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**HEALTH-SEEKING BEHAVIOUR  
IN THE REFORM PROCESS FOR  
RURAL HOUSEHOLDS: THE  
CASE OF MWEA DIVISION,  
KIRINYAGA DISTRICT, KENYA**

**ROSE NGUGI**

AFRICAN ECONOMIC RESEARCH CONSORTIUM

CONSORTIUM POUR LA RECHERCHE ECONOMIQUE EN AFRIQUE

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## **Abstract**

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Cost sharing resulted in a drop in the use of public health facilities in Kenya. But, these facilities continued to take a high priority among the other alternatives when sickness befell. Shifts across the facilities indicated a search for health services that yielded utility equivalent to the fee charged, while demand for services across the alternative sources reflected complementarity in consumption. Several factors influenced the observed pattern: direct and indirect costs, income base, satisfaction with services received, and demand level in the household. As rational agents, users of health care services aimed to minimize costs and maximize their satisfaction.

## I. Introduction

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The context of structural adjustment programmes brought cost sharing in Kenya's social sector to relieve the government of the financial burden of providing public services. In the health sector, cost sharing meant that the beneficiaries of public health services, who received almost free medical care, would henceforth contribute substantially to the financing of health care delivery. Thus the new policy denied beneficiaries their assumed dependency status.

Declining financial resources adversely affected the quality of services received from the public health facilities. This is because inadequate financial resources translate to inadequate supplies of drugs and medicine, reduced personnel training, low remuneration for health personnel, and non-expansion of health facilities (Mwabu, 1992). Cost sharing aims at mobilizing resources to supplement government contributions so as to improve the quality of services provided.

There are different views on cost-sharing policy, however. The proponents of user fees argue that demand for a health service is inelastic to its price, so that increased user fees would result in a non significant decline in demand for services. Assuming that health care service is a normal good, this means that any substantial declines would be influenced by other demand determinants. These factors include the quality of services received, availability of essential services, available resources for health care, allocation of resources in the household and household perceptions of the responsibility for health care provision. If the introduction of cost sharing is coupled with the provision of desirable services, and consumers accept their responsibility and allocate sufficient resources for health care, then demand for public health services will be sustained or even increase if the quality of services is comparable across the providers and the user fee for public sector services is subsidized.

If consumers perceive the provision of health care services as solely the government's responsibility, then they will be reluctant to comply with the new policy. In the short run, therefore, public health facilities will face a substantial decline in demand with no accompanying shifts in the use of other formal facilities. Previous studies in Kenya (Mwabu and Wang'ombe, 1995, Quick and Musau, 1994; Kirigia et al., 1989) have shown a significant decline with low inelastic demand.

Explaining the results, Mwabu and Wang'ombe (1995) note that the introduction of user fees where none existed before may create perceptions of a high percentage increase, so that low inelastic demand is accompanied by a significant decline in demand.

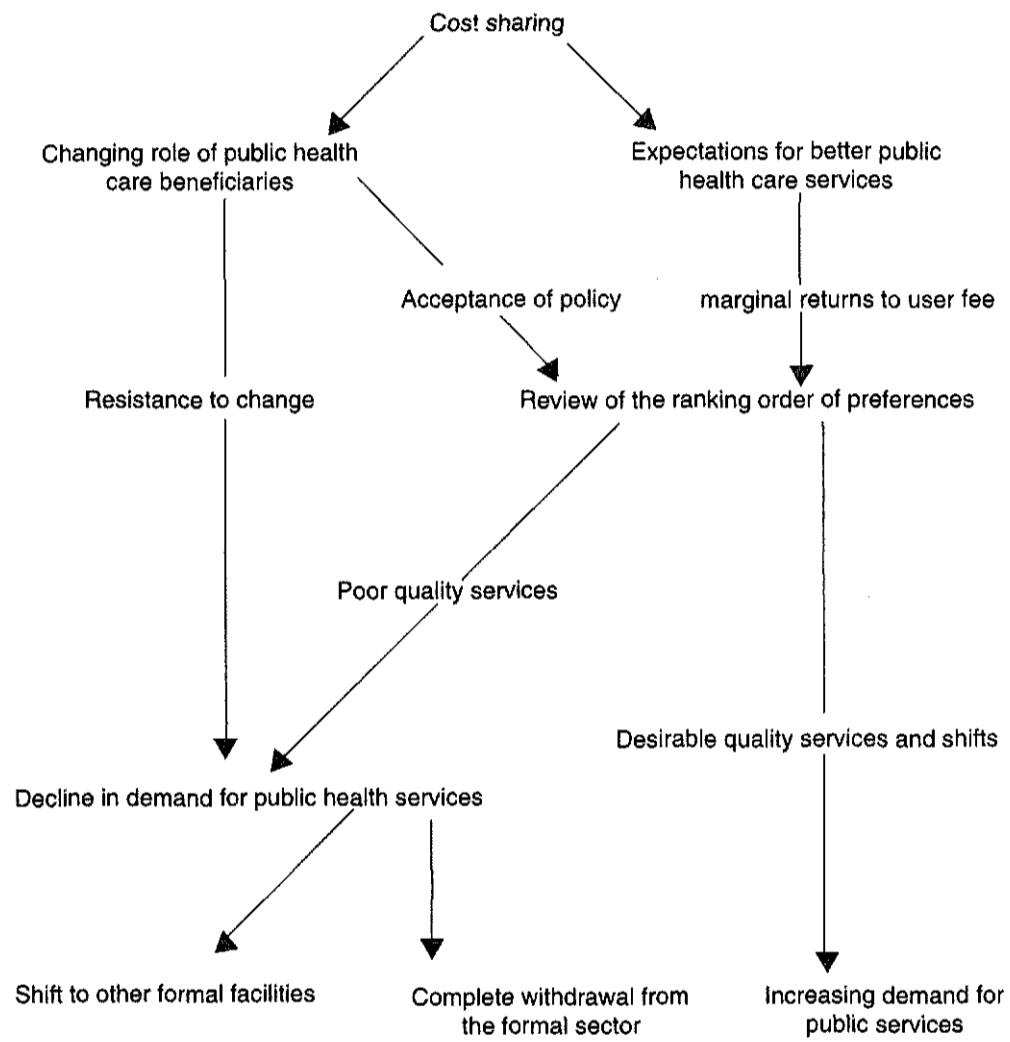
The opponents of user fees on the other hand, argue that demand for health services is highly sensitive to price level, so that a marginal increase in price is accompanied by a

huge decline in the use of health services. They argue that the introduction of cost sharing substantially reduces demand for public health services. It is possible that the targeted level of resources was not realized as the fee charged was highly subsidized and with declining government assistance, no significant change was realized in delivery of services. It is also possible that because of inefficient management emanating from bureaucratic procedures, individual health facilities are not benefiting substantially enough to deliver comparable services to consumers. Consequently, dissatisfied with services offered, consumers shift to formal facilities, where services received are comparable to the fee charged. However, if consumers feel that amounts charged are too high for them to afford the services provided, they will drop out of the formal health facilities. They become marginalized from the formal system and their health status is threatened. Sauer Borne et al. (1994) explain that increasing user fees in public health services would lead to serious inequality of access so that those at highest risk of ill health and death are pushed out of the formal health system. The World Bank Report (1992) also shows that implementation of macroeconomic adjustment policies causes various groups to become vulnerable. Such groups include, the poorest in the society, the relatively scattered rural communities who have not benefited greatly from public expenditure and are facing discontinued subsidies during structural adjustment, and the urban dwellers who have disproportionately benefited from public services and subsidies like the civil servants and other middle income groups and the poorest groups. Mwabu (1992) supported the World Bank view in his study focusing on the relationship between cuts in government budget and the demand for health care as he found that reducing government budget with the structural adjustment programmes would mean a fall in health status of the population, mainly the poor groups.

Thus, introduction of cost sharing not only changes the status of the clientele, it also creates expectations for better services. Consumers review their ranking of preferences to reflect the cost of service and the quality of services across the various providers of health care. These are indicated by shifts across the various alternatives, and/or complete drop from the formal sector (Figure 1).

The aim of this study was to look at the impact of cost sharing on preference order in the household and the implied pattern of health seeking behaviour. The study attempted to answer the questions: How do households rank the available alternatives for health care services? How does this differ across household members? What explains the behaviour pattern?

**Figure 1: An illustration of expected cost-sharing outcome**



## **II. The health sector in Kenya**

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### **Structure of the health sector**

The Kenya government has over the years demonstrated its commitment to poverty alleviation by providing social services. In Sessional Paper No. 1, 1965, the government indicate its earliest interest by declaring war against three enemies: poverty, illiteracy and disease (GOK, 1965). Sessional Paper No. 10, 1967, further emphasized the government commitment as it set the long-term objective to provide an adequate level of basic social services to all citizens. For the health sector the government's policy objective is to have affordable, effective and accessible health services that promote well being, and improve and sustain the health status of all Kenyans (Kenya Health Policy Framework 1994 and Development Plan, 1997/2001).

The sector expanded over the years with several providers offering a wide range of services. They comprise the government, private sector and voluntary agencies (churches, missions, industrial health units, private institutions, individuals and NGOs). The government continued to dominate the provision of health care services, and by 1996 it provided 43% of the total sector funding and 70% of the hospital beds of which Ministry of Health [MOH] provides 62% and Kenyatta National Hospital 8%). The voluntary sector provided 20% and the private sector 10% of hospital beds. MOH operated 71% of the health centres and dispensaries while the church related NGOs ran 14% of the total facilities. The rest of the health facilities were shared among the other government entities and private providers. A number of the health centres were also constructed through self-help (Kenya Development Plan, 1970/74), with the government assisting to equip the facilities with personnel and medical supplies.

Public health services are provided through a network of provincial, district and subdistrict hospitals, health centres, sub-centres, and dispensaries. In the rural areas health services are mainly provided through the health centres and dispensaries. Kenyatta National Hospital (KNH) is at the apex of the health system and is expected to operate as the central referral and teaching facility. Whereas public sector services encompass preventive, promotive, curative and rehabilitative services, NGOs and private providers concentrate on curative services with limited provision of preventive services.

As a main provider and with the realization that expenditure in health was an essential investment, government invested heavily in the sector. Consequently, rapid growth of the sector was realized with expansion of health personnel and health infrastructure (Table 1). With the expansion, the sector realized a decline in crude death rate from 20 per 1000

person in 1963 to 13 in 1987, and 12 in 1991. Life expectancy increased from 40 to 58 years in 1960 and 1994; infant mortality declined from 126 per 1000 in 1962 to 60 per 1000 in 1994, and the immunization coverage rose to 70% in 1994 from less than 40% at independence in 1963 (Development Plan, 1997/2001). Expansion of the sector has also meant better coverage of the population with one health facility per 12,600 people, 950 persons per hospital bed, 10,000 people per doctor, and 950 people per nurse. Accessibility has also improved with 42% of the population living within 4 km of a rural health facility and 75% within 8 km.

**Table 1: Indicators of health sector growth, 1979 - 1997**

Year	Hospitals	Health centres	Health subcentres & dispensaries	No. of beds & costs	No. of personnel
1979	226	233	1,088	26,922	18,347
1980	216	241	1,087	27,691	19,307
1981	221	262	1,130	28,108	20,469
1982	220	276	1,135	29,044	21,996
1983	216	288	1,213	29,294	24,047
1984	213	293	1,273	30,886	25,457
1985	243	267	1,173	30,936	27,850
1986	249	276	1,424	31,356	30,493
1987	254	282	1,535	31,512	32,359
1988	260	294	1,553	31,983	33,946
1989	264	294	1,553	30,936	35,635
1990	268	299	1,564	33,086	33,918
1991	277	357	1,712	33,296	38,501
1992	301	477	1,859	34,360	37,847
1993	308	596	2,267	38,131	40,774
1994	324	562	2,868	37,271	40,660
1995	346	531	2,925	47,214	43,264
1996	387	548	3,058	49,331	45,561
1997	398	566	3,105	50,909	48,685

Source: *Economic Surveys and Statistical Abstract*, various issues.

Despite the rapid expansion of the sector, various constraints made it impossible for the government to continue financing increased demands. Inefficiencies and inequities characterized the delivery system due to poor management and inappropriate pricing of services where, for example, the cost of treating the same case at hospital level was ten times the treatment cost at the lower level facilities (Mwabu, 1995; Development Plan, (1997/2001). This called for improvement in the health centres and dispensaries to enhance efficiency in the health care service delivery.

Inequities were traceable on the expenditure side, distribution of personnel and facilities, and coverage of National Insurance Scheme. Expenditure in the sector was skewed against the poor. The poorest decile receive about half of the public subsidy



received by the richest decile, accounting for less than 30% of the total health budget on rural health facilities. This is because the rich members visit the hospitals more frequently where per visit subsidy was higher (World Bank, 1994). The poor were discouraged by the travel costs, distance to the hospitals and higher treatment fees charged in hospitals. There was also concentration of medical personnel and facilities in urban areas so that the poor got limited access to quality medical care. The uneven distribution of formal health facilities, mainly dispensaries and health centres, also reflected the disparities in resources among community members who contributed to building of the physical infrastructure (World Bank, 1994). The National Hospital Insurance Fund facility (NHIF) – a medical insurance scheme – benefited those in formal employment, while the rural population and those in the urban informal sector were not covered.

The sector also faced secular decline in health expenditure, affecting the ability of the government to provide health care services. Government spending faced a downward trend at a time when economic performance was deteriorating and population growth was exploding. Of the total delivery system expenditure, about 80% went to recurrent expenditure with 70% going to staff remuneration, leaving only 30% for supplies. Government expenditure was also biased towards the urban areas. While rural health services were dominated by health centres and dispensaries, such facilities received a fraction of the total spending on hospitals, translating to inadequate supplies and under-utilization of the dispensaries. Health centres were overpopulated, yet they had the lowest subsidy per visit (Table 2). Urban centres had a high concentration of national, provincial and district hospitals that received the bulk of public expenditure. Furthermore there was concentration on curative service rather than the low cost preventive and promotive services.

**Table 2: Percentage distribution of recurrent public expenditure in health sector (actual)**

	FY87	FY88	FY89	FY90	FY91
Curative health care	79.8	67.8	70.1	70.6	68.8
KNH	11.6	11.2	9.7	8.8	9.2
District hospital	8.7	17.0	15.3	15.0	15.2
Preventive & promotive care	45.3	36.1	41.3	43.0	41.3
Rural health services	4.2	10.6	8.7	8.7	8.1
Health training	6.6	11.3	11.1	11.1	13.3
Medical supplies	5.8	5.5	5.3	5.8	5.7
	-	0.7	0.6	0.6	0.6

Source: World Bank (1994).

## Cost sharing in the health sector

At independence the government took as its own the responsibility for financing health sector services, thus relieving beneficiaries of a substantial proportion of the financial burden. However, financial constraints coupled with increasing demand forced the introduction of cost sharing. It was expected that the financial burden of health care would be shared with the beneficiaries to enhance government's financial capacity and to improve the quality of health care services. Cost sharing was also expected to create incentives to encourage patients to use preventive and primary health care services and to discourage the use of more costly hospital services for common illness. For example, the use of dispensaries and clinics was encouraged by putting a higher fee structure at hospitals than health centres and keeping services free at the dispensaries. Cost sharing also aimed to encourage people to become more responsible for their own health care by sharing in the cost of the services they received (Quick and Musau, 1994).

Cost sharing was mounted on 1 December 1989. Outpatient registration fees were set at Kshs 20 per month at MOH hospitals and Kshs 10 per month at health centres; dispensaries were free. In September 1990, the outpatient registration fee was suspended while inpatient and other fees remained unchanged. In April 1992, the MOH reinstated the user charge for outpatients as a charge per item of treatment when service is available. (Table 3 gives details on the introduction of cost sharing). This meant that consumers were not charged for unused services and they could supplement unavailable services by using the alternatives.

**Table 3: Sequencing of the user fee Implement programme**

1963	Government committed itself to provide universal access to medical services.
1964	Pre-independence fee of Ksh5 per attendance discontinued.
1964-1989	Nominal inpatient and selected outpatient charges continued.
1 December 1989	Implementation of MOH fee as cost sharing.  Out-patient Ksh20 per month at MOH hospital, Ksh10 per month health centres, dispensaries free.  In-patient: Ksh20 bed per day at MOH hospital; Ksh10 at health centres.  Maternity—Ksh100 per day at MOH hospital after delivery. Ksh50 at health centres to maximum 5 days
23 January 1990	NHIF Rates—Ksh200 per day Kenyatta Hospital; Ksh40 general in-patient beds per day at provincial and district hospital; Ksh20 per day subdistrict hospitals; Ksh10 per day at gazetted health centres; Ksh65–135 per day at MOH amenity hospitals.  Other changes—adjustment or introduction of fees for amenity wards, laboratory and x-ray investigations, dental treatment, medical examination and certification, circumcision and physiotherapy. Exemptions—under fives; patients from charitable homes, destitute, mentally handicapped, patients attending family planning, antenatal, postnatal, TB, leprosy and AIDs, and patients referred downward or upward within MOH system.
23 January 1990	Maternity bed fee reduced to Ksh20 per day at all MOH facilities after delivery to maximum of 5 days
1 July 1990	NHIF rate increased Ksh200 per day for PGHs, Ksh80 per day for distinct hospitals; Ksh80 per day for subdistricts; Ksh160–250 for MOH amenity. Outpatient registration fee suspended, other fees remained.
September 1990	Maximum number of chargeable inpatient days increased from 5 to 14 at PGHs. Exemption age raised to 10 years.
1 January 1992	Ministry began phased out introduction of outpatient per item treatment fee charged if the treatment is available beginning 15 April 1992 in KNH.
April 1992	NHIF rate revised Ksh350 per day KNH and PGH; Ksh160 per day district hospital; Ksh160 per day subdistrict hospital; Ksh250 –350 MOH amenity hospital.
July 1992	Exemption age raised to 15 years and those not employed.
January 1993	Outpatient fee Ksh10 per item introduced at PGH. Sh10 treatment fee per item at distinct and subdistinct hospitals. Phasing of outpatient treatment fee completed with introduction at health centres.
July, 1993	Ksh5 outpatient treatment fee per item introduced at health centres. Dispensaries remained free. Increased fee at PGHs to Ksh20 per item for outpatient and increase to Ksh30 per day for inpatient PGHs.

Source: Quick and Musau (1994).

### III. Methodology

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#### Theoretical framework

Health care is a consumption good as well as an investment good. As a consumption good, health care improves welfare, while as an investment commodity, health care enhances the quality of human capital by improving productivity and increasing the number of days available for productive activities. Time lost in production because of ill health thus indicates reduced output.

Individuals derive satisfaction (utility) from utilization or consumption of a commodity. Utility level is influenced by both commodity and consumer characteristics. Although utility is not measurable, individual consumers have the ability to rank their preferences. Preference order is assumed to have three basic properties:

- Completeness, where an individual may reveal one of the following: A is preferred to B; B is preferred to A; or A and B are equally attractive.
- Transitivity, which assumes that individual choice is internally consistent. Thus, if A is preferred to B, and B is preferred to C then, A will always be preferred to C.
- Continuity, so that if A is preferred to B, then any situation close to A will be preferred to any situation close to B.

With alternative sources of health care, consumers may appear to be indifferent toward the facilities, or to rank higher those facilities that are more preferred, and the ranking may remain at status quo if the factors influencing the choice remain the same.

Individual ranking of commodity bundles and the implied utility functions are unobservable. We can, however, learn about preferences from the behaviour we observe when individuals respond to changes in income, prices, perceptions and circumstances. Preferences thus reveal the distribution of resources among households, as clearly indicated by the intra-household models. However, these models reveal household allocations, but fail to expose the decision-making process or to analyse the allocation among household members. The unitary models, for example, treat groups of individual household members as a unique individual. While to some extent household preferences may be similar, the assumption that individual preferences are homogeneous is strong. At the same time, the assumption that one member in the household dictates and enforces resource allocation is likewise a strong assumption. Such models receive criticisms, as they tend to apply the individual demand theory to several members in households by aggregating individual preferences with fixed weights into a common objective function. The process of aggregation of preferences is not clearly defined and the decision-making process in the household is thus treated as a black box.

The present study attempted to analyse preferences across households and within the household. A choice set was defined as the health care service alternatives available to the household when a member is sick. The alternatives comprise; public health facilities, private health facilities, mission health facilities, off-counter-services and traditional services. It was assumed that since the study was based in one geographical location, households faced similar alternatives so that their choice sets contained the same elements. Attempts were made to identify the behaviour pattern across the household members. Both the consumer and the alternative characteristics were considered in analysing the choice made. The various steps followed included: identifying the decision-making process, analysing the preferences across the various alternatives among household members and, for the identified patterns, checking on the factors influencing the behaviour pattern. The analysis of these data was used to identify the health care demand pattern in the era of cost sharing.

For analysis of data, both descriptive statistics and regression methods were used with both the secondary and primary data. To capture the completeness, frequencies were calculated for the household members to identify the action taken when sickness falls. Cross tabulation and regression results were used to check on consistency. Binary form models were fitted to capture factors determining the choice and estimated using the maximum likelihood technique.

Secondary data were analysed to capture the impact of user fees. Rates of growth of attendance for various services were calculated and comparison made for the periods before and after the introduction of user fees. The T-test was used to test the significance of mean differences.

## Sample and sampling procedures

The study surveyed a rural community including both the households and the formal health facilities. Representative sample of the households was selected using a multi-stage process. Health facilities were selected purposively to capture the different categories. Four health facilities were selected: a public dispensary, a public health centre, a mission hospital and a private hospital. They were closely located and the study assumed that due to their locality patients had equal chances of visiting any of them.

Two types of household samples were selected. The first sample consisted of households with members seeking health care from the facilities at the time of interview (henceforth referred to as the "patient sample"). The second sample was made up of households with members who were not necessarily seeking medical attention at the time of the interview but who may have done so in the past six months (henceforth referred to as the "core sample"). The latter selection was aimed to cover the entire division selected for the study, while the former mainly captured a representative group of patients in the selected facilities.

The core sample elements were selected covering all the administrative units, i.e., 6 locations and 19 sublocations except for 2 sublocations where means of communication was a major problem. On the assumption that in every household there was a primary-

school-going child and that all eligible children were attending school, primary school parent registers were used to select the households. A primary school was purposively selected from the 17 sublocations with the assistance of the subchief on the basis of its location (central) and the pupil population (for wider coverage). The primary schools captured were therefore those holding the highest proportion of pupil population. Simple random sampling was used to select parents, with care taken to ensure that selected households cut across the different income groups and that they came from different localities. A sample of 250 respondents was selected. Interviews were organized at the school compound instead of visiting the homesteads because of the limited time, the sparse distribution of sample elements and the poor means of communication. A total of 234 respondents were interviewed as some parents failed to turn up at the school compound at the planned date.

The patient sample included those seeking outpatient and inpatient services from the selected facilities. Outpatients were interviewed after receiving the services. The next available patient was selected as a sample element. It was not possible to interview patients visiting the private facility, however. A total of 94 outpatients were interviewed. Inpatients were interviewed from the mission facility and the private facility as public facilities available were not offering inpatient services (health centres only offer transitory inpatient emergency services). All patients available at the time of data collection were interviewed; a total of 59 inpatients were interviewed. Monthly attendance data by gender and age categories were collected from the facilities' attendance register except for the private facility, which had only started operations recently and was yet to settle in business .

Data collected comprised outpatient, inpatient, laboratory services, antenatal services and child welfare. Data collection covered the period 1985 to 1995. However, with major gaps in data before 1989, the study used data covering 1989(1) – 1995(12) for the analysis.

## IV. Research findings

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### Characteristics of the respondents and area of study

The core sample had 62.8% female and 37.2% male respondents. The represented households were mainly (85%) male headed. Education level was generally low for both the household head and the spouse. The average number of school years was 6.84 and 4.56, respectively, for the household head and spouse. The mean household size was 7.18 with 5.33 average number of children. An average of 1.94 household members had fallen sick, of whom at least 1.29 were children, during the period of study.

Agriculture was the mainstay of the study area. The average land size was 1.53 hectares. Farm income formed 63% of total household income. Households grow rice on commercial basis, food crops including maize, beans and bananas, and horticultural crops, a recently introduced activity that involves cultivation of French beans and tomatoes for export. However, only 30% of households in the area practiced horticulture; the majority depended on the sale of their food crops. Business activity in the division was low compared with other divisions in the district, with the study area holding 23% of the total labour engaged in business activities in the district. The average monthly farm income was estimated at Ksh3,589.65, with more than 50% of the respondents earning below the mean value.

Health problems in Mwea were attributed to environmental conditions (Kirinyaga Development Plan, 1993/96). Mwea was categorized as a malaria zone with two peak seasons in a year, after the short and long rains. The area lacked a supply of clean piped water and there were floodwaters from the irrigation scheme. No wonder 80% of the respondents in the survey sample indicated malaria as a common disease, both in the neighbourhoods and in the households.

The health care delivery system was dominated by public facilities; 67% of the total facilities were run by the government (Table 4). As noted in the Kirinyaga District Development Plan 1993/96, health centres in the area are over utilized because there are no drugs in the dispensaries, and also because health centres act as referral centres for dispensaries and are located in division headquarters and urban areas. This explains the lengthy time spent seeking medical attention in the health centre. Private and mission facilities were relatively expensive compared with the public facilities.

**Table 4: Health facilities by division in Kirinyaga District (1992)**

	Hospital		Health centre		Outreach		Dispensary		Private
	GOK	NGO	GOK	NGO	GOK	NGO	GOK	NGO	
Ndia	1	0	2	1	0	1	8	4	2
Gicugu	0	0	1	1	0	0	7	1	1
Mwea	0	1	1	0	0	1	11	2	2
Total	1	1	4	2	0	2	26	7	5

Source: Kirinyaga Development Plan 1993/96.

### Demand pattern of health care services.

The study analysed the implications of user fees on the demand for health care using the facility attendance data. The analysis was guided by the assumption that the introduction of user fees would enhance the referral system in the public sector with different fees charged across the facilities. Thus, for example, there was expected to be a shift in attendance from the health centres to the public dispensaries. The assumption was also made that consumers have to pay for services received, whether in a public or non-public facility and the only difference would be the amount. Shifts between the facilities would thus indicate differences in quality and costs of services.

Monthly growth rates were calculated for both males and females for the period before and after the introduction of user fees. However, T-tests on the equality between the means did not show significant differences. Public facilities results show an overall drop in attendance rates after the fee was introduced (Table 5).

For the mission facility the female attendance showed no difference between the two periods. However, the results indicate that although there was a declining tendency in growth of patients before the user fee, with the user fee the rate of growth has gone up. The increased total means difference was, however, too low to have accommodated all the declines in public facility attendance. As a result, we expect a spillover to other alternative services.

The health centre indicated a drop in new family planning and child welfare attendance, while old cases increased their attendance. The dispensary recorded an increased growth of all family planning attendance and a drop in new cases for child welfare but increasing attendance of old cases.



**Table 5: Growth rates of monthly attendance across the facilities**

	Monthly growth rates Without cost sharing	With cost sharing
<b>Health centre</b>		
Outpatient		
Male	.3117(.3233)	.2145(.227)
Female	.4219(.4562)	.2954(.3151)
Total	.3566(.3786)	.2451(.2698)
<b>Family planning</b>		
New	.2353	.1548
Old	.3880	.0464
<b>Child welfare</b>		
New	.1820	.0803
Old	.0492	.1113
<b>Dispensary</b>		
Outpatient		
Male	.1515	.1188
Female	.1667	.1151
Total	.1577	.1155
<b>Family planning</b>		
New	.1059	.3577
Old	.0205	.0470
<b>Child Welfare</b>		
New	.2214	.5874
Old	.0448	.5247
<b>Mission</b>		
Outpatient		
Male	.0022	.0252
Female	.0106	.0106
Total	-.0006	.0108
<b>Child welfare</b>		
New	.0904	.0758
Old	.0404	.1713

Source: Author calculations using health facility data.

Note: \*Figures in parentheses indicate growth rate when considering introduction of user fee in the specific facility.

## Action taken with a health problem

It was the aim of the study to identify the various factors that influence the action taken during sickness to understand how households respond to reforms in the sector. Among the factors considered were: perceptions of the health problem, the decision-making process, which member of the family is sick, the type of illness, costs of service, policy aspects and expectations of consumers of health care services.

### *Perception on health problem*

How do community members react to what they perceive as the illness problem and the status of the sick? Community members based their assessment on experience with the health problem; the frequency of attacks and the spread among the community members. Among the common diseases identified were malaria, bilharzia and typhoid, which conformed to the nature of the environment in which community members found themselves. Malaria was rated as relatively less severe compared with other diseases. Bilharzia was rated as a killer disease. Rating was mainly based on the number of times the household members had an attack, the state of the sick person and the response of the sick person to treatment. The relationship among these was found to be highly significant<sup>1</sup>. On the other hand, there was no clear relationship between the action taken and the degree of seriousness of the disease. There was, however, preference for use of facilities and more so the public facilities, implying that so long as health facilities provide services required for treatment of the sick, consumers would opt for the service. Thus in case of illness, individuals behaved as if they were indifferent in choice of the facilities to use as long as services required were available.

### *Decision making and the household members*

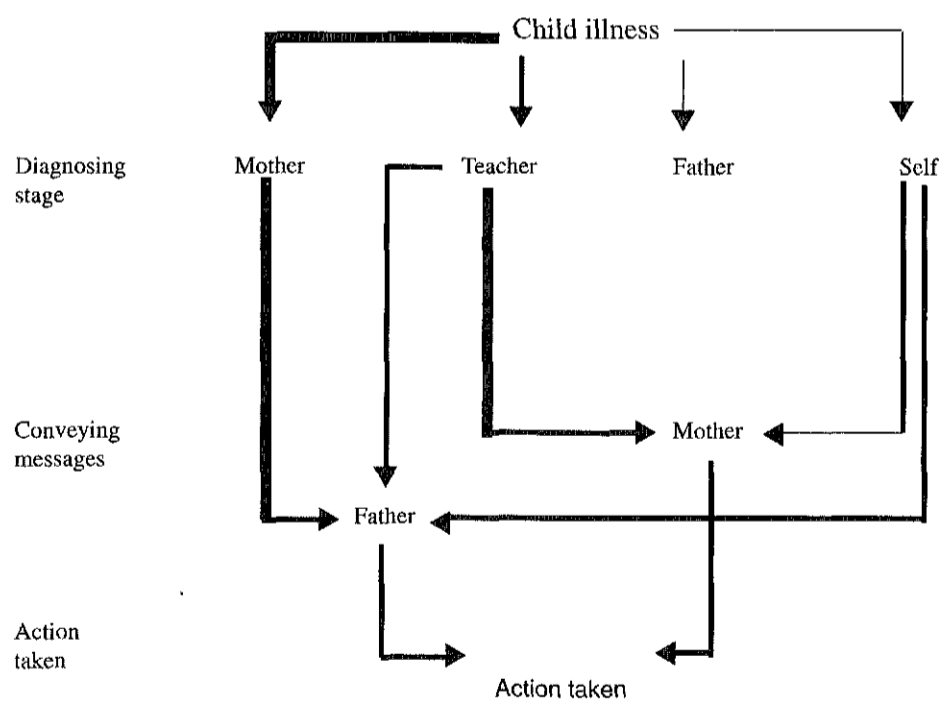
Family members were divided into two groups, children and parents. The analysis focused on diagnosing the illness problem, message transmission and action taken. While parents took independent actions, children had several player for decision made.

Figure 2 illustrates the decision-making process with regard to children's illness. The thickness of the lines indicates the importance of the actor at every stage in the decision-making process.<sup>2</sup> In the household the mother played a major role in family health care. She contributed directly in terms of income, and as a member of a social welfare group, she provided a cushioning factor especially during critical moments. She was a major focus in diagnosing the illness among children across all age groups. Teachers played a significant role among the school-going children. However, there was a lot of interaction in the household in case of illness, where messages were conveyed to both parents. Although the father's role in diagnosing was insignificant, he received substantial information from the mother and even the sick children. In case of female headed

households, the role of the extended family members was also important. For example, the role played by the child's grandparents was significant. Action taken with the sick child indicated a high tendency to use public facilities. However, the role of the mother was heavily felt, and the choice of non-public facilities was very significant.

Did this interaction reflect the perceived knowledge about illness or the resources of the household? The interaction between education level and action taken was not significant, indicating that community members had a lot to learn from experience with the ailments. Thus given the common diseases that were reported to frequently attack household members, then individuals had developed some knowledge of how to diagnose and take action with their limited school knowledge. Income level of the households also did not show significant interaction with the action taken. As indicated during the interviews, households with social welfare group membership were provided with a cushioning factor in case of severe illness. Other members also made informal arrangement to meet the immediate need at the moment. For example a case was reported where a parent with a seriously sick child took the child to a private clinic and received services on credit, on the promise to pay the bill in the course of time.

**Figure 2: Flow of information and decision making in the household**



Source: Field data.

Was there a difference in the action taken across the household members? Action taken during sickness was analysed at two levels: the immediate action after diagnosing the problem (first action) and the follow up action (second action). Analysis was also made of the use of facilities and consistency of family members on action taken. For both the children and adults, use of formal health services was given a higher priority as an immediate action.

**Table 6: First action taken by family members**

Action taken	Children	Adults
Tablets	17.3	15.8
Traditional medicine		1.7
Observe	1.8	1.3
Public	41.6	33.3
Private	18.6	17.1
Mission	7.1	7.3

Sources: Survey data.

Off-the-counter service was also popular as an immediate action. Among the children the main reason for non use of facilities was that the condition of the sick was not perceived as serious or it was clear that services were not available from the public facility. Reason for use of tablets was that parents had knowledge about the ailment and so chose to purchase tablets. Among the adults, non-use of facilities was mainly due to cost implications of visiting the formal facilities. Public facilities were preferred because they were near and cheap, and because services received were perceived as adequate although consumers had to supplement them with services from alternative sources. Private and mission facilities were mainly selected because of the locality and the availability of drugs.

Although across the households the ranking of facilities showed a similar pattern, among households with lower education level of the household head, preference for public facilities was much higher (47.1%) compared with the case where the household head had a higher education level (29%). At the same time, preference for use of non-formal facilities was lower among higher income groups (20%) as compared with higher income groups (37.5%). Similar results were implicated with the type of economic activity. There was a high tendency for farmers to use public facilities, while businesses and officers had a higher preference for use of non-public facilities. Considering the head of household, although there was again preference for public facilities—female headed (58.1%) and male headed (38.9%)—there was a higher tendency for male headed families

to use private and mission facilities (28%) compared with female headed households (13%).

In relating the action taken by the adults and the children, we found that there was no discrimination across the family members as the action taken was almost similar across the household members. The results then portray consistency across the household members. Was there consistency with an attack? The study considered the follow-up actions during sickness. Most of those who started with tablets changed to use of formal facilities because there was no improvement in their condition. Among children, 43% and 38% ended up using the public and private facility, respectively. For the adults, only 24% changed to use facilities (Table 7).

**Table 7: Shifts between alternatives**

Action 1	Action 2	%	Action 1	Action 2	%
	Traditional medicine	8		Traditional medicine	10
Adult TABLETS	Public facility	14	Children TABLETS	Public facility	43
	Private facility	8		Private facility	24
	Mission facility	2		Mission facility	14
	Tablets	74		Tablets	10

Source: Field data.

Shifts across the facilities were not significant. Patients tended to follow up treatment with the same facility. Shifts were more pronounced, however, from the public to other facilities, but not vice versa. This was mainly because services offered by the mission and private facilities were rated as high quality. As indicated by Mwabu (1993), quality of service offered is a major determinant in choice of facility for medical care. The shift to traditional medication from the mission facility was mainly due to the high costs of medication, the more so among those experiencing frequent attacks or where the condition of the patient seemed not to improve with the medication.

What was the situation with chronic cases? Chronic conditions often call for frequent visits to the health facility and changes in the system may influence the behaviour pattern of the patients. From the survey sample there were 6.8% chronically sick children, 3.0% household heads and 5.1% spouses. The sick age ranged between 3 and 23 years for the children and 23 to 60 years for the adults, implying that the sick adults were in their productive age and their health status called for proper care to maximize their productivity. Children were in their school-going age and frequent disruption would mean failure to develop an adequately skilled labour force. Most of the chronic cases were attended in the public facilities. Choice of facility was based on perceived satisfactory services and the distance from the facility. There were also reported changes in use of facility.

### *Costs of seeking medical services*

Cost of health care services comprised direct costs and indirect costs. The direct costs were transport costs, treatment costs and consultation fees. Indirect costs were measured as the days lost by the school-going children and the output or production lost by the working group, including days lost caring for the sick. Costs incurred in the past six months by the households are summarized on Table 8.

Children using tablets took the tablets for 2.56 days. It took 3.5 days for their condition to improve and they lost 0.72 school days. Tablets cost on average Ksh17.28. Adults took tablets for 4.07 days, taking 6 days to improve and 1.20 days to resume their duties.

Across the facilities, the average costs for the public health facilities were lower than those of non-public facilities. Of the total costs spent using the public facility, 85% covered consultation and medication fee and the rest transport cost. In the mission facility adults tended to pay significantly more than children because they reported in serious condition, implying more attention and more services that had higher cost implications.

Production loss was calculated for the entire household. The days lost in time missed from work or caring for the children were taken together as the days lost by the household in the past 6 months. The production loss was only calculated for the farming activities (farm income). There was no significant difference in the amount lost by the patients selecting different facilities.

For the chronically sick, children spent 14.44 days per year seeking medical care, mother 15.57 days and father 19.43 days. Asked whether they honour their appointments, 75% of the respondents indicated that money was a major constraint contributing to their failure to honour their appointments.

### *Behaviour pattern in use of facilities*

The next question was, When facilities were selected for use how did patients go about it? The study looked at the time taken to visit the facility when the illness is diagnosed, the condition of the patient visiting the facility, and time taken seeking medical attention. Because of the short recalling period, the study used inpatient and outpatient data (patient sample), which are thought to be more accurate and reliable.

It was found that patients were not fast in reporting their sickness. Some 57% of outpatient reported within two days of diagnosing the problem, while 40% of inpatients reported within five days of diagnosing the problem.<sup>3</sup> The average number of days that patients stayed before reporting their cases was 4.65 days for outpatients and 7.8 days for inpatients. Across the different facilities, the study found that there was a significant relationship between the type of facility and the number of days taken by patients to seek medical care. For the mission facility 81% of the patients reported within two days, compared with health centre (70%) and the public dispensary (67%). Those who delayed reported in serious condition, especially the adults. Child cases were mainly reported in mild conditions. Patients with very serious cases were found to prefer facilities of higher

category, i.e., the mission hospital and the health centre. This is because of the wide range of services offered by such facilities, including laboratory and x-ray. For in-patients those in serious condition delayed visiting the facility and reported having tried using off-the-counter services and visiting the public facility.

**Table 8: Costs of seeking for medical services (Ksh)**

	Indirect costs (No. of days)	Costs of medication	Transport costs	Total costs (Ksh)
<b>Use of fablets</b>				
• Children	0.72	17.28		
• Adults	1.20	13.03		
<b>Facility used by children</b>				
• Public	40.18	570.20	73.62	643.82
• Private	25.04	992.00	23.39	1,015.39
• Mission	29.60	838.00	68.00	906.00
<b>Facility used by adults</b>				
• Public	23.48	771.07	137.76	908.36
• Private	22.90	710.81	36.49	747.30
• Mission	27.00	2,011.92	341.54	2,353.46
Production loss for the household (KG per day)	2.92			

Source: Field survey data.

Transport was a problem in the division especially during the rainy seasons as roads are not all-weather. The road network was bad and there was no public transport. As such the main mode of transport to the facilities was by foot for the outpatients. The inpatients used private cars mainly because they reported their cases in very serious condition. The average time spent by the outpatient to travel to the facility was 53.83 minutes, with most spending less than one hour to reach the facility. On average outpatients spent 137.54 minutes, with a minimum of 10 minutes seeking attention in the facility.

Among the inpatients the total average cost per day was Ksh291 in the mission facility and Ksh510 in the private facility. Although the NHIF card played a significant role in paying for the services, the main mode of payment was by cash. In the private facility 78% paid cash, in the mission facility, the same percentage paid in both NHIF card and cash. Additional costs were incurred by inpatients staying on extra day in the facility after the discharge due to non-payment.

For the outpatients, the total direct costs incurred in seeking medical care ranged between less than Ksh10 in the public facility to Ksh450 in the mission facility. More time was spent seeking care from the mission facility (100.63 minutes), but much more

time was taken in the health centre (197.20 minutes), leading to higher loss made by those visiting the facility. Time taken in the public dispensary was much lower (59.83 minutes), which may be explained by the lower volume of patients and non-diversity of services offered.

### *Simple regression results*

Analysis so far indicates that there were no significant differences among the household members in allocation of health care resources. Preference for use of formal health facilities was high across households, with the public facilities receiving a higher priority. Shifts between facilities occurred only because patients went for services that gave comparable satisfaction to the fee charged. Several factors showed a variation in choice of facility, however, i.e., income, prevalence across the households, and costs—both direct and indirect. A binary form model was fitted to analyse the strength of the relationship at household level. Results are presented in Table 9.

It is clear that income significantly influenced the choice of facility, the negative sign indicating that the higher the income, the higher the tendency to shift to non-public facilities. The indicated shifts across the facilities demonstrates complementarity in demand for services from the facilities. On the other hand, the higher the prevalence of illness, the greater the tendency to use non-public facilities. This is because the more frequent demand for health care services means a higher probability of facing periods of scarcity of health care services in public facilities. Portrayed also was the trade-off between time lost seeking medical care and the costs incurred for treatment and implied quality of service. It was more costly for households to wait long and pay higher fee. Thus consumers were ready to wait long, pay a lower fee and receive satisfactory services.



**Table 9: Regression results****Model 1: Results using outpatient data (patient sample)**

No. of observations = 94  
 No. of iterations = 8  
 Log likelihood = -33.32  
 Restricted log likelihood = -64.39  
 Chi-square = 62.127  
 Degree of freedom = 3  
 Significant = 0.00000

Variable	Coefficient	z-value	Probability
Constant	1.2727	2.126	0.034
Age	-0.0435	-2.217	0.027
Time spent	0.6193	2.386	0.017
Costs	-0.0125	-3.860	0.000

**Model 2: Results using "core sample" data**

No. of observations = 129  
 No. of iterations = 11  
 Log likelihood = -50.63  
 Restricted log likelihood = -60.47  
 Chi-square = 19.68  
 Degree of freedom = 3  
 Significant = 0.00019

Variable	Coefficient	z-value	Probability
Constant	1.0492	1.140	0.254
Frequency	-2.456	-2.365	0.018
Acre-owned	-0.127	-1.851	0.064
Other facility	-0.0019	-2.331	0.019

**Notes:**

- Income estimated with the acreage of land by the household.
- Need for service measured by the frequency (total sick in household/total household) and also age of the sick.
- Interaction across the facilities was measured as the total costs charged by other facilities.
- Indirect costs were estimated by the time spent seeking medical care.
- The dependent value defined as:  
 $Y = 1$  when the public facility is used  
 $Y = 0$  otherwise

## V. Conclusions

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This study attempted to explain what next with the drop in attendance as cost sharing is introduced in public facilities. Previous studies in Kenya show a decline in demand for health care from public facilities, but they fail to explain the pattern of demand for health care services with the mounting of user fees. The study used household survey data plus facility attendance data to answer the research question. Descriptive and limited regression analyses were used to explain the observed relationships. The results indicated relative consistency in actions taken during sickness at the household level.

Like previous studies, the study confirmed a drop in the use of public health facilities when user fees are introduced, while a growing demand for health care was realized in the mission facility. However, the survey data confirmed a continuing preference for public facilities as an immediate action taken when sickness falls. Even when some services were unavailable from the public facility, consumers supplemented the services received with services from other sources. For example, asked what they do when they miss drugs, 91% indicated that they visited the pharmacy to buy the prescription.

The study also showed that consumers prefer services that are comparable to the utility derived from the fee charged. When asked to express their expectations on services provided by facilities, for example, respondents expressed the need to improve the quality of services in the public facilities as user fee is introduced. Most indicated that they preferred the facility with a regular supply of drugs and high quality services. They were therefore of the view that the public facility services had not improved with the reform process. Services were still poor and patients—especially inpatients—risked their lives visiting the public facility due to irregular supply of drugs and low quality service.

Because of the irregularity in supply of services, costs of service faced by public facility users were relatively higher than the proposed fee. However, these costs were relatively low compared with those of the non-public facilities. A trade-off was noted between the price charged and the lost production time. Consumers were ready to pay higher charges but wait less for services, or pay high and wait long if the quality of service was high. This indicates the need to accompany user fees with improved services in order to move closer to a competitive situation. An alternative, given the implied complementarity in use of the various facilities, is to introduce specialization of services provided by the different facilities. A major factor contributing to the high costs is the initial delay in seeking medical care, which resulted in deterioration of the status of the sick. There is therefore need to initiate a mass awareness campaign to inform patients of the importance of seeking medical care early when an illness is suspected.

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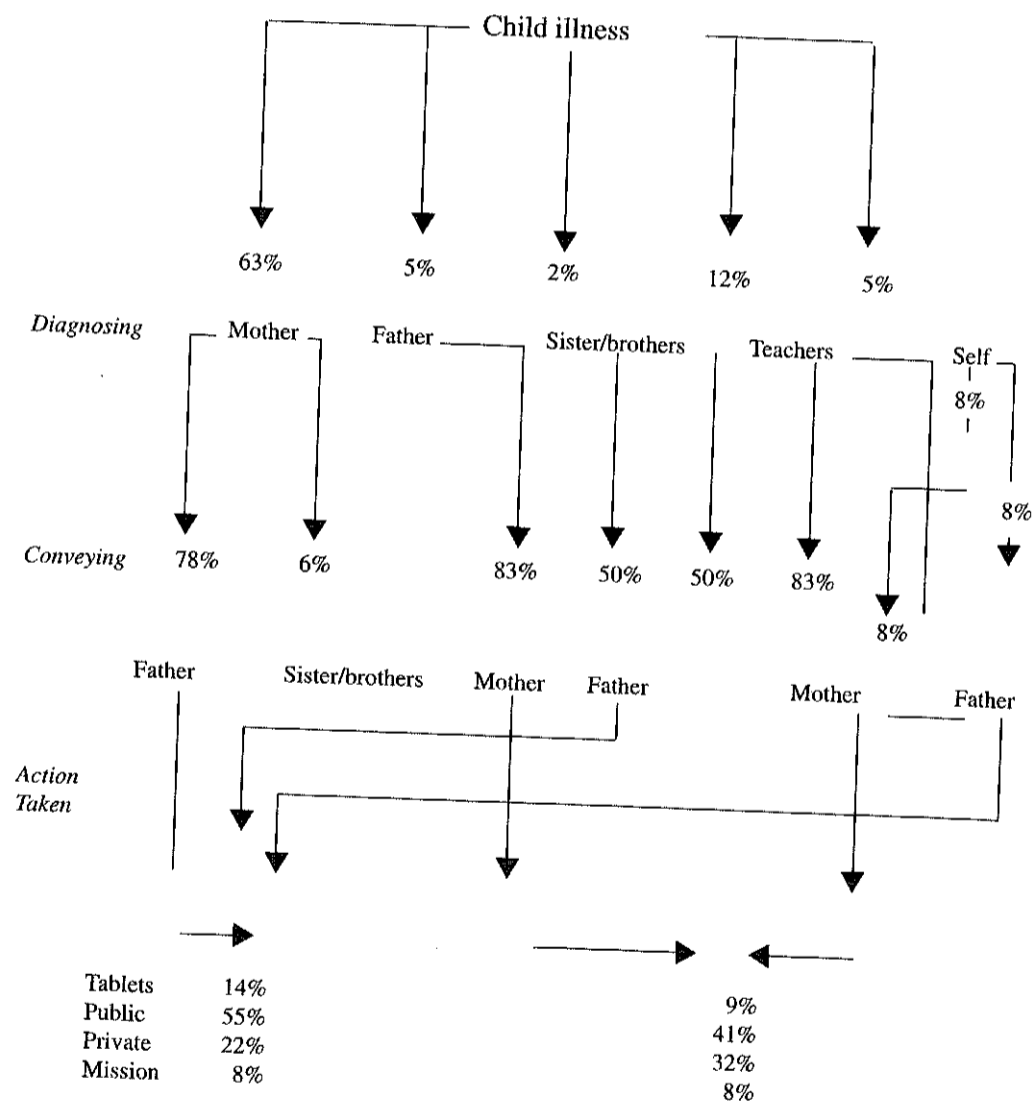
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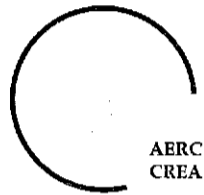
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## Appendix I:

### Process of choosing treatment in child illness



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