

INTEGRATED DISTRICT DIAGNOSIS AND HEALTH

PLANNING (KENYA)

FINAL REPORT

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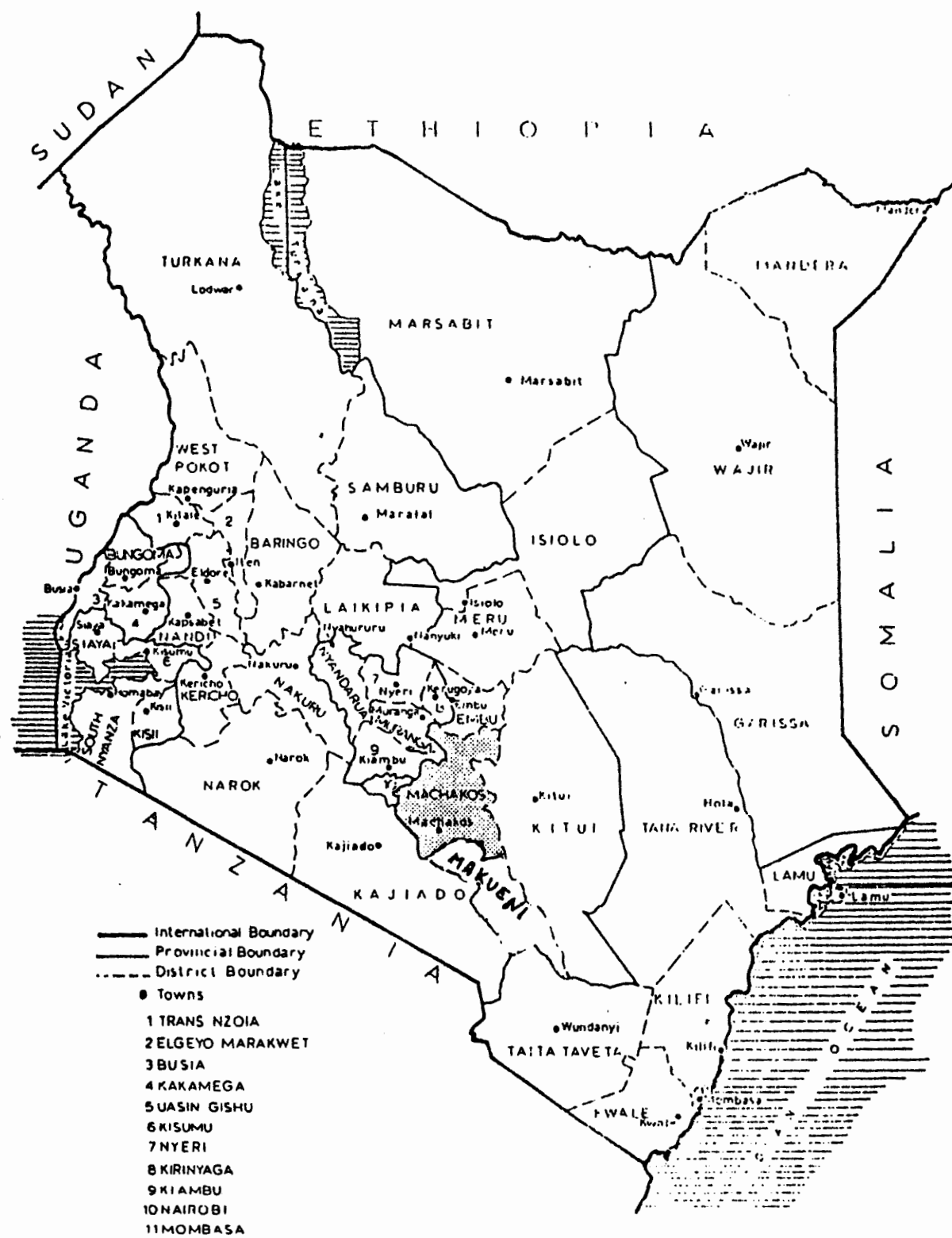
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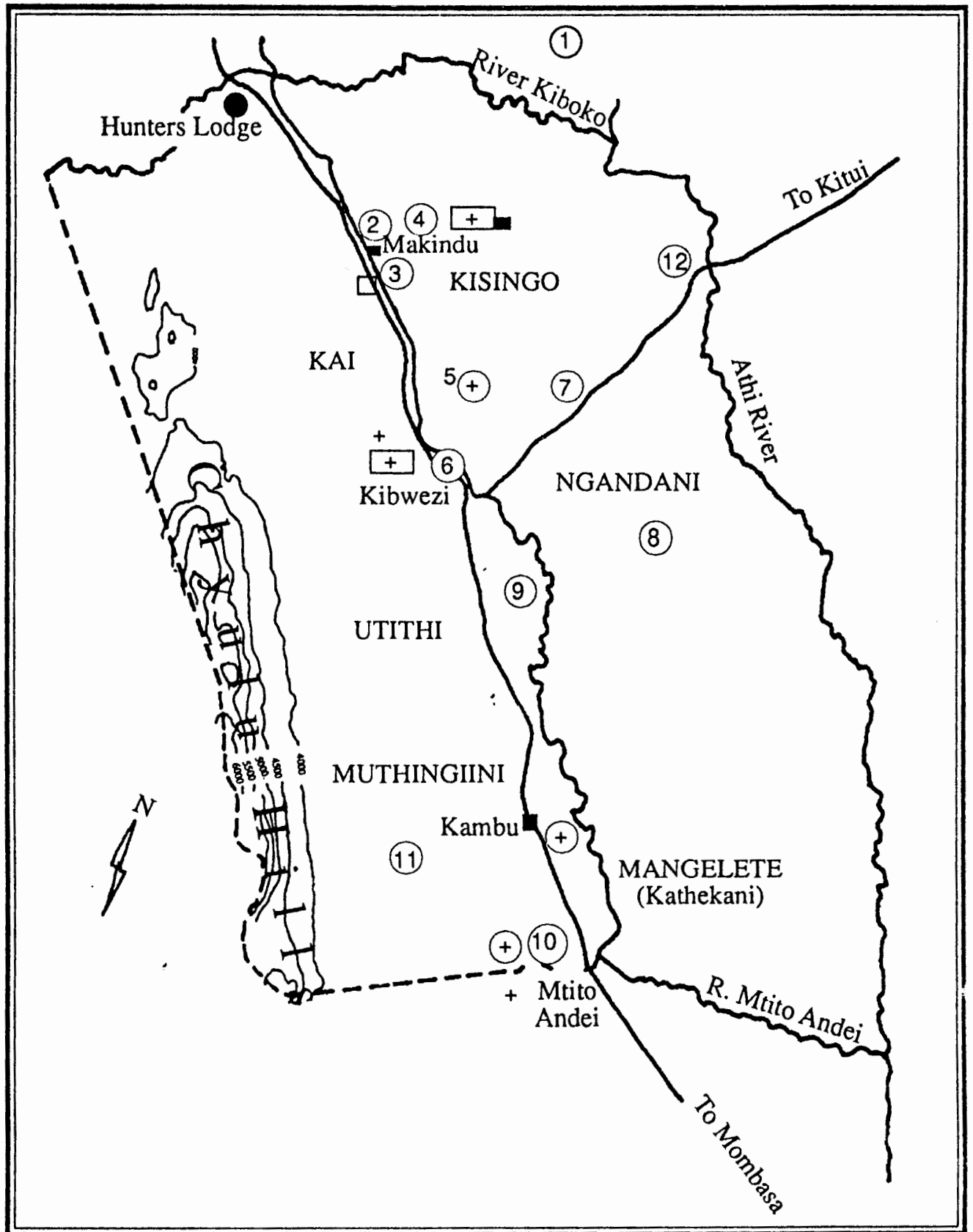
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MAP NO. 1: MAKUENI DISTRICT IN KENYA

Map No. 2 Kibwezi Division



+ Sub District Hospital

+ Health Centre

+ Dispensary

+ Private Clinics

○ Clusters

1 Mitendeu

3 Misongeni

5 Mikuyuni

7 Mwembeni

9 Nzembete

11 Ivingoni

2 Manyatta

4 Shauri Moyo

6 Kibwezi-mjini

8 Masaku Ndogo

10 Mtito Andei

12 Musingiini

ABBREVIATIONS

AMREF - AFRICAN MEDICAL AND RESEARCH FOUNDATION
HC - HEALTH CENTRE
CHW - COMMUNITY HEALTH WORKER
IDD - INTEGRATED DISTRICT DIAGNOSIS
HIS - HEALTH INFORMATION SYSTEM
IDRC - INTERNATIONAL DEVELOPMENT RESEARCH CENTRE
SAREC - SWEDISH AGENCY FOR RESEARCH COOPERATION WITH DEVELOPING COUNTRIES
NGO - NON-GOVERNMENTAL ORGANIZATION
DHMT - DISTRICT HEALTH MANAGEMENT TEAM
DMO - DISTRICT MEDICAL OFFICER
DO - DISTRICT OFFICER
DDO - DISTRICT DEVELOPMENT OFFICER
PHC - PRIMARY HEALTH CARE
EPI - EXPANDED PROGRAMME ON IMMUNIZATION
PC - PERSONAL COMPUTER
SAS - STATISTICAL ANALYSIS SYSTEM
GOK - GOVERNMENT OF KENYA
WHO - WORLD HEALTH ORGANIZATION
MCH - MATERNAL AND CHILD HEALTH
MOH - MEDICAL OFFICER OF HEALTH
FP - FAMILY PLANNING
TBA - TRADITIONAL BIRTH ATTENDANT
ORS - ORAL REHYDRATION SALT
ARI - ACUTE RESPIRATORY INFECTION
OPD - OUTPATIENT DEPARTMENT

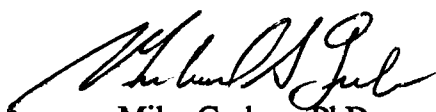
FORWARD

Modern health care systems in southern and eastern Africa are highly centralized. Efforts to decentralize management are underway, encountering a variety of problems. Reluctance of central bureaucracies to relinquish control is one, and shortage of trained manpower at provincial and district levels is another. A third problem is scarcity of such health information that provincial, district and subdistrict managers require for effective local management. The "Integrated District Diagnosis and Health Planning" (Kenya) project, implemented between 1989 and 1992 in Kibwezi Division, Makueni District, (formerly Machakos) Kenya has addressed the health information issue with current resource constraints as an important consideration.

AMREF is traditionally an organization oriented more towards service than towards research, but it is important that we make effective use of opportunities for applied research in association with our projects. The project illustrates the benefits of AMREF having operated a community-based primary health care project - Kibwezi Rural Health Scheme, during more than a decade and then conducting applied research in the same area.

I expect the findings and the conclusions to contribute to Kenya's PHC development in general and to health information systems improvement in particular. This report provides a summary of the accomplishments so far.

Nairobi, November 1992



Mike Gerber, PhD
AMREF Director General

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SUMMARY

The Integrated District Diagnosis and Health Planning (Kenya) Project was a three-year project implemented from 1989 to 1992 in Kibwezi Division, Makueni District in Eastern Province, Kenya. The project purpose was to test broadened but low-cost community-oriented health information systems with the overall goal to help make health care more in tune with the health needs of the local communities through locally identified priorities. The project comprised four components; (1) a health care system descriptive study; (2) three household health interview surveys (two cross-sectional and one longitudinal); (3) a health-related socio-cultural study; and (4) a Delphi-type panel study.

The descriptive study was considered by local health personnel likely to be helpful in local health care planning and management. It would be more helpful if there were more detailed records of service output particularly with regard to quality of care as well as resource use. The study should be undertaken every 3-5 years and restricted to a 15-25% sample of institutions when conducted in an entire district.

The Cross-sectional Survey I, conducted in December 1990, solicited information on demographic characteristics, socio-economic factors, nutrition, environmental factors, immunization status, illness episodes in the preceding 30 days, prevalence of chronic health problems, and disability conditions in 390 households in 12 clusters selected from 12 different villages in the division. Ten of these clusters had easy access to health care facilities while two, used as controls, did not. Twenty-six non-medical personnel selected among literate adults in the villages, local community health workers (CHW's), civil servants working within the villages, and secondary school leavers resident in the villages were trained and deployed as interviewers. The literate adults and the community health workers emerged as the best in terms of dedication, trustworthiness and community acceptance.

The results of Cross-sectional Survey II, conducted in December 1991, were very similar to those from the 1990 survey covering the same households. The study outcome supported the assumption that a cross-sectional survey is likely to be manageable and useful in soliciting health information at sub-district level as complementary to other methods. Survey costs cannot currently be compared to the costs the existing health information systems as these are not known.

The longitudinal household health survey, conducted with two-week recall periods over twelve months beginning March 1991 and ending in February 1992, was focused on monitoring the rate and socio-economic impact of illness episodes, degree of pain or discomfort experienced, perception of illness severity, care-seeking behaviour of the ill persons, health care sought at hospitals and clinics, cost of seeking health care, and, where

applicable, reasons for not seeking health care at hospitals/clinics. The results showed that women report considerably more illness episodes than men, that care-seeking behaviour of men and women is much similar, that more illness episodes were reported during the first few months of the survey than later, that half of all reported episodes were associated with activity restriction, that the mean time of reported illness per person per year was 18 days and the mean time of restriction was 3.91 days for episodes causing total restriction and 3.1 for episodes with partial restriction, that 19% of all episodes caused very severe pain or discomfort and that 25% of all reported episodes were perceived by the respondents as "very serious". The optimum household health interview recall period for a survey of this kind seeking population-based information rather than data accurate at the individual level, is at least one month and for some questions (hospitalization, surgery, deaths) one year.

The Delphi panel study conducted in October, 1991, explored whether or not individuals considered locally as knowledgeable have an accurate perception of certain health problems and to assess the feasibility of the Delphi method in a rural African context. The results were consistent with those of the cross-sectional surveys regarding common illnesses in adults as well as in children under five. Because of its modest costs, and its relative simplicity, the Delphi-type panel study is promising as a low-cost health information systems component. Future tests should include more planning-oriented questions and further efforts to minimize costs.

The socio-cultural study was based on semi-structured interviews with heads of a random sub-sample of 52 households in the 12 cluster villages. The questions focused on perceived causes of different diseases and views on treatment and prevention of the same diseases. The findings revealed that the population perceived diseases to be caused either by supernatural forces, evil human beings or physical factors, or by a combination of these. To manage or treat disease, people rely on both traditional and modern health care often used in combination for a single episode of illness, concurrently or subsequently. Local people appeared ready to accept new ideas related to health practices. We recommend that in addition to formal household interviews, focus group discussions and key informant interviews be used to add relevant information and possibly help enhance the validity of the data.

The usefulness and actual application of the data in the local health care planning and management process cannot currently be assessed but will be followed up. Community leaders and local health personnel expressed a strong interest, during the reporting feed-back seminar in October 1992 (See Annex VI), to apply the various project components more systematically in the division in support of local health development efforts. AMREF should seek the necessary funds to assist local communities and staff in this process at a modest level.

The estimated costs of the project components were for the descriptive study KSh 111,400 (US\$3,183) for the cross-sectional household surveys KShs. 718,900 (US\$ 20,540) and KShs. 725,700 (US\$20,734) respectively. The longitudinal survey cost was KShs. 692,900 (US\$ 15,797), for the Delphi study KShs. 105,800 (US\$ 3,023), and for the socio-cultural study KShs 191,720 (US\$ 5,478). A large proportion of these costs are associated with data processing, the research components of the project, and considerable savings are possible if the project components are applied, appropriately revised, for routine use within the existing health care system.

INTRODUCTION

1.1 BACKGROUND

Social service systems in eastern and southern Africa are currently going through a difficult time facing declining resources, rapid population growth, frequent crop failure due to environment degradation and below-average rainfall, and a high level of civil unrest accompanied by large-scale migration within and between countries. It is very difficult, under these conditions, to maintain a fair social service level. A rational process of planning, programming and resource allocation is increasingly important.

Primary health care development, decentralization of health service management to district and subdistrict levels, cost-sharing in the form of various user fees and service charges, and more active supervision and financial control are some of the remedial actions being tried. The decentralization effort has been particularly strong in Kenya, where a "district focus policy for rural development" was launched in 1984 (GOK, 1984). District level health care management requires staff trained in management and planning methods and relevant and accurate health information available to the District Health Management Teams and also to managers of rural health facilities. This is underscored by the fact that in Kenya post-basic management training for district health personnel has been expanded in recent years. Management information systems are also being revised to strengthen health care management at district level.

Kenya's existing health information system does not provide a good base for decentralized management from the district level down. Its inaccuracies and its incompleteness are serious, but improvements are possible by adding an element of population-based data to the existing routine reporting system, by obtaining a more systematic description of the existing health-related infrastructure and its performance, and by adopting interventions and control strategies to economic realities and the socio-cultural environment including local perceptions of disease concepts and cures. We do not expect self-educated health care administrators in the districts to embrace and apply new information overnight. Basic health planning and programming are in fact possible with a modest amount of information. But with an increasingly complex disease pattern associated with the ongoing "epidemiological transition, with an extended economic recession, with improved management training and with further gradual decentralization in Kenya of decision-making authority we predict a need of a slightly broader information base for district and division level management. While this need may be reasonably obvious, at least in a medium and long term time frame, it is less obvious how it is best met. Relevant lessons have been learnt from experiments with a local "community diagnosis" (Bennett 1979) and more recently the Commission for Health Research for Development (1990) expressed support for community based data collection and local planning. What is proposed here may be viewed as carrying out a "district diagnosis" procedure, partly integrated into the existing health care system.

The project has addressed that problem by testing a model. The project is in harmony with the "National Guidelines for the Implementation of Primary Health Care in Kenya" which among areas in need of research include the following (GOK 1981):

- ◆ Health needs/problems in the community
- ◆ Availability of resources, both human and natural, in the community e.g. their own knowledge, resource persons e.g. TBAs, herbalist, local funds for appropriate technology
- ◆ Availability and utilization of health facilities and services within the community and roles of extension workers.
- ◆ Structure and composition of the community in relation to sex, age, educational status, etc.
- ◆ Monitoring and evaluation of health problems in the community
- ◆ The most effective forms of communication

It is difficult to predict the effect on a given community of its participation in a systematic effort to identify and quantify its health problems and to draw its own conclusions. To study this process over a period of time in several different communities has been one intended action research element of this project. Further funding will determine to what extent this will be possible, but some conclusions of this project will be applied in the project area. They may also become helpful in developing sub-district level health planning and community-based primary health care beyond the project area.

1.2 GOALS AND OBJECTIVES

The goal of this project has been stated as follows: to help make health care in eastern Africa more in tune to the needs by developing an improved but affordable information system applicable to east Africa districts and thus facilitate a more decentralized process of planning, programming and resource allocation based on need.

The objectives have been:

1. To develop and test appropriate low-cost methods for generating population-based health information at district level and below
2. To compare and evaluate health information obtained from:
 - a) Household health interview surveys
 - b) Health care delivery system descriptive study
 - c) A health related socio-cultural study
 - d) A Delphi-type panel study

3. On the basis of the above, to develop a model for district level health information systems that could be implemented in Kenya and other countries if found useful and replicable.

1.3 THE PROJECT AREA

The study area, Kibwezi Division, is located about 200 km from Nairobi on the Nairobi-Mombasa road. It is an area of about 3,400 sq km and 1979 Census put the population of the division at 98,980 within 21,552 households, suggesting a population density of about 29 persons per sq km. The current population, mainly of the Kamba ethnic group is estimated at 160,000.

Kibwezi is characterised by low and unreliable rainfall with an annual mean between 50-800 mm. The short rains, which are the most reliable, occur between October and December with the peak around November. The long rains occur around March-May. The mean annual temperature is about 14-18 degrees centigrade.

Although its dark volcanic soils are rich in nutrients, low rainfall hampers the agricultural output resulting in frequent crop failure. The crops include maize, beans, millet, sorghum, cow and pigeon peas, sweet potatoes and cassava. Cotton is the main cash crop. Vegetables and fruits are also grown especially by irrigation near Kiboko and Athi rivers.

The vast marginal lands support good ranching. Hence livestock production is popular. The main species kept are cattle, goats and sheep. Poultry and bee-keeping are also popular.

Kibwezi Division has poor infrastructural facilities in transportation and communication. The poor roads impede access to basic services. It is therefore an area of socio-economic hardship and widespread poverty.

1.4 PROJECT COMPONENTS

The project comprised the following components:

1. A descriptive study of a typical division health care system including permanent facilities, manpower, recurrent resource consumption, programme activities, planning and management, service output, health information system, and health-related intersectoral links.
2. Cross-sectional-plus-longitudinal household health interview surveys of a sample of the population; it included all age/sex groups and different socio-economic strata, it included long-term and chronic conditions as well as acute episodes and measures taken; and it recorded the nature of the illness as well as the interventions. The surveys were executed as multi-centre studies, ten small population clusters in the vicinity of a health facility where staff were involved in survey implementation and two clusters located far away from any such facility.
3. A "Delphi" type study of the relative seriousness and incidence of various illness

conditions as perceived by a panel of selected knowledgeable individuals in the respective local communities.

4. A socio-cultural study of local health and illness concepts, of perceived causes of different forms of illness, of appropriate preventive and curative counter-measures as perceived by individuals and informal leaders in the division concerned, and of food habits and other practices of relevance to health.

CHAPTER 2

THE DESCRIPTIVE STUDY OF THE HEALTH CARE SYSTEM

2.1 INTRODUCTION

An accurate, up-to-date description of the structure and the functions of the health care system is important for managers at any level. Its most obvious need is related to day-to-day decision making, for instance concerning manpower deployment, land and buildings, equipment and supplies. It is also much needed for planning purposes: as a basis for development efforts and for monitoring change over time.

This descriptive study attempts at making a concise description of a typical divisional health care system in Kenya including health care facilities, manpower, equipment, supplies, recurrent resource consumption, programme activities, planning and management, service output, health information system and health related intersectoral links.

2.2 LITERATURE REVIEW

There is no evidence in the published literature of a generally agreed standard model for describing health care systems in developing countries. Reasonably comprehensive descriptive analyses are in fact hard to find.

It was pointed out 17 years ago by Gish (1975) that "it is quite remarkable just how little is known in many ministries of health about the state of most of the nation's health facilities the facilities about which the least of all is known are the smaller rural health centres and dispensaries". He presented the following summary check-list of data required for (national) health planning:

- ◆ economic and financial data, e.g expenditure patterns in the public and private sectors
- ◆ facilities, e.g resources, service output, catchment area population
- ◆ manpower, employment figures, training school output, migration

Much of this information is useful for planning at district level but some is not, and a large proportion of it is not immediately available but would require a lot of effort to assemble and

to analyse.

In a book on district health care management in developing countries Amonoo-Lartson *et al* (1984) mentioned "review of existing state of services" (p.72) as the first phase in the planning process. They summarised "methods for finding out what is happening in the district", mentioning five main ways:

- a) Make a checklist of information required for reasonable planning and delivery of health services bearing in mind the human, material and financial resources that will be needed. The information can be extracted from available health statistics and from knowledgeable persons both within and outside the community.
- b) The second method is the use of existing data and records of health and health-related institutions in the district.

This report may in fact correspond to the "check-list" mentioned above under (a), and (b), and the cross-sectional and longitudinal household surveys seem to correspond to (c).

"Indicators for monitoring progress towards Health for All by the Year 2000" have been proposed by WHO (1981) and include, among others, organisational framework, resource allocation and coverage of service distribution, community involvement, rate of population increase, adult literacy rate, food availability, physical and economic service accessibility, quality of care, mortality rates, morbidity and disability. Only a few of these can be routinely monitored by health personnel in their respective areas and many indicators would require a series of surveys conducted within or outside the health sector.

A "framework for analysis" of health care systems in relation to PHC particularly at district level has been proposed by Vaughan, Mills and Smith (1984). Their list of management and planning functions include the following (p.36).

1. Political and administrative structures.
2. Components of the whole health care system.
3. Organisational structure of the Ministry of Health services.
4. Operational management responsibilities at the district level for the following functions:
 - i) manpower
 - ii) training
 - iii) finance and budgeting
 - iv) supplies, logistics and maintenance
 - v) supervision
 - vi) referrals
 - vii) monitoring and evaluation
 - viii) coordination with other health agencies
 - ix) coordination with other government sectors
 - x) community participation.
5. Policy and planning mechanisms at the district level for:
 - i) policy formulation

- ii) broad programming
- iii) programme budgeting
- iv) detailed programming
- v) implementation
- vi) evaluation
- vii) health information.

Various methods of "rapid appraisal" of programmes and infrastructures have been presented since a first model was proposed by Chambers (1981). Many applications have been developed, and a recent contribution is a series of modules for assessment of health care needs, services and system in developing countries (Annett et al 1991). There are seven modules: (1) background information (socio-cultural, economic and ecological conditions); (2) district health management and support systems (institutions, staff, training, maintenance system, supplies, health information, planning, budgeting and financing); (3) primary health care facility information (catchment area; range of services, staff, transport, supplies), health facility inventory (buildings, furniture, equipment, drugs) and health facility activities, morbidity data, and staff know-how); (4) rural and/or district hospital information (hospital management, programmes, physical inventory, morbidity statistics, staff know-how); (5) community participation and traditional health systems; (6) patterns of mortality (births and deaths, causes of death); (7) community and households information (community environment, household survey).

2.3 METHODOLOGY

The descriptive study of the Kibwezi division health care system combines different methods of obtaining information:

- a) self-administration by existing staff at the health facilities of a 15-page questionnaire;
- b) structured interviews with selected staff;
- c) review of health facilities' reports and statistics.

The Study Questionnaire

Originally two different questionnaires were developed, one for hospitals and the other for health centre, dispensary and clinic study. The two questionnaires were pre-tested to determine their appropriateness in capturing the information considered to be the most useful and capable of describing typical Kenyan health facility functions or situation.

The hospital questionnaire was administered to the staff of Machakos District Hospital and Makindu Sub-district hospital. The research team explained in detail each of the forty one questions. Whatever was considered to be vague by the hospital staff was clarified and the research team took note of them. The questionnaire was left for several days for the hospital staff to fill. The research team made follow-up visits to the hospitals to obtain the completed pre-test questionnaires.

The questionnaire for health centres, dispensaries and clinics was pre-tested in three government, one private company and three private clinics. All pre-test questionnaires were returned but this required repeated field visits on the part of the research team.

Completed questionnaires were collected and scrutinised by the research team and conclusions were drawn on questions to be omitted and on the format of the final questionnaire. A decision was to be made whether to have two separate questionnaires, one for hospitals and one for other clinics, or to combine the two into one.

Modifications were made and a final draft questionnaire produced for discussion. Only one questionnaire - the hospital one - was adopted. All questions which were in the Health Centre questionnaire were also included in the hospital questionnaire.

The final questionnaire included questions on:

- ◆ physical facilities (land, buildings, equipment)
- ◆ manpower (number and training)
- ◆ budget
- ◆ resource consumption e.g. drugs and other supplies
- ◆ work programme - weekly, monthly plans
- ◆ supervisory support provided and received
- ◆ curative service outputs: patients treated/operated new and repeat visits; referrals, etc.
- ◆ preventive care (health education, nutrition, environmental health, MCH-FP, immunisation and deliveries)
- ◆ training activities
- ◆ working time allocation of different staff categories
- ◆ contacts with local community leaders and community groups
- ◆ decision-making authority: control of funds and staff
- ◆ freedom to develop new programmes and to abolish others - constraints, problems
- ◆ contacts with local administrative leaders, NGOs etc.

Data Collection

The questionnaire was distributed to 16 health facilities in Kibwezi division and one hospital outside the division. Machakos District hospital was included into the study, although it is located outside the division, because of its role as the district referral centre. Therefore, 17 health facilities were registered into the study. Each facility was visited at least twice by the research team. On the first visit, the team explained what the integrated district diagnosis project is all about, including its objectives, how Kibwezi was selected and the role of facilities in the implementation of the project. The questionnaire was reviewed by the research team together with the health facility staff (usually the in-charge plus his/her other technical staff). Questions which appeared difficult were explained to the facility staff by the research team. Most facilities agreed that three days were required to complete the questionnaire. The research team therefore made a follow-up to each facility on the fourth day. Since it was not possible to cover all facilities on the fourth day, that some facilities were visited after four or five days.

On this follow-up visit, which was aimed at collecting completed questionnaires, questionnaires were reviewed and errors in recording data corrected. Reported basic service output statistics were also reconciled where differences were discovered with the record files maintained by the facility.

After repeat visits to the facilities, all questionnaires except from the three Sisters of Mercy facilities at Kambu, Makindu and Kibwezi were collected. This gave a response rate of 82 percent (i.e. 14 facilities out of 17 including Machakos District Hospital).

Data Entry, Verification and Analysis

Completed questionnaires were brought to AMREF headquarters for analysis as follows:

- Step 1: Reviewing open-ended questions listing all different responses.
- Step 2: A coding manual was developed and each response/question was coded to enable computer data capture.
- Step 3: Computer data capture. Data from the questionnaires were entered into an M24 Olivetti Micro-computer using dBase 3 plus data base management system; a university student on vacation did the computer data entry.

The data were checked for correctness and consistency, and errors were corrected.

- Step 4: The data, now in a dBase structure, was translated into an ASCII format and analysed through the EPI-INFO computer programmes for the analysis of epidemiologic data. Frequency tables for the variables of the study were produced.

The results are presented in the next chapter.

Structured interviews with selected staff

The person in charge of each facility was interviewed. The interviews were structured but allowed elaboration into related management issues usually, in a rather conversational atmosphere. The issues addressed were as follows:

- ◆ comments regarding the appropriateness of the descriptive study questionnaire
- ◆ service implications of equipment inadequacies and supply - shortages reported
- ◆ local authorization to take management decisions
- ◆ contact with sectors other than health
- ◆ previous descriptions of local health problems and the health service system
- ◆ community involvement in local health development
- ◆ job satisfaction and main frustrations
- ◆ recommendations to improve local management and planning
- ◆ the health information system

The interview records were processed manually.

Review of health facilities reports and statistics

The person in charge of each facility was interviewed regarding documents kept at facility level and regarding outgoing reports to district level above. A semi-structured questionnaire was used and the notes were processed manually.

2.4 FINDINGS

2.4.1 Health facilities

Kibwezi Division has a total of 16 health facilities. Seven of these are government owned. The rest are private clinics (5) mission dispensaries (3) and private company health centre (1).

Six facilities are dispensaries, five are private clinics, two are health centres and two sub-health centres' while only one is a sub-hospital (Table 2.1).

Table 2.1: Health Facilities in Kibwezi Division by Type and Ownership, 1989

Facility	Ownership		Total
	Government	NGO/private	
Sub-District Hospital	1	-	1
Health Centre	1	-	1
Sub-Health Centre	2	-	2
Dispensaries	3	3	6
Private Clinics	-	5	5
All Facilities	7	8	15

Machakos District Hospital, not included in the table above, was also included in parts of the study as the referral centre of the division.

2.4.2 Estimated population served by facility

Seven of the twelve health facilities studied did indicate estimates of the total population they serve. Four mentioned as the basis of the estimates population projections from the 1979 census. Dwa Health Centre's estimate is based on house-to-house count of the enclosed company (estate) population in 1988.

Four health facilities did not know the size of the population they serve, while the remaining three simply could not report because that part of the questionnaire was erroneously omitted.

Table 2.2: Estimated population served by health facilities

Health Facility	Population Served	Basis for Estimate
Masongaleni Health Centre	24,000	1979 Projections
Sulmac Dwa Health Centre	3,500	Physical Count
Makindu Sub-District Hospital	200,000	1979 Projections
Equity Medical Clinic	200,000	1979 Projections
Kibwezi Rural Health Centre	176,000	1976 Projection

The estimates of population served were made by the facility staff themselves and are very crude, possibly overestimated in several cases as some people are evidently included in several catchment areas; the 200,000 people stated to be served by Makindu Sub-District Hospital, the 200,000 mentioned by Equity Medical Clinic and the 176,000 served by Kibwezi Rural Health Centre must be largely the same people.

2.4.3 Bed Capacity

Nine of the facilities in the division do not have inpatient beds and provide only out-patient services. There are only one or two examination couches in the health centres and dispensaries. Masongaleni Health Centre, however, has five inpatient beds but these are not currently in use. Sulmac Dwa Health Centre has a total of eleven beds; patients are either workers or relatives living within the company premises.

The only hospital in the division, Makindu, has a total of 51 beds. Machakos District Hospital, though not in the division, is the nearest district referral institution. It has a total bed capacity of 441. Kibwezi Rural Health Centre, with 21 beds, is yet another referral institution within the division. Table 2.3 shows the number of beds by ward in four facilities.

Table 2.3: Beds in Machakos District Hospital, Makindu Sub-District Hospital, Kibwezi Health Centre and Sulmac Dwa H C, 1989

WARD	Machakos Dist. Hosp	Makindu Sub- Dist Hosp	Kibwezi RHC	Sulmac Dwa HC
Pediatric	63	0	6	0
Maternity	108	10	3	3
Male Medical	34	17	3	
Male Surgical	63		0	5
Female Medical	33	18	6	
Female Surgical	34		0	3
TB	31	6	3	0
Other	75	0	0	0
TOTAL	441	51	21	11

In national statistics the inpatient care capacity is usually expressed in "number of hospital beds" or "beds and cots". It is often unclear whether or not health centre beds are included in the stated figure. The utilisation of health centre beds is currently rather low, but this could change if charges for hospital care are increased. In many emergencies, when the patient is not in a transportable condition and when transport is not available, health centre beds are useful and they deserve to be identified separately as a bed capacity resource.

2.4.4 Manpower

Only three facilities in this study were run by medical doctors: Machakos and Makindu Hospitals and Mtito Andei Private Clinic. At the rest of the government facilities either clinical officers or nurses were in charge. All but one of the privately owned clinics in the division were run by clinical officers, often working single handed.

Staffing patterns differ considerably from the norm, and the reasons are largely unknown. The general tendency is for rural facilities to be understaffed, with vacant positions, while hospitals and other urban facilities are overstaffed. The number of laboratory staff in Kibwezi is high as compared to Makindu and the absence of PHTs at many dispensaries is surprising. Table 2.4 shows the distribution of manpower in government facilities by cadre while Table 2.5 shows manpower in private clinics.

Table 2.4: Distribution of Health Manpower in Government Health Facilities by Category in Kibwezi Division, 1989

CATEGORY	MACHAKOS DISTRICT HOSPITAL*	MAKINDU SUB-HOSP	NGWATA SUB-HC	MTITO ANDEI DISP.	KALULINI DISP.	MASON GALENI H.C.	KALII DISP.	KIBWEZI R.H.C.	TOTAL EXCLUDING MACHAKOS
Doctors	34	1							1
Dentists	3								3
Clinical Officers	31	5						1	6
Reg. Nurses	49	5						1	6
PH Nurses	2								-
Pharmacists	5	2							2
Radiographers	10								-
Lab Technologists	8							5	5
Lab Technicians	30	3		1				3	7
H. Ed Officers	1								-
Physiotherapists	12	2						1	3
Dental Technologists	4								-
Enrolled C. Nurses	150	38	2	2	1	3		5	51
Enrolled Midwife	30	8						6	14
P H Officer	4	1						1	2
P H Technician	10	8		2				3	13
Family H.F. Educ	4	1						1	2
Nutrition F. Worker	7							1	1
Other Support Staff	251	12	6	3	3	3		15	44

* The table includes manpower for Machakos District Hospital because it is a referral institution for facilities in Kibwezi Division. Only Kibwezi Division staff are included in the total.

Table 2.5: Health Manpower in Private Health Facilities in Kibwezi Division

CATEGORY	UMOJA PRIVATE CLINIC	NTHONGONI MEDICAL CENTRE	MTITO ANDEI CLINIC	SULMAC DWA H. CENTRE	EQUITY MEDICAL CLINIC	TOTAL
Clinical Officer	0	1	1	1	1	4
Enrolled Midwife	1	0	0	0	0	1
Lab Technician	0	0	0	1	1	2
Untrained Nurses	0	0	0	4	3	7
Other S Staff	1	1	3	4	0	9

2.4.5 Equipment

Staff were asked to indicate whether they had any of the twenty-two different equipment items listed. Numbers and their functional status was recorded.

Table 2.6: List of Basic Equipment and Proportions of facilities with Functioning Equipment

EQUIPMENT	HOSPI TAL	GOV H.C.	GOV.SUB H.C.	GOV. DISP.	PRIVATE CLINIC
Car	2/2*	1/1	1/3	0/4	3/3
Motor-cycle	2/2	1/1	1/3	0/4	3/3
X-Ray Machine	1/2	0/1	0/3	0/4	0/3
Microscope	2/2	1/1	2/3	0/4	3/3
Autoclave	2/2	1/1	2/3	0/4	0/3
Anaesthetic Machine	1/2	0/1	0/3	0/4	0/3
Blood Pressure Machine	2/2	1/1	2/3	4/4	0/3
Auriscope	2/2	1/1	2/3	4/4	3/3
Ophthalmoscope	2/2	1/1	0/3	0/4	0/3
Operation Lamp	2/2	1/1	1/3	0/4	0/3
Stethoscope	2/2	1/1	2/3	4/4	3/3
Centrifuge	2/2	1/1	0/3	0/4	0/3
Dental Chair	1/2	0/1	0/3	0/4	0/3
Vaginal Speculum	2/2	1/1	2/3	0/4	0/3
Delivery Forceps	2/2	1/1	2/3	0/4	0/3
Delivery Set	2/2	1/1	2/3	0/4	0/3
Vacuum Extractor	2/2	1/1	0/3	0/4	0/3
Minor Surgery set	2/2	1/1	1/3	0/4	3/3
Dental Extraction set	2/2	1/1	1/3	2/4	0/3
Water supply/san. tools	2/2	1/1	2/3	4/4	3/3
Refrigerator	1/2	1/1	1/3	0/4	3/3
Stand-by Generator	1/2	1/1	1/3	0/4	3/3

*meaning that two out of two hospitals have a functioning car.

Some basic equipment items are missing at Makindu. Most of the items are very basic and necessary, and one would expect to find most of this equipment in all the facilities regardless of type and ownership. However, only three of the facilities studied have autoclaves and delivery forceps, and only three have a delivery set. All have stethoscopes in working condition, and all facilities have working blood pressure machines.(Table 2.6)

Several lack means of transport and improved diagnostic equipment is needed by some. Service implications of the equipment inadequacies were explored during subsequent interviews with those in charge of the respective facilities. The main issues mentioned were poor supervisory visit regularity, restricted field activity range in the absence of a vehicle and poor diagnostic accuracy in the absence of laboratory facilities.

While Table 2.6 only shows whether or not at least one of each item is present and functioning, the questionnaire also includes information on numbers of various items and on their functional condition. This seems useful from a planning standpoint.

2.4.6 Supplies

Table 2.7 below lists the supplies and their availability. At 60 per cent of the facilities studied, water is always available. The remaining 42 percent is split between facilities where water is rarely (24%) and usually (16%) available, a problem stated to affect general cleanliness. Less than 50% of the facilities have electricity.

Table 2.7. List of supplies and their availability by health facility

ITEM	Mason galeni H.C.	Kalii Disp	Kalu lini Disp	Umoja Private Med.C.	Nthon goni Pr.C.	Mtito Andei Disp	Sulmac Dwa H.C.	Mtito Andei Pr.Cl	Ngwata Sub-HC	Makindu Sub-Distr. Hosp.	Machakos Distr. Hosp.	Kibwezi R.H.C
Water	RA	RA	AA	AA	AA	AA	AA	RA	AA	UA	UA	UA
Electricity	NA	NA	NA	AA	NA	AA	UA	NA	NA	AA	AA	AA
Petrol	NA	NA	NA	0	NA	0	AA	NA	NA	UA	AA	UA
Stationery	NA	RA	AA	0	AA	0	AA	RA	RA	UA	UA	UA
X-Ray films	NA	NA	NA	0	NA	0	0	NA	NA	NA	UA	NA
X-Ray Developer	AA	NA	NA	0	NA	0	0	NA	NA	NA	UA	NA
Ess.Drug Kit I	UA	RA	AA	0	NA	0	0	RA	UA	UA	UA	UA
Ess. Drug Kit II	UA	RA	AA	0	NA	0	AA	RA	UA	UA	UA	UA
Vaccines	RA	RA	0	0	NA	0	AA	RA	UA	UA	UA	AA
Lab Reagents	NA	NA	0	0	NA	0	AA	RA	UA	RA	UA	RA
Rubber	RA	NA	RA	AA	AA	0	AA	RA	RA	UA	AA	UA
Suture Materials	RA	NA	0	AA	AA	0	AA	RA	UA	UA	UA	UA
Gauze, Dressing	RA	NA	RA	AA	AA	0	AA	RA	UA	UA	UA	RA
Cement, Pipe Iron Bars, etc.	NA	NA	RA	0	NA	0	AA	NA	NA	RA	UA	NA

NOTE: AA = Always Available RA = Rarely Available
UA = Usually Available NA = Never Available

None of the private health facilities receive the standard essential drugs kits. Some supplies are available only in hospitals, for example items like X-ray films and developers. Drug kits do not arrive in sufficient numbers and drug shortages, with immediate effect on attendance, occur in several institutions. The only private facility with vaccines always available is the Sulmac DWA H C. Kibwezi RHC also has vaccines all the time. Ngwata, and Makindu has vaccines usually available while Mtito Andei, Masongaleni and Kalii dispensaries rarely have vaccines.

Availability of petrol is associated with the presence of a running vehicle. Vehicles were reported by only five of the facilities - Makindu, Sulmac Dwa, Equity, Kibwezi and Machakos Hospital. Sulmac Dwa Health Centre reported having petrol always while Makindu Sub-District Hospital, Equity Medical Clinic and Kibwezi Rural

Health Centre usually have petrol available.

2.4.7 Annual Recurrent Budget and Actual Expenditure

It is Ministry of Health policy to allow individual districts to plan and make annual budget estimates for their activities. Members of the District Health Management Teams (DHMTs) sit down at the end of each financial year, usually in June, to review activities for the 12 previous months and to estimate their projected expenditure. At the end of the review, DHMT work out activities and resource requirements for the two forthcoming financial years - from July 1 through June 30. These budget estimates are then submitted to the Ministry of Health headquarters for scrutiny before proposals are forwarded to the Ministry of Planning and National Development.

After approval by the Ministry of Planning and National Development, districts are informed of their allocations. There is always a big gap between the proposed and the finally approved district budget. As we shall see, there is another big gap between the approved budget and the actual allocations.

The district budget is consolidated for all government health institutions except the district hospital. It is usually not possible, therefore, to identify individual facility budgets. In this study, for instance, no budgets were available for individual health facilities in Kibwezi division. There was only one budget report available for study - the one for all government health facilities in Machakos district and also covering those located in Kibwezi division. Drugs are procured centrally and the expenditure is not known at district level.

Private clinics claim not to have budget estimates. This may not be the whole truth as we know that mission health facilities are a bit reluctant to disclose their budgets. This may in fact be one reason why some mission dispensaries in Kibwezi division decided not to participate in this study.

Table 2.8: Analysis of Actual Expenditure and Budgets for Selected Budget Items, Machakos District health budget, 1988 (Figures in Kenya Pounds)

Financial Year	Actual Expenditure	Budget	Difference	Actual Expenditure. as percentage of budget
Transport				
1984/85	11,173	54,000	42,827	20.7
1985/86	12,144	55,740	43,596	21.8
1986/87	13,449	55,680	42,231	24.2
1987/88	15,874	96,400	80,526	16.5
1988/89	20,300	107,050	86,750	19.0
Food				
1984/85	30,758	175,942	145,166	17.5
1985/86	33,430	180,241	146,811	18.5
1986/87	37,140	185,715	148,575	20.0
1987/88	43,680	196,850	153,170	22.2
1988/89	56,000	216,850	160,850	25.8
Stationery				
1984/85	1,846	3,000	1,154	61.5
1985/86	2,006	3,300	1,294	60.8
1986/87	2,228	3,840	1,612	58.0
1987/88	2,621	4,140	1,519	63.3
1988/89	3,360	5,140	1,780	65.4
Equipment Purchase				
1984/85	3,075	0	3,075	-
1985/86	3,342	0	3,342	-
1986/87	3,713	0	3,713	-
1987/88	4,368	5,020	652	87.0
1988/89	5,600	8,020	2,420	70.0

Four budget items - transport, food, stationery and equipment purchase - in Machakos District have been compared during five fiscal years from 1984/85 (Table 2.8).

An analysis of actual expenditures and budgets for some of the items reveals that actual expenditures are much lower than the approved budgets. Some budgeted monies remain unspent and must be returned to the treasury at the end of each financial year.

2.4.8 Utilization

The low rate of utilisation is due to a variety of reasons including failure of districts to secure timely release of budgeted money from the Treasury and inability to implement all planned activities within a given fiscal year.

The table below presents the numbers of these tests for the four reporting facilities.

Table 2.9: Laboratory Tests Done in 1988

DIAGNOSTIC TEST	KIBWEZI R.H.C.	MTITO ANDEI DISP.	SULMAC DWA HC.	MAKINDU SUB DISTR.HOSP.
No. of Blood Tests for Malaria	10706	49	455	3710
No. of other blood tests	899	-	336	140
Total No. of Blood Tests	11605	49	791	3850
% of Blood Tests for Malaria	92.3	100.0	57.5	96.4
No. of Stool Tests	4,669	36	1380	2991
No. of Urine Tests	2,195	50	1229	3126
No. of Sputum Test for TB	69	-	43	430
No. of Other Tests	-	-	7	4144

The fact that several facilities, including one health centre, do not perform any laboratory work explains some of the diagnostic inaccuracy at small health facilities, and possibly also part of the irrational drug prescribing observed at this level. On the other hand we are not aware of any evaluation demonstrating the cost-effectiveness of adding basic laboratories including appropriately trained laboratory staff to health centres and dispensaries. As regards data analysis, the numbers of tests could be more useful if related to the total number of new cases; for every 1000 new patients the numbers of malaria blood tests are 477 for Kibwezi Rural Health Centre, and 613 for Makindu Sub-District Hospital. The corresponding numbers of stool tests are 208 and 794 respectively. It is interesting to note that the Kibwezi Health Centre had 8 laboratory staff while Makindu had 3.

2.4.9 Selected Preventive Service Statistics

Information was sought on some selected preventive services which the health facilities are expected to perform. Three areas of service were considered. These were deliveries, maternal and child health including family planning, and outreach programmes.

Four health facilities Sulmac Dwa Health Centre, Machakos District Hospital, Makindu and Kibwezi reported on maternity services provided during 1988. Total numbers were reported for admissions, normal deliveries, complicated deliveries and still- births. These statistics are presented in Table 2.10.

Table 2.10: Delivery Service Statistics (1988)

	Makindu Sub.Dist Hospital	Machakos District Hospital	Sulmac Dwa H. C.	Kibwezi Rural H.C
Number of Admissions	1,088	5,090	48	327
No. of Normal Deliveries	898	4,662	35	311
No. of Complicated Deliveries	27	708	3	
No. of Still-births	33	94	1	

The figures would have more meaning if related to the catchment area population (either its total size or its number of women of reproductive age) and could also be related to other output indicators from the same institution. Our crude estimates in section 2.4.9 above suggests that 1250 deliveries occur annually in the Makindu catchment area population while the number is 900 for Kibwezi. The presence of two doctors at Makindu most probably attracts a fair number of referred or self-selected risk cases from all parts of the division. The questionnaire could have included also the number of referrals.

Three activity/service types were categorised for maternal child health and family planning. These areas are child welfare, family planning and ante-natal clinic attendances. Four health facilities in Kibwezi reported on these service areas. Table 2.11 below summarizes the findings.

Table 2.11: Maternal and Child Health and Family Planning Service Statistics for 5 Health Facilities, 1988

	MAKINDU SUB-DISTR. HOSPITAL	MASON- NGALENI H.C	MTITO ANDEI DISP.	KIBWEZI RURAL H.C.	SULMAC DWA H.C.
Child Welfare Clinic					
New Attendances	1475	200	-	1739	124
Repeat Attendances	9454	942	-	14393	236
TOTAL ATTENDANCES	10929	1,142	-	16132	360
Family Planning Clinic					
New Attendances	274	27	-	273	35
Repeat Attendances	2209	10	56	1515	276
TOTAL ATTENDANCES	2483	37	56	1788	311
Ante-Natal Clinic					
New Attendances	1704	106	278	2510	13
Repeat attendances	6073	168	322	7924	40
TOTAL ATTENDANCES	7777	274	600	10484	53

It appears that most of the facilities included here (except Mtito Andei Dispensary) do provide child health services.

Figures of child welfare attendances are impressively high for the district hospital but can be interpreted only in relation to the catchment area population, which in this case is difficult to determine. Family planning figures are lowest for Masongaleni Health Centre as compared to the rest of the reporting facilities but the number of regular users of modern contraceptives would be a more illuminating indicator than the number of new and repeat visits. With about 6000 eligible women in Makindu's catchment area and 4,000 around Kibwezi we would - if we apply the average Kenyan contraception user rate 17%, - expect 1,800 women users around Makindu and 700 around Kibwezi. It is difficult to relate these calculations to the reported attendance figures in Table 2.11. We should also remember that private service providers are present at all levels and that many clients may be served outside the division. It would be interesting to compute some basic coverage indicators, for instance for ante-natal clinic attendances. This, however, is difficult in the absence of basic demographic data on populations served by health facility.

If our assumptions regarding catchment area populations (see section 2.4.2.) are correct we would expect 1,350 new pregnancies annually in the Makindu area, 900 around Kibwezi and 450 near each of Masongaleni and Mtito Andei. The number of new ante-natal visits suggests that they attract ante-natal clients from a larger area than for other services, possibly because they also provide delivery services which is not the case with dispensaries.

Makindu Sub-District Hospital and Kibwezi Rural Health Centre are the only responding facilities reporting to have established an out-reach programme.

2.4.10 Supervision

Six of the government health facilities in this study reported having been visited at least once during 1989 by either the district health team or managers of specific health programmes such as KEPI. The six facilities visited are Masongaleni, Kalii, Kalulini, Ngwata, Makindu Sub-District Hospital and Kibwezi Rural Health Centre.

In addition, two private clinics were visited by an inspector of drugs. There is also a list of 14 names and designations of supervisors reported to have visited these facilities.

Each of these people or groups of people visited the facilities for a variety of reasons which ranged from: routine visit, supervisory visit, drugs records inspection, collection of data on facility staff, and follow-up on growth monitoring activities. The quality of supervision can be assessed only through interviews with staff in charge.

Supervision has been infrequent, superficial, unsystematic and poorly coordinated between programmes.

2.4.11 Active CHWs and Trained TBAs

Health facility staff were asked whether they know of any active Community Health Workers and trained Traditional Birth Attendants in the areas served by the facility. Only five of the facilities confirmed their presence. The others did not know or stated that there were no active CHWs and trained TBAs in their areas.

Community based health workers are potentially useful resource for the development of primary health care. Where there are planned outreach activities, their involvement is desirable. As we have seen earlier in this chapter, only in two of the twelve villages would there be active CHWs and trained TBAs being supervised by number of active CHWs and trained TBAs reported for Ngwata, Mtito Kibwezi Rural Health Centre.

Table 2.12. Number of Active CHWs and Trained TBAs in the area under facility supervision

FACILITY	NUMBER OF	
	ACTIVE CHWs	TRAINED TBAs
Makindu Sub-dist Hosp.	117	60
Ngwata Health Centre	-	44
Mtito Andei Dispensary	40	29
Kibwezi Rural Health Centre	387	239
Kalulini Dispensary	20	13

This is unlikely to be the complete picture. CHWs have been trained in areas other than these five, and some of them are certainly active. The same applies to TBAs.

2.4.12 Common Out-patient Diagnoses

A series of tables present the most common out-patient diagnoses at each facility. This type of presentation is rather awkward but we had no choice because facilities reporting had used different diagnostic categories.

Seven facilities reported on commonest out-patient diagnoses. These are Sulmac Dwa H.C., Masongaleni H.C., Kalulini Dispensary, Mtito Andei Dispensary, Umoja Private Clinic, Makindu Sub-District Hospital and Kibwezi Rural Health Centre. Four of these - Sulmac Dwa, Masongaleni, Makindu and Kibwezi - gave exact numbers for each of the ten diagnoses in their lists.

The report for Kalulini Dispensary included only five diagnoses instead of the ten required, and exact numbers for each are not included; average number of patients in each diagnosis category was given for each day. The remaining two facilities - Mtito Andei Dispensary and Umoja Private Clinic - only listed what they believed to be the ten commonest diagnoses but did not indicate numbers.

If Mtito Andei and Umoja facility staff had listed the diagnoses in order of magnitude, then one could deduce that all facilities identified malaria as the number one health problem in their area.

Diarrhoea was listed by all except Masongaleni as one of the most common diagnoses; a reporting error must be suspected. Tables 2.13 through 2.14 show variation in the naming of some of the diagnoses. For example, Masongaleni and Sulmac Dwa facility staff prefer to call ear problems "ear infections" while Kalulini calls this diagnosis category "otitis media". Sulmac's "chest infections" correspond to "respiratory tract infection" and "upper respiratory infections" at Masongaleni and Kalulini respectively. Makindu uses the concept "dehydration" - which is a symptom usually associated with diarrhoea and gastroenteritis - while the others use "diarrhoea". Sulmac reports numbers of STDs while Masongaleni gives a figure for "genito-urinary infections" and Mtito Andei separates "gonorrhea" and "urinary tract infection". Accidents or injuries do not make the top ten at Makindu while ranked seventh at Kibwezi, and "wounds" are combined with skin diseases at Sulmac but separated by Kibwezi Health Centre. And so on.

It is obviously desirable to standardise disease categories in order to facilitate comparisons, and this should be initiated from the MOH headquarters and enforced by the District Health Management Team. Also, the numbers of new cases per year should again be related to the estimated size of the catchment area population. A simplified method for such estimates is very much needed; an updated estimate of the population in the local administrative unit (sub-location; location; division) may be better than no estimate at all while estimates based on patient's travelling distances and the approximate population densities would be more useful. Tables 2.13 through 2.17 present the ten commonest out patient diagnoses for five facilities in this study.

Table 2.13 *Ten Most Common Out-patient Diagnoses at Makindu Sub-District Hospital*

Diagnoses	Number	%	Rank
Malaria	15,600	35.9	1
Anaemia	9,000	20.7	2
Broncho-Pneumonia	4,800	11.1	3
Dehydration	3,950	9.1	4
Intestinal Infections	3,405	7.8	5
Gastroenteritis	2,323	5.3	6
Upper Resp. Tract Infections	2,312	5.3	6
Skin diseases	1,107	2.5	8
Liver Cirrhosis	614	1.4	9
Urinary Tract Infection	318	0.7	10
TOTAL	43,429	100.0	

Table 2.14: *Ten most common out-patients diagnoses at Kibwezi Rural Health Centre.*

Diagnoses	Number	%	Rank
Malaria	12,179	37.3	1
Respiratory diseases	8,370	25.6	2
Urinary Tract Infection	3,169	9.7	3
Skin Disease	2,942	9.0	4
Diarrhoea	1,529	4.7	5
Intestinal worms	1,427	4.4	6
Accidents	1,344	4.1	7
Gonorrhea	675	2.1	8
Dental disorders	667	2.0	9
Bilharzia	343	1.1	10
TOTAL	32,645	100.0	

Table 2.15: *Ten Common Out-patient Diagnoses at Sulmac Dwa Health Centre, 1988*

Diagnosis	Number	Percent	Rank
Clinical Malaria	3,051	35.1	1
Chest Infection	2,692	30.9	2
Diarrhoea	1,349	15.6	3
Wounds/Skin Disease	529	6.1	4
Sexually Transmitted Disease	378	4.3	5
Eye Infection	168	1.9	7
Intestinal Worms	213	2.4	6
Schistosomiasis Mansoni	76	0.9	8
Dental Disorder	96	1.1	9
Ear Infection	146	1.7	10
ALL DIAGNOSES	8,698	100.0	

Table 2.16: Ten Most Common Out-patient Diagnoses at Masongaleni Health Centre, 1988

Diagnosis	Number	Percent	Rank
Malaria	5,940	84.3	1
Respiratory Tract Infection	648	9.2	
Genito-Urinary Tract Infection	100	1.4	3
Measles	98	1.4	3
Skin Disease	74	1.1	5
Ear Infection	42	0.6	6
Chicken Pox	40	0.6	6
Eye Disease	37	0.5	8
Worm Infection	36	0.5	8
Anaemia	28	0.4	10
All Diagnosis	7,043	100.0	

Table 2.17: Common Out-patient Diagnoses at Kalulini Dispensary, 1988

Diagnosis	Number	Rank
Clinical Malaria	30 per day	1
Urinary Tract Infect.	10 per day	2
Upper Resp. Tract Infect.	8 per day	3
Diarrhoea	4 per day	4
Otitis Media(ear infect.)	3 per day	5

2.4.13 Commonest In-patient Diagnoses

Data on in-patient diagnoses were available from Machakos District Hospital, (Table 2.18), Makindu Sub-district hospital (Table 2.19), and Kibwezi Rural Health Centre. The total number of diagnoses reported by Machakos District Hospital (5050) is less than half of the number of discharges (11895) and is low even if about 500 deliveries are added to the list of discharges.

The single most common diagnosis among the Machakos District Hospital in-patients was bronchopneumonia with 1871 total admissions. The next was malaria with 1161 patients (23%). Malaria was also reported as the most common out-patient diagnosis by all facilities. The problem of standardisation of disease categories is evident even though this inpatient study includes only three facilities actually submitting data. What has been said about standardization above is equally applicable to inpatient diagnoses. Diarrhoea may in Machakos be included in "intestinal infections" or, when associated with dehydration, in "Disorders of fluid...". Makindu "convulsions" is a symptomatic category which may include tetanus and epileptic seizures and also cases of cerebral malaria; a more precise diagnosis should be possible.

Table 2.18: Ten Top In-patient Diagnoses at Machakos District Hospital during 1988

Diagnosis	Number of Diagnosis	%	Rank
Bronchopneumonia	1,871	37.05	1
Malaria	1,161	23.00	2
Intestinal Infections	634	12.55	3
Acute Upper Resp. Tract Infec.	528	10.46	4
Disorders of fluid, electrolytes and acid imbalance	266	5.27	5
Pneumonia	137	2.71	6
Diabetes Mellitus	121	2.39	7
Unspecified PC Malnutrition	115	2.27	8
Anaemia	115	2.27	8
Cellulitis and Abscess	101	2.27	10
All Diagnosis	5,050	100.0	

Table 2.19: Ten Top In-patient Diagnoses at Makindu Sub-District Hospital during 1988

Diagnoses	Number	%	Rank
Malaria	2,640	42.0	1
Anaemia	1,211	19.3	2
Broncho Pneumonia	984	15.7	3
Gastroenteritis	822	13.1	4
Convulsions	320	5.1	5
Pulmonary Tuberculosis	96	1.5	6
Lobar Pneumonia	85	1.4	7
Liver Cirrhosis	43	0.7	8
Road Traffic Accidents	40	0.6	9
Urinary Tract Inf.	38	0.6	9
TOTAL	6,279	100.0	

Table 2.20: Ten Top In-patients Diagnoses at Kibwezi Rural Health Centre during 1988

Diagnoses	Number	%	Rank
Malaria	1,129	55.6	1
Pneumonia	429	21.1	2
Anaemia	120	5.9	3
Diarrhoea	117	5.8	4
Acute Resp Inf	100	4.9	5
Pharyngitis	54	2.7	6
Bronchitis	21	1.0	7
Abortion	31	1.5	8
Abscess	7	0.3	9
STD	6	0.3	10
TOTAL	2,032	100.0	

2.4.14 Management and Administration

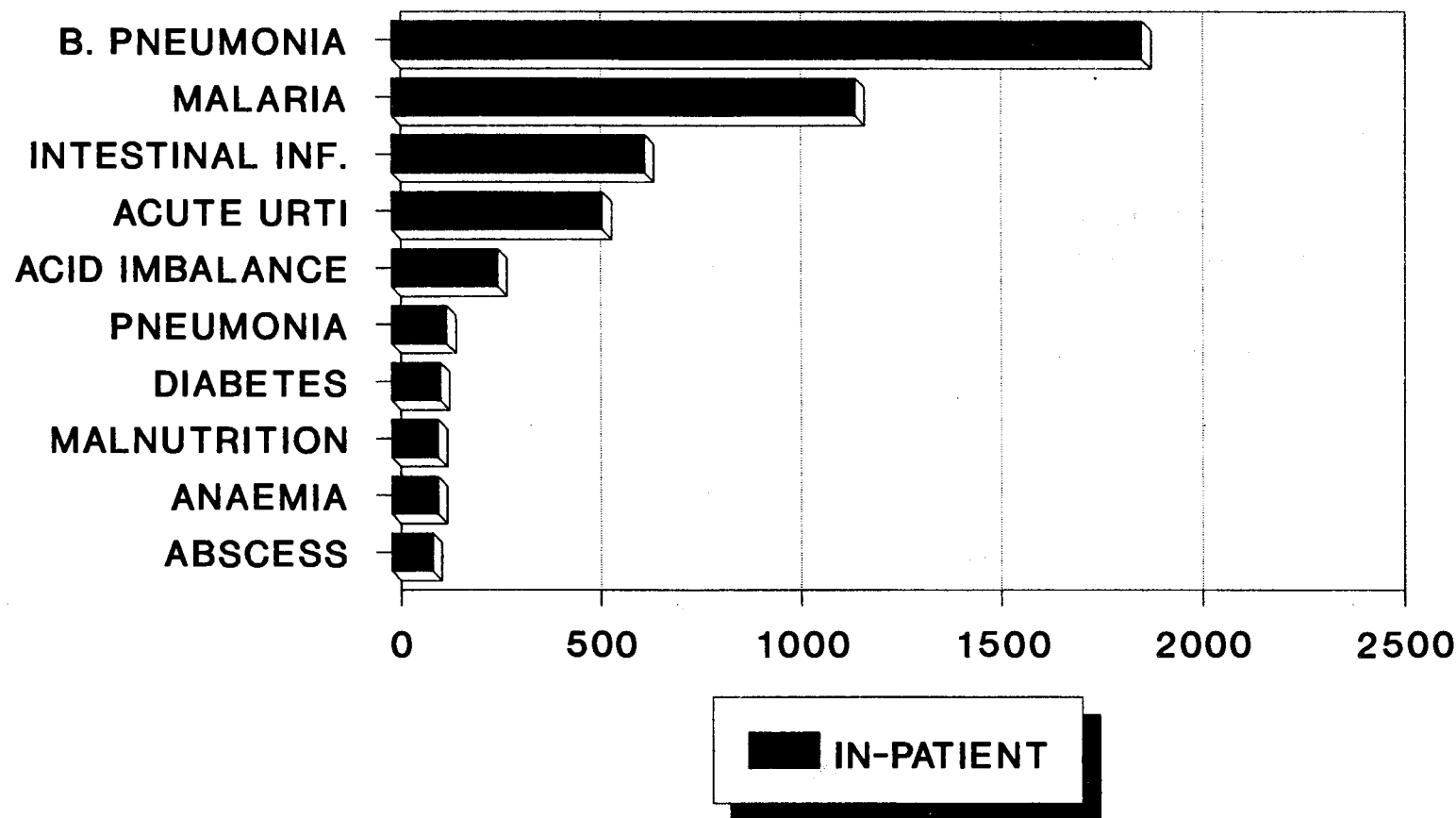
Health facility staff were asked whether they have authority to make decisions on selected specific issues like hiring of staff, laying off (firing) staff, staff transfer, reallocating resources and budgets, and initiating new projects or programmes.

Only one facility - Machakos District Hospital - said it had authority to hire, fire and transfer staff. Some facilities stated they have no authority to do so while the others simply did not respond. At follow-up interview, the doctor in charge of Makindu stated that he is authorised to transfer subordinate staff within Kibwezi Division.

Four facilities indicated that they have authority to reallocate budgets between votes and to initiate new programmes and projects within the allotted resources.

MACHAKOS DIST HOSPITAL

Ten-Top In-patient Diagnoses

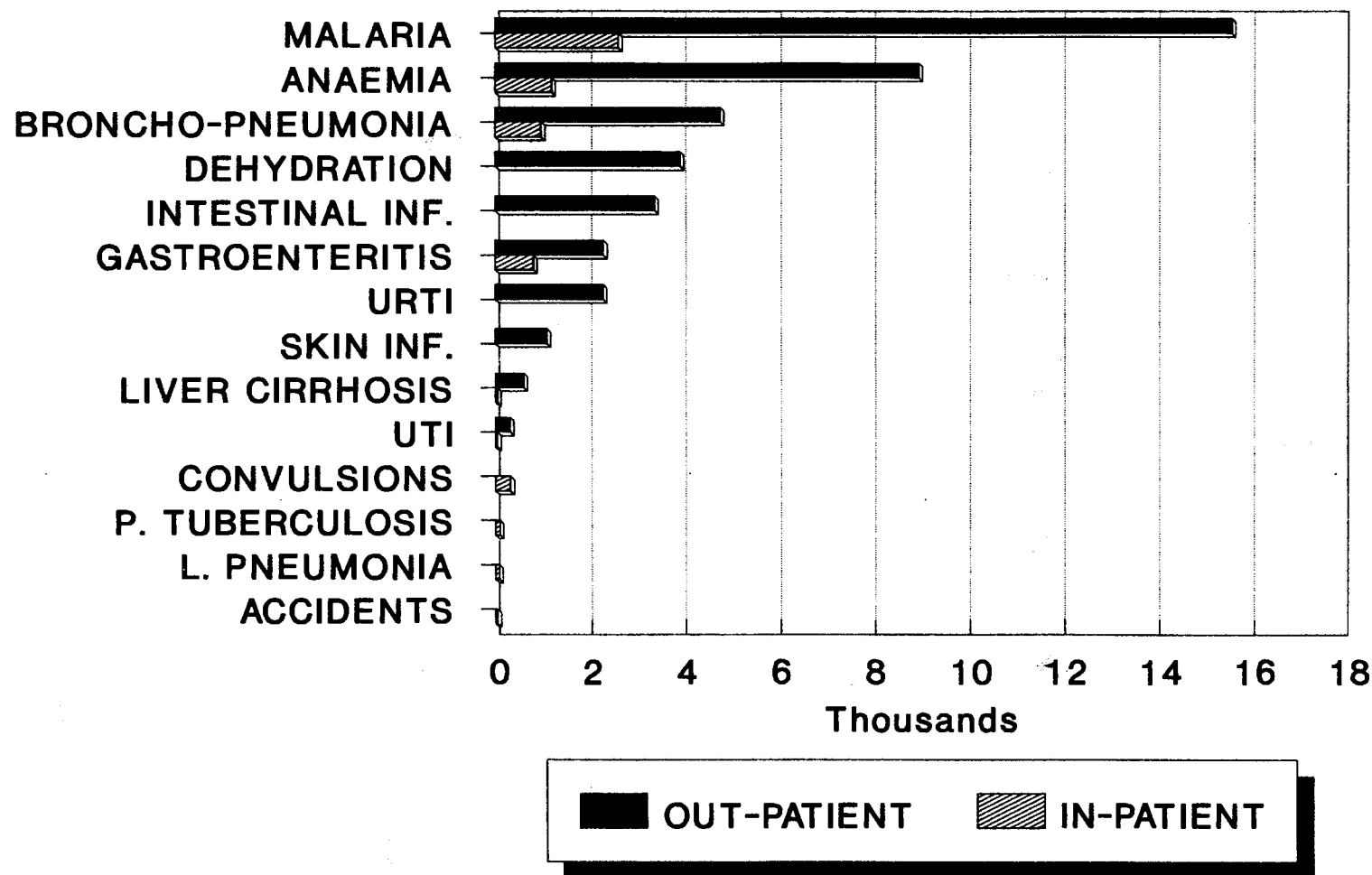


Descriptive study, 1988

FIG. 2.1: MACHAKOS DISTRICT HOSPITAL. TEN TOP IN-PATIENT DIAGNOSES.

MAKINDU SUB-DIST HOSPITAL

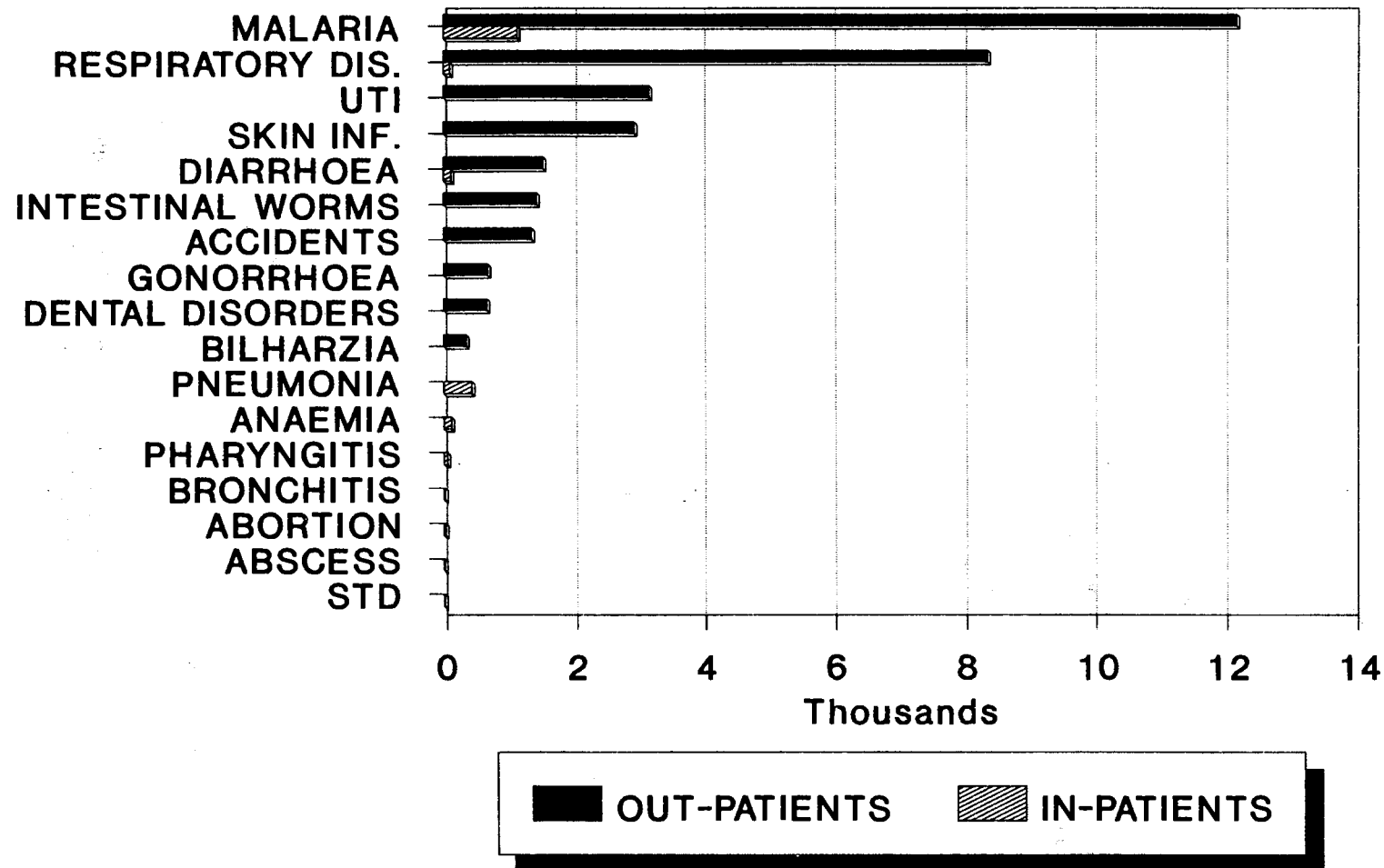
TEN TOP IN-PATIENT AND OUT-PATIENT DIAGNOSES.



Descriptive study, 1988

FIG. 2.2: MAKINDU SUB-DISTRICT HOSPITAL. TEN TOP IN-PATIENT AND OUT-PATIENT DIAGNOSES.

KIBWEZI R. HEALTH CENTRE



Descriptive study, 1988

FIG. 2.3: KIBWEZI RURAL HEALTH CENTRE

The facility responses are presented in table 2.22 below.

Table 2.21: Number of Health Facilities Reporting Perceived Authority to take Management/Administrative Decisions

Type of Decision Management Functions	Number of Institutions YES
Hire Staff	1/14
Fire Staff	1/14
Transfer Staff	1/14
Reallocate Budget	4/14
Initiate New Programmes	4/14

Three facilities stated that they do participate in the preparation of district health plans and budgets while the remaining 12 said they do not participate at all.

Facilities which participated were asked how, and each described different ways in which it participates in the preparation of plans and budgets.

1. By submitting monthly reports to the government;
2. By proposing programmes and projects indicating budget estimates for inclusion in the district annex; and
3. By submitting suggestions from staff to the Ministry of Health headquarters.

Table 2.22 below shows to what extent facilities have or have not an organogram, written plans, duty rosters, weekly activity schedules and job descriptions for their staff.

Three facilities have a written plan, nine have a duty roster, six have a weekly activity schedule and seven have job descriptions for their technical staff.

Table 2.22: Reports on selected management tools

Management tools	HAVE
Organogram	3/14
Written Plans	5/14
Duty Roster	11/14
Weekly Activity Schedule	8/14
Job Descriptions	9/14

Several issues under this item need to be further explored such as the way these instruments are being used at the facilities concerned. A few additional questions should be included in the questionnaire.

2.4.15 Other Activities

It is worth mentioning that surveys and special studies of some sort have been conducted in eight of the facilities while eight again stated having been involved in an evaluation study. Ten facilities reported having had staff meetings and village committee meetings. None of them, however, stated what issues these studies and meetings were focused upon.

The questionnaire should be modified to seek more actively information about the subject matter of any health related survey and special study conducted in the division. Due to staff transfers, retirement etc, local staff may be unaware of past events, including surveys and other studies, so information may have to be obtained from sources outside the district.

2.4.16 Problem Listing

A total of 17 different problems were listed by the responding facilities. Shortage of trained manpower, lack of water and lack of transport were singled out as the most common. They have been presented in the matrix below Table 2.23. Facilities' code numbers are explained below the table.

Table 2.23: Main Problems facing Health Facilities

	01	02	03	04	05	06	07	08	09	10	11	12	13
Poor Security					x								
Lack of Medical Journals							x						
Lack of Supplies	x	x	x					x					x
Untarmarcked road	x												
Shortage of Trained Staff	x	x	x				x	x	x				x
No Staff Housing	x		x										
Communication Barrier		x			x								
Lack of Transport	x	x	x					x	x	x			x
Lack of Power (Energy)			x						x	x			x
Traditional Beliefs					x								
Lack of Space								x		x			
Old Drainage Blocking											x		
Leaking Flat Roofs											x		
Lack of funds									x				
Poor solid waste management											x		
Theft											x		
Lack of Water	x	x			x			x		x			x

01= Masongaleni H Centre

02= Kalii Dispensary

03= Kalulini Dispensary

04= Umoja Private Clinic

05= Nthongoni Medical Clinic

06= Mtito Andei Private Clinic

07 = Sulmac Dwa Health Centre

08 = Mtito Andei Dispensary

09 = Ngwata Sub Health Centre

10 = Makindu Sub-District Hosp.

11 = Machakos District Hospital

12 = Equity Medical Clinic

13 = Kibwezi Rural Health Centre

2.5 DISCUSSION

2.5.1 Distribution of health facilities

The study has tested a self-administered questionnaire developed to describe a division (sub-district) health care infrastructure accompanied by follow-up interviews with the person in charge of the responding facilities. Specifically, the study attempted to provide information on:

- ◆ spatial distribution of rural health care facilities in Kibwezi Division, indicating their types, numbers and characteristics;
- ◆ manpower at health facilities including categories of staff, their training background and length of service;
- ◆ availability of different curative, preventive and promotive activities including their mix at different health care facilities within the division;
- ◆ characteristics of the different facilities in terms of management practices, availability of essential equipment and supplies needed for the smooth running of the services.

As regards the questionnaire itself, we draw the following conclusions.

- ◆ The questionnaire was in most respects appropriate for the purpose.
- ◆ The use of one type of questionnaire for all health facilities meant that many questions were inapplicable to small institutions such as dispensaries.
- ◆ Some questions, e.g. on catchment area population, were open to several interpretations and should have been accompanied by clearer definitions and more precise instructions; they could even have been omitted from the questionnaire and subsequently replaced by estimates based on information obtained at district headquarters.
- ◆ Concerning surgical operations, it seems appropriate to extend the reporting of major operations to the 15 or 20 most common while 10 is sufficient for the minor ones. Discrimination between major and minor operations is in some cases difficult, at health facility level, and reclassification may be necessary at the time of data analysis.

Given the background above and the findings the following conclusions are drawn under the four broad headings:

1) Spatial distribution of rural health care facilities:

- o The division with a population of about 160,000 is comparatively well covered with first level health care facilities.

- o A total of fifteen health facilities are in operation representing different types and owners. Over half belong to private owners or non-governmental organisations.
- o There was no standard design or physical structure for each type of facility. Some facilities share premises with other institutions.
- o Inter-facility linkages are poor, modern means of communication are not well developed, and poor road conditions prevent easy travel during rains.
- o The concept of catchment area population was confusing to facility staff, and they had difficulty estimating the population served. The catchment area concept needs to be defined by the Ministry of Health. One possible definition is administrative - "the population living in the administrative area in which the health institution is located" but this cannot easily be applied where the number of facilities is 0 or more than one. The division population is, in the case of Kibwezi, shared between Makindu Sub-District hospital and Kibwezi Rural Health Centre, while location populations of 10,000 - 20,000 correspond fairly well to dispensary catchment areas.

If each facility is considered as a primary care provider for the surrounding population, with the bigger institutions serving a larger - but not much larger - area than the smaller ones, we could assume that the 160,000 people in Kibwezi Division are served approximately as follows: 30,000 by Makindu, 20,000 by Kibwezi, and 10,000 by each of the remaining facilities except Sulmac Dwa Health Centre which serves the company staff and their families or about 3500 people.

Another definition includes all the people living within 2 hours walk from the institution concerned, and a third includes all those living within the area from where 80 or 90 per cent of patients and clients are actually coming; it requires mapping the homesteads of a sample of patients and estimating the population living within that area e.g. by applying approximate population density estimates based on census returns.

Each of these methods will leave some people outside any catchment area and other people included in two or even three areas. Roads and obstacles like rivers and mountain ranges will influence the shape of catchment areas. Good topographical maps are helpful in assessing such factors.

2.5.2 Staffing patterns

- o Most rural health facilities in Kibwezi Division have only one or two enrolled community nurse(s) providing comprehensive health care services. They have one or more subordinate staff who help with some aspects of patient care, e.g. registration of clients and weighing under-five children. Five of the seven government facilities do not have clinical officers. On the other hand clinical officers are in charge of the four private health facilities .
- o Most of the technical staff at government health facilities have attended a

number of short refresher courses of 1-3 weeks duration. Some courses have combined several subjects, other courses have been focused on specific areas such as immunisation, diarrhoea control or AIDS. Some staff have attended similar courses more than once, suggesting that those planning the training are not fully aware who was already trained, where, when and in what subject area.

2.5.3 Availability of different services

- o Most government institutions provide a broad range of services including preventive, promotive and curative components. Some do not provide MCH-FP services and this is reportedly due to lack of trained staff.
- o Basic equipment is lacking in some of the facilities. Many items of available equipment are in poor working order.
- o Half of the facilities studied do not have any technical text/reference books for their staff.
- o Although no facility totally lacks water, 42 percent of them reported problems; water was rarely available at 25% and usually available at 17%. All private health facilities reported always having water available.
- o All government facilities have received the pre-packed essential drugs Kits I and II.
- o Only four facilities described in this study have vehicles, and they do have at least some petrol to run them.
- o The questionnaire appears to have been adequate with regard to describing the equipment and supply situation but should have a couple of open questions on service implications of any stated inadequacies. The findings are useful from a planning perspective.
- o It is difficult - and in some instances impossible - to obtain annual statistics on the performance of most of the facilities. This is due to poor record keeping and lack of recording and reporting forms. Some facilities send reports to the district health department but do not keep copies.
- o Immunisation services are weak, partly due to inadequate refrigeration; refrigerators are available in only five facilities.
- o Retrospective out-patients statistics were available in only two of the facilities. This suggests lack of proper record keeping and poor staff interest in collecting, retaining and using information.
- o Only Makindu Sub-district Hospital had retained any statistics on in-patients;

most of the facilities operate basically as out-patient departments.

- o Maternal and child health and family planning statistics were available only for three of the facilities in the division. This again suggests poor record keeping.
- o Incision and drainage, tooth extractions and circumcisions seem to be the most common minor surgical operations performed at health facilities in Kibwezi division. No major surgical operations are performed; those in need of major surgery are presumably referred for care at hospitals outside the division - or seek similar care without referral.
- o Five of the facilities reporting on the ten most common out- patient diagnoses ranked malaria as number one, while broncho-pneumonia accounted for a large proportion of the ten in-patient diagnoses at Machakos District Hospital.

2.5.4 Management Practices/functions

- o Only the District Medical Officer can hire and fire staff. Three facilities do participate in the preparation of district health development plans exercises.
- o Few facilities have an organogram (8%) and written plans (25%), 75% of the facilities have duty rosters, 50% have weekly activity schedules and 58% have job descriptions for the staff.
- o There is a need for those in charge of health facilities who, submit activity reports and other data up the system to have access to an estimated catchment area population to which local data can be related; such estimates could be made by the District Medical Officer on the basis of demographic data obtained from district headquarters and included in his annual report.
- o Supervision is very weak. Only four GOK facilities have been supervised or visited at least once during the last year by senior staff from either the provincial or district health teams or from Ministry of Health headquarters.

The usefulness of the descriptive analysis for local management and planning remains to be tested by staff in charge of the health facilities and by the District Medical Officer and his team. Our impression is that most officers in charge of rural health facilities are generally accustomed to receiving and implementing instructions from superiors rather than developing disease control strategies and programme combinations based on locally generated information and consultations. Therefore although the implementation of a descriptive study with the modifications proposed above and programming the actual use of the data will probably increase only slowly, partly depending on what authority is delegated to local staff to manage and plan within the context of the local development process, the rate of improvement is likely to be slow but rewarding as regards local relevance and resource utilization. We are, therefore, not surprised that some staff were slow in completing the questionnaire - probably due to more pressing tasks - and it takes considerable determination and time to analyse the data and prepare a final plan. An exercise of this kind should hardly

be undertaken more than once every 3 - 5 years, it should be restricted to a 15-25% sample of institutions when conducted in an entire district, and the District Medical Officer should be involved in planning and launching the study. The questionnaire needs to be revised on many points as suggested in the text and possibly expanded in a few areas such as resource use and community involvement.

CHAPTER 3

THE CROSS-SECTIONAL HOUSEHOLD HEALTH SURVEYS

3.1 INTRODUCTION

Within the framework of the objective project three household health surveys, namely Cross-sectional Survey I and II and the Longitudinal Survey, were implemented. The cross-sectional surveys were designed to provide information on the demographic characteristics, socio-economic, conditions, nutrition environmental factors, prevalence of chronic health problems and disability conditions in each sample household. One was conducted in December 1990 and the other in December 1991.

This chapter reports on both cross-sectional surveys.

3.2 METHODOLOGY

Sampling

In view of the expected incidence of different categories of illness and prevalence of disability and chronic conditions, based upon previous surveys in eastern Africa and the published literature on sample size determination, we calculated that the household health surveys in the project needed a total sample of at least 300 households or 1500 individuals. For reasons of replicability and cost we opted for a cluster sampling approach with most clusters located in the close vicinity of existing health centres and dispensaries which were expected to collaborate in implementation. To detect and measure the possible socio-economic bias associated with this cluster sampling design we included two "control" clusters (Ivingoni and Musingini) located far away from any existing facility (see map). In order to minimize any inconveniences to the local health facilities, the question of cluster size was carefully considered. It was considered possible for a health institution to supervise more than 50-100 monthly household visits/interviews without interfering with their normal prime service functions.

Although it may be difficult but not impossible for a hospital or health centre to cope with 100 households, we wanted this assumption tested. It is methodologically important to determine whether or not a hospital could monitor 100, health centres 50 and dispensaries 25-50 households in their respective catchment areas. Hence the reference points for sampling were the health facilities except for two villages, Ivingoni and Musingini, which do not have immediate access to a health facility and which were selected as control villages in the study. Further, there was need to include an additional village situated in a rural

set-up but within reach of Kibwezi Health Centre so as to enable comparison with the households within Kibwezi Town. For this purpose we selected Mukuyuni, situated about five kilometres away from Kibwezi town.

With the help of local village elders, complete lists of households were compiled within the selected villages. These lists formed the sampling frames. Then the cluster households in 12 clusters were randomly selected from those sampling frames. In total, 390 households were included in the study. The numbers of selected households by cluster (village) were as follows:

Village	No. of Households
1. Mitendeu (Kalii)	30
2. Manyatta	30
3. Misongeni	30
4. Shauri Moyo/Nguuni	30
5. Mikuyuni	30
6. Kibwezi Mjini	60
7. Mwembeni	30
8. Masaku Ndogo (Masongaleni)	30
9. Nzembete (Ngwata)	30
10. Mtito Andei	30
11. Ivingoni	30
12. Musingini	30

Total	390
	=====

For cross-sectional survey II in December 1991, 22 households had migrated out of the cluster areas or ceased to exist; 18 of these were replaced with the new tenants or occupants of the house or with the next door households.

Sensitisation

It was important that people in the selected villages were informed about the survey. Several public meetings ("barazas") were therefore convened in the target areas of the study. These barazas had two purposes:

- (i) To enlighten the communities about the purpose, objectives, coverage of the HIS and their role in its development.
- (ii) To enable the communities to participate in the nomination of survey interviewers.

The barazas were called by the local government officials, the assistant chiefs, in the selected villages. Nomination of interviewers was limited to the same villages. Hence lists of candidates were proposed by people present at the barazas and then the nominees were called to Kibwezi for interview.

Selection and training of supervisors

While interviews in a subject-perceived illness survey should preferably be conducted by non-medical interviewers, any medical assessments or interpretations should be made by medically trained people. In this survey, the clinical officers and nurses in charge of the health facilities situated within the vicinity of the selected took part as first level supervisors. They received completed questionnaires from the interviewers and checked them with regard to completeness, readability and consistency.

Supervisors were trained in Kibwezi for one day. The training consisted of, (i) Methods of supervision, field editing and validation of the data; and (ii) Understanding the contents of the questionnaire.

Selection and Training of Interviewers

To ensure sustainability and replicability, implementation must be reasonably inexpensive, easy and based on locally available human and financial resources. It is also methodologically important to compare various interviewer options. We decided that the following be the categories from which to select interviewers:

- (a) Community health workers (CHW's) in the area
- (b) Literate adults settled in the village
- (c) Civil servants working in the village
- (d) Traditional Birth Attendants (TBAs)
- (e) Secondary school-leavers from the village

With the help of the local administrators and politicians, several community meetings ("barazas") were held within the villages for the purpose of selecting interviewers. At these barazas the villagers were asked to furnish lists of potential candidates from within the village. All listed candidates were then called to Kibwezi for interview. The interview was conducted in writing and tested aptitude and quantitative skills as well as the ability to translate some statements from English to Kikamba, the local language.

Three kinds of interviewers were selected: Community Health Workers in Ivingoni and Mitendeu villages, civil servants in Manyatta and Kibwezi Mjini villages, and secondary school leavers (Form IV) in the remaining villages. Twenty six interviewers were eventually selected, each allocated fifteen households to cover. The interviewers were distributed as shown in Table 3.1.

In the 1991 survey, literate villagers conducted the interviews in Masaku Ndogo and in Musingini, replacing the four Form IV students who did the 1990 interviews. The civil servants were Social Development Assistants, Public Health Technicians, Agriculture Extension Agents and Water Development Officers.

Interviewers were trained in Kibwezi for three days - two days of classroom teaching and one day for pre-testing the questionnaire. Every interviewer conducted at least one pre-test interview. The classroom session involved going through the contents of the questionnaire and the accompanying notes and instructions. They were also given orientation about the project and taught how to conduct a household health survey:

Table 3.1: Household interviewers, by cluster, 1990

Village	No of Interviewers	Category
1. Mitendeu	2	1 CHW 1 Form IV
2. Manyatta	2	2 Civil Servants
3. Misongeni	2	2 Form IV
4. Shauri Moyo	2	2 Form IV
5. Mikuyuni	2	2 Form IV
6. Kibwezi Mjini	4	4 Civil Servants
7. Mwembeni	2	2 Form IV
8. Masaku Ndogo	2	2 Form IV
9. Nzembete	2	2 Form IV
10. Mtito Andei	2	2 Form IV
11. Ivingoni	2	2 CHWs
12. Musingini	2	2 Form IV
Total	26	3 CHWs 6 Civil Servants 17 Form IV

- i) How to approach a respondent;
- ii) How to introduce oneself before the interview;
- iii) How to conduct the interview and to establish a harmonious working relationship with respondents.
- iv) Techniques of minimizing non-response rates;
- v) How to use the survey equipment in collecting data, e.g weighing scales, measuring tapes, etc.

The training was completed within three days. After pretesting, conducted in Kibwezi town, the questionnaires were scrutinised in order to identify improperly worded questions and other areas not quite well understood. One afternoon was devoted to revision and review of pretest findings.

Training of the supervisors was conducted on 26th November, and interviewers for two days between 27 - 29th November, 1991 since most of those involved were the same persons who participated during the Cross-sectional Survey I in 1990. There were seven new interviewers who were replacements from Mtito Andei (2), Nzembete (1), Masaku Ndogo (2) and Musingini (2).

Questionnaire

The questionnaire was designed to solicit information in the following areas:

- 1) Household characteristics and demography
- 2) Water supply and sanitation facilities available
- 3) Illness, injuries and health care utilisation
- 4) Mortality
- 5) Immunisation and child nutrition
- 6) Household income

The questionnaire included 106 questions. It was written in English accompanied by a Kamba language translation. Notes and instructions to interviewers and respondents were also prepared in both languages. A pilot survey was also performed in order to determine and test the operational aspects of the survey organisation. The pilot survey was conducted by the same interviewers as for the main survey. It was also conducted in Kibwezi town but in a household sample different from that of the pretest interviews. Most of the questions were pre-coded and open-ended questions few.

Data Processing

Data were edited both in the field and in the office. Field editing enabled early detection of errors and reconstruction of interviewers questionnaires from the other areas. Field editing was done by supervisors. Editing in the office was basically undertaken to ensure that the data handling such as coding, totals, etc., was uniform. Editing was carried out by two different and independent persons.

Data entry was done by a computer specialist on an IBM compatible 40 megabytes PC. This was achieved in the case of CS I using DBase III, a data management package and in CS II EPI-INFO. The computer also had several statistical analysis softwares such as SAS, SPSS and MSTAT II.

Implementation Programme

The implementation of the field activities for the Cross-sectional Survey I was as follows:

<u>Dates</u>	<u>Activities</u>
26 November, 1990	Training of supervisors in Kibwezi Arrival of interviewers in Kibwezi
27 - 29 Nov. 1990	Training of interviewers

30 November 1990 Departure of interviewers to their
 respective clusters

1 - 4 December 1990 Conducting the field activities of
 cross-sectional survey I

5 - 7 December 1990 Re-editing of the completed
 questionnaires

CS II was similarly implemented during the corresponding weeks in 1991.

Validation

Validation was conducted through three different mechanisms:

- i) Supervision of interviewers.
- ii) Control of internal consistency and completeness of filled questionnaires.
- iii) Medical interpretation of information in completed questionnaires.

Interviews were supervised by both the Project Leader in Kibwezi and by the nurse and the clinical officers in-charge of the nearest health facility. The Project Leader made field spot-checks to ensure that the interviewers were carrying out work properly in accordance with the agreed plan. The staff in charge of local health facilities also occasionally checked on the interviewers. Internal consistency and completeness of returns was controlled through rigorous editing of the completed questionnaires both in the field and in the office. The exercise involved scrutinizing selected specific questions.

Socio-economic classification of households

Since socio-economic classification of households is important for social epidemiology, we attempted to develop a three-levels classification using socio-demographic data on household rather than income/asset data, which are known to be under-reported and difficult to obtain. Education of household head, size and quality of main house (roofing and wall material) and availability of latrine were the variables used as a basis for classification.

3.3 RESULTS AND DISCUSSION

3.3.1 Household head characteristics

Definition of household and head of household

A household was defined as a group of people related by blood or marriage who live together and are dependent on the same financial and other resources and recognize one of the members as their head.

Age and sex of household heads

About 44% of heads of sample households were aged 26-50 years. In the same age bracket, about 28% were in the 36-50 years. The only cases of child marriage (wife below 18 years of age) were found in Mtito Andei.

The rate of non-response to the question on age was high, especially amongst the urban households. The highest non-response rates were experienced at Makindu where Manyatta, Misongeni and Shauri Moyo scored 28.7%, 60% and 33.3% respectively.

Generally in Africa, males where present are considered the heads of households. However, with changing social conditions such as increased migration, family separation, late marriages and women's liberation in the last decade this has gradually changed. Single women move to urban centres in search of livelihood, often heading single-person households or mother and children. Married men migrate to towns for paid employment which contributes to a change in the traditional family composition and of the roles of adults.

About 73% of the heads of sample households were males, and male heads were more common in rural than in urban households. Female household heads are common in Misongeni, a suburb in Makindu town inhabited mainly by unemployed, socially marginalised, unmarried women.

About 62.1% of the 1991 male heads of households were aged between 20-49 years as compared to 48% in December 1990, a difference of 14.1%. A decline in the number of male heads of households aged between 50-59 years, reflected by a drop from 12.7% in 1990 to 7.5% in 1991, was noted. These changes may be due to better response rate, reflected by an absence of non-response in 1991 whereas it was 27.7% in 1990.

Educational attainment of male heads of household

Over 27% of male household heads have never attended school. The proportion of household heads without any formal education was highest in rural villages such as Mukuyuni (50%) and Musingini (60%). Kibwezi Mjini, as is expected, registered the highest educational level and it was high also in Ivingoni.

A baseline survey conducted in 1985 in the Division found that 44.8% of the adults had never attended school (Nyonyintono, 1986). The apparent increase in the level of literacy may be a sign of success in education programmes and literacy campaigns within the Division.

Occupation of heads of household

The most common occupation among the 390 household heads was small scale farming. The proportion of reported farmers was 46.7% in Musingini, 72.3% in Mwembeni and 70% in Ivingoni. The urban centres of Makindu, Kibwezi Mjini and Mtito Andei had relatively more civil servants and manual workers than the rural villages; the highest proportion (36.7%) was found in Mtito Andei.

The two surveys in 1990 and 1991 indicated that 56.9% and 53.6%, respectively, of female heads of household were farmers. As was noticed in 1990, there were few female heads of household who are teachers, although a substantial proportion were in business. Both the 1990 and the 1991 survey identified one student female head of household.

The socio-economic base of most households is narrow and income is irregular. The majority of households rely on one occupation and one income contributor. Apart from land and livestock, few sources of income were available to the households.

Religion

The household sample shows that at least 66% of household heads are Christians, while the muslim-community, mainly in Makindu and Kibwezi Mjini, account for 8%. However, 30% of heads of households in Manyatta cluster are Muslims. About 21% of household heads did not respond to this question. Religious affiliation of household heads is not available at the national level.

3.3.2 Demographic characteristics of households

Age and sex structures

The 1990 sample household population comprised 47.4% children below 15 years, and 41.2% aged 15-44 years. Kibwezi Division is a relatively new settlement area, and immigration is still going on. As a result, a majority of these settlers consist of middle-aged adults with young families and few older people. Most of the grand-parents were left in their original homelands. Only about 2.6% of the sample population are aged 65 and above.

The results can be compared with the age structure of Ivingoni and Musingini villages. In Ivingoni, children under 15 years were 53.8% and the population aged 15-44 about 40.9% of the total population while 1.7% was 65 and over. The corresponding figures for Musingini were 54.4%, 32.8% and 5.7%, respectively.

Table 3.2: Sample Population by cluster, age and sex, Dec 1991

Village	No of households	Males			Female			0-14	15+	Grand Total
		0-14	15+	Total	0-14	15+	Total			
1. Mitendeu	30	48	53	101	50	38	88	98	91	189
2. Manyatta	30	44	55	99	37	45	82	81	100	181
3. Misongeni	29	28	23	51	24	34	58	52	57	109
4. Shauri Moyo	29	60	67	127	59	53	112	119	120	239
5. Mikuyuni	29	45	39	84	35	31	66	80	70	150
6. Kibwezi Mjini	39	37	47	84	46	32	78	83	79	162
7. Mwenbeni	30	34	42	76	30	28	82	64	70	134
8. Masaku Ndogo	30	49	60	109	46	36	108	95	96	191
9. Nzenbete	30	38	56	94	59	49	55	97	105	202
10. Mtito Andei	28	27	24	51	34	21	58	61	75	106
11. Ivingoni	30	64	49	113	51	41	92	115	90	205
12. Musingini	30	47	38	85	43	27	70	90	65	155
Total	364	521	553	1074	514	435	949	1035	988	2023

The average proportion of males in the whole 390 household sample was 49% and in Ivingoni and Musingini 53.7% and 51.9%, respectively. These control villages are quite isolated, still very bushy and in need of hard physical labour such as clearing and house-building, activities in which males are much needed.

The results revealed that females were about 50.9% of the sampled population, compared to 53.7% recorded in the Cross-sectional Survey I of 1990. The corresponding figures for Ivingoni and Musingini were 49.4% and 47.8%, respectively and which were slightly less than what was revealed by the Cross-sectional Survey I in 1990.

About 16.7% of the population of children were under five years of age, while 34.4% were aged 5 to 15. The 1990 survey showed 17.6 and 29.8% for children under five years and those aged between 5-15 years respectively. Similarly, while in 1990 those aged between 15-44 were 41.2%, the same group comprised 37.7% of the total population in 1991.

The above results revealed that while about 16.7% were persons under five years of age, 40% were in the economically active age-group of 15-44 years. Those aged 65 and above formed about 3.4% in 1991 compared to 2.6% in 1990

Household size

The 390 households covered in the study had a total of 2367 persons corresponding to a population density of 6 persons per household. The figure compares satisfactorily to the findings of another socio-economic study conducted in the Division (Nyonyintono, 1986). The corresponding figures from Ivingoni and Musingini were 7.6 and 6.9 persons per household, respectively. Findings from the 1991 survey were not significantly different.

Marital Status

About 60% of the population in Kibwezi are single persons, mainly due to the large number of children below the age of 15 years. About 33% were married at the time of the survey. About 3.2% of the population were widowed. About 3.9% are separated or divorced or informally living together.

3.3.3 Housing Conditions

Housing quality indicators were roof material, wall material and number of rooms of the main house. As a whole, 61.3% of the 1990 sample households had main house roofs covered with iron sheets. This proportion fell to 58.6% in 1991, probably because of poor quality of replacement household housing.

The urban clusters had better housing than the rural ones; best was Mtito Andei followed by Kibwezi Mjini with 100% and 95% of main house roof having iron

sheets, respectively. Mitendeu and Masaku Ndogo villages had the lowest 1990 proportions of main houses with iron sheets roofs at 23.3% and 20%, respectively. Between the control villages, Ivingoni was better off than Musingini with 56.7% roofs with iron sheets compared to 46.7% for Musingini. Amongst the urban clusters, Misongeni had the poorest roofs.

The quality of the main house walls was highest in Kibwezi Mjini where 56.7% of houses had stone walls. Mtito Andei had mainly houses with smeared mud walls although in good condition (83.3%). The highest proportion of walls made of dirt (paper, cartons, leaves, etc) was found in Musingini (66.7%) and Mitendeu (83.3%). An important feature was that although a majority of main houses in Mwembeni and Masaku Ndogo were grass-thatched, generally the walls were smeared but in good condition.

Housing capacity was quantified by the number of rooms in the main house. Although the results showed larger numbers of rooms for the urban than for the rural villages, variation was greater in the rural households as reflected in high standard errors of estimates. The mean number of rooms per household was found to be about 2. Therefore, as an estimate, there were about 862 rooms in the study sample yielding a room occupancy rate of 0.5 rooms per person.

3.3.4 Water and Sanitation

Sources of water

Kibwezi Division has very low and unreliable rainfall with a mean between 50 - 800 mm annually. There are few permanent streams. Most of the rain comes in October - December.

Scarcity of water means heavy work especially for the women who are responsible for fetching water. During the dry season, around June - September, few sources of water are available. During the dry season, the only sources in the rural villages (except Mitendeu, Kibwezi Mjini and Masaku Ndogo) are shared public stand-pipes. Masaku Ndogo's only source is a river. With exception of Mitendeu and Masaku Ndogo, Ministry of Water Development has installed public stand-pipes in some villages. These are very important sources of water to the communities around. Water piped to house or compound was predominant in the urban villages of Makindu, Kibwezi Mjini and Mtito Andei. The only rural villages with piped water were Mikuyuni, Mwembeni and Nzembete and this was attributed to their proximity to Kibwezi Mjini and Machinery, which are rather urban.

During the wet season, the major water sources remain the same as during the dry season but there are additional sources which become accessible with the rains, especially roof catchment of rain water. Apparently, many households with iron-sheet roofs collect rain water during the wet season.

Access to water

Distance and time taken to water source

Household water, the amount used per person and the quality is closely related to health. Distance to the main water source plays a critical role in the use of time and in determining daily activities of a household. Women spend a lot of time fetching water for household consumption.

About 50.3% of households reported access to water within 0.5 km from the source, a majority of which were situated in the urban centres of Kibwezi, Makindu and Mtito Andei. Over 25% have to walk 2 km or more to fetch water for household use (Table 3.3).

Table 3.3: Distance to main source of water

Distance (km)	Number of Households	%
Less than 0.5	196	50.3
About 0.5	47	12.1
About 1	48	12.3
About 2	50	12.8
3 or more	49	12.6
Total	390	100.0

Generally most villages especially in the urban centres have access to water within 0.5 km. In Kibwezi Mjini and Mtito Andei 98.3% and 93.3% of the households travelled less than 0.5 km to get water.

All Mukuyuni households collect water within 1 km. Masaku Ndogo and Musingini are hard-hit villages, and in Musingini all households travel 3 km or more.

Access to water was particularly poor during the dry season and in the rural villages. Many rural households have to dig temporary wells in distant river beds, which heavily restricts water use. Whereas 21% of households spent at least one hour round trip to water sources during the dry season, only 13.3% were in the same category during the wet season. Ease of access to water greatly influences the average amount of water consumed.

Table 3.4: Reported amount of water consumed, by cluster

Cluster	Reported consumption (litres)	Total Population	Water consumption (litres per person per day)
Mitendeu	200	198	1.01
Manyatta	851	186	4.58
Misongeni	620	110	5.64
Shauri Moyo	841	244	3.45
Mukuyuni	320	151	2.12
Kibwezi Mjini	766	168	4.56
Mwembeni	580	144	4.03
Masaku Ndogo	200	197	1.02
Nzembete	420	204	2.06
Mtito Andei	420	109	3.85
Ivingoni	400	219	1.83
Musingini	300	206	1.46
Total	5918	2136	2.77

Water consumption

About 67% of sample households with an average of six members each report consuming 40-80 litres of water daily corresponding to an average of 11 litres per person per day. About 29.5% of the households consume 8 litres per person per day. Whereas water consumption is evenly distributed in the urban centres, it is skewed in the rural areas. In Shauri Moyo, about 19.9% of the households consume 140 litres or more of water daily. Amounts consumed declined from 1990 to 1991 when rainfall was, very low.

The stated water consumption during CS II, shown in Table 3.4, was extremely low by any standard. In some clusters, such as Mitendeu, Masaku Ndogo and Musingini, stated amounts are hardly sufficient even for drinking, and it is clearly inadequate for a fair level of personal hygiene, but since rainfall had been far below average the consumption may well have been similar to the dry season pattern. Still, the reported amounts are likely to be underestimated.

Availability of Latrines

Of all the 390 households 68.2% had latrines, and of these four out of ten were classified as "clean" by the interviewers. At least 27% of the latrines were not used.

Latrine availability is higher in urban than rural villages. Except for Misongeni where latrines were present in 53.3% of households, at least 76% of "urban" households reported having access to a latrine. In Mtito Andei, all households claimed to have latrines and in Shauri Moyo the figure was 93.3%. Among the purely rural clusters, the lowest percentage was recorded in Masaku Ndogo and Musingini (40%) and the highest in Ivingoni (73%), which has a large number of community health workers. Nzembete, a rural village located close to the busy urban market of Machinery also

recorded a high rate (70%).

The rate of response to this question was generally high. The only non-response was in Misongeni. The question required the interviewer to physically confirm the presence and state of cleanliness of latrines. This involvement of the interviewers probably contributed to the high response rate.

Generally, latrines in rural villages were dirty compared to the urban ones. In 1990, rural clusters had 10-37% of their latrines clean while the urban range was 33.3% - 60%. The corresponding figures for 1991 shows an improvement with 27-86% in the rural and 59-85% in the urban clusters. Mwembeni and Ivingoni are villages where AMREF first established community health work. The results may reflect the achievements of CHW's.

Most latrines were constructed from locally available material. About 39% of latrines had concrete slabs, and 54% had slabs made of earth smeared over wood. The majority of the latrines with concrete slabs were found in the urban centres of Kibwezi, Makindu and Mtito Andei.

Table 3.5: Type of Latrine 1991

Type of Latrine Slab	Frequency	%
1. Concrete	97	38.5
2. Wood	6	2.4
3. Earth over wood	136	54.0
4. Other	13	5.2
5. Unknown	-	-
Total	252	100.0

Most adults (60.3%) claim to always use latrines while only few children under five use them. Use of latrines has a strong correlation to accessibility. Villages with more latrines had higher proportions of adults making use of them. The urban residents generally were more frequent users. Mtito Andei is leading with 83.3% adults claiming always to use latrines while 73.3% and 93.3% of adults ever use latrines in Manyatta and Shauri Moyo respectively; Misongeni recorded only 56.7% use.

Refuse disposal

While 38.6% of households used containers and composting as means of refuse disposal, a majority of the households (54.8%) had adopted no proper system. The use of containers or bins were popular in the urban centres of Makindu and Kibwezi Mjini. About 20.0% of households in Nzembete used the container or bins, 16.7% compost while 50.0% burn their refuse.

Comparing the two control villages of Ivingoni and Musingini, the latter has better refuse disposal systems. However, amongst the rural clusters, Mwembeni had the best system with 86.7% of its households either compost or burn its refuse followed by Nzembete and Musingini in that order, respectively.

Table 3.6: Method of refuse disposal in 1991

Method	No of households	%
1. Container	31	8.5
2. Composting	110	30.1
3. Burning	75	20.5
4. Throw away	200	54.8
5. Others	4	0.1

3.3.5 Socio-economic class and health

The variables used for determining the socio-economic status of households were:

a) Socio-demographic

- o Highest grade completed by household head
- o Building materials of main house roof and walls
- o Number of rooms in main house
- o Availability of latrine

b) Household income and assets owned

Attempts were made to use the socio-demographic data to distribute the households into three socio-economic classes, low, medium and high. With the help of a weighting system and by adjusting the cut-off points using a method described in a more detailed CS I Report (Nordberg and Oranga, 1991), we obtained a fair distribution with 61% of households classified as low, 29.5% as medium and 9.5% as high socio-economic class. For comparison between groups of households in different socio-economic conditions this distribution was considered useful (Table 3.7).

We repeated the exercise in the 1991 survey applying the same weighing system and the

same cut-off points for the three classes. The results indicated that 97.0% of the households were in the low income group compared to only 61.0% recorded in the 1990 survey. While in 1990, 29.5% of the household were in the middle class, there were only 3.0% in the same category in 1991 and mainly in Misongeni, Manyatta and Shauri Moyo. There was no household classified in the high income group. This is a surprising finding considering the fact that only 18 new households were included in the 1991 household sample.

These results suggest a drastic decline in the socio-economic status of the sample households. Most of the households in 1991, especially in urban clusters reported occupying main houses with fewer number of rooms. Replacement households in the sample had relatively poor housing and this has also contributed to the average status decline. There is also a possibility that sample households, after several months of repeated interviewing with little or no benefit to household members and in a threatening drought situation, may have wished to portray themselves as worse off than usual and deserving more support. The applied variables, however, give little room for such bias.

Table 3.7: Socio-economic classification based on socio-demographic factors, 1990 and 1991(%)

Village	Low %		Medium		High	
	1990	1991	1990	1991	1990	1991
1. Mitendeu	86.7	96.7	13.3	0.3	-	0.0
2. Manyatta	50.7	86.6	43.3	13.3	6.7	0.0
3. Misongeni	60.0	96.6	16.7	3.4	23.3	0.0
4. Shauri Moyo	43.3	86.2	36.7	13.8	20.0	0.0
5. Mikuyuni	73.3	100.0	20.0	0.0	6.7	0.0
6. Kibwezi Mjini	33.3	100.0	48.3	0.0	18.3	0.0
7. Mwembeni	76.7	100.0	20.0	0.0	3.3	0.0
8. Masuku Ndogo	93.3	100.0	6.7	0.0	-	0.0
9. Nzembete	56.7	93.3	36.7	6.7	6.7	0.0
10. Mtito Andei	43.3	100.0	46.7	0.0	10.0	0.0
11. Ivingoni	60.0	100.0	33.3	0.0	6.7	0.0
12. Musingini	83.3	100.0	13.3	0.0	3.3	0.0
All villages	61.0	97.0	29.5	3.0	9.5	0.0

Although cut-off points were arbitrarily chosen, the distribution provided a clear picture of the respective villages. This approach confirmed that Musingini, Masaku Ndogo, Mwembeni and Mitendeu have relatively more households in the low class compared to the rest and especially to the urban centres of Mtito Andei and Kibwezi Mjini. Amongst the rural villages, Nzembete and Ivingoni had relatively more households in the medium and high classes. Ivingoni has more well-off households than Musingini.

3.3.6 Morbidity and mortality

Illness episodes and activity restriction

With regard to morbidity and mortality the cross-sectional household health surveys recorded, through its non-medical interviewers, deaths which had occurred in the 390 households during the preceding 12 months, illness episodes among household members during the preceding 12 months (duration, symptoms, number of days "out of normal duty", perceived seriousness of each illness, care sought, action taken and outcome), illness episodes during the preceding 30 days (same details), hospital admissions in the last 12 months, cases of long-lasting illness or permanent disability among household members (symptoms and degree of disability), and nutritional status among children below five years of age.

Morbidity indicators were "number of days ill or injured in the last 30 days", household members hospitalised during the last 12 months and household members with "long-lasting illness or permanent disability".

In 1990 all 390 households responded to the question on recent illness, and 318 households (81.5%) reported some illness within the households during the preceding 30 days.

In 1991, 364 households of 390 (93.3%) responded and 220 households reported some illness during 30 days, but only 147 (67% of those reporting illness and 38% of all households) were able to state the duration of the episodes (Table 3.8). The average duration of the reported episodes was 6.7 days, and the average numbers of days ill was 1.5 per person and the number of days of restriction was 0.3 days. Figures by cluster are shown in Table 3.9.

The number of illness episodes during the two years was on the increase from 312 (80% of all the households) in 1990 to 318 (87.1%) in 1991, a 7% increase. This increase could be attributed to the number of households that dropped out of the study or did not respond. In particular, four single household heads included in the study in 1990 were not in the 1991 sample having passed away in early 1991. Secondly while all 390 households participated in the study in 1990, only 364 responded in 1991. The response was particularly weak in Kibwezi Mjini where out of 60 households only 39 responded.

In 1991, 220 households had at least one member with illness during the 30 day period. The majority of the households, 32.2% of the 364 responding households in 1991, used shop medicine followed by those attending to Health Centre outpatient care (19.5%). There was a significant decline in the proportion of patients seeking out-patient health care in Hospital from 23% in 1990 to 10.1% in 1991, thus representing a 56.1% decline ($P < 0.0001$). Similarly, the utilisation of Hospital inpatient service also declined from 4% in 1990 to 1.3% in 1991. This drastic decline in the utilization of hospital health

care is likely to be an effect of increased user charges in public hospitals.

Table 3.8: Reporting of illness episodes and their duration, by cluster, in 1991

Cluster	Number of households			Proportion of		
	Responding	Reporting illness	Stating illness duration	Households responding of all hh	Responding hh reporting illness	hh with illness stating duration
Mitendeu	30	19	11	100.0	63.3	57.9
Manyatta	30	10	9	100.0	33.3	90.0
Misongeni	29	24	7	96.7	82.8	29.2
Shauri Moyo	29	13	8	96.7	44.8	61.5
Mukuyuni	29	16	13	65.0	55.2	81.3
Kibwezi Mjini	39	22	20	100.0	56.4	90.9
Mwembeni	30	21	14	100.0	70.0	66.7
Masaku Ndogo	30	21	14	100.0	70.0	50.0
Nzembete	30	24	12	93.3	80.0	100.0
Mtito Andei	28	18	18	100.0	67.3	73.7
Ivingoni	30	19	14	100.0	63.3	53.8
Musingini	30	13	7		43.3	
All	364	220	147	93.3	60.4	66.8

Table 3.9a: Number and duration of illness episodes during 30 days, 1991 by cluster

Cluster	No of days ill per person	Days of Restriction per person
Mitendeu	4.1	1.6
Manyatta	2.0	0.8
Misongeni	4.5	3.3
Shauri Moyo	0.4	0.1
Mikuyuni	1.3	0.7
Kibwezi Mjini	1.0	0.3
Mwembeni	0.9	0.4
Masaku Ndogo	1.1	0.2
Nzembete	0.6	0.5
Mtito Andei	2.0	1.1
Ivingoni	1.4	1.2
Musingini	0.9	0.5
All	1.5	0.3

Table 3.9b: Number and duration of illness episodes during 30 days, 1991 by cluster

CLUSTER	TOTAL NO OF EPISODES	AVERAGE DURATION OF EPISODES	NO. OF DAYS RESPONDING ILL PER HOUSEHOLD		AVERAGE SIZE OF HOUSEHOLD	DAYS ILL PER PERSON	DAYS OF RESTRICTION PER PERSON	
			REPORTING	BASED ON ALL STATING DURATION			MALE	FEMALE
Mitindeu	11	11.1	4.1	5.6	6.6	0.85	2.2	1.8
Manyatta	9	8.6	2.6	3.4	6.2	0.55	1.5	0.8
Misongeni	7	8.2	1.9	2.5	3.8	0.66	1.4	3.5
Shauri Moyo	8	4.4	1.2	1.8	8.4	0.21	0.4	0.2
Mukuyuni	13	7.5	3.3	5.0	5.2	0.96	1.2	1.0
Kibwezi Mjini	20	5.3	1.8	2.7	4.3	0.63	1.0	0.7
Mwembeni	17	4.3	2.0	3.0	4.8	0.63	0.6	0.6
Masaku Ndogo	17	3.9	1.8	2.7	6.6	0.41	0.5	0.5
Nzebete	12	5.8	2.3	3.5	6.8	0.51	1.0	1.0
Mtito Andei	18	8.6	5.2	7.8	3.9	2.0	1.8	2.5
Ivingoni	14	8.2	2.8	5.7	7.3	0.78	2.5	1.9
Musingini	7	5.4	1.25	1.9	6.9	0.28	0.4	0.7
All	147	6.7	2.53	3.8	5.9	0.55	1.21	1.27

Table 3.9c: Average number of days ill during last 30 days by age, sex, and cluster (1991)

Cluster	Male Adult 15+	Female Adult 15+	Male child 0-14	Female child 0-14
1. Mitendeu	14.3	7.4	8.7	10.4
2. Manyatta	7.0	3.8	5.5	1.8
3. Misongeni	4.8	5.9	4.0	9.0
4. Shauri Moyo	1.7	2.1	1.6	1.7
5. Mikuyuni	6.0	4.6	3.3	5.2
6. Kibwezi Mjini	2.1	3.3	4.8	2.8
7. Mwembeni	2.9	3.5	3.3	4.2
8. Masaku Ndogo	6.3	2.3	6.5	3.3
9. Nzembete	5.0	1.9	8.1	2.5
10. Mtito Andei	1.6	7.6	1.8	10.8
11. Ivingoni	0.86	6.1	--	5.1
12. Musingini	1.74	1.7	--	2.4

A useful indicator of the economic impact of illness is the proportion of person-days of restricted activity meaning inability to perform normal tasks. In the 390 sample households in 1991 on average person-days per household were reported lost ("out of normal duty") due to illness during a 30-day period corresponding to 69.3% of all days ill.

The remote villages of Ivingoni and Musingini showed relatively low numbers of person-days (2.83 and 3.00 respectively) lost due to illness. This is somewhat surprising but may be due to lack of local health care facilities, and a possible reluctance among

ill members of these communities where modern health care is not conveniently available to the rest and to medicate. Days and degree of restriction, therefore, may be inappropriate indicators of illness burden in such communities. This question can only be resolved by a combination of household interviews and clinical examinations in ill individuals. Focus group discussion with villagers may also generate illuminating information.

Table 3.10: Type of health care sought, 1991

Health care sought	No of illness episodes 1991	% Share	No of illness cases 1990	% Share 1990
1. None	28	8.8	21	6.0
2. Home remedy	6	1.9	17	4.8
3. Shop medicine	112	32.2	113	32.1
4. Hospital outpatient	32	10.1	0	0.0
5. Health inpatient	4	1.3	9	2.5
6. Health Centre Outpatient	62	19.5	70	19.9
7. Health centre inpatient	3	0.9	5	1.4
8. Government dispensary	24	7.5	74	21.0
9. Mission clinic	4	1.3	6	1.7
10. Private medical clinic	24	7.5	32	9.1
11. Traditional healer	4	1.3	5	1.4
12. Other	15	4.7	0	0.0
Total	318	100.0	352	100.0

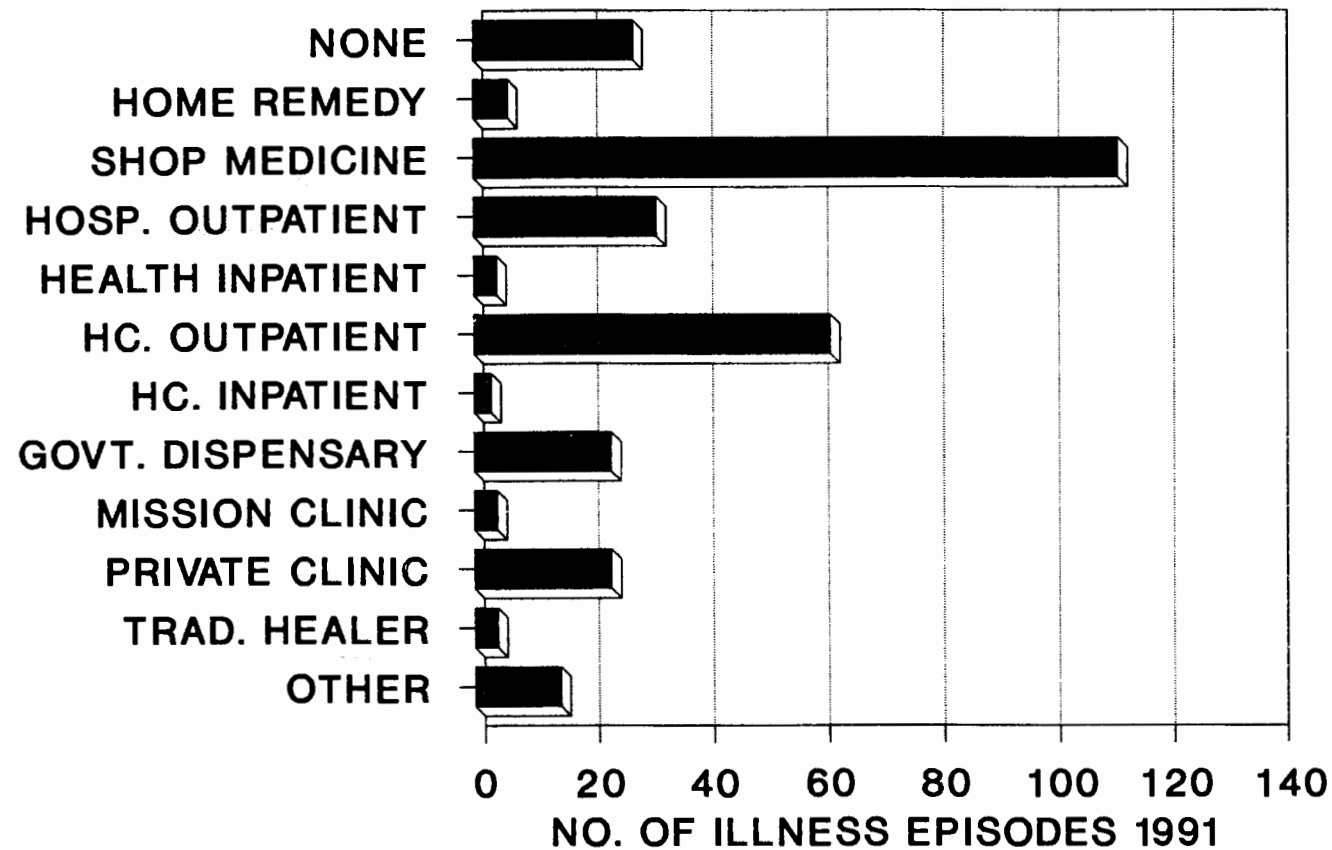
The most common action taken by ill individuals was to obtain modern drugs from local shops, followed by visits to health centres, dispensaries and private clinics (Table 3.10). In hospitals, outpatient care is gaining while inpatient care is declining. The proportion of ill people attending health centres. Consumption of traditional medicine was probably under-reported in this as in most other similar interview studies.

Table 3.11: Association between health seeking behaviour and perceived illness seriousness, 1991

Health care sought	Illness perceived as					
	Very serious %		Serious %		Not serious %	
1. None	2	3.6	7	4.0	19	17.1
2. Home remedy	1	1.8	2	1.3	3	2.7
3. Shop medicine	11	19.6	50	33.1	51	45.9
4. Hospital outpatient	9	16.1	14	9.3	9	8.1
5. Hospital inpatient	3	5.4	1	0.7	-	-
6. Health Centre Outpatient	9	16.1	36	23.8	17	15.3
7. Health centre inpatient	2	3.6	-	-	1	0.9
8. Government dispensary	4	7.1	15	9.9	5	4.5
9. Mission clinic	2	3.6	2	1.3	-	-
10. Private clinic	6	10.7	17	11.3	1	0.9
11. Traditional healer	-	-	3	2.0	1	0.9
12. Other	7	12.5	4	2.6	4	3.6
Total: No of household	56	100	151	100	111	100
% of all households	17.6		47.5		34.9	

TYPE OF HEALTH CARE SOUGHT

HEALTH CARE SOUGHT



Cross-sectional, 1991

FIG. 3.1: TYPE OF HEALTH CARE SOUGHT

Reported actions taken against episodes perceived as "serious" or "very serious" indicated that with increasing perceived seriousness of the illness episode at hand, the household tends to seek care at hospitals, health centres and dispensaries rather than to buy medicine or do nothing (Table 3.11). In the most remote clusters, Ivingoni and Musingini ill people resort more often to home remedies and shop medicine (Table 3.14).

Table 3.12: Mean number of days of illness episodes per household in the last 30 days, 1991

Cluster	Mean duration		% of ill days off-duty
	All	Off-duty	
1. Mitendeu	12.27 (3.37)	11.00 (5.15)	89.6
2. Manyatta	8.89 (1.69)	5.00 (0.94)	56.2
3. Misongeni	9.57 (3.70)	11.15 (2.69)	116.1
4. Shauri Moyo	5.13 (1.22)	10.00 (7.00)	194.9
5. Mukuyuni	8.15 (1.67)	5.08 (0.92)	62.3
6. Kibwazi Mjini	5.36 (0.82)	4.31 (1.23)	73.7
7. Mwembeni	5.36 (1.04)	3.18 (0.65)	59.3
8. Masaku Ndogo	4.93 (0.80)	2.38 (0.27)	48.3
9. Nzembete	6.33 (0.83)	7.27 (2.32)	114.8
10. Mtito Andei	8.56 (1.96)	5.18 (1.63)	60.5
11. Ivingoni	8.71 (2.17)	8.66 (2.36)	99.4
12. Musingini	5.57 (1.21)	5.88 (3.46)	105.6
Total	7.35 (0.53)	6.09 (0.65)	82.9

Standard errors within brackets

Table 3.13: Number and proportion of days ill in last 30 days, by age, sex and cluster.

Cluster	Males 15+		Females 15+		Male 0 - 14		Female 0 - 14		All age & sex groups	
	Days ill	%	Days ill	%	Days ill	%	Days ill	%	Days ill	%
1. Mitendeu	225	10.0	227	12.0	15	1.0	12	1.0	479	7.0
2. Manyatta	95	5.9	60	3.2	21	1.6	10	0.9	186	3.2
3. Misongeni	22	3.6	23	1.9	-	-	-	-	45	1.5
4. Shauri Moyo	114	5.3	42	1.8	-	-	-	-	156	2.2
5. Mikuyuni	71	5.0	29	1.9	5	0.3	-	-	105	1.8
6. Kibwezi Mjini	151	7.4	84	3.9	3	0.3	3	0.2	241	3.6
7. Mwembeni	68	5.6	31	2.1	2	0.1	14	1.4	115	2.2
8. Masaku Ndogo	159	10.5	136	8.4	40	2.4	-	-	335	5.4
9. Nzenbete	51	4.4	82	6.1	48	4.9	30	2.8	211	4.7
10. Mtito Andei	43	6.7	30	3.4	2	0.4	-	-	75	2.7
11. Ivingoni	71	4.8	20	1.2	4	0.2	-	-	95	1.4
12. Musingini	86	5.3	19	1.3	-	-	7	0.5	112	1.9
All Clusters	1156	6.2	783	4.0	140	0.9	76	0.5	2155	3.2

Table 3.14: Reported care-seeking behaviour in "remote" clusters (Ivingoni, Musingini) and in all clusters, during 30 days.

Type of care	No. of "seriously ill" people				No. of "not seriously ill" people		No. of ill people	
	Ivingoni + Musingini	%	All Clusters	%	Ivingoni+ Musingini	All clusters	Ivingoni+ Musingini No.	All Clusters No. %
No care	0		8	2.8	0	13	0	21
Home remedy	5	10.6	12	4.3	2	5	7	17
Shop Medicine	21	44.7	70	24.9	15	43	36	11.3
Hospital out-patient	2	4.3	62	22.1	0	0	0	0
Hospital in-patient	5	10.6	9	3.2	0	0	5	9
Health centre out-patient	5	10.6	45	16.0	2	25	7	70
Health centre in-patient	6	12.8	5	1.8	0	0	6	5
Government dispensary	1	2.1	42	14.9	0	32	1	74
Mission clinic	2	4.3	2	0.7	0	4	2	6
Private medical care	0		21	7.4	3	11	3	32
Traditional	0		5		0	0	0	5
Other	0		0		0	0	0	0
Total	47	100	281	100	22	178	69	352
	44.7%		66.2%		22.7%	53.3%	37.7%	64%

Stated care-seeking behaviour was recorded for each illness episode. Findings are shown in Table 3.14 for all clusters combined and also separately for each cluster including the two remote "control" clusters Ivingoni and Musingini. Of a total of 439 episodes in all clusters during the 30 day period "modern" medical care (hospital, health centre, dispensary, mission clinic or private medical practitioner) was sought in 69.5%. The corresponding proportion for the remote clusters was 37.7% , a difference significant at 1% level of significance ($P < 0.002$). There was also a slight but significant difference between episodes perceived by the respondent as "serious" and those perceived as "not serious" in the sense that modern care was sought for 66.2% of the former (186 of 281 episodes) against 54.5% of the latter (97 of 178 episodes).

There were only insignificant differences in care-seeking behaviour between socio-economic groups. Modern medical care was sought by 71.9%, 74.2% and 71.2% of high, medium and low socio-economic class patients, respectively. And while smaller proportions of patients sought modern care for conditions perceived as "not severe", differences between socio-economic classes remained small; 60.0% 54.8% and 60.0% and for high, medium and low, respectively.

Long-lasting illness and disability

Long-lasting illness and permanent disability are important components of the burden of ill-health in a community of and the need for corrective or palliative intervention. The information is also helpful in indirectly estimating the proportion of dependent persons and the need for social support.

Long-lasting illness and permanent disability were classified according to restriction as regards moving arm or leg, sight, hearing or talking, learning, fits, (e.g. epilepsy) and strange behaviour, e.g due to mental illness

Out of the 390 households, 91 (23.3%) reported at least one member with long-lasting illness or permanent disability (Table 3.15). This is a higher figure than expected. The rural villages of Mikuyuni, Mwembeni and Nzembete reported relatively low prevalence rates (all 13%) while Kibwezi Mjini reported disability in 70% of its households followed by Musingini with 40%. It was not possible to explain the large variation. It is possible that the criteria have been explored or applied differently by the enumerators.

Table 3.15: Households with members stated to have long-lasting illness or permanent disability

Cluster	No of households	% of households
1. Mitendeu	7	23.3
2. Manyatta	7	23.3
3. Misongeni	7	23.3
4. Shauri Moyo	8	26.7
5. Mikuyuni	4	13.3
6. Kibwezi Mjini	21	70.0
7. Mwembeni	4	13.3
8. Masaku Ndogo	5	16.7
9. Nzembete	4	13.3
10. Mtito Andei	7	23.3
11. Ivingoni	5	16.7
12. Musingini	12	40.0
All	91	23.3

Table 3.16: Stated care-seeking behaviour by social class in 1990

Type of care	Condition severe or very severe			Condition not severe		
	High social economic class	Medium social economic class	Low social economic class	High social economic class	Medium social economic class	Low social economic class
No care/home care/shop	3	10	28	6	14	26
Hospital, Health centre, clinic or trained medical practitioner	14 (82.3%)	52 (83.9%)	107 (76.4%)	9 (60.0%)	17 (54.8%)	39 (60.0%)
Traditional healer	0	0	3	0	0	0
Not stated	0	0	2	0	0	0
Total	17	62	140	15	31	65

Mortality

During the cross-sectional household surveys, each respondent was asked about deaths in the household during the preceding 12 months. There were 16 deaths reported during CS I, ten males and six females, and 24, sixteen males and eight females, during CS II. Assuming a crude death rate of 16 per 1000 we would expect deaths annually in the sample population of 2033. CS I was conducted early in the project, and the enumerators were not yet well established or well known to the sample households, so a certain degree of under-reporting is likely. But the death rate in Kibwezi is not necessarily the same as the national average. A study in the northern part of the district in the late seventies found a mortality rate of 6.4 per 1000 (van Ginneken et al 1981); this was a surprisingly low figure, and we believe that the Kibwezi rate is closer to the national average.

Reported symptoms during last illness are shown in Table 3.17.

Table 3.17 *Reported symptoms during last illness preceding death*

	Number
Malaria	6
Cerebral Malaria	2
Stomachache-malaria	1
Cancer	2
Cancer of the stomach	1
Diarrhoea	2
Diarrhoeal disease	1
Swelling	1
Swollen body	2
Heart problem	1
Stomach problem and coughing	1
Stomach pains	2
Stomach problem	1
Urinary tract infection	1
Premature birth	1
Cord-bleeding	1
Lack of blood	1
Cerebro-spinal fever	1
High blood pressure	1
Internal bleeding	1
Mental problems	1
Difficulty in moving, paralysed one side	1
Don't know	3
Total	36

3.4 IMMUNIZATION OF CHILDREN UNDER 5 YEARS

The cross-sectional household interview survey results showed that the immunization coverage for six diseases was between 66.4 and 78.2 per cent (Table 3.18) in the cluster household

Table 3.18: Immunization coverage in 1990, all clusters

Diseases	% Coverage
BCG (Tuberculosis)	78.2
DPT (Diphtheria, pertussis, tetanus)	
1	82.2
2	81.3
3	77.7
Measles	66.4
Polio	
1	80.5
2	80.0
3	77.7
4	70.0

The information revealed satisfactory immunization coverage compared to the national average on the basis of measles. Measles forms the most sensitive index of an immunization programme.

A closer scrutiny of the results reflected the performance of expanded programme on immunization (EPI) in the Division. Mitendeu recorded the highest reported coverage for all the immunizable diseases while poorest coverage was found in the urban clusters of Misongeni and Mtito Andei.

We must remember, however, that these results are interview statements, not data extracted from immunization cards or records. Respondents may be tempted to present a rosy picture of high compliance with professional advice to immunize their children. Also the numbers of children under five, shown in Table 3.19, are small, making results rather unreliable.

Table 3.19: Immunization coverage by clusters

% Coverage

Cluster	No of children below 5	BCG	DPT	Measles	Polio
1. Mitendeu	45	100.0	100.0	96.0	84.0
2. Manyatta	19	66.7	73.3	53.3	60.0
3. Misongeni	21	75.0	58.3	25.0	66.7
4. Shauri Moyo	37	81.8	81.8	72.7	77.3
5. Mikuyuni	30	95.0	95.0	80.0	80.0
6. Kibwezi Mjini	35	58.8	58.8	58.8	58.8
7. Mwembeni	29	63.2	63.2	47.4	57.9
8. Masaku Ndogo	41	95.2	90.5	90.5	85.7
9. Nzembete	40	83.3	83.3	55.6	66.7
10. Mtito Andei	26	66.7	55.6	44.4	55.6
11. Ivingoni	43	69.6	78.3	69.6	73.9
12. Musingini	39	63.2	63.2	57.9	52.6
All	405	78.2	77.7	66.4	70.0

3.5 SURVEY COSTS

Survey costs can be subdivided by activity and by type of resource input. Estimates based upon project accounts and field supervisor estimates of manpower time utilization are as follows, expressed in KSh.'000' (1 SEK \$ = KSH 25.4 and 1 CAN\$ = KSH 28.0)

Table 3.20 Breakdown of cross-sectional survey costs 1990 (KShs)

	Staff time	Field all.	Staff accom.	Transport	Stationery	Computer costs	Total
Sensitization, sampling	32.0	4.5	14.1	10.5	-	-	61.1
interviewer training	3.3	-	1.3	-	1.0	-	5.6
Execution of survey	10.8	0.9	3.8	7.0	10.0	1.8	34.3
Data processing	24.0	-	-	-	-	432.0	456.0
Analysis write-up	36.0	-	17.8	6.0	6.0	3.4	66.2
Information feed-back	8.0	2.7	12.5	2.0	2.0	-	95.7
Total	114.1	8.1	49.5	25.5	19.0	437.2	718.9

Table 3.21 shows the corresponding costs for the 1991 Cross-sectional Survey II study for comparison.

Table 3.21: Breakdown of cross-sectional survey costs 1991 (KSh)

Activity	Staff time	Field allowances	Staff Accom.	Transport	Stationery	Computer costs	Total
Interview	2.0	-	2.0	-	1.0	-	5.0
Execution of survey	11.0	11.4	-	5.0	11.3	2.0	40.7
Data processing	15.0	-	-	-	-	504.0	519.0
Analysis and write-up	50.0	-	20.5	10.0	6.0	5.0	91.5
Information feedback	10.2	30.0	14.5	12.0	2.8	-	69.5
Total	88.2	41.4	37.0	27.0	21.1	511.0	725.7

Of the total cost in 1990 and 1991, a large proportion was computer costs related to data processing. This is due to the need to test various different methods of analysis which implied much time spent by the computer programme on the project. Some of this learning costs, are likely to be considerably lower in a subsequent project of this kind.

CHAPTER 4

THE LONGITUDINAL HOUSEHOLD HEALTH SURVEY

4.1 INTRODUCTION

The household health interview survey component of the project comprises three surveys: two cross-sectional surveys conducted in December 1990 and December 1991, respectively, and one longitudinal survey conducted from March 1991 to February 1992.

The longitudinal survey was designed to provide data on illness episodes over a longer period of time and on action taken in relation to them, possibly showing seasonal variations. It also investigated health care expenditure and reasons for not seeking health care at clinics and hospitals.

4.2 METHODOLOGY

Sampling

The household sample used during the Cross-sectional Survey I was retained. The total sample was 390 households from 12 clusters, 11 with 30 households and one with 60. The sampling method is described in chapter 3.

Sensitization

Sensitization, also described in chapter 3 was conducted in the selected villages in 1990 prior to the first cross-sectional survey, and there was no need for sensitization specifically for the longitudinal survey. However, the sample households were further briefed regarding the longitudinal survey, especially its objectives, the confidentiality of the information to be solicited and the repetitive nature of the household interviews, related to the two-week recall period. The household members were requested to provide maximum co-operation bearing in mind a possible decline in respondent interest during the 12 months survey period.

Training of supervisors and interviewers

Interviewers and supervisors were the same as during cross-sectional survey I (see chapter 3). Training of supervisors was conducted on 25th February, 1991 for one day.

The topics discussed during the training included:

- ◆ Survey background, goal and specific objectives
- ◆ Duration of the survey and its implications
- ◆ Role of interviewers and responsibilities of supervisors

The training started with an introduction which included background to the survey, goals, specific objectives and time frame. Terms of reference for the supervisors and their role in the implementation of the survey were explained and discussed. The questionnaire was reviewed, discussed and translated into Kikamba to ensure the participants' understanding of the questionnaire.

Interviewers, who had already obtained basic training prior to Cross-sectional Survey I, were given two additional days of training before the start of the longitudinal survey. The topics included survey background, purpose, duration and the role and responsibility of the interviewers. The questionnaire was examined question by question and then discussed with emphasis on the corresponding set of instructions. The interviewers tried out the questions on patients visiting Kibwezi Health Centre. The questionnaire was reviewed again and some modifications made, and then the whole group participated in its translation into Kikamba. This and the supervisors' Kikamba versions were then merged to form a questionnaire which everyone critically reviewed. The final version was then independently re-translated into English and turned out to be almost identical to the original English version. The exercise to translate the questionnaire into and from Kikamba was deemed to be important since interviewers were to administer the questions in Kikamba. It also contributed to the interviewers understanding of the questions. They had access to the Kikamba version for reference throughout the duration of the survey.

The Questionnaire

The questionnaire covered the following areas:

- i) Disease symptoms and signs, if any, in any household member during the preceding two weeks
- ii) Dates when episodes started and ended.
- iii) Activity restriction related to illness episodes
- iv) Perceived severity and perceived causes of illnesses, if any
- v) Care-seeking behaviour and reasons for choice of action
- vi) Surgical operations performed, if any
- vii) Household expenditure related to health care sought

The questionnaire also had sections on: (1) medical assessment by the officers in charge at the nearest health facility; and (2) validation team assessment. In both cases, assessment was to be made on:

- a) Most likely diagnosis based on questionnaire data
- b) Disease code according to "International classification of Health Problems in Primary Care (ICHPPC-2)
- c) Likely prognosis (good, poor or very poor)
- d) Risk of infecting others (none, high or very high)
- e) Perceived appropriateness of action taken by the household

Data processing

Scrutiny of the completed questionnaires and correction of errors and omissions - data editing were carried out first at the nearest health facility by the clinical officers and nursing staff, and then also in Kibwezi by the Project supervisor.

Data entry was done on an IBM computer using EPI-INFO software. Statistical analysis was carried out using two software packages, SAS (Statistical Analysis System) and SPSS (Statistical Package for Social Sciences).

Implementation

The implementation of the longitudinal survey was as follows:

<u>Dates</u>	<u>Activities</u>
24th February, 1991 o	Arrival of supervisors in Kibwezi
25th February, 1991 o o	Training of supervisors Arrival of interviewers
26-27th February 1991	o Training of interviewers
28th February, 1991 o	Departure of interviewers to their respective villages
1st March 1991 to o 28th February, 1992	Conducting field data collection
1st January to o 30th June, 1992	Data entry and analysis
1st July to o 15th August, 1992	Final Report writing

Project Supervision

The responsibility of the supervisor in this project included;

- a) Directing the conduct and work of the interviewers, for instance on how to phrase questions in interpreting replies.
- b) Editing completed questionnaires. Early checks of the interviewers work and the questionnaires to be sure that the interviewer understands the instructions and is following them.
- c) Re-interview some of the household heads to enable cross-checks of the information collected.
- d) Ensure that the laid down procedures for reporting and operations of the surveys are followed.

The IDD Project included supervision at three levels. They were:

i) *Local health facilities*

All clinical officers and nurses in charge of health facilities in the cluster areas were appointed first level supervisors of the interviewers working within their catchment areas, except Ivingoni and Musingini clusters which did not have any nearby health facility. Ivingoni was supervised from Mtito Andei and Musingini from Kibwezi Mjini.

Supervision at this level involved activities (a) and (b) above. On a few occasions the project staff in Kibwezi also carried out some of these duties to ensure that everything was in order.

ii) *Project Leader*

The Project Leader, a biostatistician with a Ph.D degree, was based in Kibwezi Mjini responsible for all the supervisory functions of the project, that is (a) - (d) as listed above.

iii) *Medical Validation Team*

This team conducted random spot-checks and covered activities (a) to (d), including conducting medical examinations to assess to what extent the reported illness cases were correctly described and classified. It consisted of a physician and a laboratory technician. Its field work was concentrated to the month of November, 1991.

Medical Validation

Medical assessment of the likely diagnosis and appropriate interventions for each illness episode was made by local medically trained personnel on the basis of interview findings. The first-line validation was made by nurses and clinical officers at the nearest health facility. The assessments were based upon the interview records and in some cases of uncertainty the nurses and clinical officers re-interviewed the respondents; at times the whole process even involved examining the ill person concerned, either at home or at the health facility. Cases that needed further laboratory examination were also undertaken at the health facilities especially in Mtito Andei, Manyatta, Misongeni and Shauri Moyo.

Medical assessments were also undertaken by a mobile "supervision/validation team" consisting of a physician and a laboratory technician with field equipment. Drugs were provided for treating needy cases detected during the survey. The needs were determined from the information gained from the completed questionnaires. Other medical problems brought to the attention of the team were dealt with as time permitted.

Post-Survey enumeration

A follow-up survey of a few randomly selected respondents was carried out with two purposes, namely:

- (a) To test the accuracy and consistency of the study data.
- (b) To check whether the interviewers followed the appropriate implementation procedures up to the end of the survey.

42 households were randomly selected and re-interviewed to find out if the interviewers had actually been there as planned. Out of these only 2 households reported that they had seen the interviewer latest in January. According to previous checks, the performance of the two interviewers had been good.

The following was the programme of post-survey enumeration field activities as was undertaken for the Longitudinal Survey:

Date	Village	Household Negative	reports Positive	Total
13/3/92	Masaku Ndogo	0	4	4
13/3/92	Mtito Andei	0	7	7
20/3/92	Mitendeu (Kalii)	0	5	5
21/3/92	Misongeni	1 (last seen in Jan)	9	10

Table contd.

Date	Village	Household Negative	reports Positive	Total
21/3/92	Manyatta	0	6	6
23/3/92	Shauri Moyo	1 (last seen in Jan)	5	6
23/3/92	Nzembete	0	4	4
Total		2	40	42

The post-survey enumeration showed that 40 interviews were performed out of 42 scheduled, confirming that the interviewers carried out their task diligently and honestly. Except for Mtito Andei and Nzembete, where a few cases of cheating were detected, the interviews were conducted as planned.

Survey Costs

The cost of the longitudinal survey was estimated at KShs. 692,900 (US\$24,700) of which approximately one third was spent on the execution of the survey and another third on data processing (mainly computer costs). A breakdown is shown in Table 4.1.

Table 4.1 Survey Costs (KSh'000)

Activity	Staff time	Field allowance	Staff accommodation	Transport	Stationery	Computer Costs	Total
Sensitization, sampling	5.0	-	2.0	6.0	-	-	13.0
Interviewer training	9.3	5.2	3.8	1.3	-	-	19.6
Execution of survey	140.0	18.0	-	60.0	25.0	-	243.0
Data processing	65.0	-	-	-	7.0	216.0	288.0
Analysis/write-up	35.0	-	-	-	10.0	6.3	51.5
Information feedback	26.0	14.0	18.0	15.0	5.0	-	78.0
Total	280.3	37.2	23.8	82.3	47.0	222.3	692.9

4.3 RESULTS AND DISCUSSION

4.3.1 Reported illness episodes

During the twelve survey months, 7044 illness episodes were reported in the 390 households. The largest number was reported in March 1991 when the study was launched and the lowest in November, 1991. The results, given in Table 4.2 and illustrated in Fig. 4.1, revealed a declining rate of reported illness episodes during the first 9 months of the survey. This is most probably largely due to a declining interest in the study as it went on - "respondent fatigue" - without much benefit

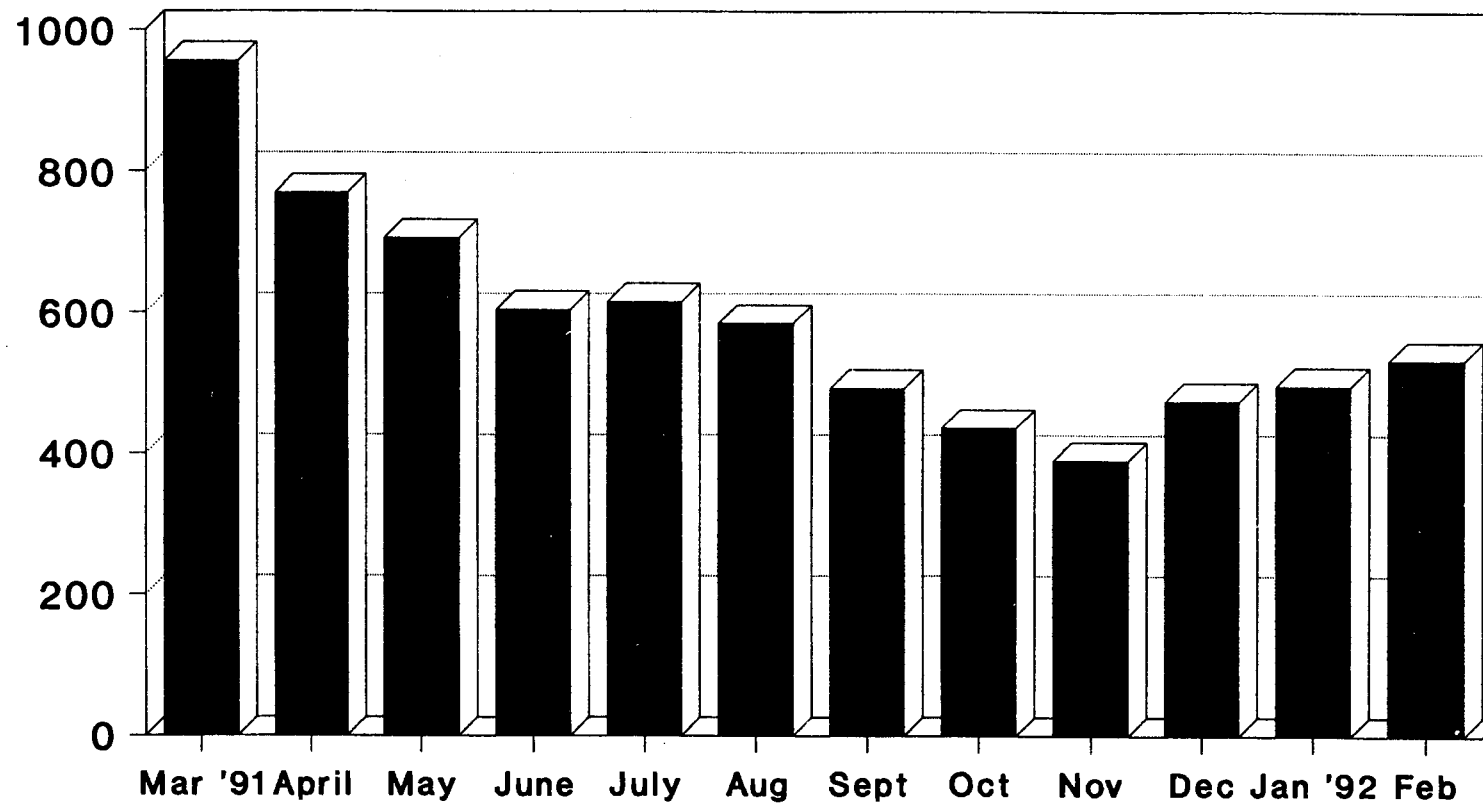
Table 4.2a: Number of reported illness episodes by month and cluster

Cluster	Mar	April	May	June	July	Aug	Sept	Oct	Nov	Dec	Jan	Feb	All	%	% Difference between 1st & 3rd 1st & 4th Qrt	
Mitendeu	84	89	44	70	72	79	104	72	53	52	62	74	855	12.2	+5.5	-13.4%
Manyatta	70	38	66	34	86	50	35	42	36	35	56	51	599	8.5	-35.6	-19.8%
Misongeni	69	76	54	52	42	49	56	15	44	77	59	51	644	9.2	-41.7	- 5.5
Shauri Moyo	70	55	54	33	48	36	41	60	50	55	53	46	601	8.5	- 8.9	-17.0%
Mikuyuni	115	78	76	70	58	52	68	49	45	35	46	57	749	10.7	-39.8	-48.7%
Kibwezi Mjini	106	77	105	89	73	64	50	30	17	26	10	9	656	9.3	-33.7	-84.7%
Mwembeni	72	78	58	50	39	48	33	27	27	39	31	48	550	7.8	-58.2	-43.3%
Masaku Ndogo	66	64	55	28	69	47	5	1	24	12	41	70	482	6.9	-83.8	-33.5%
Nzembete	102	76	58	49	42	40	30	57	14	60	52	45	625	8.9	-53.0	-33.5%
Mtito Andei	51	29	30	27	18	40	18	22	21	14	26	20	316	4.5	-41.8	-45.5%
Ivingoni	65	56	35	37	35	42	32	26	33	31	31	29	452	6.4	-41.7	-41.7%
Musingini	81	51	70	65	32	37	20	35	26	36	28	22	503	7.2	-59.4	-57.4%
All Episodes	951	767	705	604	614	584	492	436	390	472	495	522	7032	100.0	-44.5	-38.6
% of all	13.5	10.9	10.0	8.6	8.7	8.3	7.0	6.2	5.5	6.7	7.0	7.4	100.0			

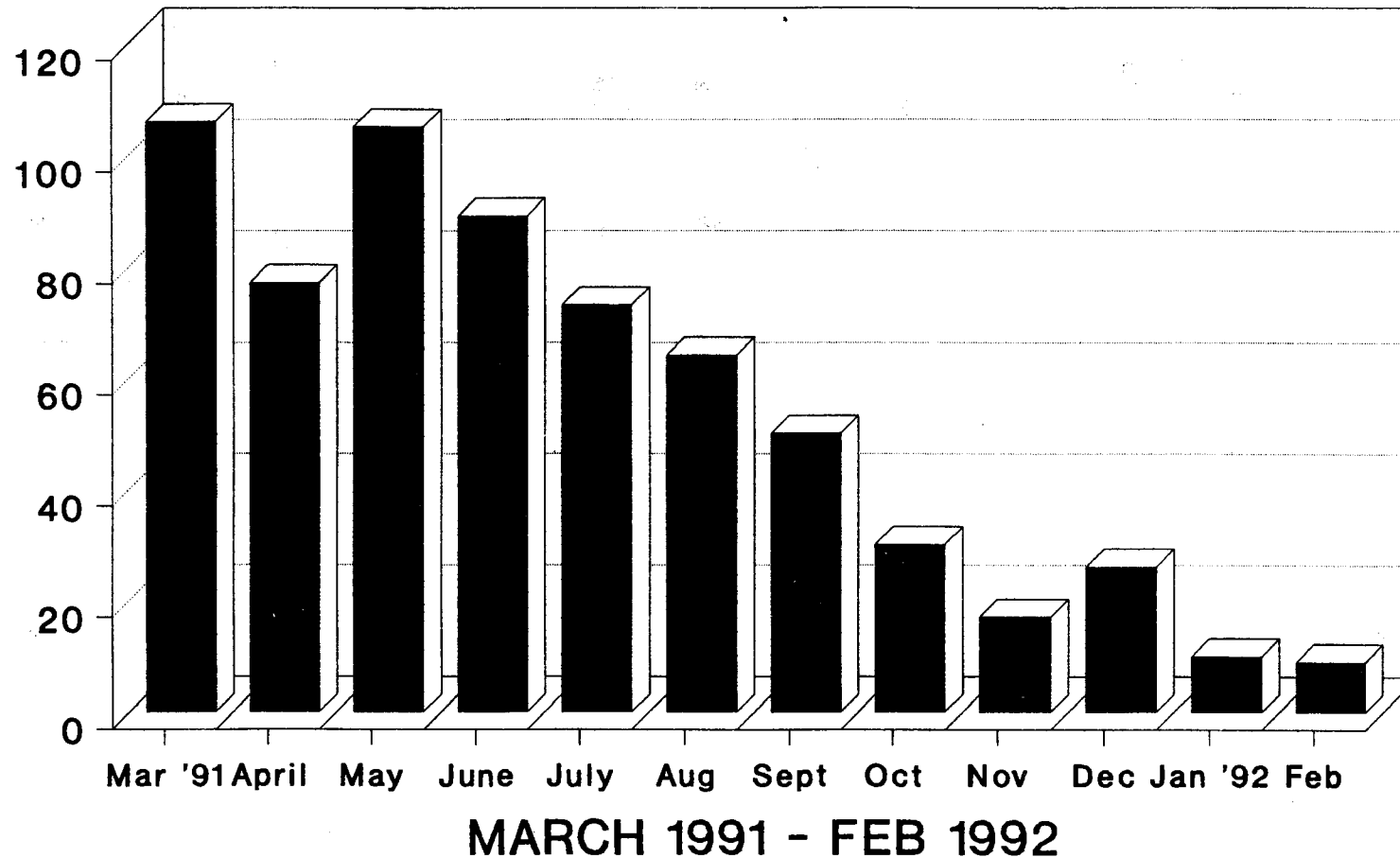
Table 4.2b: No of reported episodes by disease category and by month

Disease Category	Mar	April	May	June	July	Aug	Sept	Oct	Nov	Dec	Jan	Feb
Malaria	412	311	275	233	224	179	162	97	100	140	162	215
Respiratory	150	181	161	149	98	118	92	103	71	76	102	122
Gastro-Int	93	68	82	55	59	56	35	32	31	37	56	40
Joint Muscles	20	27	29	32	72	40	33	28	22	42	42	36
Injuries	50	57	45	46	29	14	24	17	19	6	14	24
Skin	25	29	35	15	17	22	26	12	21	31	38	26
Eye, ear	9	20	18	11	26	13	18	17	18	13	13	3
Genito-Ur	12	21	13	6	4	8	5	5	9	6	6	9
Mental	9	7	10	6	8	7	1	2	2	3	6	4
Pregnancy-rel	3	4	0	1	0	2	2	0	1	1	1	3
Other	26	40	29	21	17	32	19	27	12	29	21	17
Total	809	762	697	575	524	486	417	337	306	384	461	498

**FIG.4.1 NUMBER OF
REPORTED ILLNESS EPISODES
BY MONTH**



NO. OF EPISODES KIBWEZI MJINI CLUSTER



Longitudinal study, 1991

FIG. 4.2: NUMBER OF EPISODES. KIBWEZI MJINI CLUSTER.

Table 4.3: *Number of reported illness episodes by age of the household member ill*

Age Group	% in Sample	No of episodes	% Share
0-4	16.7	1210	19.1
5-9	18.7	618	9.8
10-14	15.7	572	9.0
15-19	14.2	476	7.5
20-24	8.9	427	6.7
25-29	6.0	451	7.1
30-34	3.8	458	7.2
35-39	2.6	355	5.6
40-44	2.2	302	4.8
45-49	2.5	295	4.7
50-59	1.9	212	3.3
60-64	1.5	244	3.9
65 and over	1.7	210	3.3
	3.4	506	8.3
Total	100.0	6336	100.0

to the participating households. In December 1991, the tenth month, the number of reported illnesses again increased.

The December increase is most probably an effect of the appearance of the medical validation team which was associated a slightly improved availability of health care to the sample households in December. Medical validation was carried out in Manyatta, Misongeni, Shauri Moyo, Nzembete, Mtito Andei and Musingingi villages. A recovery in the number of reported illness episodes was observed in Manyatta, Misongeni, Mwembeni, Masaku Ndogo, Nzembete and Msingini while a decline occurred in several of the remaining clusters (Table 4.2). The village showing the most prominent signs of respondent-fatigue was Masaku Ndogo with remarkably low numbers of reported episodes. There was evidence of higher morbidity amongst children under five years and in adults over 30 compared to the other age groups Table 4.3.

4.3.2 Pattern of Illness

The interviewers who had no or almost no formal health-related training, recorded symptoms stated by the respondents in connection with each episode. The recorded symptoms were reviewed as part of the first-level validation process by clinical officers at local health facilities, in this case two clinical officers at Makindu sub-district Hospital. They classified the illness episodes on the basis of the description made and used the "International Classification of Health Problems in Primary Care (ICHPPC-2) to the extent possible.

Several factors reduce the validity of this classification of illness episodes. The symptomatic descriptions offered by respondents varied widely with regard to precision, completeness and probably accuracy. The amount of detailed information declined gradually as the survey proceeded, and male respondents in particular

offered vague descriptions of illnesses in their children. Still, it has been demonstrated that lay Kenyans have a fairly accurate perception of symptoms associated with common diseases such as malaria, measles, influenza, ear infection, worms and gastro-enteritis (Spencer et al 1987). The emerging pattern probably reflects the local disease pattern quite as well as far as broad categories are concerned. We propose that these categories be used already at first validation level in future surveys.

Of the 7044 illness episodes reported during the 12 months by the 390 households, 6264 could be classified well enough to fit into eleven main disease categories as shown in Table 4.4. These categories have been identified by ourselves when analyzing the symptomatic descriptions reported. They are believed to be relatively easy to apply without professional training and laboratory or other diagnostic technologies. The remaining 780 episodes were inadequately described to be classified.

Table 4.4: Number of Reported Illness Episodes by Category

Disease Category	No. of Episodes		Percentage	
	All Clusters	"Control" Clusters	All Clusters	"Control" Clusters
Malaria	2477	415	39.6	44.1
Respiratory tract	1447	154	23.1	16.4
Gastro-intestinal	670	73	10.7	7.8
Joints and muscles	400	40	6.4	4.3
Injury	339	101	5.4	10.7
Skin Conditions	303	65	4.8	6.9
Eye and ear	210	24	3.3	2.6
Genito-urinary tract	103	13	1.6	1.4
Mental	53	4	0.8	0.4
Pregnancy-related	23	7	0.4	0.7
Other	239	45	3.4	4.7
Total	6264	941	100.0	100.0

One question stated at the beginning of the project was whether or not the two remote "control" clusters Ivingoni and Musingini are significantly different from the other "clinic-centred" clusters with regard to socio-economic conditions, morbidity, illness-related activity restriction, and care-seeking behaviour. As far as socio-economic conditions are concerned.

Table 4.5 Number of reported episodes per 100 persons in all 12 clusters and in the two "control" clusters

Disease Categories	Episodes per 100 persons	
	In all 12 clusters	In "control" clusters only
Malaria	122.4	115.2
Respiratory	71.5	42.8
Gastro-intestinal	32.3	20.3
Injuries	16.8	28.1
Burns	0.8	1.1
Sexually Transm. Disease	0.6	0.6

We found that Musingini had a relatively large proportion of households in the low-class category (83.3% as against a mean of 61% in 1990) while Ivingoni was close to the mean at 60.0%. Morbidity-wise the proportions of malaria, injury and skin disease episodes were higher in the control clusters than in the entire household sample (Table 4.4) but when related to the population in each cluster there was only a higher incidence of injuries in Musingini and Ivingoni (Table 4.5).

4.3.3 The Socio-economic impact of disease

The findings suggest that 48.4% of the reported illness episodes restricted the ill-person from performing normal activities. Except for Mukuyuni, the highest percentages of days restricted were observed in the control clusters of Ivingoni and Musingini with 61.1% and 65.7%, respectively. Since they reported below-average numbers of episodes, however, they may have disregarded or forgotten many episodes which caused no activity restriction.

Mtito Andei reported the lowest load of restriction attributed to illness, being 22.5% of the reported illness episodes within the cluster, followed by Manyatta, Misongeni and Shauri Moyo.

A majority - 59.2% - of the reported episodes reportedly caused some amount of total restriction. The mean duration of total restriction was 3.91 days while for partial restriction it was 3.08 days, (Table 4.6 and 4.7). This showed that, generally, illness episodes as reported in the "urban" clusters of Manyatta, Misongeni, Shauri Moyo and Mtito Andei lasted longer than those in the rural clusters. This could be attributed to the possibility that urban households can afford to stay "off-duty" when sick, which rural folks may be less likely to do. But it could also be assumed that urban occupations more easily allow work when half-sick. We recognize that we lack the necessary data about illness behaviour in rural and urban Kenya to explain our findings. While it was shown that a majority of the reported illnesses in the rural clusters were restricting usual activities, most of these lasted for fewer days than the urban clusters. Urban households reported fewer illness episodes but appear to have a tendency to seek more "rest" from their normal activity when sick.

Table 4.6: Number of illness episodes with restriction by duration of illness

Duration (days)	Totally restricted		Partially restricted	
	No	%	No	%
1	508	16.1	713	28.1
2	942	29.2	753	29.7
3	575	18.2	400	15.8
4	359	11.3	251	9.9
5	212	6.7	95	3.8
6	107	3.4	79	3.1
7	148	4.7	58	2.3
8	59	1.9	38	1.5
9	42	1.3	28	1.1
10	60	1.9	30	1.2
11	25	0.8	24	0.9
12	31	1.0	19	0.8
13	18	0.6	11	0.4
14	65	2.1	24	0.9
15 and over	32	0.1	10	0.4
Total	3165	100.0	2533	100.00

Table 4.7: Average number of illness days restriction by cluster

Cluster	Totally		Partly	
	Mean	S.E.	Mean	S.E.
Mitendeu	3.52	0.18	2.47	0.14
Manyatta	4.56	0.26	2.61	0.19
Misongeni	4.13	0.22	4.34	0.31
Shauri Moyo	6.11	0.85	3.19	-
Mukuyuni	2.66	0.07	2.70	-
Kibwezi Mjini	3.87	0.23	4.54	0.21
Mwembeni	3.27	0.19	2.60	0.31
Masaku Ndogo	2.36	-	3.97	-
Nzembete	4.35	0.22	1.83	-
Mtito Andei	4.28	0.56	2.12	0.26
Ivingoni	6.01	-	2.17	0.14
Musingini	3.84	0.17	4.60	0.20
All	3.91	0.083	3.08	0.057

S.E. = Standard error

4.3.4 Severity of illness

Illness severity was judged on the basis of the pain or discomfort experienced as well as the seriousness of the illness as perceived by the ill-person. The results indicated that the illness episodes caused "moderate" pain or discomfort in 53.1% of cases and "severe" in 19.4%. Episodes with severe pain or discomfort were more commonly reported in the urban clusters of Makindu (Misongeni, Manyatta and Shauri Moyo) and in Nzembete, while the remote control clusters in Ivingoni and Musingini reported relatively few. This is probably due partly to different disease patterns but it may also reflect a difference in perception of pain and suffering in relatively urbanized population as compared to rural hardship areas where no services are accessible and most problems have to be dealt with locally.

Perceived seriousness of illness was and compared to the stated degree of pain and discomfort experienced (Table 4.8). About 54.5% of all reported episodes were

considered "moderately serious" and 24.9% as "serious". It was also noted that while 20.3% of the episodes were perceived as "not serious", results shown in Table 4.8 revealed that 27.5% of the episodes were either "slightly" or "not painful or discomfort". There seems to be no need to ask both questions on illness severity since interest is focused mainly on cases that are either "moderately severe" or "severe". It would also be better to classify severity as "not serious", "moderately serious" and "very serious". Finally information on pain or discomfort might easily be blurred due to poor memory recall.

Table 4.8: Degree of pain or discomfort due to illness, by village

No of episodes									
Village	None		Slight		Moderate		Severe		All illness
	No	%	No	%	No	%	No	%	
Mitendeu	4	0.5	282	32.9	458	53.5	112	13.1	856
Manyatta	3	0.5	57	9.5	432	72.4	105	17.6	597
Misongeni	28	4.4	134	20.9	248	38.7	231	36.0	641
Shauri Moyo	12	2.0	128	21.3	318	52.9	143	23.8	601
Mukuyuni	3	0.4	123	16.4	432	57.7	191	25.5	749
Kibwezi	12	1.8	342	52.2	231	35.3	70	10.7	655
Mjini	3	0.5	19	3.5	416	75.6	112	20.4	550
Mwembeni	0	0.0	78	16.2	327	67.8	77	16.0	482
Masaku Ndogo	0	0.0	123	19.7	289	46.3	212	34.0	624
Nzembete	31	9.8	133	42.2	123	39.0	28	8.9	315
Mtito Andei	11	2.5	197	44.1	220	49.2	19	4.3	447
Ivingoni	6	1.2	200	40.2	227	45.7	64	12.9	497
ALL	113	1.6	1816	25.9	3721	53.1	1364	19.4	7014

Urban households reported fewer episodes, but the degree of experienced pain and perceived disease seriousness was greater than those in the rural clusters. This suggests that the causes/diagnosis of the reported diseases amongst the two groups were in some ways different. For example, more urban than rural households suffered from STDs.

More illness episodes were reported for male than female children under 15 years while there were relatively more illness episodes amongst female (4494 episodes) than male adults (4187). There were 554 adult males and 435 adult females in the sample, however, and the morbidity differences between the sexes were largest amongst those aged 15-44 years (Table 4.11)

Table 4.9: Perceived seriousness of illness episodes by cluster

Village	Not serious		Moderately serious		Very serious		Don't Know	
	No	%	No	%	No	%	No	%
Mitendeu	246	28.7	493	57.6	116	13.6	1	0.1
Manyatta	205	34.2	290	48.4	104	17.4	-	-
Misongeni	184	28.7	199	31.0	250	39.0	8	1.2
Shauri Moyo	84	14.0	337	56.1	180	30.0	-	-
Mikuyuni	59	7.9	322	43.0	367	49.0	1	0.1
Kibwezi Mjini	158	24.2	403	61.6	93	14.2	-	-
Mwembeni	20	5.0	398	72.4	130	23.6	2	0.4
Masaku Ndogo	77	16.0	324	67.2	80	16.6	1	0.2
Nzembete	82	13.1	381	61.1	161	25.8	-	-
Mtito Andei	81	25.7	181	57.5	53	16.8	-	-
Ivingoni	144	32.2	240	53.7	62	13.9	1	0.2
Musingini	87	17.5	257	51.8	152	30.6	-	-
All	1427	20.3	3825	54.5	1748	24.9	14	0.2

Table 4.10: Degree of severity of illness episodes (%)

Degree of severity	Pain/Discomfort	Perceived Seriousness
None	27.5*	20.3
Moderate	53.1	54.5
Very Serious	19.4	24.9

* Includes episodes with slight pain/discomfort

Table 4.11: Days ill with and without restriction by age and sex

Age Group (years)	Males			Females		
	Ill without restriction	Totally restricted	Partly restricted	Ill without restriction	Totally restricted	Partly restricted
0 - 4	519	477	404	380	338	288
5 - 14	303	287	226	253	237	188
15 - 44	490	437	378	723	666	536
45 - 64	189	175	145	235	221	189
65+	62	61	34	91	90	59
Total	1563	1437	1187	1682	1552	1260

4.3.5 Health care-seeking behaviour

Self-medication was found to be very common. Out of 9713 health care-seeking actions, 40% involved self medication 32.2% reported attending a clinic or hospital.

Although there were 90 more adult males than females in the sample, 66.3% more illness episodes were reported by adult females (3260) as compared to males (1960), a highly significant difference ($P < 0.00001$). But the differences with regard to degree of restriction, perceived seriousness and degrees of pain and discomfort are small (Table 4.12) suggesting a true difference in levels of morbidity. Also, as shown in Table 4.16 similar proportions of all episodes are brought to hospitals or clinics for care.

Table 4.12: Reported illness episodes by age and sex

Degree of pain or discomfort	Males 15+ %		Females 15+ %		Children 0 - 14 %		Total %	
None	31	1.6	30	0.9	68	1.6	129	1.4
Slight	459	23.4	764	23.4	1202	28.8	2425	25.8
Moderate	1038	53.0	1671	51.3	2176	52.1	4884	52.0
Severe	432	22.0	795	24.4	728	17.5	1955	20.0
Total	1960	100.0	3260	100.0	4173	100.0	9393	100.0
% Share	20.9		34.7		44.4		100.0	

Table 4.13: Action against illness episodes with total restriction by sex and age

Action Taken	Male 15+		Female 15+		Children 0 - 14	
	No	%	No	%	No	%
Nothing	63	6.0	84	5.1	64	2.9
Self Medication	388	37.1	565	34.3	821	38.2
Sought advice within the household	68	6.5	155	9.4	197	9.2
Sought advice from CHW	11	1.1	33	2.0	32	1.5
Sought advice from TBA	5	0.5	22	1.3	19	0.9
Sought advice from friends	47	4.5	84	5.1	69	3.2
Sought advice from traditional healers	34	3.3	44	2.7	89	4.1
Given traditional medicines	62	5.9	103	6.2	107	4.9
Sought care at clinics/hospitals	368	35.2	556	33.7	750	34.9
Total	1046	100.0	1646	100.0	2148	100.0

Table 4.14: Action against illness episodes with severe pains/discomfort by age and sex

Action Taken	Male 15+		Female 15+		Children 0 - 14	
	No	%	No	%	No	%
Nothing	21	4.8	54	6.8	28	3.8
Self Medication	163	37.7	243	30.6	224	30.8
Sought advice within the household	28	6.5	75	9.4	56	7.7
Sought advice from CHW	1	0.2	5	0.6	5	0.7
Sought advice from TBA	3	0.7	7	0.8	6	0.8
Sought advice from friends	15	3.5	43	5.4	19	2.6
Sought advice from traditional healers	16	3.7	34	4.3	52	7.1
Given traditional medicines	26	6.0	47	5.9	35	4.8
Sought care at clinics/hospitals	159	36.8	287	36.1	303	41.6
Total	432	100.0	795	100.0	728	100.0

Table 4.15: Action against illness episodes considered very serious by age and sex

Action Taken	Male 15+		Female 15+		Children 0 - 14	
	No	%	No	%	No	%
None	39	6.7	68	6.8	41	4.2
Self Medication	219	37.5	305	30.6	332	33.8
Sought advice within the household	37	6.3	92	9.2	76	7.7
Sought advice from CHW	3	0.5	10	1.0	11	1.1
Sought advice from TBA	4	0.7	10	1.0	9	0.9
Sought advice from friends	19	3.3	55	5.5	29	3.0
Sought advice from traditional healers	21	3.6	40	4.0	65	6.6
Given traditional medicines	36	6.2	61	6.1	55	5.6
Sought care at clinics/hospitals	206	35.3	357	35.7	363	37.0
Total	584	100.0	998	100.0	981	100.0

Although only 1.4% of the actions involved seeking advice from the community health workers (CHW's), their role was more prominent in Ivingoni and Mitendeu. In the community, there was evidence that the traditional healer as well as medicine-man was being consulted on health issues especially in Ivingoni.

The longitudinal survey provided a hint that while 24.9% of the illness episodes seeking care at health facilities were severe cases about 55.4% were moderate. Only 0.9% of the illness presented to health facilities are cases where the patient did not experience any pain or discomfort.

Table 4.16: Number of illness episodes taken to clinics or hospitals by degree of pain/discomfort age and sex

Degree of pain/discomfort	Males 15+	Females 15+	Children	Total No	%
None	7	5	16	28	0.9
Slight	114	176	275	565	18.8
Moderate	353	547	770	1670	55.4
Severe	159	287	303	749	24.9
Total	633	1015	1364	3012	100.0
% Share	21.0	33.7	45.3	100.0	-
No of all report episodes	1960	3260	4173	9393	-
% share	32.3	31.1	32.7	32.1	-

The contribution of self-medication as a form of health care in the Division was reckoned to be substantially more than that of clinics/hospital.

Table 4.17: Number of illness episodes cared for by self-medication categorised by degree of pain/discomfort age and sex

Degree of pain/discomfort	Males 15+	Females 15+	Children	Total No	%
None	10	10	10	39	1.0
Slight	199	321	534	534	28.0
Moderate	439	692	904	904	54.2
Severe	163	243	224	224	16.8
Total	811	1266	1681	3758	100.0
% Share	21.6	33.7	44.7	100.0	-
No of all report episodes	1960	3260	4173	9393	-
% share	41.4	38.8	40.3	40.0	-

Although more women and children tend to self-medicate than males aged 15 and over, proportions of all episodes show very little difference. Thus while 41.4% of the illness episodes reported for males aged 15 and over were subject to self-medication, proportions were 38.8% and 40.3% of episodes among females of the same age group and children under 15 years.

Community health workers (CHWs) and traditional birth attendants (TBAs) attracted few care-seekers in the area. There were few reported visits also to traditional healers an interesting finding in this area known for its high density of traditional medical practitioners. It is possible that their medical role is declining, but we know that visits to healers tend to be under-reported. So interpretation is difficult.

While only 24.4% of those illness episodes not taken care of at all were for males aged 15 and above, the corresponding female age group and children under 15 years accounted for 42.8% and 32.8%, respectively. However, considering all corresponding number of reported illness episodes by age and sex, only 5.5% of all

illness episodes of children under 15 years were not cared for as compared to 8.7% and 9.1% for males and females aged 15 and above, respectively.

Table 4.18: *Number of illness episodes which sought no health care by degree of pain/discomfort age and sex*

Degree of pain/discomfort	Males 15+	Females 15+	Children 0-14	Total No	%
None	8	13	12	33	4.7
Slight	58	97	107	262	37.6
Moderate	83	134	81	298	42.8
Severe	21	54	28	103	14.8
Total	170	298	228	696	100.0
% Share	20.3	42.8	32.8	100.0	-
No of all report episodes	1960	3260	4173	9393	-
% share	8.7	9.1	5.5	7.4	-

About 6.3% of the clinic/hospital seeking episodes were treated as in-patients and hence 93.7% were outpatients. The low utilization of inpatient was basically because of lack of inpatient facilities in the division. The division has a total inpatient bed capacity of 524 (Nordberg et al, 1990). While 85.2% of the episodes received drugs at outpatient outlets, only 6.3% failed to secure prescribed drugs. Only 2.1% of the cases were not attended to.

Table 4.19: *Type of action taken at clinics/hospitals*

Action taken	No of reported episodes	%
1. None	80	2.1
2. Admitted as in-patient	236	6.3
3. Given drugs as out-patient	3172	85.2
4. Drugs prescribed but no given	233	6.3
5. Other	-	-
All	3721	100.0

Assuming that seeking health care from a second facility represented a referred case, results strongly revealed that only cases from the urban clusters, namely Manyatta, Misongeni, Shauri Moyo and Mtito Andei received no action at the facilities. Majority of these cases where no action was taken are likely to represent the more acute and chronic cases as was revealed by the validation team.

Table 4.20: Reasons for not seeking care at clinic or hospital, by village

Reason	Mitendeu	Manyatta	Misongeni	Shauri Moyo	Mukuyuni	Kibwezi Mjini	Mwembeni	Masaku Ndogo	Nzembete	Mtito Andei	Ivingoni	Musingini	All No %
1) Clinic far away	18	8	31	2	7	12	11	1	24	9	261	347	732 10.4
2) Transport too expensive	13	4	27	3	2	11	6	2	6	22	186	339	622 8.8
3) Charges/fees too high	47	18	37	3	6	27	4	1	14	15	190	104	466 6.6
4) Clinic care unnecessary	402	140	183	146	183	129	144	133	200	83	52	62	1860 26.4
5) Clinic care ineffective	50	52	182	33	116	49	51	10	114	12	23	23	715 10.2
6) Unpleasant examinations and tests	1	9	27	10	46	30	-	-	4	7	4	7	145 2.1
7) Afraid of possible treatment procedures	30	13	6	4	109	33	12	-	4	-	9	11	231 3.3
8) Spouse objecting	2	28	20	-	12	1	1	-	1	1	31	3	100 1.4
9) Clinic staff rude or unfriendly	2	24	138	1	21	13	-	2	64	17	52	21	356 5.1
10) Other reasons	-	-	-	-	-	-	-	-	-	-	-	-	- -
All	565	296	651	202	502	305	229	149	431	166	808	917	7044 100

About 26.4% of the reported cases respondents said that the illness required no care at a clinic or hospital. The second most important reasons were that the clinic was far away (10.4%) or clinic care ineffective (10.2%). Clinic staff were considered by 56% of ill people, and by more women than men, to be sufficiently unpleasant to make people avoid visiting them as rude or unfriendly. The results clearly indicated that households in the two control clusters complained that the long distance to health facilities and hence the high cost of transportation was the main reason for not seeking health care at health facilities.

Table 4.21: Reasons for not seeking health care at any clinic/hospital by age and sex

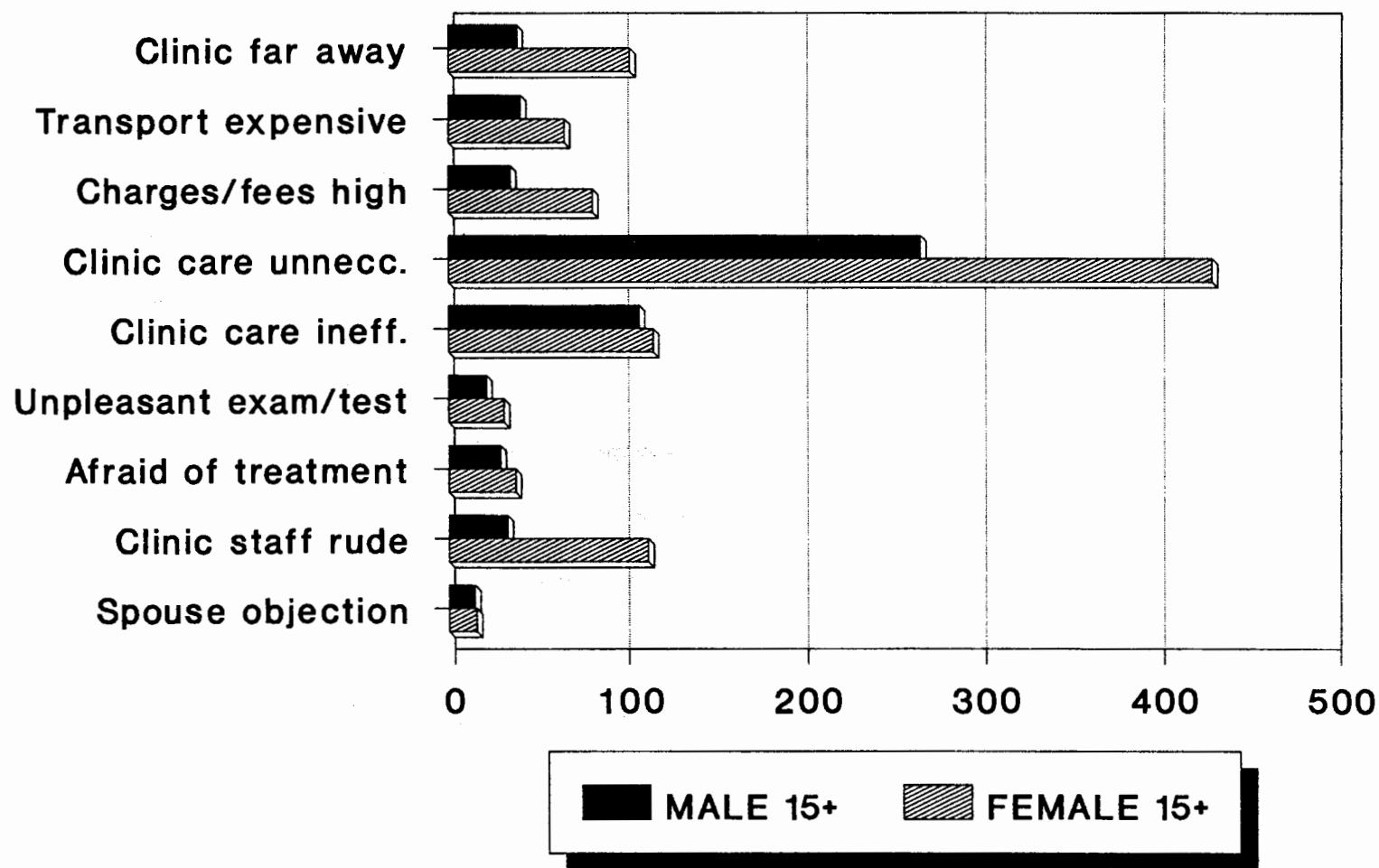
Episodes with no restriction						
Reason	Male 15+		Female 15+		Children 0 - 14	
	No	%	No	%	No	%
Clinic far away	40	6.7	104	10.3	146	12.7
Transport too expensive	42	4.2	67	6.6	147	12.8
Charges and fees too high	36	6.1	83	8.2	102	8.9
Clinic care unnecessary	267	44.9	430	42.9	475	41.3
Clinic care ineffective	109	18.3	117	11.6	120	10.4
Unpleasant exam and tests	22	3.7	32	3.1	23	1.9
Afraid of possible treatment	30	5.0	39	3.8	28	2.4
Spouse objecting visit to clinic	15	2.5	16	1.5	26	2.3
Clinic staff rude/unpleasant	34	5.7	114	11.3	84	7.3
Total	595	100.0	1002	100.0	1151	100.0

Table 4.22: Reasons for not seeking health care at any clinic/hospital restriction by age and sex Episodes with total

Reason	Male 15+		Female 15+		Children 0 - 14	
	No	%	No	%	No	%
Clinic far away	80	15.4	143	19.1	211	20.9
Transport too expensive	59	11.4	117	15.6	186	18.4
Charges and fees too high	48	9.2	94	12.6	94	9.3
Clinic care unnecessary	158	30.4	169	22.6	267	26.4
Clinic care ineffective	72	13.9	106	14.2	108	10.7
Unpleasant exam and tests	18	3.5	24	3.2	25	2.4
Afraid of possible treatment	43	8.3	47	6.3	40	3.9
Spouse objecting visit to clinic	11	2.1	9	1.2	21	2.0
Clinic staff rude/unpleasant	30	5.8	39	5.2	56	5.5
Total	519	100.0	748	100.0	1008	100.0

Surgical Operations

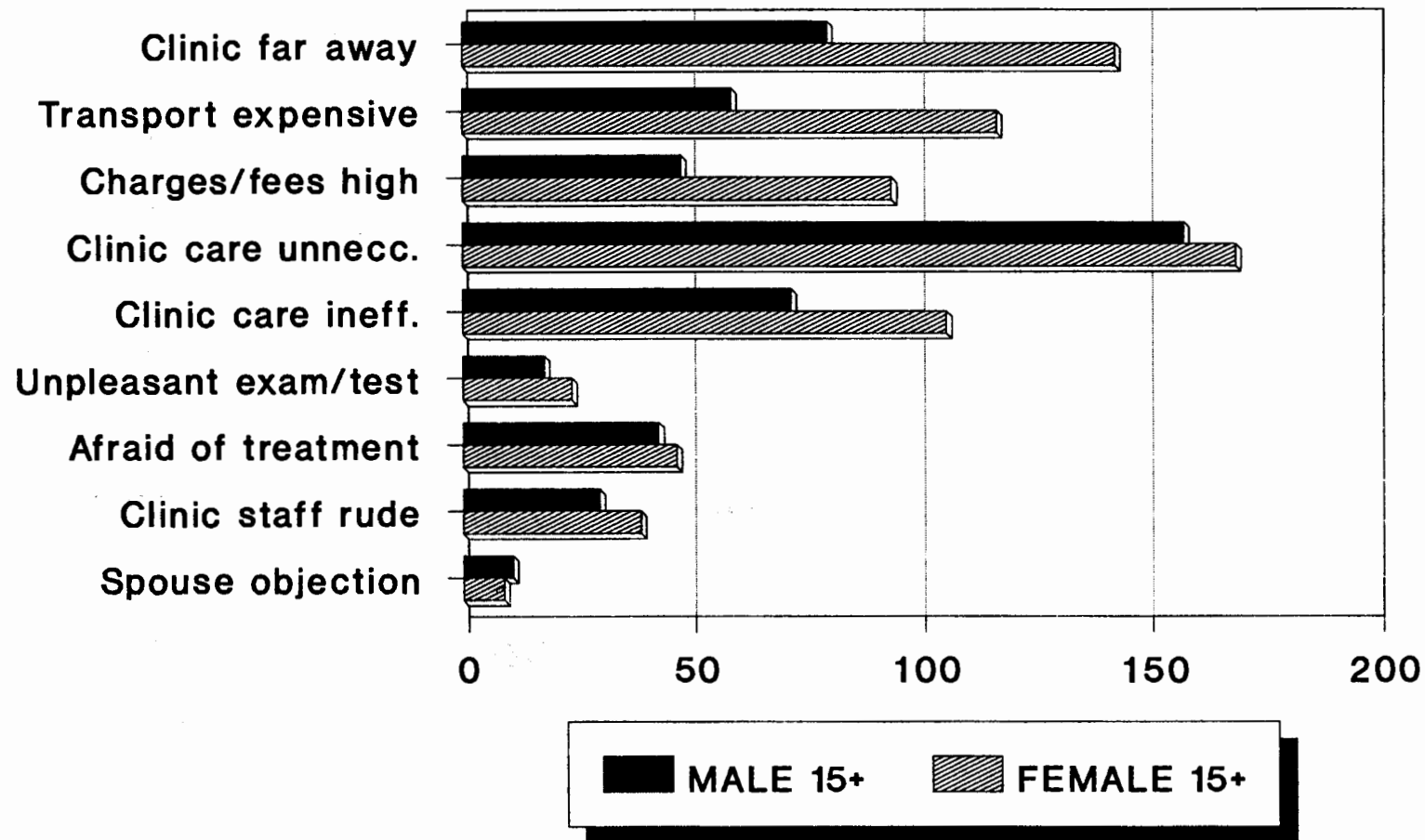
About 1.9% of the reported illness episodes involved surgical operations. Most of these operations were removal of thorns on limbs. Notably, Kibwezi Mjini recorded the higher number of cases taking 30% of all the reported surgical cases, followed by Mitendeu.



Longitudinal Study, 1991

FIG. 4.3: REASONS FOR NOT SEEKING HEALTH CARE AT ANY CLINIC/HOSPITAL BY AGE AND SEX.

Reasons



Longitudinal Study, 1991

FIG. 4.4: REASONS FOR NOT SEEKING HEALTH CARE AT ANY CLINIC/HOSPITAL. EPISODES WITH TOTAL RESTRICTION BY AGE AND SEX.

Table 4.23: Surgical Operations Performed by cluster

Cluster	No of cases	% Share
Mitendeu	18	18.0
Manyatta	1	1.0
Misongeni	4	4.0
Shauri Moyo	9	9.0
Mukuyuni	8	8.0
Kibwezi Mjini	30	30.0
Mwembeni	7	7.0
Masaku Ndogo	-	-
Nzembete	7	7.0
Mtito Andei	5	5.0
Ivingoni	1	1.0
Musingini	10	10.0
Total	100	100.0

4.3.6 Health Care Expenditure

In this study, about 75% of the episodes reported spending at most KSh.70 (US\$ 2.50) per episode; those spending more were mainly referrals to private facilities in the bigger urban centres such as Nairobi, Mombasa and Machakos.

Table 4.24: Estimated cost of health care

Estimated Cost (KSh)	No of cases	%
<10	1	1.4
10-15	1	1.4
16-20	6	8.3
21-25	8	11.1
26-30	10	13.9
31-35	5	6.9
36-40	9	12.5
41-45	2	2.8
46-50	6	8.3
51-55	1	1.4
56-60	3	4.2
61-65	-	-
66-70	2	2.8
71+	18	25.0
Total	72	100.0

Only 72 cases reported spending some money for health-care services rendered. Health care is free at the public dispensaries and health centres.

4.3.7 Periodic patterns in illness related conditions

Observations on periodic variations of some variables are relevant for the question of the most appropriate household health interview recall period. Illness episodes associated with activity restriction varied between 37.5% and 62.6% of all episodes during the 12 longitudinal survey months, with three significant differences between consecutive month by averages.

Average monthly proportions of illness episodes with pain or discomfort perceived as "severe" or "moderately severe" varied between 65% and 84.8% of all episodes with no significant month-to-month differences. Significant differences were only detected over minimum observation periods of three months. Also, variations in care-seeking behaviour were insignificant from one month to the next.

On the other hand, memory loss is known to increase rapidly with time and only dramatic and otherwise memorable episodes are likely to be reported with recall periods exceeding one month. In fact, for common and inconspicuous events even two weeks is believed to be too long.

In view of the need to economize for the sake of affordability and sustainability we propose once-monthly household visits for a survey of this kind, knowing that short and undramatic episodes are then likely to go unreported.

4.4 MEDICAL VALIDATION

Quality of the Interviewing Process

Data were gathered using 12 variables and an additional 13th variable consisting of the observer's general comments.

The findings on the household interview survey indicated that the interviewers were doing their work well, with only a few having problems. All interviewers were polite and all except two had good rapport with their clients. Three interviewers, all secondary school leavers, had difficulties with the Kamba language, one being seriously handicapped.

The phrasing of questions is crucial. Frequently the interviewers asked whether the person had recovered from the previous reported illness, rather than asking simply for illness episodes since the last visit. The result was that new episodes were not always reported, especially when they involved the interviewee, and often these were later brought up when household members realised that there was a doctor in the team and prospects for treatment. But the individuals were genuinely ill in most instances.

In addition, there were problems with the question where health care was sought. Most interviewees phrased the question as "did you go for treatment" or "what did you do about the illness?" The structure of the question make it necessary to read out in turn the various options. Some interviewers asked "did you spend any money on

this illness" which is clearly inadequate in relation to question 16. This was worsened by lack of probing in four interviews.

The recording of symptoms was done immediately. It was difficult for the clinical officer to understand some sentences written in poor language. Privacy was another problem. Everyone in the household tended to crowd around the respondent and even sometimes help answer questions. Under these circumstances, complaints considered private or embarrassing by the community would not be expressed.

Credit must be given to the field supervisors of the interviewers. All the respondents said that the interviews were regular. Although all respondents said that previous interviews were similar to the present one, there were indications that this was not so in a number of cases. Privately, and sometimes publicly, it was expressed to the medical officer that respondents were tired of being asked about illnesses for which they never got any assistance. In three incidents, respondents loudly expressed lack of trust in the interviewers who only talked and did nothing for them. This may become a serious problem. It is recommended that the validation rounds be carried out at least twice per one-year period, and any possible support to referral to health care.

Validation of diagnosis

Sixty four illness episodes were examined during the validation exercise. Out of these, 56 interview forms could be retrieved, and information was complete for 53 forms which were analyzed. In some instances, there were more than one diagnosis for the same patient, and therefore the denominator for diagnosis is larger.

Top five Interview Diagnoses

	<u>No</u>
1. Upper respiratory tract infections	13
2. Diseases of the skin	9
3. Arthritis	6
4. Intestinal Worms	5
5. Diseases of the Genito Urinary system	3

Top five clinical Diagnoses

	<u>No.</u>
1. Respiratory Infections	11
2. Genito-urinary Infections	8
3. Skin Conditions	8
4. Intestinal Worms/Infections	6
5. Avitaminosis	4

Concurrence of Interview and physical examination diagnoses.

The diagnosis arrived at by the clinical officer based on interview information were

compared to diagnoses made on the spot by the medical officer of the validation team.

Concurrence of Interview and Physical examination
Diagnoses (n = 53)

<u>Rating</u>	<u>No.</u>	<u>%</u>
Exact	12	22.6
Good	11	20.8
Poor	13	24.5
Very poor	17	32.1
<hr/>		
Total	53	100
<hr/>		

Long Term Disability

An attempt was made to determine the prevalence of chronic disability among the ill persons seen. A person was deemed chronically disabled if, from examination and observation of the household, it was judged that the person was unable to independently support himself or herself for most of his/her needs as a result of illness, or was unable to pursue an occupation (including schooling) due to physical or mental impairment. Eleven (11) persons out of 53 had long-term disability.

A large discordance was noted between interview and physical examination diagnoses. There was only 44% agreement for the "exact" and "good" approximation categories.

The morbidity pattern observed was not unusual. Acute respiratory infections were the commonest ailment recorded and easily identified by the checking clinical officer because of distinctive symptoms. There was, however, no specificity, all respiratory complaints being called Upper Respiratory Tract Infection (URTI), whether a case of Bronchial Asthma or of common cold. Surprisingly, malaria was diagnosed only twice in the interview diagnosis and not at all in the validation exercise. This was surprising because in the outpatient situation malaria is diagnosed almost in one patient out of every three and in some areas close to one in two. Urogenital infections were poorly diagnosed on the basis of interview, but ranked second in the physical examination diagnosis top five list and fifth in the interview diagnosis list. Of greater significance, however, is the observation that information on STDs and other sensitive diseases is not freely disclosed to the interviewers.

The concurrence of interview and examination diagnoses was low, 44% for the "exact" and "good" approximation categories. Respondents frequently give incomplete or distorted descriptions of symptoms perhaps to satisfy the interviewer. This undermines validity of the health information collected by the interviewers. Some of the problems have already been noted, e.g. lack of privacy, lack of probing and incorrect phrasing of questions, but another major problem is the age and immaturity of the interviewers, most of whom were secondary school leavers. Culturally, respondents would find it difficult to reveal personal and sensitive

information to these youths. All in all the validation exercise indicates that the current methods of collecting information may give rise to results of low validity, and possibly low reliability, in assessing the morbidity load by the longitudinal household survey method.

The high on disability rate was surprising. A global estimate of average community disability rates 7 - 10%. A partial explanation is that the survey looked at areas which are either in or very close to towns, and it is known that towns attract the disabled because of the opportunities for begging. No data were collected on the means of support of the disabled, but all except two destitute persons were living with their immediate or extended families. Four out of the eleven disabled persons (36%) could easily benefit from rehabilitation. Globally it is estimated that most of the disabled are amenable to corrective measures, but in reality only 2-3% of those in need receive services.

4.5 POST-SURVEY ENUMERATION

As part of any survey design, it is important that a small follow-up survey on a few randomly selected respondents be carried out with dual purpose, namely:

- (a) To test the accuracy, precision and consistency of the study data.
- (b) To confirm whether the interviewers followed the appropriate implementation procedures up to the end of the survey.

About 42 households were randomly selected and re-interviewed to find out if the interviewers had actually been there recently. Out of these only 2 households reported that the interviewer had failed to appear during the preceding weeks, latest in January. The previous performance of the two interviewers had been good.

The findings from the post-survey enumeration confirmed that the interviewers carried out their surveys diligently. The results showed that except for Mtito Andei and Nzembete, where few cases of cheating were detected, of implementation the interviews were regularly conducted.

CHAPTER 5

THE DELPHI PANEL STUDY

5.1 INTRODUCTION

Two methods for generating health-related data that have been tested within the project are the household health interview surveys and a Delphi-type panel study. The household health interview survey method, at least the longitudinal one, is a relatively expensive and time-consuming approach, requiring trained interviewers to visit households at regular intervals to solicit information. The Delphi-type panel approach involves a selected small group of local community members who are knowledgeable regarding matters affecting the community. The Delphi panel members are individually and independently interviewed concerning their opinions about important health issues within their community. Thus instead of canvassing a large proportion of community members as in household surveys, the Delphi-type approach concentrates on the few panel members only. Moreover, in the latter approach only a few interviewers are engaged. Therefore, with regard to the kinds of data obtainable from the panel members, the Delphi method of generating health information is a comparatively quick and inexpensive method of data collection. Despite its much higher cost, the household health interview survey has major advantages since it collects broader and more detailed information on illnesses and disabilities than the Delphi method. The Delphi panel has several shortcomings and should be seen as a complementary method, useful for generating a limited range of information at low cost.

The Delphi panel method: A review

The Delphi method, developed as a forecasting technique at the RAND Corporation in the US around 1950, generates and combines individually obtained written judgements on a particular question to form a consensus. Questionnaires are presented individually to selected respondents who all remain unknown to each other. First-round judgements are aggregated and then presented individually to each of the respondents who respond without face-to-face contact with other panel members. This process may continue through several rounds until a satisfactory degree of consensus has been reached.

The method has been described for instance by Turoff (1975). It has been applied to technological forecasting (Pyke, North 1969), long-range planning (Riggs, 1983) and to health economics (Charlton *et al*, 1981).

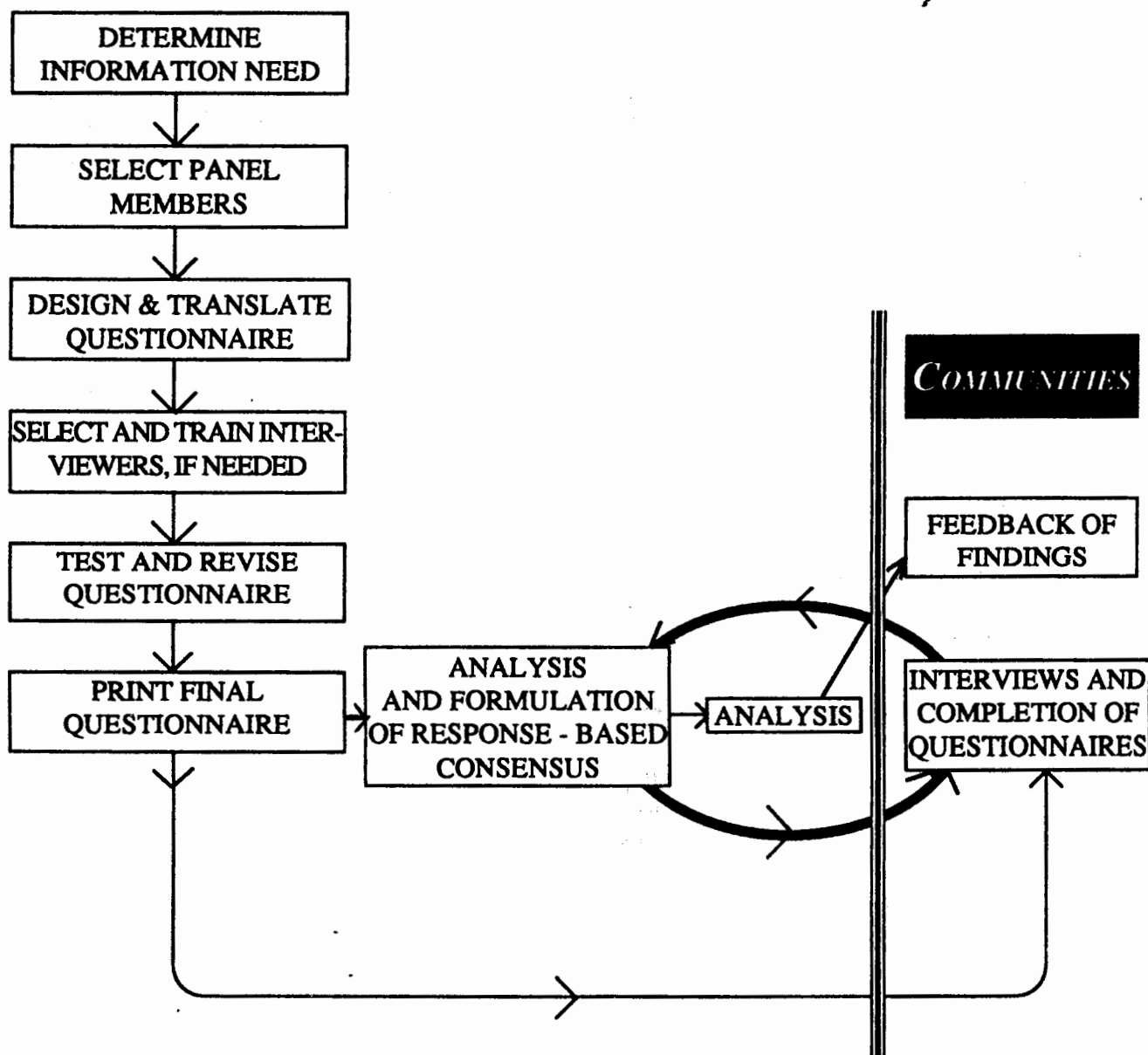


FIG. 5.1: *The Delphi Panel Study Process*

The Delphi method has been compared to so-called 'nominal group technique' (NGT) which was developed by Delbecq and van de Ven in the late sixties on the basis of studies on management decision-making and on community participation in various planning processes. NGT is essentially a structured face-to-face meeting of an interacting group during which ideas are initially recorded individually, then shared and eventually all discussed and subjected to a closed, written ranking procedure. The method has been described by Delbecq *et al* (1975). A comparison between Delphi questionnaires versus individual and group interviews, including a list of pros and cons, has been published by van Dijk (1990) and various applications have been presented (Masser and Foley 1987). Delphi largely avoids conformity pressures and domination by influential panel members and can make use of experts who may not be possible to assemble physically. Delphi, on the other hand, requires literate panel members.

We have not encountered any published review of Delphi or NGT applications in Third World countries. The optimum size and qualifications of members of the panel is a subject of debate, but clearly they would depend on the area and significance of the subject matter as well as its variance and sensitivity within the local community. At least three rounds of interviewing would be necessary.

5.2 METHODOLOGY

5.2.1 Panel selection process

Identification of panel members started in May and continued on up to July, 1991. Since several panel members were illiterate, the standard methodology had to be modified to allow the use of interviewers.

An important feature of a Delphi study is the anonymity and independence of individual panel members. No member should know who else is included in the panel. This determined the manner in which the selection was done. We interviewed teachers in local schools and had informal discussions with members of the local community. Local administration officials, e.g. village elders and chiefs, were avoided during the process; we suspected that they would tend to regard enlightened members of the local community as political adversaries or competitors and hence be reluctant to nominate such enlightened individuals as panel members.

Once identified, nominees were visited by the Project Leader who assessed their suitability. The results of the Cross-sectional Survey I (Nordberg and Oranga, 1991) had indicated that virtually all heads of household in Kibwezi Division had at most primary education. Therefore educational achievements were not given emphasis in the selection.

5.2.2 Questionnaire development

Information originating from the Delphi study is meant to supplement that obtained from other sources. To test the validity of the method, however, the questionnaire for

the Delphi study included some questions almost identical to those asked in the household health interview surveys. Obviously, it is not possible in a Delphi study to obtain data on actual numbers, say number of households with latrines in a location. Such questions were rephrased to solicit information on proportions, for instance, what proportion of households are perceived to have latrines.

The questionnaire was designed to generate information in four areas:

- i) Water supply and sanitation
- ii) Illness incidence and prevalence
- iii) Maternal and child health
- iv) Other issues such as health care demand and cost-sharing

The questions were designed so as to allow comparison with the information obtained from the household health survey, particularly the cross-sectional survey I. The full Delphi questionnaire is included as an annex to the full separate component report (Oranga and Nordberg, 1991b).

5.2.3 Selection of interviewers

Most panel members were not literate enough to be able to fill a questionnaire without assistance. Hence there was need for interviewer assistance. One of the two interviewers was recruited in the cluster. Twelve interviewers were engaged in the study, one to every cluster. They were drawn from the pool of 26 interviewers who participated in the household health surveys conducted by the project. Each interviewer assisted two panel members. As no sensitive questions were asked, age and sex were not considered critical when selecting interviewers.

The process of selecting interviewers ensured that the following categories were included:

	<u>Category</u>	<u>No</u>	<u>Education</u>
i)	Community Health Worker	1	8 years
ii)	Literate adult villagers	2	8 years
iii)	Civil Servant	1	12 years
iv)	Secondary school leavers	8	12 years

5.2.4 Training of interviewers

The interviewers were briefed on the study and informed of the names of the Delphi panel members in their respective villages. The questionnaire was extensively discussed.

The questionnaire was translated from English to Kikamba language in three stages. The questionnaires were distributed to the interviewers a week before the training session and they were asked to translate the questionnaire into Kamba individually before the training session. In Kibwezi, the twelve interviewers were divided into two groups and each group was requested to translate the questionnaire independently. The two groups jointly discussed the translation and eventually agreed on the final version.

The questionnaire was pretested in Kibwezi Mjini. Each interviewer conducted one interview during pre-testing. Because of the time taken to identify, prepare and convince a respondent to be interviewed, the time taken for one interview was between 30 to 80 minutes. The results of the pretest interviews were jointly discussed by the whole group of interviewers and appropriate action was suggested in areas of problems.

The interviewers were expected to start interviewing the panel members on 2nd October 1991.

5.2.5 Ranking and scores

In a Delphi-type study, response to some questions can be recorded in terms of ranks, assuming some relationship, linear or nonlinear, between the importance of the outcomes and ranks. The alternative would be to give scores with the highest rank to have the lowest score and vice versa. The latter approach is not suitable for panel interviewing since it requires that each member assigns scores which in turn involves some arithmetic and this might be confusing.

Ranking is suitable when more than two diseases are to be compared, when an ordering is possible but quantitative scores cannot be assigned. But it is difficult to rank morbidity of more than three or four diseases unless the differences are large. Ranks may be summarised by means and standard deviations.

5.2.6 Determination of panel member bias

Let

$$x = (x_1 \ x_2 \ x_3 \ \dots \ x_d)'$$

be a matrix representing the ranks of the diseases, and

$$x_i = (x_{i1} \ x_{i2} \ x_{i3} \ \dots \ x_{ip})'$$

be the ranks of the i th disease; d is the number of diseases being ranked, p is the number of panel members.

The term "bias" in this context simply means the difference between the true rank and the observed rank in the data. Information provided by Delphi panels contain two biases. First, there is bias attributed to the individual members themselves. Secondly, the feedback of group opinion to the panel members during consecutive interviewing rounds also introduces a bias to the data. Furthermore, during every consecutive round of the feedback, there will be interacting effects between rounds of interview and each panel member. The model for a Delphi-type observation, x_{ijk} , can therefore be defined as

$$x_{ijk} = \mu + \alpha_i + \beta_j + \tau_{ij} + e_{ijk}$$

where x_{ijk} is the rank of the i th interviewing round of the j th panel member of panel and k th replicate, μ is the overall mean (true rank), α_i the effect of the i th interviewing round (or sample), β_j the effect of the j th panel member, τ_{ij} the interaction effect between i th interviewing round and j th panel member, and e_{ijk} is the residual error term for the i th interviewing round, j th panel member and k th replicate. It is assumed that the error term e_{ijk} is normally distributed with zero mean and constant variance, σ^2 . In essence, an important criteria of an acceptable panel member is that he/she should have low residual variance, σ^2 ; compared to the overall group variance, and secondly a low bias. If the bias could be determined, adjustment should be made for it in the original data.

During each round of interviewing, every panel member is permitted to give a rank to signify the degree of morbidity of a disease. In this study, only one replicate per cell was determined by each member hence $k = 1$ and $h = 3$ is the number of interviewing rounds. Thus

$$\begin{aligned} x_{ij} &= \mu + \alpha_i + \beta_j + e_{ij} \\ i &= 1, 2, 3, \dots, h \\ j &= 1, 2, 3, \dots, p \end{aligned}$$

The effects μ , α_i and β_j which represent the true mean, i th group feedback and j th panel member biases, respectively, are estimated by

$$\begin{aligned} \mu &= x_{..} \\ \alpha_i &= (x_{i.} - x_{..}) \end{aligned}$$

and

$$\begin{aligned} \beta_j &= \frac{1}{h} \sum_{i=1}^h (x_{ij} - x_{i.}) \\ &= (x_{.j} - x_{..}) \end{aligned}$$

where

$$x_{i.} = \frac{1}{p} \sum_{j=1}^p x_{ij}$$

$$x_j = \frac{\sum_{i=1}^h x_{ij}}{h}$$

and

$$x_{..} = \frac{\sum_{i=1}^h \sum_{j=1}^p (x_{ij})}{hp}$$

Consider

$$v_j = \frac{\sum_{i=1}^h e_{ij}^2}{(d-1)}$$

An unbiased estimator of σ_j^2 the variance of the j th member bias is obtained from

$$s_j^2 = v_j[p/(p-2)] - S^2/(p-2)$$

where S^2 is an unbiased estimate of σ^2

The standard error of the j th member bias is

$$S.E.(\beta_j) = \{s_j^2/h + S^2/hp\}$$

5.3 RESULTS

5.3.1 Methodological Issues

There were significant differences between members with regard to ranking of the four diseases namely malaria, stomach pains, headache and coughing ($P=0.0001$) as commonest diseases of adults in the community. Further, there was a significant difference between sexes of panel members when it came to ranking malaria ($P=0.0441$), with males giving lower ranks than females. No significant sex differences were noted in the ranking of stomach pains.

There were significant differences between panel members with regard to the killer diseases of adults.

There were no significant differences between sexes in responses in ranking malaria, diarrhoea, anaemia and stomach pains as the major killer diseases of adults in the Division ($P>0.05$).

5.3.2 Rounds of interviewing

Except for stomach pains as one of the most important killer diseases of adults, there were no statistically significant differences in ranks between rounds of interviews for the rest of the diseases ($P>0.05$). There were, however, significant differences between rounds of interviews in relation to stomach pains ($P=0.0275$). Ranking of

the four major diseases as major killers of adults was consistent, with malaria at the top and stomach pains at the bottom during the last two rounds.

Table 5.1: Mean ranks of diseases killing adults

Round of interview	<u>Malaria</u>	<u>Diarrhoea</u>	<u>Anaemia</u>	<u>Stomach pains</u>
1	1.304 a	2.800 a	2.600 a	2.600 a
2	1.204 a	2.684 a	3.000 a	3.000 b
3	1.160 a	2.667 a	2.857 a	3.400 a

Means with the same letter are not significantly different at 5% level significance within each disease category.

Although there were no significant statistical differences between rounds of interviewing and between sexes with regard to killer diseases amongst children under 5 years, significant differences of opinion between panel members regarding the occurrence of these diseases of children under 5 years in the community was detected ($P < 0.0035$).

5.3.3 Degree of bias

An attempt was made to explore the method of general linear model in determining bias. With regard to the major adult killer diseases, a majority of panel members ranked malaria 1 and with modal bias of about 0.2564. The only exceptions with higher bias in respect to the above questions were member No. 6 from Misongeni cluster and all the members from the control clusters of Ivingoni and Musingini.

On common diseases to children under five years, panel members from Ivingoni showed the greatest bias ranking by malaria lower than other panel members. Diarrhoea scored the lowest bias. However, most panel members consistently ranked malaria at the top with a modal bias of about -0.5593. Although the responses by different members to ranking of malaria as a topmost killer disease of children under 5 years was lower than for the other diseases (about -0.4333), the majority of the members exhibited widely fluctuating bias contributions.

Except for stomach pains, the levels of bias contributed at different rounds of interview on the killer diseases of adults was negligible showing less than 0.02 in absolute terms. For the commonest diseases affecting children, the group bias was also very low by the third round of interview less than 0.06 in absolute terms.

5.3.4 Findings

Water and Sanitation

Majority of the panel members believed 75% of the households had latrines and that a majority of the households dispose of ordinary household refuse by simply throwing it away, i.e. applying no organised system of collecting and disposing of it.

Water resources are few. Rivers and dams were jointly ranked top dry season source followed by shared public stand pipe as second and piped water in house or compound as third. Roof catchment was recorded as the most important wet season source, river and dam came second while piped water in house or compound was third.

Table 5.2: The Delphi Study: proportion of households with latrines by cluster

Cluster	Round of Interview		
	FIRST %	SECOND %	THIRD %
1. Mitendeu	75.0	75.0	75.0
2. Manyatta	75.0	75.0	75.0
3. Misongeni	62.5	87.0	87.5
4. Shauri Moyo	87.5	100.0	87.5
5. Mukuyuni	62.5	87.5	87.5
6. Kibwezi Mjini	75.0	75.5	75.0
7. Mwembeni	50.0	75.0	50.0
8. Masaku Ndogo	75.0	75.0	75.0
9. Nzembete	37.5	50.0	50.0
10. Mtito Andei	100.0	87.5	87.5
11. Ivingoni	75.0	87.5	87.5
12. Musingini	75.0	75.0	75.0
Average	70.8	79.2	76.0

The Delphi study indicated low prevalence in Mwembeni and Nzembete villages, while the rest were estimated to have 75-87.5% prevalence.

Illness episodes

The panel ranked malaria, measles, diarrhoea and vomiting as the top four common diseases among children under five years of age while malaria, stomach pains/ulcers, headache and cough for adults 18 years and over. Malaria, measles, diarrhoea and vomiting ranked in that order, were top killer diseases of children under five years. For adults, the major killer diseases were ranked as malaria, diarrhoea, anaemia and stomach pains/ulcers in that order of importance.

There were significant differences between panel members with regard to their ranking of adult diseases; while most panel members ranked malaria problem number one, panel member number 15 consistently ranked malaria as number four. And male panel members ranked malaria significantly lower than females ($P = 0.0441$). There were also significant differences between panel members in the ranking of stomach pains ($P = 0.0005$) and coughing ($P = 0.0004$) but not in the case of headache ($P = 0.0586$). No significant panel member sex difference were detected in ranking malaria, diarrhoea, anaemia and stomach pains in that order as major killer diseases among adults ($P > 0.05$). Except for two panel members who scored high biases of 1.0766 and 1.7436 for malaria as the topmost killer and adults, twenty five members

had bias of 0.2564, three had 0.4106, and one recorded 0.766. Thus the modal bias was 0.2564.

Table 5.3: Final ranking of the four commonest diseases, conditions in adults and children

Rank	Affecting		Killing	
	Adults	Children	Adults	Children
1	Malaria	Malaria	Malaria	Malaria
2.	Stomach pains	Diarrhoea	Diarrhoea	Measles
3.	Headache	Measles	Anaemia	Diarrhoea
4.	Cough	Vomiting	Stomach pains	Vomiting

Except in the case of "stomach pains", there were no significant ranking differences between rounds of interviews ($P > 0.05$). Ranking of the top four diseases as killers of adults were consistent with malaria at the top and stomach pains at the bottom during the last two interview rounds.

There were no significant differences between rounds of interviewing and between sexes with regard to responses on diseases amongst children ($P > 0.05$). However, there were significant differences in opinion between panel members ($P < 0.0035$).

The long-term illness or permanent disability perceived as most common by the panel were 'problem in moving leg or arm', followed by 'problem in seeing' and by fits, e.g. epilepsy'. A majority of the panel perceived tonsillitis, flu, headache, stomach pains and general body pains as trivial conditions that one should not bother about.

With regard to socio-cultural beliefs on the main causes of diseases, panel members stated that bad diet, contaminated food or fruits was considered to be the most common cause of illness followed by a dirty environment, witchcraft and evil spirits in that order of importance.

Maternal and Child Health (MCH)

On MCH issues, the views of panel members were that at least 50% of pregnant mothers in the area attend ante-natal clinics and over 50% of children are currently immunised in the area. The panel also stated that less than 25% of children under 5 years suffer from malnutrition. All the panel members agreed that there was no 100% coverage of immunization or ante-natal clinic attendance.

Other health problems

On the community expectations and perceptions of certain health-related issues such as health-seeking behaviour and health financing, majority of the panel members believed that:

- i) People's health will improve in the next few years.
- ii) Health services will improve in the next few years.
- iii) Use of traditional healers will decline in the next few years.
- iv) Poor people will be willing to pay more in the coming years for health care at health facilities if the quality of these services were improved.

The study completed three rounds of interviewing and lasted for three weeks, each round including data processing taking one week to complete. There were no significant differences in the responses between the second and third round of interviewing. In this case, therefore, consensus was attained with the second round of interviewing.

Survey costs

The cost of the Delphi study was estimated at KSh.105,800/= (US\$ 3527). The costs were divided as follows between components:

Table 5.4: Delphi Panel Study Expenditure (KSH'000)

Activity	Staff time	Field allow.	Staff accom.	Transport	Stationery	Computer costs	Total
Sensitization and sampling	15.0	2.5	-	2.1	-	-	19.6
Interviewer training	2.0	-	2.6	-	0.2	-	4.8
Execution of survey	7.5	0.9	-	2.0	0.7	-	11.1
Data processing	20.0	-	-	-	0.5	10.0	30.5
Analysis write-up	5.6	-	-	-	0.5	1.0	7.1
Information feedback	8.0	2.7	12.5	2.0	7.5	-	32.7
Total	58.1	6.1	15.1	6.1	9.4	11.0	105.8

5.4 DISCUSSION

5.4.1 Water and sanitation

The results of the Delphi study were generally consistent with those of the cross-sectional survey I household interview, the cross-sectional survey I (CS I) conducted in December 1990 and covering 390 households. The CSI showed the main sources of water during the dry and wet seasons as given below:

Table 5.5: Most common sources of water reported in CSI

Sources	% households	
	Dry Season	Wet Season
Piped in house or compound	31.8	29.7
Shared public stand pipe	30.5	20.8
River, dam	28.2	26.2
Roof catchment	1.8	22.3

The Delphi study and CSI identified the same three major sources of water for domestic consumption during the two seasons. Considering the cost of gathering the information, the Delphi technique was more effective than the household health interview survey approach.

Information generated by the CSI revealed that about 68.2% of all cluster households possess their own latrine with Mtito Andei having the highest coverage. The Delphi findings, suggesting the presence of latrines in 76.0% of all households and in 87.5% of Mtito Andei households are, therefore, well in agreement with CS I.

5.4.2 Illness Episodes

CSI showed that the four commonest diseases affecting adults (18 years and over) were malaria, diarrhoeal diseases, skin diseases and urinary tract infection in this order of frequency.

In the CSI, malaria was identified by 76.4% of the households as the most common disease affecting adults while diarrhoea, skin and urinary tract infection could not be clearly identified. However, stomach pains/ulcers could have been confused with diarrhoea.

Both the Cross-sectional Survey I and the Delphi study agreed that malaria and diarrhoea were the most important killers of adults in the area. The role of urinary tract infections and respiratory diseases was not clearly identified by the CSI study since very few households (<9%) ranked them in prominent positions.

The Delphi results that the most common long-lasting illness or permanent disability were problems of moving limbs, problems with sight, and fits or epilepsy in that order is particularly interesting as it identifies epilepsy as a prominent problem. Social and cultural beliefs make most households reluctant to report epilepsy cases. A majority of the panel members felt that general body pains/aches and eye infections were amongst the four most common diseases/health problems of the elderly. Other common old-age problems were malaria and coughing. General body pains were considered trivial like tonsillitis, flu, headache and stomach pains.

Children under 5 years

Both CSI and the Delphi study identified malaria, measles, diarrhoea and vomiting as the top four diseases affecting children under five. However, whereas CSI ranked measles and diarrhoea as second and third, respectively, the Delphi members ranked the latter as second and the former as third.

The top four killer diseases of children under five years were found to be malaria, diarrhoea, "cerebro-spinal fever" and measles, by the CSI survey. Cerebro-spinal fever is probably equivalent to meningitis.

Thus the CSI and the Delphi study agreed that malaria was the top killer of children under five and that malaria, diarrhoea and measles were amongst the top four killers. The Delphi also mentions vomiting as one of the top four killers, while the CSI instead identifies cerebro-spinal fever (meningitis). Incidentally, the first Delphi round of interviews included cerebro-spinal fever (meningitis) among the top four.

5.4.3 Maternal and Child Health (MCH)

While the Delphi panel felt that "at least" 50% of children under 5 years were fully immunized the CSI found that proportions of fully children immunized for BCG, DPT, measles and polio were 78.2%, 77.7%, 66.4% and 70%, respectively. The Delphi result was, therefore, formally correct but clearly imprecise and rather an underestimate; this could probably have been avoided with a different phrasing of the question.

5.4.4 Other health problems

While a majority of the community members believe that badly contaminated food and water as well as a dirty environment are major causes of disease, others emphasized that witchcraft and evil spirits also play a crucial role in causing illness. The results of the socio-cultural study conducted earlier by the project (Oduol, E. 1991) had provided evidence of strong cultural beliefs regarding causes and cures of various diseases. The Delphi Study confirmed the linkage but projected a decline in the use of local traditional healers in the coming years, a statement which is consistent with findings from other corresponding studies. There were strong contentions amongst the panel members that health care services at the health facilities were expected to improve and thus stimulate people to seek care. The Delphi also projected that the poor will be willing to pay more in the coming years if there were

improvements in the quality of services. It is tempting to link these statements and conclude that panellists realize the need for costs-sharing to improve quality of care.

5.4.5 Methodology

The Delphi technique has so far mainly been applied to technological forecasting and other non-medical problems almost exclusively in industrialized countries. This project tested its applicability in health research in a developing country. The results were satisfactory and encouraging. Although the panel members were less literate than in the case of previous applications, the use of local interviewers as a remedy has turned out to be satisfactory.

The study completed three rounds of interviewing and took totally three weeks. Each round of interviewing including processing of the data took one week to complete. The results, however, indicated that there was no significant difference in the responses between the second and third round of interviewing. In this case consensus was attained by the second round.

CHAPTER 6

THE SOCIO-CULTURAL HEALTH INTERVIEW STUDY

6.1 INTRODUCTION

The IDD project, testing an alternative model for generating sub-district level health information, also investigated socio-cultural issues related to health, illness and medical care. This chapter describes an interview study of a sub-sample of 52 households in Kibwezi Division regarding perceived causes of certain diseases, appropriate preventive and curative measures, cultural practices related to selected treatment of diarrhoea in children, and perception of disease severity and treatment preferences. Planners' and managers' understanding of these issues can provide a broadened base for designing measures and planning programmes aimed at improving health in a population.

Studies on socio-cultural/anthropological aspects of health and illness have largely focused on traditional practices and cures such as traditional medicines, witchcraft and magic. Most of these studies have been carried out in non-western societies, particularly in Africa. (Evans-Pritchard, 1937; Ackerknecht, 1942; Imperato, 1977; Janzen, 1978; Ademuwagun, 1979)

Among the Pokot in Kenya's, Rift Valley Province, notions of causality may be divided into two dimensions; the "how" and the "why". At the "how" dimension, the Pokot allude to natural physio-chemical and psychological causes. In the "why" dimension, they perceive social and spiritual relationships as aggravating or directing an illness. They refer to God, witchcraft and ancestral spirits as causes (Nyamwaya, 1987).

The Luo in Western Kenya perceive illness as arising from mystical forces- supernatural, evil human beings, transgressing of traditional codes of conduct, evil spirits and physical forces and they believe that medicine, indigenous and western are efficacious in the treatment and prevention of both physical and mystical illnesses - (Oduol et al, 1991). The Luo, identify diseases which are best managed with western therapies and other diseases better managed with indigenous therapies or with a combination of both. Also the Pokot divide conditions requiring medical intervention into those best treated with indigenous therapy and with western therapy, respectively, but make a sharper distinction between the two.

In his analysis of the Kamba traditional and modern medical systems, Van Luijk (1983) found that the Akamba distinguish between five different categories of illness based on

perceived cause: diseases of God, those caused by spirits of forefathers, by witchcraft, by other persons, and self-inflicted conditions. The Kamba perceive God as having created everything good or bad and so ultimately the creator of disease and death, and illness is considered "natural" meaning caused by God. "Uoi", or witchcraft, is an evil power used by human beings, and a witch-practitioner of witchcraft - can cause misfortunes and disease. Another class of illness is injuries caused by physical assault by another person.

The Akamba in Eastern Province, classify disease causes into two major categories: "Man's diseases" and "God's diseases" Maina-Ahlberg (1979). Man's diseases are those associated with witchcraft and sorcery, commonly referred to as "uoi". The witchcraft and sorcery theory of disease causality states that disease is put into a person by an enemy who could be a jealous neighbour or a hostile relative. "Mundu mue" - a medico-religious specialist referred to as a (herbalist/diviner) has the responsibility of determining the cause of illness. This is almost similar to the "Ajuoga" of the Luo except that "Ajuoga" can further refer some cases to "jabilo" who is a more powerful traditional healer than a herbalist.

In terms of illness management, the Kamba diseases divide into six classes: those healed by the traditional medico-religious specialist ("mundu mue"), by a herbalist, by a traditional midwife, by self-treatment, by a self-healing and in hospital. It is indicated that almost all Kamba would secretly visit "mundu mue" for any disease perceived to be caused by "thavu" (ritual uncleanness of a person who has transgressed certain traditional rules) or "uoi" (witchcraft). The traditional midwife treats minor ailments and complications related to pregnancy while self-treatment is applied against ailments like colds, coughs and burns. Minor pains, fever, and mild diarrhoea are conditions which the Akamba believe will disappear on their own, but in case they persist or become serious some treatment may be sought. However, they refer to some of these conditions as "diseases that are healed by treatment of these days", meaning - western therapies.

Disease causation vary from community to community in Kenya. However, health related socio-cultural studies indicate that most societies in Kenya believe that certain conditions are better treated using indigenous medicine and that this conceptual distinction does not prevent compounding of both indigenous and western medical care.

In the literature reviewed, almost no attention is paid to the variation, the strengths and weaknesses. in methods used in collecting data, This is an issue for future studies.

6.2 METHODOLOGY

6.2.1 Study Instruments

An interview protocol was developed based partly on literature available from previous Kibwezi studies including the IDD cross-sectional survey I and partly on advice from anthropological, medical, sociological and statistical experts. The protocol was pre-tested on the last day of the training of interviewers. Discussions were then held with the interviewers to review the problems with the protocol encountered during the pre-test. The protocol is attached as Annex

6.2.2 Selection and training of Interviewers

Field supervisors and interviewers who had participated in the cross-sectional surveys (see Chapter 3) were trained on how to use the interview protocol and took part in pretesting it. The interviewers, recruited from the sampled villages were trained for 3 days. The training included discussing each item in the questionnaire, interpretation and translation of the questionnaire into Kikamba local language. The interpretations were discussed and agreed upon by the whole group, so as to ensure that every interviewer had a uniform meaning for each question to be asked.

Apart from training related to the interview protocol, interviewers were trained on:

- o interviewing skills
- o interpersonal communication skills (creating rapport with respondents)
- o human relations

The interviewers were divided into groups, which worked on tasks assignments and reported back to each other. Some of the training activities included demonstration and role plays which were then jointly discussed. Special attention was given to any interviewer who was identified to have special problem with the instrument.

6.2.3 Sampling

It is believed that social and cultural norms are widely shared within any given community. Hence, in the case of Kibwezi Division, there was no need of conducting the socio-cultural study in the entire sample of 390 households covered in the cross-sectional survey. A random sample of 52 households from the 390 households were selected. Except for the cluster of Kibwezi Mjini which had eight households, remaining eleven clusters had four households each included in the socio-cultural study.

6.2.4 Data Collection

Interviewers visited the selected households and interviewed the head of the household to solicit response on the specific issues as addressed in the protocol. This was done at the respondent's home without participation of other members of the household. On average, an interview took 1 - 2 hours and the interviewers took 3 days to complete the survey of the 50 respondents, 32 were males and 18 were females.

6.2.5 Data Processing and Analysis

After interviewing and checking the completeness of the protocols, data was coded and entered in the computer for numerical processing and analysis. Some of the evaluative and quantitative data were processed.

6.3 FINDINGS

6.3.1 Beliefs regarding cause, prevention and cure of some common diseases.

Findings indicated that sample households consider witchcraft, God and curse as the "causes" of illness and that each illness may be caused by a multiple of factors: natural, social, spiritual and physical forces. The natural forces are associated with misfortune, perhaps emanating from God; such diseases include measles and others that tend to attack populations in epidemic of outbreaks. Social factors such as to trespassing moral codes of conduct may cause, polio and leprosy, while spiritual factors are associated with curse or evil spirits perceived to cause diseases like leprosy and mental illness. The physical forces include violence, causing injury and physical contact with a diseased person, e.g. a person with certain type or wounds. Administration of herbal medicine, cleansing and use of preventive charms is prominent.

In the main report Tables 6.1 - 6.10 addressed local beliefs and practices related to cause, effect, management and prevention of diarrhoea in adults, measles, gonorrhoea, leprosy, pneumonia, epilepsy, polio, kwashiorkor, TB of the lungs and spontaneous abortion (Oduol, 1991). The respondents were provided with options regarding cause, effect, management and prevention. The options were based on available literature on the Akamba health practices, AMREF's many years of experience working in the Kibwezi area and personal communication with the staff working in the Kibwezi Division.

6.3.2 Diarrhoea in Adults

Diarrhoea in adults is believed by most (51.9%) to be caused by bad food while 30.4% of the respondents believe it is due to either witchcraft or infidelity. 79.2% believe it is best managed with herbs or ritual performance. For prevention, eating well cooked food is recommended by 33.3%, while culturally oriented preventive measures, i.e. performing ritual and adhering to traditional moral codes of conduct are mentioned by 57.3%.

6.3.3 Measles

About 60% of respondents consider measles as caused by natural causes or by God while 12.8% think it is caused by evil human beings. Its management is varied with no striking traditional practice except for applying mud made from ant-hill soil and bathing child in warm herbal tea which account for 15.4% and 14% respectively. Even though there is no consensus on any particular traditional methods of managing measles, the various traditional method cumulatively account for 90.2%. However, culturally oriented preventive measures account for 56.7% - using ashes, passing the child through a beehive, taking herbs and applying sheep's fur to clean the child - while 19.7% mention vaccination and another 19.7% mention infection which may well be confused with immunization.

6.3.4 Gonorrhoea

Gonorrhoea is common and increasing. Findings indicate that gonorrhoea is perceived as caused by loose sexual behaviour (61.2%) but also perceived as a disease of town residents (25.4%). Nearly half of the respondents (48.2%) believe that gonorrhoea can be treated using traditional medicine. The respondents varied in preventive measures: "zero grazing" marital fidelity (40%), drinking "muteta" soup (goat soup mixed with traditional herbs) (24.3%), isolation (18.6%) and taking tablets (17.1%).

6.3.5 Leprosy

Leprosy is perceived to be caused by transgressing traditional rules of conduct (72.9%) - mainly related to sexual relations. It is mainly managed through seeking treatment from a medicineman and taking herbal medicine (79.5%) and prevented by obeying traditional codes of conduct (60.8%).

6.3.6 Pneumonia

The survey showed that 40.4% of the respondents associate pneumonia with physical cause - carrying heavy loads/overworking/ fighting. It is preventable by avoiding the above. However, 61.3% seek traditional healers (visit traditional medicineman and cleansing ceremony). In some communities pneumonia victims to inhale the steam from boiled leaves.

6.3.7 Epilepsy

The twitching of arms and legs, the tightening of the jaws and biting of the tongue, the difficulty in breathing, the falling of the victim are terrifying signs that makes epilepsy a difficult condition for the lay person to comprehend. Epilepsy is believed to be caused by several factors: genetic, curse, witchcraft, being spat/urinated on, worm in the brain, eating food which has been eaten by rats, etc. A generally mysterious disease only treatable/managed through traditional health practices (94.1%) and preventable through preventive charms, seeking advice from traditional medicine man, avoiding to cross victim's urine path and performing cleansing rituals.

6.3.8 Polio

Polio is another mysterious disease believed to be caused by various mystical factors such as witchcraft or curse (58.7%) and mainly treatable by herbs (44.5%) or by medication in the form of tablets or injection (34.9%).

6.3.9 Kwashiorkor

Kwashiorkor is a common condition in children in rural villages with low socio-economic status. Kwashiorkor is associated with no traditional cause. Preferred to treatment based on drinking milk and prevention is based on a balanced diet. This perception may be due to nationwide nutrition campaigns with nutrition posters in

almost all health facilities.

6.3.10 Tuberculosis of the Lung

TB is associated with pluralistic causes: assault in childhood and transgressing traditional rules. Its appropriate management is believed to focus on use of herbs and other traditional practices. 51.7% of the respondents recommend keeping away from ill-persons and 40% prescribed traditional codes of conduct as a preventive measure.

6.3.11 Spontaneous Abortion

Spontaneous abortion is believed to be caused by a curse, having sex with somebody whose child has died, or by infidelity (70%) and is mainly managed by performing "ng'ondu" and a cleansing ritual to appease the spirits (77.3%). Depending on health problem priorities, this is one condition for which planned education programmes would benefit the public.

6.3.12 Family Planning Methods Preferred

Family planning methods were listed and respondents were asked to rank their preferences. The pill and injection were most preferred with cumulative first and second ranking of 78.8% and 65.6% respectively. The least preferred was abstinence followed by traditional methods.

6.3.13 Other traditional health practices

Traditional health practices were sought regarding child birth, pre-marital pregnancy, mental illness, still birth and threatened abortion. For mental illness, still birth and threatened abortion either a medicine-man is consulted or a cleansing ceremony to appease or chase away evil spirits is performed. For child birth or pre-marital pregnancy only a cleansing ceremony is conducted to appease the spirits.

Traditional Akamba health practices are meant for both curative and preventive purposes. It has been found that "mundu mue" (the medico-religious specialist) performs prescribed actions aimed at neutralization, removal or withdrawal of harmful forces. Prescribed actions are meant to take away the wrath of the "aimu" (spirits of the ancestors). All this indicates that in most cases the traditional healers work for promotive, preventive and curative purposes.

6.3.14 Responses to open-ended questions on Disease Causality, Preventive and Curative Measures

Responses on open ended questions. Table 6.1 show that use of western-type of medical care is almost mandatory, yet to a large extent the indigenous cause of illness perception still persists.

Table 6.1: Perceived causes, and preferred prevention and curative measures for selected conditions

Disease/ Condition	Cause	Prevention	Treatment
Gonorrhoea	1.Sex 2.Prostitution 3.Infidelity 4.Promiscuity 5.Witchcraft	1-Avoid loose sexual behaviour 2-One partner 3-Herbs (traditional) 4-Isolation 5-Tablets	1-Capsules 2-Herbs/traditional 3-Injection 4-Drugs 5-Tablets
Mental Illness	1.Bewitched 2 Curse 3.Head injury 4.God's plan 5.Sativa Canibalis	1-Protective charms 2-Obey parents 3-Take care of small children 4-Injection	1-Call medicineman (witchdoctor)/ - cleansing ceremony 2- Modern medical care
Diarrhoea	1. Stale /dirty food 2.Stagnant water 3.Flies	1-Eating clean food 2-Clean environment 3-Balanced diet 4-Well cooked food 5-Use of latrines	1-ORS/modern medicine 2-herbs
Measles	1.Evil eye 2.God's plan 3.Cold weather 4.Mixing with sick people 5.Grasshoppers	1-Herbs 2-Pass through beehive 3.Isolation	1-Hospital care 2-Use of herbs (bathe) 3-Use ant-hill soil
Infertility in women	1-God's plan 2-Witchcraft 3-STDs 4-Infidelity 5-don't know	1-Cleansing ritual/preventive charms 2-Prayers 3-Respect cultural codes of conduct 4-Use tablets 5-"Zero grazing"	1-Traditional medicineman, use of herbs/cleansing ritual 2- Consult doctor at hospital 3-Capsules or injection 4-Operation (surgical)
Cough	1-Cold windy air 2-Cold and dust 3-Flowers pollen 4-God's plan 5-Cursed wind 6-Coughing people 7-Inhaling germs in dust	1-Changing direction of cursed wind 2-Avoid windy, dusty cold places 3-Wear warm clothing 4-Take drugs 5-Walk with mouth shut 6-Vaccination	1-Seek hospital treatment 2-Use herbal medicine Cleansing
Skin Conditions	1-Dirty water 2-Dirty clothing 3-Lack of food 4-Germs in the body 5-Sharing clothing 6-Infidelity 7-Cursed wind	1-Bathing in water mixed with herbs 2-Use own clothes/wear clean clothes 3-Bathe in clean water 4-Eat balanced diet 5-Eat fruits 6-Personal cleanliness 7-Divert cursed winds	1-Modern medical care 2-Apply herbal medicine 3-Eat right foods

* A term invented in Uganda to express one sexual partner in AIDS control

Table 6.1 continued

Disease/Condition	Cause	Prevention	Treatment
Eye infection	1-Dust and dirt 2-Dust from wind 3-Flowering plants 4-Cursed wind 5-Witchcraft	1-Avoid dust in eyes 2-Clean/wash face regularly 3-Spit on victim 4-Divert cursed wind 5-Personal cleanliness 6-Wear sunglasses 7-Seek medicineman 8-Eat balanced diet	1-Seek help from a doctor 2-Use eye ointment 3-Apply rub 4-Apply herbal medicine
Joint Pain	1-Overworking 2-Carrying heavy load 3-Being sick regularly 4-Having an affair with a relative 5-Cold 6-Malaria 7-Long distance walk	1-Avoid overworking 2-Carry light loads 3-Consult medicineman 4-Take drugs	1-Apply liniment/rub/kaluma 2-Bewitch person who brought it to you 3-Cleansing ritual 4-Use herbs
Accident	1-Bad roads/careless driving 2-Falls 3-Drunkenness 4-Natural/God's plan 5-Being bewitched/cursed 6-Fights	1-No prevention 2-Being careful 3-Consult medicineman 4-Obey traffic laws	1-Seek help from hospital 2-Consult medicineman
Pneumonia	1-Cold weather 2-Heavy loads 3-Overworking 4-Physical assault	1-Keep warm 2-Carry light loads 3-Avoid overworking 4-No preventive measures 5-Steam inhalation 6-Take medicine	1-Take tablets 2-Attend medical clinic 3-Steam inhalation 4-Consult medicineman
Anaemia	1-Inadequate food 2-Mosquito bites 3-Accident/bleeding too much 4-Working in hot sun 5-Sickness/(prolonged	1-Eating balanced diet 2-Blood transfusion 3-Stop working in hot sun 4-Use mosquito net	1-Seek treatment from hospital 2- Blood transfusion 3-Use of herbs
Infertility in men	1-Don't know 2-God's plan 3-STDs 4-Witchcraft 5-Injury 6-Umbilical cord falls down after birth 7-Infidelity	1-Don't know 2-No prevention 3-Preventive charms 4-Respect traditional codes of conduct 5-Prayers	1-Don't know 2-Use herbs/consult traditional medicineman/ritual 3-Seek help from modern medical facilities

This is, a sign that the Akamba are quite pragmatic in their health seeking behaviour and receptive to new ideas on health and related health practices.

The principal cause of gonorrhoea is perceived as sexual intercourse with attendant behaviours related to prostitution, infidelity and promiscuity. This confirms findings which are based on precoded questions with fixed response alternatives. Being sexually virtuous rank highest as a means of preventing gonorrhoea which indeed confirms "zero grazing" as depicted in precoded questions. However, use of "capsules" has been indicated as the most preferred form of treatment followed by administration of traditional herbs. Traditional herbs were preferred by 48.2% of respondents responding to precoded questions.

Mental illness is principally perceived as caused by mystical forces: being bewitched or cursed, with lower rank association being head injury, God's plan and sativa cannibalis. Administration of protective charms as preventive measure, treatment mainly sought from traditional medicine-men and conducting cleansing ceremony being means of management of the problems. These actions underline the perceived causes of mental illness. Mental illness may be perceived as uniquely African and in large part, therefore, not treatable by Western medicine.

Responses from precoded questions indicated diarrhoea as caused by stale food (51.9%) and this is confirmed in Table 6.1 which has ranked stale food highest. However, while in the precoded questions it is stated to be best managed by administration of herbs and ritual performance, the open-ended question ranks ORS/modern drugs highest with prevention geared to good food hygiene.

Precoded and open-ended responses agree on the causes of measles. Use of herbs, passing child through a beehive and applying ant-hill soil predominate prevention and treatment.

Infertility in women is perceived as either arising from natural or mystical causes although some respondents indicate STDs. Traditional practices are employed in treatment and prevention. Other respondents either feel that there is no prevention or recommended being chaste or taking tablets as means of prevention. Some recommend injection or capsules as treatment.

Basically cough is perceived to be caused by cold windy air or dust and "cursed" wind; prevention include changing direction of cursed wind and staying away from cold windy and dusty environment and wearing warm clothing. Seeking hospital treatment and use of herbal medicine are considered best means of management.

Skin conditions are associated with dirt although there are some elements of traditional beliefs with some need for bathing in water mixed with herbs. Seeking modern medical care facilities and application of herbal medicine are preferred as means of treatment. Eating balanced diet, fruits, though ranked low, are considered as both preventive and curative measures.

While treatment for eye infection is principally sought from modern health care, herbal medicine is still administered in some cases even though it is believed to be caused by dust and dirt including "cursed" wind and witchcraft. Interestingly, spitting on the victim is one mentioned as means for prevention.

Over-working, carrying heavy load, being sick regularly are perceived as the main causes of joint pains. Application of liniment/"rub" is the preferred mode of treatment, and reducing physical strain a means of prevention. However, although ranked low, traditional practices are still employed in prevention and management of joint pains.

Accidents are basically perceived as caused by carelessness, falls and drunkenness and treatable through hospital care. Some of the respondents ranked no preventive measure very highly. Some perceive accidents as caused by nature/mystical forces for which they

have no control like: God's plan, curse, being bewitched. Since the Kamba consider accident and injuries as conditions associated with misfortune which God may be responsible for, this may explain why most respondents identified "no preventive measure".

Pneumonia is perceived as associated with physical causes such as cold weather, carrying heavy loads and over- working and as preventable through avoiding the above. Modern medical care is ranked highest for its management. The causes of anaemia are associated with inadequate food, mosquito bites, accidents, prolonged illness, etc. Blood transfusion as a preventive measure is misplaced but again rightly placed under treatment.

A majority of respondents don't know the cause of male infertility although some associate it with God, STDs, witchcraft and injury. They also don't know how to treat or prevent it.

6.3.15 Perceived causes of some childhood diseases

While communicable diseases related to childhood have been addressed elsewhere a few childhood conditions are addressed in this section; marasmus, ear and eye infection, fever and skin rash. It should be noted that 32 of 50 respondents were males of whom declined to answer questions related to child care claiming ignorance.

As shown in Table 6.2 a majority of respondents (74.3%) believe that marasmus is caused by either lack of food or bad food; Ear infection: foreign body (17.3%), injury (19.2%), dirt (40.4%); Eye infection: evil eye/witchcraft (21.1%) and dust (55.8%); Fever: exposure to cold (59.6%) mosquito bites (3.8%), rain (7.7%), contact with feverish person (13.5%) and exposure to cold (59.6%).

Table 6.2: Causes of Childhood Diseases

Disease	Cause	Frequency	%
Marasmus	Witchcraft	3	5.8
	Lack of food	15	28.8
	Bad food	11	21.2
	Infidelity	6	11.5
	No answer	17	32.7
	Total	52	100.0
Eye Infection	Evil eye	10	19.2
	Dust	29	55.8
	Wind	5	9.6
	Witchcraft	1	1.9
	Dirty water	0	0.0
	Don't know	3	5.9
	No answer	4	17.7
	Total	52	100.0
Ear Infection	Inquiry	10	19.2
	Dust	21	40.4
	Foreign body	9	17.3
	Don't know	4	7.7
	No answer	8	15.2
	Total	52	100.0
Fever	Exposure to cold	31	59.6
	Rain	4	7.7
	Evil eye	0	0.0
	Mosquito bites	2	3.8
	Contact with feverish person	7	13.5
	No answer	8	15.2
	Total	52	100.0
Skin Rash	Type of food	7	13.5
	Clothing	11	21.2
	Dust	10	19.2
	Heat	6	11.5
	Normal	-	-
	Genetic	2	3.8
	Germ in body	5	9.6
	Don't know	2	3.8
	No answer	9	17.3
	Total	52	100.0

Skin rash is associated with type of food, clothing, dirt, etc. What other respondents referred to as bad food is unclear. Even though some of the respondents associated eye infection with witchcraft, majority associated it with dust which is a physical cause rather than a biological cause. Fever and skin rash are associated mainly with physical causes.

6.3.16 Methods of treating diarrhoea in children.

Diarrhoea still contributes significantly to child morbidity and mortality in the under fives and particularly in those under two years.

Table 6.3: Methods and perceived efficacy of traditional practices in management of diarrhoea in children

	Use of herbs		Conducting of Ritual		Total	
	Frequency	%	Frequency	%	Frequency	%
Highly efficacious	23	45.1	6	11.8	29	56.9
Moderately efficacious	14	27.4	3	5.9	17	33.3
Slightly efficacious	1	2.0	1	2.0	2	3.9
Not at all	2	3.9	1	2.0	3	5.9
Total	40	78.4	11	21.6	51	100.0

About 78.4% of the respondents reportedly use herbs for treatment of diarrhoea in children; of these 37 households consider herbs as either highly or moderately efficacious. 11 households (21.6%) conduct traditional rituals, of whom 9 consider these rituals highly or moderately effective. For management of diarrhoea in children 90.2% respondents rate traditional practices favourably.

Table 6.4: Supplementary/alternative treatment for diarrhoea

	Frequency	%
Hospital Care	12	23.1
Administer ORS	8	15.4
Use modern medicine including shop drugs	7	13.5
Consult a traditional medicineman /preventive charms	3	5.8
Use baking flow/wheat flow	2	3.9
Use bananas	1	1.9
Conduct a cleansing ceremony	1	1.9
No answer	18	34.6
Total	52	100.0

Alternative or supplementary management of diarrhoea in children are mentioned by 34 of the 52 respondents: hospital care (23.1%), administration ORS (15.4%), use modern medicine available from the shops (13.6%) and therefore 52% seek modern health care as alternative diarrhoea management. However when asked how they would manage diarrhoea in children at home 44.2% indicated breastfeeding and 21.1% indicating administration of oral fluids. Eighteen respondents (mainly males,) did not respond to this question on alternative or supplementary management of diarrhoea.

When managing diarrhoea at home, 23 of the respondents (44.2%) administer breastfeeding (Table 6.5), while 11 give more fluids and only one claims to give salt-sugar solution. This is contrary compared to the 8 who to administer ORS as an alternative supplement to traditional practices (Table 6.5). We are not sure if these fluids given are some sort of traditional fluids and, if so, what type.

Table 6.5: Managing Diarrhoea in Children at home

	Frequency	%
Feed as usual	2	3.8
Give more fluids	11	21.1
Reduce food	3	5.8
Give salt sugar solution	1	1.9
Breast feeding	23	44.2
No breast feeding	2	3.8
Given drugs obtained from shop	1	1.9
Others (specify)	3	5.8
	6	11.5
Total	52	100.0

6.3.17 Disease/Prevention

Using a checklist of hygiene/sanitation related activities we explored the opinions of respondents about prevention of diarrhoea. Hygiene related measures account for 50% of the stated preventive measures while sanitation related measures accounting for 36.5%. Findings in Table 6.1 also confirm that hygiene is perceived as prominent in diarrhoea prevention.

Table 6.6: Diarrhoea Prevention

Preventive Action	Frequency	%
Sanitation related measures	19	36.5
-Clean surrounding	6	11.5
-Use of latrine	13	25.0
Hygiene related measures	26	50.0
- Cover food	14	26.9
- Wash hands	4	7.7
- Keep flies away	8	15.4
Ritual cleansing	3	5.8
Don't know	3	5.8
No answer	2	3.8
Total	52	100.0

Table 6.7: General Disease Prevention

Disease Prevention	Frequency	%
Ritual performance	5	9.6
Prayer	7	13.5
Protective witchcraft	6	11.5
Take modern medicine	24	46.2
Others	7	13.5
No answer	3	5.8

Total	52	100.0
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As regards disease prevention in general drug taking is mentioned by 24 of the respondents. Eighteen respondents believe in ritual performance, prayers and protective charms as a means of preventing disease. However, in the specific case of diarrhoea prevention, 26 mentioned hygiene related measures and 19 mentioned sanitary measures (Table 6.6).

6.3.18 Health Care Seeking Behaviour

Table 6.8: Health Care Seeking Behaviour for various Diseases

Diseases	Traditional Medicine		Modern Medical Care		Shop		No Care		Other		Don't know		Total
	Freq.	%	Freq.	%	Freq.	%	Freq.	%	Freq.	%	Freq.	%	
Diarrhoea	4	8.0	34	68.0	12	24.0	0		0		0		50
TB	5	10.0	43	86.0	2	4.0	0		0		0		50
AIDS	4	8.0	37	74.0	2	4.0	2	4.0	0		5	10.0	50
Kwashiorkor	12	24.0	33	66.0	0		1	2.0	3	6	1	2.0	50
Polio	9	18.0	39	78.0	1	2.0	0		0		1	2.0	50
Mental illness	14	28.0	35	70.0	1	2.0	0		0		0		50
Fracture	3	6.0	44	89.0	2	4.1	1	2.0	0		0		50
Leprosy	7	14.0	38	76.0	3	6.0	0		0		2	4.0	50
Malaria	3	6.0	38	76.0	9	18.0	0		0		0		50
Gonorrhoea	6	12.0	41	82.0	2	4.0	0		0		0		50
Syphilis	4	8.0	42	84.0	2	4.0	0		0		1	2.0	50

We explored the respondents' opinion on their first preference in seeking health care for various health problems/diseases. Table 6.8 shows that for all cases, modern care was the most preferred with a mean percentage score of 77.4%. Most people seek health care from modern health facilities for conditions fractures, TB, gonorrhoea and syphilis. Nearly a quarter (24%) prefer to treat diarrhoea using drugs bought from shops. For mental illness, kwashiorkor, leprosy and TB, traditional medicine was preferred by 28%, 24%, 14% and 10% of respondents respectively, but in all these cases modern medical care was preferred by most respondents.

Table 6.9: Treatment in their Order of Preference
- 1st choice to 4th choice

	1		2		3		4		Total
	Freq.	%	Freq.	%	Freq.	%	Freq.	%	Freq. %
Injection	30	36.1	2	2.4	1	1.2	0	0	33 39.5
Capsule	5	6.0	7	8.4	4	4.8	1	1.2	17 20.5
Tablets	6	7.2	9	10.8	5	6.0	2	2.2	22 26.5
Syrup	2	2.4	3	3.6	1	1.2	5	6.0	11 13.2
Others									
Total	43	51.9	21	25.3	11	13.2	8	9.6	83 100

We also found that the injection is the most preferred form of treatment. Of all the 52 households injection was rated first choice by 57.7%

Whenever treatment at the local modern health facility fails, 31 respondents indicate preference for traditional/indigenous healing systems as alternative solution. However, a third (17) seek treatment at a higher level health facility. The fact that in this case drugs are not bought from a shop may indicate that they had either done so previously and failed or that the severity of the problem does not justify further use of drugs from the shops.

Table 6.10: Referral Systems (when treatment fails at local health facility)

Action taken	Frequency	%
Witchdoctor (mediciner) consulted	15	28.8
Herbalist	6	11.5
Rituals performed	7	13.5
Prayers conducted	3	5.8
Referred to higher health facility	17	32.7
No answer	4	7.7
Drugs bought from shop	0	0
Total	52	100.0

6.3.19 Perceived severity of certain common diseases

A range of infectious as well as non-infectious diseases were listed to explore how the respondents perceive their severity. These diseases included: measles, TB of the lungs, loose stool, watery diarrhoea, pneumonia, malaria, cough, gonorrhoea, worms, marasmus, Kwashiorkor, chicken pox, polio, mental illness, leprosy and AIDS. The following diseases were perceived as either always severe or often severe; measles (92%), TB (76%), AIDS (71%), watery diarrhoea, malaria, gonorrhoea (69%) and mental illness (68%).

Table 6.11: Perceived Severity of Diseases

Diseases	Always		Often		Rarely		Never		Trivial		No answers		Total	
	Freq.	%	Freq.	%	Freq.	%	Freq.	%	Freq.	%	Freq.	%	Freq.	%
Measles	36	69.2	11	21.2	1	1.9	2	3.8	2	3.8	1	1.9	52	100
TB of Lungs	22	40.3	16	30.8	5	9.6	3	5.8	3	5.8	3	5.8	52	100
Loose Stool	5	9.6	9	17.3	12	23.1	15	28.8	4	7.7	7	13.5	52	100
Water Diarrhoea	23	44.2	11	21.2	9	17.3	5	9.6	2	3.8	2	3.8	50	100
Pneumonia	21	40.4	7	13.5	9	17.3	7	13.5	3	5.8	5	9.6	52	100
Malaria	22	40.3	13	25.0	11	21.1	1	1.9	4	7.7	1	1.9	52	100
Cough	7	13.5	6	11.5	14	26.9	11	21.2	9	17.3	5	9.6	52	100
STD/ Gonorrhoea	15	28.8	16	30.8	6	11.5	3	5.8	4	7.7	8	15.2	52	100
Worms	9	17.3	8	15.2	6	11.5	8	15.2	13	25.0	8	15.2	52	100
Marasmus	10	19.2	9	17.3	9	17.3	11	21.2	6	11.5	7	13.5	52	100
Kwashiorkor	9	17.3	12	23.1	11	21.2	10	22.7	2	3.8	8	15.2	52	100
Chicken-Pox	6	11.5	15	28.8	9	17.3	7	22.7	7	13.5	8	15.2	52	100
Polio and Paralysed Leg	19	36.5	7	13.5	5	9.6	4	7.7	9	17.3	8	15.2	52	100
Mental Illness	21	40.4	9	17.3	1	1.9	5	9.6	8	15.2	8	15.2	52	100
Leprosy	20	38.4	6	11.5	8	15.2	3	5.8	8	15.2	7	15.2	52	100
AIDS	26	50.0	7	13.5	2	3.8	5	9.6	6	11.5	6	11.5	52	100

6.4 DISCUSSION

The study findings on disease causality, perceived severity, curative and preventive measures, and other traditional health practices are consistent with previous findings by Maina-Ahlberg (1979) and Luijk (1983) in the same area. In most cases the perceived cause of disease did determine the preferred management while in other cases traditional preventive actions were applied also as curative measures. It appears that the people in Kibwezi in some cases do not differentiate preventive from curative intervention. It is common for indigenous and western-type interventions to be applied simultaneously or sequentially against a given disease condition.

The findings help explain health-related behaviour which may otherwise appear puzzling, such as management of mental illness and infertility. There is an obvious need for more education about mental illness and about measles, for instance to promote immunization as a preventive measure. The nature and handling of different kinds of skin conditions are also poorly known in sample household, probably causing unnecessary suffering and health care expenditure. On the other hand, local view about diarrhoea and gonorrhoea and their treatment and prevention were essentially consistent with current medical thinking.

The choice of treatment is based on the perceived cause, efficacy of the treatment and severity of the disease. Other factors influencing health care facilities are distance, cost, satisfaction with former visits, information from neighbours and relatives. Conditions such as infertility, mental illness, spontaneous abortion, epilepsy and leprosy are regarded as traditionally influenced and indigenous treatment options tend to be preferred. However, treatment is usually sought also from western oriented practices to manage these conditions. Van Luijk discovered that people would conceal a visit to "mundu mue" for a number of reasons: it was shameful, it could alert an enemy in case of witchcraft, people did not want to be called pagan etc. With exposure to western medicine, the people of Kibwezi can be said to use both indigenous and western medicine.

The information gathered on socio-cultural health issues should be useful for a number of purposes. First, it can help identify indigenous resources and systems more or less widely applied in management of illnesses. Secondly, it can help discover poorly known local health needs of the people. Third, it would help improve the understanding of factors which influence health and illness and strengths and weaknesses of various interventions. This means an improved basis of responding to health needs of the people and therefore, a basis for rational planning of intervention strategies. Planners need to know how the community perceive the severity of the different conditions or diseases, because the community's perception influences the way they respond. Understanding their response to health problems helps identify unmet needs.

One important factor remains to be emphasized. While it may appear that western and indigenous medical systems compete and the choice of therapy depending on perceived cause, efficacy of treatment, and severity - the indigenous and western medicines are being used, for any single episode of illness, concurrently or sequentially by a fair number of the population whether those conditions/diseases are classified as those of God

(natural) or traditionally influenced.

For the purpose of IDD project the information gathered on the socio-cultural study will be useful tool for both health sector managers and other organizations to plan health education strategies/courses of action consistent with peoples values. Data therefore becomes a tool for raising people's awareness about actual causes of ill health, for educating them on relevant courses of action they need to take and also for identifying and using appropriate and acceptable indigenous systems and resources to alleviate existing health problems.

CHAPTER 7

CONCLUSIONS

7.1 The descriptive study

The descriptive study required more time and effort than anticipated. Even basic information regarding resources, output and activities is not easily available. The questionnaire was generally appropriate even though the use of one questionnaire for all facilities meant that many questions were not applicable to small clinics and dispensaries. Even if respondents in charge of health facilities are given detailed instructions they should be allowed several weeks to complete the questionnaire. Even then, follow-up visits to some facilities are likely to be necessary.

The size and composition of the catchment area population of each facility needs to be more systematically described and a widely acceptable definition of the concept is a first important step. A study comparing the results of different definitions applied to the same institution would be helpful to this process.

Records kept at facilities on service output are unsatisfactory, particularly with regard to quality of care. This also applies to resource use, but ongoing efforts by Ministry of Health to develop an improved management information system (MIS) may remedy some of these problems. More systematic supervision visits and a fair minimum of information feedback are likely remedies along with further decentralization of management authority. The absence in Kenya of institution - specific recurrent budgets and expenditure records is a serious drawback, and it is almost impossible at present to determine the actual recurrent expenditure pattern of singular institutions with the possible exception of some district hospitals.

The usefulness of the descriptive analysis remains to be tested by staff in charge of health facilities and by the District Medical Officer and his team. Our assumption, based on our own experience from rural health care management in Africa, is that it is likely to be helpful in both short and medium term planning and in day to day management at district and subdistrict levels, but data need to be quite detailed. The process is rather time-consuming and it takes considerable determination to analyse the data and prepare a report. An exercise of this kind should only be undertaken once every 3 - 5 years, it could well be restricted to a 15-25% sample of institutions when conducted in an entire district, and the District Medical Officer should be involved in planning and launching the study.

7.2 The cross-sectional household health surveys

The cross-sectional household health surveys have generated a variety of information not available through the ordinary health information system. Some of this information is likely to affect health care planning at district level and below. Household composition appears to be changing with migration, delayed marriages and increasing pressure on households to have one or more members generating cash income through employment in more or less distant urban centres. There is a high proportion of female-headed households in some urban areas and these households are at high risk of excess morbidity and mortality and of poor access to health and social services, so they need to be identified and actively monitored by dispensary staff, Family Health Field Educators, Public Health Technicians and Community Health workers where present.

Educational levels are rising but still over one-quarter of household heads have never been to school. Considering the association between educational level and health-related behaviour this is an obstacle to health improvement. They should be encouraged to participate in adult education programmes where available, and they should be given priority when health education programmes are being planned. Inter-sectoral collaboration, for instance with agriculture and social services, in stimulating the formation of local women's groups, may help establish local safety-nets for the most vulnerable.

The findings regarding housing, water supply and sanitation offered no major surprises. The average reported 1990 consumption of household water was 6 litres per person per day which is a very low figure, likely to be an important obstacle to hygiene improvement in the area; the consumption, which reportedly dropped to 2.8 litres in 1991, a year with below average rainfall, probably needs to increase at least four or five-fold before a significant health and hygiene improvement can be expected. Refuse disposal is generally unhygienic and 32% of all households had no access to a latrine; the proportion was much smaller in urban centres. From a health planning standpoint these findings justify increased efforts in improving excreta disposal practices in no-latrine households and in improving access to water for domestic use. Some of these efforts should be shared or coordinated with the agricultural and water development sectors.

The reported mortality in sample households was low, about 16 during 12 months against the expected 35. Under-reporting can be due to the fact that the survey was conducted early in the study when the interviewers were still little known by the sample household heads, and there is also a general reluctance to volunteer information about childhood deaths. The longitudinal survey and the second Cross-sectional Survey (CS II) conducted in December 1991 have provided opportunities to compare findings obtained under different circumstances. Socio-economic levels measured with the help of the educational level of the household head, the size and quality of the main house and the presence of a latrine declined between 1990 and 1991, partly because houses of CS II replacement household were of relatively low quality.

Reported morbidity, as reflected in the 30-day recall questions, turned out to be lower than expected; the average number of days ill per person per month was 10.93 in 1990

and 14.7 in 1991. Reported childhood morbidity was surprisingly low. This is partly due to memory decay during the 30-day period with brief and undramatic illness episodes quickly being forgotten and not reported during subsequent interviews.

The number of "days off normal duty" should be more useful as an indicator of morbidity than total days ill, but this is uncertain in low-income rural areas such as Kibwezi, where few households can afford activity restrictions even in times of illness of mild and moderate degree of severity.

As regards the methods applied in the cross-sectional surveys, we draw the following conclusions:

- ◆ the household sample size was rather small for proper analysis of mortality and morbidity by age and sex.
- ◆ household interviewers, when exploring illness episodes, should ask probing questions on a small number of illness categories in order to overcome respondents' memory loss and their own inability to interpret reported symptom combinations.
- ◆ young school leavers or students should be avoided as interviewers while literate villagers properly trained and instructed, have turned out to be generally acceptable, reliable and cooperative;
- ◆ the questionnaire should be reduced; some socio-economic household information is unnecessary, the 12 month recall questions on morbidity should be omitted, the questions included to help validate the Delphi panel study answers can be eliminated;
- ◆ a list of 8-10 broad illness categories should be printed on the illness recall questionnaire in order to facilitate classification on the basis of experiences with reported symptoms (Gesler 1979; Fabrega 1977; Kroeger 1982). On the basis of reviews of the returns from our current survey we recommend the following classification:
 - 01 gastro-intestinal
 - 02 respiratory
 - 03 skin
 - 04 eye, ear
 - 05 physical injury
 - 06 genito-urinary including STD
 - 07 pregnancy related
 - 08 joints
 - 09 mental
 - 10 other, unspecified
 - 11 not stated

7.3 The Longitudinal survey

The longitudinal survey monitored the number, duration and effects of illness episodes in the cluster household, especially information on differences in disease incidence between different age and sex groups in the population. Generally, small children and women experienced high morbidity compared to adult males.

A limitation of the survey, with lay interviewers recording symptoms as described by respondents, was that it could not provide information on diagnosis. This weakness was not only a problem in the longitudinal survey alone but also in the cross-sectional surveys I and II. We propose, in the case of cross-sectional as well as longitudinal household interview surveys using non-medical people as field interviewers, that a list of 8 - 10 broad illness categories be printed on the illness episodes recall questionnaire as a basis for diagnostic classification. There is support for this from past survey experiences (Gesler 1979; Fabrega 1977; Kroeger 1982).

The stated number of days out-of-normal duty during illness episodes was used as an indicator of the socio-economic impact of illness. This was clearly a rather crude indicator, measuring loss of production within the household. It excludes direct health care costs and also costs indirectly paid by household members, e.g. for time spent on home care and transport outlays for accompanying the sick person to health facilities.

The respondents and interviewers found it difficult to specify the number of days "partially restricted". Another difficulty in this context was to determine the average daily number of working hours. It was therefore concluded that a study on the socio-economic impact of illness on African households should be conducted separately with a smaller and carefully selected sample.

The two illness severity measures, pain or discomfort experienced and perceived seriousness were consistent and comparable. In a longitudinal study, more reliable and precise information could be secured on perceived seriousness of illness than on the level of pain or discomfort which could therefore be discarded.

The survey tried to capture the dynamics of care-seeking behaviour and its association with the local provider situation and the ill person's perception of the illness. The majority of the illness episodes were either reportedly treated using self-medication or clinic/hospital care, and relatively few were reported to be handled by local service providers such as community health workers (CHWs), traditional birth attendants (TBAs), traditional healers and medicine men. We have reasons to assume a certain degree of under-reporting

The stated care-seeking behaviour of males and females age 15 and over was essentially similar but with a slightly stronger tendency among females to seek care closer to home, from household members, friends, TBAs, CHWs and traditional healers. The frequent use of shop medicine is disturbing in view of the medical ignorance of the "provider", and basic drug information for shop keepers and consumers is much needed. The findings can help guide the planning of health care services such as the targeting of health education efforts and the inspection of the range of drugs sold in general shops. The

survey also showed the interlinkages between the degree of pain or discomfort and health care-seeking behaviour. The longitudinal survey is more suitable for such analyses than cross-sectional surveys.

Because of the low surgical operation rate and the large sample size required for sufficient numbers of surgical operations, the longitudinal survey is not an appropriate method for gathering information on the subject. A large cross-sectional survey with longer recall is preferable as a complement to facility-based studies.

The method provided an opportunity to study private health care financing in the division. But only 72 individuals reported their outlays for services received, three quarters having spent KShs.70 or less. Government dispensary services are free, and user charges may not have been required at Health Centres at the time of the study.

We conclude that a longitudinal survey for monitoring health conditions and care-seeking behaviour is a useful but relatively expensive component of a health information system, also causing a growing amount of respondent fatigue and frustration over a months period. Implementation requires a fair amount of experience and management capability and also the support and active participation of people in a number of local villages. If conducted every 4-5 years in a given district and with a one-month-interview recall period, results applicable to local planning could be sufficient to justify the effort.

7.4 The Delphi Study

We did not encounter any serious problems with the implementation of the Delphi study, and this is true also regarding the use of interviewers which is not part of the method as normally applied. A difficult task in selecting panel members was to recruit them without jeopardizing their anonymity, assuming that panel member anonymity is important also in a rural African context; this needs to be tested.

The Delphi technique is likely to reflect more of the truth regarding mild illness episodes and conditions, which are not seen at health facilities for one reason or other and do not, therefore, appear in facility based morbidity statistics. It is possible, however, that young mothers and housewives are more useful panellists for such questions than middle-aged wise men, and tests with different panel compositions - for instance with regard to age, sex, and educational background -are desirable. Delphi panel data may be useful in addition to facility-based information with regard to those illnesses that are manageable at home as well as those that are not freely reported to local health personnel for social and cultural reasons, e.g. diarrhoea, epilepsy, sexually-transmitted diseases, mental illness, and permanent disability conditions. Given that the technique provided information on unreported illnesses which could otherwise only be identified using the more complex and costly household health surveys, the Delphi method has certain potential advantages.

The questions presented to the Delphi panel were rather simple and less exciting than they could have been. More emphasis could have been paid to socio-cultural aspects of ill-health, to perceptions of alternative causes of illness, to methods of examination and

various intervention strategies. However, our main objective on this occasion was to test the methodology under realistic conditions rather than to uncover secrets about health problems and care.

We see good reasons to make selective use of the Delphi method, locally adapted, and to focus more upon otherwise hidden and poorly known issues such as chronic conditions, permanent disability, mental illness and socio-cultural factors associated with disease perception, self-care and care-seeking behaviour. There is probably little need for Delphi studies into such morbidity and service consumption that is well known anyway through the existing health information system. Evaluations will be needed to determine whether Delphi studies generate complementary information of use to planners. We consider the outcome of this study as promising and believe that the method has fair potential than demonstrated by this project.

7.5 The socio-cultural study

This modest and relatively inexpensive study has generated data which are conspicuously absent from ordinary health information systems. It reflects the way local people perceive different diseases and their causes and, therefore, the actions they tend to take. Diseases are perceived to be caused by , supernatural forces evil human beings and physical contact, or a combination of such causes. To manage/treat many of these diseases people rely on both traditional and modern health care. The indigenous and western medical care systems are used together for a single episode of illness, concurrently or subsequently.

Even though the indigenous perception of cause of illness still persists to a large extent for almost all cases of illness the use of western medical systems is mandatory. The Kamba readiness to accept new ideas and related health practices should facilitate national planning. It provides an opportunity to identify gaps in health knowledge and irrational behaviour for which education strategies consistent with local values can be developed.

Some respondents found the questionnaire too long and felt uncomfortable with continuing to answer several questions, which were repeated, for the purpose of cross-checking. A few respondents declined to answer some of the questions. Some male respondents left several child-related questions unanswered. It is therefore necessary to apply a short and more concise questionnaire, and respondents should include both men and women.

Rural health workers and various extension agents could be trained to use anthropological methods of data collection, so that such data is collected on a continuous basis, supplemented by records from existing health facilities and possibly by cross-sectional household health surveys.

Even though the interview schedule was fairly exhaustive and provided adequate information for quantitative data, some of the health problems such as health seeking behaviour, need ethnographic methods of data collection using focus group discussions, intercepts, informal interviews and participant observation. A combination of different methods would strengthen the validity of the data.

7.6 Final remarks

The goal and the objectives as stated in section 1.2 have been accomplished, and the project has been completed within the allowed time and within budget. The stated goal, however, mentions an information system "affordable" and "applicable to East African districts", and we are aware that affordability is uncertain with regard to some proposed components, particularly if the current economic decline continues accompanied with severe budgetary constraints. Efforts to minimise costs have been made, but research-related costs, e.g for computerized data processing, have been high. It is difficult to estimate the costs of an integrated research-free information system as proposed in this report, and there are no estimates available at all costs of the existing information system. We consider it possible, but still uncertain, that the proposed information components, once the research elements are removed will be affordable with some assistance from local communities with data collection and with some revenue from cost-sharing becoming available.

The degree of applicability can only be determined practically by monitoring a revised system closely over a number of years; we have developed a continuation project designed to answer this question.

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AMREF**ANNEX I****INTEGRATED DISTRICT
DIAGNOSIS PROJECT****HEALTH FACILITY
DESCRIPTIVE STUDY FORM**

INTERVIEWER -----	DATE OF INTERVIEW ----- (DDMMYY)	1 --- ---
1. NAME OF DISTRICT -----		2 --- ---
2. SUBLOCATION -----		
3. NAME OF HEALTH FACILITY -----		3 --- ---
4. OWNERSHIP OF HEALTH FACILITY:		4 --- ---
1. GOVERNMENT	2. NGO/MISSION	3. NGO/OTHER
4. PRIVATE	5. OTHER (SPECIFY)	
5. SIZE OF LAND/PLOT OWNED BY THE HEALTH FACILITY/ IN SQUARE METERS (1 ACRE = 4060 SQ. METERS)		5 --- ---

6. POPULATION IN THE "CATCHMENT AREA" OF THE HEALTH FACILITY.

Instructions: Identify (on a map or otherwise) the geographical area from which almost all patients are coming. Then estimate the total number of people living in that area. If in doubt: seek advice from other district or division offices.

TOTAL NUMBER OF PEOPLE LIVING IN THE CATCHMENT AREA:
(Best possible estimate)

--	--	--	--	--	--	--

BASIS FOR ESTIMATE -----

7. BUILDINGS BLOCKS/WARDS AND THEIR CHARACTERISTICS:

Instructions: classify functional condition as "good", "fair" or "poor". Classify repair needs as "none", "minor" or "major". One big step is about one meter.

BLOCK/WARD	APPROX SIZE IN SQ METERS 1	APPROX AGE IN YEARS 2	FUNCTIONAL CONDITION* 3	REPAIR NEEDS 4
NYAYO				
OPD				
MCH(If separate from OPD)				
FP(If separate from OPD)				
MALE SURGICAL				
FEMALE SURGICAL				
MALE MEDICAL				
FEMALE MEDICAL				
PAEDIATRIC				
TB				

MATERNITY				

Comments:-----

8. SOURCES OF ENERGY AT THE HEALTH FACILITY.

- | | | |
|--------------------|------------------------------|------|
| 1. GENERATOR | 6. GENERATOR/KEROSENE | |
| 2. MAINS | 7. GENERATOR/WOOD (CHARCOAL) | |
| 3. KEROSENE | 8. MAINS /KEROSENE | ---- |
| 4. WOOD/CHARCOAL | 9. MAINS/WOOD/CHARCOAL | |
| 5. GENERATOR/MAINS | 10. KEROSENE/WOOD/CHARCOAL | ---- |
| | 11. OTHER (Specify) | |

9. WHAT MEANS OF COMMUNICATION DOES THE HEALTH FACILITY USE WITH MOH/HQS OR DISTRICT ADMINISTRATION OR THE OTHER INSTITUTIONS?

- | | | |
|------------------|--------------------|--------------------------|
| 1. TELEPHONE | 5. 1 AND 3 | -----

----- |
| 2. TWO WAY RADIO | 6. 2 AND 3 | |
| 3. TELEX | 7. 1, 2, 3 | |
| 4. 1 AND 2 | 8. OTHER (Specify) | |

10. IS ALL-WEATHER ROAD TRANSPORT AVAILABLE TO THE NEAREST REFERRAL INSTITUTION?

- | | | |
|--------|-------|--------------------------|
| 1. YES | 2. NO | -----

----- |
|--------|-------|--------------------------|

11. BED CAPACITY

WARD	NUMBER OF BEDS
NYAYO WARD	
PAEDIATRIC WARD	
FEMALE SURGICAL WARD	
FEMALE MEDICAL WARD	
MALE SURGICAL WARD	
MALE MEDICAL WARD	
MATERNITY WARD (BEDS NOT COTS)	
TB WARD	
OTHER INPATIENT CARE WARD	

12. MANPOWER

CATEGORY	NUMBER OF EMPLOYEES
DOCTORS	
DENTISTS	
CLINICAL OFFICERS	
REGISTERED NURSES	
PUBLIC H NURSES	
PHARMACISTS	
RADIOGRAPHERS	
LAB TECHNOLOGISTS	
LAB TECHNICIANS	
HEALTH ED OFFICERS	
PHYSIOTHERAPISTS	
DENTAL TECHNOLOGISTS	
ENROLLED C NURSE	
ENROLLED MIDWIFE	
PUBLIC H. OFFICER	
PUBLIC H TECHNICIAN	
FAMILY H FIELD ED	
NUTR. FIELD WORKER	
OTHER SUPPORT STAFF	
TOTAL	

13. POSTBASIC TRAINING RECEIVED BY SELECTED STAFF DURING THE
LAST 3 YEARS (enter duration in weeks for each course)

[illegible]

14. FOR EQUIPMENT LISTED BELOW PLEASE STATE NUMBER & FUNCTIONAL CONDITION

TYPE OF EQUIPMENT	NUMBER	FUNCTIONAL CONDITION*
CAR		
MOTORCYCLE		
X-RAY MACHINE		
MICROSCOPE		
REFRIGERATOR		
AUTOCLAVE		
ANAESTHESIA MACHINE		
OPERATION LAMP		
STAND-BY GENERATOR		
BLOOD PRESSURE MACHINE		
AURISCOPE		
OPHTALMOSCOPE		
CENTRIFUGE		
DENTAL CHAIR UNIT		
VAGINAL SPECULUM		
FORCEPS (Delivery)		
STETHOSCOPE		
DELIVERY SET		
VACUUM EXTRACTOR		
MINOR SURGERY SET		
DENTAL EXTRACTION SET		
WATER SUPPLY/ SANITATION TOOLS		

*State "good", "fair", "poor" or "not working"

15. IS THERE A BASIC SET OF REFERENCE BOOKS AVAILABLE TO STAFF?

1. YES

2. NO

--

COMMENTS: -----

16. FOR SUPPLIES LISTED BELOW, STATE AVAILABILITY

ITEM	NEVER AVAILABLE	RARELY AVAILABLE	USUALLY AVAILABLE	ALWAYS AVAILABLE
WATER				
ELECTRICITY				
PETROL				
STATIONERY				
X-RAY FILMS				
X-RAY DEVELOPER				
ESSENTIAL DRUGS KIT I				
ESSENTIAL DRUGS KIT II				
VACCINES				
LAB REAGENTS				
RUBBER GLOVES				
SUTURE MATERIAL				
GAUZE, DRESSING				
CEMENT, PIPE IRON BARS ETC.				
LAB REAGENTS				

17. WHAT WERE THE ANNUAL RECURRENT BUDGET AND THE ACTUAL EXPENDITURE FOR THIS HEALTH FACILITY DURING THE LAST FEW YEARS

RECURRENT BUDGET ITEM		ACTUAL EXPENDITURE					BUDGET				
		1984/85	1985/86	19886/87	1987/88	1988/89	1984/85	1985/86	1986/87	1987/88	1988/89
000	SALARIES										
070	ALLOWANCES										
050											
060											
100	TRANSPORT										
110	TRAVEL & ACCOD. DRUGS & MED SUPPLIES										
160	FOOD										
177	STATIONERY										
200	VEHICLE REPLACEMENT										
220	EQUIPMENT PURCHASE										
250	MAINTENANCE: PLANT AND EQUIPMENT										
260	MAINTENANCE: BUILDINGS										
190	MISCELLANEOUS										

18. ACTUAL CAPITAL (DEVELOPMENT) BUDGET AND ACTUAL EXPENDITURE FOR THIS HEALTH FACILITY DURING THE LAST FEW YEARS?

ACTUAL EXPENDITURE						BUDGET					
		1984/85	1985/86	19886/87	1987/88	1988/89	1984/85	1985/86	1986/87	1987/88	1988/89

19. STATE NUMBER OF IMMUNIZATIONS IN PREVIOUS YEAR (1988)
INCLUDING MOBILE OUTREACH

CHILDREN	UNDER 1 YR	1 - 5 YRS
BCG		
POLIO 1		
POLIO 2		
POLIO 3		
POLIO 4		
DPT 1		
DPT 2		
DPT 3		
MEASLES		
 <u>PREGNANT WOMEN</u>		
TETANUS TOXOID 1		
TETANUS TOXOID 2		
BOOSTER		
OTHERS (SPECIFY)		

ENVIRONMENTAL SANITATION

PLEASE INSERT \ / WHEN APPLICABLE

20. WATER SUPPLY SOURCES

PIPED WATER SUPPLY	[]
WELL, PROTECTED	[]
SPRING, PROTECTED	[]
ROOF CATCHMENT	[]
WELL, UNPROTECTED	[]
SPRING, UNPROTECTED	[]
RIVER, LAKE	[]
POND OR DAM	[]
OTHER (SPECIFY)	[]

21. TYPE OF TOILET - TICK \ /

		SANITARY	INSANITARY
ORDINARY PIT LATRINE	[]	[]	[]
VIP LATRINE	[]	[]	[]
POUR FLUSH LATRINE	[]	[]	[]
FLUSH a) SEPTIC TANK	[]	[]	[]
b) CESS POOL	[]	[]	[]
c) OPEN SEWER	[]	[]	[]
BUCKET LATRINE	[]	[]	[]
NONE	[]	[]	[]

22. WASTE WATER DRAINAGE

		SANITARY	INSANITARY
SOAKAGE PIT	[]	[]	[]
OPEN DRAIN	[]	[]	[]
WASTE STABILIZATION POND	[]	[]	[]
OTHERS	[]	[]	[]

23. REFUSE DISPOSAL

<u>TYPE</u>		SANITARY	INSANITARY
ON OPEN GROUND	[]	[]	[]
IN REFUSE PIT	[]	[]	[]
INCINERATION	[]	[]	[]
PUBLIC REFUSE COLLECTION	[]	[]	[]
OTHERS (SPECIFY)	[]	[]	[]

ANNUAL SERVICE OUTPUT FOR PREVIOUS YEAR (1988)**24. OUTPATIENTS**

	NEW PATIENTS	REVISITS	TOTAL
MALES ALL AGES	[]	[]	[]
FEMALES ALL AGES	[]	[]	[]

25. IN-PATIENTS

	NUMBER
TOTAL ADMISSIONS	[]
TOTAL DISCHARGES	[]
TOTAL DEATHS	[]
MAJOR OPERATIONS	[]
MINOR OPERATIONS	[]

26. LABORATORY TESTS(IN-AND OUTPATIENTS)

	NUMBER
MALARIA BLOOD SLIDE	[]
OTHER BLOOD TEST	[]
STOOL TEST	[]
URINARY TEST	[]
SPUTUM TEST FOR TB	[]
OTHER:	[]

27. REFERRALS

NUMBER

REFERRALS OUTGOING	[]
REFERRALS INCOMING	[]

28. MATERNITY UNIT

NUMBER

ADMISSIONS	[]
DELIVERIES NORMAL	[]
DELIVERIES COMPLICATED	[]
STILL BIRTHS	[]

29. MCH/FP

	NEW	REVISITS	TOTAL
CHILD WELFARE UNDER 5 CLINIC	[]	[]	[]
FAMILY PLANNING CLINIC	[]	[]	[]
ANTENATAL CLINIC	[]	[]	[]

30. OUTREACH

	YES	NO
PROGRAMME AVAILABLE	[]	[]
NUMBER OF TRIPS/WEEK	[]	[]

31. LIST SUPERVISORY VISITS TO YOUR HEALTH FACILITY
DURING THE LAST 12 MONTHS

DATE	NAME AND DESIGNATION OF SUPERVISOR	PURPOSE OF VISIT

32. NUMBER OF ACTIVE CHWs AND OF TRAINED TBAs IN THE AREA.
UNDER YOUR SUPERVISION.

CHWs

--	--	--	--

TRAINED TBAs

--	--	--	--

33. PLEASE STATE WHETHER THE FOLLOWING ACTIVITIES HAVE BEEN
CARRIED OUT IN THE PREVIOUS YEAR.

	YES	NO	
SURVEY OR SPECIAL STUDIES	[]	[]	----
EVALUATION	[]	[]	----
STAFF MEETINGS	[]	[]	----
VILLAGE COMMITTEE MEETINGS	[]	[]	----

34. TEN MOST COMMON MAJOR SURGICAL OPERATIONS (IF ANY) DURING 1988

	KIND OF OPERATION	NUMBER
1		
2		
3		
4		
5		
6		
7		
8		
9		
10		

35. THE TEN MOST COMMON MINOR SURGICAL OPERATIONS (if any) DURING 1988

	KIND OF OPERATION	NUMBER
1		
2		
3		
4		
5		
6		
7		
8		
9		
10		

36. PLEASE LIST THE TOP TEN OUTPATIENT DIAGNOSES IN 1988

	DISEASE/DIAGNOSIS	NUMBER OF NEW VISITS
1		
2		
3		
4		
5		
6		
7		
8		
9		
10		

37. PLEASE LIST THE TOP TEN IN-PATIENT DIAGNOSES IN THE PREVIOUS YEAR (1988).

	DISEASE/DIAGNOSIS	NUMBER OF DIAGNOSES
1		
2		
3		
4		
5		
6		
7		
8		
9		
10		

ADMINISTRATION/MANAGEMENT

38. PLEASE STATE (BY TICKING) WHETHER THE FACILITY ADMINISTRATION THE AUTHORITY TO DO THE FOLLOWING:

	YES	NO	DON'T KNOW
A. HIRE STAFF	[]	[]	[]
B. FIRE STAFF	[]	[]	[]
C. TRANSFER STAFF	[]	[]	[]
D. REALLOCATE BUDGET	[]	[]	[]
E. INITIATE NEW PROGRAMMES	[]	[]	[]

39. DO YOU PARTICIPATE IN HEALTH PLANNING AND BUDGETTING WITHIN THE DISTRICT?

YES	NO
[]	[]
[]	[]

IF SO, HOW? -----

40. PLEASE INDICATE WHETHER YOUR HEALTH FACILITY HAS THE FOLLOWING:

	YES	NO	DON'T KNOW
A. ORGANOGRAM/ORGANIZATION CHART	[]	[]	[]
B. WRITTEN PLANS	[]	[]	[]
C. STAFF DUTY ROSTER	[]	[]	[]
D. WEEKLY ACTIVITY SCHEDULE	[]	[]	[]
E. JOB DESCRIPTIONS FOR (TECHNICAL STAFF)	[]	[]	[]

COMMENTS: -----

41. STATE FIVE MAIN PROBLEMS YOUR HEALTH FACILITY FACES:

1. -----
2. -----
3. -----
4. -----
5. -----

**ANNEX II
INTEGRATED DISTRICT DIAGNOSIS PROJECT**

KIBWEZI CROSS-SECTION SURVEY II

HOUSEHOLD QUESTIONNAIRE:

RESPONDENT IDENTIFICATION:

CODE

Q1 HOUSEHOLD NUMBER

Q2 VILLAGE NAME:

Q3 SUBLOCATION NAME:

RESPONDENT'S NAME:

STATUS OF THE QUESTIONNAIRE:.

DATE OF THE INTERVIEW:

INTERVIEWER'S NAME AND CODE:.....

COMPLETENESS AND CONSISTENCY CHECKED

BY:.....DATE.....

CODED BY:.....

DATE.....

VERIFIED BY:.....

DATE.....

Q.4

TABLE 1

INFORMATION ON HOUSEHOLD MEMBERS

I WOULD LIKE TO KNOW HOW MANY PEOPLE LIVE AND EAT TOGETHER IN THIS HOUSEHOLD. PLEASE GIVE ME THE FOLLOWING INFORMATION ON THE FAMILY MEMBERS STARTING WITH THE HOUSEHOLD HEAD

Q4	Q5	Q6	Q7	Q8	Q9	Q10	Q11	Q12
Serial No. of Household Members	Name of Household Member	Relation Household head 1. Wife 2. Son 3. Daughter 4. Grandchild 5. Grandparent 6. Other relat 7. Other	Sex 1 = M 2 = F	Age in Years	Marital Status 1. Single 2. Married 3. Living together 4. Separated 5. Divorced 6. Widowed	Highest Grade completed in school (Std IV, FormIV, etc)	Occupation 1. Farming 2. Teaching 3. Civil servant 4. Business 5. Urban Housewife 6. Student 7. Other (specify)	Religion 1. Catholic 2. Protestant 3. Muslim 4. Other (specify)
01								
02								
03								
04								
05								
06								
07								
08								
09								
10								
11								
12								
13								
14								
15								
16								
17								

HOUSEHOLD (Main living quarter)

Q13. Main house roof:
1 Thatch 2. Iron Sheets 3 Other (specify).....

Q14. Is roof in good condition (No leaks, well maintained)?:
1. YES
2. NO

Q15. Main house walls
1. Dirt
2. Smeared - good condition
3. Smeared - poor condition
4. Stone
5. Wooden
6. Other (specify).....

Q16. Main house - number of rooms:.....

Q17. Kitchen/cooking place location:
1. Inside main house
2. In separate building

Q18. If separate building: condition of walls
1. Dirt
2. Smeared - good condition.....
3. Smeared - poor condition
4. Stone
5. Wooden
6. Other (specify)

Q19. Latrine - Is it available?
1. YES
2. NO

Q20. If yes: state of cleanliness of latrine (Please check and confirm from observation)
1. Clean
2. Dirty

Q21. How often do adult household members use the latrine?
1. Always
2. Sometimes
3. Never

Q22. How often, if at all, do children under five years use the latrine?
1. Always
2. Sometimes
3. Never

Q23. a) Type of latrine slab - observation

1. Concrete
 2. Wood
 3. Earth over wood
 4. Other (specify)

Q24. How do you dispose of your refuse?

Yes

No

1. Container or bin _____
 2. Composting _____
 3. Burning _____
 4. Throw away(no system) _____
 5. Other (specify) _____

Q25. Rank your three most commonly used sources of water during dry season:

(1= Most commonly used)

(3= Least commonly used)

Rank 1-2-3

1. Piped in house or in compound
2. Own protected well
3. Roof catchment
4. Shared protected well
5. Shared public stand pipe
6. Protected spring
7. Purchased from vendor
8. Unprotected well
9. Unprotected spring
10. River, dam
11. Other (specify)

Q26. Rank your three most commonly used sources of water during the wet season?

Rank 1-2-3

1. Piped in house or in compound
2. Own protected well
3. Roof catchment
4. Shared protected well
5. Shared public stand pipe
6. Protected spring
7. Purchased from vendor
8. Unprotected well
9. Unprotected spring
10. River, Pond, Dam.
11. Other
(specify).....

- Q27. Distance to main source of water
1. Less than 0.5 km
 2. About 0.5 km
 3. About 1 km
 4. About 2 km
 5. 3 km. or more
- Q28. How much time (in minutes) does the round trip to the nearest water source usually take for an adult during the dry season?
1. 30 minutes or less
 2. More than 30 minutes but less than 1 Hour
 3. At least 1 hr but less than 2 hours
 4. 2 hours or over
- Q29. How much time (in minutes) does the round trip to the nearest water source usually take for an adult during the wet season?
1. 30 minutes or less
 2. More than 30 minutes but less 1 hour
 3. At least one hour but less than 2 hours
 4. Two hours or over
- Q30. How do you draw water from the most common source during the dry season?
1. Pump
 2. Bucket
 3. Trough
 4. Tin
 5. Other (specify)
- Q31. How do you draw water from the most common source during the wet season?
1. Pump
 2. Bucket
 3. Trough
 4. Tin
 5. Other (specify)
- Q32. Total number of jerricans of water used by all household members on a typical (average) day?
- Q33. How is the drinking water stored?
1. Plastic drum
 2. Metal drum
 3. Earthen ware jar
 4. Plastic debe
 5. Calabash
 6. Other (specify)
.....

Q34. Are the storage containers covered?

1. All
2. Some
3. None

☐

Q35. How is the water dispensed from the storage container

1. Tap
2. Special cup
3. Any cup
4. Tin
5. Other (specify).....

☐

ILLNESS, INJURIES AND HEALTH CARE UTILIZATION

Q36. Has anybody been ill or injured in this household in the last 30 days from today?

1. Yes
2. No

☐

If yes, please provide information below:

Q37	Q38	Q39	Q40	Q41	Q42	Q43	Q44	Q45
Serial No.	Name of person	Date when illness started	How many days did illness last?	List all illness symptoms	How many days during the last 30 days has the ill person been out of normal	Perceived seriousness of illness 1=Very serious 2=Serious 3=Not serious	Where did the ill person seek care? 1=None 2=Home remedy 3=Surgical operations 4=Hosp outp. care 5=Hosp inp. care 6=HC outp.care 7=HC inp. care 8=Govt. disp 9=Mission clinic 10=Private Med P 11=Tradional H 12=Other (specify)	Action taken 1=No treatment 2=Medication only 3=Shop medicine 4=Medication + surgical operation 5=Other (specify)

Q46. Has any member of this household been admitted as an in-patient in any hospital during the last 12 months?

1. YES

2. NO

If yes, please provide the following information:

[illegible]

Q53. Has any member of this household undergone surgical operation during the last 12 months?

1. YES

2. NO

If yes, please provide the following information:

Q54	Q55	Q56	Q57	Q58	Q59	Q60	Q61
SERIAL NO	NAME OF PERSON	CONDITION REQUIRING OPERATIO	TYPE OF OPERATION	NAME OF INSTITUTION	WHEN WAS THE OPERATION DONE	OUTCOME: 1. Recovered 2. Still ill 3. Died 4. Other (specify)	IN CASE OF WRITTEN REFERRAL TO HOSPITAL

Q62. Is there anybody in your household who has long-lasting illness or permanent disability (such as difficulty to move arm or leg, to see, to hear, to learn, having epileptic fits or shows strange behaviour?)

- 1. YES 2. NO**

If yes, please provide the following information

[illegible]

INTERVIEWERS: Probe and find out whether there is any member of the household:

(Type of Disability):

1. Who has difficulty moving arm, leg, or etc?
2. Who has difficulty seeing?
3. Who has difficulty hearing/talking?
4. Who has difficulty learning?
5. Who gets fits?
6. Who shows strange behaviour?
7. Others (specify)

Q68. Has any member of this household died during the last 12 months?

1. Yes
2. NO

Q69. If yes, (a) who:

(b) which' month?

Q70. Cause of death - give the following details:

Disease, injury or other condition directly leading to death:

.....

Underlying causes:

State conditions, if any, contributing to the above.

.....

.....

IMMUNIZATION STATUS (CHILDREN UNDER 5 YEARS)

Q71. Card availability:

1. Yes

2. No

☐

If yes, please provide the following information:

Q72	73	Q74	Q75	Q76	Q77				
NUMBER	Child's Name	BCG	DPT	Measles	Polio				
			1	2	3	1	2	3	4
For official use:									
Frequency of households									

NUTRITION (CHILDREN UNDER 5 YEARS = 60 MONTHS)

Q78	Q79	Q80	Q81	Q82	Q83
SERIAL NUMBER	CHILD'S NAME	AGE IN MONTHS	WEIGHT IN GRAMS	HEIGHT IN CM	ARM CIRCUMFERENCE CM.

Q84. Approximately how much money does your family get from the following sources in one year. (Interviewer specify amount in shillings).

	HOUSEHOLD MEMBER NO.						All Other House- hold Members	TOTAL
	1	2	3	4	5	6		
a. Sale of livestock
b. Sale of crops
c. Wage employment
d. Salary
e. House-rent
f. Other family business
g. Remittances

Possessions stated:

Q85. Domestic animals:	No.	Value (KShs.)
1. Cows		
2. Oxen		
3. Goats		
4. Sheep		
5. Chicken		
6. Donkey		
7. Others (specify)		
TOTAL		

Q86. Possessions observed:

<u>Item</u>	<u>No</u>	<u>Value (KShs)</u>
1. Bicycle		
2. Animal-drawn cart		
3. Oxen-plough		
4. Radio		
5. Others (specify)		
.....		
TOTAL		

For official use
Socio-economic category:
High.....Medium Low

Q87. What in your opinion are the four commonest diseases affecting adults 18 years and above in your area ?

1..... 3.....
2..... 4.....

Q88. What in your opinion are the four most common conditions causing deaths among adults in your area? (In order of importance)

1.
2.
3.
4.

Q89. What are the four commonest diseases affecting children under five years in your area? (By priority listing)

1..... 3.....
2..... 4.....

Q90.(a) Which four diseases would you say kill most children under five years in your area?

1. 2. 3. 4.

(b) (INTERVIEWER:) Probe by asking "any other"?

.....

Q91. Four commonest diseases affecting adults (18 years old and over) in your area (use 1 for most common, etc)

1. Malaria
2. Respiratory diseases
3. Tuberculosis (TB)
4. Urinary Tract Infections
5. Malnutrition
6. Gonorrhea
7. Accidents
8. Schistosomiasis
9. Intestinal worms
10. Abscesses/wounds
11. Diseases of the skin
12. Eye infections
13. Ear infections
14. Diarrhoeal diseases
16. Complicated childbirths
17. Mental Illnesses
18. Other (specify)

.....

Q92. Which four diseases do you think kill most adults (18 years and over) in your area (indicate most common killer diseases with 1, etc) 1-2-3-4

1. Malaria
2. Respiratory diseases
3. Urinary tract infections
4. Malnutrition
5. Gonorrhea
6. Accidents
7. Schistosomiasis (bilharzia)
8. Intestinal worms
9. Diarrhoeal diseases
10. Cancer
11. AIDS
12. Complicated childbirths
13. Other (specify)

.....

.....

Q93. What do you think are the four commonest diseases affecting children (under 5 years) in your (use 1 for most common etc.)

1-2-3-4

1. Malaria
2. Measles
3. Polio
4. Malnutrition
5. Cerebro-spinal fever
6. Whooping cough
7. Diarrhoea
8. Vomiting
9. Others (specify)

.....

Q94. Which four diseases do you think kill most children under 5 in your area?

1-2-3-4

1. Malaria
2. Measles
3. Polio
4. Malnutrition
5. Cerebro-spinal fever
6. Whooping cough
7. Diarrhoea
8. Others (specify)

.....

ANNEX III

INTEGRATED DISTRICT DIAGNOSIS PROJECT

LONGITUDINAL SURVEY: ILLNESS EPISODE REPORT

1. Date -----
2. Interviewer No. -----
3. Village -----
4. Household No.-----
5. Person ill. Name -----
Serial No. -----

Present occupation -----

Average number of working hours/day -----

6. Symptoms as they developed during the latest 2 week period.

At first: -----

Then -----

Main symptoms -----

7. Date (as precisely as possible)- when illness began -----

8. If the illness has come to an end: which date? -----

9. Did the illness restrict usual activities?

1. Yes 2. No

--

10. If yes: totally restricted for how many days? -----

Partly restricted for how many days?-----

[For Official Use: Total period of restriction]

--

11. Did you suffer from pain or other discomfort?

1 2 3 4
No ☐ Slight ☐ Moderate ☐ Severe ☐

12. Did you consider the illness to be serious?

1 2 3 4
Not serious ☐ Moderately serious ☐ Very serious ☐ Don't know ☐

13. What would you say was (is) the cause of this illness?

14. What did you do about the illness during these two weeks?

Yes No

1 2

- A. Stayed at home, sought no help from outside?
B. Sought advice from within the family?
C. Sought advice from friends?
D. Sought advice from traditional healer?
E. Used traditional medicines?
F. Sought care at clinic or hospital?
If yes: which clinic/hospital?

i. -----

ii. -----

G. Action taken at clinic/hospital?

1. None
2. Admission as inpatient
3. Drugs given as outpatient
4. Drugs prescribed but not given
5. Others: (specify)

15. Was any surgical operation done? 1. Yes 2. No
If yes: specify type of operation

--

16. How much cash in total did you pay for the treatment of this illness in the last two weeks?

A. For consultation -----

B. For drugs Kshs. -----

C. For transport Kshs. -----

D. For laboratory tests Kshs. -----

E. For admission Kshs. -----

F. Surgical operation Kshs. -----

G. Other outlays (specify) Kshs. -----

G. Total outlays Kshs. -----

17. What payments in kind did you incur for this illness in the last two weeks? (specify).....

[For official use: estimate of value: KShs.-----]

18. If you did not seek care at any clinic or hospital please answer yes or no to the following:

Yes No

Clinic far away
Transport too expensive
Charges and fees too high
Clinic care unnecessary
Clinic care ineffective
Unpleasant examinations and tests
Afraid of possible treatment procedures
Spouse objecting visit to clinic
Clinic staff rude or unfriendly
Other reasons (specify)

.....
19. Other comments in relation to the illness/injury

FOR OFFICIAL USE ONLY:

20. Medical assessment by (Name)

a. Most likely diagnosis -----

b. Disease Code:.....

1. Good 2. Poor 3. Very Poor

c. Likely prognosis

1. None 2. High 3. Very High

d. Risk of infecting others

e. Appropriateness of action taken:

1. Good 2. Fair 3. Poor

21. Validation Team Assessment:

a. Most likely diagnosis -----

b. Disease Code:.....

c. Likely prognosis

1. good 2. poor 3. Very poor

d. Risk of infecting
others

1. None 2. High 3. Very High

e. Appropriateness of action taken:

1. Good 2. Fair 3. Poor

Name of Assessor:.....

Date:

ANNEX IV
INTEGRATED DISTRICT DIAGNOSIS PROJECT

KIBWEZI DIVISION

DELPHI-PANEL QUESTIONNAIRE

1. Introduction

We are looking for ways in which information generated from the members of the community can assist the government in planning our health services. At this stage we are interviewing those people whom we consider well versed in what is happening locally. You are one of the 26 people in Kibwezi Division we are requesting to assist us in our efforts to improve our health services.

The process will be as follows: I shall interview you to record your opinion on some of the important health issues in your community. There shall be three rounds of interviewing. During every interview, I shall inform you about the overall opinion of majority of other panel members in this study. The whole exercise might last the whole month to complete. I therefore wish to request you to be patient during the exercise. So feel free to ask me any question before we begin.

RESPONDENT'S IDENTIFICATIONS:

1. MEMBER'S NAME:..... CODE:

--	--	--	--

2. VILLAGE NAME:..... CODE:

--

STATUS OF THE QUESTIONNAIRE

3. DATE OF INTERVIEW:

4. INTERVIEWER'S NAME:

--

A. WATER AND SANITATION

Q1. What proportion of households in your area have latrines?

1. About quarter
2. About half
3. About three-quarters
4. Above three-quarters

First	Second	Third

Q2. How do majority of households in your area dispose of refuse?

1. Container or bin
2. Composting
3. Burning
4. Throw away (no system)
5. Other (specify)

Q3. Rank the three most common sources of water by season:

1. Piped in house or in compound
2. Own protected well
3. Roof catchment
4. Shared protected well
5. Shared public stand pipe
6. Protected spring
7. Unprotected well
8. Unprotected spring
9. River, dam
10. Others (specify) ..

Dry			Wet		
1	2	3	1	2	3

Q4. How do majority of households draw water from the most common source by season?

1. Pump
2. Bucket
3. Trough
4. Tin
5. Others (specify).....

Dry			Wet		
1	2	3	1	2	3

B. ILLNESS

Q5. Rank the type of long-lasting illness or permanent disability most common in your area?

	First	Second	Third
1. Problem in moving leg or arm			
2. Problem in seeing			
3. Problem in hearing			
4. Problem in talking			
5. Mental problems			
6. Fits or epilepsy			
7. Strange behaviour			

Q6. Which are the four commonest diseases affecting adults (18 years and over) in your area? Rank as 1 the most commonest, etc.

	First Round	Second Round	Third Round
1.			
2.			
3.			
4.			

Q7. Which are the four diseases that you think kill most adults in your area? Indicate ranks as 1, 2, etc

First Round	Second Round	Third Round
1.		
2.		
3.		
4.		

Q8. What do you think are the four commonest serious diseases affecting children under 5 years in your area? Rank them:

First Round	Second Round	Third Round
1.		
2.		
3.		
4.		

Q9. What do you think are the four most frequently recurring diseases affecting children under 5 years amongst households in your area? Disease that recurs at shortest interval given as number one, etc.

First Round	Second Round	Third Round
1.		
2.		
3.		
4.		

Q10. Which four diseases do you think kill most children under 5 years in your area?

First Round

Second
Round

Third
Round

1.
2.
3.
4.

Q11. What are the four most common diseases/health problems affecting elderly people in your area?

First Round

Second
Round

Third
Round

1.
2.
3.
4.

Q12. Give examples of illness you consider usually trivial and don't need to bother about?

First Round

Second
Round

Third
Round

1.
2.
3.
4.

Q13. What do people believe to be the main cause of disease?

First Round

Second
Round

Third
Round

1.
2.
3.
4.

C. MCH STATUS

Q14. What proportion of pregnant women in your area attend ante-natal clinic?

1. Less than a quarter
2. About half
3. More than half but not all
4. All

First	Second	Third

Q15. What proportion of children are currently immunized in your area?

1. Less than a quarter
2. About half
3. More than half but not all
4. All

First	Second	Third

Q16. What proportion of children under 5 years suffer from Malnutrition in your area?

	First	Second	Third
1. Less than a quarter			
2. About half			
3. More than half but not all			
4. All			

D. OTHER HEALTH PROBLEMS

Q17. Do you expect people's health in your Location in the next 2-3 years to improve, deteriorate or remain the same?

	First	Second	Third
1. Improve			
2. Deteriorate			
3. Remain the same			

Q18. Do you expect health care services at the clinics/hospitals to improve, deteriorate or remain the same in the next 2-3 years?

	First	Second	Third
1. Improve			
2. Deteriorate			
3. Remain the same			

Q19. Will people's use of local traditional healers increase, decline or remain about the same in the next few years?

	First	Second	Third
1. Increase			
2. Decline			
3. Remain the same			

Q20. Do you think poor people will be willing to pay more in the coming years for health care at health centres and dispensaries if this means better health services?

1. Willing
2. Unwilling
3. Remain the same

First	Second	Third

ANNEX V
INTEGRATED DISTRICT DIAGNOSIS PROJECT
KIBWEZI SOCIO - CULTURAL SURVEY
HOUSEHOLD QUESTIONNAIRE:

RESPONDENT IDENTIFICATION:

- 1 NAME..... 2. POSITION IN HOUSEHOLD
3. HOUSEHOLD NUMBER..... 4. VILLAGE NAME.....
5. NEAREST HEALTH FACILITY.....
5. SUBLOCATION.....

STATUS OF THE QUESTIONNAIRE:

DATE OF THE INTERVIEW:.....

INTERVIEWER'S NAME AND CODE.....

CONSISTENCY CHECKED BY.....DATE.....

CODED BY.....DATE.....

VERIFIED BY.....DATE.....

SOCIO - CULTURAL SURVEY INSTRUMENTS - KIBWEZI

Q1. Please tell us beliefs associated with the following diseases/conditions:

a) diarrhoea in adults

Cause:

1.
2.
3.
4.

Effect: (outcome)

1.
2.
3.
4.

Management: (treatment)

1.
2.
3.
4.

Prevention:

1.
2.
3.
4.

b) Measles

Cause:

1.
2.
3.
4.

Effect: (outcome)

1.
2.
3.
4.

Management: (treatment)

1.
2.
3.
4.

Prevention:

1.
2.
3.
4.

c) Gonorrhea

Cause:

1.
2.
3.
4.

Effect: (outcome)

1.
2.
3.
4.

Management: (treatment)

1.
2.
3.
4.

Prevention:

1.
2.
3.
4.

d) Leprosy:

Cause:

1.
2.
3.
4.

Effect: (outcome)

1.
2.
3.
4.

Management: (treatment)

1.
2.
3.
4.

Prevention:

1.
2.
3.
4.

e) Pneumonia:

Cause:

1.
2.
3.
4.

Effect: (outcome)

1.
2.
3.
4.

Management: (treatment)

1.
2.
3.
4.

Prevention:

1.
2.
3.
4.

f) Epilepsy:

Cause:

1.
2.
3.
4.

Effect: (outcome)

1.
2.
3.
4.

Management: (treatment)

1.
2.
3.
4.

Prevention:

1.
2.
3.
4.

g) Polio:

Cause:

1.
2.
3.
4.

Effect: (outcome)

1.
2.
3.
4.

Management: (treatment)

1.
2.
3.
4.

Prevention:

1.
2.
3.
4.

h) Kwashiorkor:

Cause:

1.
2.
3.
4.

Effect: (outcome)

1.
2.
3.
4.

Management: (treatment)

1.
2.
3.
4.

Prevention:

1.
2.
3.
4.

i) Lung TB (Tuberculosis)

Cause:

1.
2.
3.
4.

Effect: (outcome)

1.
2.
3.
4.

Management: (treatment)

1.
2.
3.
4.

Prevention:

1.
2.
3.
4.

j) Teething in children:

Cause:

1.
2.
3.
4.

Effect: (outcome)

1.
2.
3.
4.

Management: (treatment)

1.
2.
3.
4.

Prevention:

1.
2.
3.
4.

k) Spontaneous abortion:

Cause:

1.
2.
3.
4.

Effect: (outcome)

1.
2.
3.
4.

Management: (treatment)

1.
2.
3.
4.

Prevention:

1.
2.
3.
4.

Q2. What cultural ceremonies/activities are conducted when the following occur:

a) Child birth:

1. Child remains in house for 3 days
2. Father provides beer for men
3. Father provides food for women
4. Woman stays 3 days without shower
5. Relative fetches water for washing child after 3 days
6. None of the above
7. Others (Specify)

b) Teenage pregnancy:

1. Cleansing ceremony after delivery
2. Old man sent to parents of boy responsible
3. Compensation must be paid
4. Goat soup must be taken on delivery
5. None of the above
6. Others (specify)

c) Mental Illness:

1. Ritual dance to chase spirits
2. Calling medicineman
3. None of the above
4. Others (specify)

d) Still birth:

1. None
2. Others
3.
4.

.....

e) Threatened abortion:

1. None
2. Others
3.
4.

Q3. What is the cause of the following childhood diseases?

a) Diarrhoea:

1. Evil Eye
2. Witchcraft
3. Satan
4. God's wish
5. Dirty hands
6. Food (indicate type).....
7. Water
8. Germs in food or drink
9. Don't know
10. Normal Process of cleansing Stomach
11. Others (specify)

b) Measles

1. Food
2. Mixing with other children
3. Don't know
4. Witchcraft
5. Others
6. Others (specify)

c) Polio:

1. Curse
2. Satan
3. Supernatural
4. Don't know
5. Injection
6. Others (specify)

d) Marasmus

1. Witchcraft
2. Lack of food
3. Bad Food
4. Infidelity
5. Others

e) Kwashiorkor

1. Lack of food
2. Bad water
3. Witchcraft
4. Don't know
5. Others

f) Eye Infection:

1. Evil eye
2. Dust
3. Wind
4. Witchcraft
5. Dirty water
6. Don't know
7. Others (specify)

g) Ear infection:

1. Injury
2. Dirt
3. Foreign Body
4. Don't know
5. Others (specify)

h) Fever:

1. Exposure to cold
2. Rain
3. Evil Eye
4. Mosquito bites
5. Close contact with feverish person
6. Others (specify)

i) Skin rash:

1. Type of food (specify)
2. Clothing
3. Dirt
4. Heat
5. Normal
6. Genetic
7. Germ in the body
8. Don't know
9. Others (specify)

j) Pneumonia:

1. Normal
2. Evil Eye
3. Cold Weather
4. Others (specify)

Q4. What are the traditional methods of treating diarrhoea in children.

1. Use herbs
2. Conduct ritual
3. Others (specify)

Q5. How do you perceive this treatment indicated in question 4?

1. Very effecacious
2. Effecatious
3. Not quite
4. Not at all

What other methods of treatments would you seek to supplement the one stated in Q4?

.....

.....

.....

.....

.....

Q6. Which of the following are involved in development work in the area where you live.

Group	Yes	No	Type of Work
Women Group			
KANU			
Village Health Committee			
Community Health Workers			
Village Elders Council			
Youth's Group			
School Committee			
Church Group			

Q7. Do you belong to any community group or social welfare group?

1. Yes

☐

2. No

☐

If yes, please answer questions 8 - 12

Q8. Name of group.....

If yes, indicate what type of group

- 1) Women group
- 2) Clan welfare
- 3) Church Group
- 4) Any other - specify.....

Q9. What activity is your group involved in?

1. Poultry keeping
2. Bee keeping
3. Crafts
4. Goat rearing
5. Others (specify)

.....

Q10. What type of records are kept by your group?

1. Group Budget
2. Members' contribution
3. Sale of Produce
4. Group Minutes
5. Others (specify)

Q11. Who keeps this record

1. Chairman
2. Secretary
3. Treasurer
4. Others (specify)

Q12. What do you use this record for

1. Group meetings
2. Writing letters
3. Communicating with Government
4. Others (specify)

Q13. How would you rate the severity of the following diseases?

Disease/Condition

Degree of Severity

- Measles
- TB of lungs
- Loose stool
- Watery diarrhoea
- Pneumonia
- Malaria
- Cough
- STD/Gonorrhoea
- Worms
- Marasmus
- Kwashiorkor
- Chicken Pox
- Polio with paralysed leg
- Mental Illness
- Leprosy
- AIDS

[illegible]

1. Always severe
2. Often severe
3. Rarely severe
4. Never severe
5. Merely a nuisance/trivial

Q14. When do the following diseases occur most and reason associating them with the season?

Season	Disease									
Harvesting Time		Malaria	Measles	Cough	Joint Pains	Pneumonia	Body Pains	Kwashiorkor	Skin Infection	Diarrhoea
Cold Rainy Season										
Drought/Dry Weather										
During Famine										
Planting Time										

Q15. What are the causes of diarrhoea

1. Bad food
2. Bad water
3. Dirty hands
4. Evil eye
5. Flies
6. Sickness - state which one
7. Don't know
8. Others (specify)

Q16. How can diarrhoea be prevented?

1. Clean surrounding
2. Cleansing through ritual
3. Cover food
4. Keep flies away
5. Use latrines
6. Wash hands
7. Don't know
8. Others (specify)

Q17. How do you manage a child with diarrhoea at home?

1. Feed as usual
2. Give more fluids
3. Reduce food
4. Reduce fluids
5. Give salt sugar solution
6. Breast feed
7. No breast feeding
8. Given drugs obtained from shop
9. Others (specify)

Q18. How are diseases in general prevented in your community?

1. Ritual Performance
2. Prayers
3. Protective Witchcraft
4. Take modern medicine
5. Others (specify)

Q19. Where do you seek treatment for the following conditions

Condition	Traditional Medicinemen	Modern Medical Care	Shop	No Care	Other	Don't Know
1. Diarrhoea						
2. TB						
3. AIDS						
4. Kwashiorkor						
5. Polio						
6. Mental Illness						
7. Fracture						
8. Leprosy						
9. Malaria						
10. Gonorrhea						

Q20. What would you say are the causes, preventive and curative techniques of the following diseases?

Conditions/Disease	Cause	Preventive Measure	Treatment
1. Gonorrhoea			
2. Mental Illness			
3. Diarrhoea			
4. Measles			
5. Infertility			
6. Cough			
7. Skin Conditions			
8. Eye Infection			
9. Joint Pains			
10. Accidents			
11. Pneumonia			
12. Anaemia			

Q21. Whenever you need medication, what form of treatment do you prefer (indicate in order of preference).
(In case of capsules and tablets what colour would you prefer)

1. Injection
2. Capsule (colour.....)
3. Tablets (colour.....)
4. Syrup
5. Others (specify)

.....

Explain reason for your preference

.....

Q22. What steps are taken in your community should all available measures fail to cure certain illness at the health facility?

1. Witchdoctor
2. Herbalists
3. Rituals
4. Prayers
5. Shop
6. Higher Health Facility
7. Others (specify)

.....

Q23 Does the family have a latrine? (interviewer to observe)

Yes

--

No

--

Q24. If no, why doesn't the family have a latrine?

.....

.....

Q25. What are the taboos/beliefs associated with latrine use in excreta disposal?

1. Not shared with teenagers
2. Not shared with in-laws
3. Others (specify)

.....

Q26. Are children prohibited from eating certain foods?

Yes

--

No

--

If yes, list the foods which are restricted for children:

- a) Less than 4 months
- b) 4 months to 1 year.....
- c) Above 1 year.....

Q27. When is breastfeeding initiated (how long after birth)?

.....

Q28. How long is breastfeeding continued?

.....

Q29. At what age is the first food other than breast milk given (weaning)?

.....

Q30. What is the first food given to children?

1. Water in sugar solution
2. Water in salt solution
3. Water in sugar/salt solution
4. Cow's milk
5. Tinned milk
6. Porridgge
7. Baby foods e.g. celerac
8. Fruit Juice
9. Eggs
10. Others (specify)

.....

Q31. Are any infant foods purchased?

Yes

☐

No

☐

If yes, on whose advise?.....

.....

Which food?.....

How is it prepared?

.....

.....

Q32. Do your current responsibilities allow you enough time for breastfeeding?

Yes

☐

No

☐

	Yes	No
Welfare Meeting		
Cooperative Meeting		
Church Meeting		
Health Meeting		

Q44. Which health practices do people in your community normally perform to prevent illness in general?

1. Cleanliness
2. Balanced diet
3. Vaccination
4. Preventive drugs
5. Protective charms
6. Preventive rites/ritual
7. Don't know
8. Others (specify)

.....

Q45. List those things you do to keep your house and home clean

.....

.....

.....

.....

.....

.....

Q46. What would be the reason for frequent pregnancies or closely spaced children?

Husband stays with wife always

☐

Many kinds of new foods now

☐

Women don't take care of themselves

☐

Women like men (or sex) "very much"

☐

Women have learned a lot of things

☐

When they are very young

☐

Women do not breastfeed

☐

Abstinence not practiced these days during early years of child's life

☐

Husband likes sex so much

☐

Civilisation

☐

If no, how do you manage?

1. Bottle Feeding
2. Spoon and Cup Feeding
3. I don't do anything
4. Others (specify)

.....

Q33. You stopped breastfeeding when the child was how old?

1. Below 6 months
2. 6 months
3. 8 months
4. 1 year
5. Over 1 year

Q34. Why did you stop breastfeeding?

1. No breast milk
2. Baby rejected breast milk
3. Problem with the breast(s)
4. To avoid loss of breast shape
5. Fell sick
6. Others (specify)

.....

.....

Q35. What kind of special weaning foods for infants are prepared or purchased?

.....

.....

Q36. What food are avoided during pregnancy?

Food Avoided	Reasons why

Q37. Food Avoided during lactation

Food Avoided during lactation	Reasons why

Q38. Special foods consumed during pregnancy

Special foods consumed during pregnancy	Reasons why

Q43.	Special foods consumed during lactation	Reasons why

Q40. Indicate any taboos/beliefs associated with faecal matter:

1. What are its dangers.....
.....
2. How should it be disposed of
.....
3. What are the beliefs associated with it.....
.....

Q41. Indicate activities wich bring people together in your village.

1. Cultural activities
2. Economic activities
3. Others (specify

.....

Q42. How would you rate concern of your neighbour when the following occur in your household.

	Very Concerned	Concerned	Not quite	Unconcerned
1. Sickness				
2. Death				
3. Divorce				
4. Lost Property				

Q43. Indicate meetings you have attended during the last one month

Meetings	Attendance Rating		
	Very well	Well	Not Quite
Chiefs Baraza			
Clan Meeting			
Welfare Meeting			
Cooperative Meeting			
Church Meeting			
Health Meeting			

Q44. Which health practices do people in your community normally perform to prevent illness in general?

1. Cleanliness
2. Balanced diet
3. Vaccination
4. Preventive drugs
5. Protective charms
6. Preventive rites/ritual
7. Don't know
8. Others (specify)

.....

Q45. List those things you do to keep your house and home clean

.....

.....

.....

Q46. What would be the reason for frequent pregnancies or closely spaced children?

Husband stays with wife always ☐

Many kinds of new foods now ☐

Women don't take care of themselves ☐

Women like men (or sex) "very much" ☐

Women have learned a lot of things ☐

When they are very young ☐

Women do not breastfeed ☐

Abstinence not practiced these days during early years of child's life ☐

Husband likes sex so much ☐

Civilisation ☐

High demand of children ☐

Monogamy ☐

Q47. If you would like to increase the space between your children what methods would you prefer?

Traditional methods (specify(☐

Pill ☐

Coil ☐

Injection ☐

Abstinence ☐

Others - specify

Q48. What is the purpose of vaccination given to children in the clinic?

For treatment

☐

To prevent diseases

☐

To make a child stronger

☐

Others - specify

Q49. What is the difference between injection and vaccination?

.....
.....
.....
.....
.....

Q50. Asthma

Q51. Intestinal worms

ANNEX VI

NOTES FROM THE REPORTING (FEEDBACK)

SEMINAR AT LOTUS HOTEL, MOMBASA

(28 - 31 OCTOBER, 1992)

1. PARTICIPANTS

A total of forty persons were invited out of whom twenty six persons were community leaders (councilors, chiefs and assistant chief's) and local health workers in charge of the health facilities in the division. Facilitators at the seminar included five senior persons from AMREF headquarters, two from the Ministry of Health (Heads of PHC and HIS at the Ministry Headquarters) and a Senior Projects Officer from UNICEF. Also invited were the District Medical Officers for Machakos and Makeni districts. Prof N O Bwibo, the Deputy Director General (Technical Services), AMREF delivered a keynote speech when opening the seminar.

2. PURPOSE

The purpose of the seminar was to report back to the communities and health workers, the findings of the pilot Division.

3. PROGRAMME OF ACTIVITIES

The programme of activities was as follows:

WEDNESDAY 28TH OCTOBER, 1992

5.00 p.m. Arrival of participants

THURSDAY 29TH OCTOBER, 1992

8.15 - 8.30 Welcoming participants

8.30 - 9.30 AMREF'S mission, priorities and strategies of service delivery

Prof N O Bwibo
Deputy Director-General (Technical)

9.30 - 10.00 Introduction of the IDD Project in Kibwezi Division
Dr H M Oranga

10.00 - 10.15 Tea break

10.15 - 11.15 Ministry's policies, priorities and strategies in primary health care

Dr C K Sigeti
Ministry of Health

11.15 - 12.15 The role, priorities and strategies for community-based health information system. A UNICEF's perspective.

Dr J Maneno
Senior Projects Officer, UNICEF

12.15 - 1.00 The status of health information system in Makueni and Machakos districts
DMO Makueni
DMO Machakos

1.00 - 2.30 Lunch Break

2.30 - 3.30 Development of HIS systems and the role of the IDD Project.
Dr H M Oranga

3.30 - 3.45 Coffee Break

3.45 - 4.15 The Descriptive Study
Dr H M Oranga

4.15 - 5.15 The Cross-sectional Surveys
Dr H M Oranga

5.15 End of the day's activities

FRIDAY 30TH OCTOBER, 1992

8.30 - 9.30 The Longitudinal Survey
Dr H M Oranga

9.30 - 10.30 The Validation Process
Dr John Nduba

10.30 - 10.45 Tea Break

10.45 - 11.30 Discussions

11.30 - 12.30 The Socio-cultural Study
Mr Elly Oduol

12.30 - 1.00 The Delphi Study
Dr H M Oranga

1.00 - 2.30 Lunch Break

2.30 - 3.30 Development of an HIS implementation strategy in the Division
Dr H M Oranga

3.30 - 3.45 Tea Break

- 3.45 - 4.45 Development of an HIS implementation strategy in
the Division (continued)
Mr N K Ndwiga
- 4.45 - 5.30 Concluding remarks
Mr N Ndwiga
Dr C K Sigei
Miss Robina Biteyi
Dr H M Oranga
- 7.00 - 9.00 Buffet dinner and refreshments

SATURDAY 31ST OCTOBER, 1992

10.00 a.m Journey back to Kibwezi and Nairobi.

DISCUSSIONS

Throughout the seminar deliberations, discussions were held on issues that were fundamental and critical during the implementation of the study.

Towards the end of the seminar, participants were divided into two groups and each group was expected to discuss and agree on certain issues regarding implementation of community-based HIS. The questions asked were:

- a) Who in the community should be involved?
- b) What preparations will the person require?
- c) Type of information to be collected
- c) Frequency of collection
- d) Quality control
- e) Methods of collection
- f) Quality control
- g) Sustaining motivation of information collectors
- h) Analysis, interpretation and use of information

The two groups then jointly discussed their responses. At the end of the discussions, the following consensus was arrived at:

- a) The communities shall engage some of their members to be involved in the HIS as interviewers.
- b) The person involved would need training.
- c) Type of information should be relevant to the communities problems and needs.

- d) Information should be collected at quarterly intervals.
- e) The IDD project methodology to be adopted.
- f) Quality control:
 - i) Regular meetings with the interviews and supervisors.
 - ii) Use of technical staff to check the information collected.
- g) Sustainability:
 - i) Avoid demanding too much information
 - ii) Regular chief's and assistant chief's public meetings with the community interviewers to encourage and praise them for their role and to urge community members to co-operate with them.
 - iii) Provision of incentives by the community to boost the morale of the interviewers and other actors in the HIS implementation.
- h) It was resolved that data would be compiled and processed according to community priorities. The participants identified the priorities, community information needs as demography, morbidity, immunization and nutrition.

PLAN OF ACTION

The community leaders requested AMREF to assist them as soon as possible to establish a feasible community-based HIS. They proposed and agreed to initiate the activities themselves at the village by nominating potential candidates to be engaged as interviewers. AMREF could assist in selection of the best interviews.

On the basis of the outcome of the seminar, AMREF has prepared a proposal titled "Community-based Health Information and its Impact on Local Health Care Management and Planning" for which a donor would be approached.