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IMPLEMENTATION ISSUES FOR
HEALTH CARE COST-SHARING
IN KENYA

VOLUME III
EVALUATION AND MONITORING
FEBRUARY 1990

**Resources for
Child Health
Project**

REACH



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IMPLEMENTATION ISSUES FOR HEALTH CARE COST-SHARING IN KENYA

VOLUME III

EVALUATION AND MONITORING

February 1990

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TABLE OF CONTENTS

Executive Summary	
I. Introduction	1
II. Volume of Services	6
III. Quality and Efficiency21
IV. Access to Care27
V. Sampling Methodology31
VI. Resource Requirements for Monitoring and Evaluation43

EXECUTIVE SUMMARY

This report describes a monitoring and evaluation system for assessing the impact of health care cost-sharing in Kenya. The monitoring and evaluation system focuses on three elements of the health care system that are likely to be affected by the introduction of cost-sharing:

- * Volume of health services,
- * Quality and efficiency of care provided, and
- * Access to MOH facilities.

The first task is to identify the questions that need to be addressed in each of these areas through the monitoring and evaluation system. Next, the information that is needed to answer these questions is identified. Many of the important questions can be addressed using closely related information.

The majority of the required information can be obtained using existing forms and procedures; however, in several cases reporting procedures will need to be improved. In order to monitor changes in patient satisfaction, access, and preventive and promotive services, new information gathering tools will be needed. It is proposed that periodic household and facility-based patient surveys be conducted in order to collect this critical information. Four household surveys and three facility-based surveys that have already been completed can be used to provide baseline information.

In order to obtain baseline facility-based information against which changes after cost-sharing can be compared, it is recommended that a sampling methodology be employed to estimate the total volume of inpatient and outpatient services for different levels of MOH and NGO facilities in each district. The appropriate calculations for this sampling methodology are outlined, and a specific example for one district is presented.

Conducting the evaluation and monitoring activities suggested in this report is likely to require certain resources that are not currently available in the MOH, and hence the necessary resources are briefly identified at the end of the report.

I. INTRODUCTION

A. OBJECTIVES

This report defines a monitoring and evaluation system for assessing the impact of cost-sharing on Kenya's health services. The proposed analysis focuses on three elements of the health care system:

1. Changes in the utilization of health services.
2. Changes in the quality of care provided and efficiency of service utilization, at MOH facilities.
3. Changes in access to MOH facilities, by different segments of the population, particularly low-income groups.

A fourth area that will also merit careful monitoring and evaluation is:

4. The effectiveness of the administrative procedures for collecting and expending the revenues generated through cost-sharing.

Since the monitoring and evaluation of these administrative procedures lie outside the scope of work for this project, and are being developed within the Ministry of Health (MOH), this fourth area is not addressed in this report.

B. DEFINITIONS

For the purposes of this report:

Monitoring is defined as a continuous assessment of the operations of the health services in the context of the expected operations. Monitoring will primarily encompass management issues such as the availability of materials and the utilization of services, by level of facility.

Evaluation is used to refer to any periodic assessment of the relevance, performance, or efficiency of the health services. Evaluation will use the data provided by the monitoring process, but will also require supplementary data for the proposed analysis.¹

¹ D.Casley and D.Lury, Data Collection in Developing Countries, Clarendon Press, 1987, pgs.204-5.

C. QUESTIONS TO BE ADDRESSED

The important questions that should be addressed by monitoring and evaluating the impact of cost-sharing on the health system are summarized briefly below.

1. Volume of Services

- a. How has the volume of curative services, both outpatient and inpatient, provided at MOH facilities, been affected?
- b. How has the total volume of facility-based curative services been affected?
- c. Has there been a significant shift of clients between government and non-government facilities?
- d. How has the utilization of clinic-based preventive/promotive services been affected?

2. Quality and Efficiency of Care

- a. Has the quality of care improved?
- b. Has patient satisfaction with the quality of care increased?
- c. Has unnecessary utilization of MOH facilities been reduced?
- d. Are patients using the lowest level of appropriate facility more often?
- e. Have government resources been reallocated from curative to preventive/promotive services?
- f. Are referrals being made more appropriately?²

3. Access to Care

- a. Have the income distribution and other characteristics of the client population of MOH facilities changed because of cost-sharing?
- b. Has the volume of service changed more significantly in low-income areas?
- c. Are exemptions being issued in accordance with need?

² The issue of referrals is dealt with in a separate report.

D. TYPE OF INFORMATION TO BE COLLECTED

1. Volume of Services

- a. Number of outpatient visits by level of facility and sponsorship.
- b. Number of hospital admissions, occupancy rates, and average length of stay by ward.
- c. Number of first visits and revisits to family planning clinics.
- d. Doses of basic child immunizations administered.

2. Quality and Efficiency

- a. Number of malaria blood smears and number of malaria cases.
- b. Percent of prescribed drugs issued, and requested tests conducted.
- c. Periodic checks of number and types of broken machinery, and number of drugs out of stock.
- d. Measures of patient satisfaction.
- e. Number of outpatient visits and admissions by level of facility.
- f. Changes in incidence of selected diagnoses at MOH facilities.
- g. Referrals to KNH as a percent of the total outpatient and inpatient population.
- h. Percentage of referrals to KNH considered appropriate.
1. Frequency of bypassing MOH facilities.

3. Access to Care

- a. Frequency of visits to health facilities, by type and ownership, by income group, sex, and age.
- b. Changes in the number of visits to MOH facilities from low-income areas relative to the change nationally.
- c. Percent increase in number of dispensary visits in low-income areas, relative to increase in dispensary visits nationwide.
- d. Distribution of occupational categories among KNH and other hospital patients.
- e. Percent of clients granted exemptions by income level of district.

E. LIMITATIONS OF THE ANALYSIS

Given that health care cost-sharing is being introduced at the same time as other changes are taking place in Kenya, observed changes cannot be attributed solely to the introduction of cost-sharing. For example, if the number of outpatient visits falls once the new fees are introduced, part of the decline may be due to the interaction of drug shortages and fees. Wherever possible, the impact of different factors should be separated out in the analysis.

In some instances, the desirability or the meaning of observed changes will not be a simple issue because the monitoring system will not always clarify why an observed change occurred. For example, a decline in outpatient visits at MOH facilities is not inherently good or bad. If that decline results from a drop in unnecessary visits, or increased visits to private providers, it is desirable; but, if it results from reduced access to care for lower income groups, it is undesirable. In most cases, the observed outcome is likely to result from a number of varied relationships. In some cases, more in-depth analyses may be required by policy-makers, to determine the appropriate response to the change in health services utilization. The monitoring and evaluation system may identify the change, but not always explain it.

One guiding rule in designing the monitoring and evaluation system should be to keep it as simple as possible. The system should also utilize existing reporting instruments whenever possible. While this makes available more baseline data for analysis, it may sometimes mean that the data will be less reliable than that collected for research purposes. Problems in reliability are identified and methods of minimizing such problems are discussed at various points in this report.

F. ORGANIZATION OF THE REPORT

The remainder of this report is organized as follows. The next three chapters discuss monitoring and evaluation of the three priority areas: volume of service, quality of care and efficiency of service utilization, and access to care. For each priority area, a series of questions are posed. For each question, the sources of data and proposed analyses are discussed. The fifth chapter discusses a sampling methodology that could be employed to overcome the problem of incomplete reporting from certain health facilities. The proposed methodology is applied using data from South Nyanza district. Chapter six discusses the resource requirements needed for conducting the monitoring and evaluation activities. Samples of all reporting forms and relevant portions of household and facility surveys that are needed for monitoring and evaluation are included as appendices.

II. VOLUME OF SERVICES

Question 1: How have the volume of curative services, both outpatient and inpatient, at MOH facilities been affected by cost-sharing ?

A. SUMMARY OF DATA TO BE UTILIZED

1. Outpatient Data

Statistics for measuring changes in the volume of outpatient curative visits are reported to the MOH on the District Outpatient Morbidity Summary (MOH 719 in Appendix 1). Information is provided by facility on this district summary. The main purpose of this report is to provide data on morbidity patterns. Nevertheless, the bottom portion (numbers 40-45) contains important information on the number of outpatient visits. Adding the number of reattendances (no.42) to the number of first attendances (no.44), gives the total number of outpatient curative visits in a month.

The outpatient summary report is compiled at the district level, from the facilities' Monthly Activity Report (MOH 705 in Appendix 2) of daily outpatient morbidity returns. The activity reports are supposed to be submitted to the District Medical Office by all facilities, both MOH and non-governmental. However, a large number of facilities do not submit the Monthly Activity Report regularly; and, in some cases, the district does not submit the monthly summary to MOH. A draft summary of annual outpatient morbidity statistics for 1988, prepared by the MOH, showed district reporting rates varying from 0% to 91%.

The irregularity of reporting creates problems in monitoring changes in utilization resulting from cost-sharing. For example, suppose ten of thirty facilities in District A report in March, and only nine report in April. If the missing facility in April is a hospital, it alters the number of visits much more than if it is a dispensary.³ To minimize the effect of the changes in the facilities reporting, MOH should select a sample of facilities to be monitored. The sample should represent different levels and ownership of facilities. Chapter V describes a sampling methodology for monitoring changes in utilization.

There is an urgent need to conduct refresher training courses for facility staff on the completion and submission of the Monthly Activity Report. Participants should include the statistical clerks at health centres, the enrolled nurses, or their assistants at dispensaries, and the district medical records officers. The importance of the report needs to be reemphasized. The definitions of "new cases", "reattendances", and "first attendances" need to be reviewed.

³ The actual example given in Chapter 5 of this report demonstrates that not correcting for this does lead to a bias.

2. Inpatient Medical and Surgical Data

The required inpatient data is reported on the Inpatient Monthly Statistics Summary form (Appendix 3). This form provides monthly statistics by district, facility, and ward: on number of admissions, number of discharges, occupancy rate, and average length of stay. It was introduced on an experimental basis in 1985, and has not yet been officially adopted by MOH.

Because the form is still in a trial stage, reporting is not as regular and standardized as is required for monitoring purposes. Baseline data for 1988-89 will have to be collected from a review of hospital ward records. This may require assistance from MOH medical records staff, who would be sent to the districts to help collect the data.

It is very important that the inpatient summary form be officially adopted by the Ministry of Health, in the very near future. The information it contains is essential for monitoring changes in the utilization and efficiency of inpatient services. Once adopted, training sessions should be carried out to introduce the form to medical records staff at health centres and hospitals. Both MOH and non-governmental facilities' staff should be included.

3. Maternity Data

The monitoring of maternity information will require the introduction of a new reporting form because a summary report is not currently submitted to MOH. Hospital annual reports usually contain the required information, but the data is not in a summary format that can be standardized across facilities. The old Monthly Report Appendix "A" (MED20, attached here as Appendix 4) contains the required information; but it seems that it is no longer in use, and much of its information is included on the newer Inpatient Monthly Statistics Summary.

The relevant indicators for monitoring maternity services include: total number of deliveries, number of caesarean sections, number of complicated non-surgical deliveries (vacuum, breech, etc.), and average length of stay. Appendix 5 presents a proposed format for the facility report.

The data on number and types of deliveries should be available at facilities with maternity beds, and thus compilation should not be too difficult. The average length of stay can be calculated from the inpatient summary report. The completion of the monthly report should not introduce much extra work.

The collection of retrospective data to use as a baseline may be somewhat more difficult, particularly for average length of stay. MOH should ask each District Medical Officer to collect the past data on the proposed maternity

forms for 1988-89, from all facilities with maternity beds. It may be necessary for the district medical records officer to assist the facilities in this task.*

The monthly facility summary of maternity cases should be submitted by each health center and hospital, to the District Medical Office. The district medical records officer would then complete a monthly district summary form (see appendices 5 and 6 for proposed forms), which will be submitted to MOH. The process will be similar to that used for the monthly reporting of morbidity. Training will be needed to introduce the new reports. It could be conducted in conjunction with that proposed for the morbidity and inpatient summary reports. Supervision from the district level will be required after the training.

B. ANALYSIS

Prior research has demonstrated that once people are charged for health services, they utilize the services less frequently; consequently, one should expect the utilization of health services at MOH health centres and hospitals to decline, after the introduction of cost-sharing. Nevertheless, it should be noted that if a significant improvement in quality of care is coupled with the fees, utilization may actually increase since the cost of an MOH visit is generally lower than costs at private providers.

The analysis of changes in the volume of outpatient services could be based on a monthly or quarterly summary of the total number of outpatient visits by type of facility. The monthly average should be monitored each quarter and separate annual totals should be compiled for MOH dispensaries and health centres, district and sub-district hospitals, provincial hospitals, and Kenyatta National Hospital. A sample summary form that could be used is shown as Table 1.

Changes in the volume of inpatient services provided at government hospitals and health centres should be analyzed monthly, by facility and district. The decline in volume of inpatient services is likely to be less marked than that for outpatient services, for a variety of reasons: the severity of the illness is often greater when admission is required; staying at home or self-treatment are less viable options; and low-cost options for inpatient care are not readily available. The decision to admit a patient is the doctor's, while the decision to seek outpatient care is the patient's. Nevertheless, it is possible that some patients may refuse to be admitted because of the cost, and that some doctors may adopt more conservative admitting practices once fees are charged.

The indicators of volume of inpatient services to be analyzed are: number of admissions, hospital occupancy rate, and average length of stay. These figures can be monitored quarterly by level of facility for a sample of

* Inpatient Discharge Summary forms could be used, but the analysis is tedious and slow.

Table 1

AVERAGE MONTHLY OUTPATIENT CURATIVE VISITS
BY TYPE OF FACILITY FOR MOH FACILITIES

Level of Facility	Year	Quarter				Annual Total
		I	II	III	IV	
MOH Dispensaries and Sub-Health Centres	1988					
	1989					
	1990					
MOH Health Centres	1988					
	1989					
	1990					
District and Sub-District Hospitals	1988					
	1989					
	1990					
Provincial Hospitals	1988					
	1989					
	1990					
Kenyatta National Hospital	1988					
	1989					
	1990					

facilities and summarized on a form such as Table 2. The sample should include all hospitals and selected health centres from selected districts (see Chapter 5). The statistics can also be monitored for a given district (Table 3). This analysis could be particularly useful for district-level planning.

In those cases where a change in average length of stay is identified, the data from each facility on the Inpatient Monthly Statistics Summary form should be reviewed, to identify the facilities at which the length of stay has changed significantly. It will then be desirable to control for the case mix, to try to insure that different types of cases or diagnoses do not appear more often, once cost-sharing is introduced. A change in case mix could explain variations in length of stay.

This analysis could be done using the ward registers, which indicate the diagnoses for each inpatient. To examine whether average length of stay by diagnosis is changing, the ICD-9 index cards (MOH 268) can be used. This card is completed for each patient upon discharge. It includes the diagnosis, condition on discharge, and length of stay (Appendix 7).

The new fees, which introduce a daily bed charge, are likely to reduce average length of stay; the evidence from PADS suggests that length of stay may currently be excessive, in some government hospitals.⁵ The patient, who will be paying a daily fee, will be motivated to leave the hospital as soon as possible, at least prior to completion of the five day period during which fees are to be charged. The hospital administrators, who gain additional revenue with new patients, and not with long-term cases, will also be motivated to reduce length of stay, at least down to a five-day average.

Formats for the analysis of inpatient data are presented in PADS.⁶ Graphs of the average monthly occupancy rate, number of admissions per month, and average length of stay for selected wards by month would be useful in addition to tables.

Since maternity fees will increase substantially under the new fee schedule, with a shift from a flat delivery charge, to a daily bed charge, the volume of maternity services is likely to fall. Whereas a hospital delivery currently costs 40/- regardless of length of stay, after December 1, 1989 it will cost 200/- for a delivery and a two day stay.⁷ This represents a 500% price increase. Nevertheless, the impact of this price increase on the volume of maternity services may be less than the effect on curative inpatient services, since deliveries are foreseen, and may be saved for. Table 4 presents a possible tracking system for the maternity data.

⁵ Provincial and District Health Services Study (PADS), 1989, Vol. I, Sec. 4.2.3, Pg. 129.

⁶ PADS, Vol. II, Ch. 4.2, pgs. 116-127).

⁷ At the time that this section is being written there is still some ambiguity as to whether the maternity charge is per day or per admission. The text here assumes that it is per day.

Table 2

INPATIENT STATISTICS FOR MOH FACILITIES
BY LEVEL OF FACILITY

<u>Facility</u>	<u>Year</u>	<u>Quarter</u>	<u>Number of Admissions</u>	<u>Percent Occupancy</u>	<u>Average Length of Stay</u>
Kenyatta National Hospital	1988	I			
		II			
		III			
		IV			
		Annual			
Provincial Hospitals	1988	I			
		II			
		III			
		IV			
		Annual			
District and Sub-District Hospitals	1988	I			
		II			
		III			
		IV			
		Annual			
Health Centres	1988	I			
		II			
		III			
		IV			
		Annual			

Table 3

DISTRICT INPATIENT STATISTICS SUMMARY

<u>District Facility</u>	<u>Year Quarter</u>	<u>Number of Admissions</u>	<u>Percent Occupancy</u>	<u>Average Length of Stay</u>
Provincial Hospital	1988 I II III IV Annual			
District and Sub-District Hospitals	1988 I II III IV Annual			
Health Centres	1988 I II III IV Annual			
Provincial Hospitals	1989 I II III IV Annual			
District and Sub-District Hospitals	1989 I II III IV Annual			
Health Centres	1990 I II III IV Annual			

Table 4

MATERNITY DATA BY TYPE OF FACILITY

Facility	Year	Qtr	No. of Deliveries	No. of Normal	No. of C. Section	Vacuum Breech	Maternal Deaths
Kenya National Hospital	1988	I					
		II					
		III					
		IV					
	ANNUAL TOTAL						
Provin- cial Hospitals	1988	I					
		II					
		III					
		IV					
	ANNUAL TOTAL						
District & Sub- District Hospitals	1988	I					
		II					
		III					
		IV					
	ANNUAL TOTAL						
Health Centres	1988	I					
		II					
		III					
		IV					
	ANNUAL TOTAL						
Kenya National Hospital	1989	I					
		II					
		III					
		IV					
	ANNUAL TOTAL						
Provin- cial Hospitals	1989	I					
		II					
		III					
		IV					
	ANNUAL TOTAL						
District & Sub- District Hospital	1989	I					
		II					
		III					
		IV					
	ANNUAL TOTAL						
Health Centres	1989	I					
		II					
		III					
		IV					
	ANNUAL TOTAL						

The data on type of delivery, normal vs. complicated, should be analyzed to determine if the proportion of complicated deliveries at hospital has changed after cost-sharing. PADS notes that Nakuru Provincial Hospital suffered severe congestion on the maternity wards with a monthly average occupancy rate of 167%.² It is important to know what percent of the deliveries are normal and do not require hospital attendance. If fees reduce the percent of normal deliveries at hospitals, they have increased the efficiency of the services.

Question 2: How has the total volume of facility-based curative services been affected by cost-sharing?

A. SUMMARY OF DATA TO BE UTILIZED

Same as indicated for Question 1.

B. ANALYSIS

Several changes in client behavior would alter the total volume of services provided at MOH, and non-government facilities. There may be a shift to private practitioners, both modern and traditional. There may also be an increased tendency to self-treat minor ailments, or to wait until symptoms become more severe, before visiting a health facility. All of these factors could reduce the total volume of facility-based services.

The analysis of trends in total volume of curative services would be analogous to the analysis of MOH curative services. The only change would be that the indicators would combine data from MOH and non-government facilities (see table 5). Regular and reliable reporting from mission and other private health facilities will be essential for the analysis of changes in the overall volume of health services. The inclusion of staff from these facilities in the proposed seminars and periodic supervision from MOH staff at the district level will encourage cooperation from non-government facilities.

The trend in total volume of services has to be analyzed for years prior to cost-sharing, to determine the change that can reasonably be attributed to the new fees. For example, the PADS found a decline in facility-based outpatient visits in Nakuru district from 1987-88.³ This level of decline should be factored out of any change identified after the introduction of cost-sharing.

The interpretation of declining utilization will be complicated because of the multiple potential causes of the changes, and the complexity of any assessment of the desirability of specific trends. The desirability of a

² PADS, Vol. I., Ch. 4.2, Table 4.2.2.6, p. 121.

³ PADS, Nakuru District, Section 4.1.3, pgs. 102-105.

Table 5

TOTAL OUTPATIENT CURATIVE VISITS BY DISTRICT:
MOH AND NON-GOVERNMENT

Number of Outpatient Visits

<u>District</u>	1988					1989					1990				
	I	II	III	IV	Total	I	II	III	VI	Total	I	II	III	IV	Total
1.															
2.															
3.															
4.															
5.															
6.															
7.															
8.															
9.															
10.															

shift to greater self-treatment depends on the nature and severity of the illnesses which are self-treated, and the appropriateness of the treatments. Despite these complexities, if a significant decline in total facility-based care is detected and persists over time, studies of the reasons for such decline will be needed. This would require household surveys to assess changes in behavior related to health care.

Question 3: How has the volume of curative services, at non-government health facilities been affected by cost-sharing?

A. SUMMARY OF DATA TO BE UTILIZED

Same as Question 1.

B. ANALYSIS

Evidence from studies in both rural and urban areas indicates that many clients attend non-government facilities because of their image as providers of better quality care, even when government services are available. Consequently, when cost-sharing is introduced at MOH facilities, some shifting of clients to mission and other NGO facilities would be expected.

The magnitude of the shift in utilization from government to mission and other NGO health facilities will depend on both the comparability of charges and the perceived differences in quality of care as MOH services improve; from the survey that our team conducted in South Nyanza, and from the Nairobi Area Study (NAS) data, it appears that mission charges may in some instances be competitive with those proposed by the government.¹⁰ This assumes that NGO facilities do not raise charges after December 1st.

The fact that the charges of the non-government facilities are generally tied to drugs may make NGO facilities more attractive than government facilities to many patients. A client survey in Nakuru district showed a high willingness to pay for drugs; and the availability of drugs has been shown to be a key factor in patients' perception of the quality of care.¹¹ The potential problems created by the shift to private providers have already been discussed elsewhere.

An analysis of volume of services data by facility ownership (i.e. mission or MOH) can be used to assess whether clients have shifted to private or mission facilities (see Table 6 and 7). A decline in the volume of curative visits at MOH facilities, combined with an increase in the volume at NGO facilities, would provide one measure of the shift in utilization from public to private services. The same indicators used for Question I would be applicable.

¹⁰ Nairobi Area Study, Vol. II. Final Report, 1988.

¹¹ PADS, Vol. I, Sec. 4.67, p. 184.

Table 6

NUMBER OF OUTPATIENT CURATIVE VISITS
BY FACILITY TYPE AND OWNERSHIP

Facility Type

Year	Qtr.	MOH			NGO		
		Hosp.	Health Centres	Dispen. Sub H.C.	Hosp.	Health Centres	Dispen. Sub H.C.
1988	I						
	II						
	III						
	IV						
	TOTAL						
1989	I						
	II						
	III						
	IV						
	TOTAL						
1990	I						
	II						
	III						
	IV						
	TOTAL						

Table 7

QUARTERLY INPATIENT STATISTICS BY
FACILITY TYPE AND OWNERSHIP

		Number of Admissions	Percent Occupancy	Average Length of Stay
<u>MOH Hospitals</u>				
Year	Quarter			
1989	I			
	II			
	III			
	IV			
	Annual			
<u>NGO Hospitals</u>				
Year	Quarter			
1989	I			
	II			
	III			
	IV			
	Annual			
<u>MOH Health Centres</u>				
Year	Quarter			
1989	I			
	II			
	III			
	IV			
	Annual			
<u>NGO Health Centres</u>				
Year	Quarter			
1989	I			
	II			
	III			
	IV			
	Annual			

Another strategy would be to identify a sample of pairs of facilities that are alternative providers for a given population area. Monitoring changes in volume of services over time, for the two facilities in each pair, would also provide an indication of the degree of client shifting to non-government facilities.

Question 4: How has the utilization of facility-based preventive/promotive services been affected by cost-sharing?

A. SUMMARY OF DATA TO BE UTILIZED

Forms for reporting the volume of preventive/promotive services are collected and compiled by MOH. Centralized reporting exists for family planning and immunization statistics. Child welfare and ante-natal statistics remain at the facilities.

The Immunization Summary Sheet (Appendix 8) is submitted by the facilities to the district medical office. The district medical records officer then compiles a district Immunization Summary Sheet, which lists the doses of each vaccine distributed, by facility. This summary is sent to the MOH, where the data is computerized by district. As of 1990, the computerization will be done by KEPI.

Family planning statistics are reported to MOH on a district summary form which lists by facility: number of first visits and revisits, number of acceptors, number of infertility visits, and contraceptive methods used (see Appendix 9). This data is also computerized by district.

B. ANALYSIS

One of the objectives of the introduction of cost-sharing is to increase the resources available for preventive/promotive services. For this reason, 25% of the revenue collected at the facilities, will remain at the district level for preventive and primary health care activities. While clinic-based preventive/promotive services represent only a small portion of preventive and primary health care (PHC) activities, it is hoped that utilization of those services will improve as a result of cost-sharing.

Some decline in the utilization of preventive services may occur in the initial phase of cost-sharing. Although the services will be free, visits could become less frequent if it had been the practice to combine preventive and curative care in a single visit. The increased cost of curative care could have a spill-over effect on the utilization of preventive services.

On the other hand, clients may try to use preventive services to receive free curative treatment. When a mother attends the child welfare clinic for immunizations, she may also discuss her own illness, or that of an older child. The staff of the preventive programs may require some orientation from the district medical office, as to the potential problems they may experience, and how to handle them.

After one to two years, as the additional revenue begins to be reinvested in the services, utilization of preventive/promotive services should increase. Through expanded outreach and promotional activities, extended coverage should also be achieved.

The monitoring system should focus on the family planning and immunization statistics since these are centrally compiled. The number of doses administered per month, and the total number of family planning visits, first visits and revisits, are the indicators to monitor in assessing the impact of cost-sharing on the volume of preventive/promotive services. The data from the sampled facilities should be abstracted from the HIS data file for family planning and the KEPI data file for immunizations. While the data on child welfare and ante-natal clinics would be useful, the additional work that would be required for its collection and compilation is not justified for the purposes of this system.

III. QUALITY AND EFFICIENCY

This section addresses changes in quality of care and the efficiency of the pattern of client utilization of facilities.

Question 1: Has the quality of care provided at MOH facilities improved?

A. SUMMARY OF DATA TO BE UTILIZED

The Monthly Laboratory Report (MOH 706, Appendix 10) summarizes the number and type of investigatory procedures and positive outcomes, by facility. It includes a report of blood smears, haematology, urine, stool etc. The number of blood smears for malaria parasites are reported. The report is to be submitted to the MOH by all facilities with laboratories.

Additional data to assess changes in quality of care can be obtained from periodic surveys, rather than routine monitoring. Periodic visits to a sample of facilities, to determine the number and types of machinery out of order, and the number and types of drugs out of stock, would be a useful strategy. PADS provides an instrument for equipment review.¹² It indicates the condition of various equipment and the repairs needed.

An instrument for reviewing the adequacy of drugs issued and provided for outpatients, is also included in PADS.¹³ It examines the frequency of stock outages and supply shortages, and the frequency of prescribers requesting medically contra-indicated drugs, and drugs that are to be prescribed by specialists only.

A third set of instruments is the quality of care assessment forms developed in PADS.¹⁴ The outpatient Quality of Care Review involves the examination of outpatient department cards for prescription and diagnosis identification, diagnostic tests conducted, and medications prescribed.

The quality of care review for inpatients is based on a study of medical records, for selected diagnoses. The appropriateness of lab tests and x-rays, based on admitting and discharge diagnoses, the number and type of medications prescribed, and the length of stay, were examined by case.

¹² PADS, Vol. II, Sect. IV, Pgs. 206-207, 210.

¹³ PADS, Vol. II, Sect. II, Pg. 153.

¹⁴ PADS, Vol. I, Sect. 3.5, Pg. 75-78; Vol. II, Sect. II, Pigs. 129-135.

B. ANALYSIS

One goal of cost-sharing is to improve the quality of health services, by reducing the financial constraints facing the MOH. An impact evaluation of cost-sharing would be incomplete without an assessment of changes in the quality of care at MOH facilities.

One measure of the quality of care is the adequacy of the investigatory procedures carried out. Existing evidence suggests that diagnostic tests are carried out at some MOH facilities less often than required. At Nakuru Provincial Hospital, twenty-five percent of the outpatient records reviewed suggested missing lab tests. At Naivasha District Hospital, the figure was 29%. The figure for the MOH Health Centres ranged from no missing tests, to 15% of the patients missing tests.¹³

On the Monthly Laboratory Report, the number of blood smears for malaria parasites is reported. One strategy would be to monitor the number of malaria blood smears in the sampled facilities to see if there is an increase over time. A more satisfactory analysis would compare the number of smears with the number of cases of malaria reported on the District Outpatient Morbidity Summary, for a given sample of health centres and hospitals. If the difference in the number of cases and number of smears declines, this would be one indication of improved quality of care. The sample could be the same used to monitor volume of services.

Reductions in the number of broken equipment and frequency of drug shortages, in a sample of health facilities, would also indicate improvement in the quality of care. Periodic visits to the sampled facilities, every nine to twelve months, to review the status of equipment and drug supplies, would be required. The MOH facilities in PADS could be included in the study since baseline data exists. Other facilities to be sampled should be visited by early 1990 to obtain baseline data.

The outpatient and inpatient quality of care reviews from PADS could be repeated in Nakuru District in July 1990, and 1991, 1992 to assess changes compared with the July 1989 data. The same reviews can be conducted in another six districts to include one per province. The first should be no later than early 1990 for baseline data, and then repeated once a year for the next three years, to monitor changes in quality of care.

¹³ PADS, Vol. I, Sect. 3.5, Pg. 70-74; Vol. II, Sect. II, Pg. 162.

Question 2: Has patient satisfaction with the quality of care increased?

A. SUMMARY OF DATA TO BE UTILIZED

Several existing surveys that measure levels of client satisfaction provide baseline data with which it should be possible to assess change. Outpatient client surveys were part of the Kenyatta Hospital Report, and the Nairobi Area Study. The Provincial and District Hospital Study also included both outpatient and inpatient surveys. (See appendices 11-13 for copies of the relevant sections of the survey instruments).

The questions on client satisfaction included a rating of the overall quality of care. Each survey also tried to determine the most serious problems from the patient's perspective. PADS assessed perceived strengths in addition to shortcomings.

Facility-based client surveys are biased by the fact that they interview only those who visit a facility; they miss potential clients who do not use the facility. One would expect users to be more positive than non-users. Secondly, asking questions at the facility, often leads to a more positive response. Clients may fear the repercussions of their criticism. Despite these difficulties, as long as similar surveys are asked over time at the same facilities, changes in these responses can be used to follow changes in consumer satisfaction.

A second data source relevant to the quality of care assessment consists of a series of household surveys which analyze patterns of health services utilization. These include studies in Meru, by Kirigia, in Kwale and Kirinyaga by Mwabu and Wangombe, and in South Nyanza by Mwabu and Ellis. All four were carried out in 1988 and 1989, prior to cost-sharing.

These household surveys examine clients' perception of the quality of care at the facilities visited in the four weeks prior to the interview. Responses at the home may be somewhat more honest than those given at facilities, and respondents may be less reluctant to criticize providers. The surveys also examine the tendency to bypass nearby facilities and the reasons for bypassing. With a facilities map of the locations studied, it would be possible to identify the facilities bypassed, and the problems clients identify at those facilities. This could be used to determine whether the responses apply to MOH or non-government facilities.

B. ANALYSIS

An assessment of changes in client satisfaction would require periodic repetition of selected questions on the client surveys. The relevant inpatient survey questions from PADS should also be asked at KNH by early January 1990, to obtain baseline data on inpatient satisfaction. The questions should be repeated at the same facilities once a year, for the next three years.

It would be worthwhile to broaden the facility sample from that of the REACH studies, to include facilities in other districts. Inclusion of at least one district per province would be recommended, to give a broader view of the change. This expansion should not be done at the expense of follow-up surveys in other areas where surveys have already been conducted.

The facilities surveyed should include dispensaries, health centres and hospitals. It may be possible to use the sample to be analyzed for changes in utilization. For facilities not already studied, baseline data would have to be collected as soon as possible, and no later than early 1990, before significant changes in the quality of facilities may have occurred. The same questions should be repeated each year in the same sample of facilities.

The household surveys should be repeated periodically, in the same locations, to assess changes in client satisfaction. These surveys will also be used in the analyses of access to care as discussed below. Ideally, surveys would also be conducted in additional districts; again, the first priority should be the follow-up surveys. These should be carried out once a year for the next three years. Households from the same or similar locations should be interviewed whenever possible.

The analysis of bypassing behavior from the household surveys, may require identifying the facility bypassed, since bypassed facilities are not specified on questionnaires used thus far. With a map of facilities in the location of the households interviewed, facility identification should be possible. For follow-up surveys, it would be possible to detect changes in the tendency to bypass specific MOH facilities, and changes in the reasons stated for bypassing. These changes will also be related to the clients' perception of the quality of care.

Question 3: Has the fee schedule increased the allocative efficiency of the health system, by shifting more patients to the lowest appropriate facility?

A. SOURCES OF DATA

The volume of services data described in chapter II will be used for this analysis. The total number of outpatient visits, the number of inpatient admissions, and hospital occupancy rates will be drawn from the District Outpatient Morbidity Summary and the Inpatient Monthly Statistics Summary form.

B. ANALYSIS

Evidence of clients' tendency to bypass facilities in search of higher quality care has been provided in both rural and urban settings.¹⁰ The practice of patients seeking care at higher level facilities than required by

¹⁰ PADS, Vol. I, Sect 4.6.5, Pg 179; NAS, Vol. II, Ch. 3, Pg 38; KNH Report, Ch. III, Pg. 60.

their condition is costly. Hospital costs per outpatient visit are higher than costs at health centres and dispensaries, primarily because of more highly trained staff at the first.¹⁷ Substantial savings can be realized by shifting patients to the lowest level facility appropriate to their health problem.¹⁸

The fee schedule, with higher fees charged at higher level facilities, is designed to encourage increased utilization at the lower end of the facility pyramid. Monitoring the volume of services, by level of facility, will provide an indication of the effectiveness of the fees as an incentive to using lower level facilities. The analysis should include both outpatient and inpatient statistics. A quarterly summary of the average monthly number of outpatient visits, by level of facility, at a sample of government facilities, would be adequate.

If the fee schedule is increasing efficiency, the volume of services should fall at hospital outpatient department and increase at dispensaries. Since health centres may lose some patients to dispensaries, but gain them from hospitals, their change in volume may be less marked. Quality of care should also improve, particularly at hospitals, where congestion should be reduced.

Analysis of the changing patterns of utilization by level of facility will also provide an indication of the degree to which resources need to be reallocated. Should it be found that clients are moving out of hospital outpatient departments to health centres and dispensaries, resources should be shifted down the facility pyramid.

The effect of fees on the pattern of utilization of inpatient services is likely to be less marked since inpatient charges are not differentiated between the district and provincial hospitals. One might expect cost-sharing to cause some shift from hospital to health center care. The largest change is likely to be from Kenyatta National Hospital to district and provincial hospitals, given that the daily charge at KNH is 500% higher. Quarterly monitoring of the number of admissions, both curative and maternity, and average length of stay, and occupancy rates, at a sample of health centres and hospitals, including KNH, will be necessary (Table 2).

Question 4: Has unnecessary utilization of MOH facilities been reduced?

A. SUMMARY OF DATA TO BE UTILIZED

The District Outpatient Morbidity Summary can be used to show the number of new cases of the following diagnoses: rheumatism, joint pains, etc, diseases of the respiratory system, malaria, and diarrheal diseases.

¹⁷ PADS, Vol. I, Sect. 3.3, Pgs 52-59.

¹⁸ PADS, Vol. I, Sect. 3.7, pp. 86-7.

B. ANALYSIS

In any health care system, there are clients who attend facilities unnecessarily. They attend for problems that the facility is not equipped to manage (eg depression); they attend more frequently than warranted by the ailment; or, they attend when self-treatment or even no treatment would be sufficient. This unnecessary utilization tends to be more problematic when services are free. One objective of cost-sharing would be to reduce excess utilization.

There are no precise, uniformly accepted, objective criteria for evaluating the need for a medical visit. For any particular ailment, the severity of the condition must be taken into account. Nevertheless, it is possible that certain diagnoses would tend to capture a portion of the patients at health facilities, who were not in need of a medical consultation.

Among those diagnoses listed on the District Outpatient Morbidity Summary, we would include rheumatism, joint pains etc, diseases of the respiratory system, and malaria¹⁰, and diarrheal diseases as those more likely to capture unnecessary visits. This is not to say that these ailments never require medical treatment, but that they sometimes do not. If the fees are effective in reducing unnecessary utilization, the incidence of these diagnoses would be expected to decline more than the overall decline in total new cases.

The changes in morbidity can be analyzed from the District Outpatient Morbidity Summary from the facilities sampled for the volume of services analysis. The average monthly number of reported cases can be calculated each quarter for each of the four disease categories. An analysis by level of facility would be useful to determine whether the "excess" utilization is being shifted down to the free dispensaries. It would also be important to determine whether these minor ailments are being seen less often at hospital outpatient departments, where they are most expensive to treat.

¹⁰ This is particularly true if a blood smear is not carried out.

IV. ACCESS TO CARE

An important concern of policy-makers and health care providers is the effect of cost-sharing on the access to care, particularly for low-income population groups. Fees could reduce utilization of MOH services amongst the poor. Another alternative outcome of the fees is that, by leading to quality improvements, particularly in the drug supply, access would increase. This is likely only if the cost of MOH care is cheaper than previous expenditures on private providers and/or drugs. While both effects are possible, this paper will focus on the risk of reduced access for the poor.

Mechanisms to ensure access to care will be instituted at the facilities; these will allow for free treatment for those unable to pay. No such mechanism can be expected to capture only and all genuinely deserving cases. Even if one could be adequately fine-tuned, there would still be those individuals who are discouraged from visiting a facility because they are not aware that they could receive free care, or are unwilling to apply. One purpose of evaluating access would be to estimate the extent to which fees may have reduced access because of inability to pay.

Question 1: Have the income distribution and other socio-economic characteristics of the client population of MOH facilities changed after the implementation of cost-sharing?

A. SOURCES OF DATA TO BE UTILIZED

Data to address this critical area should come from three sources, each of which have been discussed previously in this report. First, periodic facility-based client surveys of outpatients and inpatients should be conducted to provide data on levels of income, education, occupational status, residence, age, and sex, by facility. These surveys should be along the lines of the facility inpatient and outpatient surveys conducted for the PADS, Nairobi Area, and KNH studies. Copies of the relevant portions of those surveys are attached as appendices 11-13.

Second, periodic household surveys should also be conducted to provide data on utilization patterns by income, education, occupation, residence, age and sex. As previously discussed in chapter III, question 2, baseline data already exists for Meru, Kirinyaga, Kwale, and South Nyanza.

A third possible source of data is inpatient hospital records; these provide information on occupation, residence, age, and sex. The information is on the Central Records Registration Form. It is also on file at MOH on the Discharge Summary form (MOH 304). A record review, from a sample of patients, would provide an indication of changes in the profile of the clients at a facility.

B. ANALYSIS

Changes in the income distribution of outpatient clients can be assessed from the client surveys. The data should be analyzed by facility, and then aggregated for facility types. The household income distribution can also be compared for significant changes over time.

Changes in the age distribution of clients should also be analyzed. It would be of particular concern if the percent of elderly, age sixty and above, declined. The elderly are usually in greater need of health care than the general population. Not being active participants in the work force, they may have limited resources to pay for health services.

The percent of clients between the ages 6-12 years should also be analyzed over time. Since these individuals are usually not income earners while they are attending school, there may be a reduced tendency to seek health care for them once outpatient fees are charged.

An analysis of the sex distribution of clients is also warranted. In areas where the male head of household controls the cash income, women may have reduced access to curative health services. A significant decline in the percent of female clients may indicate a problem in access.

The problem of controlling for other policy changes occurring between the periodic client surveys is a problem for all facilities, but is particularly serious for Kenyatta National Hospital. At KNH, there have been important changes in procedures regarding who is to be seen, particularly with the closing of the outpatient filter. This change might also influence the socio-economic profile of the client population. To overcome this problem, a baseline client survey should be conducted by early 1990.

The data on inpatient client characteristics, which can be drawn from the Central Records Registration form, should also be analyzed for indications of changes in access. Changes in the distribution of occupation categories, with a particular focus on the percent unemployed, percent casual laborers, and percent employed should be analyzed. There are some problems with using only reported occupation, since it is easily misreported, and is not a precise indicator of ability to pay. The latter is particularly true when the patient is expected to rely on the resources of the extended family, not just household resources, to pay for health services. Nonetheless it is probably still worth monitoring.

The periodic household surveys should be analyzed to see if the frequency of visits in the last four weeks, the facilities visited, and the type of ailments for which care is sought, have changed by income group. The number of visits and facilities visited should also be analyzed by age and sex, to detect changes in patterns of utilization, as discussed in relation to the client survey.

Question 2: Has the volume of services changed significantly more in low-income areas than nationwide?

A. SOURCES OF DATA TO BE ANALYZED

Volume of services data on the total number of outpatient visits and the total number of admissions per month should be monitored. The data is provided on the District Outpatient Morbidity Summary and the Inpatient Monthly Statistics Summary form. The CBS Rural Household Survey and the Household Budget and Expenditure Survey present income data by district.

B. ANALYSIS

An analysis of changes in the volume of services data by district can be compared to the district income levels. Using the CBS Rural Household Survey, MOH can select the ten poorest districts, according to their income distribution. Percent changes in the volume of services provided in these poorer districts could then be compared to changes observed in the national sample.

The analysis should monitor changes by level of facility; free dispensary visits may mask other changes. The average monthly total number of outpatient visits and number of admissions should be monitored quarterly.

A significantly greater decline in utilization in the low-income districts, compared with the national sample, would be indicative of an access problem amongst the poor. Similarly, a significantly larger increase in the volume of dispensary visits in these districts, compared with the national sample, would also suggest that the fees are an obstacle to the utilization of MOH facilities amongst the poor.

A similar strategy would be to examine the volume of services data at the level of individual villages rather than districts. A sample of health center in-charges could identify the poorest one or two villages in their facilities' catchment areas. The number of visits coming from those villages, before and after the introduction of cost-sharing, could be calculated from the facility register. The in-charge could count the number each month. The change would then be compared with the overall change in number of visits for that facility. If the percent decline in utilization is significantly greater in the poorer villages, it would suggest a potential problem of access amongst the poor.

One advantage of this strategy is that it involves the health center personnel who tend to know the villages in the catchment area. The sample should include at least one health centre per district. The centre should be one where the same person has been in charge for at least four-five years, to ensure familiarity with the area. It should also be a centre whose reports are regular and complete.

Question 3: Are exemptions being issued in accordance with need?

A. SOURCES OF DATA TO BE UTILIZED

Each facility will maintain a daily record of the number of exempt stamps issued. These will be counted each month as part of the monitoring of revenue. The district medical office should submit to MOH each month, the number of exempt stamps issued by all facilities in the district. The CBS Rural Household Survey and Household Budget and Expenditure Survey data will also be utilized.

B. ANALYSIS

The number of exemptions issued in a district should correspond, to some degree, with the income level of the district. Data on the district income distribution will be drawn from the CBS Rural Household Survey. A table of the number of exemptions issued each quarter by district, should be compiled. The table would also include the total number of outpatient first visits for the month and hospital admissions, to calculate the percent of clients exempted, for inpatients and outpatients. This table would then be compared with a summary table of income distribution by district. Districts can be grouped according to income level. The number of exemptions should be comparable in those districts within a given income category.

Districts with lower percentages of exemptions than other districts with similar characteristics, may be limiting access to the poor. The exemption records of the facilities in that district would have to be reviewed by the district medical staff, to identify the source of the problem. Those outlying districts would have to be visited by MOH staff to investigate the exemption procedures and criteria applied. It is possible, although unlikely, that fewer people are applying for exemption, rather than that more are being denied free care. Districts with a disproportionately high percentage of exemptions, relative to districts of similar income, should also be investigated on equity grounds.

V. SAMPLING METHODOLOGY

A. METHODOLOGY FOR ESTIMATING VOLUME OF SERVICE.

1. Outpatient Volume of Service

This chapter describes a methodology for deriving estimates of annual volume of outpatient service for health care facilities in each district, using South Nyanza District as an example. The central purpose of these estimates will be to monitor and evaluate the impact of the introduction of new user fees. Estimates are presented for a six month period during 1989; the same methodology should be applied to data for the same six month period during 1990 in order to produce comparable estimates. The comparison of estimated volume of service before and after the introduction of new user fees can inform policy makers about necessary changes in the system and about possible access problems encountered by selected sub-populations. A secondary purpose of the methodology is to provide Health Information Systems with a strategy for compensating for the low, irregular reporting rate undermining district outpatient morbidity summary data. Monitoring the impact of cost-sharing in each district can be accomplished by following a sample of district facilities; however, overall District-level totals are also desirable since they can be linked to population size to produce morbidity and mortality rates that are comparable across districts. They can also be linked to manpower endowments to identify under- and overstuffed facilities or districts. But perhaps most importantly, district level totals will be necessary for estimating anticipated revenue from cost-sharing.

First, the Health Information Systems (HIS) District Outpatient Morbidity Summary dataset is described with respect to its content and limitations. This includes a review of the response pattern for facilities in South Nyanza District. Then, the sampling strategy is described and executed. Finally, some recommendations regarding analysis and interpretation of before and after data are presented.

a. District Outpatient Morbidity Summary Data Content

This dataset should include numbers of new cases of up to 40 common diseases (and disease groups) at each health care facility in the district. Total numbers of new cases, re-attendances (re-visits), referrals and first attendances are also to be recorded. The data is compiled each month from forms to be submitted by each facility to the district Medical Officer of Health. The forms provided to each facility are designed to record these statistics for each operating day during the month. The monthly summary form has a similar structure allowing for data from up to 31 facilities on each page. The statistical clerk at the district MOH computes monthly totals for each facility and transcribes these onto the monthly summary form, and then computes grand totals for the district.

b. District Outpatient Morbidity Summary Data Limitations

The most serious problem with this data collection system is a low, irregular response rate. For example, in South Nyanza District there are 91 institutions (MOH and NGO), but the modal number of facilities appearing on monthly summaries is 31, which not coincidentally corresponds to the capacity of a single form. If data were recorded for the same 31 institutions each month the problem would be less severe, especially if the facilities were selected randomly, since then the sample could provide a good base for inference about relative levels of morbidity in the district. Unfortunately, more often than not the sample of facilities for which data has been recorded is not identical every month. Because of this selection bias the absolute numbers of cases are seriously underestimated. Simply inflating these numbers by the inverse of the response rate can result in extremely biased estimates of total volume and morbidity, because this assumes that the reporting facilities are representative of the set of non-reporting facilities.

A secondary problem with this data source concerns the misinterpretation or absence of specific items. For example, at one facility the only morbidity data reported pertained to diarrhoea and malaria; it is hard to believe that all of the new cases treated that month were exclusively diarrhoea and malaria. The total new cases reported at the bottom of the form included only the malaria cases; spaces for the number of new cases of all other diseases, first attendances, reattendances and referrals were left blank. Thus, there may be a tendency at health facilities to only record cases of the most common diseases, and to either ignore the others or include all other cases in the row labelled "all other diseases." Incomplete reporting is a pervasive data reliability problem which cannot be remedied through sampling. Rather, it requires increased enforcement of standards by the district medical officer of health. For the purpose of monitoring the impact of the introduction of new user fees, it may actually be preferable to accept this ambiguity and hope that it does not confound changes in volume or morbidity that may appear after new fees are implemented. For the longer term, however, it would be desirable to improve the reliability of this data source since its value to policy makers is seriously impaired by its low quality.

c. South Nyanza District Outpatient Morbidity Summary Response Profiles

The low, irregular response rate for many districts is exemplified by South Nyanza District. Table 8 below indicates which facilities have reported each month during the period January, 1989 to July, 1989. The table also includes information from the HIS district facility inventory; however a few of the facilities submitting reports were absent from this inventory (10 plus two "unnamed institutions"). According to this table there would appear to be a total of 91 health care facilities in South Nyanza District, assuming that the two "unnamed institutions" are not additional, and that those not submitting any reports remain operational. There are 81 facilities named in the HIS district facility inventory (dbaseIII) file, but according to a printout labelled "National Rural Health Facilities Summary", and dated

Table 8

South Nyanza District Outpatient Morbidity Summary Response Profiles.
(January to July, 1989)

FACILITY NAME	OWNERSHIP	FACILITY TYPE	MONTHLY DATA REPORTING PROFILE								
			ALL	JAN	FEB	MAR	APR	MAY	JUN	JUL	
BWARE	MOH	Dispensary	0								
KANDIEGE	MOH	Dispensary	0								
MAGUNGA	MOH	Dispensary	0								
MARINDI	MOH	Dispensary	0								
MBITA NUTRITION	NGO	Dispensary	0								
NDIWA	MOH	Dispensary	0								
NYABIKAYE	NGO	Dispensary	0								
NYABISAWA	NGO	Dispensary	0								
NYAGOWA	NGO	Dispensary	0								
NYAKURU	MOH	Dispensary	0								
NYANDAGO	NGO	Dispensary	0								
OSANO	NGO	Dispensary	0								
OYANI	MOH	Dispensary	0								
OYANI	NGO	Dispensary	0								
PADMORE	NGO	Dispensary	0								
SONY SUGAR	NGO	Dispensary	0								
TARANGANYA	MOH	Dispensary	0								
WIRE	NGO	Dispensary	0								
BIGUMBE	MOH	Dispensary	2							1	1
NTIMARU	MOH	Dispensary	2							1	1
KITARE	MOH	Dispensary	2					1		1	
KUJA	MOH	Dispensary	3					1		1	1
MALELA	NGO	Dispensary	3					1		1	1
ONGO	MOH	Dispensary	3					1		1	1
UAT ONG'ER	MOH	Dispensary	3	1	1			1			
GOT-OYARO	MOH	Dispensary	4				1	1		1	1
UGINA	MOH	Dispensary	4		1			1		1	1
NYS LAMBWE	MOH	Dispensary	5		1	1	1			1	1
SENA	MOH	Dispensary	5		1	1	1	1			1
DEDE	MOH	Dispensary	5	1	1		1	1		1	
PALA	MOH	Dispensary	5	1	1	1	1	1			
MATOSO	NGO	Dispensary	6		1	1	1	1		1	1
MACALDER	NGO	Dispensary	6	1	1		1	1		1	1
OGONGO	MOH	Dispensary	6	1	1	1		1		1	1
KAMAGOMBO	NGO	Dispensary	7	1	1	1	1	1		1	1
LAMBWE FOREST	MOH	Dispensary	7	1	1	1	1	1		1	1
NYAGORO	MOH	Dispensary	7	1	1	1	1	1		1	1
NYANDHIWA	NGO	Dispensary	7	1	1	1	1	1		1	1
URIRI	MOH	Dispensary	7	1	1	1	1	1		1	1
MASABA	MOH	Dispensary	7	2	1	1	1	1		1	1

Table 8 (Continued)

South Nyanza District Outpatient Morbidity Summary Response Profiles.
(January to July, 1989)

FACILITY NAME	OWNERSHIP	FACILITY TYPE	MONTHLY DATA REPORTING PROFILE							
			ALL	JAN	FEB	MAR	APR	MAY	JUN	JUL
NYANDENDA DISP			2						1	1
OROBA N/M HOME			2				1			1
MIRIU			2		1					1
NYANGOGE			4				1	1	1	1
MAGINA			4		2			1	1	1
AIC AHANCO DISP			5			1	1	1	1	1
KADEM DISP			5	1			1	1	1	1
UNNAMED INST			6	1	1		2	2	1	1
SINO DISP			6	1	1	1	1		1	1
ORUBA			6	1	1	1	1	1	1	
MAWEGO MISSION			7	1	1	1	1	1	1	1

Note: Ownership and facility type are blank for facilities not listed in the district facility inventory database.

27/10/89, there are 85 facilities in South Nyanza District. This is not a serious problem but it does signal a need to verify the facility inventory data and update it regularly. This should include not only a review of which facilities are actually operating in the district, but also an attempt to ascertain attributes of these facilities that are often missing from the facility inventory database, such as numbers of beds and staff, which could be instrumental in controlling for the differential service capacity of selected facilities. One final problem evident from Table 8 is that a few facilities have two (different) reports for the same month; in two of these cases there was no report for the preceding and following months, which suggests that the two reports may pertain to different months. It should be noted that this review is based on district monthly summaries compiled by the district medical office of health, and not on an examination of the actual monthly reports submitted by each facility.

2. Inpatient Volume of Service

Monitoring inpatient volume of service is easier than outpatient volume of service since there are fewer facilities involved. The data pertain to numbers of admissions, discharges and deaths, and average length of stay and occupancy rates in each ward in each hospital. There is a standard form (see Appendix 3) used to record this information each month. Unfortunately, not all facilities appear to use the form, and comparable information from health centres is not available.

B. SAMPLING METHOD

The set of facilities which have consistently submitted reports dictates which facilities are candidates for the proposed monitoring system. Because of this constraint it is impossible to simply select a random sample of all facilities. In any event, this would not be so desirable since the existence of significantly different types of facilities (hospitals, health centres and dispensaries; MOH and NGO) strongly suggests an opportunistic stratified sampling design. This actually simplifies the problem by reducing it to a matter of selecting some dispensaries and some health centres, subject to the availability of data. All hospitals should be monitored because they are few in number and contribute substantially to the provision of district health services.

The following sampling strategy is recommended for the purpose of estimating district volume of service and morbidity figures. It is applicable to estimates of baseline data prior to cost-sharing as well as data collected following the implementation of cost-sharing in MOH facilities.

First, it will be useful to separate the district health facilities into the categories described in the Table 9 below. In some districts there may also be municipal council facilities which may be classified as NGO facilities or treated separately. Also, if there is a provincial general hospital present in the district it should be included; however, it is not possible to identify what proportion of visits to a provincial general hospital are from specific districts, therefore the provincial general hospital should be treated separately.

Table 9

Distribution of Facilities in South Nyanza District by Type of Facility.

Type of Facility	n1	n2	n2/n1
1. MOH Provincial General Hospital (PGH)	0	0	0
2. MOH District Hospital (DH)	1	1	1.00
3. MOH Sub-District Hospital (SDH)	0	0	0
4. NGO (Mission or Private) Hospital (NGH)	2	1	.50
5. MOH Rural Health Demonstration Centre (RHDC)	2	2	1.00
6. MOH Health Centre (HC)	12	4	.33
7. NGO Health Centre (NHC)	16	6	.38
8. MOH Sub-Health Centre (SHC)	7	6	.86
9. NGO Sub-Health Centre (NSHC)	1	0	0
10. MOH Dispensary (D)	25	9	.36
11. NGO Dispensary (ND)	15	4	.27
12. Unidentified	10	6	.60
TOTAL	91	39	.43

Note: The total number of facilities is taken to be 91, based on the union of facilities listed in the district facility inventory and the set of facilities which have submitted reports. N1 is the number of facilities of each type based on all facilities; N2 is the number of facilities of each type with at least 5 monthly reports submitted; N2/N1 is the response rate for each type of facility.

The purpose of this stratification system is to control for the size and anticipated caseload at different types of facilities. The outpatient volume of service and the observed morbidity pattern should be fairly consistent for each of the above types of facilities, subject to the following conditions:

1. The catchment populations for all facilities of each type are similar; for instance, all MOR health centres serve catchment populations of approximately equal sizes with similar demographic and health (morbidity) characteristics; and
2. The staffing pattern (or service capacity) at all facilities of each type is similar or identical.

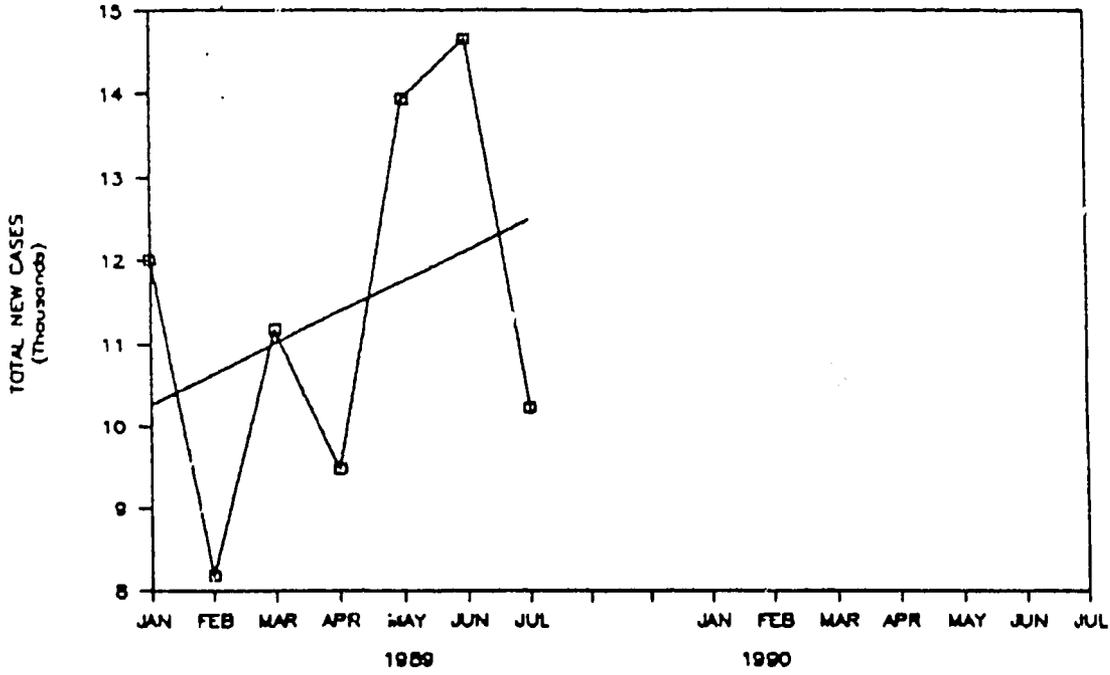
To the extent that these conditions are violated, additional steps must be taken to ensure unbiased estimates of district-level volume of service and morbidity rates. These steps amount to assigning a weight to each facility which incorporates information about the size and composition of the catchment population, the epidemiology of the service area and the service capacity of the facility. The following illustration pertains to South Nyanza District, however it can be applied to any other district by using the same procedure.

Table 9 shows that 39 out of 91 (43%) facilities submitted monthly returns for at least five of the seven months reviewed (January to July, 1989). For those facilities with only five months of data the sixth month can be estimated using the average value for the five months reported. In this way, values or estimates for each facility for the same 6 month period can be produced. This same strategy may also be necessary when generating comparable figures for the period January to June, 1990.

Given the above set of 39 reporting facilities, and considering that they represent different types of facilities, then for each type of facility it remains to compute a sample total volume of service and to estimate a total volume of service. There are several components of outpatient volume of service that will all need to be estimated, but for purposes of illustration here only one measure of outpatient volume of service will be estimated, namely the total number of new cases.

The data for each of these facilities can be compared directly to similar data from each facility for the period January to June, 1990. One tool which will simplify this task is to graph the number of new cases at each facility for both time periods and then compare the graphs. Figure 1 below is an example of such a graph for Homa Bay District Hospital; when the data for January to June, 1990 become available they can be plotted on this graph to simplify the comparison between volume of service before and after the introduction of cost-sharing.

Figure 1: TOTAL NEW CASES
AT HOMA BAY DISTRICT HOSPITAL



In order to estimate total new cases for each type of facility, the total for those facilities reporting will be inflated using the inverse of the response rate for each type of facility. Table 10 below shows the total new cases for January to June, 1989, for each type of facility. The response rates presented in Table 9 are inverted (1.0 is divided by the response rate) and then multiplied by the sample facility type totals to produce an estimate of the district total for each facility type. The results from summing up these estimates are shown in Table 11. The total estimated number of outpatient visits from South Nyanza during the first six months of 1989 is 1, 143,247.

Table 11 also provides an estimate of total district new cases based on the sample total, regardless of facility type; this estimate is 14 percent higher than the estimated grand total arrived at by adding up the separate estimates for each facility type. This discrepancy is due to the bias inherent in the assumption that the set of reporting facilities is representative of the set of non-reporting facilities. By controlling for the type of facility, a more precise and less biased estimate is produced. In addition, the approach provides estimates of the total number of visits by type or level of facility; such estimates are currently missing from the District Outpatient Morbidity Summary forms.

Table 10

Number of New Cases during January to July, 1989,
for Selected Facilities.

TYPE OF FACILITY	JAN	FEB	MAR	APR	MAY	JUN	JUL
2	12006	8184	11172	9477	13938	14654	10232
4	7027	6053	0	5952	5644	10950	11120
5	4986	5267	1321	0	4417	4756	0
5	3254	2962	3305	3007	0	4303	3615
6	0	3433	3576	4129	4351	5016	6621
6	1883	1603	0	1321	1576	2066	2354
6	2925	2083	2450	1733	2289	0	2771
6	2025	2307	2173	1899	2652	2647	2768
7	399	949	0	651	644	500	0
7	209	196	149	167	260	0	0
7	955	1033	1343	1514	1501	0	1119
7	202	189	365	218	218	0	206
7	241	444	519	290	418	0	358
7	845	886	820	803	754	1465	968
8	0	1853	2725	2299	2595	2304	0
8	1380	1766	1806	0	1008	2231	0
8	1778	0	1473	1153	1609	826	1207
8	2218	1938	2458	2697	2614	3143	2662
8	1382	2507	2253	1629	3000	3936	2763
8	2064	1100	4377	3511	4415	3963	3079
10	0	566	624	652	0	906	715
10	0	2186	1798	1337	2072	0	1514
10	2212	2967	0	1783	5626	1987	0
10	1874	1239	1542	518	1375	0	0
10	1447	1457	1529	0	1736	1912	1360
10	2704	2524	2588	2114	2791	3358	1892
10	1064	884	870	783	784	895	556
10	2455	2194	2580	2293	2935	3250	3635
10	1799	1464	1486	1527	1604	1658	1696
11	0	1176	2225	855	887	666	905
11	444	694	0	491	600	685	623
11	3508	4273	5567	4909	3888	2356	2543
11	241	271	210	220	198	396	623
12	0	0	416	434	513	595	611
12	737	0	0	342	654	406	1056
12	973	764	0	1316	933	0	1543
12	2393	1885	2093	1895	2094	1966	2310
12	2083	2075	2136	1545	1700	1514	0
12	708	828	659	386	768	1005	2394

Table 11

Total New Cases during January to June, 1989, by Type of Facility.

TYPE OF FACILITY	TOTAL NEW CASES	RESPONSE RATE	ESTIMATED DISTRICT TOTAL
2 MOH Hospital	69,431	1.00	69,431
4 NGO Hospital	42,304	.50	84,608
5 MOH RHDC	43,463	1.00	43,463
6 MOH Health Centre	61,591	.33	186,639
7 NGO Health Centre	21,326	.38	56,121
8 MOH Sub-Health C.	80,012	.86	93,037
10 MOH Dispensary	93,849	.36	260,692
11 NGO Dispensary	36,224	.27	134,163
12 Unidentified	43,396	.60	72,327
TOTAL	491,596	.43	1,143,247
SUM ACROSS TYPES			1,000,481
PERCENT DIFFERENCE			+14.3%

Note: Sum across types is the sum of district estimates for each type of facility; Total is the estimate that would be produced by ignoring different facility types and just inflating the sample total by the inverse of the (overall) response rate.

VI. RESOURCE REQUIREMENTS FOR MONITORING
AND EVALUATION

Monitoring and evaluating the impact of cost-sharing on quality and access to care will require information that is not routinely collected and compiled by MOH. There will be periodic client and household surveys, as well as facility interviews and inspections. It may not be reasonable to expect the Ministry of Health to implement the system with existing resources, although an effort should be made to redeploy available staff with appropriate skills, whenever feasible.

To ensure adequate monitoring and evaluation of the impact of cost-sharing, an evaluation unit should be established within MOH. This unit should be funded by donors involved in health care financing activities. It could consist of select MOH staff, university faculty, and other individuals who have participated in the previous studies. The unit should include an evaluation coordinator, who will supervise the data collection, conduct analyses, and disseminate findings. University faculty could review the evaluation procedures and data analysis. Experienced enumerators should also be included in the unit to train and supervise field staff and collect data. Appropriate computer resources, support personnel, and secretarial staff should be funded. This unit would be responsible for ensuring that all MOH evaluations related to cost-sharing are carried out according to a schedule agreed on by MOH and the donors.