpreted to mean that a large proportion of Ghanaians are not served by modern medical health care at times of illness, though in some cases, self-treatment could imply self-administration of modern health care practices.

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53 Cost has been included in the form of the value or opportunity cost of travel time in Akin et al. (1985) and Gertler and Van der Gaag (1990).

The 1988 GLSS was further supplemented by a health facility survey. Responses were obtained from 231 facilities over a six-week period.[54] Facilities were selected for interviewing on the basis of proximity to a household cluster. The nearest health facility to each cluster of the GLSS was surveyed initially. If the nearest facility was private, the nearest public facility was also surveyed.[55] The health facility survey collected information about infrastructure (beds, vehicles, laboratory, operating room, etc.); personnel (number of doctors, nurses, medical assistants, etc.); availability of health services and drugs (number of hours open per week, type of services provided, stocks of sixteen types of drugs); and fees.

This paper analyzes a sample of 2,126 individuals who reported an illness or injury in the four weeks before the survey and who lived in the 88 clusters for which both the nearest public and private health facilities were surveyed.[56] This study uses their revealed choices between self-treatment, a visit to a private clinic or to a public health facility in order to study the demand for health care and the willingness to pay for improved quality.[57] The sample of facilities included 68 for-profit health facilities and 20 private mission facilities. The for-profit sample included 6 hospitals and 62 clinics. The mission facilities accounted for 10 hospitals and 10 clinics in the private facility sample. The sample of public health facilities included 14 hospitals and 74 clinics.

ESTIMATION TECHNIQUES AND EXPLANATORY VARIABLES

To discern the impact of facility characteristics as well as personal socio-economic characteristics on the probability of choosing a private or a public health facility, this study employs a widely used multivariate statistical technique called multinomial logit analysis.[58] A distinguishing feature of this approach is that the impact of a particular explanatory variable on choice of treatment is described not in absolute terms, but relative to the behavior of a reference group. In this case, the reference group comprises those who select to "self-treat."[59] Furthermore, this approach lends itself well to describing how a change in an explanatory variable is likely to affect choice of private versus public facilities over self-treatment. For example, if fees for modern health services are lowered, and attendance at private and public clinics increases, the impact of the fee increase can be expressed in terms of a percentage reduction in the size of the self-treatment

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54 A detailed description of the health facility survey and an analysis of the data is given in Renya Reed 1990 "Descriptive Analyses of Ghana Facility Data." Population, Health and Nutrition Division, Technical Department, Africa Region, Washington, D.C.: World Bank.

55 This procedure does not necessarily lead to a representative sample of health facilities. However, as noted in Reed (1990), the distribution of the population and the sample of facilities across Ghana's ten administrative regions do not differ significantly from one another.

56 A comparison of the characteristics of these individuals, based on 44 percent of the 200 GLSS clusters, with the remainder of the sample revewals that they are quite similar (see Annex 6.1).

57 The geographical distribution of the clusters resembles the dispersion of the GLSS sample of clusters as a whole (see Annex Table A 6.1). We therefore assume that there is no sample bias in our results.

58 Rather than use a standard multinomial logit model (as employed by Mwabu et al. in Chapter 5 of this study), we made use of a nested multinomial logit model since the random error term may be correlated.

59 All those not using a private or public health facility at time of illness comprise the "self-treatment" group. These individuals may administer their own treatments to combat illness, may seek medicines from pharmacies, or may consult traditional healers.

group. It is possible, therefore, to determine how much the self-treatment category can be expected to decline as individuals respond favorably or negatively to the changed fees in private or public facilities.

Explanatory variables in the facility survey have been grouped into five measures of quality.[60]

- *Drugs*: The proportion of three drugs in stock (ampicillin, chloroquine in at least one form and paracetemol).[61] The variable takes a value of one if all three are in stock.
- *Personnel*: Number of doctors and nurses.[62]
- *Service:* The proportion of three services offered at the facility (immunization, laboratory services and maternal and child health).[63] The variable takes a value of one if all three are offered.
- *Infrastructure:* Equals 1 if the facility has running water and electricity and 0 otherwise.[64]
- *Operating* room: Equals 1 if the facility includes an operating room and "no" 0 otherwise.[65]

The availability of essential drugs -- the first measure -- is an obvious category. Low availability of drugs may actually indicate high demand and intensive utilization of a health facility, signaling higher rather than lower quality of health care (see Mwabu et al., Chapter 5). One has no way to deal with this "endogeneity" of measured stocks of drugs, or for that matter any other consumable measure of quality. Rather, it is expected that the sign of the estimated coefficient on drugs will indicate the *net* effect of drugs on the demand for and choice of health care.

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60 Grouping of variables has been necessary because some are highly inter-correlated and, therefore, proxy the effects of one another on choice of medical treatment. This multicollinearity must be eliminated so as to assure that explanatory variables are sufficiently independent of one another as to represent different (assumed) influences on choice of treatment. There are very few studies in the health economics and bio-medical literature that provide useful guidelines for building or constructing health quality indices from facility-level data. Garner, Thomason and Donaldson (1990) and Peabody and others (1993) attempted to deal with this problem.

61 The questionnaire focused on eleven essential drugs (excluding vitamins). Chloroquine in the form of tablets, syrup, or injection, and any other anti-malarial drug, constituted four of those listed and all are included in the drugs variable.

62 Information is also available on the number of administrators and non-medical staff. This study focuses on medical staff only, since this measure probably has a high correlation with the quality of health care at the facility. The data refer to the actual number of working staff rather than the book value. Recent studies on the impact of health care quality on health outcomes indicate the importance of distinguishing between actual and book value of personnel (Thomas, Lavy and Strauss 1992; Lavy, Strauss, Thomas and de Vreyer 1992).

63 Availability of mother and baby services, prenatal and postnatal care and programs for the malnourished child are highly correlated; therefore only the former is included.

64 Detailed information on the number of refrigerators, fans and air-conditioners is also available, but are highly collinear with the availability of electricity.

65 All the hospitals in the sample had an operating room, as compared to only 28 percent of the clinics. Similar proportions were found for the presence of a laboratory.

The second facility measure is an indicator of the level of human resources available at the facility -- the number of medical staff. This attempts to reflect the sophistication and range of health services provided. The third facility measure is the provision of basic adult and child health services, represented by the availability of a functioning laboratory, the ability to vaccinate children and the ability to provide prenatal, postnatal and child growth monitoring services (grouped together as mother and baby care). The fourth facility measure is the availability of electricity and running water. These are good indicators of the quality of infrastructure, since electricity is essential for the refrigerated storage of vaccines and running water is required to offer obstetric care.

The fifth facility measure "Operating room" can be interpreted as either a quality effect (client's perceive an operating room as desirable), or as a control variable for larger facilities since all hospitals and some clinics in the sample have operating rooms. Using presence of an "Operating room" as a control variable for the size of facility allows a more rigorous assessment of other quality affects on treatment choice because people frequently prefer larger facilities, namely hospitals, regardless of perceived quality differences on other criteria.

Variables measuring price effects include:

- Distance: Distance of facility from the cluster in kilometers.
- Price of consultation: price of consultation.[66]
- Government employee: Equals 1 if the head of the household is a government employee and 0 otherwise. This status entitles the family to free health care in public health facilities.

These variables have also been interacted with income (distance/income, price/income, government worker/income).

Demographic and economic variables include:

- Income: Monthly per capita expenditures, deflated by a monthly price index.[67]
- Schooling: Years of schooling of the individual.
- Male: Equals "yes" (or 1) if individual is a male, "no" (or 0) if female.
- Schooling of the Head of Household:

Years of schooling of head of household in which each individual lives.

Summary statistics on the sample of 2,126 individuals, as well as the explanatory variables described above are presented in Table 6.1. Sixty-six percent of those experiencing illness or injury self-treated, 20 percent went to a private facility, and 14 percent to a public health facility. The sample included roughly the same number of males and females; the average age in the sample was

66 In cedis (divided by 100). The official exchange rate in 1988 was 200 cedis per U.S dollar. The 'free' market rate was close to 300 cedis per dollar.

67 Per capita expenditure includes all expenditure except that on health care. It also includes imputed rent for home owners. Since the survey was conducted over 12 months, we computed real values by deflating with the monthly price index.

twenty-four years with the mean years of schooling at just over three. The private health sector is, on average, better stocked with drugs and possesses better infrastructure and equipment. However, the public health facilities have a greater number of medical personnel and provide more diversified services. As discussed previously, the average distance to the nearest public health facility is more than twice the average to the nearest private facility. However, the mean consultation fee in the private sector is more than twice that in the public sector.

EMPIRICAL RESULTS

The multinomial logit model has been estimated using two different specifications. The first specification includes all of the variables described here, whereas the second specification excludes the quality variables.[68] This approach concentrates attention on the vital difference that quality variables are expected to make on choice of treatment. This two-step approach is also expected to provide a more rigorous assessment of price considerations on choice of treatment. Without quality variables present in the model, the estimated coefficient on price will be a combined effect of negative price effects and positive quality effects. This would tend to understate pure price effects, and would camouflage the strong possibility that quality considerations are making higher prices more tolerable to clients.

Proceeding in stepwise fashion, results are presented in Table 6.2 for each of the two model specifications, and begin with the first model -- the column labeled "With Quality Variables."

Results pertaining to the impact of household characteristics on treatment choice show that age of the individual has a negative, statistically significant effect on the probability of selecting care from either a private or public facility (relative to the alternative of self-care). This finding agrees with a similar study of treatment choice in Côte d'Ivoire by Gertler and van der Gaag (1990).

68 Note that the value of sigma (s) in Table 2 is about .50 for both model specifications. McFadden (1981) shows that the value of sigma (s) must be between zero and 1 for the model to be consistent with utility maximization. When sigma is close to zero, the error terms in the provider alternatives' conditional utility functions are highly correlated. This would imply that individuals viewed providers as closer substitutes for one another than they did any of the providers as substitutes for self-care.

Table 6.1: Descriptive Statistics of Those Experiencing Illness or Injury

Variable	*Mean*	*Standard Deviation*
Facility Chosen		
Private facility	0.20	0.39
Public facility	0.14	0.35
Self-treatment	0.66	0.47
Household characteristics		
Monthly per capita expenditure (cedis)	5853.00	4949.00
Age (Divided by 10)	2.38	2.10
Schooling (years)	3.26	4.41
Male	0.48	0.50
Schooling of the head of household (years)	4.42	4.93
Government employee	0.07	0.25
Characteristics of private facilities		
Proportion of the essential drugs in stock	0.88	0.70
Numbers of personnel	0.92	1.90
Infrastructure	0.59	0.50
Proportion of services offered	0.37	0.36
Operating room	0.36	0.48
Price Factors		
Distance to facility (km)	3.42	5.64
Price of consultation (cedis)/100	1.06	1.43
Characteristics of public facilities		
Proportion of essential drugs in stock	0.66	0.28
Number of Personnel	2.00	3.10
Infrastructure	0.50	0.50
Proportion of services offered	0.76	0.24
Operating room	0.35	0.48
Price factors		
Distance to facility	8.33	8.12
Price of consultation (cedis)/100	0.44	0.35
Total Sample Size		6,000
No. experiencing Illness or Injury		2,126

Table 6.2: Maximum Likelihood Nested Multinomial Estimates of Choice of Health Care

	With quality Variables		*Without quality Variables*	
Variable	*Coefficient (1)*	*T-Values (2)*	*Coefficient (3)*	*T-Values (4)*
σ	0.50	5.47	0.48	5.05
Household Characteristics				
Private alternative				
Constant	-1.68	-4.57	-0.68	-2.29
Age	-0.18	-2.94	-0.19	-2.97
Schooling	-0.00	-0.07	-0.00	-0.08
Male	0.03	0.16	0.06	0.27
Head's education	0.07	2.48	0.07	2.57
Specific price factor				
Constant/Income	-0.22	-0.13	-0.26	-1.75
Government worker/Income	-0.00	-0.20	-0.00	-0.01
Public Alternative				
Constant	-2.14	-5.65	-0.75	-2.31
Age	-0.21	-3.11	-0.20	-2.84
Schooling	0.04	1.36	0.04	1.24
Male	0.05	0.26	0.11	0.49
Head's education	0.02	0.69	0.02	0.57
Specific price factor				
Constant/Income	-0.07	-0.53	-0.20	-1.41
Government worker/Income	0.55	2.53	0.57	2.54
Quality of facility				
Drugs available	0.64	2.39	-	-
Personnel	0.10	3.03	-	-
Infrastructure	0.34	2.30	-	-
Services	0.55	2.55	-	-
Operating Room	-0.19	-1.05	-	-
Price factors				
Distance/Income	-0.07	-8.15	-0.07	-8.52
Price of consultation/Income[a/]	-0.11	-4.36	-0.08	-3.50

[a/] Income was multiplied by 12/100000 for the estimation.

Neither the gender, nor the schooling level of the individual is significantly related to treatment selection. That higher levels of individual schooling are not associated more with those choosing private or public treatment, over self-treatment, agrees with results by Gertler and van der Gaag (1990) for Côte d'Ivoire, and may be due to the small variation in education in the sample, especially among children. Insignificant results on gender and individual's education are also reported by Mwabu et al. (see Chapter 5), using household and facility level data from Kenya on a sample of adults.

As postulated earlier, however, the insignificant result on individual schooling could also be attributed to the fact that many of those seeking private or public treatment are likely to be relatively young, with decisions on choice of treatment made primarily by the household head. If so, then household head's education level would be more of a determining influence. This hypothesis is partially borne out by the positive and statistically significant relationship between "head's education" and the probability of selecting private care over self-treatment. A positive coefficient is also apparent for choice of public care, though it is not statistically significant. It seems safe to conclude, therefore, that better educated household heads tend to favor health care at private facilities.

All of the quality factors, excluding the presence of an operating room, have a positive and statistically significant effect on choosing modern health care. Once people decide to choose modern health care, it is clear that their selection of any particular private or public facility is influenced by the availability of drugs, number of health personnel, the availability of key services such as immunization, mother and baby services, and the quality of infrastructure (proxied by the availability of running water and electricity). Nor are these quality effects likely to be spurious, under the criticism that larger facilities such as hospitals offer a wider range of services, and that people are really responding to size of facility, rather than perceived quality differences. As noted previously, the quality variable "operating room" has been used to control for "size" of facility (as could number of health personnel for that matter), meaning that the remaining quality variables should be capturing independent quality effects.

Price factors perform unambiguously in the model that includes quality variables, displaying negative coefficients at relatively high levels of statistical significance. As noted previously, the distance variable can be interpreted as a price factor arising from the cost of travel and opportunity cost of travel time. This variable is divided by income, with the implication that the distance-price effect declines in importance as income rises.[69] The finding on distance and travel time suggests that the probability of seeking care from modern facilities would increase significantly if health care were made more accessible. This result is similar to the one reported by Lavy and Quigley (1993), using data gathered from the Ghana Living Standards Measurement Survey in its first year (1987).

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69 However, it can also be argued that the opportunity cost of time is the more important of the two costs incurred in travelling to the facility. This cost is equal to the time lost during the travel (proportional to distance) multiplied by the hourly wage of the individual (which, on average, is proportional to income). Therefore, although distance is a price factor, it could have been introduced without being divided by income. When such a model was estimated, the value of sigma jumped to 0.65, indicating that the private and public alternatives are less correlated in the latter model. This correlation might be due to the distance factor, which was underestimated for the wealthier households.

Similarly, the price of consultation has a significant negative effect. An increase in user fees at a facility will lower both the probability of that facility being chosen, as well as the probability of choosing modern health care over self-care. Price of consultation is also divided by income, with the implication that the consultation-price effect declines in importance as income rises.

Finally, being a government employee has no effect on the probability of choosing private treatment, but has a positive and statistically significant effect on choice of public treatment. This likely reflects Ghana's policy entitling government employees and their families to free health care at public facilities.

Re-estimating the model without the quality variables produces two important findings. First, coefficients on most of the explanatory variables are similar between the two model specifications, thus indicating stability in the coefficients when variables are excluded. This implies that the variables remaining in the model when the quality variables are excluded retain their independence. Second, the coefficient on the variable measuring price of consultation drops considerably in the second model specification -- without quality variables -- suggesting that the omission of quality from the demand equation produces a downward bias in the price elasticity. As suggested earlier, the fuller model (with quality variables), yields a sharper, more realistic price effect on utilization of modern health care. An important finding of this exercise, therefore, is that excluding quality variables in studies of client preferences is likely to understate the role of prices, mainly because "obscured" quality effects may be dampening the negative impact that price increases have. On controlling for quality variables, the negative effects of prices become sharper, but so too do the offsetting effects that can be achieved by offering better quality.

IMPACT OF POLICY CHANGES ON DEMAND

An advantage of the multivariate statistical models is that they lend themselves to simulating the impact of changes in one or more explanatory variables on patterns of health care demand in Ghana. Simulations can be made with a reasonable degree of confidence because the important explanatory variables in this study perform as hypothesized in accounting for variations in choice of treatment at statistically significant levels; the data set for the study is nationally representative; and the overall "fit" of the statistical model is relatively good.

The first set of simulations assesses the impact of improvements in quality on use of modern facilities. Impacts are measured in terms of changes in the average probability of selecting self-care, versus public facilities, versus private facilities. To illustrate, assume that a policy is introduced to improve the availability of drugs beyond that which exists in the sample of public facilities in Ghana. Assume that all public facilities are fully stocked (sample mean for drugs = 1.00) versus the observed value of .66 (meaning that only .66 of the facilities, on average, were fully stocked). The impact of this simulated "policy" change is observed in Table 6.3 by comparing the probabilities of treatment selection predicted by the model "prior to" the policy change (row 1, Table 6.3), with those after the policy change (row 2 to row 8). In the case of *public facilities*, one observes that the probability of use increases to .06 from .04 when drugs are improved (all else held constant). This produces a relative change of 50 percent. Meanwhile, use of private facilities falls

to .13, from .14, or a decline of about 7 percent. The overall effect on self-care is small however (reduced by less than 2 percent), with an increase in the combined probability of using modern facilities of about 5 percent. Similar effects are observed in Table 6.3, rows 3, 4 and 5, with independent changes in infrastructure, services, and personnel (all else held constant).

With simultaneous improvements in drugs, infrastructure and services in public facilities, (Table 6.3, row 6) we observe a growth of the probability of using public facilities from .04 to .10 (or more than 100 percent). Some of this growth results from people switching from private to public facilities (private use drops from .14 to .11). The balance results from people leaving the self-treatment category (a drop from .82 to .79).

Table 6.3 : Quality Improvements

	Self-care	*Public Facility*	*Private Facility*	*Combined Probability of Selecting Modern Health Care*
1. Predicted Probabilities at the mean	**0.82**	**.04**	**0.14**	**.18**
Improve Quality of Public Facilities from Sample Mean to 1.00				
2. Drug = 1.00	**0.81**	**0.06**	**0.13**	**.19**
3. Infrastructure = 1.00	**0.81**	**0.06**	**0.13**	**.19**
4. Service = 1.00	**0.81**	**0.06**	**0.13**	**.19**
5. Personnel = 3.00	**0.81**	**0.05**	**0.14**	**.19**
6. Drug=Infr.=Serv.=1	**0.79**	**0.10**	**0.11**	**.21**
7. Drug=Infr.=Serv.=0 (a total collapse of public health care)	**0.83**	**0.01**	**0.16**	**.17**
Improving All Quality Factors Simultaneously in the Private and Public Sectors				
8. Drug=Infr.=serv.=1	**0.70**	**0.07**	**0.23**	**.30**

Another way of looking at the combined effects of these three quality indicators is to assume a "total collapse of public health care" -- or that the observed sample means on drugs (.66), infrastructure (.50), and services in public facilities (.76), all fall to zero. In this case, Table 6.3, row 7 conveys that the probability of using public facilities would drop from .04 "before total

collapse" to .01, "after total collapse." Use of private facilities would increase from .14 to .16, and the selection of self-treatment would increase slightly from .82 to .83. As the *relative* drop in use of public facilities amounts to 75 percent, this policy simulation could be indicative of what happened to the utilization of public health facilities in Ghana during the early 1980s. Ministry of Health data suggest that public facilities experienced a 40 percent decline in utilization from 1979 to 1983. During the same period, the quality of public health services deteriorated dramatically due to inadequate staffing, shortages of medication, cancellation or lapses in immunization programs and an overall breakdown in health facility physical infrastructure.[70]

The effect of simultaneous quality improvements in *both* the public and private sector are estimated in Table 6.3, row 8. Probabilities of using public facilities increase to .07 from .04; use of private facilities increases to .23 from .14; the combined probability of using modern facilities increases to .30 from .18. If the objective of policy improvements is to usher in more people into the modern health care system, then quality changes alone could be expected to reduce the probability of self-treatment from .82 to .70, or by about 15 percent.

A second set of simulations involves improving accessibility to modern health facilities. The barrier to accessibility used in this study is physical distance, which involves travel time and cost to make the journey to a modern facility. Greater physical distance may also indicate lack of familiarity with a modern facility and what it has to offer beyond self-treatment. Assume that a policy was introduced to build additional facilities in closer proximity to Ghanian households, thus reducing the average distance to the nearest facility by 25 percent, 50 percent, or even by 100 percent. The effects of such a policy are first quantified with respect to distance to public facilities in the top part of Table 6.4. Improving access to public health facilities -- all else held constant -- by 25 percent results in an increase in the probability of using public facilities from .04 to .06. A 50 percent improvement in access leads to corresponding increases in the probability of using public facilities from .04 to .09 and a 100 percent improvement increases the probability from .04 to .15.

The joint effects of reducing distance to both public and private facilities are presented in rows 8-10 of Table 6.4. An overall 100 percent improvement in access results in an overall increase in probability of consultation from .18 to .28. However, most of the change is in the demand for the public health care; it increases from .04 to .13, whereas the private probability remains almost unchanged, increasing from .14 to .15. This result reflects a feature of the data set wherein the nearest facility is always a private one; thus, halving the distance to the nearest public facility always produces a larger absolute change.

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70 The years of economic decline led to a mass exodus of qualified people from the public health sector and from Ghana in general. The depletion and expiry of drug stocks became an all-pervasive problem in the public sector. For more detail see World Bank. 1989. Ghana: Population, Health and Nutrition Sector Review. Washington D.C.

Table 6.4: Improved Access to Health

	Self-care	*Public Facility*	*Private Facility*	*Combined Probability of Selecting Modern Health Care*
1. Predicted probabilities at the mean	0.82	.04	0.14	.18
Improving Access to Public Health Facilities				
2. Reduce distance by 25%	0.81	0.06	0.13	.19
3. Reduce distance by 50%	0.79	0.09	0.12	.21
4. Reduce distance by 100%	0.76	0.15	0.09	.24
Improving Access to Public Health Facilities				
5. Reduce distance by 25%	0.81	0.04	0.15	.19
6. Reduce distance by 50%	0.79	0.03	0.17	.20
7. Reduce distance by 100%	0.77	0.03	0.20	.23
Improving Access to Private Health Facilities				
8. Reduce distance by 50%	0.79	0.06	0.15	.21
9. Reduce distance by 50%	0.77	0.08	0.15	.23
10. Reduce distance by 100%	0.72	0.13	0.15	.28

A third set of simulations assesses the impact of increasing user fees on selection of treatment. Assume that a policy is put in place to double fees in public health facilities -- all else held constant. According to rows 2-3 of Table 6.5, the effects on the probability of using a public facility is relatively small, falling to .03 from .04. This would be accompanied by a shift in use of private facilities, rising from .14 to .15.

To put these negative price effects into perspective, they can be compared with the positive quality effects reported earlier. Recall that an improvement in availability of drugs resulted in an increased probability of using public facilities from .04 to .06 (Table 6.3, row 2), and from .04 to .10 if drugs, infrastructure, and services are all simultaneously improved (Table 6.3, row 6). Reducing distance, as simulated in Table 6.4, also appears to have a larger positive effect on use of public facilities, than does the negative effect of raising public fees.

Negative effects on utilization are considerably greater in the case of private facilities however. From the sample means in Table 6.1, one knows that the average price of consultation in a private facility is 106 cedis compared with 44 cedis in a public facility. As shown in Table 6.5, doubling private facility fees (a 100% increase) would result in a reduction in the use of private facilities from .14 to .12, and a commensurate increase in public facilities (through substitution effects) from .04 to .05. At the same time, a doubling of private fees would lead to more people

falling back into the self-treatment option (rising from a probability of .82 to .83). The joint effects of higher fees in both public and private facilities produces roughly similar conclusions in view of the relatively small effects of public price increases. This suggests that when the set of all modern health care opportunities becomes more expensive, consumers tend to substitute public and self-care for private care.

Table 6.5: Increasing User Fees

	Self-care	*Public Facility*	*Private Facility*	*Combined Probability of Selecting Modern Health Care*
1. Predicted probabilities at the mean	0.82	.04	0.14	
Reducing the Subsidy on Public Health Facilities				
2. Increasing user fees by 50%	0.82	0.04	0.14	.18
3. Increasing user fees by 100%	0.82	0.04	0.14	.18
4. Increasing user fees by 200%	0.82	0.03	0.15	.18
Increasing User Fees in Private Health Facilities				
5. Increasing user fees by 50%	0.81	0.05	0.13	.18
6. Increasing user fees by 100%	0.85	0.05	0.17	.17
7. Increasing user fees by 200%	0.83	0.05	0.20	.16
Increasing User Fees in Public and Private Health Facilities				
8. Increasing user fees by 50%	0.83	0.04	0.15	.21
9. Reduce distance by 50%	0.84	0.05	0.15	.23
10. Reduce distance by 100%	0.85	0.05	0.15	.28

RAISING PRICE TO IMPROVE QUALITY

What is the trade-off between the price and quality of health care? Higher prices discourage people from using modern health facilities, but simultaneous quality improvements make higher prices more tolerable. Revenue generation -- through higher prices -- is usually necessary to finance higher quality services on a sustainable basis. This begs the question, with quality improvements, how much can the negative effect of higher prices on use of facilities be offset? Put differently, to what extent will people keep on coming, and be willing to pay the higher prices, as long as quality services are rendered?

The results of this study suggest that positive effects of quality improvements on use of modern facilities far outstrip negative effects of prices. Prices would have to increase dramatically

to turn people away from the strong positive effect quality improvements have on them. For example, the positive effects of simultaneously improving the availability of drugs, services and infrastructure by 100 percent on the use of modern facilities are such that fees would have to be increased by more than 1,200 percent to offset them.[71] This simulation clearly indicates that there is large scope for quality improvements to be financed, at least partially, by an increase in user fees.[72]

CONCLUSIONS

The design of policy reforms in the public health care sector requires reliable estimates of the effects of improvement in quality and access and the extent to which these improvements can be financed by raising user fees for health services. This study has utilized household data from Ghana in order to estimate the effect of these policy changes.

This chapter's main contribution is its attempt to rigorously evaluate the effect of quality of service, and assess the likely outcome of various policy scenarios involving improvements in the quality of public health services. Improving basic services such as vaccinations, child care and the availability of drugs is likely to have a significant effect on demand for health care. The estimated effects of improvements in facility infrastructure and staff are positive, but have lower elasticities. The trade-off between improvements in quality and an increase in cost, measured either by user fees or by distance, suggests that there is great scope for financing quality improvements in the public health sector through raising fees or by increasing distance (building fewer facilities).[73]

Looking to future research, a largely unaddressed issue in this study concerns the behavior of Ghanaians in the self-treatment category. According to the sample mean of the survey, about 66 percent of individuals who fell ill chose self-treatment. According to predictions generated by the empirical model, about 81 percent of Ghanaians could be expected to be in this category. Who

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71 As many individuals in the sample report being treated at public facilities for no fee, this result should be interpreted with some caution.

72 If the distance-demand elasticity is interpreted as a price effect, then the trade-off between distance and quality is a relevant simulation as well. The government could build fewer facilities, increasing the mean distance to the nearest public facility, but offset this effect by improving quality. Improving quality by 100 percent is equivalent to doubling the mean distance to the nearest public health provider in terms of the impact on the predicted choice probability.

73 This study did not compare the amounts that households are willing to pay for quality improvements with the actual cost of these improvements, which would have provided a complete cost-benefit evaluation of quality improvements. However, the comparison of public health care with the private sector does provide an opportunity to simulate a "complete" cost-benefit analysis, assuming that the private sector is maximizing profit and that user fees are set at levels appropriate to recover both fixed and marginal costs. The relevant simulation would set the public sector quality factors equal to those in the private sector. Two simulations were performed. In the first, the price of consultation was kept constant; in the second, user fees in the public sector were set equal to the mean private sector fees. The willingness-to-pay in the first simulation amounted to almost 1 percent of monthly income, i.e. 60 cedis, which is almost two-thirds of the mean private sector user fee. The second simulation which increased public sector user fees suggests that households are willing to pay non-zero values for improved quality which is accompanied by increased fees (about 20 cedis per month). These results indicate that quality improvements in the public sector could be financed by increased user fees.

comprises this group, and why are they not selecting treatment in modern health facilities? The results and policy simulations generated by this study show that quality effects, price of consultation (user fees), and access to public and private facilities (distance) provide only part of the answer.

To get at the heart of the self-treatment category -- and why relatively large shares of the population incurring illness stay in it -- requires greater understanding of the role of pharmacies and dispensaries, as well as traditional healers. An area for future research is to use data from the Ghana service availability survey on upwards of 170 drug stores, pharmacies, and drug vendors. The variables in this survey are not completely comparable to those in the health facility survey, but they do include information on infrastructure (electricity, refrigeration), hours of operation, staffing, availability and price of drugs, vaccines and contraceptives, and fee exemption policies. Complementing the analysis in this study with yet another choice alternative -- drug stores, pharmacies and drug vendors -- would result in a unique contribution to the literature on the price/quality trade-off and would serve to refine the results presented in this study. Moreover, since one of the major policy reforms commencing in the late 1990s in Ghana has been to introduce a "cash and carry" scheme for drugs in public facilities -- thus placing them into greater competition with private drug stores -- it is relevant to establish how private drug outlets have been serving people's needs.

Annex Table A6.1: Comparative Characteristics of the Full Ghana 1988 LSMS Sample and the Sub-Sample used by this Study

	Entire Sample	*Sub-Sample for this study*
Age	24.1	24.1
Proportion of age < 14	0.43	0.43
Rural	0.52	0.51
Sex	0.48	0.48
Head of Household schooling	4.42	4.49
Own Schooling	3.26	3.28
Size of household	5.89	6.06
Log per capita expenditure	9.83	9.76
Government employee	0.07	0.07
Proportion who chose self treatment	0.62	0.58
Number of days ill	7.56	7.59
Number of days inactive	3.15	2.93
Cost of consultations	201.7	209.3
Cost of Medicine	608.5	594.1
Cost of transportation	117.8	94.6
Total Cost of Treatment	981.1	936.2
Cost of preventive care	494.8	551.8
Number of Observations	5965	2291

The two samples include all the people who reported being ill in the last thirty days. The list of variables is just a select group of variables that suggest that the two samples are drawn from the same population. In other words, it implies that the sub-sample of individuals living in clusters for which both a public and a private health facility were interviewed, used by this study is not a selective sample in any way. The sample means of other economic and demographic characteristics support the same conclusion.

CHAPTER 7

THE IMPACT OF RAISING FEES AND SERVICE QUALITY: A FIELD EXPERIMENT IN CAMEROON

Jennie Litvack and Claude Bodart

ABSTRACT: The purpose of this study is to provide a net assessment of how user fees and improved quality affect health facility utilization among the general population and specifically among the poorest people in Cameroon. A controlled experiment was conducted in five public health facilities in Adamaoua province. Three health centers which were to introduce a user fee and quality improvements (i.e. reliable drug supply) were selected as "treatment" centers, and two comparable facilities not yet phased into this policy were selected as "controls." Results indicate that the probability of using the health center increased significantly for people in the "treatment" areas compared to those in the "control" areas. Travel and time costs involved in seeking alternative sources of care are high; when good quality drugs became available at the local health center, the fee charged for care and treatment represented an effective reduction in the price of care and thus utilization rose. Moreover, contrary to previous studies that have found that the poorest income quintile is most hurt by user fees, this study found that probability of the poorest quintile seeking care increases at a rate proportionately greater than the rest of the population.

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INTRODUCTION

Throughout the developing world, user fees for health care have become a common method for supplementing government budgets while deterring unnecessary health care use. In Africa, where public health budgets in most countries have been slashed due to deteriorating economies, revenues raised through user fees for health care have increasingly been reinvested in the sector and have served to revitalize otherwise decaying health care delivery systems. The Bamako Initiative (BI), a comprehensive strategy for decentralized health care delivery and financing, was first proposed by UNICEF in 1987, adopted by African Ministers of Health in 1988, and now is in at least partial implementation in over twenty-five African countries (Jarrett and Ofosu-Amaah, 1990). The BI differs distinctly from user fee efforts conducted in other parts of the world in that the implementation of fees serves the primary goal of improving the quality of health care delivery and not raising additional revenues or deterring excessive use.

Much of the controversy surrounding the BI has centered on the effect of user fees on access to care (Chabot, 1989; Gilson, 1988; Editorial, 1988; Kanji, 1989). The issue of user fees for health care has sparked debate since it was first seriously proposed for developing countries in 1985 (DeFerranti 1987) and promoted officially by the World Bank in 1987.

A series of studies examining the effects of user fees on health care demand were conducted throughout the 1980's. These studies, based on cross-sectional household data, indicated that the demand for health care is inelastic (Heller 1982; Akin et. al. 1985; Mwabu 1986; Shepard and Benjamin 1988). An important study by Gertler and others demonstrated that, while demand is indeed inelastic for most income groups, people in the lowest income quintile are highly responsive to price changes (Gertler, Locay and Sanderson 1987). Conclusions drawn from this literature cautioned that while user fees may be a good way to raise needed funds, the poorest people would be vulnerable and their access impeded. Most of these studies also pointed out that quality of care is a significant factor influencing demand, yet none considered the effect that user fees and quality may have on demand.

In the latter 1980s, several researchers conducted facility-based, longitudinal studies, including those in Ghana (Waddington and Enyimayew 1989), Swaziland (Yoder 1989) and Zaire (de Bethune, Ayani and Lahaye 1989). They reported reduced utilization in situations when fees were introduced with little improvements in quality. In these cases, fees were imposed and the revenues were not entirely reinvested in the facility so as to improve services. In Ghana, for example, only 12 percent of revenues were retained at the health facility (Waddington and Enyimayew 1989).

Some policy analysts have decided to focus exclusively on this literature -- which observes reaction to price change alone (Kanji et. al. not dated; Creese 1991). They presume, based on Gertler's work, that health facilities that introduce user fees will experience a drop in overall utilization and that the poor will be hit hardest. However, they are ignoring the impact that quality has on consumer behavior. The literature on user fees alone is too limited to infer the impact of the BI -- a program which involves both quality and price changes (Kanji et al. 1989).

In contrast to the studies described previously, experiences reported from facility-based longitudinal studies in three other African countries -- Benin, Sierre Leone, and Guinea -- have shown that when fees are accompanied by a notable improvement in quality of care, overall utilization does not decrease, but, in fact, increases (Knippenberg et. al. 1990). While these studies report the response of health facility users to changes in price and quality, they do not provide other important information due to the limitations of study design. Specifically, since these studies use facility-based data one knows only about those people who use the health facility and do not know about those who do not. One does not know if the increase in utilization comes from higher usage of the facility by the same limited populations, or from greater access to health care among unserved groups. Also, little is known of the economic profile of patients before and after user fees. The question of whether the poor are more or less hurt by user fees than others, when fees are introduced in tandem with quality improvements, remains unasked.

The need to protect the most vulnerable groups is cited (although usually not further explored) in most studies concerning user fees. Towards this end, Litvak and others (1989) advance a specific strategy for enhancing access to care for the most medically and financially needy through drug pricing policy. Though Thailand's effort to target the poor in its user fee

program was analyzed, an evaluation of the impact of price on demand for care was not conducted (Mills 1991). It remains unclear exactly who the most vulnerable groups are and how they are affected by a BI-style program.

The purpose of this study is (i) to confirm the finding that user fees plus quality improvements lead to higher utilization -- not only at the facility but among the population served by a health facility; (ii) to examine changes in patient mix that may result from the imposition of such a policy; (iii) to fill the gap in knowledge concerning the behavior of the poor when fees are charged and quality is improved, and to verify if indeed they are a vulnerable group under a BI-type program. This study examines how households react to a change in health facility operations from a zero-priced service which offers only a prescription for drugs, to a "modestly" priced service -- compared to the private sector -- which includes actual disbursement of drugs.

The experimental research design used for this study is novel for an examination of health center utilization. The opportunity to conduct a pre-test/post-test controlled experiment in a real setting was a rare and valuable one. Indeed, due to the timing of this study, which permitted the researchers to study a natural experiment scheduled to begin in the late fall of 1990 in the country of Cameroon, and the eagerness of the Ministry of Health and USAID's Projet SESA to host and fund the study, this subject matter was able to be tested in a previously suggested, but never attempted, scientific fashion (Bitran 1987; Miller 1989; Griffin 1988).

STUDY SETTING

The study took place in the Adamaoua province of Cameroon. This section briefly describes the study setting to provide a context for the research experiment.

Geography

Cameroon is located in West Central Africa and has a population of 11.6 million. It is often referred to as a "microcosm" of Africa because its geographic, climatic, ecological, tribal, linguistic, religious, and economic diversity reflect a vast range of experiences typical of many other African countries. Having been both a colony of England and France, Cameroon's post-independence history also reflects both cultural experiences. The study took place in the Adamaoua province situated in the lower part of the North region of Cameroon. The population in Adamaoua is dominated by the Muslim Fulbé tribe, although there is also a significant Christian population, comprised of several tribes. The Adamaoua, known for cattle raising because of its abundant grasslands, is the leading source of beef for the country. It is also well-known for herding because it is a profession -- or rather, way of life, highly regarded by the Fulbé. Main agricultural products include wheat, corn and cassava.

Economy

With a 1991 GNP per capita of US $1000, the World Bank classifies Cameroon as a "middle-income country," and others refer to it as an African success story. Benefiting from an abundance of diverse natural resources -- including oil -- and a relatively stable political environment, the Cameroonian economy has grown, on average, 5 percent annually since its independence in 1960. A closer review of economic performance, however, indicates that growth has fluctuated greatly, particularly in the past decade. Cameroon entered the 1980s with

an annual growth rate of 10 percent and exited the decade with a growth rate of negative 10 percent (Jesperen 1990). Despite its favorable position compared to many other African countries, Cameroon entered the 1990s facing considerable challenges. Fiscal imbalance led the Government of Cameroon to adopt structural adjustment measures in 1987/88 which included a 19 percent reduction in total expenditures, a decline in investment of 26 percent, and a reduction of all recurrent expenditures of 13 percent. As in other African countries faced by similar problems, expenditure cuts have fallen disproportionately on public investment and non-salary recurrent expenditures (Jesperen 1990).

Health Sector

The reduction in government expenditure has hit the health sector hard. The health sector's share of the total government budget decreased from 5.1 percent in 1980 to 3.5 percent in 1987 (Jesperen 1990); and the recurrent cost component has decreased 46 percent in real terms since 1986/87. Since the wage component has basically remained constant, virtually the entire reduction in recurrent cost spending has come from pharmaceutical supplies and equipment and facility maintenance.

Although Cameroon is a middle-income country, its health status has not improved at a pace commensurate with its economic achievements. Today, indicators of health remain lower in Cameroon than other countries with similar levels of economic development. Life expectancy at birth is 57 years -- the average for other middle-income countries is 66. The infant mortality rate is 90, well above the average of 51 for other middle-income countries indicating relatively poor performance. The Ministry of Health (MOH) in Cameroon agreed to the principles espoused at the famous Alma Alta Conference of 1978 and officially adopted a primary health care (PHC) strategy in 1982; yet, improvements in health status were very slow. In 1989, the MOH decided to redirect its PHC effort and designed a new PHC strategy referred to as "the Reorientation Approach to PHC". The reoriented approach involves the decentralization of both the administrative and financial aspects of rural health care delivery.[74] This approach was made operational in two provinces, Adamaoua and South, with the assistance of USAID funded Projet SESA (Santé de L'Enfant de Sud et Adamaoua).[75]

Drug supply in the Adamaoua and South provinces has been extremely weak throughout the past several years, as it has been throughout most of the country (van der Geest 1982; 1987). Presumably as a result of poor drug supply, utilization of government health centers had been very low. Initial surveys conducted by Projet SESA indicated that the lack of drugs was the most often cited reason for patient dissatisfaction with the health center (Owona et al. 1990). With this in mind, the effort to "reorient" PHC is being initiated in Projet SESA areas with a policy which strives to ensure the sustainability of drug supply for the local communities in the hope of improving health center utilization. By offering management training and an initial stock of drugs, Projet SESA initiates a "revolving drug fund" at each health center whereby proceeds from community managed drug sales along with a modest consultation fee are used to replenish the drug supply and subsidize other aspects of PHC delivery such as outreach activities, as well as related costs of supervision and refresher training. Since the introduction of this policy

74 For a full description of Cameroon's revised PHC strategy see (Essomba et. al. 1990).

75 Projet SESA is a USAID-funded primary health care project under the direction of the Directorate for Preventive and Rural Medicine, MOH, and is coordinated by a team of expatriate advisors from the Harvard Institute for International Development, Drew University, and the Academy for Educational Development.

involves so much planning and management training, health centers are beginning the effort in waves. The first wave of approximately twenty health centers in both provinces began in January 1991; the second and third waves were scheduled for later. While this project was designed without any connection with UNICEF or the "Bamako Initiative" per se, its principles are identical.

METHODS

The research method selected for this study was that of an experiment, since this approach produces the strongest cause-and-effect relationship. The experiment tested the effects of a policy which introduced health facility fees and improved quality of care on health facility utilization by (i) the overall population; and (ii) different economic groups within the population.

EXPERIMENTAL DESIGN

The design of the experiment was that of a "pre-test, post-test control group" (Campell and Stanley 1963). The study used three treatment health center areas (where fee/quality policy would be introduced) and two control health center areas (where the new policy would not begin in the first wave) for a total of five study health center areas located in the same geographic area. The first measurement of health center attendance among the population was collected by a baseline household survey in both treatment and control areas, in month one. The introduction of the user fee/quality policy began in month three at three health centers. The second measurement of attendance was recorded in month eight by another round of the household survey conducted in the five study health center areas. Observations were conducted at the time of both surveys and during monthly visits to each study sight. Health center pharmaceutical stock was checked to ensure the "quality" component of the policy was maintained.[76] Health center staff were asked about unusual events in the past month, such as epidemics, change of facility personnel, community/health center staff disputes, major holidays, epidemics etc., which could have affected people's decision to seek care. All comments were recorded.

The experimental design of this study was possible because the MOH's gradual implementation of its new policy provided a "natural experiment". For this study, treatment centers were chosen from among the first wave of centers to begin co-financing, and control centers were chosen from the second wave of health centers. However, the MOH had not randomly determined which health centers would be part of each wave. Since the random assignment of treatment and controls is, theoretically, an important component of experimental design, the researchers controlled for differences between treatment and control centers by selecting controls as similar as possible to the treatment centers in terms of population size and density, community socio-economic status, motivation of health center staff, and geographic accessibility.

VALIDITY

In any experiment it is important to ensure the highest degree of external and internal validity in order to increase confidence in the results.

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76 Although the researcher was not in a position to restock shelves if supply ran low, this disturbance could be noted and used later to explain changes in utilization.

External Validity

External validity refers to the extent to which results from the experiment can be generalized. In this study, external validity was enhanced by using five health centers rather than the minimum of two (one treatment and one control). Nevertheless, all health centers were located in the Mbere Department of the Adamaoua province. In an attempt to assess if study results could be relevant throughout SESA's area, all co-finance centers in Adamaoua province and five health areas throughout South province were visited. During site visits, health center equipment was examined, staff were interviewed, patient registry books were checked, and, where possible, local health committee members were interviewed to determine community attitudes towards the health center and the co-finance activities. Based on the site visits, it appeared that, although the cultures of Adamaoua and South provinces are very different, many health center experiences were similar.[77]

This study was conducted in the Adamaoua rather than South province since the former is more remote: Yaounde the capital city, is located within a few hours' car ride from most health facilities in the South, while Adamaoua must be reached by airplane or, more commonly, by a twelve-hour train ride from the capital. The widespread cattle trade in Adamaoua may provide its local economy with a greater degree of liquidity than in the farming-based society in the south. External validity throughout most of Africa was enhanced by using a remote, rural area for the study.

Internal Validity

Internal validity is the extent to which the experiment is a true experiment -- that is, that the independent variable is responsible for the reaction of the dependent variable. The internal validity of an experiment must be assured by protecting against outside influences throughout the duration of the experiment (Rosenblatt and Miller 1972).

Two factors could have greatly affected the internal validity of this experiment. Each will be discussed briefly along with the measures taken in the experiment design to limit their influence.

(i) *The "History Effect".* Specific events that occur between the first and second measurement, or conditions that change throughout the experiment, confound experiment results.

The presence of a control group was used to prevent the "history effect." This was particularly important for monitoring health coverage in this study given the changing economic and political conditions facing the country. The ongoing deterioration of the economy had led to declining health facility utilization throughout the country in the public, private, and missionary centers since 1988. The downward trend in utilization would obviously influence any longitudinal study that lacked a control group. In addition to economic changes, throughout 1991, the country (including the Mbere Department) experienced a series of political disturbances and at times violent civil disruptions as the public demand for political pluralism

77 It should be noted that in a developing country context, the "extraordinary" often becomes the ordinary, and for this reason, the supervisory system put in place is designed to detect and react to such problems.

rose. This anti-government sentiment could have led to a decline in use of public health facilities; so again, the presence of a control group was critical.

To control for specific events that could have affected only one group, monthly visits to each health center were made to record any individual events that directly or indirectly could have affected utilization. Specific attention was placed on monitoring health center/community relations, consistency of health center staff, consistency of drug supply, and local economic conditions.

Monthly visits to the study centers revealed serious problems at one study health center. Lokoti experienced specific problems with its health committee and pharmacy clerk, which resulted in a tremendous loss of community confidence and support for the health center. Because of a conflict between the president of the health committee and health facility staff and their departmental supervisors, the president complained bitterly about the center and suggested that people not attend. The community pharmacy clerk was accused on several occasions of providing incorrect change to patients. People were suspicious of the clerk and the new system, and the person most responsible for reassuring the community, the health committee President, was adding fuel to the fire by complaining widely about the health center and its staff. Though the health center supervisors were aware of this problem, it was not rectified during the duration of the experiment. As a result of these problems, health center Lokoti was later dropped from the study.[78]

(ii) *The "Testing Effect"*. This refers to the carry-over effects of an individual taking one test upon the scores of a subsequent test that he or she takes. In order to limit the testing effect, households were randomly selected for both rounds of the surveys. While some households might, by chance, be selected twice, the effects of testing were therefore limited. If these villages were subject to other surveys during the duration of this experiment, then some of the same households may have, by chance, been selected. Although the "test" (questionnaire) would not be the same, the household would be that much more experienced with formal questionnaires and this could bias their responses. Three other household surveys were scheduled for the period between this study's two measurement periods but, fortunately, they did not include the 25 villages used for this experiment or were rescheduled for after the second measurement (i.e. follow-up survey) to limit the "testing" effect.

Thus, the importance of conducting a household survey at two comparable times is highlighted. Late October/early November and late May/early June are between the rainy and dry seasons and the cattle herders are generally in their villages. Moreover, the seasonal utilization graph indicated that those were both peak utilization periods exhibiting approximately the same number of patients. Figure 7.1 shows seasonal utilization trends during the three years prior to the survey and Figure 7.2 shows aggregate seasonal trends and timing of the two rounds of surveys. So, while the level of utilization noted at these times are not necessarily typical of

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78 The problems that Lokoti experienced should not be dismissed merely because they are individual rather than systemic. Lokoti provides a very useful case for seeing how implementation problems can drastically change outcomes. Lokoti demonstrates that it is possible for a health center to "nose-dive" in a relatively short period of time. It is hoped that the comprehensive system put in place would detect such problems through departmental, or if need be, provincial supervision. While Lokoti highlights the need for active and reactive supervision, it is not appropriate to use Lokoti's early experience for the purpose of the study since utilization was affected by factors not found at other co-finance and control centers.

utilization throughout the year, the two periods are comparable. The follow-up survey was therefore conducted in late May/early June.

Figure 7.1: Seasonal Trends in Utilization Aggregate Data: 5 Study Health Centers

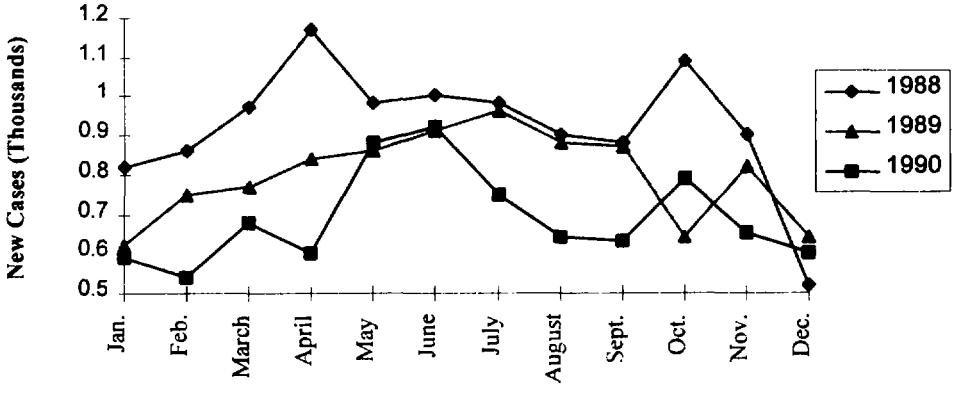
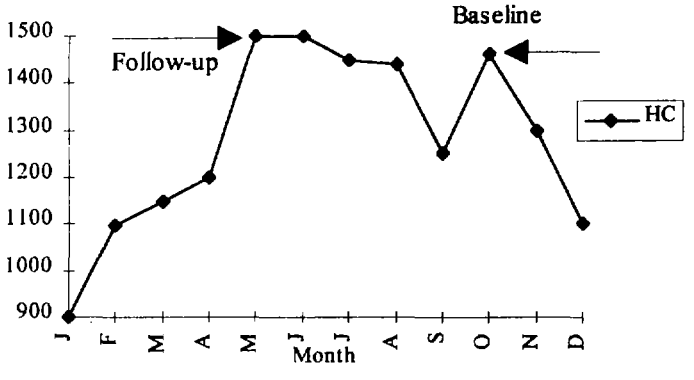


Figure 7.2: Adamaoua Health Center Utilization 1989 & 1990 Aggregate Data for 5 Centers



DESCRIPTION OF VARIABLES

Independent Variables

Health Center Fee and Quality Policy. Prior to the experiment, all health centers provided patients with consultations and, in theory, treatments free of charge. In reality, pharmaceutical supplies had never been consistently available in the public sector due to problems of diversion. In the year prior to the experiment, pharmaceuticals had been virtually non-existent due to cutbacks in government funding. Thus, patients usually received a consultation and a prescription to purchase drugs at the pharmacy in the regional or provincial capital.

The introduction of fees involved a 200 CFA ($0.80) consultation fee and a fee for drugs that varied with the prescription, but averaged 1000 CFA ($4.00). The health centers were stocked with an initial supply of drugs, the sale of which was to finance additional supplies. The mark-up on the replacement cost of the drugs was approximately 250 percent. Revenue from the

consultation fee and the surplus on drug prices was used to finance other primary health care activities, such as community outreach as well as to sustain the system (e.g. supervision, vehicle maintenance etc.). Community health and management committees were established and trained to oversee these cost recovery activities. The primary component of "quality" in this study was the change from virtually no drug supply at the health centers to a full, steady stock. Health center prices were set such that other important quality attributes such as outreach, regular supervision, and refresher training courses, could be provided. However, these other elements had not yet been introduced during the duration of this experiment. While the availability of drugs alone is certainly not a comprehensive definition of quality, it is an important component which is used here to represent quality. Since the sustainability of the quality improvements depended on increased cost recovery, fees and availability of drugs were introduced simultaneously. Three study centers were subject to this intervention and two were not.

Economic Groups. The disaggregation of the population into different economic groups was a critical component of the study since the principal research goal was to detect whether the higher fees were discouraging poorer people from obtaining care. Since the study was interested in changes in patient mix, it was relative wealth which was of interest, rather than an absolute level. Thus, the study identified several different economic groups and measured how their share among all patients changed with the introduction of co-financing.

Indicators for socio-economic status used in other countries and parts of Cameroon such as profession, education levels, and material possessions were not applicable in the Adamaoua region. Seventy percent of the population is self-declared agricultural farmers, while 90 percent has primary education or less. While the poorest people did seem to be uneducated farmers, certainly not all uneducated farmers could be considered among the poorest. Further, perhaps due to their Muslim/Fulbé culture, most villagers lived in very uniform fashion, regardless of their wealth, making a distinction based on material possessions impossible. Focus groups conducted for this study in a rural Adamaoua village confirmed that villagers could identify the very wealthy people in their community because of their large cattle herds, but seemed to group together all others, with the exception of orphans and the handicapped, who were clearly seen as disadvantaged.

Given the particular cultural characteristics unique to the study area, a more sensitive method for determining economic groups was needed. Since the recall for income and expenditure appeared good based on interviews and focus group discussions and it permitted the most exact delineation of different groups, this study used per capita income -- total household income divided by the number of household members -- to define economic groups. Total per capita expenditure on a group of major items was used as a method for verifying the accuracy (or rather, identifying major inconsistencies) in the reporting. It should be noted that this method, used in industrialized countries, would not be appropriate for many rural areas in developing countries where barter plays a significant role in commerce. However, given the constant flow of "cattle cash" in the study region, transactions are conducted by cash, not barter, and thus the method was appropriate for this study.

The Dependent Variables

Patients Attending the Public Health Center. The implementation of the "fee-plus-quality" policy was assessed based on the effect it had on the number of patients attending the public health center. Since health facility coverage is more important from a public health

perspective than health facility utilization, the study looks at the percentage of sick people in the population who attend the public health center.

THE HOUSEHOLD SURVEY

Health center coverage was monitored in all five study health center areas prior to the commencement of the co-finance policy by conducting a "baseline" household survey. Coverage was monitored again with a follow-up survey six months later, after the user-fee-plus-quality policy had been initiated at three of the centers. These two rounds of surveys represented the "pre-test" and "post-test" measurements necessary to evaluate the experiment. What follows is a description of the survey instrument design and sampling procedures.

A household was defined as those people living within a compound (immediate and sometimes extended families) who share resources or have extremely easy access to each other's resources. The recall period for an illness was four weeks. While this length of time has been proven too long for studies attempting to accurately collect morbidity information (such as frequency of symptoms), it has been used effectively and suggested for recording health seeking behavior (Ainsworth and Munoz 1986; Shepard, Carrin and Nyandagazi 1987). The head of household was considered the best person to respond; but if after several repeat visits he could not be found, interviews would proceed with the first wife or in her absence another adult family member. The questionnaire in FulFolbé was field-tested in 40 households prior to the baseline survey.

The survey used a stratified random sample of 160 households in each of the five health center catchment areas, for a total of 800 households. Although the population of the health center areas varied between 6000-9000 inhabitants, the same number of households were interviewed in each health area so that the performance of any one health center would not have a disproportionate weight in the evaluation of attendance.[79]

The stratification within each health area was based on village distance from the health center. Each health center catchment area was divided into the "center" and the "periphery." The center was defined as people living within a five kilometer radius of the health center. The number of households interviewed in the center was proportional to its percentage of the total population.[80] For example, if one half of the population lived in the center, eighty households were randomly selected from the center and eighty from the periphery. The periphery was then divided into three groups: villages at approximately five, ten, and fifteen kilometers. The number of households required from the periphery was approximately equally distributed among the three groups. Villages were grouped together as necessary to produce units of approximately equal size and then selected at random for each periphery distance level. Twenty-five villages were selected in all.

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79 Since, naturally, the percentage of the sample which responded positively to being sick within the previous month differed slightly by health area, the sub-sample of sick respondents was re-weighted during analysis so as to reflect equal proportions.

80 Information regarding the distance of each village from the center and the population of each village was available for this study since it had previously been collected by the Project.

Detailed maps were drawn for each of the study villages. Each household on each village map was assigned a unique number. Individual households were then randomly chosen using a systematic randomly-selected start number/interval. The selection interval depended on the size of the village and the number of households required from that village. For example, if a village of a hundred households required twenty-five completed questionnaires, the sampling interval would be four.

Each of the ten interviewers was responsible for completing eight questionnaires a day. The team completed eighty questionnaires a day and the 160 households per health area were completed in two days. The entire survey in the five health center catchment areas required ten days of interviews and three complete days of travel for a total of thirteen days in the field.

DATA ANALYSIS AND RESULTS

Since the sub-set of the survey data used for the analysis included only those households in which a member had been ill within the last month, it was important to find out whether this population sub-set was representative of income groups in the total sample population. Poor people, tending to live in worse conditions than wealthier people, contract illness more often. It was possible, therefore, that the sample used for analysis represented disproportionately the health-seeking behavior of the poor. Analysis of variance was used on the combined baseline and follow-up data sets to test the association between reported incidence of illness and income. Results indicated that the null hypothesis -- of no difference in the rate of illness between different income levels -- could not be rejected [F=1.06, DF=(204,394) P>F=0.6473]. The sub-set of sick people did appear to be representative of the population sample.

To view the effects of the fee plus quality policy on utilization by different income groups, the study compared the baseline and follow-up results for both the control and treatment groups.[81] An examination of descriptive statistics indicate that utilization declined for those in the control group (consistent with the downward trend in health facility utilization in that area and throughout the country), while utilization increased in treatment areas (see Table 7.1).

Table 7.1: Percentage of Sick People Going to Health Center

	Baseline (%)	*Follow-up (%)*
Control (n =)	45	38
Treatment (n =)	44	48

To further explore the statistical significance of the results, logistic regression analysis is used to test if the probability of using the health center differs across control and treatment groups and by the patient's income.[82] Factors that have proven significant in influencing the probability of seeking health care in various other studies have included the patient's income,

81 The control group represents what would have happened had the policy not been introduced. Therefore, to view the effect of the policy on utilization, one must compare the *change* in utilization experienced by the control group and the treatment group.

82 Since the decision to seek care, at the public health center is a discrete choice (i.e. yes or no), the study examines the factors that affect the *probability* of seeking care. By using logistic regression analysis, the simultaneous effects of several independent variables on the dependent variable can be seen. This permits one to distinguish the effect of the fee plus quality policy from the other possibly confounding effects, and determine if the probability of using the health center change significantly due to the introduction of the fee plus quality policy.

age, sex, tribe, severity of illness and education level of the individual, as well as the distance the person must travel to reach the health facility. These factors were included in the original model for this analysis. Variables were then eliminated if they were not of primary interest and were not significant.

The effect of the user-fee-plus-quality policy on utilization was represented by a binary variable delineating whether the patient went to a treatment center (1=yes) or the alternative control center (0=control center). This binary, or "group variable" was also interacted with all the other independent variables to detect if the co-financing was affecting the proportion of patients based on age, sex, distance, and severity of illness. Due to the highly skewed distribution of income, the logarithm (base 10) of income was used. Age and distance were represented as continuous variables; perceived severity of illness was represented on an ordinal scale (1=not serious; 2= moderately serious; 3=very serious); and sex was binary.

Table 7.2: Logistic Regression Results on Health Center Use: Baseline Data

(Sample size: 309)

Variable	Result
INTERCEPT	
Estimate	0.5318
SE	0.6051
P =	0.3794
GROUP	
Estimate	-0.0510
SE	0.8546
P =	0.9524
LINCOME	
Estimate	-0.1999
SE	0.1525
P =	0.1900
LINCXGRP	
Estimate	0.0383
SE	0.2344
P =	0.8703
DISTANCE	
Estimate	-0.0769
SE	0.0204
P =	0.0002*
AGE	
Estimate	-0.0183
SE	0.0040
P =	0.0001*
SEVILL	
Estimate	0.0769
SE	0.0204
P =	0.0002*

* *Note*: Variable is statistically significant if P Value is smaller than .05. SE=standard error; P=level of statistical significance.

Several specification were attempted using the logistic regression, all of which retained the variables of primary research interest (i.e. group variable, income, and group*income interaction). Continuous variables (i.e. income, distance and age) were originally included in the model in quadratic form to detect non-linearity, but were removed in subsequent models since the quadratic terms were insignificant. All interaction variables other than Group*Income were also eliminated in subsequent models when they proved to be insignificant, indicating no change in patient mix.

Each data set was analyzed separately. The baseline data were important to confirm the validity of the experimental design. If, in fact, the control health centers were comparable to the experiment centers, one would expect to see no significant difference between the two either in the Group variable or in any interaction variables. The follow-up data were used to examine possible differences in probability of health center use between control and treatment groups. To reject the hypothesis that there is no difference in utilization between the control and treatment areas, the Group variable would need to be significant; and to reject the hypothesis that there is no difference in utilization in the treatment areas between income groups, the Income*Group interaction variable would need to be significant.

The variables specified in the models are as follows:

Name	Description	Specifications
HC_use	Health Center Use	0 (Did go), 1 (Did not go)
Group	Experiment group	0 (Control), 1 (Treatment)
Lincome	Logarithm of monthly family income per member	
Lincxgrp	Interaction of Lincome * group	
Distance	Distance from village to health center	
Age	Age of sick person	
Sevill	Illness Severity	1 (Not serious), 2 (Moderate), 3 (Serious)

EMPIRICAL RESULTS

Results of the model applied to the baseline data are reported in Table 7.2. The only variables that are significant are patient age, perceived severity of illness, and distance from health center. Older people have a smaller chance of using the health center than younger people; people who perceive their illness to be serious have a greater probability of using the health center than those who perceive their illness to be less serious; and those who live farther away from the health center have a smaller probability of attending than those who live closer. Statistical significance is indicated by an asterisk beside the P value of variables in Table 7.2, 7.3 and 7.4. The group variable and all interaction variables were insignificant indicating that the health centers to be used as controls were indeed comparable to the health centers which were later to embark upon the new user fee plus quality policy. Thus, the former were appropriate controls.

Table 7.3: Logistic Regression Results on Health Center Use: Follow-up Data

(Sample size: 306)

Variable	Results
INTERCEPT	
Estimate	-2.4714
SE	1.1332
P =	0.0292
GROUP	
Estimate	4.2183
SE	1.6856
P =	0.0122*
LINCOME	
Estimate	0.5070
SE	0.2757
P =	0.0659
LINCXGRP	
Estimate	-0.9521
SE	0.4410
P =	0.0309*
DISTANCE	
Estimate	-0.0564
SE	0.0187
P =	0.0026*
AGE	
Estimate	-0.0174
SE	0.0043
P =	0.0001*
SEVILL	
Estimate	0.3807
SE	0.1210
P =	0.0017*

* Note: Variable is statistically significant if P Value is smaller than .05.

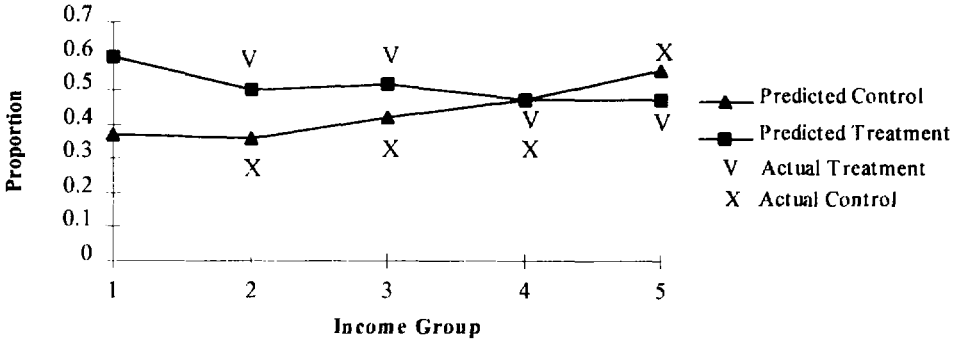
Results using the follow-up data to view the effects of the new policy on health center coverage are reported in Table 7.3. They indicate that the same three factors from the baseline (Age, Severity, and Distance) remain significant for the follow-up. However, the Group and Income*Group interaction variables are also significant. Results in Table 7.4 further indicate that the Group variable is highly significant for the lowest quintile and becomes increasingly less significant as income increases.

The significance of the Group variable indicates that the user fee and improved quality policy does significantly affect the probability of a sick person attending the health center. The probability of seeking care at the health center when sick increases significantly after the fee-plus-quality policy is introduced.

The significance of the Income*Group interaction variable indicates that the probability of seeking care under the user-fees-plus-quality policy is not affected equally across income groups. However, the result seen is, in fact, the opposite of what Gertler, Locay and Sanderson (1987) reported. Instead of seeing that poor people are proportionately less likely than wealthier people to use the health center after instituting a user fee plus quality policy, the results indicate that they are more likely to use the center. The interaction term indicates that the overall effect of income on the probability of using the health center is different among treatment and control areas; its negative coefficient indicates that the probability of health center use in the treatment group is inversely related to income. This can be further explained by illustration (see Figure 7.3).

Figure 7.3 plots the predicted and actual probability of people of different income groups using the health center (income group "1" is poorest and "5" is richest). The graph shows that the probability of using the center decreases with higher income in the treatment area and increases with higher income in the control area. The significant Group variable indicates that the probability of using the health center is higher in the treatment areas than the control; and the significant interaction term indicates the effect of income among the two groups is different. The fact that in Table 7.4 the Group variable is highly significant in the lowest quintile and is highly insignificant in the highest quintile further indicates that the effect of the user-fee-plus-quality policy is most felt among the lower income groups.

Figure 7.3: Actual and Predicted Proportion of Ill Using Health Center By Income Group: Follow-up Survey



The results of the logistic regression indicate that the probability of the population using the health center does increase significantly after introducing fees and quality improvements. The results also indicate that the probability of poor people in these areas using the health center increases proportionately more than the rest of the population.

DISCUSSION

EFFECT OF USER-FEE-PLUS-QUALITY POLICY ON USE OF HEALTH CARE

The results presented here confirm those reached in the facility-based utilization studies that examine the introduction of fees when accompanied by quality improvements. Whereas those studies used facility-based data, these results were obtained using a randomly sampled

household survey. Thus, the findings can be generalized to the study area population. It is not surprising that when user fees are introduced, or increased, without improvements in quality, utilization drops. People are asked to pay more, yet receive the same service; thus, they are receiving less for their money. But when fees are accompanied by improvements in quality, utilization rises. Revealed preferences indicate that people are getting more value than before and that the effective price of care is actually decreasing not increasing. Whereas before people had to incur high transportation and time costs to obtain care they valued in more distant locations, or obtain poorer quality care locally, now good quality care (most notably potent essential drugs) is available locally. This effective decline in price results in increased utilization.

Table 7.4: Logistic regression results by income quintile follow-up data

(Sample size per Quintile=61)

Variable	*Quintile 1*	*Quintile 2*	*Quintile 3*	*Quintile 4*	*Quintile 5*
INTERCEPT					
Estimate	-5.6213	30.8404	-12.9976	24.4247	-4.9945
SE	3.7779	12.0952	11.9290	15.3390	4.2111
P =	0.1368	0.0108	0.2759	0.1130	0.2356
GROUP					
Estimate	1.3002	0.2773	1.0247	0.8388	0.0769
SE	0.4635	0.4422	0.4648	0.4985	0.5533
P =	0.0050*	0.5306	0.0275*	0.0924	0.8894
LINCOME					
Estimate	1.5086	-9.1688	3.6121	-6.1698	0.9915
SE	1.0982	3.4630	3.1309	3.8499	0.9030
P =	0.1695	0.0080*	0.2486	0.1090	0.2722
AGE					
Estimate	-0.0199	-0.0154	-0.0254	-0.0169	-0.0354
SE	0.0101	0.0100	0.0092	0.0122	0.0128
P =	0.0493*	0.1247	0.0060*	0.1675	0.0058*
DISTANCE					
Estimate	-0.0199	-0.0978	-0.0674	-0.1226	0.1307
SE	0.0433	0.0451	0.0419	0.0519	0.0842
P =	0.6464	0.0302*	0.1081	0.0183*	0.1207
SEVERITY					
Estimate	0.3765	1.1096	-0.0572	0.1183	0.7004
SE	0.3085	0.3505	0.2986	0.2698	0.2963
P =	0.2223	0.0015*	0.8482	0.6609	0.0181*

* *Note*: Variable is statistically significant if P Value is smaller than .05.

EFFECT OF USER-FEE-PLUS-QUALITY POLICY ON THE POOR

Results of this study indicate that income does indeed affect the probability of using the health center differently among the control and treatment areas. This study observed that in the treatment groups the poor are more likely to use the health center, while in the control areas the poor are less likely to use the health center. It seems quite certain from the results of this study that access to health care for poorer people is not being impeded by this policy, and in fact, it appears that access is improved proportionately more for the poor than for the wealthier people compared to the control areas.[83]

83 While access to health care is increasing under the user fee plus quality policy, the "opportunity cost" of this access is unknown. For example, in order to pay for health care, households may be diverting funds away from the

Table 7.5: Description of Health Care Sites Most Often Visited in Study Area

Site	*Distance (range) (km)*	*Cost of care (average) (CFA)*	*Travel cost (average) (CFA)*
Public health center	0-15	0 (control) 1200 (treatment)	90
Public hospital	38-134	3780	1590
Missionary clinic	17-152	7800	1500
Private pharmacy	38-134	6260	1410
Traditional medicine	0-2	2200	25
Market	0-5	750 (avg.), 50 (mode)	55

This result may seem counter-intuitive at first glance. The entire population is asked to pay the same level of fees -- a regressive system which should hurt the poor more than the wealthy; yet, the poor react the most favorably to this system. The explanation for this anomaly lies in the alternative sources of care available for different income groups. When local health centers were confronted with constant drug stock-outs, people had to incur substantial travel and time costs, in addition to the high mark-up on expensive brand name drugs to fill their prescription in the private drug store in the Department capital. The wealthier one was, the more able one was to meet these expenses. For a poor person, whose time is spent on vital daily activities such as gathering wood, fetching water, preparing food and farming land (which may be small but vital for family welfare), medical care can only be sought after the very basic necessities are met. The travel and time costs associated with seeking distant care served as a prohibitive barrier to the poorer people. (See Table 7.5 for summary description of alternative sources of health care and their average cost.)

Those unable to obtain care at the distant private pharmacy, purchased drugs, often in partial dosages, from local drug peddlers in the market place, despite the common perception of poor quality. Most drugs sold in the markets are smuggled into Cameroon from Nigeria, and while some drugs may be potent, others are merely cosmetic imitations of brand name drugs and contain no pharmacological value. The dubious quality of drugs obtained informally in Africa, and specifically in Cameroon, is well documented (Wall 1988; Igun 1987). When low-cost effective care became available locally, people did not have to incur the travel and time costs of the alternative sources of efficacious care. For wealthier people, some may have substituted away from the private sector towards the public health center, but not at the same rate as the poor who had no alternative source of efficacious care.

Gertler et al. (1987; 1990) determined that the poor are more sensitive to price changes than the wealthy; they state that since user fees increase the price of care, the poor respond by decreasing their consumption more than others. Consistent with these findings this study found that the poor are more responsive to price changes than other income groups. But, contrary to the work by Gertler and others, use of the health center by the poor in Cameroon increased proportionately more than other groups because the fees were introduced along with improved quality of health care, which represented an effective decrease in the price of quality care. This fieldwork highlights the need to understand what is actually happening to overall "price" when

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purchase of nutritious foods, foregoing the purchase of some other household necessity or selling off assets vital for the future physical well-being of the family. If these sacrifices are necessary in order to have access to health care, "access" may be self-defeating -- people may get sick and require treatment more often, and necessitate higher health care expenditures --rather than lead to improved health status. The effects of the policy on health status are currently being monitored in Cameroon. However, monitoring health status requires a greater time period than possible during the duration of this experiment.

fees are changed (an experimental "before"/"after" comparison). Cross-sectional data, on which demand studies are based, preclude this kind of understanding.

IMPLICATIONS

The results presented here are based on results of a field experiment, rather than inferences based on price variation in cross-sectional data. They therefore differ from studies which focus on situations where user fees are introduced without quality improvements. Despite the fact that they do not examine quality, their results are used often -- and inappropriately -- when considering the potential effects of programs which do involve improvements in quality. The Bamako Initiative encourages the development of such health facility fee and quality improvement programs. Critics of the BI often point to certain utilization studies to report that user fees limit access to health care; and they refer to the work of Gertler, Locay and Sanderson (1987) as evidence that the poor will be hurt by a policy which involves out-of-pocket patient costs. The results of this research indicate that the poor can benefit when increased user fees are used to improve service quality.

This research presents an optimistic, preliminary evaluation of an experience where fees have been introduced in tandem with quality improvements to benefit the poor. Poor people are often cited as most vulnerable to poor health because they are more likely to fall ill (due to less sanitary living conditions and less nutritious food intake) and have the least means available to obtain efficacious care. The evidence that the probability of the poor consuming this care increases, even more than everyone else, is very promising because it indicates that a previously unmet need for efficacious care is being met, at a price that they are willing to pay.[84] Indeed, this is also true of the rest of the population whose probability of using the health center increases under this policy indicating that people value the local availability of efficacious treatment more than alternative sources.

From a public health perspective, it is good that people are increasingly choosing the health center because there they receive a proper consultation and diagnosis prior to consuming drugs (unlike the market place and sometimes the pharmacy) and this improves the effectiveness of care. Moreover, by increasing the use of curative care, population contact with the health facility rises, enabling the greater delivery of cost-effective preventive and promotive care. And the presence of those who are simply substituting away from private clinics towards the public health center, instills community confidence in the health center. The ultimate success of the user-fee-plus-quality program will not be increased health center utilization, but decreased morbidity and mortality. Access to care is a strong contributing factor to health status, and it is used here as an indicator of health status.

The implications of this study are perhaps most important for encouraging donor commitment to health programs that implement user fees as a way of ensuring improved quality of care. Much preparation is required to implement an effective policy which assures sustainable improved quality involving, for example, a reliable supply network of essential drugs, adequate

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84 Although willingness-to-pay does not necessarily indicate that they are truly able to pay without incurring other hardships, the fact that prior to the new policy, they did not use more costly sources of care, implies that they are at least somewhat responsive to the ability to pay.

storage facilities, management training, and supervision protocols. Since sustained improved quality appears critical to the success of such policies, the effort must be well prepared prior to implementation, following which ongoing supervision is a necessity. In addition to many technical details that often do require donor assistance, the necessary preconditions for such an effort, such as motivated personnel throughout the various levels of the Ministry of Health, may not exist in some countries. Therefore, they may not be appropriate sites for such programs. However, where there is a demonstrated will to implement such policies, donors can subsidize the start-up costs and play the essential role of helping to establish a system that is designed to be a self-sustainable program. Hopefully by then, the economic outlook as well will be more optimistic and the host government can increase its participation.

The two most relevant caveats to this study are the external validity, and the relatively brief time-frame for the experiment. A great deal of caution must be expressed about generalizing the results of this study to other areas, unless they are very similar to this study site. The fact that Cameroon is a wealthier country than most of its African neighbors, and that Adamaoua Province may have greater cash liquidity due to the cattle trade than many other areas, should not be forgotten when interpreting the results and assessing their applicability to other countries or regions. On the other hand, the strong internal validity of this study -- that is, the elimination of most confounding factors in the experimental design -- makes the results of this particular study strong.

In addition to external validity, another limitation to the study is the time-frame used for measuring the effects of co-financing on the populations. A five-month measurement period merely permits the short-term effects of the policy to be evaluated. It is possible that the second measurement (the follow-up survey) was conducted within the time-frame when people were still testing out the center. Perhaps many families were willing to try the new system when one of their members became ill, but the novelty will wear off and they may not be enthusiastic about attending the center the second time a family member gets ill. The five-month period can represent the first round of illnesses in many families. The brief measurement period also does not give much time for people to develop new spending patterns. The novelty of the system may inspire people to use up savings or borrow for one episode of illness; yet they may discover that they can not afford to do this often (or unless the illness is life threatening).

CONCLUSION

This research found that access to health care for the population, particularly the poor, improved as a result of a policy which introduced fees and quality improvements, as it was implemented in the Adamaoua province of Cameroon. Other researchers have expressed concern that a Bamako Initiative type policy may have detrimental effects on patient access, particularly among the poor. The results of this research illustrate that population access is enhanced, not impeded, when substantial quality improvements accompany fee increases. This research does not eliminate the need for caution and concern for the poor. Indeed, the fact that, prior to the user-fee-plus-quality policy, the poor appear to have been lacking access to efficacious treatment (potent compared to counterfeit drugs), confirms that they are a potentially vulnerable group. But perhaps because of their very weak position prior to the new system, the poor actually have the most to gain -- rather than the most to lose -- from an effort which assures local availability of efficacious care, even with the fees.

PART II:

HEALTH INSURANCE

CHAPTER 8

HEALTH INSURANCE IN SUB-SAHARAN AFRICA: AIMS, FINDINGS, POLICY IMPLICATIONS

Charles C. Griffin and R. Paul Shaw

ABSTRACT: This chapter provides an overview of principles and practices of health insurance, drawing on the limited but growing experience of countries in Sub-Saharan Africa. It observes that a variety of approaches to protecting people from catastrophic losses arising from ill health or injury are in place in the region and that, with appropriate government encouragement, "insurance risk pools" could be expanded and consolidated in the future. Moreover, revenue mobilization is acknowledged to be only one of the benefits that insurance can bring to the health sector. When appropriately designed, insurance programs can contribute to economic efficiency, fairness or equity, as well as greater pluralism in the financing and delivery of health services. Insurance is virtually the only practical instrument through which African governments can get out of the expensive business of across-the-board subsidies for hospital care, and thus release funds for public health, preventive, and primary services that benefit the poor.

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INTRODUCTION

Health insurance aims to protect the welfare of individuals who fall seriously ill. By pooling financial contributions from many people, insurance plans can cover the hospital expenses of those experiencing catastrophic events, such as near-fatal illness or injury. Without access to such insurance, many people are unable to obtain treatment or must incur debts to pay hospital bills.

Insurance mechanisms can also generate large volumes of revenue for health services. Health insurance is virtually the only practical instrument through which governments can get out of the expensive business of across-the-board subsidies for hospital care, and thus release funds for public health, preventive, and primary services that benefit the poor.

This chapter provides an overview of principles and practices of self-financing health insurance, drawing on the limited but growing experience of countries in Sub-Saharan Africa (SSA). It begins with a brief description of the evolution of risk-sharing mechanisms and insurance basics. Evidence on the prevalence of health insurance in countries of SSA is then reviewed. This sets the stage for a discussion of the potential contribution that health insurance can make to efficiency, equity, and private sector development. Constraints and obstacles to setting up health insurance programs are then discussed, with emphasis on supply and demand factors to be assessed

prior to establishing a viable insurance program. A concluding section discusses future prospects for expanding insurance in SSA.

EVOLUTION OF RISK SHARING

In a traditional subsistence society, the largest social structures capable of absorbing health risks are extended families, clans, and tribal organizations. All provide substitutes in food-producing activities, and at least the potential for mutual aid should disaster strike. Households most vulnerable to disaster tend to be small ones, those with a high proportion of very young or very old residents, and those detached from village or tribal organizations.

The direct cost of medical care in subsistence economies seems to be handled through simple arrangements within highly institutionalized risk-sharing arrangements. For example, traditional healers and midwives do not use capital-intensive procedures; they are remunerated only for their personal services and for drugs or ceremonies. In addition, remuneration involves sharing of risks between provider and patient. Payments are typically agreed to in advance, one charge covers care for an entire illness episode (charges are not by visit). Payment is usually in kind; often no charge is made until a cure is achieved; payment schedules are consistent with crop cycles, and sliding fee scales are common (Akin et al. 1985). While such arrangements clearly result in some sharing of medical cost risks between patient and healer, they do not involve sharing of risks *across* the population. The latter feature is distinctive of modern institutions.

As an economy modernizes, new technologies evolve to combat illnesses or accidents that otherwise might have ended in death. Treatments associated with these new technologies typically involve a prolonged hospital stay, expensive procedures and drugs, and a long period of recuperation. This has prompted new ways to cope with risks of illness associated with modern medical care. In particular, monetization of transactions and the spread of markets improve prospects for more broadly-based risk-sharing arrangements, because they increase the pool of risk sharers beyond the immediate family and community. The institutional arrangements that accompany the modernization of economies -- centralized governments, labor unions, large enterprises, and farmer cooperatives -- provide the means to pool risks on a scale that extends well beyond the immediate family, tribe, or community.

With modernization, however, the sharing of risks can easily lag behind the need for doing so. Old societal arrangements may crumble rapidly, as revolutionary health technologies become available in an extremely short span of years, and new economic and legal arrangements -- like property ownership and contracts -- can quickly change the rules of everyday economic life. Yet the institutions required to share risks financially are complex and can be slow to develop on a large scale. People who do not think ahead may suddenly find themselves exposed to risks completely out of proportion to their ability to bear them.

Labeling a society "traditional" versus "modernizing" is, of course, approximate. Yet the former applies somewhat to rural areas in Sub-Saharan Africa, and the latter to urban areas in SSA. Formal health insurance is least feasible in rural areas, where traditional risk-sharing arrangements prevail, and may not yield a significant net increase in welfare. Thus, to finance health care in more traditional rural settings, it may be most appropriate to charge user fees for low-cost services, with rural insurance for more costly in-patient interventions handled through other means, such as a

stop-loss mechanism.[85] In urban areas, traditional methods of risk sharing are less available, so the ability to organize market-based, risk-sharing institutions is greater.

INSURANCE BASICS

Insurance aims to protect people from a low probability, catastrophic loss. To illustrate, suppose that a typical African adult between the ages of 15 and 60 years has a 1 in 10,000 chance of experiencing severe illness or injury, resulting in a $3,000 hospital bill in any given year. If this hospital bill were spread over all 10,000 people, then on average, each person's expected annual cost would be (.0001) X ($3,000) = $0.30. Recognizing the value of reducing risks, most people would be willing to pay more than $0.30 a year for insurance that covers such a catastrophic loss, thus transforming the low-probability $3,000 loss into a certain but small $0.30 annual loss.

If an insurance company could assemble 10,000 people with this loss probability and collect $0.30 from each of them, it would be prepared to incur the hospital expenses of one $3,000 loss a year. It could also expect to just break even if no administrative costs were involved. On the other hand, if each person were to pay $0.60 per year to avoid the loss, which seems likely, the insurance company could probably survive on a profit-making basis, assuming it could assemble the risk pool at low cost.

Alternatively, "saving for an unexpected health threat" is not an economically efficient substitute for insurance. A person with a low-probability expected loss of $3,000 could put $60 a year under the mattress for fifty years, and finally achieve (near the end of life) the protection that would otherwise have been available every year by buying the above insurance plan for $.60 a year (for a total lifetime premium of only $30.00). The *efficiency gains* due to insurance are therefore obvious. There is no alternative to risk-pooling of risks that provides the same level of protection.

Insurance is not problem-free however. It creates incentives for consumers and providers to behave in ways that, if uncontrolled, can greatly weaken an insurance system. These are well known to insurance planners and include: adverse selection, moral hazard, and incentives for cost escalation (see Box 8.1).

Simply put, insurance lends itself to the coverage of catastrophic losses that are beyond the control of the individual. These events are the easiest and cheapest to insure, due simply to the laws of probability. Catastrophic coverage is also the place to start when creating insurance plans in developing countries. This approach addresses the problem of financing hospitals, the institutions where catastrophic losses must be paid by patients. Because so many hospital bills go unpaid, a lack of insurance destroys the financial viability of hospitals.

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85 Stop-loss mechanisms are simple devices that can be incorporated into user fee systems to solve risk-related problems. For example, for inpatient care, public hospitals might charge full cost for the first 5 days, but then stop charging on the 6th to "stop the loss". There are many variants of the basic idea.

Box 8.1: Minimizing Problems that Can Undermine Insurance Plans

- *Adverse selection* intrudes when people with a high probability of a health loss systematically join an insurance plan -- thus predominating its membership -- while those with a low probability of a loss do not join. For example, some people may be more afflicted with a chronic illness than others, or may work in occupations with high risk of injury. The least expensive way to correct this problem is to insure groups of people that are selected on the basis of a characteristic other than health status (therefore health risks should be random), such as *all* workers in a particular industry. The state has the power to force this kind of correction in the insurance market (and it often does so for automobile insurance or homeowners insurance). The most expensive correction for this problem would be to do nothing, so an insurance company would be forced (at the limit) to physically examine all potential beneficiaries to ascertain their risk levels. Of course, insurance companies have other less costly methods at their disposal, but every alternative is costly.

The threat of adverse selection also leads to "risk ratings" of groups. For example, coal miners would be charged a higher premium than academics because they are engaged in a more dangerous occupation. Insurance companies also protect themselves from adverse selection by developing plans with different combinations of premiums, deductibles, and co-payments in an effort to prompt individuals with high risks to identify themselves by selecting a plan with a high premium and low co-payment. Over time, an insurance company may also "experience rate" its members (or groups of members, or communities of members) and begin to charge them differentially based on their claims history, if it is legal to do so. Risk rating schemes increase the economic efficiency of insurance but are often thought to be immoral or inequitable.

- *Moral hazard* means that people may take advantage of their membership in a health insurance plan by using services more frequently than had they not been members. Thus, an expected 1/10,000 probability of a loss for all members of a group, on average, may actually become a 1/9,000 probability once people join the insurance plan, because they no longer have to pay the full cost of medical bills. Should this happen frequently, the insurance plan will incur a loss and lose its economic viability.

Moral hazard can be reduced by forcing clients to pay part of the costs of their care before insurance takes over; by careful policing of utilization; by conservatively keeping premiums high to compensate for possible behavioral changes; and by limiting benefits. Often, co-payments or deductibles are used. For example, the insurance plan may require the client to pay 25 percent of all hospital claims (a co-payment), or a certain amount in total before insurance begins to pay (a deductible).

- *Cost escalation:* Physicians, and also consumers, can promote cost escalation. Physicians do so by providing more elaborate treatment than required, with little resistance from clients who have little to lose, because their insurance plan pays the bill. Moreover, in developing countries, insurance companies face several unique problems that contribute to cost escalation. Insurance adds what is called a *loading cost* to the cost of medical care. The loading cost includes administrative costs, sales costs or commissions, and profits of the insurance system. As these loading costs increase, they diminish the value of insurance to the consumer and make it less likely that insurance will be a viable alternative to accepting catastrophic risks. Sources of higher administrative and sales costs include (i) an inability to identify and insure groups (as opposed to individuals) to reduce adverse selection, (ii) the high cost of collecting premiums because of a lack of a regular income stream or banking system, (iii) the high cost of credit (which is typically rationed), (iv) the high cost of policing claims in a dispersed population, (v) and the lack of reinsurance markets. All of these characteristics militate against insurance in less developed countries, especially in rural areas.

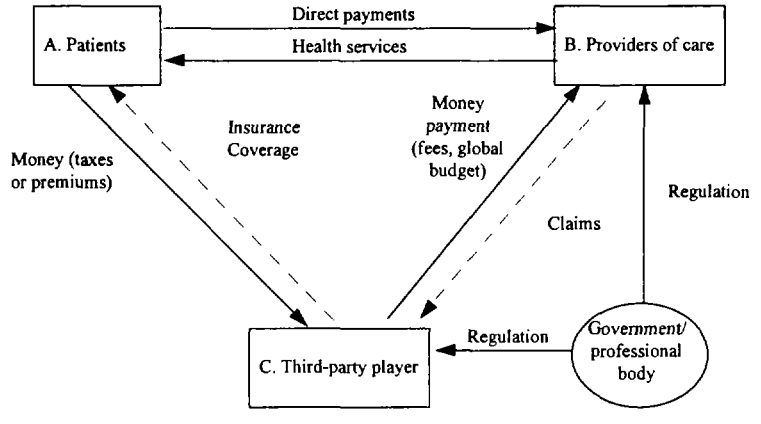
One reason insurance has acquired something of a bad name in SSA is because a number of poorly thought-out schemes have failed. For example, donors have sometimes supported rural insurance plans that cover all problems, including a large share of uninsurable losses, and have

depended on voluntary membership with no protection against adverse selection. Furthermore, such plans have seldom included co-payments or deductibles, thus encouraging moral hazard, and have contained no clear mechanism for collecting premiums regularly. These problems will be revisited in later sections.

PREVALENCE OF HEALTH INSURANCE IN AFRICA

In a survey of twenty-three SSA countries covering the period 1971 to 1987, Vogel (1990) found that only seven countries (30 percent) had formal health insurance systems in place. The percentage of the total population insured ranged from .001 in Ethiopia to a high of 11.4 percent in Kenya. To arrive at these figures, Vogel restrictively defined health insurance as a formal pool of funds, held by a third party, or by the provider in the case of a Health Maintenance Organization. As shown in Figure 8.1 the third party relies on prepayment by its insurees, and draws on this pool of funds to pay for the health-care costs of the plan's membership. The third party can be a governmental social security or other public insurance fund, or any private fund. Employer-provided health care, for example, was not considered "health insurance" according to Vogel's conservative definition of formal health insurance.

Figure 8.1: Sustainable Basic Care



Source: Adapted from Olsen and Mogedal (1993)

Prevailing government health insurance arrangements in SSA were characterized by Vogel as follows:

- Free health care provided and financed for all citizens out of national tax revenues, as in Tanzania;
- Health care provided by government and financed through the general tax fund and through cost recovery, as in Ghana;

- Compulsory Social Security for the entire formal labor market, as in Senegal;
- A special health insurance fund for government employees, as in Sudan;
- A discount at health care facilities for government employees, as in Ethiopia;
- Other public "insurance," such as those entitling government employees to private medical care as a fringe benefit, as in Kenya; and
- Mandated employer coverage of health care for employees, as in Zaire.

More recently, a survey has been conducted by the World Bank of thirty-seven countries to determine the presence of formal and employer-provided schemes (Nolan and Turbat, 1993). Using the same restrictive definition as Vogel, the survey found that fourteen countries had formal insurance systems in place (almost 40 percent). Another four countries had some kind of employer provided program, eighteen had no formal system, and the status of one country could not be determined.

Summary characteristics of fifteen of the countries reviewed by Nolan and Turbat are presented in Table 8.1. Coverage ranges from less than 10 percent of the population in most countries, to about 15 percent in Burundi and Senegal, to 25 percent in Kenya.[86] Private insurers are active in about half the countries studied, with public insurers and employer-based schemes in the rest. Growth potential is especially apparent in Kenya's performance in view of Vogel's estimate that only 12 percent of Kenyans were covered in 1984.

Finally, a review of social security systems throughout the world reveals that among forty-seven SSA countries in 1991, seven (15 percent) have formal social security systems providing medical benefits either through direct service or reimbursement, 15 (32 percent) have an employer mandate forcing the employer to pay for certain medical services, 17 (36 percent) have no formal system, and eight have no information available. Country specifics are provided in the last column of Appendix Table A8.1. These data not only show the variability in estimating health insurance prevalence in countries of SSA, but cast the presence of employer mandated schemes in an even more positive light.

86 The 25 percent figure for Kenya is derived as follows; (i) about 1 million people are members of the National Health Insurance Fund, (ii) about 6 people per family are covered as well, (iii) therefore, about 6 million, or 25 percent, of Kenya's 24 million population were covered in the early 1990s.

Table 8.1: Profile of Health Insurance Coverage in Sub-Saharan Africa

Country	*Provided By:*	*Groups Covered*	*Population Covered (%)*
Burkina Faso	- Social Insurance Scheme	Formal Sector Employees	.9%
Burundi	- "Mutuelle" for Public Servants	Civil Servants and Parastatal Employees	10-15%
Cameroon	- National Social Insurance Fund	Employees	No account
Côte d'Ivoire	- Social Insurance Scheme, - "Mutuelle" - Private Insurers	Employees	No account
Ethiopia	- Private Insurer	No account	.01%
Kenya	- National Health Insurance Fund	Employees and Families	Up to 25%
Lesotho	- Unknown	Employees	No account
Mali	- Social Insurance Scheme - Company Schemes	Employees	About 3 %
Namibia	- Public Schemes - Private Schemes	Employees and Families	20% of formal labor force
Nigeria	- Private Insurers	No information	.4%
Senegal	- Civil Service Employers - Private Insurers	Employees	13%
Tanzania	- Private Insurers	No account	1%
Zaire	- Employers Buy Health Insurance or Provide Care	Employees	No account
Zambia	- State Mining Company Provides Care	Employees and Families	6%
Zimbabwe	- Private Insurers	No account	5%

Source: Derived from Nolan and Turbat (1993), and World Bank Population, Health and Nutrition Sector Reports.

IMPROVING THE EFFICIENCY OF HEALTH INSURANCE FINANCING

The apparent shortage of formal insurance schemes that fit Vogel's definition should not detract attention from other important insurance activities in the region. Vogel himself observed that small local voluntary risk pools were operating, as in Rwanda; that employers were voluntarily providing medical care directly to their employees, as in Zambia; and that some employers provided medical care under contract with private health-care providers, as in Nigeria. The latter arrangement is common among larger firms and parastatals in *all* countries without formal insurance.

Indeed, much of Francophone and Anglophone Africa relies on employer mandates to provide health benefits to employees. Private or parastatal firms in the formal sector provide medical allowances, reimburse workers for expenses, operate clinics and hospitals for their employees, or contract with private and mission hospitals and clinics to provide services. In Zaire, for example, employer-organized insurance schemes comprised about 30 percent of revenue in Kasongo Health District with a catchment population of 30,000 urban and 165,000 rural residents. And about 60 percent of the District Hospital's revenue derived from insurance sources, compared with about 13 percent of health center revenue (Table 8.2).

Table 8.2: Contribution of Employer Organized Insurance Schemes to Revenue in Kasongo District

Facility	*1986* *(%)*	*1987* *(%)*	*1989* *(%)*
First Point of Contact (e.g., Health Centers)	12.2	14.0	12.9
Referral Level (e.g., District Hospital)	55.5	67.0	57.9
Total	28.7	34.7	30.2

Source: Derived from Criel and Van Balen (1993).

Tanzania provides a good case study to illustrate how optimism over insurance can vary, depending on concepts and assessments employed. The survey information reported in Table 8.1 suggests that only one percent of Tanzania's population was covered by health insurance in 1993, whereas Vogel's study reported that Tanzania had no health insurance at all. Yet, a 1992 survey of 200 employers in Dar es Salaam and three regional cities found that three basic approaches to insurance were operating, only one of which fits Vogel's definition of true insurance (Abel-Smith and Rawal 1992b).

First, the National Insurance Corporation (NIC) manages insurance policies for forty-three Tanzanian employers covering about 2,000 employees, half of whom work for NIC itself. This is clearly low coverage in a country of 25 million people, but it is a start on true insurance. Second, the Tanzania Occupational Health Service covered about 250,000 employees in 1992 under contracts with their employers.[87] This system could be classified as a type of prepaid plan. Third, all but seven of the 200 surveyed employers had some kind of formal scheme for their employees, namely, self-insurance. About 50 percent had contracts with private or mission facilities or ran their own clinics or hospitals; about 20 percent reimbursed employees' medical expenses; the remaining 30 percent used other variations on these two approaches. About 90 percent of the schemes were available to all employees. Eighty-six percent of parastatal schemes and 68 percent of private schemes covered at least some dependents.

If civil servants were included, then about 13 percent of Tanzania's population (including dependents) were associated with someone in formal employment with access to employer-based health coverage. Tanzania is the second poorest country in the world, with a twenty-year history of

87 Down from 500,000 as recently as 1989. The Tanzanian Occupational Health Service is explicitly intended to be a nonprofit parastatal, as opposed to other parastatals that are intended to make a profit but never do.

attempting full government financing of medical care; in short, it is the least likely place one would expect to observe insurance of any sort.

Employer-based schemes -- if conceived as part of a health financing strategy -- are promising because they can free up Ministry of Health resources that would otherwise be allocated to expensive curative care. Presumably, the sophistication and breadth of such schemes can improve as per capita income rises. However, existing employer-based schemes, such as those described in Tanzania, are not economically efficient because the "risk pools" are generally too small for self-insurance. In Tanzania, sixty-three percent of the firms had less than 200 employees. Only eight percent of the interviewed firms were satisfied with the current approach, and 73 percent favored compulsory health insurance. This is hardly surprising. A firm of ten employees is only in a slightly better position than a family to share risks, not to mention the high fixed administrative costs of paying medical bills and adjudicating use of health services. A firm of 200 employees is twenty times larger, but hardly large enough to manage such risks.

The point, then, is that for an insurance system to be efficient, risks must be pooled on a large scale. Governments can help bring this about by mandating that (a) employers provide insurance and (b) arrangements are worked out to "amalgamate" such groups into larger risk pools. As Abel-Smith and Rawal (1992) point out, combining employees and civil servants in an employer-mandated insurance scheme in Tanzania promises several advantages including;

- The insured, with the help of their employers, can sustain the *whole* cost of the services they use, not just a small part of the cost which, in practice, user charges can collect. Even those with lower earnings can afford the contribution partly because (i) the employer shares the cost, (ii) the costs of ill health and of covering dependents are fully shared, (iii) sales promotion costs are avoided, (iv) contributions can be made as a proportion of earnings rather than a flat rate, so higher paid employees cross-subsidize lower paid employees, and (v) a unified scheme enables the insurer to exercise bargaining power with providers, insist on use of only essential drugs, and make arrangements which do not give any incentives for the provision of unnecessary services.

- The scheme can be designed to provide preventive and curative services from the same health units.

- Adopting a principle of solidarity, one powerful insurer could be established so as to operate at much lower administrative costs, improve bargaining terms with providers, and avoid unnecessary and costly sales promotion campaigns.

- Health insurance contributions provide a relatively stable source of income which cannot be diverted for other purposes without an explicit change in the law.

- Health insurance will bring in money to pay for better health services for all to use. The more people choose to use insurance for private sector facilities, the shorter the queues will be at public health services, and the less people will have to share the limited drugs and other supplies that public health facilities can barely afford.

- In addition, experience elsewhere has shown that Ministries of Finance have not attempted to cut the health budget following the introduction of health insurance and growth of expenditures on health.

CONTRIBUTION TO EQUITY

One beneficial aspect of insurance that is often overlooked is the *direct equity-enhancing* impact of insurance, whether tax-financed or privately financed. *Within the risk pool*, benefits are provided on the basis of need rather than by income class. Payments go to the sickest people. And because lower income and less educated people tend to be sicker, they also have the potential of benefiting more from insurance claims.[88] The expenditure side of the equation consequently tends to be progressive. Thus the overall impact on equity can be positive.

Differences in financial access and choice of providers arise in insurance coverage systems between *those inside the risk pool and those left out.* To a large extent, this is a design problem that can be solved; it is not an intrinsic element of insurance. The most straightforward way to solve it is by constantly expanding the eligible risk pool. Over a long period of time many Latin American countries have tried to improve conditions for the poor by bringing them into insurance systems (McGreevey 1990).

The same challenge is currently being taken up by South Africa. Until recently, South Africa's medical aid insurance system catered largely to the needs of higher paid, predominantly white-collar workers. Approximately 70 percent of white collar workers were covered by the system, compared with 33 percent of Asian workers, 29 percent of "coloured" workers, and only 7 percent of black workers (Table 8.3).

Table 8.3: Insurance Membership in South Africa, 1993

Population Group	*Beneficiaries*	*Estimated Population*	*% Population Covered*
Black	1,523,702	21,871,000	6.9
Coloured	948,164	3,302,000	28.7
Asian	329,488	991,000	33.2
White	3,490,001	5,080,000	68.7

Source: Registrar of Medical Aid Schemes report, 1991.

A more flexible system -- under the Medical Schemes Act which took effect in January 1994 -- aims to increase blue-collar membership. The Medical Schemes Act can design benefit structures without constraints, thus resulting in more flexible health insurance packages, at more

88 A large literature supports the claim that lower income and educational levels are associated with a higher incidence of illness and death, as well as conditions associated with ill-health, such as poor living conditions and work environments (World Bank 1993b). A question for future research is whether low income and educated people who are sick "self-report" their illness with similar frequency as better-off people. If they do not, equity benefits of insurance might be dampened.

affordable rates. This compares with the prior Act which forced the Medical Aid System to pay between 70 and 100 percent of the scale of benefits for the various services provided, and at least 50 percent of medicine costs. These rigid requirements, along with a restrictive legal environment, resulted in high premiums that were generally not affordable by lower-income earners. The new Act also removes gender discrimination. In the future, a married woman can become a member of a medical scheme in her own right; either spouse may therefore be a principal member of a scheme, or a dependent.

The equity benefits of health insurance become more evident when viewed in light of the prevailing alternative -- denying the rich the opportunity to pay for health insurance and forcing them into the same public system of direct health care delivery as the poor. In this situation, the rich are almost always capable of skewing the distribution of benefits toward themselves. Recent estimates for *rural* Kenya show an *average* subsidy through hospitals of 76 Kenya shillings per year (1991/92), with Ksh. 128 going to the richest decile and Ksh. 55 to the poorest. In contrast, the average subsidy at the health center level was Ksh. 10, with Ksh. 9 going to the poorest and Ksh. 5 going to the richest decile. The hospital subsidy is so large relative to the health center subsidy that it skews the overall distribution of health subsidies heavily toward the rich. If the urban population were included in these estimates, they would almost certainly cause the subsidy pattern to become even more regressive (Dayton and Demery 1994).

In a census of patients in Tanzania,[89] Abel-Smith and Rawal (1992b) found that relatively well-off Tanzanians[90] and their dependents comprised 13 percent of the population in 1991, yet consumed 21 percent of public hospital in-patient services, 44 percent of outpatients in referral hospitals, 36 percent in regional hospitals, and 27 percent in district hospitals. The authors estimate that compulsory insurance programs for these employees (about 200,000) could have financed 27 percent of the Ministry of Health recurrent budget in fiscal year 1990/91.

In Zimbabwe, private insurers covered less than 5 percent of the population by 1987, yet were responsible for almost 17 percent of total health expenditures on health care. These expenditures were concentrated largely on the provision of curative care for relatively well-off Zimbabweans. Their expenditures were the equivalent of one-third of central government expenditures, and about one and one-half times the level of foreign assistance. And, they freed up Ministry of Health funds for public health goods and services.

The above evidence is, however, spotty and inclusive. Yet, it suggests that a sensibly designed insurance system, even if targeted to the richest 10 to 20 percent of the population, will almost certainly improve equity if only by ushering the rich into a system that they, rather than the rural poor, support financially. Although such a system may initially concentrate on upper-income households, a sensible long-term policy would actively extend coverage to poorer segments of the population, further improving the impact.

To conclude, insurance may create equity problems, but so does the alternative of subsidized public provision of hospital services. In both cases it is a question of design. In Africa and elsewhere, insurance interventions offer the public sector a way out of current health financing

89 Three hundred and thirty-five in-patients in three of four government referral hospitals, two of seventeen regional hospitals, and four of thirty-nine district hospitals.

90 Those holding formal sector, non-civil service jobs.

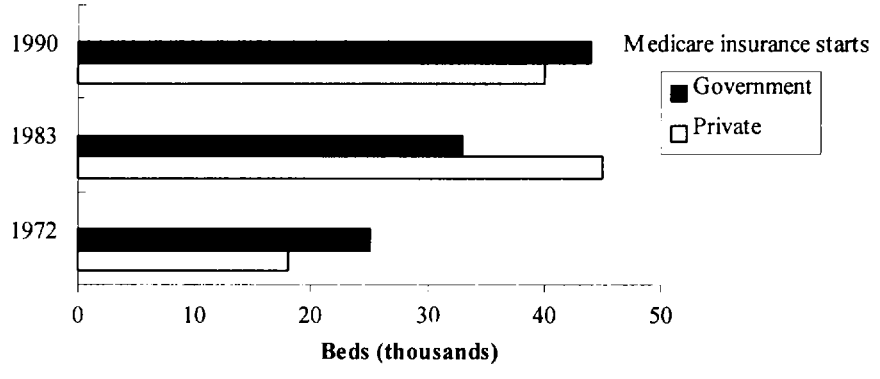
arrangements that are not only inequitable but that channel tax-financed expenditures towards curative care, away from combating a disease burden dominated by preventable health problems.

CONTRIBUTION TO PRIVATE SECTOR DEVELOPMENT

A well-capitalized, unsubsidized, *non-governmental* presence in a national hospital system will never develop *without* insurance for the simple reason that the risk of catastrophic expenses faced by the individual or household translates into catastrophic risks for the provider when bills are not paid. Non-governmental hospitals can be kept afloat without insurance, but always under the prospect of imminent collapse.

An example from Asia helps illustrate how the development of insurance promotes private sector development. The Philippines finances health care through public spending, private spending, and a compulsory insurance system that covers about one-third of the population, reimbursing services from both private and public hospitals (Griffin 1992). The insurance system began operation in 1972, and within ten years the number of private hospitals and beds had doubled despite continued expansion of the public sector (Figure 8.2). Private hospital capacity expanded all over the country and was concentrated in areas that had seen the least private sector development prior to the insurance system (Griffin and Paqueo 1993).[91] Yet this small insurance system has never accounted for more than 10 percent of all health expenditures.

Figure 8.2: Expansion of Public and Private Hospital Bed Capacity in the Philippines, 1972-90



Source: Philippines (annual).

A similar situation exists in Eastern Africa. Kenya developed the National Hospital Insurance Fund in the late 1960s. As a result, by 1989 nearly half of Kenya's tertiary-level facilities (medical centers and hospitals) were either private or operated by a private voluntary church mission. New facilities, offering routine hospital services (maternity and nursing homes), have developed that are completely dominated by private for-profit ownership, and there is a vigorous market for private clinicians (see Table 8.4). The development of private for-profit hospitals in Kenya appears to be unrivaled in Sub-Saharan Africa.

91 As the reader will notice, the private sector began to contract in the late 1980s. The contraction resulted partially from a stagnant economy, but also from the Philippine government's relentless and ill-advised expansion of public hospital capacity and neglect of the insurance system.

Table 8.4 Kenya: Public and Private Ownership of Health Facilities, 1989

TYPE	AGENCY				
	MOH	Mission	Private	Municipality	TOTAL
Medical Centre	4	1	2	0	7
Hospital	98	34	50	1	183
Maternity Home	2	1	16	7	26
Nursing Home	0	1	26	0	27
Health Centre	311	23	60	25	419
Sub-Health Centre	12	1	1	6	20
Other Types of Clinics	38	0	0	0	38
Dispensary	975	160	411	27	1573
Health Clinic	5	2	16	43	66
Total	1445	233	582	109	2359
Percent of Total	61	9	25	5	100

Note: Draft data subject to revision based on 1992 resurvey of health facilities.
Source: Kenya Ministry of Health, Health Information System, 1990.

In contrast, Tanzania and Uganda chose not to develop any financial risk-sharing mechanisms and, implicitly, chose to fund health care through a public system of hospitals. In Tanzania, the government subsidizes seventeen NGO hospitals "designated" as District Hospitals. One study found that about 95 percent of the hospital revenues came from the government (the hospitals are prevented from charging fees) and charitable support is almost nonexistent.[92] The government of Tanzania has thus created a system of government and voluntary hospitals that provide services in most areas with little or no competition. Non-government suppliers are financed through government contracts; all are expected to provide services at little or no cost to the consumer. It is hardly surprising that private hospital services have not yet developed, given this sort of competition, the outright ban that existed for ten years, and the lack of insurance (see Table 8.5).[93]

Table 8.5: Tanzania: Ownership of Health Units and Capacity by Provider, 1991

	Government (Including Parastatals)	Voluntary Agencies	Private For-Profit	Total
Hospitals	85	84	3	174
Beds	12548	11341	241	24130
Health Centers	266	8	1	276
Dispensaries	2411	573	30	3014

Source: Ministry of Health, Health Information System Unit, *Tanzania Health Statistics Abstract No. 1.*

92 Government bed grants to the other (non-designated) voluntary hospitals account for only 4 to 9 percent of total revenues.

93 Private practice was legalized in 1992. Approximately 500 organizations and individuals have registered with the MOH since then; however, the vast majority are small-scale dispensaries in Dar es Salaam.

In Uganda, there has been little development of secondary or tertiary private hospitals. Over the past ten years, private provision of hospital services has been limited to small operations, usually with just a few beds for patients who must stay overnight (see Table 8.6).

Table 8.6: Uganda--Health Units and Capacity by Provider, 1991

		Government	NGO	Private	Total
Tertiary and Secondary Hospitals	Number	50	36	0	86
	Total Beds	8474	5343	0	13817
Primary Hospitals		188	66	42	296
Outpatient Clinics		612	165	284	1061

Note: Tertiary and secondary hospitals include all hospitals from the district level and above. Primary hospitals are either health centers with inpatient facilities or dispensaries that have a few bed :, usually for deliveries. Out-patient clinics include dispensaries, sub-dispensaries, and aid posts.

Source: The World Bank.

The evidence provided here is not a conclusive test of the hypothesis that direct provision of hospital services by the public sector combined with a lack of insurance inhibits development of the private sector. But it is certainly consistent with this hypothesis. Endeavors to provide publicly-subsidized health services directly, as part of a loosely contrived, tax-based national "insurance" plan will likely create a system that competes with the private sector for paying patients and crowds out the insurance market for all but the very rich. Failing to encourage the development of insurance consequently results in a far less efficient and equitable system of health finance than is possible.

DETERMINING THE POTENTIAL FOR INSURANCE MARKETS

Prospects of expanding insurance in Sub-Saharan Africa have thus far been interpreted in a positive light. Experience at the country level, however, shows that opportunities for financing health can only be established when factors bearing on the viability of insurance markets have been assessed. The following *supply side* information needs to be ascertained prior to establishing a viable insurance scheme:

- *Public/private mix.* What is the mix of private and public practitioners? If the system is almost totally public and services are free, then the government is attempting to provide social insurance through the direct provision of services. Introducing a health insurance program in this environment is tantamount to introducing fees where they previously did not exist. Revamping a system dominated by public sector provision of hospital services requires (i) the introduction of user fees, (ii) a market-friendly regulatory framework for private sector development, and (iii) planning, begun early on, to introduce formal insurance.

- *Capitalizing the insurance system.* How will the system be capitalized? Any system will incur expenses before adequate revenues can be collected. Can adequate funds be borrowed to finance the initial operating costs of an insurance program? Can it be capitalized through the sale of equity? Organizations such as the World Bank have much to offer in assisting countries to design and capitalize the necessary financial institutions.

- *Services to be offered.* What services should be offered as part of the insurance package? As mentioned earlier, the least expensive approach to risk protection is catastrophic coverage. Is it feasible to start with that level of coverage and add more expensive coverage later, as demands and income increase? What price would have to be charged for the most basic insurance package, and how could such a package be financed?

- *Beneficiary Contributions.* Are deductibles and co-payments administratively feasible? If not, problems associated with moral hazard will be difficult to solve and could create a financial nightmare.

- *Groups.* Are there groups assembled for other purposes, such as professional associations or worker's unions, to which insurance coverage could be attached? If not, adverse selection will be a problem. Even if adverse selection is difficult to manage directly, it can be handled by imposing upper limits on benefits, which reduces the absolute level of coverage but, nevertheless, provides a feasible solution.

- *Administrative costs.* Information is extremely scarce on the administrative costs of health insurance in SSA. Among the few examples: the costs of administering the Prevoyance Sociale program in Mali amounted to as much as 50 percent of revenues during the mid-1980s. In Zimbabwe, on the other hand, a program called NIMAS reports that its member Medical Aid Societies' administrative costs are probably less than 10 percent of revenues (Vogel 1993). Among the many practical problems to be solved in designing health insurance are finding accurate sources for actuarial data on the costs of care, and predicting the demand for services (Borch 1990). Administrative costs should be viewed in light of the costs of alternatives, such as more effective public management of hospitals, which also tend to be high. Investing in financial infrastructure, especially the required technological and human capital, also creates fungible financial institutions and skills that will have external benefits beyond the health sector. The alternatives must be carefully evaluated. It is not self-evident that the costs of administering an insurance system are greater than the prevailing systems of publicly-managed services, which tend to be highly inefficient.

On the *demand side*, accurate administrative cost projections will depend on accurate assessments of the willingness to pay for insurance and ability to organize groups to do so. Demand for insurance is a function of prices (and prices of competing alternatives), the income of prospective participants, the services and benefits to be offered, and probably most importantly, current levels of health expenditures.

- *The Insurance Premium and Health Expenditures.* Insurance premiums must be lower than the expected cost of using other care. This is not a trivial consideration. If a family expects to use a hospital once every five years and it only costs $25 to get to a fairly distant but free and adequate government hospital, it would probably be irrational to buy an insurance policy costing even as little as $5 per year. User fees at the hospital would, of course, completely change the equation.

- *Household Income.* Because the demand for voluntary insurance is highly and positively related to income, poorer households will tend not to buy it. This problem could be partially offset were government subsidies for hospitals and other curative services to be converted to a subsidy for low-income households to purchase insurance. Such a subsidy could take

advantage of the fact that poor households, too, would buy insurance at the right price. How extensive membership could be made, and at what price to the government, is an empirical question. If a risk-sharing plan could offer the same or better choice of medical services than is already available, for the same expected expenditure, then even low income households could be convinced to use insurance to finance the medical system.

- *Health expenditures.* Information on existing expenditures provides the most valuable data for designing an insurance plan. How much do people spend on medical care and drugs already? For what services? From which providers? What portion of expenditures are for catastrophic services? How likely are families to incur catastrophic expenses in any given year? Knowledge of expenditure and risk patterns can provide information on the types of services households are willing to pay for, how expenditures vary by income group, and therefore, how an insurance system could be designed and presented to the group to be covered.

- *Size of group.* Actuarial considerations and overhead costs require that the covered group be as large as possible. The "law of large numbers" refers to the fact that illness is a random event that can be predicted if there is a sufficiently large pool of people from which an average experience of illness and its costs can be drawn. This allows the insurer to (i) calculate a premium that reflects the average experience and a standard deviation around the average, and then (ii) to collect this premium from a sufficiently large pool of insured individuals. The total revenues from these premiums should then be sufficient to pay the costs of illness in any given time period (Vogel 1933). For small villages, this creates a difficult situation. As a group they may not be able to afford a level of services that individuals would be willing to pay for prospectively. This is an issue on which there is little agreement, including what premium rate is necessary to support different levels of service? Can villages be combined into larger groups?

In considering demand and supply questions together, it is important to keep in mind that both types of considerations are fluid at the design stage. Quality of care and the array of services offered by an insurance package can be adjusted to suit what the insured group is willing to pay. This information must be gleaned from past expenditure patterns. Furthermore, some minimal level of service must be provided before people will pay anything (unless they are forced to). All of these issues remain under-investigated in Sub-Saharan Africa.

IRREGULAR SOURCES OF INCOME AND THE POOR

People who do not have regular incomes are a major problem for any insurance plan. Any attempt to include such people in formal insurance plans can increase administrative costs, billing and collection problems and adverse selection. Unfortunately, this problem is typical in Africa, even in the cities. The main issue in extending self-financing health insurance, therefore becomes "How can substitutes for regular payments for insurance be collected?" As noted previously, the obvious answer is to find groups and transactions which lend themselves to regular payments such as civil service and other salaried employees -- people who currently have formal sector jobs.

Rural insurance is more difficult but hardly impossible. Farm incomes from cash crops provide an obvious source from which to capture funds for health insurance. If products are marketed through a cooperative, the cooperative can be targeted for group coverage, with the premium deducted from sales. This method is used by a well-known pre-paid health plan sponsored through the National Dairy Development Board in India. Farmers are rarely completely

unorganized and may be members of irrigation groups that allocate water rights, savings and loan associations, or agricultural extension groups.

Rural pre-payment schemes are drawing increasing attention as a means of financing and organizing health services within a district setting (Korte et al 1992). An important advantage of prepayment is that it can limit the effects of seasonal income fluctuations on ability to purchase care. Thus, collecting a contribution when cash incomes are highest helps to guarantee financial access even during seasons when much of the rural population is cash poor.

Examples of successful prepayment schemes are evident in Guinea-Bissau and Zaire. A village-level prepayment scheme for drugs and basic services has been funded in Guinea-Bissau through annual collections made shortly after the harvest, when cash is readily available in the village (see Chapter 10; Chabot et al. 1991). Similarly, in Zaire's Bwamanda health zone, annual collections for a prepayment scheme for hospital services are made during the season when cash incomes are highest (see Chapter 9). Upwards of 60 percent of the population in Bwamanda and 75 percent of the villagers studied in Guinea-Bissau were enrolled.

A comparison of the district-based Bwamanda scheme in Zaire and the nationwide rural health card scheme in Burundi -- the Carte d'Assurance Maladie (CAM) -- is instructive. The Bwamanda scheme has done far better in terms of enrollment rates, premium levels, and the use of funds (USAID 1993). Relatively high enrollment rates can be attributed, first, to the fact that most of the population believes the scheme provides access to good quality health services (see results of opinion surveys in Chapter 9). Second, high fees are charged at the hospital, so there is real financial risk associated with an illness requiring hospitalization, and thus an incentive to join the plan. Third, the premium is affordable to most of the population, even though premiums have been increased every year to keep pace with high inflation rates by linking the price to the value of two kilograms of soybeans, a commonly produced crop. The revenues from premiums and co-payments directly finance the operating costs of the zone's health facilities. Substantial revenues were generated from the combination of prepayments and co-payments for the prepayment scheme, and were used to finance health services in the zone. All hospital costs for beneficiaries were covered by premium income in 1987 and 1988, and cost recovery in the hospital went from 48 percent in 1985 (before insurance) to 79 percent in 1988 (Chapter 9).

In Burundi, on the other hand, the quality of care in public facilities is reported to be poor, with drug stockouts common (World Bank 1993c). A survey of the rural population found that this was the leading reason for not buying or renewing the CAM health card. The need for the card is also undermined by the very low fees charged at health centers. The contribution of the CAM is also limited by the low level of the premium, which has not been adjusted since the scheme was introduced in 1984. Finally, revenues from CAM sales revert to local government authorities and thus do not finance health services directly. As a result of these factors, revenues from CAM sales represented only about 3 percent of Ministry of Health recurrent expenditures in 1990.

In almost any society, it should be possible to discover some preexisting group that would lend itself to group insurance coverage. Even the poorest of the poor pay surprisingly high percentages of their incomes for health services, suggesting that, even among the poor, income may not be the binding constraint on insurance expansion. Instead, the constraints are more likely to be informational, such as providing justification for payment of a health insurance premium by those who are not sick) or administrative, such as collecting the money at reasonable cost.

FEASIBILITY OF EXPANDING INSURANCE

The foregoing discussion suggests the development of modern risk-sharing institutions is desirable in *all* SSA countries. Table 8.7 provides an analytic framework for assessing the feasibility of insurance along four dimensions;

(i) Supply and demand-side considerations;

(ii) Broad requirements for supply and demand to be viable;

(iii) Facilitating factors that tend to go hand-in-hand with the needed requirements;

(iv) Appropriate macro variables that can be used to assess whether facilitating factors conducive to expansion of insurance markets are in place.

Table 8.7: Summary of Supply and Demand Side Insurance Issues

	Requirement	Facilitated by	Appropriate Macro Variable
Supply of Insurance	Lower administrative cost	Denser population, better developed infrastructure	Population Density Urban Population
	Ability to reduce adverse selection & moral hazard	Assembly of sizable groups to pay for coverage	Total population multiplied by percent of labor force in industry (or formal sector employment)
	Greater donor involvement in health sector	Donor motivation to invest in new private sector development	Aid flows in health
Demand for Insurance	Income	Positive income elasticity of demand for insurance	Per capita income
	Greater private sector potential	Higher probability of losses for consumers; reduced prospects of free care	Private medical expenditures Supply of physicians Hospital beds per thousand population

The framework in Table 8.7 has been used to rank SSA countries by producing "scores" for each country's performance on the macro variables. The method is straight-forward and simple. For each of the macro characteristics in the table, a country received +1 if its value stood

beyond one standard deviation from the average for SSA. Alternatively, the country received -1 if it lagged behind the average by more than one standard deviation, and 0 otherwise. A "0" thus means that the country is about average. Each of the macro characteristics listed in Table 8.6 is weighted equally. The maximum positive or negative score a country could receive therefore +8 or -8.

Results of this exploratory exercise are reported in Table 8.8 based on the data reported in Annex Table A8.1.[94] The range of values for the forty-seven countries evaluated in Table 8.8 is from -3 to +3. Zimbabwe outscores the rest of the countries principally because its per capita income, private medical expenditures, and foreign assistance for health are all above average. Along with South Africa, Zimbabwe probably has the best-developed private insurance market.

Table 8.8: Insurance Feasibility Rankings of Sub-Saharan Countries

Rating	Frequency	Countries	Number with Formal System or Employer Mandate
-3	1	Ethiopia	0
-2	2	Burkina Faso, Malawi	1
-1	7	Burundi, Mozambique, Rwanda, Sierra Leone, Tanzania, Uganda, Somalia	2
0	14	Kenya, Madagascar, Côte d'Ivoire, Guinea, Zambia, Angola, Guinea-Bissau, Lesotho, Cape Verde, Gambia, Liberia, Sao Tome & Principe, Swaziland, Namibia	4
1	17	Ghana, Nigeria, Senegal, Benin, Cameroon, Chad, Niger, Sudan, Zaire, Botswana, Congo, Mauritania, Comoros, Djibouti, Gabon, Seychelles, Equatorial Guinea	12
2	5	Central African Republic, Togo, Mali, Mauritius, South Africa	3
3	1	Zimbabwe	0

Note: See annex Table A8.1 for details.

The message for countries like Zimbabwe is that the potential for insurance and consequent investment of donor funds in expanding insurance coverage is strongly merited. The same could be said of the countries rated 2. Three out of the five countries rating a 2 have a mandate in their labor laws that employers must provide some medical services, but there is no publicly-sponsored risk sharing mechanism for medical care. Except for Mauritius, each of these countries either has above-average foreign assistance in health or the potential for it (namely, South Africa). Expanding insurance may be a key investment in these countries for improving social welfare. Of those countries rating a 1, nine have an employer mandate to provide medical benefits, so they have an established basis on which to build stronger systems of risk sharing.

In the average and below-average countries (with a rating from 0 to -3), prospects for formal insurance are lower. Yet the situation in each of these countries should be reviewed carefully, as there are examples suggesting great potential. For example, though Kenya has a zero rating, it appears to have the broadest insurance coverage of any country in the region for a mandatory insurance system. The ten countries with negative scores tend to be poorer, less

94 Note also, there are many missing values in Annex Table A8.1.

urbanized, with less formal medical infrastructure than average. As noted previously, however, Tanzania (with a rating of -1), has a fairly high potential for at least a limited insurance system. Even in these countries, the civil service and state-owned enterprises account for 5-10 percent of the work force and provide an obvious base for developing formal risk-sharing systems. Civil service reform, sponsored widely in SSA by the World Bank, should take into account the potential value of monetizing health benefits through mandatory insurance.

The ratings provided in Table 8.8 are, of course, static and thus ignore changes that are likely to improve the viability of formal insurance in the region. Most important among these are the following;

- *Competition from No-Charge Services.* Governments are beginning to charge fees for medical services, thus fostering an enabling environment for private sector competition. This trend will accelerate as countries gain experience in generating revenues, and take a more aggressive stance in reallocating public funds away from expensive tertiary care. The issue is to encourage the development of higher quality and more sophisticated private curative services, which requires a more stable financing mechanism than fee-for-service medicine.

- *Adverse Selection of Populations.* Prospects for reducing adverse selection are improving. The extension of markets into rural areas and the movement of people into cities and formal sector employment has reduced the difficulty of assembling such groups for insurance coverage. Between 1970 and 1991, urban population rose from 16 to 29 percent of total population in SSA. In addition, the development of rural credit programs, agricultural extension programs, and irrigation projects have created rural institutional structures that may lend themselves to the organization of insurable groups in rural areas. None of these changes has been quantified however. It will be important to do so to help evaluate the potential coverage of formal insurance systems in SSA. For example, with varying degrees of success, countries like Brazil, China, Ecuador, and Mexico have extended their insurance systems into rural areas. In China, with per capita income of $330, over 60 percent of the population is covered by some type of insurance system (Griffin 1990).

- *Administrative Costs.* The technology of handling the financial demands created by insurance funds has become less expensive at the same time that it has become easier to assemble large groups for insurance. Greater availability of personal computers, the development of banking, and falling communication and transportation costs, should dramatically reduce the administrative costs of supplying insurance in SSA.

Generally, the problems noted here are least serious in urban areas of Africa. Urban areas, where incomplete markets for insurance persist, provide an opportunity for public action to increase the efficiency of financial markets in the health sector.

CONCLUSION AND RECOMMENDATIONS

Mobilizing more resources for health is the conventional justification for user fees and insurance in developing countries. But health insurance can also increase fairness, economic efficiency, quality, and consumer choice in the financing and delivery of health care. Interest in

risk-sharing institutions and insurance systems is also a natural consequence of using prices to better allocate scarce resources in the health sector, and to foster growth of the private sector as a provider and financier of curative services.

The slow pace at which formal insurance institutions have developed spontaneously in Africa is probably related less to a failure of demand for risk-sharing mechanisms than to (i) the preemptive presence of governments in the provision of free hospital services, (ii) the peculiar economic characteristics of insurance that inhibits its spontaneous development, and (iii) widespread poverty in the region. Poverty affects how quickly and broadly insurance systems develop on their own, but it should not affect the government's ability to encourage insurance.

Looking ahead, broad coverage of the population with health insurance is likely to be feasible only with government intervention of various sorts. Part of the challenge in thinking about health insurance in Africa is to consider a situation in which governments would be willing to monetize their contribution to risk sharing. Another part of the challenge is to anticipate peculiarities and new distortions that insurance can introduce into health finance markets. Solving these problems is a design issue, and creates substantial requirements for financial, legal, communications, and data processing infrastructure. Countries face the problem of choosing an approach to risk management that strikes a reasonable balance between efficiency, equity, risk considerations, and feasibility.

This paper suggests there is a promising future for health insurance in Africa, but that careful planning will be required to assure sustainable expansion of programs. Steps in the right direction include:

Initially, stress a city focus: Urban areas should be the first focus of a policy to develop insurance markets that are publicly sponsored. Private insurance plans will certainly focus on urban areas because of the lower "loading costs," better medical market conditions, formal employment, and so on. If extension to low income people is contemplated, it should be started in the cities.

Tap the formal sector: In many African countries, the formal sector is disproportionately populated by government employees. More often than not, as Vogel (1990) points out, governments provide some health benefits for their own employees, such as medical allowances, reimbursements, exemptions from government fees, or health insurance. Governments tend to require that health benefits be provided to employees of large firms. Much can be done to rationalize this system and to encourage the private sector by converting in-kind benefits or benefits tied to government facilities into financial instruments like insurance. The government can have a large impact because its employees are spread throughout the country.

Implement user fees as a prerequisite: Countries cannot jump into insurance before first passing the hurdle of imposing user fees in government facilities, especially hospitals. An insurance system, as in Kenya, may offer to reimburse MOH facilities, but if these facilities do not charge fees or have the capacity to process bills for insured patients, there will be no effect on MOH resources.

Stress catastrophic care: Catastrophic care should be stressed. When only services of this kind qualify for payment by insurance companies, it creates an incentive for physicians to admit patients to the hospital. Moreover the beginnings of an insurance system almost certainly must be confined to catastrophic care in order to keep the costs of the plan down. However, planning should also

begin early to create incentives for managed care networks that can provide prepaid services of a more comprehensive kind. Any inpatient plan should probably include a basic package of outpatient services, for medical reasons as well to improve the incentive structure faced by doctors. Achieving this goal will likely take several years however.

Pay attention to the uninsurables: In some countries, the uninsurables may include virtually all of the rural population. The government can provide a form of insurance to these groups by delivering subsidized services directly or through contract with the private sector. As indicated earlier, any such services should include features of a managed care plan -- deductibles and co-payments. Inpatient insurance can be provided by creating stop-loss cutoffs for fees. Other uninsurables include the elderly and the poor, who can be handled in a similar way. The elderly can be allowed to retain subsidized insurance after they retire.

Complement formal insurance with prepayment schemes: Insurance is not a forced savings program. It is a risk-pooling program. Some of the experiments, as described previously in rural Zaire and Guinea-Bissau, are more properly labeled as payment of taxes, forced savings, or membership dues to a discount club (entitling the member to public subsidies). While these are different methods of collecting user fees, they clearly merit encouragement as an ingredient to sustainable financing of health services in rural areas.

Maintain consumer choice: Insurance benefit packages tend to be designed as if "one size fits all." The one size is often quite large -- a package of "over-insurance." A more appropriate approach would be to design a minimal required package (the *required* being a reaction to adverse selection), and to leave consumers the choice of spending more on additional benefits.

Build an information base for policy analysis: A region-wide analysis is merited to collect information on the specific demand and supply data required to make inferences about insurance coverage.

Policy analysts will also want to turn their attention to a number of important gaps and enigmas in our understanding of health insurance including;

(i) Strong profit or revenue-maximizing behavior coupled with third party reimbursement for billed services could manifest in incentives to increase the volume of billed services, and sometimes their average cost. This is commonly referred to as cost escalation. This is not to be confused with the positive effect that self-financing health insurance can be expected to have on total health sector resources, associated with rapid growth in health and hospital expenditures. Rather, it stems from the fact that providers can have an impact on the quantity of services ultimately demanded by consumers (given the ignorance of most consumers of their medical treatment needs and options). Appropriate monitoring, evaluation, and incentives should be put in place to discourage providers from expanding the volume and cost of services beyond what is cost-effective (Kutzin and Barnum 1992).

(ii) The extent to which co-payments and deductibles have reduced moral hazard and adverse selection, as is claimed by "theory," is poorly understood in general, and requires specific appraisal in SSA contexts.

(iii) Little is known about how voluntary insurance may affect the market for health care among the uninsured -- particularly if privately insured services drive up the cost of all care and exacerbate problems of access and affordability for the uninsured.

ANNEX TABLE A8.1: Feasibility Ratings (Alphabetical)

COUNTRY	DEN	URB	INDP	AID	PPP	PRVX	PMD	BEDS	TOTAL	MISS	MEDCOVER
ANGOLA	0	0	0	0			0	0	0	2	Not known
BENIN	0	0	0	1	0	0	0		1	1	Employer Mandate
BOTSWANA	0	0	0		1		0		1	3	Employer Mandate
BURKINA FASO	0	-1	0	1	0	0	-1	-1	-2	0	Employer Mandate
BURUNDI	0	-1	0	0	0	0	0	0	-1	0	Employer Mandate
CAMEROON	0	0	0	0	0	0		1	1	1	Employer Mandate
CAPE VERDE	0	0	0				0		0	4	Social Security System Cash Benefit
CENTRAL AFRICAN REPUBLIC	0	1	0	1	0	0	0	0	2	0	Employer Mandate
CHAD	0	0	0	1	0	0	0		1	1	Employer Mandate
COMOROS	1	0	0				0		1	4	Not known
CONGO	0	0	0		1		0		1	3	Employer Mandate
CÔTE d'IVOIRE	0	0	0	0	0	0		0	0	1	Direct SSS Medical Service
DJIBOUTI	0	1	0				0		1	4	
EQUATORIAL GUINEA	0	1	0						1	5	Social Security System Cash Benefit
ETHIOPIA	0	-1	1	0	-1	0	-1	-1	-3	0	None
GABON	0	1	0				0		1	4	Direct SSS Medical Service
GAMBIA, THE	0	0	0				0		0	4	None
GHANA	0	0	0	0	1	0	0	0	1	0	Employer Mandate
GUINEA	0	0	0	0		0	0	0	0	1	Social Security System Cash Benefit
GUINEA-BISSAU	0	0	0		0		0		0	3	Not known
KENYA	0	0	0	0	0	0	0	0	0	0	Social Security System Cash Benefit
LESOTHO	0	0	0		0		0		0	3	Not known
LIBERIA	0	0	0				0		0	4	None
MADAGASCAR	0	0	0	0	0	0	0	0	0	0	Not known
MALAWI	0	-1	0	0	-1	0	0	0	-2	0	None
MALI	0	0	0	1	0	1	0		2	1	Employer Mandate
MAURITANIA	0	1	0		0		0		1	3	Employer Mandate
MAURITIUS	1	0	0		1		0		2	3	None
MOZAMBIQUE	0	0	0	0	-1	0	0	0	-1	0	Not known
NAMIBIA	0	0							0	6	Not known

ANNEX TABLE A8.1 (continued)

COUNTRY	DEN	URB	INDP	AID	PPP	PRVX	PMD	BEDS	TOTAL	MISS	MEDCOVER
NIGER	0	0	0	1	0	0	0		1	1	Employer Mandate
NIGERIA	0	0	1	0	0	0	0	0	1	0	None
RWANDA	0	-1	0	1	0	0	-1	0	-1	0	Employer Mandate
SAO TOME & PRINCIPE	0	0	0				0		0	4	None
SENEGAL	0	0	0	1	0	0	0	0	1	0	Social Security System Cash Benefit
SEYCHELLES	0	1	0				0		1	4	None
SIERRA LEONE	0	0	0	0	0	-1	0	0	-1	0	None
SOMALIA	0	0	0	0		-1	0	0	-1	1	None
SOUTH AFRICA	0	1		-1		1		1	2	3	None
SUDAN	0	0	0	0		1	0	0	1	1	None
SWAZILAND	0	0	0						0	5	None
TANZANIA	0	0	0	0	-1	0	0	0	-1	0	None
TOGO	0	0	0	1	0	1	0	0	2	0	Employer Mandate
UGANDA	0	-1	0	0	0	0	0	0	-1	0	None
ZAIRE	0	0	1	0		0	0	0	1	1	Employer Mandate
ZAMBIA	0	1	0	0	0	-1	0		0	1	None
ZIMBABWE	0	0	0	1	1	1	0	0	3	0	None
AVERAGE	73.8	31.1	5.1	1.9	1328	1.7	.12	1.4			

DEN	Population per square kilometer mid-1991 (World Bank 1993b)
URB	Urban pop (% of total pop) 1991 (World Bank 1993b)
INDP	Population 1991 multiplied by % of male labor force in industry, 1987 (ADI) (millions) (UNDPI World Bank 1992)
AID	Aid Flows in Dollars per capita 1990 (World Bank 1993b)
PPP	PPC Estimates of Per Capita GDP (World Bank 1993b) (dollars)
PRVX	Private Medical Expenditures as a Percent of GDP 1990 (World Bank 1993b)
PMD	Doctors Per Thousand Population 1988-92 (World Bank 1993b)
BEDS	Hospital Beds Per Thousand Population
TOTAL	Total Score
MISS	Number of Values Missing
MEDCOVER	Type of Coverage by Public-Sponsored Social Security Coverage (United States 1992)

CHAPTER 9

PERFORMANCE AND IMPACT OF FOUR HEALTH INSURANCE PROGRAMS IN RURAL AND URBAN AREAS OF ZAIRE

Donald S. Shepard, Taryn Vian, Eckhard F. Kleinau

ABSTRACT: This chapter provides details on the design, management and operational efficiency of four health insurance schemes in rural and urban areas of Zaire. Conclusions are drawn about the advantages and disadvantages of these health insurance schemes as a means of financing health services and stimulating demand. Findings suggest that the rapid implementation of a nation-wide conventional health insurance system is not likely to be a feasible option at this time but, that decentralized, locally managed plans are demonstrating good prospects for success. The chapter concludes with twelve lessons learned and offers programmatic and operational recommendations for next steps.

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INTRODUCTION

Health economists have questioned the financial viability of health systems that rely heavily on user fees, especially with regard to expensive hospital in-patient care (de Ferranti 1985; Griffin 1988; World Bank 1987). Bad debt is a documented problem in in-patient care facilities, and partially explains why hospitals have the lowest rate of cost recovery of all health facilities in Zaire (Bitran 1987). For these reasons, a recent study concluded that user fees may not be the optimal financing mechanism for in-patient care at tertiary facilities (Bitran 1989).

As early as 1986, researchers in Zaire identified insurance systems and prepaid plans as a means of protecting individuals against the cost of catastrophic illness, while at the same time providing a steady source of increased revenue for the health sector. In theory, insurance premiums are based on the statistical probability of illness, and are therefore set at a fraction of the average cost of a hospitalization. The population may be more willing and is clearly more able to pay the price of an insurance premium than the full cost of in-patient care at times of serious illness. Compared with the current user fee system, therefore, a hospital insurance program has the potential to mobilize greater and more steady financial resources, while providing protection to individuals against the enormous burden of catastrophic illness.

A paper commissioned by the World Bank reiterated the potential advantages of health insurance systems in Zaire, especially in comparison with the current, almost universal systems of user fees for in-patient services (Bitran 1989). The study noted that Zairians can expect to have high in-patient expenditures if they fall ill and require hospitalization, given the prevailing levels of fees in place. Perceiving that they will be faced with such high expenditures when hospitalized, sick individuals can take three actions: (i) avoid seeking care at all; (ii) obtain care and spend a large portion of annual disposable income or sell household assets to pay for it; or (iii) obtain care and not pay for it, thus increasing the hospital's burden of bad debt. Whatever option is selected, the outcome is negative.

This chapter evaluates the design, management and operational efficiency of four health insurance schemes in both rural and urban areas of Zaire. It is based on the results of an intensive, three-week field study in Zaire conducted by the authors in the fall of 1989. From these analyses, conclusions are drawn about the advantages and disadvantages of health insurance as a means of pooling the financial risks of costly catastrophic illness.

CASE STUDIES: DESCRIPTIONS AND IMPACTS

In 1989, Zaire's Conseil Executif commissioned an insurance systems study which included an inventory of existing "mutual associations" (a term that includes many different types of formal and informal clubs and cooperatives). Twelve associations were identified which offer or are planning to offer some form of health insurance. These are:

(i) Bwamanda Health Zone, Equateur Region;
(ii) Bokoro Health Zone, Bandundu Region;
(iii) St. Alphonse Health Center, Kinshasa;
(iv) Caisse de Solidarité Ouvrière et Paysanne (CASOP), Kinshasa;
(v) Reseau Medecins de Familles (REMEF), Kinshasa;

(vi) Masisi Health Zone, Kivu Region;
(vii) Mutuelle "Union et Prevoyance" (UPM), Kinshasa;
(viii) Mutualité de Solidarité Chretienne, Kinshasa;
(ix) MUZAS, Kinshasa;
(x) LETISSA, Kinshasa;
(xi) Sona Bata Health Zone;
(xii) SNHR Employee Cooperative in Rutshuru;

From this list, associations (i) through (iv) were selected for in-depth case analysis. These particular schemes were chosen for several reasons. First, the study team wanted to assess insurance systems that had been operating for at least a year, and for which information about utilization and financial performance was available. The team also wanted an enrollment of at least 1,000 members so that utilization rates would be stable. In addition, the study team wanted to analyze insurance systems in both rural and urban settings, covering different types of care (e.g. ambulatory, hospital). Finally, travel and communications were clearly a constraint, given the short duration of the study. The health insurance plan in the rural zone of Masisi was not selected for this reason.

Tables 9.1 through 9.3 summarize the pertinent characteristics of the four plans along three dimensions: coverage and services; premiums and payment structures; and revenues and expenses. The following sections examine (i) the terms of the insurance; (ii) organization and management; (iii) effect on resource mobilization; and (iv) effects on utilization and access.

CASE STUDY OF BWAMANDA

The health zone of Bwamanda, located in the Equateur Region of Zaire, operates under the medical services of the Center for Integrated Development (CDI) of Bwamanda. The CDI was started in 1969 with assistance from Belgian missionaries to support economic and social development, including agriculture, health, nutrition, and infrastructure. The health zone's 1989 population of 134,682 is served by a 156-bed reference hospital, twenty comprehensive health centers, and two smaller health posts.[95]

Terms of the Insurance Plan

Several concerns led decision-makers to consider the development of an insurance plan as a health financing option for the zone of Bwamanda. Most important, the zone's medical staff wished to increase economic access to health care and to improve the hospital's financial situation. Yet, fluctuations in income due to seasonality of crops meant that it was not easy for individuals to pay the full cost of a hospitalization. Medical staff were also concerned that individuals who had been referred to the hospital were delaying their arrival by several days, in order to gather enough money to pay for the care.

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95 This discussion draws on previous work by health zone staff and other research teams, reported in several documents: Moens (1988), and Bwamanda Health Zone Annual Reports for 1985 through 1988.

Table 9.1: Coverage and Services in the Four Plans

Name of Plan	*Bwamanda Insurance Plan*	*Bokoro Health Zone "Abonnement"*	*St. Alphonse Insurance Plan*	*CASOP/UNTZA*
REGION	Equateur	Bandundu	Kinshasa	Kinshasa
RURAL/URBAN	Rural	Rural	Urban	Urban
TYPE OF MANAGEMENT	Health Zone Assisted by the Center for Integrated Development (CDI), a project started by Belgian volunteers	Health Zone Assisted by medical staff of the Belgium Cooperation	One health center within a health zone: assisted by SPTK and Catholic parish	UNTZA (Zairian National Workers Union)
DATE STARTED	April, 1986	1985	February, 1987	1968
ELIGIBLE POPULATION	1986: 118,612 1987: 125,480 1988: 130,000 1989: 134,680	1986: 112,911 1987: 116,815 1988: 109,685 1989: 110,000	1989: 10,000 residents of catchments area of St. Alphonse Health Center	1989: 3 million (pop. of the city of Kinshasa)
NUMBER OF MEMBERS (ENROLLMENT RATE)	1986: 32,750 (28%) 1987: 58,100 (46%) 1988: 80,595 (62%) 1989: 81,142 (60%)	1988: 4,410 (4%) 1989: 4,444 (4%)	1987-89: cumulative enrollees 1689 (17%) 1989: 620 (6%)	1989: 6,691 in Kinshasa (0.2%)
SERVICES COVERED	Hospital: all types of hospitalization, incl. deliveries (w/prenatal care). Health center: chronic care treatment	Primary out-patient care including most drugs, laboratory exams, forms, consultations at reference hospital if referred.	Curative care out-patient visits at a fixed price per episode, including basic drugs and up to 4 follow-up visits.	Out-patient curative care at a flat rate per day including essential drugs.
SERVICES NOT COVERED	Hospital: deliveries w/o prenatal care; private doctor visits. Health center: all care except chronic	Hospital in-patient care, chronic diseases, STD's, deliveries, Preventative care, MCH, FP, antibiotics and injections	Laboratory exams, special drugs above normal health center stock. Doesn't cover hospital care, deliveries, or preventative care	Laboratory tests: special drugs not included in health center drug list; hospital in-patient care; deliveries, Ante-natal care, MCH
UNIT OF ENROLLMENT	Individual	Individual. However, if one member of a family joins, all members must join	Individual. However, if one member of a family joins, all must join	Family membership

Table 9.2: Premium and Payment Structure of the Four Plans

Name of Plan	*Bwamanda Insurance Plan*	*Bokoro Health Zone "Abonnement"*	*St. Alphonse Insurance Plan*	*CASOOP/UNTZA*
PREMIUM PRICE PER YEAR	Premium per household member 1986: 20 Z 1987: 30 Z 1988: 125 Z	1985 - 1989: 600 Z 1989: 1,200 Z Paid 100% by employer	1987: 50 Z 1988: 100 Z 1989: 300 Z	1989: 100-200 Z/month. One time fee of 100 Z for membership booklet
DO ALL MEMBERS FACE THE SAME PRICE	Yes	Yes	Yes	Three levels of contributions depending on income
CO-PAYMENTS	20% for all hospital and health center services except deliveries w/prenatal care (free)	25% for covered services; All excluded services are charged at full rates. Paid 100% by employer.	Members pay a flat fee per episode (500 Z. in 1989). Valid for 5 days.	Members pay a fee per day (450 Z for individual members in 1989)
DEDUCTIBLES	None	None	None	None
PRICES FACED BY UNINSURED	Uninsured are treated at full charges. Three payer categories for non-members: (1) employer-billed, (2) non-resident (3) all others	Uninsured are treated at full charges	Non-members pay per visit. Price includes basic drugs. In 1989, first visit = 400 Z, follow-up visits = 150 Z.	Uninsured are treated at higher prices
LIMIT ON MAXIMUM SERVICES TO A MEMBER	No	At discretion of health personnel in case of excessive utilization	Five day limit for episode	No
UTILIZATION REVIEW/ CASE MANAGEMENT	No	Each treatment episode is noted on membership document, including drugs consumed	No	No
QUALITY OF CARE	Stockouts rare; several doctors and well-trained nurses (some expatriates); infrastructure good.	Stockouts rare; several doctors and well-trained nursed (some expatriates); infrastructure good	Stockouts rare; no doctors; several well-trained nurses (some expatriates); infrastructure good	Stockouts rare; two doctors and several well-trained nurses; infrastructure fair.
VOLUNTARY/COMPULSORY	Voluntary; but if one family member joins, all must join	Voluntary, but if one family member joins, all must join	Voluntary	Voluntary except if company joins, employees must pay contribution
TYPE OF INSURANCE	Direct, offered by provider	Direct, offered by provider	Direct, offered by provider	Direct but may change
ACCOUNTING	Insurance plan acctg kept separate. Hospital and health centers bill the plan for services rendered.	Accounting for plan is combined with health center accounting	Accounting for plan is combined with health center accounting	Accounting for plan is combined with polyclinic accounting in some aspects.
ADMINISTRATIVE COSTS	5.7% of premiums	Not known	Not distinguished from health center admin.	Not known

Table 9.3: Revenues, Expenses and Additional Information of the Four Plans

Name of Plan	*Bwamanda Insurance Plan*	*Bokoro Health Zone "Abonnement"*	*St. Alphonse Insurance Plan*	*CASOP/UNTZA*
VERIFICATION OF INSURANCE STATUS	All hospital cases must be referred from HC. HC checks membership card against family health card. Clerk at hosp. also checks card against membership register	Registration form with member names exists in duplicate at health center and with household. Family form presented during consultation	Clerk checks membership card and compares to national ID card. Sometimes clerk checks against memb. register	Present membership card (with photo) or give employee ID number
ENROLLMENT PERIOD	8 weeks per yr, Feb-Apr, following harvest period	Any time during year	Any time during year, except sick people aren't allowed to join and receive care immediately at membership rates	Any time during year.
DURATION OF BENEFIT	One year	One year	One year	As long as monthly dues paid.
INVESTMENT OF FUND	Fund is invested at CDI (2.5-3% interest per month) or loaned to pharmacy to purchase drugs	Local expenses are deducted from revenues, balance entirely used for referred patients and central operating costs	Funds are kept at parish. Not invested	None
FINANCIAL SITUATION (INCL. INTEREST)	1986: unknown 1987: 2,245,752 Z 1988: 4,958,855 Z 1989: 10,887,846 Z (proj.)	1986: unknown 1987: unknown 1988: 2,646,000 Z 1989: 5,332,800 Z (proj.)	Unknown	1989: 403,980 Z
TOTAL PLAN EXPENSES	1986: unknown 1987: 1,736,878 Z 1988: 4,802,190 Z 1989: 11,125,106 Z (proj.)	Unknown	Unknown	Unknown
FINANCIAL SITUATION OF HEALTH FACILITY	Cost recovery at hospital increased by 30% between 1985 and 1988. Health centers recover over 100% of costs	Health centers cover their operating expenses incl. supervision and administration by BCZS	Highly profitable. Over 50% excess revenue over expenses in 1989 (projected)	Unknown, but looks profitable.
CHANGES IN UTILIZATION:	Hospital utilization rates higher for members than for non-members	Plan members have 11 to 12 times higher utilization than uninsured and unemployed	Unknown	Members seem to make more follow-up visits than non-members

Table 9.4: Evolution of Bwamanda Health Insurance Plan Membership Rates 1986 - 1989

	1986	*1987*	*1988*	*1989**
Members	32750	58100	80595	81142
Total Population	118612	125480	130000	134680
Percentage Enrolled	27.6%	46.3%	62.0%	60.2%

* 1989 population estimate based on growth rate of 3.6 percent.

Regarding the financial situation of the hospital, a study in 1986 showed that the hospital had recovered less than half of its operating expenses through user fees in 1985. Compared to the eight other hospitals analyzed, Bwamanda performed the worst in share of costs recovered from patients (Bitran 1987).

The process of designing the insurance plan included considerable participation from both medical staff (including health center nurses) and the communities. First, hospital staff discussed the acceptability of the plan with health center nurses. Through these workshop discussions, the basic parameters of the plan were set, including for example, a small co-payment, no deductible, and annual collections rather than semi-annual premiums. The idea of covering ambulatory care through the insurance plan was also discussed during these preliminary workshops. Overwhelmingly, the nurses rejected this idea because they believed it would result in overutilization of medical services.

At the level of the community, meetings were held to explain the basic elements of the proposed insurance plan, and to ask community members their preferences regarding premium and co-payment levels. Presented with two options, the communities expressed a preference for a higher premium and lower co-payment.

The Bwamanda insurance plan covers hospitalizations (including deliveries), dental extractions, and ambulatory surgery (circumcisions) at the Bwamanda Hospital. Covered care spans six clinical services: Pediatrics, Internal medicine, Intensive care, Surgery, Obstetrics (where the mother has attended prenatal consultations), and Gynecology. The insurance plan also covers the cost of treatment of chronic illness at the health center and health post

The evolution of membership is provided in Table 9.4. To better characterize insured and uninsured patients, the study team interviewed 50 of the 196 hospitalized patients in a systematic survey on November 2 and 3, 1989. Table 9.5 compares the insured and uninsured in-patients who used the hospital. Insured patients were more likely to be female and were less educated. Otherwise, there were no noticeable differences. As only one respondent was employed, it was not possible to separate ordinary uninsured and employed patients.

Table 9.5: Comparison of Insured and Uninsured Persons

Characteristic	% of Respondents Insured (N=29)	Uninsured (N=21)
Gender:		
Female	69%	43%
Male	31%	57%
What do you think of the idea of health insurance?		
Good	100%	81%
Don't know	0%	10%
Could you pay 10,000 Zaire for an illness episode requiring minor surgery in a hospital?		
Yes	53%	43%
No or no response	48%	48%
How woiuld you pay this amount:?		
Installment	25%	27%
Cash	75%	73%
Where would ou get the money?		
Cash from the household	7%	10%
Saving club or association	4%	0%
By selling household items outside the household	43%	25%
Contribution of a family member	7%	40%
Other	36%	25%
No response	3%	0%
Did you go to school?		
Not at all	66%	38%
Primary school, 1-3 years	17%	19%
Primary school, 4-6 years	10%	14%
Secondary school	7%	29%
Does your household grow?		
Soya	76%	76%
Corn	93%	86%
Coffee	45%	52%
Does your household have a:		
Radio	7%	5%
Sewing Machine	10%	10%
Bicycle	34%	10%

Table 9.6 shows premiums for 1986-1989. The insurance premium for 1989 was set at 125 Zaires ($0.35) per person. If a family wishes to enroll in the plan, all members of the family must be enrolled, although this practice is not

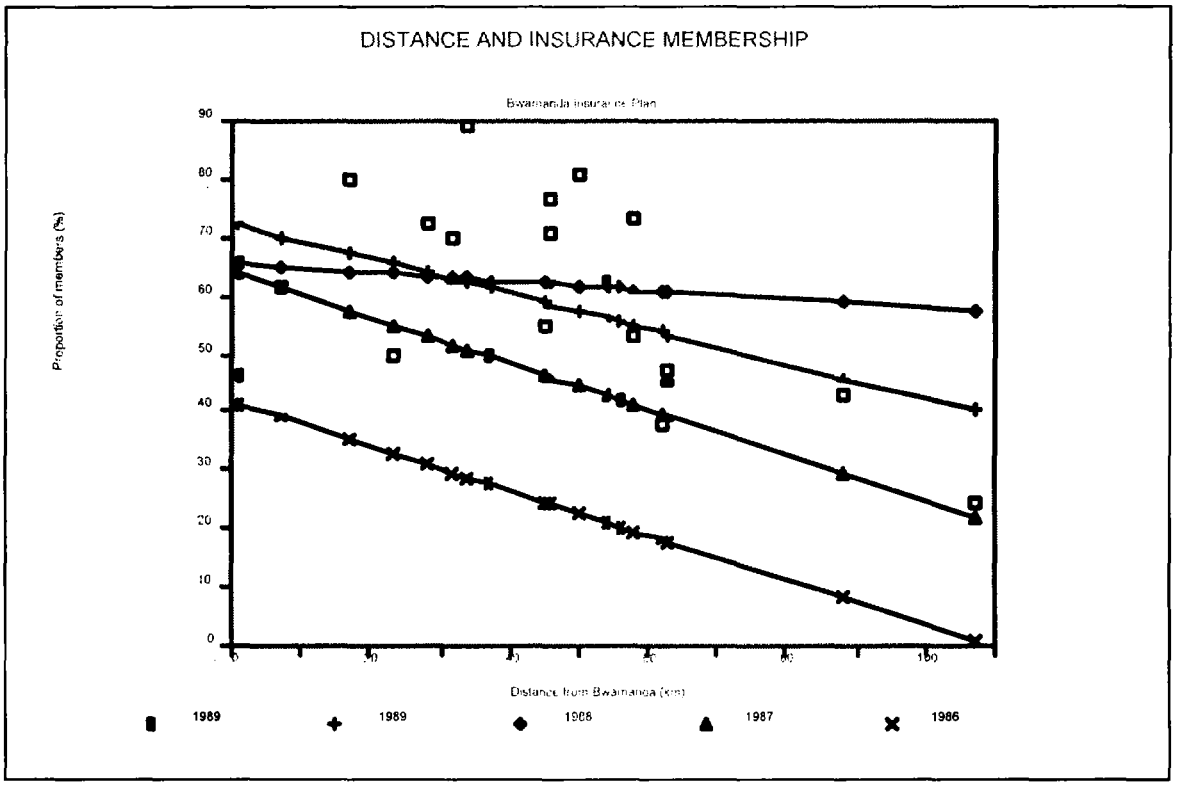
Table 9.6: Annual Premium for Bwamanda Insurance Plan, Per Person *

YEAR	NOMINAL ZAIRES	DOLLARS	1986 ZAIRES	1986 DOLLARS
1986	20	$0.33	20	$0.33
1987	30	$0.23	22.9	$0.38
1988	50	$0.27	24.6	$0.40
1989	125	$0.35	28.8	$0.47

always followed (see discussion section). This is intended to reduce adverse selection, where only those who know they will probably need insurance subscribe to the plan. The size and composition of the family is determined from the family health card, which is filled out for every family in the zone during the health zone census every two years. All adults wishing to enroll in the plan face the same premium.

The insurance plan employs co-payments but no deductibles. In 1989, the co-payment was established at 20 percent of the standard flat-rate charge for thirteen of the fourteen covered charge categories. The exception is obstetrical care to women who were enrolled in prenatal care; in these cases, no co-payment was charged. The 20 percent co-payment applies to treatment of chronic illness cases at the health center level as well.

Figure 9.1



During 1988, the health zone experimented with a system of variable rates for co-payment, depending on the distance from the hospital. Plan members who lived furthest (over 50 kilometers) away from the hospital of the patient were charged only a 5 percent co-payment, compared to 10 percent for those living 25 to 50 kilometers and 20 percent for those who lived closest (under 25 kilometers). The plan asked nurses to make a special effort at enrollment, especially in outlying areas.

When the hospital staff reviewed the insurance plan at the end of 1988, however, they thought that the system of variable co-payments had not increased access for members living far from the hospital. It was difficult to administer, as well, leading the zone to abandon it in 1989.

According to Figure 9.1, however, the program changes in 1988 appear to have influenced the decision of distant residents to enroll in the program. Enrollment declined less with distance from Bwamanda center in 1988 than in the three other years of the insurance plan. This is apparent in the relatively flat line in Figure 9.1 for the year 1988. On the other hand, there is a clear decrease of the membership rate the further the villages are away from Bwamanda for 1986, 1987 and 1989. Regression analysis confirmed that the slope of each lines in Figure 9.1 is significantly negative ($p < .05$), excepting for the year 1988.

The Bwamanda plan has two important controls on covered expenses. First, all covered services are provided only by referral. Second, the flat rate charges limit the plan's expenses for each admission.

Since the insurance system is offered by the provider, there is no reimbursement system and thus no "cap" on spending use by the member. Nor are there limits on care-givers regarding the maximum number of services or expenses used to treat a patient (patient days, laboratory tests, etc.). Standard treatment protocols do exist, and the doctors and other medical staff make efforts to follow them. However, there are no systems for utilization monitoring or case management.

The hospital continues to treat the uninsured, but at prices that are sometimes higher than the full payment on behalf of insured residents.

Establishing Premiums

To calculate each new year's premium, the medical staff first determine the budget for the new year, based on historical costs corrected for historical inflation. This is then adjusted to incorporate estimates about next year's inflation rate, further devaluation of the zaire, and other budget parameters. The staff then divide the estimated operating costs by the total population to obtain the per capita cost of hospitalization for the next year. Using various assumptions about the percentage of the population likely to enroll in the plan, and the expected revenue from uninsured patients (who would pay full charges), the zone calculates projected cost recovery for the hospital as a whole.

The premium for the health insurance plan is then set through discussions involving the whole staff and incorporating social goals as well as cost recovery objectives. For example, the projected premium is compared with the price of two kilograms of soy beans (a commonly produced crop), as a measure of affordability. The medical staff tries to assure that the premium is sufficiently large to cover the claims of the beneficiaries, with some margin of error. The price of the premium is set to be both "affordable," and to cover the expected hospital operating costs incurred by beneficiaries (excluding depreciation).

The premium is collected once a year, at harvest time. There are two harvest periods in the Bwamanda zone; one in July-August, the other in January-February. When communities were asked when they would prefer to make the premium payment, they overwhelmingly preferred the months following the second harvest period (March to April), because they needed money in August to pay for school expenses.

Collection of the premium takes place during a six-to-eight week period in February through April. Prior to this, several preparatory meetings are held with health center staff to orient them to any new changes in plan premiums and administrative procedures, and to present them with the time-table and control procedures for the registration period.

Residents enroll in the insurance plan at their health center. During the enrollment period, health zone administrative staff make frequent trips to the health centers to collect the premiums, distribute stamps, and monitor record-keeping. Each health center is visited ten to twelve times during this six to eight week period.

According to Moens (1988), the incremental cost of administering the program was 75,242 Z ($586) in 1987, or 4.2 percent of the premiums collected. This amount does not include the cost of salaries of health zone staff who are involved in regular record-keeping and control activities (verification of membership of hospitalized patients). The authors estimate that the full cost of plan administration in 1989 including the cost of part-time administrative staff, will be 632,015 Z. ($1,784), or 5.7 percent of the premiums collected.

All cases that are seen at the hospital must either be referred by a health center or must pay for a private doctor visit not eligible for insurance coverage. When an insured patient arrives at the hospital, he or she presents a referral slip. The referral slip indicates the insurance membership number, which is also the number accorded the family during the health zone census. If referred, all patients may see the doctor in this manner before paying any fees. Since referral is mandatory, most cases warrant hospitalization. The doctor then fills out a hospitalization card during the patient's initial encounter, transcribing the insurance membership number from the referral slip.

Three categories of patients pay no fee when they receive care: (i) women delivering babies who are insured and received prenatal care; (ii) trypanosomiasis patients who are covered under a special donor program; and (iii) school children for whom an annual aggregate payment is paid by the schools.

Resource Mobilization

A principal objective in establishing Bwamanda's insurance plan was to improve the financial situation of the reference hospital. Social goals were also incorporated into the design of the plan, notably the decisions to provide 100% coverage of deliveries and to provide coverage of chronic illness treatment at the health center percent. This section presents a financial analysis of the relevant policy questions:

- Has the insurance plan helped the financial condition of the hospital?
- What effect has providing coverage of chronic illnesses had on the cost recovery performance of health centers?
- Is the insurance plan financially sound? Do the premiums cover the cost of services to beneficiaries, plus administrative costs? How important is revenue from interest?

Table 9.7 presents the financial statements for the insurance plan from 1987 through 1989. The data show that in 1987 and 1988 revenues from the insurance plan covered 100 percent of hospital charges for health care benefits provided to beneficiaries and incremental administrative costs, with positive margins. The plan was projected to cover hospital charges and administrative costs in 1989, as well. Hospital charges are naturally the largest expense category (89 percent in 1989). The costs of providing treatment for chronic illness at the health center level account for 6 to 7 percent of expenses, while administrative costs are 4 to 6 percent.

Table 9.7: Financial Situation of Bwamanda Insurance Plan & Coverage of Insurance Plan Beneficiaries, 1987-1989 Current Zaires

	1987		*1988*		*1989**	
	Current Zaires	*% of Expen*	*Current Zaires*	*% of Expen*	*Current Zaires*	*% of Expen*
REVENUE						
Premiums (unadjusted)	1,785,060		4,023,100		10,177,250	
Adjusted**	2,065,314	118.9	4,851,859	101.0	11,011,785	98.6
Interest	460,692	26.5	933,755	19.5	710,596	6.4
ADJUSTED PREMIUMS & INTEREST:	2,526,006	145.4	5,787,614	120.5	11,722,381	104.9
EXPENSES						
Hospital care	1,671,500	96.2	4,226,055	88.0	9,915,491	88.8
Health center care	0	0.0	346,250	7.2	622,582	5.6
Sub-Total care:	1,671,500	96.2	4,572,305	95.2	10,538,073	94.3
Vehicle; stationary	N/A		N/A		198,920	1.8
Staff bonus payments	N/A		N/A			
Administrator (10%)	N/A		N/A			
Membership clerk (50%)	N/A		N/A			
Sub-Total administration:	65,378	3.8	229,885	4.8	632,015	5.7
TOTAL EXPENSES:	1,736,878	100.0	4,802,190	100.0	11,170,088	100.0

* Expenses and interest in 1989 are extrapolated from 5.5 months of data.

** Premium revenue is received in a lump sum early in the year (on average in March), while expenses are evenly distributed throughout the year. Thus, a slight adjustment is needed within each year, to assure comparability of nominal Zaires. The premium revenue has been inflated by the following three-month inflation factors (1987= 1.157); (1988= 1.206); (1989= 1.082)

Source: Bwamanda Insurance Plan, Mimeo.

Table 9.8 shows the financial situation of the hospital from 1985 to 1986 and 1988 to 1989 (data were not available for 1987). The table shows that cost recovery of the hospital improved with the implementation of the insurance plan between 1985 and 1988. In 1985, the hospital covered approximately 48 percent of operating costs with user charges (excluding depreciation and expatriate salaries). This figure jumped to 65 percent in 1986, and 79 percent in 1988.[96]

96 Depreciation figures are not available for all years, and so were not included in Table 9.7. In 1988, depreciation expense was 415,000 Z ($2,219). When depreciation expense is included, cost recovery falls to 76 percent.

Table 9.8: General Financial Situation of Bwamanda Hospital, 1985-1986 and 1988 Nominal Zaires

	1985		*1986*		*1988*	
	Nominal Z.	*% of Expen*	*Nominal Z.*	*% of Expen*	*Nominal Z.*	*% of Expen*
OPERATING REVENUE						
User Fees	N/A	N/A	873,652	29.8%	2,267,800	24.0
Employer billing	N/A	N/A	394,353	13.4%	2,045,425	21.6
Insurance plan	0	0	650,900	22.2%	3,120,905	33.0
Other	N/A	N/A	0		30,600	0.3
TOTAL:	878,583	48.7	1,918,905	65.4	7,464,730	78.9
OPERATING EXPENSES						
Personnel (excl expats)	739,207	41.0	1,007,462	34.3	5,036,307	53.2
Drugs and med. supplies	563,607	31.2	1,387,286	47.3	2,830,552	29.9
Office supplies/maint.	75,515	4.2	40,093	1.4	204,086	2.2
Transport	84,729	4.7	0	0.0	0	0.0
Maintenance	176,947	9.8	146,678	5.0	499,6190	5.3
Fuel & electricity	163,829	9.1	276,101	9.4	676,749	7.2
Food service & other	0	0.0	76,795	2.6	212,687	2.2
TOTAL:	1,803,844	100.0	2,934,415	100.0	9,460,000	100.0
OPERATING SUBSIDIES:	925,261	51.3	1,015,510	34.6	1,995,270	21.1

Note: 1989 figures are extrapolated from eight months of data.
Source: Bwamanda Insurance Plan, Mimeo.

Table 9.9 shows the financial situation of Bwamanda's health centers and health posts. Cost recovery in Bwamanda's health centers was high even before the health insurance plan went into effect. In 1985, the health centers had a profit margin of 6.5 percent, excluding depreciation. In 1986, cost recovery was even better, with a 9.2 percent profit margin, although the financial records show that the zone did not charge the health centers for supervision costs in 1986 and 1988. In 1988, the year the plan went into effect at the health center level, health centers received 346,250 Z ($1,852) from the insurance plan for services provided to members. This accounted for 3.1 percent of their total operating revenue. The health centers had a 14.2 percent profit margin in 1988.

Table 9.9: General Financial Situation of Health Centers in Bwamanda, 1985-1986, 1988-1989 Nominal Zaires

	1985		*1986*		*1988*	
	Nominal Z.	*% of Expen*	*Nominal Z.*	*% of Expen*	*Nominal Z.*	*% of Expen*
OPERATING REVENUE						
User Fees	1,312,131	106.5	2,283,794	109.2	12,393,789	111.1
Insurance plan	0	0.0	0	0.0	346,250	3.1
TOTAL:	1,312,131	106.5	2,283,794	109.2	12,740,039	114.2
OPERATING EXPENSES						
Personnel (excl expats)	476,244	38.6	649,670	31.1	2,973,758	26.7
Drugs and med. supplies	521,298	42.3	1,197,702	57.3	6,899,327	61.8
Office supplies/main.	126,405	10.3	243,342	11.6	1,283,712	11.5
Supervision fees	108,600	8.8	0	0.0	0	0.0
Hosp. prenatal services	0	0.0	0	0.0	0	0.0
TOTAL:	1,232,547	100.0	2,090,714	100.0	11,156,797	100.0
PROFIT (DEFICIT):	79,584	6.5	193,080	9.2	1,583,242	14.2

Note: 1989 figures are extrapolated from eight months of data.
Source: Bwamanda Insurance Plan, Mimeo.

Utilization of Services

Theories of insurance suggest that insured persons may use more services than the uninsured due to both adverse selection (the tendency of persons more likely to need services to purchase insurance) and moral hazard (the tendency of persons use more services because they are insured). These phenomena make the development of insurance more difficult because they result in higher average premium costs, further discouraging low income people from buying insurance.

The authors examined whether these theories applied to Bwamanda and confirmed that they did. Hospitalization rates are higher for members and workers with employer-provided health care coverage than for Bwamanda residents who have no form of health insurance or employer coverage. The authors examined this pattern with two sets of data: monthly utilization statistics tabulated by each service, and a ten percent sample of entries from the hospital register for all admissions.

Table 9.10 compares the insurance status of hospitalized patients with the insurance status of health zone population. While 77 percent of the patients are insured, only 60 percent of the health zone population are members of the insurance plan. Persons covered by an employer are even more over-represented

Table 9.10: Distribution of Payment Categories in the Population and Hospital Patients, Dec. 1988 - Oct. 1989 (Maternity Patients Excluded)

	Health Zone Population		*Hospital Patients from Zone**	
Payment Category	Persons	%	Sample	%
Employed	6,176	4.6	54	17.3
Insured	81,142	60.2	240	76.7
Total not insured	47,362	35.2	19	6.1
TOTAL	134,680	100.0	313	100.0

* The original sample of 329 patients included 16 (4.9 percent) from outside of Bwamanda zone. They were removed from the "not insured" category, leaving the 313 patients reported here.

Source: Bwamanda Insurance Plan, Mimeo.

Table 9.11: 1989 Admission Rates by Payment Category

	--Payment Category--				
Service (Population)	*Not Insured 47,362*	*Insured 81,142*	*Employed 6,176*	*Total Zone 134,680*	*Over-all Total*
Annual Admissions:					
Surgery	166	547	71	788	840
Gynecology	29	132	26	276	283
ALL (Exc.Obs.)	231	2,640	594	3,465	3,330
Annual Admission Rates (%):					
Surgery	0.35%	0.67%	1.15%	0.59%	
Gynecology	0.06%	0.16%	0.43%	0.20%	
ALL (Exc.Obs.)	0.49%	3.25%	9.62%	2.57%	
Risk Ratios for Admissions:					
Surgery	1.0	1.9	3.3	1.7	
Gynecology	1.0	2.7	7.0	3.4	
ALL (Exc.Obs.)	1.0	6.7	19.7	5.3	

Note:
* Overall admissions include admission of patients from outside of the Bwamanda health zone.

** Numbers of surgery and gynecology admissions were extrapolated from complete utilization statistics from January through June, 1989 by doubling the six-month total. Numbers of annual admissions for all services (excluding obstetrics) were extrapolated from a 10 percent sample of such admissions from December 1988 through October 1989 by multiplying the total by 12/11. The extrapolations were based on 657 surgical admissions, 230 gynecology admissions, and 329 total non-obstetrical admissions, respectively.

Source: Bwamanda Insurance Plan, Mimeo.

among the patients than in the population. There are three times more employed persons, and only a third as many uninsured patients hospitalized than expected from their frequency in the population.

A systematic, one in ten sample of patients from the admissions register, covered patients admitted from December 1988 through October 1989. Data were analyzed according to four major service categories: pediatrics, internal medicine, gynecology and surgery. Obstetrical patients were excluded because of incomplete records. Based on the hospital register, the annual hospitalization rate was 10.5 percent for salaried workers and family members with employer-paid health coverage; 3.6 percent for members of the Bwamanda insurance plan; and 0.5 percent for Bwamanda health residents without insurance or employer coverage.

Table 9.12: Characteristics of Insured and Uninsured Hospital Patients in Bwamanda

Characteristics	*Insured (No.=29) Mean*	*Standard Deviation*	*Uninsured (No.=21) Mean*	*Standard Deviation*
Age in years	20	19	22	20
Payment for current hospitalization in Zaire	1568	1700	4083	4070
Number of episodes of serious illness in household during 1988 and 1989	2.4	2.9	1.6	1.2
Number of hospitalization episodes in household during 1985 thru 1989	2.6	4.4	1.7	1.2
Number of times the patient was hospitalized from 1985 thru 1989	2.8	2.7	1.3	1.8
Number of persons in household:				
Children	5.5	6.7	5.6	3.1
Younger adults	3.8	3.5	2.7	1.2
Elders	0.7	1.1	0.6	0.7
TOTAL	10.0	8.4	8.9	3.3

The risk ratio for a payment category is the ratio of the admission rate for that category relative to the rate for the uninsured persons. The risk ratios across these services show consistent patterns. According to Table 9.11, insured patients had from 1.9 to 6.7 times the admission rates of uninsured patients. Employed patients had dramatically higher admission rates: 3.3 to 19.7 times those of uninshed patients.

This pattern of higher rates for insured and employed persons, compared to uninsured, is probably the combined effect of moral hazard, adverse selection better access, (closer residents were more likely to be insured), lack of adequate controls (which may permit non-members to falsely present themselves at the hospital as members), and random variation due to small numbers. Table 9.12, based on the survey, provides further support of adverse selection and/or moral hazard.

For employed persons, both the hospital and the patient have every incentive to hospitalize. Care is free for the employee, and the hospital is paid two to three times the fee of a self-paying patient. The problem of higher hospital use by insured patients has not had a serious effect on the financial solvency of the insurance plan, since the plan covers such a large percentage of the population (60 percent). With lower enrollment, such a problem could bankrupt an insurance system. The fact that insured patients use only a third to a half as much hospital care as employed persons suggests that the 20 percent co-payment may have reduced moral hazard.

Table 9.13 summarizes the comments of insured and uninsured patients concerning possible changes in insurance. Members (n=29) indicated their willingness to increase premiums

by 60 percent to include ambulatory care -- a significant finding given that 60 percent of households are enrolled in the program. Price and quality factors also stand out as being highly relevant. Respondents perceive membership in the insurance plan as the cheapest way to get care (90 percent) and benefit from seeing health personnel faster (37 percent) and better quality of care (22 percent). Only 16 percent of the twenty-one non-members interviewed claimed lack of money as a reason for not joining the plan.

Table 9.13: Attitudes Toward Insurance among the Insured and Uninsured Bwamanda

Survey question	*Percent responding*
Among the insured (n=29)	
Can you increase your premium from 125 to 200 Zaires to cover ambulatory care:	
Yes	80.8
No	19.2
Why did you decide to be a member?	
Cheapest way to get care	89.7
Quality of care is better	3.4
Solidarity	3.4
I thought it was obligatory	3.4
Other	3.4
What benefits do you receive from your membership? (n=27)	
The personnel sees me faster	37.0
I have better health	3.7
I want to support the institution	3.7
Quality of care is better	22.2
Other	3.7
No response	29.6
What are the disadvantages or problems of insurance scheme?	
Too expensive	6.9
It is necessary to come for follow up visits	17.2
No response	75.9
Among the uninsured (n=21): Why are you not a member of the insurance scheme?	
I have no money	16.0
I didn't know at the time	5.0
Other	75.0

CASE STUDY OF BOKORO

The rural health zone of Bokoro, located in the Bandundu region of Zaire about 350 kilometers north-east of Kinshasa, was created in 1981. Services at health centers and hospitals are coordinated by a central office (Bureau Central de la Zone de Santé, BCZS). The various organizations that provide health care in the zone are represented on the zone health committee: the government, the Catholic and Baptist missions, the Belgian Cooperation, and others. The zone recovers a substantial part of its recurrent costs (over 80 percent in 1988) including local salaries through fees for services. Certain services receive technical and financial assistance from a variety of sources to close the gap between the available budget and expenditures. The Bokoro referral hospital recovers over 60 percent of its costs through fees for services.

In contrast to the Bwamanda health zone, the referral hospital in Bokoro does not enjoy a monopoly position. It faces several officially recognized competitors for in-patient care. The hospital has made considerable efforts since its creation to improve access to ambulatory in-patient care all over the zone. As a result, occupancy rates in Bokoro hospital have decreased drastically since the late 1970s. When the rate stabilized in 1987 at about 1,200 admissions per year excluding the maternity ward, it was about half the level of 1978. The number of available hospital beds decreased simultaneously, from 127 in 1986 to 78 in 1989, resulting in an annual occupancy rate of 40 percent to 45 percent. The average length of stay is about ten days.

In addition to providing in-patient care, the hospital provides ambulatory care to 1,500 to 2,000 patients every year, amounting to about 5 percent of its annual operating expenses in 1988.

Terms of the Insurance Plan

The Bokoro subscription plan is a direct insurance plan, offered by the provider, the Bokoro Rural Health Zone. Since its introduction in 1985, the insurance plan, called the "abonnement," has undergone dramatic changes. Originally intended to guarantee comprehensive care, including preventive, ambulatory and in-patient care at the peripheral and referral level, as of 1990 covered only curative ambulatory care. Due to financial difficulties, extra charges are imposed for chronic diseases like diabetes and hypertension. Preventive care, family planning, deliveries, prolonged treatment, treatment of sexually transmitted diseases, and antibiotics and injections are not included in the insurance plan. Patients must pay for these. First line treatments of tuberculosis and leprosy are provided free of charge through separate programs.

Table 9.14: Fees for Service at Health Centers Bokoro Health Zone, 1989

Service Category	*Zaires*
CONSULTATIONS *	
Children, registered at MCH	120
Children, not registered	150
Patient above 14 years	180
Patient from outside zone	250
MATERNAL and CHILD HEALTH	
Pre-school care	
incl. immunization (5 yrs.)	200
Ante natal care (9 months **)	200
Planned parenthood (12 months)	300

* For one disease episode up to five days duration.
Extra charges apply for: antibiotics, drugs after the fifth day, fee for after - hour consultations.

** Excluded: weekly malaria prevention.

Table 9.14 shows the full charge schedule at the health center. Insured patients pay 25 percent of these charges; uninsured patients pay the full amount. There is no cap on spending by patients. As virtually all enrollees are employees, any cap would be inconsistent with the Zaire employment laws, which require employers to pay for all medical care.

Most employers in the zone, including health services, missions, and processors of agricultural products enrolled their workers and dependents in this plan. As of 1990, over 4,000 persons were covered, representing 4.5 percent of the Bokoro Health Zone. Enrollment in the insurance plan ("abonnement") costs 1,200 Z per person per year. When one family member enrolls, the entire family is obliged to subscribe. This requirement reduces the likelihood of adverse selection as well as sharing one card among family members. Contributions for an entire family can easily reach 12,000 Z. This premium is very expensive for the general population. Thus, the enrollment rate outside of employees was low.

No co-payment was associated with the plan initially. To reduce moral hazard, patients must make a 25 percent co-payment of the normal, non-subscriber fees. Because only employees are enrolled, and are to be reimbursed for this co-payment, this policy should not affect utilization substantially.

Services are fully available to uninsured persons upon payment of a flat fee for an episode of care. A minimum charge was set at 180 Z for an adult in 1988 by the BCZS. However, the health committee for a health center can decide to charge more, for example, 500 Z. Services covered by the flat rate are limited. Extra charges arise for antibiotics, prenatal and child care.

To better characterize the insured and uninsured population and to assess interest in other forms of insurance, a small survey was conducted. The questionnaire was similar, though not identical, to the one used in Bwamanda. Of the forty-seven subjects interviewed, twenty-one were a systematic sample of non-maternity in-patients in Bokoro Hospital, and twenty-six were heads of families (all farmers and fishermen) from the towns of Bokoro and Kempa, 12 kilometers outside Bokoro. These twenty-six families were chosen systematically from family cards in the health centers of Bokoro and Kempa. Thirty-eight percent of the hospital patients, 54 percent of the respondents from Bokoro town and 46 percent of the respondents from Kempa form were insured. Table 9.15 characterizes the insured and uninsured respondents.

Table 9.15: Bokoro Survey: Characteristics of Insured and Uninsured

Characteristic	*Insured (N=21)*	*Uninsured (N=26)*
Gender:		
Female	29%	46%
Male	71%	54%
Average Age	35	32
SD of age	14	20
Patients from:		
Bokoro Hospital	38%	50%
Bokoro Town	33%	23%
Kempa Town	29%	27%
Receives a salary each month	19%	80%
Occupation:		
Agriculture	57%	65%
Fishing	10%	8%
Teacher	14%	0%
Driver	0%	4%
Employed (details unspecified)	5%	8%
Trader		
No occupation or no response	10%	4%
	5%	12%
Employer:		
Para-statal enterprise	5%	0%
None or no response	95%	100%
Would you be able to pay in cash 10,000 Zaires for an illness requiring minor surgery in a hospital?		
Yes	19%	4%
No	76%	88%
No response	5%	8%

Organization and Management

Three major concerns led to an introduction of the insurance plan in 1985: (i) the financial accessibility to health care was too limited for the majority of the population of the zone; (ii) a referral to the hospital was a severe financial burden; and (iii) revenues were not able to cover most recurrent costs.

The level of the premium is based on historic utilization rates, an average length of an episode of illness, and the quantity of drugs and materials consumed. The utilization pattern of a group of private employees (BIMPE corporation) was initially used as a standard. The premium was set at 600 Z in 1985 and remained constant until April 1989. In that month, the rate was doubled to 1,200 Z. The increase anticipated continuing inflation (which sometimes exceeded 100% per year), and a possible increase in utilization. Actual utilization in 1989 was found to be two consultations per member per year and the average cost was 500 Z per consultation.

Insurance premia are paid to the provider, the health center. Premia for employed persons and their dependents are paid by the employer. In theory, people could enroll at any time during the year. In practice, enrollment tended to be highest after the two harvest and fishing seasons in this area -- January, July and August -- when the local agri-businesses had the most cash and were best able to pay the annual premia for employees.

The names of all insured family members are recorded on duplicate forms. One copy remains at the health center and the other with the family. No unique identification numbers were used for each subscriber. The study team found no controls that would prevent non-enrolled persons from borrowing an insured person's enrollment form. It was not possible to assess the extent to which free care was provided to unregistered persons, or persons where the membership had expired.

Although the Bokoro subscription plan does not cover in-patient care, it indirectly pays for the initial hospital consultation. Prior to admission the patient pays a consultation fee for the physician visit. About two-thirds of the out-patients are referred by the health centers. For each referred out-patient, the hospital charges the referring health center 300 Z, thereby generating about 300,000 Z. Referred patients themselves pay nothing for this consultation, but they do pay regular hospitalization charges if they are admitted. Self-referred patients pay 500 Z for their out-patient consultation.

The system of referral accounts for health centers was introduced in 1985. These accounts were intended to pay for the hospital care of patients referred from the health center for continued treatment of the same illness episode. Due to limited revenues, however, only out-patient consultations at the hospital are presently included. Fifty percent of the health centers' profit is credited every month to the referral account (the balance of revenues after deduction of recurrent expenses and costs of drugs).

This system of referral accounts was intended to provide a form of risk pooling. Minor out-patient episodes would have subsidized more costly problems requiring hospitalization. However, at the level of flat fees for out-patient care that are acceptable, it is not possible to generate sufficient revenues to finance in-patient care.

All revenues after the deduction of local expenses are transferred monthly to the central account of the health zone at the Service d' Approvisionnement en Fournitures, Equipements et Médicaments (SAFEM), which keeps separate accounts for the hospital, zone, and pharmacy. At the Bureau Central de la Zone de Santé (BCZS), each health center has its own account showing debits and credits. Funds generated by the insurance plan are not separated from other revenues. As a result, it was not be possible to separately estimate the administrative effort for the plan.

Resource Mobilization

The health zone as a whole operated at a deficit each year from 1986 through 1989. In 1988, the deficit was 2 million Zaires. The majority of health centers either have deficits or generate insufficient profits to cover the administrative costs of the BCZS. There is a severe disincentive for these health centers to function well. If they make a profit, only 15 percent is retained for investments and only 10 percent for discretionary use by the health committee. Moreover, there is no punishment for bad performance. Rather, the good centers must share the entire burden.

Preserving premium income over the year is a problem throughout Zaire. Savings kept in cash is eroded by inflation, and bank interest rates are generally far below inflation. The study team identified several institutions in which revenues from the health insurance plan could be

invested. In 1988, savings cooperative, Societe Cooperative d'Epargne et de Credit de Bokoro (SECREB) was created by private citizens. At the time of this study, a very competitive interest rate was being paid for short-term deposits.

Table 9.16 shows the cash flow of Bokoro Hospital from 1986 through 1988. Revenues from operations together with subsidies cover hospital expenses every year. In 1986 operating revenues were 41.9 percent over operating expenses (excluding expatriates' salaries); the excess covered almost all expatriates' salaries, so operating subsidies were minimal (only 1.9 percent of operating expenses). In 1987, operating revenues contributed only 82.7 percent of operating expenses. Subsidies equal to 64.3 percent of operating expenses were needed to cover the remaining operating expenses and expatriates' salaries. In 1988, the situation was similar: operating revenues covered 90.2 percent of operating expenses and subsidies equal to 45.9 percent of operating expenses covered other costs. The Catholic mission, the Belgian Cooperation, SANRU, FONAMES, and the Government of Zaire contributed salaries for some of the personnel. The share of expenses for drugs and medical supplies has doubled from 1986 to the first half of 1989 (not shown here), when it accounted for 43 percent of the hospital's operating costs.

Table 9.16: Financial Situation of Bokoro Hospital, 1986 - 1988

	1986		*1987*		*1988*	
	Nominal Z.	*Percent of Oper. Expense*	*Nominal Z.*	*Percent of Oper. Expense*	*Nominal Z.*	*Percent of Oper. Exp.**
OPERATING REVENUE						
User fees and insurance plan	2,218,013	130.0	3,189,941	81.1	5,220,314	87.5
Others	201,598	11.8	21,398	0.6	164,501	2.8
TOTAL:	2,419,611	141.9	3,211,339	82.7	5,384,815	90.2
OPERATING EXPENSES:						
Personnel (excl. expats)	846,222	49.6	2,049,358	52.8	2,768,706	46.4
Drugs and med. supplies	404,718	23.7	990,890	25.5	2,322,755	38.9
Office supplies	16,220	1.0	29,483	0.8	39,113	0.7
Transport	610	0.0	96,548	2.5	141,861	2.4
Maintenance	61,403	3.6	105,648	2.7	126,212	2.1
Fuel and electricity	216,910	12.7	444,757	11.5	429,037	7.2
Food service & other	159,499	9.4	164,234	4.2	140,943	2.4
TOTAL:	1,705,582	100.0	3,880,918	100.0	5,968,627	100.0
OPERATING SUBSIDIES:	33,099	1.9	2,497,184	64.3	2,742,143	45.9

* Excluding expatriates' salaries.
Source: Bwamanda Insurance Plan, Mimeo.

It was not possible to distinguish between revenues from insurance funds and direct patient charges. Given the subsidies and the level of services implied by Table 9.16, the hospital would need a minimum of 40,000 subscribers to finance an insurance scheme for hospital care. Including anticipated administrative costs for the insurance plan and an inflation rate of 60 percent, a premium of 200 Z per person would seem necessary.

Utilization and Access

Rates of utilization of ambulatory care services at the Bokoro Health Center for the first six months in 1989 are shown in Table 9.17. Differences in utilization between subscribers and

the uninsured are striking. Based on the six-month average, subscribers consult five times as often as non-subscribers with a new disease. Rates of treatment with antibiotics, antibiotic prescriptions, and injections show a similar pattern. Subscribers use two to nine times as many services. However, their higher utilization rate is not necessarily due to insurance. Every plan subscriber is employed and all medical expenses for the family are covered anyway.

Table 9.17: Health Care Utilization by Plan Subscribers and Non-Subscribers at Bokoro Health Center *

1989	*Jan.*	*Feb.*	*Mar.*	*Apr.*	*May*	*June*	*AVERAGE*	*RATIO*
Population size								
Non-subscribers	3817	3797	3794	3819	3799	2986	3669	
Subscribers	156	176	179	174	174	176	173	
Total	3973	3973	3973	3993	3973	3162	3841	
	ANNUAL UTILIZATION RATE**							
New cases								
Non-subscribers	0.45	0.38	0.46	0.48	0.46	0.59	0.47	
Subscribers	4.59	1.69	1.86	2.25	1.79	2.30	2.36	5.0
Antibiotic prescr.								
Non-subscribers	0.03	0.05	0.05	0.08	0.07	0.06	0.06	
Subscribers	0.49	0.31	0.27	0.31	0.49	0.72	0.44	7.3
Injections								
Non-subscribers	0.14	0.08	0.15	0.32	0.33	0.19	0.20	
Subscribers	1.98	0.92	0.27	1.24	1.51	3.11	1.72	8.6
	AVERAGE RATE PER NEW CASE							
Antibiotic Rx								
Non-subscribers	0.06	0.06	0.06	0.09	0.09	0.10	0.07	
Subscribers	0.11	0.18	0.14	0.14	0.20	0.31	0.18	2.6
Injections								
Non-subscribers	0.32	0.21	0.31	0.66	0.70	0.33	0.42	
Subscribers	0.43	0.55	0.62	0.55	0.84	1.35	0.73	1.7

* Data from the "BORDEREAU DE CONTROLE DE CAISSE" part A, Number 14 - 16 and 19.
** Projected annual utilization rates, calculated as: number of services in month * 12 / population size.

In the household survey mentioned earlier, respondents were asked about their preferences regarding health insurance. The results presented in Table 9.18 suggest that a single annual payment of 100 Z to 200 Zaires per family member is affordable. The preferred times to pay were January, July, and August. The survey also showed that members were interested in broader coverage that would include hospital care as well as ambulatory care. While hospitalized patients naturally preferred hospital care, a majority of healthy villagers preferred ambulatory care.

A major handicap to wider enrollment is probably the lack of an incentive for the health personnel to attract new subscribers. The staff of health centers are rewarded with an incentive payment for an overall high utilization rate, correct operational procedures, and having more

revenues than expenses. No incentive is provided for new plan subscribers, however. These would merely add to the work load but not necessarily increase profits.

Health zone administrators complained that clinical personnel did not believe in the value of the insurance scheme. Thus, their publicity and educational efforts were minimal or even negative. No clear policy had been formulated regarding the best enrollment period.

The authors felt that if the premium were lower, substantially more subscribers would enroll and could help dilute the present high-risk membership with more low-risk subscribers. The health committee members and health center staff with whom they spoke, however, could not follow this argument.

The study team also felt that respected community institutions could assist in publicizing the idea of a prepayment plan. In Bokoro, the Programme des Actions Complementaires (PAC) might serve this role. It was created to promote social services, agricultural and fishing activities and is associated with the BCZS. Also, two religious missions (Catholic and Baptist) have contributed greatly to the development of the Bokoro area over the past seventy years. They enjoy the confidence of the population, which could be an important factor for a successful insurance plan.

Table 9.18: Interest in Additional Insurance among the Insured, Bokoro (n=21)

QUESTIONS	*Response (percent)*
Can you pay 100 Zaires for an insurance scheme which will take care of all of your family? When?	
Now	52
In a week	19
In a month	10
Never	19
Can you pay 200 Zaires for an insurance scheme which will take care of all of your family?	
Now	38
In one day	5
In a week	10
In a month	29
Never or no response	19
When would you like to pay this amount? (n=17)	
Any time	41
Dry season (3rd quarter)	41
After harvest (end of 3rd, begin. 4th quarter)	24
3rd, 4th or 1st quarter	18
Why would you like to pay at that time? (n=17)	
Employer covered	24
Cash available	18
Selling the harvest	12
Selling fish	29
Selling coffee	18
Selling products	12
Selling fish and coffee	6
Selling coffee and harvest	6
If this insurance would cover either the cost of care at the health center or at the hospital, which would you prefer?	
Health center	33
Hospital	57
I don't know	10
Were you sick last month and sought care?	
Yes, sought care at health center	14
Yes, sought care at hospital	19
No answer or did not seek care	67

CASE STUDY OF ST. ALPHONSE

The St. Alphonse Health Center is the first and only operating health facility in the urban health zone of Matete, Kinshasa. Since the Matete Health Zone is not yet functional, St. Alphonse is supervised by the Kisenso Urban Health Zone. The Kisenso zone receives technical assistance, capital and operating subsidies from the Belgian-sponsored project "Santé Pour Tous

Kinshasa" (SPTK). The St. Alphonse Health Center began operating in 1987, largely through community action, channeled through the Development Commission of the St. Alphonse Parish. The health center received investment subsidies from many donors, including the OXFAM Project (Great Britain), the Canadian and German Embassies, and SPTK. As of 1989, the health center was self-financing with a large profit margin.

Terms of the Insurance Plan

The St. Alphonse insurance plan covers ambulatory curative care episodes of illness at the St. Alphonse Health Center. Plan members are entitled to pay a fixed fee for each episode of illness up to five days, rather than paying for each day of treatment as non-members are required to do.

Table 9.19 lists the prices according to payer category (member or non-member). An episode of illness includes up to five consultations and all basic drugs required. Per visit fees also include consultation and basic drugs, but for one day of care only. For both payer categories, laboratory exams are charged separately. Drugs which are not usually kept in stock at the health center level, for example, quinine for chloroquine-resistant malaria, are charged separately as well.

Table 9.19: Prices, St. Alphonse Health Center Kinshasa, 1987-1989

Date	*Member Premium*	*Member Episode*	*Non-Member First Visit*	*Non-Member Other Visits*	*Member Episode*	*Non-Member First Visit*	*Non-Member Other Visits*
JAN. 87	50	100	110	50	80	(*)	(*)
JAN. 88	150	150	150	50	100	100	50
JAN. 89	150	300	200	50	300	200	50
MAR. 89	300	500	400	150	500	400	100

* No price was established for non-member children the first year. In 1989, differential pricing for adult/children was abandoned in favor of one price for all age groups.

The health center also offers prenatal consultations and well-baby care. However these services are not covered by the insurance plan. Deliveries are referred to other facilities, although the health center would like to open a maternity service in the future.

The population eligible to join the insurance plan includes the approximately 10,000 residents of the health center's catchment area. Enrollment in the insurance plan is voluntary. Since the health center opened in February 1987, 1,689 residents have joined the insurance plan, although only about 620 or 6.2 percent, were covered under the plan at the time of this study. In early planning meetings, community members expressed a preference for family enrollment, but the health center staff and development commission members felt that without a census such a system was open to abuse.

The 1988 premium price was 150 Z ($0.80), increased from the initial price of 50 Z ($0.39) in 1987. The insurance premium for 1989 was set in March, at 300 Z ($0.85) per person. All individuals pay the same premium.

The health center also treats patients who are not members of the insurance plan. In fact, 86 percent of new cases seen at the health center in 1988 were among non-members. Non-members do not qualify for the episode of illness price, but are required to pay for each day of care. As of 1989, non-members paid 400 Z ($1.13) for the first day of care, and 150 Z ($0.42) for each subsequent day of care. The average number of visits per episode for non-members for the first 8 months of 1989 was 3.6, or an average cost per episode of 790 Z ($2.23). As with members, consultations and basic drugs are included in the price, whereas laboratory exams and special drugs are charged separately.

Table 9.20: Financial Situation, St. Alphonse 1988-1989 Nominal Zaires

	1988		*1989 (*)*	
	Nominal Z.	*Percent of Oper. Expense*	*Nominal Z.*	*Percent of Total Exp.*
Operating Revenue				
Insurance premiums	88,090	4.2	77,625	2.2
Member episodes	279,300	13.3	303,225	8.7
Non-members first visit	1,158,950	55.1	2,017,080	57.6
Non-members other visits	823,860	39.2	1,470,525 469,350	42.0 13.4
CPN & CPS				
Sale of drugs **	110,600	5.3	171,675	4.9
Laboratory +	544,080	25.9		
Sale of foodstuffs	265,960	12.6	579,150	16.5
Other	163,580	7.8	195,150	5.6
	33,710	1.6	33,000	0.9
TOTAL:	3,468,130	164.9	5,316,780	151.7
Operating Expenses				
Personnel	832,426	39.6%	1,962,990	56.0%
Drugs and med. supplies	977,856	46.5%	1,215,200	34.7%
Supplies, util., maint.	177,121	8.4%	322,043	9.2%
Purchase foodstuffs	34,475	1.6%	4,500	0.1%
Other	81,785	3.9%		0.0%
TOTAL:	2,103,663	100.0%	3,504,732	100.0%
BALANCE:	1,364,467	64.9%	1,812,048	51.7%

* 1989 figures extrapolated based on 8 months of actual data
** After November 1988 revenue from sales of drugs drops sharply. This may indicate a change in payment system (more drugs included per episode).
\+ Laboratory receipts recorded only for May through December in 1988

Organization and Management

The insurance plan began with the opening of the health center, in February 1987. The Development Commission of St. Alphonse parish was instrumental in creating the health center and mounting an awareness campaign among the population in the health center's catchment area. The awareness campaign took a full year and involved considerable effort. Four members of the Development Commission worked full-time for two months, conducting door-to-door visits to explain the purpose of the insurance plan. They were assisted by six students from the National Art Institute who were enrolled in the Institute's program in "animation culturelle." The students worked full-time for three months. In spite of this concentrated effort, most residents were not convinced about the benefits of joining an insurance plan. The plan began with only fifty members.

The St. Alphonse insurance plan is a direct insurance plan, offered by the provider. The price of the premium is set by central office staff of the SPTK health zone. Premiums are deposited in an account at the parish, as are all receipts of the health center.[97] A member of the Development Commission works at the health center as an administrative assistant, and prepares a monthly financial report according to the SPTK model. The report shows cash flows as well as an income statement. Premiums are recorded as a cash receipt, but not as income. No interest is earned on premiums.

97 As it was not possible to meet with these people, little is known about how the premium price is established.

There are few recurrent costs associated with administration of the insurance plan. Since the plan began, no new registers or membership cards had been purchased. The membership verification process is very simple (the receptionist compares the membership card to the person's national ID card), and accounting is combined with that of the health center, so personnel expenses for record-keeping are negligible. The cost of printing a membership cards was about 20 Zaires ($0.06), so the card expense for the 620 current members was approximately 12,400 Z ($35).

Resource Mobilization: Financial Situation of Plan and Center

Table 9.20 presents the combined financial situation of the insurance plan and the health center for 1988 and 1989. The data show that the health center is extremely profitable, with a margin of almost 64.9 percent in 1988, and 51.7 percent in 1989. Insurance premiums and member co-payments do not contribute a large amount to the total revenue of the health center in either year. Premiums covered 4.2 percent of expenses in 1988, and only 2.2 percent in 1989. Member co-payments covered another 13.3 percent of expenses in 1988 (8.7 percent in 1989). In both years, nearly all of health center expenses were covered by consultation fees paid by non-members. Other services such as the sale of drugs, laboratory, and preventive care) contributed to the positive margin.

Utilization

Table 9.21 shows member and non-member utilization for curative care cases, and combined utilization for preventive care. Member episodes accounted for 13.7 percent of all new cases of illness in 1988. This share dropped to 10.3 percent in 1989. Unfortunately, as follow-up visits for members are not recorded by the health center, it is not possible to evaluate from its utilization data whether payment by episode encourages members to come back to the health center more frequently than non-members. For non-members, from 1988 to 1989 the number of visits per episode of illness increased dramatically from 2.9 visits per episode to 3.6. Changes in the relative price of follow-up visits compared to the initial visit may explain some of this difference (the relative price of follow-up visits dropped in the first two months of 1989,

Table 9.21: Utilization of the St. Alphonse Health Center Kinshasa, 1988-89

	1988			*1989*		
	Number	*% total utilization*	*% new cases*	*Number (8 mo.)**	*% total utilization*	*% new cases*
Members episodes	1,413	5.2	13.7	434	3.0	10.3
Non-members first visit	8,898	32.6	86.3	3,788	26.4	89.7
Non-members other visits (+)	16,477	60.3	---	9,710	67.8	---
CPN new cases enrolled	376	1.4	---	302	2.1	---
CPS new cases enrolled	168	0.6	---	98	0.7	---
TOTAL:	27,332	100.0	100.0	14,332	100.0	100.0
Visits per episode (non-members)	2.9			3.6		

* Jan. to Sept., excluding April (no data avail. for April).
+ Follow-up visits are calculated by dividing total receipts for follow-up visits by price per follow-up visit.

then increased again in March). It is also possible that the diligence with which records are kept at the health center improved somewhat in 1989.

To better understand the characteristics of insured and uninsured patients, a random sample of 205 consecutive ambulatory patients at the St. Alphonse health Center and the Caisse de Solidarté Ouvrière et Paysanne (CASOP, discussed below) were interviewed in October 1989. Thirteen percent of the 79 St. Alphonse patients and 51 percent of the 126 CASOP patients were insured.

Table 9.22 compares the utilization data of insured and non-insured respondents. The results demonstrate some moral hazard or adverse selection, in that insured respondents had more previous visits. Table 9.22, shows actual payments reported for their current illness episode. The results confirm that uninsured patients pay more than insured patients, but both groups pay something. These data from an independent source (the patients) confirm that actual charges are consistent with the official price list.

Table 9.23 and 9.24 further describe the attitudes of the two groups. For the most part, differences between the responses of the insured and uninsured are slight, with a very large majority of the group reacting favorably to the health insurance program. In Table 9.24, however, it is striking that 43 percent of non-members had not heard about the plans before. Thus, posters and displays at the plans' clinics about the insurance system

Table 9.22: Illness and Expenditures among the Insured and Uninsured, Kinshas Survey.

	Insured (n=74)		*Uninsured (n=131)*	
Characteristic	*Mean*	*SD*	*Mean*	*SD*
Duration of present illness episode in days	53	225	27	109
First visit for this episode.	35%		39%	
Number of previous visits for current episode	2.0	2.6	1.6	4.2
Payment for current visit in Zaires	222	521	511	856
Total payment for current visit including: Lab., x-ray and consultation				
$0.00 - $0.99 (0-430 Zaires).	90%		76%	
$1.00 - $2.00 (430-860 Zaires).	4%		7%	
$2.01 - $5.00 (861-2150 Zaires).	4%		10%	
More than $ 5 (More than 2150 Zaires)	1%		7%	
Mean	0.5		1.2	
Medicine included in total payment:				
All included	57%		56%	
Some included	42%		43%	
None included	1%		1%	
Total payment for all previous visits for current episode in Zaires	115	309	308	1,106
Expect any follow up for this episode	85%		85%	

* *SD = Standard Deviation*

Table 9.23: Willingness and Ability to Pay for Health Insurance Plans, Kinshasa Survey

Characteristic	*Insured (N=74)*	*Uninsured (N=131)*
Would you be able to pay 10,000 Zaires for an illness requiring minor surgery in a hospital?		
- Could pay today	35%	34%
- Could pay some other day*	58%	55%
- Could never pay or no response	7%	11%
- *After how many days? (average)	11	12
Would you be able to pay 50,000 Zaires for an illness requiring minor surgery in a hospital?		
- Could pay today	13%	11%
- Could pay some other day*	75%	70%
- Could never pay or no response	13%	20%
- * After how many days (average)	30	40
Where would you get the 50,000 Zaires (see question above)		
- Cash, from household	38%	22%
- Saving club or association	11%	6%
- By selling household items or livestock	5%	10%
- Taking a loan from somebody outside the household.	23%	23%
- Donation from somebody outside the household.	0%	1%
- Contribution of family members	9%	19%
- Other	3%	4%
- No response	11%	15%
What do you think of the organization of health insurance schemes?		
- Favorable	96%	92%
- Not favourable	1%	3%
- Do not know or no response	3%	5%

* Applicable only to St. Alphonse. In CASOP, families had to join.

might be an effective and inexpensive way of increasing enrollment.

CASE STUDY OF CASOP

The Caisse de Solidarité Ouvrière et Paysanne (CASOP) is sponsored by the Zairean National Workers Union (UNTZA). The health insurance plan is only one of the many social services provided by the CASOP, which operates nationwide. The research team studied how the insurance plan works by looking at the CASOP's only polyclinic in Kinshasa, which serves all CASOP members in the city.

Table 9.24: Attitudes Toward Insurance Plans among Members and Non-Members, Kinshasa

Questions:	*%*
For members:	
What are the inconveniences or problems of your membership?	
- Too expensive	6.9
- Benefits not worth the fees I pay	1.4
- It is necessary to come for follow-up visits.	26.4
- Other	15.3
- Nothing	47.2
For non-members:	
Why are you not a member of the insurance plan?	
- Too expensive	15.9
- I have no money	7.9
- Why should I pay before I am sick?	4.0
- Never heard about this before	42.9
- I am not often sick	0.8
- I did not know at the time of enrollment	10.3
- I do not trust this insurance	5.6
- I can pay for each consultation	9.5
- Other	3.2

Terms of the Insurance Plan

The CASOP plan covers ambulatory curative cases of illness treated at the CASOP polyclinic in Kinshasa. Plan members are entitled to pay a lower fee than non-members for each day of care, which includes a nurse consultation and some basic drugs. Families of members are entitled to the same benefits as members, for no additional premiums. Nationally, the CASOP has more than 42,000 contributing members. When family members are included, the total reaches one quarter million. In Kinshasa, the total number of members, including families was 6,691 in September 1989.

Table 9.25: Price List, CASOP Polyclinic, 1989

Service	*Member*	*Non-member*	*Company Member*
Consultation with:	250	350	400
Medical Assistant	350	500	600
General Physician	450	700	800
Specialized Physician*			
IV with drug	1300	1550	1600
Laboratory: Blood	100	200	200
Laboratory: Stools	100	200	150
Normal delivery	7000	10000	12000
Xray (chest, adult)	1400	1500	1700

* This is the type of consultation chosen by most patients according to the clinic administration.

Table 9.25 contains a list of prices according to payer category. Theoretically, there are four categories: individual member, individual non-member, company member, company non-member. But as there are currently no companies affiliated with CASOP's clinic that are not members, in effect there are three active payer categories. Individual members are insured and

pay least. Individual non-members are uninsured. Company members are insured and benefit from having their companies billed for the services rendered.

For all payer categories, laboratory exams and x-rays are charged separately. Drugs that are not usually kept in stock at the health center level are charged separately as well. The clinic also provides prenatal care, vaccinations, nutrition demonstrations, and minor surgery, all of which are not covered under the plan.

The monthly contribution to CASOP is 100 Z ($0.28) for the average worker. Honorary members (people with large incomes' self-identified) pay 200 Z ($0.56) per month, while farmers ("paysans") are charged 50 Z ($0.14). In fact, the latter tariff is not used, since most people are able to afford 100 Z in the urban area of Kinshasa.

Upon joining CASOP, members must pay a one-time fee for the membership booklet (100 Z), and six months of contributions in advance, or a total of 700 Z ($1.98). People who fall in arrears of their monthly dues are given three months to pay up the full amount. If they cannot pay back dues by the end of three months, their membership is suspended. Companies that join the plan, such as UNTZA, pay for the membership booklets for their employees, and use payroll deductions to collect the monthly contribution from the employees.

Individual members are subject to a co-payment. Since the end of 1987, their co-payment has been 450 Z ($1.27) for one day of care. Companies are billed at the individual member's "co-payment" price for the services provided to their employees. Laboratory, x-ray, minor surgery and some drugs are charged separately. There are no caps on spending.

Table 9.26: Utilization, CASOP Polyclinic, Kinshasa, 1988-1989

		1988					*1989*				
Payer Category	*Type of Visit*	*Number* *	*% all new cases*	*% all follow cases*	*% all total cases*	*Visit per epis.*	*number *(9 mo)*	*% total util*	*% new cases*	*% follow-up cases*	*Visit per epis.*
UNTZA staff	New	10,548	47.5	---	---		3,628	33.7	---	---	
	Follow-up	16,269	---	55.8	---		8,987	---	48.8	---	
	Total	26,817	---	---	52.2	2.5	12,615	---	---	43.2	3.5
Indiv. members	New	5,325	24.0	---	---		2,456	22.8	---	---	
	Follow-up	6,793	---	23.3	---		3,591	---	19.5	---	
	Total	12,118	---	---	23.6	2.3	6,047	---	---	20.7	2.5
Company billed mem. and non	New	4,079	18.4	---	---		2,988	27.7	---	---	
	Follow-up	4,434	---	15.2	---		4,102	---	22.3	---	
	Total	8,513	---	---	16.6	2.1	7,090	---	---	24.3	2.4
Non-members	New	2,264	10.2	---	---		1,707	15.8	---	---	
	Follow-up	1,648	---	5.7	---		1,751	---	9.5	---	
	Total	3,912	---	---	7.6	1.7	3,458	---	---	11.8	2.0
TOTAL ALL PAYERS	New	22,216	100.0	---	---		10,779	100.0	---	---	
	Follow-up	29,144	---	100.0	---		18,431	---	100.0	---	
	Total	51,360	---	---	100.0	2.3	29,210	---	---	100.0	2.7

* Jan. to Sept., excluding April (no data available for April).
+ Follow-up visits are calculated by dividing total receipts by price per follow-up visit.

The insurance plan is voluntary for individual members. Companies may join voluntarily, but once they have joined they must enroll all their employees. The employees are then required to make the monthly contributions.

The health center treats patients who are not members of the insurance plan. Table 9.26 showed that non-members accounted for between 9 to 10 percent of new cases in 1988 and 1989. A similar payment system applies, only non-members are charged higher prices. The average number of visits per episode of illness for non-members is lower than the overall average (1.7 compared to 2.3 in 1988), possibly showing that higher prices discourage people from seeking follow-up treatment.

Organization and Management

CASOP began in 1968, as a Christian mutual. When management changed into the hands of the Zairian Workers' Union, the name of the association changed. CASOP existed a long time before the polyclinic was added. By making a monthly contribution to CASOP, members receive benefits in the case of marriage, birth, hospitalization, need for social assistance, unemployment or a death in the family. The level of benefits is set in advance, usually on an annual basis. For example, a member who contributes 200 Z ($0.56) per month will receive a hospitalization benefit of 50 Z ($0.14) per hospital day. Family members are entitled to 25 Z ($0.07) per day.

The member contributions are collected and managed by committees at the local level ("comite primaire"). These local funds are divided into different pools, according to standard formula. For example, 10 percent of funds are reserved for hospitalization benefits, 35 percent for death benefits, 3 percent for marriages. The local committees must contribute 17 percent of the funds to the polyclinic, and 15 percent to administration at the regional and national levels.

When the polyclinic first opened, CASOP's idea was that membership contributions would enable the clinic to provide care at no price to members. This soon proved impossible, because utilization was high and the services were too expensive. Health services received only a small portion of the premium. As CASOP officials felt that a higher premium would not be affordable, they introduced co-payments instead.

CASOP is a direct insurance plan, offered by the provider. This status may change, however, as the policy of making the polyclinic "more independent" evolves. As stated earlier, accounting for the insurance plan is integrated with that of the clinic.

Individuals may join the plan at any time during the year (even when they are sick), with coverage starting immediately and lasting until the member stops paying dues. Enrollees receive a membership booklet which specifies name, age, membership number, date joined, profession and marital status. A photo of the member is included as well. Similar information is filled in for the spouse; for children, name and age are recorded. There are many pages in the booklet, where stamps are affixed to record payment of monthly contributions.

It is difficult to estimate the recurrent cost of administering the insurance plan, since it is part of a larger social insurance program with many administrative levels. The membership

verification process is not time-consuming (the receptionist checks the membership card to be sure it is up-to-date, or notes the employee ID number in the case of company memberships). It was difficult to assess the accounting procedures followed for billing company members or monitoring the insurance plan. Premiums are paid to local committees, who forward a percentage of the premium payments to the polyclinic.

Resource Mobilization: Financial Situation of Plan and Clinic

Despite repeated attempts to obtain financial data about the receipts and expenses of the polyclinic, the team failed to obtain any financial reports or summaries. The accounting systems of CASOP and the polyclinic were in extreme disorder.

Utilization

Table 9.26 shows member and non-member utilization for curative care cases. Individual members accounted for 23 to 24 percent of all new cases of illness in 1988 and 1989. UNTZA staff, who benefit from "company membership," accounted for 48 percent of new cases in 1988, but only 34 percent thus far in 1989. Non-members accounted for only 10 percent of all new cases treated in 1988. However, the percentage of non-members seen increased to 16 percent in 1989.

The number of visits per case for non-members is lower than the average (2.0 compared to 2.7 in 1989). The highest number of visits per episode is found in the UNTZA staff group, with 3.5 visits per episode. The greater number of visits among insured persons suggests that moral hazard or adverse selection operate to some degree.

CONCLUSIONS AND RECOMMENDATIONS

The case studies in this report have described a varied group of insurance schemes for rural and urban populations in Zaire. Several factors can be identified that favor or hinder the replicability and the development of health insurance plans. This study's findings do not support the rapid implementation of a nation-wide conventional health insurance system in Zaire as a feasible solution but, rather, suggest that decentralized, locally-managed plans offer good prospects for success. The conclusions summarize twelve lessons learned and offer recommendations for next steps.

The Insurance Schemes Cover Selective Types of Services

Theories of risk pooling suggest that insurance is most appropriate for events that are infrequent but would cause severe financial hardship. In-patient care and treatment of certain chronic illnesses in rural Zaire meet this criterion. A typical rural hospital admission costing $ 15, for example, would consume one month's income for a Zairian earning the prevailing per

capita GDP. Some of the health insurance systems did, indeed, insure in-patient care (Bwamanda). It was striking, however, that several others insured only out-patient care (CASOP, St. Alphonse, and Bokoro). The framers of the Bokoro plan had wanted to insure both in-patient and out-patient care, but found that the resources were sufficient only for out-patient care. Whereas the scheme in Bwamanda explicitly covered care of chronic illnesses, the systems in Bokoro, St. Alphonse, and CASOP excluded it.

Insurance for ambulatory services, while theoretically less important than in-patient services, seems more attractive to many consumers. As ambulatory care is frequently consumed, consumers will immediately recognize the value of insurance coverage. Also, insurance may provide a way to pay for care at a time that cash is more readily available, such as at harvest time. The consumer surveys in this study affirm the attractiveness of covering ambulatory care. Among insured respondents in Bwamanda, for example, 81 percent would like to increase their premiums sufficiently to cover ambulatory care. The argument against such insurance is that moral hazard (excessive use of the insured services) and added administrative costs make such coverage much more expensive than paying for the services directly.

The Most Successful Plans Have Modest Premiums

The fuller the range and depth of insured services, the higher the required premium. Among the plans studied here, Bwamanda and CASOP had the most members, with 134,680 and 42,000 respectively. The 1989 annual premiums per family member were 125 Z (US $0.29) in Bwamanda and 1,200 Z ($2.79, a modest amount for Kinshasa) plus an enrollment fee in CASOP (100 Z per worker per month for an assumed family of six). These plans limited services to those affordable within these financial constraints. The Bwamanda plan was essentially limited to in-patient care that met three conditions: the patient had been referred from a health center within the system, hospital staff confirmed the need for admission, and the care was provided in the hospital offering the insurance. In CASOP, individual membership provided only a modest reduction in fees. At their Kinshasa polyclinic, insurance lowered the price of the most frequently chosen consultation (consultation with a specialized physician) by only 36 percent, from 700 Z for a non-member to 450 Z for a member.

By contrast, in rural Bokoro the annual premium per person (not per family) was 1200 Z ($2.79). In the survey in Bokoro, respondents indicated that they could afford an annual premium of 100 to 200 Z. The only subscribers in Bokoro were employees whose premiums were paid by their companies. The plan insured only 4.5 percent of the zone's population. The premium was beyond the financial means of potential individual members.

An Acceptable Quality of Services Is a Precondition for Insurance

It is very difficult to measure quality of care without first developing common standards, and second, conducting utilization reviews to examine the appropriateness of diagnoses and treatments, evaluate patient outcomes, and investigate deviations from standard protocols. Lacking common standards and historical utilization reviews, it is impossible to detect a causal relationship between the organization of a health insurance plan, and changes in quality of patient care. It is possible to record observations about general quality measures, however,

including the availability of drugs, training and level of staffing, and condition of infrastructure. It is also possible to formulate hypotheses about the nature of the relationship between insurance systems and quality of care, even if such hypotheses cannot be tested without additional data collection.

A likely hypothesis is that health providers that offer insurance programs have higher quality of care than health providers that do not have any form of community financing system (user fees, insurance, or other). This is because community financing systems, including health insurance plans, increase the financial resources available to health providers, thereby allowing the providers to spend more on quality improvements (assuring drug supply, hiring and training staff, etc.). There is no reason to believe, however, that insurance systems would be any better at improving quality than user fee systems, except that insurance systems may be able to mobilize greater financial resources, depending on how premiums are priced, how premium revenues are invested, and levels of enrollment.

Bwamanda, Bokoro, St. Alphonse, and CASOP, all had high quality of care, in terms of general indicators such as drug supply, staffing and infrastructure. All four providers had a steady supply of drugs with very infrequent stock-outs. Bwamanda, Bokoro and CASOP all had several doctors and well-trained (A-1 level) nurses; St. Alphonse Health Center had several well-trained nursing staff. All four facilities had good to fair infrastructure, with well-maintained buildings and the most essential equipment. The facilities were busy with patients, suggesting that they had sufficient confidence to spend their time and money to seek treatment. Compared to other health zones receiving heavy donor assistance, the quality of care at the facilities studied was about equal. Compared to non-donor assisted zones, however, quality was much higher.

If a health facility was offering poor quality services due to inadequate resources, it seems unlikely that the creation of health insurance alone could break the cycle. However, if some external assistance (funding, qualified personnel, donated supplies, or technical assistance) could raise quality and confidence for a period of time, then insurance could help make those improvements sustainable.

Voluntary Schemes Have Found It Important to Sensitize the Population

To obtain widespread enrollment, a voluntary insurance system needs to sensitize the population to its value. In systems organized through a health zone, the workers in that zone can organize this enrollment. In Bwamanda, this awareness campaign functioned well and over 60 percent of the zone's population was enrolled in both 1988 and 1989. As enrollment occurred at a specific time, village meetings were held at that time to promote the system. Health workers received a commission to reinforce their enthusiasm (3 percent of the premiums they collected).

In Bokoro, on the other hand, workers in health centers received no incentive, did not appear interested in the subscription plan, and enrollment was low. In St. Alphonse, the parish development committee promoted enrollment and conducted a door-to-door campaign, though current enrollment is only about 6.2 percent of the population of the urban zone. (As this approach probably permitted only a single contact with each potential enrollee, it may not have been that effective.) Because village leaders often command the respect of the population, their

endorsement of a new system can be a strong force in sensitizing the population to the value of a new system.

There may be many more opportunities for well-functioning voluntary associations to add health insurance to their activities. The Commission mentioned in the introduction to this chapter identified 562 operating associations of all types. A health provider could work in partnership with several mutual associations in its vicinity to offer health insurance. The health provider could offer preferred access to members of the affiliated voluntary associations. The associations could provide some oversight over the quality and charges for services and could market an insurance system to its members. In the United States, many professional associations offer life and health insurance to their members in this way.

Committed, Decentralized Management Provides Flexibility and Accountability

All of the systems studied were under local control. The one national system, CASOP, delegated financial responsibility to local councils. Decentralization can be important even within an insurance system. In Bokoro, each health center exercised some control over its profits. As only a 25 percent share was allocated for its immediate use and deficits could be passed on to other health centers, there was little incentive for good financial performance.

All of the systems visited in the course of this study were run by health providers. These so-called direct insurance systems offer important advantages in efficiency and control over indirect insurance systems, in which the insurer pays some independent provider for care. The indirect systems raise many questions of financial control. The insurer must assure that the member needs the service being requested, that the chosen provider is competent to perform the service, that it actually was performed, that the insured is the actual recipient of the service, and that the fee was appropriate. In a provider-based system, many of the inherent conflicts between the insurer and the provider are avoided.

Committed administrators contributed to the success of the Bwamanda system. The director of the CDI Medical Service is a Belgian physician who has worked fourteen years in Bwamanda. Other personnel, from the insurance plan administrator to the health center nurses, also believed in the system. While nurses welcomed the commission of 3 percent of the premium income they collected, they also seemed to appreciate being part of a well-functioning system that allowed them to use the locally-available resources to provide health care to their population.

Simple Control Methods Can Reduce Risks of Error or Fraud

Widespread error or fraud would undermine the financial viability of a health insurance system. Control is required for several dimensions. The case studies have identified useful approaches for many of them.

- *Assure that premium income is recorded for all persons having paid.* The system of printed stamps in Bwamanda provided a useful device. Each health center is issued specific quantities of two-part enrollment stamps during the enrollment period.

Upon payment, a member is given a stamp for each household member. At each supervisory visit during enrollment, the zone's financial officer withdraws the cash on hand and verifies that it matches the value of stamps distributed.

- *Assure that persons claiming to be insured have paid the current premium.* Again, in Bwamanda, one part of each of these stamps was affixed to the back of the family's health card kept at the center; the other to individual cards retained by each person. All stamps are signed to validate them. When a member seeks hospital care, they (or their guardian) must present their health record with the current signed stamp on the back.

- *Prevent a non-insured person from easily borrowing the card of an insured individual.* In CASOP, members had photo identification cards, a technology that is relatively expensive in Zaire. The cards were feasible for CASOP because they were generally needed only for one household member; the premium was higher (100 Z per month) so that the cards were more affordable; and getting photographs made and developed is relatively easy in Kinshasa. In Bwamanda, identification photographs would have cost as much as the insurance. Instead, control relies on identifying information about the insured. First, the health card contains some descriptive data about the person named (age and height) that can be matched against appearance. In addition, the enrollment register contained the names and birth dates of other family members about which the presumed insured can be quizzed.

- *Assure that the policy of enrolling all members of the family is* enforced. In Bwamanda, as in some other zones, the health centers endeavored to maintain up-to-date cards on all persons in their catchment area. Provided these cards were up-to-date, they create a roster for each family at the time of enrollment.

- *Assure that patients and insurers are charged appropriately for services through a clear system of prices.* In Bwamanda, hospital care was charged in one of sixteen all-inclusive prices per admission. This simplicity reduces the risk that the provider will perform unnecessary services to overcharge the insurer.

Appropriate Investment Strategies Can Preserve the Value of Premium Income over the Year

Because of the high rates of inflation in Zaire, the operation of insurance poses special challenges. In countries with low inflation, premium income can be kept in cash from the beginning of the year, upon collection, until the middle of the year, then spent. In Zaire, where the rate of inflation may exceed 100 percent per year, this approach would be ruinous. Approaches to saving money without major erosion by inflation include investing in a responsible local institution. For example, funds invested with the Center for Integrated Development (CDI) at Bwamanda earned a compound rate of 2.5 percent per month in 1989 (34.5 percent effective annual yield). It may also be possible to invest in drug supplies, provided the pharmacy is well run and drugs are safe. As drugs are mostly imported, their value will grow in proportion to the exchange rate with their country of origin.

Financial Analysis of the Insurance System Requires Better Accounts

None of the insurance systems visited by the team had up-to-date financial statements for the system that could be used to assess their financial health. In CASOP, the financial system was so incomplete that no financial statement could be constructed for either the polyclinic or the insurance system. In Bokoro and St. Alphonse, financial statements for the health centers could be constructed, but premium income and expenses of insured patients could not be separated from the centers' other financial transactions. Bwamanda constructed an annual financial statement for the insurance plan at the end of each year, but it contained so many year-end journal entries that no meaningful analysis could be performed mid-year. Better financial accounts would aid the insurance systems in setting premiums and controlling costs, as well as providing better data to guide future policies.

A Financial Guarantor Can Help Build Confidence in Launching an Insurance System

When a new insurance system is established, many factors could precipitate insolvency. Accumulated health problems could lead to an initial burst of demand. Inadequate data or limited information could lead to an underestimation of the utilization or prices. An insurance plan may incur fixed expenses despite low enrollment. The public will be more likely to enroll in an insurance system if they are protected against these outcomes. Many organizations could serve as a financial guarantor. In Bwamanda, the CDI served this role. The Government of Zaire, the Project de Sante Rurale (SANRU), Sante Pour Tous, UNICEF, or a private voluntary organization might also serve this role. The financial guarantee need only be given for one year at a time. If there are losses, the premiums or services can be revised or, if necessary, the system can be abandoned to prevent further losses.

Access and Resource Mobilization Motivated Health Insurance Schemes

Health insurance systems were started primarily to meet two objectives concurrently: mobilizing resources and increasing access to services. In the health zones of Bwamanda and Bokoro, the hospitals had chronic or mounting deficits. They felt that substantial increases in user fees would price their services beyond the ability of the population to pay. With health insurance, ill persons would be more likely to seek care. As evidence of the goal of increasing access to health services, the insurance systems were promoted by developmental organizations such as the Center for Integrated Development in Bwamanda, the Development Committee of St. Alphonse Parish in Kinshasa, and the social welfare structure of CASOP. In Bwamanda, where the most detailed financial statements were available, the share of the hospital's operating costs recovered rose from 48 percent in 1985 to 79 percent in 1988.

Evidence of Adverse Selection and Moral Hazard was Found, But Plans Minimized Their Impact

In every plan for which utilization of insured and uninsured persons could be compared, insured persons were found to use more services. In Bwamanda, insured persons were 6.7 times as likely as uninsured to be hospitalized. At the Bokoro health center, plan subscribers had 5.0

times as many new ambulatory episode as non-subscribers. In the Kinshasa surveys, insured respondents reported more previous visits (2.0) for their current illness episode than uninsured (1.6). Similarly, utilization data from CASOP showed more visits per episode among individuals insured (2.5) than among those uninsured (2.0).

While comparisons among the diverse insurance plans require caution, this evidence suggests that insurance makes a big difference in the likelihood of receiving services at all, but has only a modest impact on the intensity of those services among those receiving some care.

The plans used several approaches to minimize the risk of adverse selection. Several required family membership. In Bwamanda, Bokoro, and CASOP, if one member of a family joins, then the family must join. In St. Alphonse, there was no such requirement. This policy seemed to be effective in increasing enrollment overall, and members without special risk specifically. As plans did not graduate premiums by age or prior illness, the risk of adverse selection could otherwise be substantial.

Other plans enrolled employee groups. Employee groups constituted 100 percent of members in Bokoro. In CASOP, although the share of company member is unknown, they accounted for 51 percent of visits in 1989. This strategy appears successful in helping to make the insurance plan viable and should be encouraged as one method of recruiting members. It should not, however, be the exclusive method of enrollment, as that policy would exclude the bulk of the rural population. In the Bwamanda rural health zone, for example, employees or their family members comprised only 4.6 percent of the population.

Some plans limited enrollment to a specified time of the year. In Bwamanda, enrollment took place only in March to April, after the second harvest. In St. Alphonse and CASOP, enrollment was allowed at any time of the year, and in CASOP, even when the subscriber was ill. Policies to limit adverse selection are most important when adverse selection would be most severe. This would occur when insured individuals would receive substantial discounts on infrequent, expensive services. Thus, limiting the time of enrollment or restricting enrollment at the time of illness is important in Bwamanda, where the insurance covered in-patient care and chronic illness, and in CASOP.

Systems of Utilization and Cost Control Can Help Make Insurance Affordable

Several systems of utilization and cost control have helped to make insurance affordable. Co-payments have been used by all of the systems visited. In Bwamanda, the user generally pays 20 percent; in Bokoro, 25 percent. In St. Alphonse and the CASOP, the payment schedules are more complex, but co-payments average about two-thirds of the costs. Previously, when CASOP had no co-payments, it was found that out-patient costs far exceeded the share of membership fees available to cover them, and the policy was changed.

The plans have also excluded certain services in an effort to control costs. The Bokoro subscription does not pay for ambulatory care of chronic illnesses. The Bwamanda insurance does not cover initial ambulatory consultations with the physician.

Bwamanda used another important device to control cost: utilization control, through insistence on the referral system. Before a patient could be hospitalized, the patient had to be referred from a health center and a provider at the hospital had to confirm the need for admission.

STRENGTHENING EXISTING INSURANCE SYSTEMS

Looking ahead, the existing insurance systems, while vibrant and innovative, could benefit from several steps.

Training

Training in the basic concepts and administrative aspects of health insurance schemes should be offered at the School of Public Health, University of Kinshasa, at successfully functioning-systems such as Bwamanda, and through refresher programs offered by Fonds National Medico Sanitaire (FONAMES), Project de Sante Rurale (SANRU) and the Sante Pour Tous Kinshasa Project (SPTK). A manual about the management of health insurance plans should be developed for this training. The training should consider both general principles (how to calculate premiums based on actuarial data) and an analysis of the experiences of functioning plans in Zaire.

Exchange Visits

An intra-zone program of staff exchanges or site visits should be established. The existing systems could invite personnel from nearby zones to observe their system and adapt their forms and procedures. For example, under the sponsorship of officials for Equateur Region, the health zones around Bwamanda, such as Tandala and Gemena, could be given assistance in adapting and replicating the Bwamanda system.

Information Systems

Without a standardized information system and monitoring procedures, the costs and benefits of a health insurance system are difficult to evaluate and almost impossible to compare with other plans. To help existing insurance systems and possible future efforts, an appropriate coordinating agency such as SANRU, or the Ministry of Health, should develop guidelines for information collection that would assure that utilization and accounting data are adequate for evaluation purposes -- for example, availability of utilization and financial data by major payment categories: insured, employed, uninsured and unemployed.

Data analysis in this study was hindered by the fact that none of the plans appeared to have a unique identifying number for each member. With decentralized enrollment through health centers in Bokoro and Bwamanda, each health center tended to develop its own numbering system. A comprehensive system would be easy to develop, in which the first digits

represented the health center, the middle digits the village and the family, and the last digits the individual.

Technical Assistance

Technical assistance can help each plan tailor the lessons learned from the three areas mentioned to their own site, and to implement new accounting systems or policy changes.

ESTABLISHMENT OF ADDITIONAL INSURANCE SYSTEMS

This study suggests that insurance systems have increased access to health services and mobilized resources in rural areas. Thus, a policy goal is to foster the development of additional systems to serve other parts of the country, and to gain more experience as to which approaches work best in which situations. The study suggests that additional rural schemes be established building on the lessons learned. This study suggests initiating varied types of systems: some for in-patient care only (like Bwamanda), some for in-patient and out-patient curative care (like the intention for Bokoro), and others that are comprehensive and include preventive services as well. The training, site visits, information systems, and technical assistance recommended above to strengthen existing systems should be extended to encourage new rural systems.

A model of particular interest for ambulatory care would be a system of prepayment. A member would prepay for a specified number of ambulatory episodes; say, five and would receive a book of five vouchers. The subscriber would be offered a discount compared to the current charge in return for having prepaid the services. The vouchers would be promoted for sale, like insurance, at a time of the year when cash was most available.

This study suggests that a hospital-based HMO-type insurance plan should be tested. Civil servants and their families would enroll on a family basis, paying a set premium that would enable them to seek in-patient care in case of need at a specified hospital. A separate organization would manage marketing efforts for the plan, and would turn over a percentage of the premium payment to the hospitals, based on subscribers. The premium would be set high enough to cover the risk of adverse selection. Users would pay a co-payment for each episode of hospital care. Ambulatory care could be controlled either through co-payments or through a voucher system, like that described above.

The potential advantage of this approach is that it includes mechanisms to direct hospital use to a particular facility and to control utilization. Utilization rates should be projected initially based on the experience of other large employers with similar workers; the system should then be refined based on actual experience.

CHAPTER 10

COMMUNITY HEALTH INSURANCE THROUGH PREPAYMENT SCHEMES IN GUINEA-BISSAU

Per Eklund and Knut Stavem

ABSTRACT: This chapter assesses the viability of a community-level pre-payment scheme as a means of mobilizing resources and providing improved drug availability and first aid for widely-scattered rural villages that are not easily serviced by existing health infrastructure or more traditional insurance approaches. In the Guinea-Bissau health post scheme, healthy participants pay a premium in advance, for which they receive free or reduced cost drugs and first aid in the event of illness. Respondent's willingness to pay is linked with greater availability of drugs. Because entire communities are heavily involved, these programs also have the potential to reduce adverse selection and moral hazard. However, the program in Guinea-Bissau still depends on an unreliable government distribution system for resupply of drugs. This chapter discusses the advantages of the Guinea-Bissau prepayment scheme and also flags several potential drawbacks based on lessons in eighteen communities.

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INTRODUCTION

The inadequacies of current health care systems, combined with rapid population growth, have highlighted the need for additional resources to satisfy basic health needs in many countries of Sub-Saharan Africa. But in an era when economic growth rates have been either low or negative, and when government allocations to the health sector may be shrinking in real terms, it has been a major challenge merely to maintain the levels of services out of existing revenue sources. Against this background, public officials seek ways to improve the use of available resources and mobilize additional resources. As a result, there is increasing interest in the concept of cost recovery.

One form of cost recovery is a prepayment scheme, in which healthy participants pay a premium in advance, for which they receive free or reduced cost health care in the event that

they fall ill. By pooling risks, such schemes help prevent the financial catastrophe that may result from illness or injury. Moreover, prepayment schemes are an equitable way to pay for care since the cost of treating illness is spread evenly over both the sick and healthy. Prepayment plans (as opposed to fee-for-service) can also be used to help finance community health education on subjects such as family planning and nutrition, as well as of curative care. Finally, these plans could in principle, be designed to introduce a degree of cross-subsidization, so that those with higher incomes could bear a greater share of the cost.

Advantages of prepayment schemes must also be weighed against several potential drawbacks, however. First, prepayment plans may raise the bill for medical care, because they are costly to administer. Second, actuarial principles need to be applied to set appropriate prepayment levels, so that the scheme can be financially sound. Because the information needed to do this is lacking in many African countries, rates would have to be set without adequate data. Third, the management of such schemes usually requires a minimum of administrative skills which are often in short supply in low-income countries. Fourth, prepayment schemes may elicit the problems of adverse selection and "moral hazard."[98] Finally, although prepayment plans can effectively pool the risk of high medical costs across healthy and sick individuals, they do not necessarily improve the availability of health care to the very poorest people. Destitute people in society cannot afford user fees; neither are they likely to be able to afford prepayments or insurance premia.

Recently, community-level insurance schemes controlled by local authorities and financed/administered either by villages or rural health care providers (e.g. clinics) have begun to attract attention. These programs have the potential to reduce adverse selection, since it is possible to obtain universal enrollment in each village. Moreover, their revenues might be more easily shielded from ministries of finance and centrally placed authorities who have been known to use these funds for other governmental programs. As very little is known about the operation and performance of such community-based prepayment schemes in Sub-Saharan Africa, this chapter assesses the performance of prepaid financing of primary health care and the dispensing of drugs in Guinea-Bissau.

THE COUNTRY AND ITS HEALTH SYSTEM

Guinea-Bissau is a small country on the west coast of Africa with an area of 36,125 square kilometers and a population estimated at 950,000. Eighty percent of the population is rural, located in villages of between 100-1,000 inhabitants, with an average size of 300. Roughly one-third of the land area is swamp or waterway, making many villages difficult to reach. The 1979 census recorded 33 ethnic groups, the largest being the Balantas, Fulas, Mandingas and Mandjacos.

Economic, demographic, and social indicators place the country among the world's poorest. During the late 1980s life expectancy at birth was only 39 years, compared to 42 and 48 in neighboring Guinea and Senegal, respectively. Infant mortality was between 180-200 per 1,000 live births and almost one-third of all children die before the age of five (see Table 10.1).

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98 However, one way to avoid either of the latter problems is for health providers to require minimal co-payments from patients after a given number of visits have occurred.

Studies conducted between 1982 and 1984 found that 16-35 percent of the children surveyed were malnourished. The most common health problems are malaria, diarrhea, upper respiratory infections, measles, tuberculosis, neonatal tetanus and malnutrition.

Health care services are offered at national, regional and district hospitals, at health centers (clinics) and at community-managed village health posts (USBs) (see Table 10.2). There are 450 village health posts (USBs), which form the base of the health care structure. Their creation reflects the goals of the 1976 National Health Plan. The plan emphasized the decentralization of services, preventive care (without neglecting curative services), the use of simple techniques and practices and education for health personnel, including village health workers (VHWs) and village midwives who form a volunteer staff. Although the USBs receive assistance from the Ministry of Health in the form of construction materials, an initial stock of drugs, supervision and training, they are entirely locally-managed and staffed. Private hospital care is not available.

Table 10.1: Vital Statistics, Guinea-Bissau, 1988

Total population (millions)	950,000
Population under 16 years (%)	47
Population urbanized (%)	28
Crude birth rate (per thousand)	46
Population growth rate (average, 1970-80)	3.5%
Mortality rate (per thousand)	
Infants <1 year	180-200
1 - 4 years	270
Life expectancy at birth (years)	39
Illiteracy rate (%)	84%
Population per medical doctor (1987)	
Bissau (capital)	2,450
Rest of country	13,430

Source: MINSAP.

Table 10.2: Health Facilities and Beds by Facility Category

	No. of units	*No. of beds*
National hospitals	2	633
Regional hospitals	4	299
Sector hospitals	12	279
Health centers	121	-
Village health posts	450	-

Source: MINSAP.

USBs administer simple treatments and basic drugs. They are located in standard two-room structures constructed of local materials (generally dried mud on a frame of branches or mud bricks), with one room for "general receiving" and a second for prenatal care. The inventory of drugs at the USB is restricted to twelve essential items and bandage materials. The six most common conditions/diseases treated at USBs are malaria, diarrhea, conjunctivitis, cough, pain and wounds.

The USB is normally staffed by one VHW and one midwife, both of whom are selected by the village political committee. Midwives, who are drawn from among the traditional birth attendants, provide prenatal care and perform deliveries. Most midwives and VHWs have little or no education (as is the case with the vast majority of the rural population) and they are trained for fifteen days by nurses at the health centers and district hospitals. These individuals are not

paid in cash or in kind for their time but they enjoy prestige and, in some villages, may be assisted with their agricultural activities, such as land clearing and/or harvesting. By the end of 1988, 1,560 VHWs and 1,200 midwives had been trained. The fifteen-day introductory course is supplemented by an annual five-day refresher course.

Approximately 220,000 people live in villages with USBs, which is 20-25 percent of the population (see Table 10.3). However, the proportion of the population covered varies among regions. For example, at the time of this study, no USB had been established in the Biombo region, while at least 56 percent of the population in the Gabu region was serviced by village health posts.

Qualified health personnel in the rest of the system are scarce. Current staff ratios are below the norms except for medical doctors in national and regional hospitals, and auxiliary nurses at the health centers. In the district hospitals, there are 1.3 physicians on average per facility, against a norm of 2.7, and only 1.3 registered nurses on average, opposed to a norm of 5.3. In the health centers, there are just 0.5 registered nurses on average, compared to a norm of 1.1. This means that one out of every two health centers is without a qualified nurse.

Table 10.3: Coverage of USBs by Region

Region	*Population Participating* a/	*Total Population*	*Coverage %*
Tombali	29,334	70,000	42
Cacheu	37,200	145,000	26
Gabu	69,400	125,000	56
Oio	20,615	145,000	14
Bolama	12,528	30,000	42
Bafata	42,288	145,000	29
Quinara	7,793	40,000	19
Biombo	0	65,000	0
Bissau	0	165,000	0
Total	219,158	930,000	24

a/ The population of participating villages; this survey of eighteen USBs in three regions found that 90 percent or more of the village population actually participate in the USB prepayment scheme.

Source: MINSAP/WHO.

ROLE OF COMMUNITY PARTICIPATION

The USB system is based on community participation and involves a significant amount of local resource mobilization. A contract between the village leaders and the Ministry of Public Health (MINSAP) defines responsibilities as the following.

(i) The village decides on the fee levels for the prepayment scheme, whether payment is based per capita, per adult or per household, and the timing of payments.

(ii) The village must collect funds under the prepayment system to ensure that initial drug supplies are continually replenished. Drugs are sold to USBs with substantial subsidies, set at the central level and equal across regions.

(iii) Some villages create special health sub-committees to oversee USB operations, but in the smaller villages, the responsibilities are performed by the political committee.

(iv) The village provides the labor and most construction materials for building the health post. MINSAP provides materials for windows, doors, and hinges.

(v) The government supplies simple equipment, including a metal cupboard for storing drugs, a bed, stretcher, four chairs, one obstetrical stethoscope, one lantern, a kit of posters and other teaching aids, and an initial stock of drugs estimated to last for six months (for the population of each village).

(vi) The village selects one or more of its residents to be trained as VHWs and midwives.

Funds are collected at USBs by the village committee treasurer or one of the health staff and a record of the contributions is kept in each village. The funds are then transferred through the regional health directorate to Bissau, where they are deposited into a special account earmarked for the purchase of drugs at the central drug depository.

ASSESSING PERFORMANCE

In June 1989, a survey was conducted to gather information on the functioning of the USB prepayment schemes and their potential for mobilizing more resources for the health sector. The survey explored the following.

(i) Extent of participation in each village studied, use of co-payments, and trends in prepayment rates;

(ii) Level of subsidization and cost recovery;

(iii) Frequency of visits to USBs, trends in utilization and in quality of services;

(iv) Actuarial soundness of the system;

(v) Physical conditions of USBs, staffing patterns and availability of drugs; and

(vi) Community perceptions about health status.

Two questionnaires were designed in Guinea-Bissau, approved by the Ministry of Public Health's USB coordinator and field tested during the first round of interviewing in the Oio province. One questionnaire was used to interview groups of village inhabitants. It solicited data on village characteristics, preferences for health care, decision-making mechanisms, the structure and frequency of prepayment of fees and community willingness to pay. A second

questionnaire was administered to VHWs and midwives to gather information about these health workers, as well as on the physical structure of the USB and on the stock of drugs. In addition, a number of individual interviews were conducted with village residents to obtain demographic data, and information about the drugs used and preventive health measures taken.

There was an average of 540 permanent residents in the eighteen villages surveyed (see Tables 10.4 and 10.5), although during the wet season, some experience a temporary influx of agricultural workers to harvest crops. The survey captured a wide ethnic diversity, reasonably representative of rural villages across regions. The two large Muslim ethnic groups, the Fula and Mandinga, accounted for 44 percent of the population in the villages sampled, but only 35 percent of Guinea- Bissau's total population, based on the most recent census (1979). The remaining groups are predominantly animist. Ten of the villages were ethnically homogeneous.

Table 10.4: Sample of USBs by Region

Region	*USBs Created Prior to 1988*	*Sampled USBs*	SAMPLE *Coverage %*	SAMPLE *Average Population Size of Village*
Oio	41	6	14.6	913
Tombali	101	6	5.9	311
Gabu	122	6	4.9	39
Total	264	18	6.8	540

Source: 1989 SURVEY.

Table 10.5: Characteristics of USBs

Region	Village	USB No.	Popul-ation	Years Since Con-struc-tion	Phys-ical Condi-tion*	Mid-wives	Village Health Work-ers	Total Health Agents (Mid-wives and VHW)	Mid-wives per 100 inhab-itants	VHWs per 100 inhab-itants	Total Health Agents per 100 inhab-itants
OIO	TCHALANA	1	203	2	2	1	3	4	0.5	1.5	2
OIO	GA-NAMUDA	2	1465	6	1	6	3	9	0.4	0.2	0.6
OIO	CUTHIA	3	1600	3	1	4	5	9	0.3	0.3	0.6
OIO	MANDINGAN	4	1250	6	1	4	1	5	0.3	0.1	0.4
OIO	MAGUE	5	800	2	2	3	3	6	0.4	0.4	0.8
OIO	SAREDONHA	6	160	3	2	4	3	7	2.5	1.9	4.4
TOMBALI	CAICOCA	7	428	3	1	5	4	9	1.2	0.9	2.1
TOMBALI	NHACUBA	8	350	3	1	2	3	5	0.6	0.9	1.4
TOMBALI	TCHINTEBI	9	200	6	1	3	2	5	1.5	1	2.5
TOMBALI	CLATCHE	10	60	5	0	3	4	7	5	6.7	11.7
TOMBALI	QUIBIL	11	360	9	1	3	4	7	0.8	1.1	1.9
TOMBALI	CUCUMBA	12	468	10	1	2	2	4	0.4	0.4	0.9
GABU	SAMBA TAC	13	386	2	0.5	5	4	9	1.3	1	2.3
GABU	MEDINA M	14	590	2	1	5	3	8	0.8	0.5	1.4
GABU	BILONCA	15	399	2	1	2	2	4	0.5	0.5	1
GABU	COINA	16	100	3	2	2	1	3	2	1	3
GABU	LENQUENTE	17	331	5	0.5	2	3	5	0.6	0.9	1.5
GABU	SAUCUNDA	18	575	7	0.5	5	5	10	0.9	0.9	1.7
			540	4	1	3	3	6	1.1	1.1	2.2

* Index for standard of building: The values of "0", "1" and "2" signify unsatisfactory, satisfactory and good condition, respectively.

Source: MINSAP.

PREPAYMENT SCHEMES

ORGANIZATION AND MANAGEMENT

USB structures in the sample were an average of four years old, with a range in age of from two to ten years (see Table 10.5). Only four of the eighteen buildings visited were in less than satisfactory condition. In general the buildings were clean and very well maintained. On average, each USB has a volunteer staff of three midwives and three VHWs, while the minimum found were two midwives and one VHW. Both categories average 1.1 per 100 inhabitants, although the range is wide--0.3-5.0 midwives per 100 inhabitants and 0.1-6.7 VHWs.

PREPAYMENT TERMS

Rates and methods of prepayment vary substantially among villages, suggesting a high degree of autonomy at the village level in determining the payment structure (see Table 10.6). For example, in 1988, annual fees per adult male varied from 20- 500 Pesos, with a mean of 203.4 Pesos.[99] The average annual collection per capita, in 1988, based on total population in each village, was 181 Pesos, with a range of 28-981 Pesos. The collection effort in one of the eighteen villages was extraordinarily high, 981 Pesos per capita and 1,400 Pesos, per capita when collections of agricultural produce are included. This village apparently served as a model and visitors were often taken there.[100]

Adults usually contribute to the prepayment plan twice a year and are given receipts that serve as proof of membership and entitle them to free drugs and services at the time of each visit. The VHWs normally keep a record of visits and payments, but midwives also assist in this function. In ten of the eighteen villages, the prepayment rates are the same for men and women. In four, the rate is lower for women than men. In two, only men pay. In another two, the rate is fixed per household. In one, the rate is fixed per married adult, and single adults pay a lower rate. Prepayments are assessed on children in only two villages. Only one village charged a co-payment for each visit to the USB, which was 50 Pesos (or 25 percent of the annual rate for adult males and females).

Some villages made in-kind contributions of agricultural produce. In 1988, four contributed the value of a crop, produced through joint labor on a common field. In addition to supplementing the funds collected to buy drugs, these contributions have been used to finance other community needs, such as the construction of a tin roof for the USB building, or to provide assistance to the poor and sick in the village.

Participation in the prepayment schemes is high, above 90 percent on average. In half the villages surveyed, all households were participating. In the rest, the portion not participating was about 10 percent of the population, although in one village, 30 percent did not participate. Explanations for non-participation were not obtained. Those residents not participating are allowed to obtain drugs once or possibly twice, but are then required to join the scheme, unless

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99 In mid-1988, 1130 Guinea Pesos were equivalent to $1US, but had depreciated by July 1989 to 1944 pesos to the dollar.

100 Because this village was so atypical, some of the analyses for the survey were confined to the remaining seventeen villages, where the collection effort is more the "norm."

they are destitute or sick. Residents from nearby villages that do not have USBs are normally permitted to obtain drugs in emergencies.

Community control of USBs is strong and prevents abuse of the system, such as the hoarding of drugs for future use or sale on the black market. The village political committee, through its president or treasurer, normally supervises USB operations, and village inhabitants are known to each other. Also, VHWs closely monitor the dispensing of drugs based on the illness diagnosed. This kind of control possibly explains why there is apparently no excessive demand for drugs. Hoarding of drugs was not mentioned during the interviews as a problem.

Prepayment levels in the USBs surveyed exceed the price of seeking care directly at health centers. The mean number of visits to health centers is 2.4 times a year. The consultation fee in health centers presently ranges between 35-50 Pesos per visit (an amount that considerably understates the complete treatment costs). Thus, someone visiting a health center would, in theory, pay a total of 120 Pesos a year. But since about half of those presenting themselves are exempt from payment, per capita charges fall to about 60 Pesos per year. Raising the fees and tightening exemptions would improve cost recovery at health centers and raise the incentives to use USBs.

The spread between prepayment levels and fees for service at referral centers (when they are nearby) reduces the incentive to join the prepayment schemes. It must be noted, however, that although those paying the consultation fee at the health centers are entitled to free drugs, these are rarely available and patients often pay high prices to obtain drugs at distant pharmacies.

LEVELS OF COST RECOVERY

The survey of health posts did not attempt to gather data on the total resources mobilized nationwide through the prepayment scheme. The sample was too limited to permit a reliable estimate for the entire population enrolled in some 450 USBs operating across Guinea-Bissau. However, in 1988, mean collection per capita for this study's reduced sample of 17 USBs was 134 Pesos. On average, this represents only 23 percent of the real or total financial costs of drugs and supervision. The population served by the USBs, nevertheless, pay far more for health care than urban populations with access to a health center or a hospital. The cost per visit in health centers ranges from 35 to 50 Pesos per visit, and approximately half the population is exempt from making these payments.

Furthermore, the low level of revenues from prepayment schemes at the village health posts understates the *total* amount of resource mobilization associated with the schemes. Villagers provide construction materials for the USB, as well as the labor of village health workers and midwives for implementation and management of the scheme -- none of which are reflected in the cost recovery figures.

DRUG AVAILABILITY AND THE QUALITY OF CARE

Health posts had an average of seven out of the twelve essential drugs in stock, with a minimum of three and a maximum of eleven. The resupply of drugs is driven by the level and frequency of contributions from the village and constrained by fluctuations in the availability of drugs at the central storage in the capital. On average, the most recent shipment was received

two months before the survey occurred, but drug supplies were replenished every eight months; in half of the villages, drugs were restocked only once per year. More than half had chloroquine, aspirin, tetracycline, eye ointment and oral rehydration salts, with the latter drug available in at least 80 percent of the USB sample. The fact that two months after the last shipment the USBs had depleted stocks of almost half of the twelve essential drugs suggests that USBs suffer from drug shortages much of the time. A particular concern is that half of the health posts had already run out of chloroquine, the key drug for the treatment of malaria.

During the three months prior to the interviews, supervisors from the health centers made an average of 4.1 visits, although the number varies widely in the different regions. For example, while the USBs in Oio were more distant from a referral center (an average of 18 kilometers, as opposed to 13 km. in the other two regions), they had more frequent supervision visits, more recent and frequent resupply of drugs, and more drugs in stock than USBs in the other two regions. Several of the USBs in Gabu had received no supervision visits and most USBs in Gabu and Tombali were resupplied only once a year. The data suggest that the more distant USBs receive proportionately more supervision compared to those that are located closer to the referral centers.

Staff from the health centers help the VHWs give preventive health education, which was offered in fourteen villages, or 78 percent of the sample. Topics included the importance of clean water, adequate latrines, balanced nutrition, vaccinations and protection against mosquitoes. Training in early weaning was provided in ten of the villages.

When asked if the overall quality of service had improved, remained constant or decreased over the last three years, all respondents stated that the quality of service had improved (Table 10.7). Reasons for the improved quality were pursued. In two-thirds of the villages, respondents noted that more drugs had become available. In two villages, they reported that the drugs were less available but that the proficiency or skills of the VHWs had improved. Other reasons included "more polite personnel," "more qualified personnel," "improvements to the physical structure of the USB," "good treatment," and "less waiting time." In general, waiting time at the USBs was less than a half hour per visit, usually five to ten minutes.

DETERMINANTS OF UTILIZATION

Statistical analysis suggests that the frequency of visits to USBs is driven by the availability of drugs and the distance of referral centers. The number of visits per capita is not significantly related to the level of prepayment rates or collection per capita. A priori, there are reasons to expect that villages with high prepayment rates would use the USB more, because, the higher the rate paid, the more drugs become available (since the USB can afford to purchase more), and one could anticipate a higher number of visits. But, there was no statistically significant difference between the villages.

EVOLUTION OF PREPAYMENT RATES

Prepayment rates were raised between 1988 and 1989 in eight villages and lowered in only one. On average, the annual rate for married men was raised by 29 percent, and for married women by 66 percent. These increases are worth noting because the official price of drugs has

not changed since early 1988. This means that the increase in payments is due to the increased consumption of drugs. Rates were also raised in early 1989 to improve the quality of care at the USBs. In Gabu, women in three villages contributed a half-kilogram of rice, valued at about 500 Pesos to enable them to attend annual refresher courses.

Respondents favored increasing prepayment contributions even further if this would assure the availability of drugs. They were asked, "Are you willing to pay an additional 500 Pesos a year to obtain a more secure supply of drugs?" and in all the villages sampled, the answer was in the affirmative. In two villages, two women qualified the response, based on an assured food supply, since they had experienced shortages of food in 1987.

CONCLUSIONS AND RECOMMENDATIONS

The prepayment scheme in the village health posts (USBs) in Guinea-Bissau is an example of a simple scheme that pools risks for basic primary health care services (particularly drugs), while simplifying management demands. Once prepayment levels have been determined by the village, the prepayments are collected all at once and forwarded up through the health system. This system is easier for illiterate villagers to manage than one of user fees for consultations and drugs. The latter would require an accounting of fee revenues for each use of the various services by different categories of clients and finding a way to safeguard the funds. The USB prepayment scheme is also much easier to manage than most insurance schemes. Since there is no billing necessary, providers are not being reimbursed for services used and it is not necessary to assess prepayment rates based on risk. The services provided by USBs are limited to prenatal care and treatment of a few basic ailments with essential drugs.

Two additional pitfalls of prepayment schemes noted in the introduction were adverse selection (when only those with a high risk of illness join a prepayment scheme) and moral hazard (when those who join the scheme use more services than they would have in its absence). Both problems lead to rising treatment costs and premiums which, in the extreme, can reduce enrollments and drive the scheme out of business. In the village health posts in Guinea-Bissau, adverse selection is prevented by almost universal membership within each village participating. Moral hazard is avoided through the vigilance of village health workers and midwives, who dispense drugs only as needed, based on diagnosis, and by the pressure of the local community.

Although the level of cost recovery from the village health post prepayment scheme is low, this understates the total amount of resource mobilization. Villagers provide construction materials for the USB and the labor of village health workers and midwives for implementation and management of the scheme -- none of which is reflected in cost recovery figures. Further, respondents indicated their willingness to prepay greater amounts, provided that drugs could be made available on a timely basis. Drugs are heavily subsidized to the USBs, however, and their price is not regularly increased to reflect inflation and devaluation. The degree of subsidization of USB drug supplies is thus increasing over time.

The survey found that the level of satisfaction with the village health posts was high, despite evidence that drug stocks are rapidly depleted. Respondents' willingness to prepay was often linked to improvements in the quality of service, including greater availability of drugs and

better training for village midwives. Yet, the quality of service that can be provided at village health posts depends critically on the extent of support from the rest of the health care system. Even when villagers prepay, drugs are not available immediately because of more general problems of finance and procurement in the health system. The health posts also rely on supervision, training and referral services from health centers. If authorities wish to strengthen the USBs, they must strengthen the health center support services and improve the drug resupply system. In addition, making bicycles available at each health post would improve the ability of workers to reach the more distant households, to communicate with the health center, and to evacuate patients in an emergency. Bicycles might be offered through some sort of incentive or credit scheme.

In the context of village-managed health services in Guinea-Bissau, prepayment may be the only type of cost recovery feasible. In contrast, a system of user fees for services or drugs might exceed the administrative and management capacities of the typical village. Would such a simple prepayment scheme work in the rest of the health system, in health centers and hospitals and in urban areas? It would probably be more difficult to administer such a scheme in urban areas or widely-scattered rural areas, since the practice of almost universal participation (as occurs in Guinea-Bissau villages) that prevents adverse selection would be difficult to achieve. Overuse would also be difficult to prevent when the patient is not known by the health worker and there is no community pressure to conserve resources.

The capacity to administer user fee schemes already exists in health centers and hospitals in Guinea-Bissau, and this seems to have the greatest potential for resource mobilization at those levels in the short-run. However, the very low level of user-fees and the large number of exemptions is limiting their contribution to cost recovery. Further, since user-fee revenues are not retained at health centers, but sent upward to the Treasury, there is little incentive to enforce collections. To raise cost recovery for health centers and hospitals, consultation fees should be raised and the number of exemptions reduced.

Table 10.6: Pre-Payment System 1988

				LEVEL OF FEES							EXEMPTIONS					
Zone	*Village*	*No*	*Popul-ation*	*Family/ House-hold*	*Children*	*Married Adult*	*Single Adult*	*Adult Male*	*Adult Female*	*Freq-uency of Pay-ment/Yr*	*Families not paying*	*Persons Note paying*	*Total Payment*	*Ag/Crop Contribution*	*Collect/ Capita*	*Total Collect/ capita*
OIO	TCHALANA	1	203			500	300			4	4		199860	84000	981	1394
OIO	GA-NAMUDA	2	1465					150	100	1		146	82469		56	56
OIO	CUTHIA	3	1600	500						2	8		186286	160000	66	66
OIO	MANDINGA	4	1250		200			500	500	1		125	393750	360000	315	443
OIO	MAGUE	5	800					100	50	1			66800	21000	83	533
OIO	SAREDONHA	6	160					100	50	2			26400		165	296
TOMABLI	CAICOCA	7	428					100	100	2			94168		220	220
TOMBALI	NHACUBA	8	350					78	78	2	15		25450		72	72
TOMBALI	TCHINTEBI	9	200					500	400	1			49500		248	248
TOMALI	CLATCHE	10	60					200	200	1			6600		110	110
TOMALI	QUIBIL	11	360					250	250	1	5		98200		251	251
TOMALI	CUCUMBA	12	468					250	250	1			64350		138	138
GABU	SAMBA TAC	13	386	300						2			22269		58	58
GABU	MEDINA M	14	590		50			50	50	1	10		23340		40	40
GABU	BILONCA	15	399					100		1			10973		28	28
GABU	COINA	16	100					500	500	1			27980		275	275
GABU	LENQUENTE	17	331					150		1	1	30	9150		28	28
GABU	SAUCUNDA	18	575					20	20	12			79900		132	132
Average			540							2			76292		18	244

Table 10.7: Perceptions of Change in Quality

Village	No.	Evaluation of USB[a/]	Waiting Time Less than 1/2 hour[b/]	Increase/ Decrease[c/]	Improvement in Quality Due to				Good Treatment/ More Confidence[d/]	Less Waiting[d/]	Referrals Improved[d/]
					More Drugs[d/]	More Polite Personnel[d/]	More Qualified Personnel[d/]	Other Improvd Construct[d/]			
TCHALANA	1	1.0	1.0	1.0	1.0	0.8	0.2				
GA-NAMUDA	2	1.0	1.0	1.0	0.8	0.5	0.5	0.8			
CUTHIA	3	1.0	1.0	1.0	1.0	0.2					
MANDINGAN	4	1.0	1.0	1.0	1.0	1.0				1.0	
MAQUE	5	1.0	1.0	1.0	1.0	1.0	1.0	1.0			
SAREDONHA	6	1.0	1.0	1.0	1.0	1.0					
CAICOCA	7	1.0	1.0	1.0	1.0						0.2
NHACUBA	8	1.0	1.0	1.0	1.0						
TCHINTEBI	9	1.0	0.6	1.0	0.2		0.8				
CLATCHE	10	1.0	1.0	1.0	1.0						
QUIBIL	11	1.0	1.0	1.0	1.0	0.2			0.2	0.2	
CUCUMBA	12	1.0	1.0	1.0	0.8						
SAMBA TAC	13	1.0	1.0	1.0	1.0						
MEDINA M	14	1.0	1.0	1.0	1.0		0.3				
BILONCA	15	1.0	1.0	1.0	-1.0		0.6			0.4	
COINA	16	1.0	1.0	1.0	1.0		1.0		1.0		
LENQUENTE	17	1.0	1.0	1.0	-.08		1.0				
SAUCUNDA	18	1.0	1.0	1.0	0.2		0.6			0.2	
Mean:		1.0	1.0	1.0	0.7	0.1	0.7	0.9	0.6	0.5	0.2
No of Observations		18	18	18	18	7	9	2	2	4	1

Notes:

a/ Index denotes with "1" satisfaction and with "0" non satisfaction with use.

b/ Index denotes with "1" occurrence of the event, and with "0" non occurrence.

c/ Index denotes with "1" increase and with "-1" a decrease.

d/ Index denotes with "0" no improvement in quality and with "1" an improvement:
Index captures mean evaluation of usually five individuals interviewed.

CHAPTER 11

CONCLUSIONS

The surveys and case studies in this volume have presented a myriad of findings, methodological issues and policy recommendations concerning ways in which user fees for government health services and self-financing insurance can benefit patients and improve the finance, efficiency and equity of health systems. Specifically, they have: (i) expanded on the rationale for increased cost recovery and self-financing health insurance; (ii) presented evidence that the demand for health care responds to improvements in the quality of service, even with increased user fees; and (iii) identified practical steps that need to be taken when planning and implementing cost recovery programs.

USER FEES: KEY FINDINGS

The issue facing Sub-Saharan Africa is not whether to charge user fees -- user fees are being charged -- but rather how to employ user fees to promote better, more equitable health care and to create a self-sustaining mechanism for financing health care. Among the lessons learned:

- Households in Sub-Saharan Africa are already paying for health. In fact, private expenditures are the largest single contributor to health care expenditures throughout the region.

- People will pay for quality care. Traditionally, user fees have been viewed as having a negative impact on the use of modern health care facilities. But recent research suggests that when introduction of user fees is accompanied by simultaneous improvements in quality, those negative effects can be offset.

- All too frequently, the negative price effects on utilization have been overstated. Multivariate analysis reveals that many factors aside from price -- including distance to health facilities, personal characteristics, and the quality of care -- play an important role in health care decisions.

- By sending price signals to consumers, user fees can actually improve the referral network and the efficiency and quality of the health care system.

If appropriately implemented and efficiently administered, user fees can make health care delivery more equitable, foster private sector development, and promote a self-sustaining financial base for better health care. Even the poor stand to benefit from such an approach. The requisites to the successful implementation of user fees include (a) encouraging the use of fee-

based health care through information campaigns that clarify the rationale for user fees and make allowances for in-kind and alternative forms of payment; (b) retaining fees at the local or district level to promote decentralization, as well as local control over quality improvements and staff involvement; and (c) establishing appropriate methods to collect and administer fees.

It is time to move ahead with user fee strategies by identifying prospects for implementing them on a country-by-country basis and by sharing lessons learned in the process. First steps include formulating explicit policies on user fees, rethinking current government programs that undermine the successful implementation of user fees, and beginning the process of educating and informing policymakers, public officials, health professionals, and consumers about the potential benefits of user fees. For policy analysts, it will be essential to continually monitor and evaluate new approaches to user fees as they take shape. It is also clear that a user fee policy must be part of a larger strategy to reallocate government expenditures to health services that benefit the entire community.

SELF-FINANCING INSURANCE: KEY FINDINGS

Pessimism regarding prospects for self-financing insurance in Sub-Saharan Africa is giving way to a new optimism, given the recognition that such systems are implementable and that insurance represents the only feasible mechanism for protecting large numbers of people against catastrophic illness through risk-sharing. Lessons learned suggest:

- Risk-sharing, in a variety of forms, is far more common in Sub-Saharan Africa than previously thought. In fact, opportunities for the growth of self-financing insurance exist in all African countries.

- Prospects for implementing insurance are particularly strong in urban areas, where there are high concentrations of formal sector employees. Policymakers can promote the growth of insurance by tapping into existing employer-mandated programs and rationalizing such schemes, especially as these schemes apply to the civil service.

- In rural areas, establishing insurance programs is more difficult, but not impossible. Pre-payment schemes organized through existing agriculture cooperatives and timed to coincide with harvest seasons-have met with success in Africa and elsewhere.

- Insurance offers advantages that are often overlooked, including the inherent *direct equity-enhancing* impact of insurance programs wherein, among participants, benefits are provided on the basis of need rather then income.

- Privatization of health services, especially tertiary-level services, cannot occur without some kind of self-financing insurance to provide protection against, and payments for, catastrophic illnesses on a large scale.

Before implementing insurance programs on a large scale, a foundation must be carefully laid within each country, and knowledge on how to manage such factors as adverse

selection, moral hazard, and cost escalation in the African economic environment must improve. Requisites to a successful insurance scheme further include (a) setting premiums at levels that are substantially below the expected cost of individual medical treatments; (b) introducing some form of user fees, thus motivating consumer interest in alternate forms of payment; (c) minimizing "moral hazard" and "adverse selection" through deductibles and co-payments; (d) undertaking adjustments on a continuous basis to assure insurance premiums, coverage and quality of services remain attractive; and (e) initially limiting coverage to select populations, requiring clients to pay some portion of the costs, and, particularly in rural areas, exploring pre-payment schemes. However, these requisites must also be subjected to careful and repeated evaluation and adjustment in the process of broadening coverage of the population incrementally.

IMPLEMENTATION AND FUTURE PERFORMANCE

Policies to implement user fees or to mandate compulsory insurance need to be researched thoroughly and implemented gradually. No system will be perfect, and it will take time to win users' confidence. Many countries are implementing user fees in phases, first in tertiary facilities, then in district hospitals, and finally in health centers. For providers, this system allows the best practices for administering fees and collecting bills to be established in the environments most conducive to charging for services-namely, hospitals. What is learned in hospitals can then be adapted for health centers. For users, this system gives them time to become accustomed to paying and to understand the rationale behind fees.

Other countries are implementing experimental user fee systems at all health facilities simultaneously, but in a specific geographical area for example, in selected districts. This approach concentrates efforts on improving services at all levels in a district while permitting close monitoring and assessment of the effect of user charges on revenues, efficiency, and equity. If the system performs well, then the country has a successful model that can be duplicated in other districts. For users, the method gives them the chance to evaluate the complete system and to see how they can benefit from the full effects of promised health reforms.

In the case of health insurance, feasibility studies need to begin by assessing those factors affecting the viability of insurance markets. In particular, groups need to be identified that would be viable candidates for an insurance "risk pool." Initially, it may also be advisable to develop an insurance package with a limited, but affordable set of services. The least expensive type of system that can offer risk protection is catastrophic coverage for a life-threatening event requiring expensive hospital inpatient treatment. More expensive coverage could be added at a later stage, depending on the size of the risk pool, income and willingness to pay, and demand for an expanded package of services.

Specifically, African governments can improve the performance of user fees and self-financing health insurance by taking the following actions.

- *Providing better information.* Users of health care tend to be far more receptive to paying fees when they understand the nature and level of the charges. An information campaign launched before introducing or raising fees

can facilitate this process by explaining why changes are necessary and how the system will work. At a more basic level-posting simple pricing structures for outpatient services in clearly visible places at clinics and hospitals can promote public understanding and participation.

- *Involving health professionals.* Health facility staff not only can help to promote user fee strategies but tend to be far more motivated to collect fees when there are professional and personal incentives for doing so. Retaining fees at the point of collection to help supplement recurrent expenditures -- for example, for salaries and essential drugs -- is one way to address this issue.

- *Improving administrative procedures.* Efficient collection and administration of fees, particularly at hospitals, is critical in view of the high cost of tertiary-level services and the heavy subsidies provided to hospitals by the ministries of health.

- *Implementing appropriate financial strategies.* Income from user fees can be protected by adjusting for inflation and by keeping revenues in interest-bearing accounts.

- *Exploring payment options.* Permitting alternate forms of payment can enhance users' willingness and ability to pay and thus improve prospects for collecting debts. For instance, farm households are more likely to have access to cash after the harvest than during planting season and are also likely to be more able to pay for services with income-in-kind, such as a bag of grain or poultry, than with cash.

- *Developing risk pools.* Feasibility studies need to assess factors that affect the viability of insurance markets. In particular, groups need to be identified that would be viable candidates for insurance risk pools. Governments can help bring about risk pooling on a larger scale by requiring employers to provide insurance and mandating arrangements that bring small employers and the self-employed into risk pools. Mandating that employers provide insurance in the formal sector, including the civil service, would substantially increase the incidence of insurance coverage and help provide a stable and sustainable source of financing for urban hospitals.

- *Beginning in urban areas.* Urban areas in Africa should be the first focus of a policy to develop self-financing insurance markets because cities tend to have lower administrative costs and more competitive market conditions for medical services. In addition, extending an insurance system to low-income people is most easily begun in cities. Tapping the formal sector can also be relatively easy in urban areas, which are disproportionately populated by government employees. The feasibility of extending insurance in Africa can and should be assessed with the data at hand; both governments and donors can play a decisive role in fostering insurance in potentially viable markets.

- *Minimizing adverse selection and moral hazard.* Adverse selection occurs when the chronically ill or those with a high probability of developing an illness or

injury join insurance plans and (healthy) low-risk individuals do not. An effective way to combat adverse selection is to require all family members to join a plan, rather than just an employee (who might be more prone to work-related illness or injury). However, moral hazard arises when people use services more frequently than they would have had they not been members. Moral hazard can be combated by requiring users to pay part of the costs of their care, such as a co-payment or deductible.

- *Keeping costs in check.* Costs need to be kept from escalating. Insurance adds a loading fee to the cost of medical care in the form of administrative costs, sales costs or commissions, and profits. The systems needed to handle the administrative paperwork have become less expensive, however, and at the same time it has become easier to assemble risk pools. With the greater availability of personal computers, the development of banking systems, and falling communication and transportation costs, the decreasing administrative costs of supplying insurance in developing countries may make private insurance systems more feasible for much larger segments of the population than they were even just a decade ago.

PARTNERS IN COST-SHARING

To be willing partners in cost-sharing strategies, both providers and users must be able to see the advantages of a proposed system. Policymakers must be able to explain why cost sharing is necessary. If the explanation emphasizes the needs of administrators-for instance, to shore up government budgetary deficits, and offers little prospect of improved health services, then people will be reluctant to participate. If the answer is to contribute to better health by reallocating public revenues, making them more cost-effective, and improving quality, then people are far more likely to be supportive and willing to pay. This point should take precedence in the design of any cost-sharing program in Africa, because user fees and health insurance in most countries have been implemented with mixed objectives and without properly informing potential users of the advantages of the proposed systems.

Perhaps the ultimate goal of cost sharing should be to ensure that households and communities have a say in the design and delivery of basic, cost-effective services. A recent World Bank study estimates that a basic package of preventive and clinical health services can be provided at the community level for less than what many countries are currently spending per capita on health (World Bank 1994a). Asking people to pay at least something for such a package means that three things will happen. First, users will receive more and better services than they have in the past, or more value for their money. Second, more people will be able to afford the less costly package. And finally, cost sharing will produce a greater sense of transparency and accountability, so that people will better understand how revenues are used.

It is important to recognize that what goes into a basic package of cost-effective services, so as to provide high value for money, cannot be separated from how the package is delivered. Again, based on the African experience, cost-effectiveness is enhanced in district-based delivery systems where quality services are provided at the first point of contact in the health system (such as health centers or posts) and then backed up by a referral to a specialist or district

hospital. At the community level, fees can be structured to reinforce the referral system; income can be retained and revenues used to assure that quality is improved at the district or local level. And it is at the local level that users are most aware of improvements in health services and thus more willing to share in costs.

The evidence presented in this volume shows that the most important issue in health care delivery in Africa today is not whether user fees should be implemented or self-financing health insurance advocated. These things are already happening, with sure signs of expansion in the future (Bennett and Ngalande-Banda 1994; Normand and Weber 1994). The important issue is to find ways to structure and implement user fees and health insurance jointly, maximizing both the desires and needs of potential users and the efficiency, equity, and sustainability of the health care systems themselves.

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