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NAIROBI AREA STUDY

VOLUME I

BASELINE SURVEY

USAID/Nairobi

November, 1988

Resources for Child Health Project

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NAIROBI AREA STUDY

VOLUME I
BASELINE SURVEY OF NAIROBI HEALTH FACILITIES
30 July 1988

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1. INTRODUCTION

1.1 Background

Nairobi is the largest urban centre in Kenya and covers an area of about 684 square kilometers. The city is presently estimated to have a population of 1.5 million people, and is expected to more than double by the year 2000. Higher densities are experienced in the low income areas of Eastlands and in the uncontrolled or illegal structures in slum areas. About 40 percent of Nairobi residents live in slum areas. Low densities are in high income areas to the west and north of the city. Currently the city population growth rate is six percent per annum, out of which four percent comes from natural increase, and two percent is due to net migration. It is expected that by the year 2000 the population of the city will be approximately 3.4 million, leading to a tremendous pressure to provide social services like housing, transportation, water, education and health services.

The Nairobi Area is served by a variety of health care providers, ranging from traditional healers to high technology health institutions. This report contains findings of a baseline survey of modern health care providers in Nairobi area, conducted from 20 April to 6 May 1988. The purpose of the survey was to provide background information for use in the design of a more detailed study on health services in the Nairobi area.

The study of health services in the Nairobi Area is the second in a series of studies of Kenya's health delivery system. The Kenyatta National Hospital (KNH) study, completed in February 1988, investigated issues of efficiency, management and health finance and identified constraints that need to be overcome to improve the quality of health services at KNH. The policy measures introduced as part of a restructuring of services at KNH raise the issue of how the health needs of people excluded from the KNH services will be satisfied. The KNH study also raised interest in addressing problems of efficiency and health finance in other health services institutions in Nairobi catering to a large proportion of Nairobi population.

The policy changes introduced as a result of the KNH study will require a balance in adjustment of services elsewhere in Nairobi. The Steering Committee appointed by the Government of Kenya (GOK) approached the United States Agency for International Development (USAID) for financial and technical assistance in carrying out a study which would identify problem areas and needs for adjustment. The document is intended to assist the Steering Committee and the full Study Team to identify specific health problems that now face health facilities in Nairobi, and to design a research strategy that would lead to a concrete understanding of the problems identified.

The Nairobi Area offers an excellent opportunity for experimental change of how best to restructure specific components of the health service delivery system (e.g., referral system, specialised medical services, health information system, essential drugs supplies) so as to meet the health needs of a growing urban population.

This survey is intended to provide baseline information for a more detailed study of Nairobi health services which will identify problems and constraints and offer alternatives for reorganisation or restructuring of the system. It is expected that this report will also initiate more general discussions of how to restructure the health care system in order to make it more responsive to the health needs of the population.

1.2 Materials and Methods

A comprehensive list of 150 health facilities registered with the Ministry of Health was compiled for the Nairobi Area (see Appendix I). Several types of health facilities were identified: facilities belonging to the GOK/Nairobi City Commission (NCC) ; facilities pertaining to the GOK/Ministry of Health (MOH); facilities operated by individuals, missions, parastatals and other non-governmental organisations.

The facilities were grouped for sampling purpose as follows:

1) GOK/MOH hospitals
2) GOK/MOH health centres and dispensaries
3) NCC hospitals and maternity units
4) NCC health centres and dispensaries
5) NCC child welfare clinics
6) Non-government health facilities

Simple random sampling was used to pick a sample of 74 health facilities (see Appendix II). The sample consisted of four hospitals, three nursing homes, one maternity unit, 13 health centres, 32 dispensaries and 21 clinics. Private doctor clinics were excluded in this survey. However, private doctors were surveyed by mail regarding the operation of their private practices and results of the survey will be included in the final Nairobi Area Study report.

The data collection instruments developed for this survey appear in Appendix III.

1.3 Organisation of the Report

The remainder of the report is organised as follows. Section I describes the major health care providers in Nairobi area, includes a brief historical background of some of the providers, and describes the geographic distribution of health facilities and services. Section II provides the results and finding from the 79 surveyed facilities. Chapter 4 discusses utilisation of services including the work-load in various health sub-sectors. Chapter 5 describes the referral systems. Chapter 6 is devoted to analytical comments on health resources (excluding structures and major capital equipment). Chapter 7 examines mechanisms of coordinating health services provision in Nairobi, and the functioning of health information systems in different types of health facilities. The major health problems in Nairobi Area are outlined in Chapter 8. Chapter 9 discusses priority areas for policy and research.

SECTION I

OVERVIEW OF FACILITIES AND SERVICES

2. HEALTH FACILITIES IN NAIROBI

2.1 Overview

Nairobi is served by a total of 150 health facilities, registered with the Ministry of Health. These facilities comprise hospitals, health centres, maternity units, nursing homes, dispensaries and clinics. They are operated by the GOK/MOH, the NCC, and a variety of non-government providers (See Table 2.1). Fourteen of 150 these facilities are hospitals with all but three offering a full range of in-patient and out-patient services. Pumwani Hospital provides maternity services only; the Spinal Injury Hospital and Mathari Mental Hospital offer specialised services as their names indicate. Of the remaining 136 facilities, five are nursing homes offering out-patient and limited in-patient services, and 131 are dispensaries and clinics providing out-patient services and maternal and child health care. As noted earlier, these facilities exclude private doctor clinics in Nairobi.

The NCC is the most important provider of health facilities in the city, providing primarily out-patient services. It operates one hospital, Pumwani Maternity Hospital, and 52 of the 136 out-patient facilities. The out-patient facilities include health centres, dispensaries, and clinics, the latter providing maternal and child health (MCH) services. In addition to these facilities the NCC operates a few clinics open only to NCC personnel.

The MOH accounts for six of the 14 Nairobi hospitals. Four of these hospitals serve special groups. Forces Memorial Hospital (FMH) caters only for Armed Forces, the Police, and their families; the National Spinal Injury, Infectious Disease Hospital (IDH), and Mathari Mental Hospital are specialised facilities for spinal injuries, infectious diseases and mental illnesses respectively. KNH will become a tertiary care referral hospital in the near future. The Kamiti Prison Hospital provides out-patient and limited in-patient services to the general public but has a separate section for prisoners. Of the 29 out-patient facilities run by the MOH, 25 are dispensaries without beds which provide primarily curative services. Many of these facilities are in institutions and provide care to a limited population rather than the general public.

Non-government providers of health services include facilities operated by private individuals and organisations, religious groups, and employers. The private sector in Nairobi boasts seven hospitals. The more well-known in the country include Aga Khan, M.P. Shah, and Nairobi Hospital. These hospitals are the main providers of specialised outpatient and in-patient services, apart from KNH, and are well equipped in terms of technology and personnel. In-patient and out-patient services also are provided by nine private nursing homes and maternity units. Out-patient services are provided by 46 private clinics and dispensaries.

In addition to the registered health facilities shown in Appendix I, the city has the lion's share of the country's registered medical practitioners (both general and consultants) operating their own clinic practices. Out of the 476 registered medical practitioners in the entire country (April, 1988), 216 are listed as practicing in Nairobi. Unofficial estimates claim that private practices, number at least 500 including generalists and specialists, operating in Nairobi.

TABLE 2.1
AN INVENTORY OF HEALTH FACILITIES IN NAIROBI

CATEGORY	TYPE OF FACILITY						
	NCC	GOVT	MISSN	PARA	PRVT	NGO	TOTAL
Hospital	1	6	1	-	6	-	14
Health Centres With Beds	9	-	-	-	-	-	9
Health Centres without Beds	13	-	-	-	-	-	13
Nursing Homes	-	-	-	-	5	-	5
Maternity Units	-	-	2	-	2	-	4
Dispensaries With Beds	-	2	-	2	-	-	4
Dispensaries Without Beds	5	25	17	6	11	1	65
Clinics	25	2	-	1	6	2	36
TOTAL	53	35	20	9	30	3	150

NCC = Nairobi City Commission
GOVT = Government: operated directly by the GOK.
MISSN = Mission: operated by religious organisations.
PARA = Parastatal: government corporation facilities run as employee clinics.
PRVT = Private: operated by private individuals.
NGO = Non-governmental Organisation.

According to the latest available information from the 1988 Kenya Gazette regarding the number and distribution of specialist medical practitioners in Nairobi, Kenya has only 200 registered specialist medical practitioners serving a population of about 23 million people. There is therefore, one specialist for every 115,000 people. As Table 2.2 shows, 156 of these 200 medical specialists are located in Nairobi, giving the city a share of 78 percent of all registered medical specialists. With a population of about 1.5 million people, there are approximately 10,000 people for every specialist medical practitioner in the city. Many specialty areas appear to have fewer than 10 practicing specialists. In 10 of the 18 specialty areas shown in the table, 100 percent of specialists practice within the Nairobi Area.

Nairobi has the highest concentration of traditional healers in the country. A large number of traditional healers, herbalists, traditional birth attendants and astrologers cater for the diverse health needs of Nairobi population. According to the Association of African Traditional Medical Practitioners, about a third of the 120 registered members of the Association are practicing in Nairobi (Appendix IV). The number of registered members is believed to understate the total number of traditional healers in the city. Preliminary observations indicate that there are many unregistered traditional healers operating in many parts of Nairobi, especially in the slum areas of Mathare and Kibera.

Nairobi is also served by a large network of pharmacies and chemists. Almost 50 percent of 217 registered pharmacies in 1988 are located in Nairobi (See Appendix V).

2.2 Facilities Operated by NCC

The city is currently run by a commission established in 1983, following the dissolution of the Nairobi City Council. The Commission operates under the Ministry of Local Government, with the latter appointing Commissioners for a specific term of office. The commissioners formulate policies and ratify decisions made by chief officers of ten different departments of the city through various committees.

The Public Health Department of the Nairobi City Authority, the largest department, is headed by the Medical Officer of Health. The Medical Officer of Health is assisted by a team of medical officers, paramedical, and administrative staff. The Medical Officer of Health collaborates with the Provincial Medical Office (PMO) as well as the Director of Medical Services (DMS).

The NCC facilities offer comprehensive integrated health care services to the city residents. In terms of numbers of facilities and patients treated, the NCC is the most prominent provider. The curative, promotive and preventive health services are organised into two administrative sections: Division One, and Division Two.

TABLE 2.2
MEDICAL SPECIALISTS

SPECIALTY	TOTAL NO. IN KENYA	NO. IN NAIROBI	PERCENTAGE IN NAIROBI
1. Anesthesia	21	16	76
2. Paediatrics	30	21	70
3. Medicine	26	15	57
4. Ophthalmology	11	7	63
5. Obs & Gyne	53	43	81
6. General Surgery	20	20	100
7. Psychiatry	4	4	100
8. Orthopaedic surgery	8	7	87
9. Plastic Surgery	3	3	100
10. Surgery Trauma	5	2	40
11. Cardiology Medicine	3	3	100
12. Ear, Nose & Throat	3	2	66
13. Pathology	4	4	100
14. Haematology/Oncology	1	1	100
15. Dermatology/Venereology	3	3	100
16. Dentistry (Conservative)	1	1	100
17. Neurosurgery	2	2	100
18. Diagnostic Radiology	2	2	100
	200	156	78

Sources: Kenya Gazette, 1988.

The head of Division One is responsible for day to day administration of health centres, dispensaries and clinics in Eastern and Southern Areas of the city and its headquarters is located at Kariokor. Division Two health facilities are located in Central, Northern and Western Areas of Nairobi. The administrative office for Division Two is at Lady Northy Home, in the Central Area.

Administrative Divisions for the health facilities came into being in 1973 with the establishment of integrated health services. Prior to 1973 curative services had their own section head, and preventive and promotive services were carried out in maternal and child health clinics. At this time, here were no established health centres offering integrated or comprehensive health services. Health centres with beds offering integrated health services were opened in the city in 1974.

The health facilities of the Public Health Department consist of one maternity hospital, nine health centres with beds, 13 health centres without beds, five dispensaries, and 25 maternal and child health (MCH) and family planning (FP) clinics. A brief description of these facilities and of the services they offer follows.

Pumwani Maternity Hospital

Pumwani Maternity Hospital, the only hospital run and managed by NCC, is believed to be the biggest maternity hospital south of the Sahara. Pumwani Hospital was opened in 1926 with 26 maternity beds. It was expanded in 1952 and 1969 to cater for more patients. The hospital has a total of 375 official maternity beds. However actual beds in use at the hospital during the baseline survey were 450. Due to congestion at the hospital, patients have to be doubled and sometimes tripled in one bed.

The hospital conducts about 70-100 normal and complicated deliveries per day. It also admits new born babies with complication at birth. Hospital obstetricians and doctors are able to handle all cases of abnormal deliveries. Facilities at the hospital include theatre, where an average of 10 caeserian sections are performed per day. Normal and complicated maternity cases received by the Pumwani Hospital for ante-natal management and deliveries come from NCC clinics and health centres, as well as and from mission maternity units. The hospital refers mothers who have normal deliveries to the maternity units for rest and they are transported to the units by ambulance. The hospital has a responsibility of providing laundry services, provisions and food to all NCC Maternity Units.

The hospital laboratory facilities are used by the NCC clinics and health centres for blood test. The x-ray facility at the hospital is also available to the NCC clinics for screening ante-natal mothers who need specialised care.

Staffing of the hospital is provided in Table 2.3

TABLE 2.3
PUMWANI MATERNITY HOSPITAL PERSONNEL

CATEGORY OF STAFF	ESTABLISHED POSTS	VACANT POSTS
Medical Superintendent	1	-
Consultant Obstetrician	1	-
Chief Paediatrician	1	1
Senior Registrars	3	3
Registrar	3	3
Medical Officers	13	9
Hospital Matron	1	-
Assistant Matron	2	-
Departmental Sisters	3	2
Sister Tutors	3	1
Ward Sisters	34	4
Staff Midwives	4	4
Clinical Officers	2	2
Senior Midwife	20	5
Enrolled midwife	89	3
Assistant in Clinic (Auxiliary Nurses)	26	2
Seamstress	6	6
Radiographer	1	1
Assistant Anaesthetist	3	2
Dark Room Technician	1	1

TABLE 2.4
PERSONNEL CATEGORIES IN A TYPICAL NCC FACILITY

CATEGORY OF STAFF	JOB DESCRIPTION	NO. PER FACILITY
Medical Officer	In-Charge of clinical services	0-1
Nursing Officer	In-Charge and administrators	1-3
Clinical Officer	Curative work	1-2
Community Nurse, Enrolled Nurse Enrolled Midwife	Curative/MCH/FP services, and dispensary	5-10
Clerks	Booking, filling, patient cards	1-2
Auxiliary Nurse/ Assistant Nurse	Clerical duties assisting with weighing of children and taking temperatures	1-2
Cleaners/Domestic Staff	Cleanliness of the facility	

Pumwani School of Midwifery

The School of Midwifery at Pumwani started in February 1926 with six students, two from Kenya, two from Tanzania and two from Uganda; the student could not read or write at the time of admission. The first midwife qualified in 1934. In 1940 the school only admitted students who could read and write. In 1953 students were required to have C.A.P.E. certificates with 13 points; the duration of midwifery training was two years. In 1950 enrolled nurses were trained at the school for one year and in 1972 the hospital started training registered nurses. University of Nairobi medical students also attend the hospital to gain practical midwifery experience.

Out-patient Services

Out-patient curative care and integrated MCH/FP services are offered in health centres and clinics which are opened from 8:00 am to 5:00 pm, Monday-Friday. Two of the health facilities, Jericho and Ngaira (Rhodes Avenue) are open 24 hours. Five health centres, and one dispensary in the peripheral areas of the city are opened six days a week, from Monday to Saturday. Facilities operating six days per week include Riruta, Kangemi, Eastleigh and Kariobangi health centres and Kassarani dispensary.

The out-patient health facilities have a daily attendance ranging from 200 to 1,000 patients mainly for clients in the curative services. Five to 10 per day may be referred to KNH from each unit for specialised care.

Most NCC health centres and clinic are staffed as shown in Table 2.4. It is important to note that most the clinics, health centres and dispensaries do not have resident medical officers. Curative outpatient facilities are manned by clinical officers. There are no pharmaceutical technologists or technicians nor trained medical record clerks at the health units. The Public Health Officers are not part of the health centre team as is the case in GOK/MOH facilities.

Health Centres With Beds

The NCC operates nine health centres with beds. The services offered in these facilities include curative, promotive and preventive care. In-patient services are for maternity cases, and are restricted to mothers who have had two to four normal deliveries; complicated maternity cases are referred to Pumwani Maternity Hospital.

Pumwani Maternity Hospital also refers mothers who have had a normal delivery to the health centres for rest before they are discharged to their homes. Promotive and preventive out-patient services include ante-natal care, child health care, growth monitoring, nutrition and health education.

Health Centres Without Beds (Sub-Health Centres)

NCC operates 13 sub-health centres, or health centres without beds. The services offered in these facilities are the same as those offered in the health centres. However, the sub-health centres do not have beds for in-patient maternity services. Jericho sub-health centre offers 24 hours out-patient services. Jericho has a laboratory facility which is used by other City Commission health facilities.

Dispensaries

The NCC operates five dispensaries offering daily curative outpatient services. Ngaira Road dispensary offers 24 hour out-patient services. There is a laboratory service at this dispensary open five days a week, which also caters for referral patients from other NCC health facilities.

MCH/FP Clinics

NCC operates 25 MCH/FP clinics. The services offered in the clinics cover child health care, immunisations, growth monitoring and nutrition education, which includes advice on feeding, weaning, and balanced diet. Ante-natal services are provided to mothers who attend these clinics during their prenatal period. Mothers with normal pregnancies are referred to the health centres for delivery. Complicated ante-natal cases are referred to Pumwani Maternity Hospital for further care and management. Family planning services and also provided. The MCH/FP clinics do not offer curative services.

2.3 Other NCC Services

School Health Services

School health services cater for the health needs of the children in nursery and primary schools. The school health activities comprise preventive and promotive health care including health education. Limited curative services are also offered. The dental clinic, psychological assessment clinic, and paediatric clinic are used by school health nurses for referral and consultation. The paediatric clinic is run by a paediatrician. The teachers are encouraged to refer children to dispensaries and health centres. The eye, ENT and complicated cases in schools are referred to specialised KNH clinics, especially the orthopaedic and speech therapy clinics. School children are also referred to their own private doctors or to private hospitals.

Nutrition Services

Nutrition activities, include counselling mothers on nutrition and health, growth monitoring, education and lectures and demonstrations on cookery. Health and nutrition, home visiting and follow-up of the at risk groups is carried out by the nutritionists.

Public Health Services

These services fall under the health inspectorate section. The section is mainly concerned with inspection of public premises, e.g. grocery stores, butcheries, hotels, restaurants, eating houses, shops, liquor premises, and schools to ensure they are not hazardous to public health.

The section ensures clean environment, promotes sanitation, and prosecutes city residents who violate public health laws. The section also scrutinises building plans, issues occupation certificates, and licenses premises.

Ambulance Services

Ambulance services are provided by a fleet of ambulances which are normally called upon in cases of emergency.

Mortuary and Funeral Services

These services come under the mortuary and funeral section. The section's activities include preservation of dead bodies, postmortem, embalmings, exumations, registration of deaths, burial of unclaimed bodies, and registration of births.

Cleansing Services

These services are offered by the cleansing section of the City Authority. The responsibilities of the section include collection of refuse and garbage, collection of dead animals, street sweeping and maintenance of cleanliness of the city.

2.4 Facilities Operated by Nairobi PMO

The Nairobi PMO is a new institution in Nairobi. It was established in August 1987 soon after an Act of Parliament changed the status of KNH into a parastatal body in April 1987. The Act stipulates that KNH should specialise as a national referral, teaching, and research hospital. Before this change of KNH status, one of its responsibilities was to coordinate the activities of other government-run health facilities in the Nairobi Area. Some of these diverse responsibilities made the hospital perform its specialised roles inefficiently as resources were spent on problems which could be handled at a primary care level, that is, by health centres, dispensaries or clinics. Last year's change in KNH status, especially relinquishing responsibility over health facilities formerly run by KNH under GOK/MOH, necessitated the creation of the Nairobi PMO.

There are altogether 35 GOK/MOH health facilities in Nairobi: six hospitals, 27 dispensaries, 12 clinics, and a series of general service unit dispensaries. Of these facilities, all dispensaries and clinics and two hospitals (Kamiti Prison and Spinal Injuries) are now managed by the PMO. A provincial hospital and a Nyayo ward to serve as a district hospital are presently under construction.

Organisation and Functions

The Provincial Medical Officer of Health is the head of the PMO. He reports directly to the DMS and has a support team comprising the following:

i) Deputy Provincial Medical Officer
ii) Provincial Pharmacist
iii) Provincial Public Health Officer
iv) Provincial Hospital Secretary
v) Provincial Matron
vi) Provincial Drugs Inspector
vii) Medical Records Officers

The PMO is responsible for the organisation and administration of health services in the province and is also charged with the coordination of government and non-government health services in the province. The organisational relationship between NCC, the PMO, and the MOH is not fully worked out.

The private hospitals, non-governmental facilities, mission hospitals and private clinics previously reported directly to the DMS. With the setting up of the PMO, they are required to report to, or liaise with, the PMO.

The functions of the PMO, at the preparation of this report had not been clarified in any written document. During discussions with the PMO staff, the functions emerged as follows:

1. To coordinate provision of private and public medical services in the city, and to liaise with various health care providers there.

2. To set, monitor and maintain health care standards in Nairobi province.

3. To formulate and standardise policy for all the medical facilities in the province.

4. To strengthen, in terms of staff, anciliary services and management of the Nairobi Area facilities formerly under the KNH management. These facilities are now expected to cope with the off-load emanating from the closed out-patient filter clinics of KNH.

5. Registration and maintenance of an inventory of all the registered medical facilities in the Nairobi province.

6. To carry out disease surveillance to detect any new diseases in Nairobi population and to prevent and/or control any outbreak of communicable disease.

7. To maintain statistics on disease patterns in the province.

8. Inspection and approval for licensing of all public and private hospitals, clinics and pharmacies in the province.

9. Planning of new medical facilities and improvement of the existing ones.

10. To initiate continuing education courses for all cadres of staff in the public and private sector, and in general population at large. These programmes are generally implemented through the mass media. They focus on:

    i) Environmental sanitation
    ii) Health problems related to nutrition
    iii) Family planning
    iv) Communicable diseases

Some Highlights of the Province

There is a heavy concentration of government medical staff in Nairobi in comparison to other provinces. The fact that some Nairobi hospitals (KNH, IDH, Mathare, Spinal Injury Unit) serve as referral centres for the whole country contributes to this situation.

Nairobi province is an urban provincial district. Administratively it has no clear cut districts like the other seven provinces. There is, therefore, no district hospital in Nairobi and no facility that has a mission to provide primary and secondary in-patient services.

KNH has been over-centralised. Because of its enormous size, its effectiveness is reduced and this weakness the status of the other government health facilities. KNH has been forced to take on primary and secondary inpatients because of the absence of alternating public activities. It is in the process of changing this role, so that it may concentrate on its stated mission of providing services as a national tertiary referral hospital.

3. DISTRIBUTION OF HEALTH FACILITIES

Table 3.1 provides the distribution of the health facilities in Nairobi according to the five administrative divisions of the city. Table 3.2 indicates the distribution by category and ownership of the facility.

3.1 Dagoretti Division

Dagoretti Division covers an area of 56 square kilometres and total population of 13,902 per 1979 census. The division consists of the following areas; Kangemi, Kawangware, Riruta, Waithaka, Uthuru, Rutimitu, Mutuini and Kilimani. Total health facilities in the division comprise three hospitals, one maternity home, one nursing home, one health centre with 20 beds for maternity cases, three health centers without beds (sub-health centre) and ten dispensaries without beds. Fifteen of the health facilities are open to Dagoretti residents only.

3.2 Kibera Division

This division covers 234 sq. km. and consists of Karen, Langata, Kibera, Woodley, Golf Course, Nairobi Hill, Nairobi South, Nairobi West, Industrial area and Mugumoini. Kibera population in 1979 census was 143,196. Part of Kibera consist of uncotrolled or illegal development and one of the four major 'slum' areas in Nairobi. There is no health facility run by the government or the NCC in the unplanned area of Kibera.

The division has four hospitals, one health centre with a 20 bed maternity unit, two dispensaries with beds which are not opened to the general public, eighteen dispensaries located in the Industrial area and opened to workers in private sector and one health centre without beds opened to residents of the Langata area and four clinics. There are altogether 30 health facilities in the division.

3.3 Makadara Division

The division comprises of Embakasi, Dandora, Harambee, Lumumba, Makadara, Kaloleni, Maisha, Makongeni, Mbotela, Bahati, Maringo and Uhuru. It is located in the eastern part of Nairobi area. The majority of Makadara residents are low income. In 1979 the division had 161,272 people. There is no hospital in Makadara. Total health facilities are 21 consisting of one mission maternity home, three health centres with maternity beds, five sub-health centres, 12 dispensaries and eight clinics.

3.4 Pumwani Division

Areas which make Pumwani are the City Centre, Shauri Moyo, Muthurwa, Pumwabni, Ziwani, Kariokor, Nairobi Central, Spring Valley, Karura, Parklands and Ngara. The division's total population in 1979 was 166,200, The division covers an area of 72 sq. Km. There are 50 health facilities comprising of four hospitals, one maternity hospital, four nursing homes, two health centre with beds, three health centres without beds (sub-health centre) 16 dispensaries and 19 clinics.

3.5 Kassarani Division

Higher population densities are experienced in Kassarani division. The majority of residents are the low income group in uncontrolled or illegal development (slum area), e.g., Mathare which consists of 20 percent of Nairobi residents are in this area. Population census for 1979 totals 226,206. Health facilities consist of two hospitals, one maternity unit, three health centres with beds, one dispensary with beds, one dispensary without beds, 10 dispensaries without beds and two clinics. In addition to Mathare, other areas included in Kassarani division are Roysambu, Kahawa, Ruaraka, Kassarani, Kariobangi and Eastleigh.

3.6 Discussion

It is clear from the above presentations that health facilities in Nairobi are not evenly distributed. The Pumwani Division, which includes the City Centre, has 33 percent of all the facilities in the city and four of the 14 hospitals, although it is not the area with the highest population. Kibera division with the second lowest population according to the 1979 census, has the second highest number of facilities and four hospitals. Kassarani, with the highest population has the second lowest number of health facilities. Makadara Division with the third highest population has no hospital.

TABLE 3.1

DISTRIBUTION OF HEALTH FACILITIES
ACCORDING TO ADMINISTRATIVE DIVISIONS

DIVISION AND POPULATION	HOSPITAL	HEALTH CENTRE WITH BEDS	HEALTH CENTRE WITHOUT BEDS	DISPEN-SARY WITH BEDS	DISPEN-SARY WITHOUT BEDS	CLINICS	NURS-ING HOMES	MAT. UNIT/ HOSP. HOMES	TOTAL
DAGORETTI (130,902)	3	1	3	-	9	1	1	1	9
KIBERA (143,196)	4	1	1	2	18	4	-	-	30
MAKADARA (161,271)	-	3	5	-	12	8	-	1	29
PUMWANI (166,200)	5	2	4	-	15	19	4	1	49
KASSARANI (226,206)	2	3	1	1	10	4	-	1	22
TOTAL	13	10	14	3	64	36	5	4	150

HOSP. = hospital
DISPENS. = dispensary

* Figures in brackets show population figures according to 1979 population census.

SECTION II

SURVEY RESULTS

4. COMPOSITION AND UTILISATION OF HEALTH SERVICES

Data collected during this baseline survey are used to establish an understanding of utilisation of services by category of provider and estimate the level of output in Nairobi health facilities.

4.1 Utilisation of Out-patient Health Services

Table 4.1 show that an estimated 18,600 people per day attend non-hospital health facilities for out-patient care in Nairobi. This figure suggests that the non-hospital per capita out-patient visits for the Nairobi population is 3.5 visits per year. (Assumes Nairobi population and 300 operating days per year) The figure takes account of the fact that approximately 11 percent of users of health facilities in the city come from outside Nairobi (see Table 4.2).

Survey results (which excludes KNH and the large private hospitals) indicate that the majority of outpatients (65%) in Nairobi are treated in the City Commission facilities. Thus, the commission is the predominant source of non-hospital out-patient services in Nairobi. Daily patients loads for other providers are quite small relative to the load of the City Commission. However, it should be noted that the role of the private sector in the provision of out-patient services is understated because major private hospitals and private practitioner practices were not included in the sample. (These providers were excluded from the first phase to make it the study manageable). Even if data limitations were to be taken into account, the City Commission would remain the single most important source of out-patient care in Nairobi. As can be seen from Tables 4.3 and 4.4, NCC has the largest number of patients per day despite the fact that in-patient facilities are quite limited.

The main reasons given for outpatients visits to Nairobi health facilities are:

1. Upper respiratory infections
2. Diarrhoea
3. Malaria
4. Accidents and injuries
5. Immunisation
6. Family planning
7. Ante-natal care
8. Post-natal care
9. Schizophrenia (a type of mental illness)
10. Infertility
11. Skin diseases
12. Mental health
13. General medical examination
14. Stomach upsets
15. Gastro-intestinal tract problems
16. Sexually transmitted diseases
17. Inoculation

Tables 4.5 and 4.6 display the major reasons for out-patient visits in Nairobi area. Table 4.6 shows that except for the NGO facility which dealt with the provision of family planning, most of the other facilities reported that upper respiratory infection, as a category of diseases, was the most common reason for out-patient visits. All the parastatal, 88 percent of government, 71 percent of mission and over 50 percent of NCC and private sector facilities identified upper respiratory infection as the most common disease treated. Table 4.7 shows that malaria was generally seen as the second most common disease. Since most of the facilities (the dispensaries and health centres) where malaria was reported to be a common problem do not have laboratory facilities, there is a possibility that the reported malaria cases were cases of other diseases which were misdiagnosed as malaria.

TABLE 4.1
TOTAL NUMBER OF OUT-PATIENTS PER DAY IN NAIROBI
BY TYPE OF HEALTH FACILITY (NON HOSPITAL FACILITIES)

TYPE OF FACILITY	NUMBER OUT-PATIENT FACILITIES	PREDICTED* TOTAL OUT-PATIENT PER DAY	PERCENT OF TOTAL IN ALL FACILITIES
NCC	2	12,636	68
Government	29	1,885	10
Private	24	792	4
Mission	17	1,972	11
Parastatal	9	729	4
NGO	3	555	3
TOTAL	134	18,569	100

* Average number of daily visits times number of facilities.

TABLE 4.2

PERCENTAGE OF PATIENTS FROM OUTSIDE NAIROBI BY TYPE OF FACILITY

TYPE OF FACILITY	PERCENT*
NCC	14.7
Government	7.6
Private	8.6
Mission	9.8
Parastatal	4.0
NGO	5.0
TOTAL	10.8

* This percentages are much higher in facilities near the outer boundaries of the city. In these facilities the percentage of patients from outside Nairobi were as high as 70 percent.

TABLE 4.3
OUT-PATIENT VISITS PER DAY, BY TYPE OF PROVIDER
(IN SAMPLE)

TYPE OF FACILITY	AVERAGE VISITS PER FACILITY	TOTAL VISITS PER DAY	RANGE	
			LOWEST	HIGHEST
NCC	243	7,531	17	825
Government	65	1,105	5	261
Private	33	396	4	62
Mission	116	580	11	412
Parastatal	81	325	70	98
NGO	185	185	-	-

This number is outpatients at Westlands Cottage, Nairobi, Aga Khan, M.P. Shah hospitals and the Private doctors, and the traditional healers.

TABLE 4.4
TOTAL NUMBER OF PATIENTS (OUT-PATIENTS AND IN-PATIENTS) PER DAY, BY TYPE OF PROVIDER FOR THE PERIOD JANUARY - MARCH 1988

TYPE OF FACILITY	AVERAGE NO OF PATIENTS/ CLIENTS PER FACILITY	RANGE	
		LOWEST	HIGHEST
NCC	17,207	1,110	62,916
Government	4,486	345	24,069
Private	2,867	60	7,470
Mission	6,380	783	29,673
Parastatal	6,016	4,628	8,828
NGO	11,081	-	-

There are two major factors that account for the very high level of utilisation of NCC services. First, with a few exceptions the, NCC services are open to the general public and are provided free-of-charge. In contrast the majority of government health facilities in Nairobi, although provided free-of-charge, are not open to the general public. Their use is restricted to certain categories of government employees, such as the members of the armed forces and the police. Similarly, parastatal facilities are not open to the general public. Private sector services are open to the general public, but their prices are a barrier to many people who would like to use them. There are also private facilities run by private companies which caters exclusively for the company employees.

The second reason for heavy utilisation of NCC services may be that they are reasonably well spread in the residential areas of the city and are, therefore, relatively more accessible to the population.

TABLE 4.5
THE MOST IMPORTANT REASON FOR OUT-PATIENT VISITS

MAIN REASON FOR VISIT	PERCENT OF FACILITIES					
	NCC.	GOVT.	PRVT.	MISSN.	PARA.	NGO.
Upper Respiratory Infection	50.0	87.5	57.1	71.4	100.0	0.0
Malaria	0.0	12.5	21.4	0.0	0.0	0.0
Family Planning	0.0	0.0	0.0	0.0	0.0	100.0
Diarrhoea	0.0	0.0	7.1	28.6	0.0	0.0
Accidents Injuries	0.0	0.0	14.3	0.0	0.0	0.0
Immunisation	35.7	0.0	0.0	0.0	0.0	0.0
Ante-natal Care	14.3	0.0	0.0	0.0	0.0	0.0

TABLE 4.6
SECOND MAJOR REASON FOR OUT-PATIENT VISITS

SECOND REASON FOR VISIT	PERCENT OF FACILITIES					
	NCC.	GOVT.	PRIV.	MISSN.	PARA.	NGO
Upper Respiratory Infection	0.0	14.3	28.6	0.0	0.0	0.0
Diarrhoea	34.5	7.1	14.3	14.3	25.0	0.0
Malaria	3.4	78.6	14.3	71.4	75.0	0.0
Ante-natal Care	31.0	0.0	0.0	0.0	0.0	0.0
Immunisation	24.1	0.0	7.1	0.0	0.0	0.0
Post-natal Care	3.4	0.0	0.0	0.0	0.0	0.0
Family Planning	3.4	0.0	7.1	0.0	0.0	0.0
Accidents/Injuries	0.0	0.0	0.0	28.6	0.0	0.0

NCC = Nairobi City Commission
GOVT = Government
PRVT = Private
MISSN = Mission
PARA = Parastatal
NGO = Non-governmental Organisation

4.2 Specialised Out-patient Services

Specialised out-patient services include renal, TB/chest, hypertension, diabetic, mental and orthorpaedic treatments. Table 4.7 shows the pattern of provision of specialised out-patient services in Nairobi. As can be see from the table, very few facilities in the city provide specialised out-patient treatments. For example, only one of the health units in the sample had facilities for renal services.

TABLE 4.7
SPECIALISED OUT-PATIENT SERVICES IN NAIROBI BY TYPE OF FACILITY

TYPE OF SPECILISED SERVICE OFFERED	TYPES OF FACILITIES PROVIDING THE SERVICE (NUMBERS)						PERCENTAGE OF TOTAL FACILITIES
	NCC.	GOVT.	PRVT.	MISSN.	PARA.	NGO.	
Renal	-	-	1	-	-	-	1.4
TB/Chest	-	1	1	-	-	-	2.7
Hypertension	1	1	3	-	2	-	9.5
Diabetic	-	1	3	-	1	-	6.8
Mental	3	2	-	-	1	-	8.1
Dental	-	1	1	-	-	-	2.7
Orthopaedic	1	1	-	-	1	-	4.1
Emergency	6	4	8	2	2	-	29.7
Environmental	2	3	4	1	-	-	13.5

4.3 Preventive and Promotive Services

Preventive and promotive health services consist of immunisations, ante-natal and post-natal care, family planning, child health care, nutrition and health education. Table 4.8 indicates provision of preventive services by various health facilities in the city.

The City Commission is the leading provider of preventive health services in Nairobi. About 94 percent of NCC facilities provide preventive and promotive health services in a variety of forms. Only 22 of 33 percent of GOK/MOH facilities provide preventive and promotive services.

Religious organisations are a distant second to the City Commission in the provision of family planning and child health care. Other private provider sector have emerged as a significant source of MCH, and FP services in Nairobi. Between 40 and 53 percent of private facilities provided comprehensive MCH/FP services. It appears highly likely that the rather widespread provision of MCH/FP services by the private sector is an outcome of interventions like Family Planning Private Sector (FPPS), a private non-profit NGO in Nairobi. FPPS provides training in FP including ante-natal care to the private sector. FPPS works closely with the MOH Division of Family Health, and with the National Council for Population and Development. Thus, its impact in the Health Sector could be quite significant.

TABLE 4.8
PREVENTIVE AND PROMOTIVE SERVICES

TYPE OF FACILITY	TYPE OF SERVICE	PERCENT OF FACILITIES
NCC	- Immunisations	93.5
	- Ante-natal Care	93.5
	- Family Planning	93.5
	- Child Health Care	93.5
GOK/MOH	- Immunisations	33.3
	- Ante-natal Care	22.2
	- Family Planning	27.8
	- Child Health Care	27.8
Mission	- Ante-natal Care	33.3
	- Family Planning	66.6
	- Child Health Care	50.0
Parastatal	- Immunisations	25.0
	- Ante-natal Care	50.0
	- Family Planning	75.0
	- Child Health Care	25.0
Private	- Immunisations	46.6
	- Ante-natal Care	40.0
	- Family Planning	53.3
	- Child Health Care	40.0

TABLE 4.9
TYPES OF SUPPORT SERVICES OFFERED

	NUMBER OF FACILITIES OFFERING THE SERVICE*				
TYPE OF FACILITY	LAB.	X-RAY	PHARMACY	AMBULANCE	OTHER TRANSPORT
NCC	4	1	23	2	4
Government	2	1	18	8	9
Private	3	-	13	5	8
Mission	2	-	6	-	1
Parastatal	1	-	4	3	2

* In the sample

4.4 Support Services

Support services for Nairobi health facilities, such as laboratory, x-ray, pharmacy, ambulance and other transport, are generally limited. A notable feature of the City Commission facilities (apart from Pumwani Maternity Hospital and few clinics), is that they do not have laboratory services. Furthermore, use of these services is restricted in the sense that only patients who are referred from NCC facilities can receive them. x-ray services are also limited in NCC facilities. Pumwani Hospital and Ngaira Road are the only NCC facilities that offer this service. Ante-natal mothers suspected of having multiple pregnancies are referred to Pumwani Hospital for x-ray. Other patients referred to Pumwani Hospital are school children who are suspected of having tuberculosis. The other NCC facility with x-ray equipment is the chest clinic at Ngaira Road. One of the two x-ray machines in this clinic has not been operational for sometime.

There is an ambulance service at Pumwani Hospital and in one of the NCC clinics. NCC facilities also have access to ambulances of the fire department. Generally, the ambulance and transport facilities in the City Commission are inadequate.

Table 4.9 indicates that health facilities run by government, mission and parastatals were equally limited in laboratory, x-ray and transport facilities. Most facilities, however, do offer pharmacy services.

4.5 In-patient Services

The in-patient services comprise general medicine, surgery, obstetrical and gynaecological care. The City Commission and the private sector are the principal providers of obstetrical services in Nairobi. General medicine and specialised surgical care are available exclusively in the hospital sector of the city, mainly in private and MOH hospitals.

Provision of in-patient facilities in Nairobi is problematic. The beds available are either inaccessible due to high cost or are restricted. The NCC, the main provider of health services in the city, has inpatient facilities for maternity cases only in Pumwani and a few other maternity units. The demand on these maternity facilities is indicated by bed occupancy rates. Our calculation shows that the bed occupancy rate in Pumwani for March 1988 was 116 percent.

In-patient facilities for government run facilities also had high bed occupancy rates. Forces Memorial Hospital, for instance, in spite of the fact that it serves only armed forces personnel and their relatives, had an average occupancy rate of 88 percent for the period January to March 1988.

Inadequacy of in-patient facilities is also prevalent in mission and parastatal health facilities. This leaves the private hospital sector as the only in-patient facilities. However, these facilities are generally inaccessible due to their high cost, implying that only upper and middle income families, especially those with medical insurance or employer payment schemes, can utilise them. The private sector institutions with in-patient facilities include the Nairobi Hospital, Aga Khan, Matermisericodiae, M.P. Shah and a few maternity and nursing homes. Pumwani for March 1988 was 116 percent.

5. REFERRAL NETWORK AMONG HEALTH FACILITIES IN NAIROBI AREA

Data collected in this baseline survey reveal that patient referral is a common practice and well established across all categories of health facilities and health providers in Nairobi. Protocols or guidelines that indicate criteria for vertical or horizontal referrals do not exist, however. While much referral does take place, it seems to happen somewhat ad hoc. KNH and Pumwani Maternity Hospital are reported as the main referral centres in the city.

5.1 NCC Health Facilities

All NCC facilities in the sample referred patients to other facilities in the city while 87 percent of facilities received referred patients from elsewhere. The most important referral centres for NCC facilities were to KNH and Pumwani Maternity Hospital. Over 80 percent of all NCC facilities referred patients to KNH while 94 percent referred patients to Pumwani Maternity Hospital. The main reasons given for referring patients were lack of specialised management, equipment, and in-patient services. There was also considerable up and down referral of patients within the hierarchical network of health facilities. For instance, the survey showed that 52 percent out of all NCC facilities referred patients to health centres, with 75 percent of these referrals coming from the NCC.

The network of vertical and horizontal referrals is well established among NCC facilities. NCC dispensaries received patients referred from 52 percent of the NCC facilities, while the clinics received referrals from 36 percent of the other facilities. Most of the cases referred to NCC facilities (with exception of PMH) were in connection with daily dressing, removal of stitches, follow-up management, injections, family planning, immunisation, ante-natal and post-natal care. About 55 percent of NCC facilities received referral cases for removal of stitches, 45 percent for daily dressing, 52 percent for injections, 58 percent for follow-up management, 61 percent for immunisation, 61 percent from ante-natal follow-up, and 47 percent for family planning. The main criteria for accepting referred patients were residence, and referral letters.

While there was a strong referral network among NCC facilities, it was relatively weak between NCC and private or mission health facilities. None of the sampled NCC facility referred patients to private hospitals or nursing homes, and only 10 percent of the facilities referred patients to mission hospitals. Of all NCC facilities, 74 percent received referred patients from KNH, 36 percent from private hospitals, and 32 percent from mission health facilities.

5.2 GOK/MOH Health Facilities

Protocols or guidelines for referral do not exist in any formal document. Nevertheless all GOK/MOH health facilities referred patients other facilities in the city.

Seventy-one percent of the facilities reported that they received patients that had been referred to them by other facilities. All the government facilities referred patients to KNH; 35 percent referred to Pumwani Maternity Hospital; 35 percent to health centres; 18 percent to dispensaries; 24 percent to private hospitals; 35 percent to health centres to clinics. About 65 percent of all the GOK/MOH health facilities received patients referred from KNH, while 18 percent received referred patients from Pumwani Maternity Hospital, and 12 percent from private hospitals.

Over 75 percent of the government facilities surveyed gave the reason for patient referral as due to lack of in-patient facilities, equipment, or specialised management. Most of the facilities referred maternity, surgical, TB/chest, sexually transmitted diseases (STD) and mental and complicated pregnancy cases.

About 75 percent of the government facilities received referred patients for daily dressing, removal of stitches and injections each, and 47 percent for follow-up management. Between 12 and 18 percent received referred patients referred for ante-natal, family planning and immunisation.

5.3 Non-government Operated Facilities

Mission facilities were considered to be those associated with a religious groups or organisations. All mission health facilities referred patients to other facilities and received patients referred from elsewhere. Over 83 percent of mission facilities referred maternity, surgical and TB/chest cases, while 50 percent of them referred STD, mental patients and complicated pregnancy cases. Lack of specialised management, equipment, laboratory facilities and in-patient facilities were cited by most of the facilities as the main reasons for referring patients to other facilities.

All mission facilities referred maternity cases to Pumwani Maternity Hospital and KNH. About 50 percent referred patients to other mission facilities and private hospitals. Between 17 percent and 30 percent of the facilities referred patients to health centres, dispensaries, maternity units and clinics. It is worth noting that while NCC and government-run health facilities rarely referred patients to private sector facilities, about half of mission facilities did. In 67 percent of the facilities, referral cases were transported through patient's own means and 33 percent through transportation provided by the facility.

The most common reason for referral to the mission facilities was in connection with daily dressing, removal of stitches or injections, (83%); second most common reason was for follow-up management and family planning (67%); other reasons for referral to mission facilities included immunisation (50%) and ante-natal care (33%).

KNH was the main source of referral cases for mission facilities, and 83 percent of these facilities received patients referred from it. About 67 percent of these facilities also received cases referred from Pumwani Maternity Hospital and other mission facilities.

Seventeen percent of mission facilities received cases referred from private hospitals. In addition, 33 percent received cases referred from health centres, 17 percent from dispensaries and maternity units each, and 50 percent from clinics.

Parastatal facilities were considered to be those run by government corporations which operate similar to employer clinics. All the parastatal health facilities included in the sample referred patients to other health facilities in the city and 50 percent of them received patients referred from elsewhere. All the facilities refer maternity, surgical and TB/chest cases, and between 50 percent and 75 percent of them refer STD, mental and complicated pregnancy cases. As in the other types of facilities the main reasons for referring patients were that facilities lacked specialised management, equipment, laboratory facilities and in-patient services.

KNH was the main referral centre, with 75 percent of parastatal facilities referring patients there. About 50 percent of the facilities referred patients to Pumwani Maternity Hospital which is lower than figures for NCC, GOK/MOH, or mission facilities. This may indicate that parastatal facilities are serving middle and upper income groups who prefer private sector health facilities. However, 50 percent of these parastatal facilities referred patients to private hospitals, which is high compared with referrals from either NCC or GOK/MOH facilities. The survey data show that mission and parastatal health facilities constitute the highest source of referrals to the private sector with 50 percent of the facilities in each category referring to private hospitals.

It is worthy noting that none of the parastatal facilities in the sample referred patients to health centres, maternity units or dispensaries. However, 75 percent of them referred patients to mission facilities and 50 percent referred to clinics, most probably specialist or consultant clinics.

Unlike other facilities none of the parastatals received patients referred for immunisation, ante-natal care or family planning. Further, only 25 percent of received cases referred for injection, removal of stitches and daily dressing. None of the parastatal health facilities received cases referred from KNH, PMH, health centres, dispensaries, mission facilities, maternity units, or clinics.

Other facilities not included in any of the above descriptions also referred patients to other facilities and received referred cases from elsewhere. They referred due to lack of specialised management, lack of equipment and lack of laboratory facilities. The main facility for referral was KNH, while cases which were referred to them were from health centres and clinics.

5.4 Discussion

The survey data presented in this section clarify a number of health care issues in Nairobi which have been the subject of a number of policy discussions. First, the data reveal that KNH is the main referral point for facilities in the Nairobi Area.

It also refers patients to lower level facilities for follow-up care and for completion of treatment that it initiates. The observed behaviour of KNH as a referral centre for the Nairobi Area is partly due to reforms that it has recently experienced. In March 1988, the adult out-patient departments of KNH were closed to patients not referred from lower level facilities. These changes may have contributed to the current functioning of KNH as a referral centre. The appropriateness of referral, however, needs clarification.

In addition to the above administrative changes, the rational decision-making process that patients (or their relatives) use when selecting health care providers also elevates KNH to the status of a referral centre. Seeking medical care or advice at the KNH can be quite costly (in terms of travel time, transport expenses and long queues) even for Nairobi residents. Patients naturally attempt to keep these costs down. Unpublished data collected by a recent REACH study on KNH (see Makinen et al. [1988]), show quite clearly that even before the closure of out-patient departments, out-patients at KNH had sought treatment from other health facilities in the city. Even before the recent reforms, a significant number of patients at KNH were either on official referrals or on self referrals.

A second important issue revealed by this baseline survey is that the pattern of the referral in Nairobi Area is quite different from the structure of the national referral system. The national referral system is vertical, and is generally one-way, meaning that almost always, patients are referred from lower level health facilities to higher level facilities. Moreover, the national referral system is not linked to an equivalent referral system. In Nairobi Area, there are as many referral mechanism as there are types of health care providers. Most are interwoven into a larger network of referral facilities, through which patients or clients move regularly. An important characteristic of referral systems in Nairobi is the existence of referrals among facilities of the same level, e.g., NCC clinics refer cases among themselves. There is also a two-way referral channel between facilities of different levels. For example, patients are referred from a clinic to health centre and vice-versa.

A third, area of our findings raises the question of the need for referral. Many services can be provided in simple health facilities provided that certain equipment and personnel are available. Lack of X-ray equipment (including the relevant personnel) and lack of laboratory services were reported by all the facilities surveyed as the principal reason for referring patients. Demand and cost information need to be analysed to determine at what level these services should be provided and at what level of sophistication. Rectification of these problems would significantly shorten the time required to provide referral services and the need for many referrals. It would also reduce costs of medical care, for the providers and for the patients.

6. HEALTH RESOURCES

This section describes the resources of health facilities in personnel, medical equipment and financial resources.

6.1 Personnel

An apparent shortage of health personnel was reported in all the facilities surveyed. Facilities reported this categories of support staff were found to be in very short supply in all the health subsectors, namely, pharmaceutical technologists and technicians, laboratory technologists, accounts or statistical clerks, maintenance personnel, cleaning staff, and revenue clerks. The numbers of specialised medical personnel such as surgeons, paediatricians, obstetricians, gynaecologists and consultants were also reported to be highly limited. In NCC and GOK/MOH facilities, the doctor:facility ratio was about the same, 1.28 and 1.25 respectively. However, given that the population served by the NCC facilities is much larger than that covered by GOK/MOH facilities, the former facilities have a bigger problem of doctor shortage.

The doctor:facility ratio in private, mission, and parastatal facilities is smaller than the ratio for NCC and government facilities, ranging from 0.4 to 0.75. This however does not imply that the non-government health sector in Nairobi has a more serious problem of doctor shortage as its patient load is smaller.

The staff situation for middle level health personnel such as nurses and clinical officers is much better than that for support staff or for the specialists (see Table 6.1).

All the providers surveyed employ staff on full time and on part-time basis. Employment of staff on part-time basis, as a method of alleviating staff shortage in NCC and government facilities is worthy of study.

While all facilities report pervasive staff shortages, there is need to develop criteria for establishing staffing norms in NCC and GOK/MOH facilities which would form the basis for health manpower planning. Staff numbers and composition for each facility should take account of category of facility, epidemiological factors, and size of population served by the facility. Such criteria, (if made known to all facilities) can be used by health facility managers to request more staff or by policy makers to reallocate staff across facilities or geographical regions.

Table 6.2 and 6.3 give a detailed breakdown of staff cadres and salary structure for the NCC and the Nairobi PMO facilities respectively. All the 32 health facilities served by PMO are served by 15 doctors and 29 officers. The corresponding numbers for the 53 NCC facilities are 32 doctors and 100 registered nurses. The shortage of doctors for NCC is demonstrated by the fact that out of 142 established posts for doctors, only 32 were filled in 1988. Out of these 32 doctors, nine are in Pumwani Maternity Hospital, leaving the other facilities to share 23 doctors. There is thus one doctor for more than two facilities in both the NCC and PMO facilities.

TABLE 6.1
HEALTH PERSONNEL BY TYPE OF HEALTH FACILITY*

CATEGORY OF PERSONNEL	AVERAGE NUMBERS PER FACILITY TYPE					
	NCC	GOVT	PRIV	MISSN	PARA	NGO
Surgeons	0.0	6	.33	0.0	3	-
	-	-	(.14)	(.2)	(.5)	-
Paediatricians	2	5	0.0	-	1.0	-
	-	-	(.07)	(.2)	-	-
Obs. and Gyane.	-	-	.07	.5	-	1
	(2)	(3)	(1)	-	(3)	(0.0)
Doctors	1.28	1.25	0.40	0.66	0.75	-
	(0.26)	(0.35)	(.43)	(0.2)	(0.75)	-
Registered Nurse	2.9	11.3	1.0	1.4	4.3	1.0
	(.03)	(.06)	(0.0)	(0.0)	(2.0)	(0.0)
Enrolled Nurse	105.8	81.8	33.8	16.0	95.5	-
	(403.2)	(358.8)	253.6	100.0)	(126.0)	-
Clinical Officers	2.2	2.6	1.4	-	3.7	-
Public Health Officers	1.0	1.3	-	-	1.0	-
Auxiliary	40.9	34.4	72.8	30.0	10.0	10.0
	(126.3)	(135.3)	(126.7)	(200)	(25.0)	(100.)
General Clerks	2.4	5.7	1.6	1.0	7.3	-
Drivers	10.0	2.5	1.1	-	2.0	-
	-	-	(0.07)	-	(0.3)	-
Security	2.3	26.5	2.1	1.0	-	-
	(0.03)	-	-	-	(2.8)	-
Pharmacists	1.0	1.0	1.0	-	10.0	-
Pharmaceutical Technologists	(0.07)	2.5	1.0	-	2.0	-
Pharmaceutical Technicians	-	1	-	-	-	-
Laboratory Technologists	2.0	1.0	-	-	-	-
Laboratory Technicians	3.3	3.5	-	(0.2)	3.0	-

TABLE 6.1
HEALTH PERSONNEL BY TYPE OF HEALTH FACILITY*
(continued)

CATEGORY OF PERSONNEL	AVERAGE NUMBERS PER FACILITY TYPE					
	NGC	GOVT	PRIV	MISSN	PARA	NGO
Maintenance Engineers	0.07	-	0.07	-	-	-
Maintenance Personnel	-	0.06	-	-	-	-
		(37.0)	-	-	-	-
Cleaning staff	-	-	9	-	-	-
	-	(10)	-	(20)	-	-
Secretaries	-	2	-	-	-	-
	-	(2)	-	-	(5)	-
Accounts Clerks						
Statistical Clerks						
Revenue Clerks	-	(10)	-	-	-	-

* Numbers in parenthesis represent part-time staff

TABLE 6.2
STAFF AND SALARY STRUCTURE IN NAIROBI PMO HEALTH FACILITIES, 1988

STAFF CADRE	EXISTING NUMBERS	ENTRY SALARY (IN Kf) MINIMUM	MAXIMUM
Doctor	15	2,820	6,594
Nursing Officers	29	1,554	4,116
Enrolled Nurses	90	1,170	2,820
Registered Clinic Officers	27	1,554	2,820
Public Health Officers	13	1,554	4,116
Public Health Technician	42	1,170	1,734
Medical Records Officers	1	1,554	2,334
Medical Record Technician	2	1,398	1,734
Drug Inspectors	2	1,554	3,408
Hospital Secretary	2	2,820	4,116
Pharmacists	1	3,408	4,770
Pharmacist Technician	5	1,554	2,820
Radiation Protection Officer	2	2,334	3,408
Laboratory Technician	3	1,554	4,116
Laboratory Technician	4	1,170	2,334
Physiotherapists	7	1,554	2,820
Occupational Therapists	3	1,554	2,820
Medical Social Worker	1	1,554	2,334
Nutritionist	4	1,170	2,820
Storemen	6	744	2,820
Statistical Clerks	6	744	1,170
Clerical Officer	6	744	1,446
Secretary Staff	12	618	1,734
Drivers	26	618	1,446
Artisan	2	744	1,734
Substitute Staff	130	435	804
Security Warden	1	972	1,446

TABLE 6.3
STAFF AND SALARY STRUCTURE IN NCC HEALTH FACILITIES, 1988

STAFF CADRE	ESTABLISHED POSTS	EXISTING NUMBERS	VACANT POSTS	ENTRY SALARY (IN Kf) MINIMUM	MAXIMUM
Doctors in Administration	3	2	1	4,713	7,971
Clinical Specialist and Doctors	142	323	110	3,558	7,971
Registered Nurses in Administration	8	6	2	3,054	5,691
Registered Nurse	104	100	4	1,704	3,906
Enrolled Nurses	639	529	93	1,122	2,220
Clinical Officers	108	69	39	1,704	3,906
Public Health Officers	32	23	9	2,700	6,204
Principle Administrative Assistant	1	1	-	3,054	5,349
Senior Administrative Assistant	1	1	-	2,700	4,566
Administrative Assistant	2	1	1	2,220	3,906
Stenographer 1 and 2	8	6	2	2,220	4,566
Senior Clerical Officer	3	3	-	1,704	2,874
Clerical Officer II	4	4	-	1,122	1,764
Clerical Officer III	60	55	5	912	1,500
Hospital secretary	1	-	1	3,054	5,349
Assistant in Clinic	176	150	26	912	1,500
Medical Social Worker	1	1	-	1,704	2,874
Funeral Support and Assistant	6	5	1	2,220	5,691
Nutritionists	15	6	9	912	5,691
Laboratory Technicians	22	15	7	1,306	5,349
Assistant Anesthetists	3	2	1	2,220	3,906
Radiographer	2	2	-	2,220	3,906
Ambulance Attendant Supervisors	39	26	13	1,356	3,906
Pharmacist	1	1	-	3,558	5,691
Pharmacists Technologists	2	2	-	2,220	3,906
Vaccinator	5	5	-	1,122	1,764
Caterers	4	3	1	1,704	3,906
Darkroom Technologists	2	2	-	1,122	1,764
Manual Workers					
PHD Division 1 & 2	N/A	337	-	-	-
Domestics/Cleaners					

Table 6.2 and 6.3 also show that there are 10 clinical officers per facility in both NCC and PMO. There are 27 clinical officers for 32 facilities run directly by the PMO and 69 clinical officers for the 53 NCC facilities.

A look at the salary structures of NCC and PMO staff reveals that most of the NCC workers generally earn more than their counterparts in PMO.

Administrative Responsibilities

Table 6.4 shows that registered nurses, clinical officers and enrolled nurses have the main administrative responsibilities in the health facilities surveyed. Registered nurses, for instance, held between 50 and 80 percent of the overall administrative responsibilities in NCC, mission, and parastatal facilities, and one-third of the administrative responsibilities in the private sector.

The administrative responsibility held by enrolled nurses varied from seven to 100 percent in the private and the NGO facilities respectively.

TABLE 6.4

ADMINISTRATIVE RESPONSIBILITIES AT THE HEALTH FACILITIES

CATEGORY OF PERSONNEL WITH ADMINISTRATIVE TASKS	PERCENTAGE OF HEALTH FACILITIES					
	NCC	GOVT	PRVT	MISSN	PARA	NGO
Doctor	3.3	23.5	40.0	16.7	25.0	-
Registered Nurse	80.0	11.8	33.3	66.7	50.0	-
[illegible]nical Officer	-	41.2	6.7	-	25.0	-
[illegible]olled Nurse	16.7	17.6	6.7	16.7	-	100.0
[illegible]ron	-	-	6.7	-	-	-

Training Facilities

The shortage of doctors and other types of staff in most city health facilities is a general indication of the inadequate supply of medical personnel. Health facilities run by the government, NCC, and non-government organisations rely on staff trained from the few institutions discussed below:

1. University of Nairobi, College of Health Sciences

The college of Health Sciences, which started as the faculty of medicine in 1967, is the only institution in the country which trains medical doctors, pharmacists and dentists. It also offers diplomas in advanced nursing. It produces on average 100 doctors per year. Moi University in Eldoret is also planning to establish a faculty of medicine in the near future.

2. College of Health Professionals

This college, previously known as the Medical Training School, is located at KNH and is the main training institution for the country's nursing and paramedical personnel. The college trains the following cadres of staff:

a) Registered nurses
b) Public health officers
c) Pharmaceutical technologists
d) Orthopaedic technologists
e) Occupational therapists
f) physiotherapists
g) Dental technologists
h) Medical record technicians
i) Laboratory technicians/technologists

The post basic courses offered in the college include:

a) Health educators training for registered nurses
b) Paediatric training for clinical officers
c) Ear, nose and throat specialised training for clinical officers
d) Anaesthetic training for clinical officers
e) Opthalmology training for clinical officers
f) Theatre courses for nurses
g) Intensive care unit training for nurses
h) Pschyiatric training for registered and Enrolled nurses
i) Registered midwife training for registered nurses

3. Karen College of Nutrition

The college offers basic nutrition training and advanced courses to other paramedical personnel.

4. Training offered at the Division of Family Health

a) Post graduate family planning training is offered to doctors, registered nurses, enrolled nurses, midwives, community nurses and clinical officers.

b) Mid level training for doctors, registered nurses, administrators on Kenya Expanded Programme on Immunisation.

c) Operational training for all cadres medical personnel on immunisation and non-medical are also considered for training.

d) Field educators training.

e) Family planning training and seminars to professionals and lay people.

5. Mathari Mental Hospital

Mathari hospital has a training wing offering training for nurses in the psychiatry discipline. Nurses undergoing psychiatric nurse training at the college of health professional also go for practical experience in psychiatric nursing at Mathare Mental Hospital.

6. Mater Misericordiae Hospital

Kenya registered nurses are trained in midwifery for a total duration of one year.

7. Nairobi City Commission

a) Midwifery training is offered to registered and enrolled nurses for one year at Pumwani Maternity Hospital.

b) Parklands training school offers training for enrolled nurses and midwives for one year to become enrolled public health nurses.

6.2 Equipment

Equipment is regarded as one of the main problem areas in the provision of health facilities in Nairobi. Lack of or inadequate equipment was cited as either the first or second most serious problem by 19 percent of NCC facilities, six percent of Government, 17 percent of the Mission and 13 percent of Private sector facilities. It was also reported as one of the main reasons why facilities referred patients.

The problem of equipment can be considered in two dimensions, the level of equipping, and the repair and maintenance of the existing equipment. The number of medical items differ greatly from one facility of the same category to another. The number of medical items for NCC health centres, for example ranged from 10 to 691. The range of medical items for clinics and dispensaries varied very much also. From the available data, the NCC did not seem to have a standardised way of equipping various categories of its health facilities (see Table 6.5).

The generally low level of equipping of the average health facility is aggravated by poor maintenance of available medical items. Table 6.6 shows that large proportions of facilities included in this baseline survey reported that they had a problem of broken equipment. Almost 94 percent of NCC, 71 percent of GOK/MOH and all the parastatal run facilities reported that they had problem of broken equipment. Fewer of the private and mission health facilities said they had faced this problem. For the City Commission facilities for which we had complete information, the proportion of broken items varied from about two percent to 18 percent (See Table 6.5).

TABLE 6.5
MEDICAL ITEMS IN SOME NCC FACILITIES

HEALTH FACILITY	NO. OF MEDICAL ITEMS	NO. OF BROKEN DOWN ITEMS	PERCENTAGE OF BROKEN DOWN ITEMS
1. Mathari Huruma Lions	120	12	10.0
2. Jericho Dispensary	181	11	6.19
3. Eastleigh Clinic & Dispensary	177	7	3.9
4. Eastleigh Maternity Unit	244	32	13.1
5. Kasarani Dispensary	N/A	2	N/A
6. State House Clinic	70	N/A	N/A
7. Waithaka Health Centre	10	N/A	N/A
8. Pangani Clinic	N/A	2	N/A
9. Pumwani Dispensary	17	3	17.6
10. Makadara Health Centre	294	6	2.0
11. Dandora II Health Centre	87	N/A	N/A
12. Hono Clinic	14	5	4.4
13. Dondora I Health Centre	188	10	5.3
14. Kariobangi Health Centre	81	13	16.1
15. Kariokor Clinic	33	3	2.3
16. Embakasi Health Centre	186	9	4.8
17. Ofafa II Clinic	138	5	3.6
18. Jinnah Avenue Clinic	141	6	4.3
19. Muthurwa Clinic	190	N/A	N/A
20. Bahati Maternity Unit	294	5	1.7
21. Jerusalem Clinic	170	N/A	N/A
22. Makongeni Clinic	193	3	1.6
23. Power & Telecommunication	194	8	4.1
24. Eastleigh Lions	83	9	10.8
25. Kangemi Health Centre	171	16	9.4
26. Ngara Health Centre	691	N/A	N/A
27. Maringo Clinic	154	6	3.9
28. Kaloleni	213	9	4.2
29. Lagos Road	153	5	3.3
30. Shauri Moyo	113	N/A	N/A
31. Industrial Area	126	N/A	N/A
32. Ruaraka Clinic	119	4	3.4
33. Mathari Health Centre	97	3	3.1
34. Mbotela Clinic	25	3	

The overall proportion of broken equipment within the facilities included in the sample was 42.3 percent (see Table 6.7) The government and private facilities reported the highest number of broken equipment, followed by missions and parastatals. It is worthy noting that although the City Commission had the highest number of facilities, it reported about half the percentage of broken equipment compared to the percentages reported by GOK/MOH and private facilities. The NGO facility in the sample did not have broken equipment.

TABLE 6.6
PERCENT OF FACILITIES WITH BROKEN EQUIPMENT

TYPE OF FACILITY	PERCENT WITH BROKEN EQUIPMENT
NCC	93.5
Government	70.6
Private	27.3
Mission	20.9
Parastatal	100.0

TABLE 6.7
PERCENT OF BROKEN EQUIPMENT BY TYPE OF FACILITY

TYPE OF FACILITY	PERCENTAGE OF BROKEN EQUIPMENT
NCC	29.0
Government	54.2
Private	54.0
Mission	50.3
Parastatal	50.2
NGO	0.0
TOTAL	42.3

6.3 Finance

The literature on health finance in Kenya (Bloom et al (1986) shows that health care providers have two major sources of finance: government revenue, and revenue from fees and other charges to patients. In 1983/4, approximately 48 and 44 percent of recurrent expenditure was financed by public funds and user fees respectively. The remaining eight percent was financed by National Hospital Insurance Fund (NHIF) and donation (Table 6.8). The NHIF is used almost exclusively to finance health care costs in the private sector.

As can be seen from Table 6.9, the Ministry of Health and municipal facilities (including those of the City Commission) financed only about 1 percent of their recurrent costs with NHIF, while the private sector financed about 25 percent of its recurrent costs with income from NHIF. Furthermore, whereas the MOH and municipal facilities relied mainly on government funds, the missions and private section facilities financed recurrent expenditures primarily with fees and other charges to patients. The sources of finance for health providers in Nairobi Area is very similar to the national pattern just described (Table 6.10).

TABLE 6.8
MAIN SOURCES OF FINANCE FOR RECURRENT HEALTH EXPENDITURE
1983 - 1984

CATEGORY	FINANCE (KSHS. M.)	TOTAL PERCENTAGE
Public	388.5	48
National Hospital Insurance Fund	109.0	4
Fees and Other charges to consumers	264.8	44
Donations	113.7	4
TOTAL	876.0	100

Source: Bloom et al (1986)

TABLE 6.9
SOURCES OF FINANCE FOR RECURRENT EXPENDITURE OF MAIN INSTITUTIONAL PROVIDERS OF HEALTH CARE 1983/84 (PERCENTAGE)

	CATEGORY OF FINANCIAL SOURCES				
PROVIDER	PUBLIC	NATIONAL HOSPITAL INSURANCE FUND	FEES TO USERS	DONATIONS	TOTAL
Ministry of Health	93	1	1	4	100
Municipality	95	1	5	-	100
Missions	20	14	48	19	100
Private Hospital/Home	3	25	72	-	100

Source Bloom et al (1986)

The MOH and NCC facilities have very few sources of funds to finance their services. The NCC relies heavily on revenue from taxes allocated centrally by NCC. About 97 percent of the NCC facilities are financed exclusively by City Authority. Only about one to two NCC facilities are currently generating funds of their own. The GOK/MOH facilities rely on the government budget to carry out their operations. All the GOK/MOH facilities in the sample receive direct assistance from the government and none generates its own funds. In contrast, all private sector facilities have a wide range of sources of finance, which include: NHIF charges to employers, company clinic resources (perhaps the amount employees prepay), charitable organisations, private insurance, and donations. Thus, the source of finance for the private facilities is broadly diversified.

TABLE 6.10
SOURCES OF FINANCE FOR HEALTH CARE PROVIDERS IN NAIROBI

	PERCENT OF HEALTH FACILITIES					
SOURCES OF FINANCE	NCC	GOVT	PRVT	MISSN	PARA	NGO
NCC Budget	96.9	-	-	-	-	-
Government Budget	-	100.0	6.7	-	25.0	-
Fees From Patients	3.1	-	40.0	100.0	-	-
NHIF	3.1	-	26.7	14.3	25.0	-
Private Insurance	-	-	20.0	-	25.0	-
Charges to Employers	-	-	26.7	14.3	-	-
Company Resources/ Company Clinic	-	-	66.7	14.3	50.0	-
Charitable Organisations		-	6.7	57.1	-	-
Baptist Mission	-	-	-	14.3	-	-
Catholic Secretariat	-	-	6.7	28.6	-	-
Social Welfare	-	5.9	-	-	-	-
Overseas Grants	-	-	6.7	-	-	-
International Planned Parenthood Federation	-	-	-	-	-	100.0

NCC = Nairobi City Commission
GOVT = Government
PRVT = Private (Including Private company clinics)
MISSN = Mission
PARA = Parastatal
NGO = Non-governmental

7. MECHANISMS FOR COORDINATING PROVISION OF HEALTH SERVICES IN NAIROBI

Given the relatively large number of different providers of health care in Nairobi, more than other provinces in the country, requires an effective mechanism for coordinating the activities of these providers. Such a mechanism is indispensable if duplication is to be avoided and if scarce resources available for health services in the city are to be optimally used. The newly created Nairobi PMO is expected to provide this coordinating mechanism in the city. One of the PMO's challenges will be to establish a smooth relationship with the City Commission, which has in the past run its own health services with very little intervention by the MOH.

Although a coordinating mechanism is necessary, it should be recognised that some forms of coordination could be counter-productive if they were to introduce excessive bureaucracy, and stifle initiatives of some of the providers. Thus, coordination mechanism for health services in Nairobi should have the objectives of enhancing efficiency in utilisation of existing facilities and creating an environment which gives incentives for more initiative from various health providers.

7.1 Health Information System

The Ministry of Health Information System was created in 1980 by merging the unit of vital Health Statistics of the Division of Communicable Disease Control with the Evaluation and Research Division of the Division of Family Health.

The primary responsibilities of the information system are to collect, process, and disseminate health information. Its technical staff include Statistical Clerks, Medical Records Officers and Computer Programmers. Generally the health information system staff have not been utilised productively due to a lack of:

1) financial support by the Ministry;

2) clearly defined role for each cadre of staff;

3) demand for information by planners; and

4) policy concerning utilisation of health information for planning, monitoring and evaluation of health programs and health status in Nairobi.

Due to insufficient financial support the system is unable to produce and disseminate summary quarterly or yearly reports. It cannot maintain enough stock of reporting forms; therefore the available information is neither detailed nor adequate. It is also unable to carry out routine supervision, surveys or provide continuing education to data collecting personnel. The available data may therefore not be very accurate.

The Nairobi Provincial Health Information System depends much on the GOK/MOH headquarters for information for it does not yet have its own recurrent budget yet. The centre is sometimes unable to produce statistical information when needed.

The GOK/MOH information system requires updating. The most recent annual report uses data of 1980. There is also need to circulate the Ministry annual report to all the health facilities.

The quarterly reports contain tables abstracted from monthly reports. There is very little analysis in the reports. For example, trend in diseases patterns is not shown, differences in mortality rates across districts are not given, and so on. This is because the reporting clerks do not have training in epidemiology and data analysis. They are only taught how to fill data collection forms but not how to present and interpret data. Thus there is need to give these personnel training in data presentation and analysis.

Weaknesses of the Health Information System are identified below.

1. No attempt is made to analyse the data at the facility that uses them.

2. Primary reporting centers do not receive feed back after the information they send has reached the MOH headquarters.

3. Information is not shared among users from different facilities.

4. Information is analysed when it is several years old.

5. Priorities do not exist about the most important information to be collected.

6. Statistical clerks receive very general training which is not adequate for their duties.

7. The decentralisation policy which authorised facilities to design their own information reporting forms has led to confusion, as there are several versions of reporting forms being used.

7.2 Present Data Collection Procedures

Data summaries from each facility are required to be received at the MOH headquarters by the 10 day of every month. This deadline is rarely met. When data forms are received they are not analysed immediately. The forms are normally stored in general office and chances of their being spoilt or lost are high. Follow-up of information from non-responding facilities is usually done by a general circular with minimal positive result.

8. PROBLEMS FACING HEALTH FACILITIES IN NAIROBI

8.1 Problems Identified

In an attempt to understand the constraints facing health providers in Nairobi, people in charge of the facilities studied were asked to state the top five problems facing their facilities. Following is a list of all problems mentioned as among the top three most serious constraints facing various types of facilities.

- Lack of transport
- Lack of doctors
- Lack of equipment
- Shortage of staff
- Lack of space
- Untrained manpower
- Shortage of water
- Too many patients
- Delays in repairs
- Poor maintenance
- Inadequate supplies
- Drug shortages
- Shortage of nurse attendants
- Lack of maternity facilities
- Lack of ambulance
- Not able to handle emergencies
- Lack of money
- Leaking roofs
- Inadequate immunisation cover
- Scarce field educators
- Lack of cleaning materials
- Broken filing cabinets
- Personal problems of staff
- Lack of laboratory facilities
- Lack of motivation
- Inadequate social workers
- Poor roads and pathways around the facilities
- No drivers
- Limited financial resources
- Poverty of the people being served
- Insecurity
- Poor drainage
- Shortage of vaccines
- Inadequate subordinate staff
- Environmental problems
- No canteen nearby
- Lack of staff houses
- Poor toilet facilities
- Inadequate linen
- No payment for overtime work
- No telephone facilities

8.2 Problem Rankings

Table 8.1 shows the percentage of facilities of each type ranking various problems as either the first or second most serious. It is clear from the table that the most serious constraints facing health facilities in Nairobi are lack of transport and shortage of staff. Except for the parastatal and NGO facilities, lack of transport was seen as a major problem by all the other facilities. More than a third of the government run health facilities, one-fourth of NCC facilities, one-fifth of private sector facilities and 17 percent of mission facilities identified lack of transport as either the first or the second most serious problem facing them.

Shortage of staff was another widespread problem. It was termed as either problem number one or two by about 32 percent of NCC facilities, 35 percent of government facilities, 75 percent of parastatal and 100 percent of NGO, 13 percent of the private and 17 percent of mission facilities.

Shortage of doctors was specifically mentioned as a major problem by NCC, government and parastatal health facilities. The attraction of doctors to private practice has been a major cause of the shortage of doctors in most of the facilities in the city. Few of the institutional health providers can pay salaries that would retain doctors. A recent study estimates that a full-time fee-for-service general medical practitioners earns between two to five times the salary of their counterpart working in government health facilities [1]. Due to this lucrative nature of private medical practice in Nairobi, it has been difficult for providers, like the City Commission, mission, private hospitals and parastatal to hire and retain doctors. The NCC which had about 50 doctors in 1985 has currently less 20 [2].

Many doctors working for the government medical facilities try to improve their situation by engaging in part-time private practice. This practice has not been popular with the Government due to abuses that it is open to. It has, however, not been easy to deal with this problem. As Bloom, Segall, and Thube point out in their study, the 1980 government prohibition of part-time private practice for doctors employed in its health facilities led to an exodus of doctors (including specialists) from the public service to enter the private practice. The government later licensed a limited number of specialists for part-time private practice in regulated premises, but abuses continued. The part-time licenses were withheld in 1984 and more government specialists resigned. In the first half of 1985, 52 specialist part-time licenses were issued, almost all of them for practice in Nairobi [3].

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(1) See Gerald Bloom, et al, "Expenditure and Financing of the Health Sector in Kenya", February 1986, page 8.
(2) Ibid
(3) Ibid

TABLE 8.1
THE MOST IMPORTANT PROBLEMS FACING HEALTH FACILITIES IN NAIROBI AREA

	(A) PERCENTAGE OF FACILITIES REGARDING IT AS PROBLEM NUMBER ONE					
PROBLEMS	NCC	GOVT	MISSN	PARA	PRVT	NGO
Lack of Transport	25.0	23.5	16.7	0.0	13.3	0.0
Short of Staff	15.6	29.4	0.0	25.0	6.7	100.0
Drug Shortage	6.3	23.5	0.0	0.0	6.7	0.0
Lack of Space	12.5	0.0	0.0	50.0	6.7	0.0
Lack of Equipment	9.4	0.0	16.7	0.0	6.7	0.0
Untrained Manpower	9.4	0.0	0.0	0.0	6.7	0.0
Poor Maintenance/ Repair	3.1	5.9	0.0	0.0	0.0	0.0
Lack of Doctors	3.1	0.0	0.0	0.0	0.0	0.0
Lack of Money	0.0	0.0	16.7	0.0	0.0	0.0
Inability to Handle Emergencies	0.0	0.0	33.3	0.0	0.0	0.0

	(A) PERCENTAGE OF FACILITIES REGARDING IT AS PROBLEM NUMBER 2					
PROBLEMS	NCC	GOVT	MISSN	PARA	PRVT	NGO
Lack of Transport	0.0	11.8	0.0	0.0	6.7	0.0
Shortage of Staff	16.1	5.3	16.7	50.0	6.7	0.0
Drug shortages	6.5	23.5	0.0	0.0	0.0	0.0
Lack of Space	12.9	11.8	50.0	0.0	6.7	0.0
Lack of Equipment	9.7	5.9	0.0	0.0	6.7	0.0
Untrained Manpower	0.0	5.9	0.0	25.0	6.7	0.0
Lack of Doctors	0.0	5.9	0.0	25.0	0.0	0.0
Lack of Lab Facility	0.0	0.0	0.0	0.0	6.7	0.0
Leaking Roof	3.2	5.9	0.0	0.0	0.0	0.0
Inadequate Immunisation	3.2	0.0	0.0	0.0	0.0	0.0

NCC = Nairobi City Commission
GOVT = Government
MISSN = Mission
PARA = Parastatal
PRVT = Private
NGO = Non-government Organisations

Surprisingly, drug shortage did not emerge as a widespread problem as is commonly believed. It was certainly not among the top two problems for any mission, parastatal or NGO health facilities, and was cited as either first or second most serious problem by about 13 percent of NCC facilities. It was, however, among the top two problems for almost half of GOK/MOH facilities, implying that drug shortage as a problem has been confined more or less among health facilities run by the MOH.

Lack of space has not been hitherto highlighted as a major problem facing health facilities in Nairobi. Lack of space means insufficient office space, inadequate storage, lack of room for medical equipment and records and unavailability of land on which the facility can expand if it wants to provide more services. The study shows that over 13 percent of private, 50 percent of parastatal and mission each, 12 percent of government and 25 percent of NCC facilities regarded it as either the top or second most important constraint.

Another fairly widespread constraint was lack of equipment with 19 percent of NCC, six percent of government, 17 percent of mission, 13 percent of private facilities regarding it as either first or second most serious problem.

Untrained manpower was also quite common. It was regarded as a major problem by a substantial number of NCC, government, parastatal and private health facilities.

Other problems were less widespread. Poor maintenance and repair, and leaking roofs were confined to between three and six percent of NCC and government facilities, while lack of money and inability to handle emergencies were emphasised by mission facilities. Only private facilities acknowledge lack of lab facilities as either first or second most serous problem.

9. ISSUES FOR POLICY AND RESEARCH

9.1 Introduction

The aim of this baseline survey was to provide information that can be used by health care planners and policy makers to improve health services delivery in Nairobi area. The Nairobi Area population, which now stands at approximately 1.5 million, is expanding at a rapid rate of six percent per year. Innovative ways must be sought, both to control this population, and to provide it with adequate health services. Provision of primary health care services, with strong community-based components, is the most promising way of ensuring adequate health for all in Nairobi. With regard to health development in Nairobi area, primary health care approach has three main advantages in that it would:

1. stimulate use of cost effective methods of health services delivery by introducing reforms that would put pressure on health facility managers to use the available resources efficiently so as to cover as many people as possible with basic health services. Such reforms in the public sector might include giving facility managers a certain amount of control over a given amount of health resources, to be used to achieve specified health targets.

2. place appropriate emphasis on preventive services, especially MCH/FP services, and thus help reduce the fertility rate in the city.

3. by design, involve Nairobi residents in the provision of their own health services, thereby inviting them to determine freely, the best way they can assist the government to achieve the social goal of health for all in the city.

The information provided in this baseline survey clarifies a number of policy and research areas about which concrete understanding is needed in order to design an effective primary health care system for Nairobi.

9.2 Priority Issues

1. Decentralisation of Referral Services in the Government Health Care System in Nairobi

The survey results show that apart from KNH, and the high cost private hospitals, there are hardly any other health facilities in the city providing specialised out-patient services such as dental, renal, diabetic cardiac, orthorpaedic etc. To avoid congestion at KNH with patients referred there for the above services, some of the lower level facilities in the city, especially the NCC clinics and health centers, can be strengthened to provide some of these specialised out-patient services. These primary care units can be strengthened by providing them with laboratory services, pharmacies, and by rehabilitating their office and medical equipment. There is need to explore how to improve primary health care facilities and the referral services.

2. Expansion of Hospital Services to Back-up Primary Health Care in the City

In-patient services in the city are in very short supply for the majority of the population. Available beds are either for special services (e.g., armed forces, the police) or are in private hospitals, where they are inaccessible to a large proportion of the population. This situation needs to be rectified in order to operate an effective primary health care system in Nairobi. It must be fully recognised that a significant portion of the Nairobi population that would be relying on primary care centres (clinics, dispensaries, health centres, consultant clinics, private clinics etc.) will need to be hospitalised at one time or another. Primary health care facilities need to be backed by a cost-effective hospital system. This is an area where public policy can be innovatively applied to induce the private sector to provide hospital facilities that low-income people can afford to use. In addition, NCC and PMO could establish moderate fee-charging in-patient facilities. Besides increasing the supply of beds in the city, such facilities could help moderate in-patient costs of private sector facilities.

3. Expansion of Technical Support Services

Health care support facilities such as ambulances, x-ray, laboratory facilities are clearly inadequate and need to be expanded at primary health care level with more equipment. Many of the health facilities would be able not only to reduce the number of cases they refer but would also improve the quality of the services they provide. The optimal and standard level of equipment for different categories of health facilities is an issue which merits highest attention in the planning of health services in Nairobi.

4. Distribution of Health Facilities

The distribution of health facilities in Nairobi Area is uneven, some of the densely populated areas have relatively fewer facilities. There is need to make the health facility distribution in the city more equitable.

5. Socioeconomic Conditions of Slum Areas

The low socioeconomic status of slum areas makes support of their community-based services by facility-based health workers difficult. They are not easily accessible to health workers, especially during the rainy seasons. Health care providers in Nairobi, especially the City Commission should explore ways of developing outreach programs for slum areas. The management of such programs should involve local communities.

6. Transport Services in Health Facilities

Lack of transport was reported to be a major problem at the health facilities. It is not clear why transport is considered to be such an important item by health facilities. The problem of lack of transport that was widely reported at the health facilities might be a symptom of other

problems such as poor maintenance of vehicles and lack of medical supplies. There is need to understand the role of transport services in the delivery of health care in the city.

7. Diverse Health Care Providers

There are many and diverse health care providers in Nairobi Area. There is therefore a need to develop mechanisms for coordinating the services of these providers, in order to promote efficiency in their provision and equity in their utilisation.

8. Shortage of Health Personnel

The Nairobi Area is facing severe shortages of medical and health personnel. Ways of rectifying this situation should be sought.

9. Financing of Health Services

The NCC and MOH facilities have limited sources of funds to finance their services. The MOH facilities rely exclusively on central government budget to provide their services. Similarly, the NCC facilities rely mainly on the City Commission budgets. Increasing available financial resources for the NCC and MOH facilities is therefore an issue requiring urgent attention to enable the city meet the growing demand for health services.

10. Health Services Management

Most of the NCC and MOH health centres and dispensaries are managed by registered and enrolled nurses. There is need to extend managerial skills to this cadre of health personnel.

11. Mental Illnesses

Mental illness is emerging as a major problem in the city. However, the existing facilities in Nairobi and other parts of the country are not equipped in terms of staff to deal with the problem. This has forced Mathari hospital, the only national referral hospital for mental diseases, to be highly congested. There is an urgent need to find how to equip the existing primary health care facilities to handle some of the mental illnesses.

12. Health Services Utilisation

There is a fairly high rate of utilisation of health services in Nairobi. The per capita utilisation rate is approximately four visits per year. However, given the uneven geographical distribution of health services in Nairobi, there are communities in Nairobi (especially in slum areas which carry about 40 per unit of the city's population) without access to adequate health care. Mechanisms of targeting health services to these groups should be developed. The crucial health care provider in the extension of health services to slum areas is the City Commission. It is

desirable for the City Authority to find ways of dealing with the slum problem of illegal structures while at the some time caring for the health of the owners of the structures, and generally of the slum residents.

13. MCH/FP Services

All categories of health facilities surveyed provide MCH/FP services. The City Commission is the most important provider of these services in Nairobi. The private sector is also emerging as a significant provider of MCH and FP services. These services are vital for the health of the city population and their provision should be intensified.

14. Common Health Problems

The three health problems most commonly reported by health facilities in Nairobi are upper respiratory infections, malaria and diarrhoea diseases. Information on disease pattern in Nairobi and how it is changing, should be made available on a regular basis so that appropriate health services can be provided.

15. Traditional Medicine

There is a heavy concentration of traditional healers in Nairobi Area. About 50 percent of registered traditional healers are in Nairobi. There is need to assess the proper role of traditional medicine in the health care system of the city.

16. Drug Supplies

Drug shortage is a more serious problem in government run than in other types of facilities. This shortage could have a variety of causes, including high drug prices, unavailability of foreign exchange, poor distribution system, misuses of drugs, drug storage problems, and so on. The major cause of drug shortage in government health facilities in Nairobi is an issue that requires attention.

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APPENDIX I

THE MEDICAL PRACTITIONERS AND DENTISTS ACTS
APPROVED INSTITUTIONS

NAIROBI AREA

1. GOVERNMENT HOSPITALS

Spinal Injury Hospital
Kenyatta National Hospital
Infectious Diseases Hospital
Mathari Hospital (Nairobi)
Forces Memorial Hospital
Kamiti Prison Hospital

2. NAIROBI CITY COMMISSION HOSPITALS/MATERNITY UNITS

Pumwani Maternity Hospital

3. NON-GOVERNMENT HEALTH FACILITIES

a) Private Hospitals

Nairobi Hospital
H.H. The Aga Khan Hospital
Gertrude's Garden Children Hospital
M.P. Shah Hospital, Parklands
Westlands Cottage Hospital
Guru Nanak Ramgharia Hospital
Mater Misericordiae

b) Maternity Units/Homes

Alpha Maternity Hospital
Easleigh Maternity Home
Nyina Wa Mumbi Maternity
Jamaa Maternity Home

c) Nursing Homes

Ideal Nursing Home
Park Road Nursing Home
Avenue Nursing Home
Masaba Nursing Home
City Nursing Home

d) Dispensaries and Clinics

Uzima Missionary Benedictine Dispensary
Makadara Catholic Dispensary
Kibagara dispensary
Kariobangi Catholic Dispensary
Kibera Catholic Dispensary

d) Dispensaries and Clinics (continued)

S.D.A. Liverpool Road Dispensary
S.D.A.Kenyatta Avenue Dispensary
S.D.A. Shauri Moyo Dispensary
Edelvale Dispensary
Mathare Valley Dispensary
Mary Immaculate Dispensary-Caledonia
Mary Immaculate Dispensary-Bahati
Kangemi Dispensary
Kenya Bus Services Dispensary.
Arya Samaj Dispensary, Ngara Road
General Motors Dispensary
Jamia Mosque Dispensary, Kibera
UN Medical Services Dispensary (Gigiri)
Cadbury Schweppes Dispensary
E.A.P. & Lighting Training Dispensary
East Africa Industries Dispensary
Firestone Factory Dispensary
B.A.T. Industrial Area Dispensary
B.A.T. Shauri Moyo Dispensary
Philips (K) Ltd Dispensary
E.A. Portland Cement Dispensary
Crescent Medical Aid Panagani Dispensary
Crescent Medical Aid Pumwani Dispensary
Crescent Medical Aid Biafra Dispensary
Metal Box Factory Dispensary
Kenya Breweries Clinic (Curative)
Kenya Breweries Clinic (Family Planning)
Burhani Foundation Clinic
Radiant Health Clinic
Dinshow Byramjee Clinic
FPAK Clinic
Marie Stopes Clinic
Kawangware Health post Clinic
Nairobi Airport Services Clinic

4. GOVERNMENT HEALTH CENTRES AND DISPENSARIES

A.P. Dispensary Embakasi
Loco Dispensary
Railways Headquarters Dispensary
N.Y.S. Holding Unit Dispensary
Mathari Police Line Dispensary
Kabete Technical and Trade Dispensary
Kabete Approved School Dispensary
State House Dispensary
Mbagathi Dispensary, Postal Training School
Embakasi K.A.F. Dispensary
M.O.W. Supplies Branch Dispensary
Prison Staff Training College Dispensary
Nairobi Remand and Allocation Prison Dispensary
Provincial Engineer, M.O.W. Dispensary
Langata Barracks M.I.R. Dispensary
M.I.R. Dispensary, Ulinzi House
C.A.U. DOD Dispensary

4. GOVERNMENT HEALTH CENTRES AND DISPENSARIES (continued)

Defence Staff College Dispensary
Langata Women's Prison Dispensary
Kahawa Garrison M.I.R. Dispensary
Kenya Air Force Eastleigh Dispensary (82 Moi Air Base)
Dagoretti Approved Dispensary
Gitathuru Approved School Dispensary
Kabete Juveniles Remand Home Dispensary
Kenyatta University College Dispensary
University of Nairobi Health Services
Jomo Kenyatta International Airport First Aid Dispensary
Railway Training School Dispensary
Kenya Airways Dispensary
Utalii College Dispensary
Uhuru M.I.R. Camp Dispensary - Embakasi
Kenyatta International Conference Centre Dispensary
Starehe Boys Centre
Central Bank Staff Clinic
Family Welfare Clinic

Mobile Dispensaries

GSU Training Wing Dispensary Embakasi
GSU "A" Coy Mobile Dispensary
GSU "B" Coy Mobile Dispensary
GSU "C" Coy Mobile Dispensary
GSU "D" Coy Mobile Dispensary
GSU "E" Coy Mobile Dispensary
GSU "F" Coy Mobile Dispensary
GSU "G" Coy Mobile Dispensary
GSU "H" Coy Mobile Dispensary
GSU Headquarters, Thika Road Dispensary = GSU HQ. MCH/FP
GSU Ruiru Camp Dispensary (Training)

5. NCC HEALTH CENTRES/HEALTH SUB-CENTRES/DISPENSARIES

Bahati Health Centre*
Eastleigh Health Centre
Mathare Health Centre*
Langata Health Centre
Westlands Health Centre
Makadara Health Centre
Ngara Health Centre
Kahawa Health Centre
Umoja Health Centre
Dandora II Health Centre
Karura Health sub-Centre
Embakasi Health Sub-Centre
Waithaka Health Sub-Centre
Riruta Health Sub-Centre*
Karen Health Sub-Centre
Kangemi Health Sub-Centre
Pumwani Health Sub-Centre*
Highridge Health Sub-Centre
Kariobangi Health Sub-Centre

5. NCC HEALTH CENTRES/HEALTH SUB-CENTRES/DISPENSARIES (continued)

Dandora Health Sub-Centre
Kaloleni Health Sub-Centre
Ofafa Jericho Health Sub-Centre
Kasarani Dispensary
Industrial Area Dispensary, Lunga Lunga Road and Clesoi Road
Lower Kabete Dispensary
Ngong Road Dispensary
Rhodes Avenue Dispensary

6. NCC CHILD WELFARE CLINICS (MCH/FP)

Kariokor
Shauri Moyo
Mbotela
Hono Crescent
Jerusalem
Pangani
Pumwani (staff clinic)
Sandford Road
Woodley*
Maringo
Makongeni
Jinnah Avenue
Posts and Telecommunications
Eastleigh Lions
Ofafa
Bohra Road (Lagos Road)
State House*
Nairobi South B
Muthurwa
Ruaraka
Innoculation Centre
Huruma Lions Clinic
Lady Northey Home Dental Clinic
Home Psychological Assesment Clinic
Home Paediatric Clinic
Ngaira Road Chest Clinic
Special Treatment Clinic (STC)

* Health facilities used in the pilot study

APPENDIX II

FACILITIES SELECTED FOR BASELINE SURVEY

TYPE OF FACILITY	NAME	CODE NUMBER	CATEGORY OF FACILITY
Private	Park Rd Nursing Home	001	Nursing Home
Pasrastatal	University Health Services	002	Health Centre
NGO	F.P.A.K. Clinic	003	Clinic
Government	Loco Dispensary	004	Dispensary
NCC	Ngara Health Centre	005	Health Centre
NCC	Rhodes Avenue Dispensary	006	Dispensary
NCC	Innoculation Centre	007	Clinic
NCC	Muthurwa Clinic	008	Clinic
NCC	Lagos Road Clinic	009	Clinic
Parastatal	Central Bank Staff Clinic	010	Clinic
Government	Forces Memorial Hospital	011	Hospital
Mission	Nyina Wa Mumbi Maternity	012	Maternity Unit
Mission	Kangemi Dispensary	013	Dispensary
Government	Dagoretti Approved School	014	Dispensary
NCC	Langata Health Centre	015	Health Centre
NCC	Ngong Road Dispensary	016	Dispensary
NCC	Jinnah Avenue Clinic	017	Clinic
Private	Radiant Health Clinic	018	Clinic
Government	Kamiti Prison Hospital	019	Hospital
Private	Avenue Nursing Home	020	Nursing Home
NCC	Sandford Road Clinic	021	Clinics
Government	National Youth Services Dispensary	022	Dispensary
Government	Kabete Approved School Dispensary	023	Dispensary
Government	Langata Womens Prison	024	Dispensary
NCC	Westlands Health Centre	025	Health Centre
NCC	Lower Kabete Dispensary	026	Dispensary
Private	East African Industries Dispensary	027	Dispensary
Private	Firestone Factory Dispensary	028	Dispensary
Private	Metal Box Factory Dispensary	029	Dispensary
Government	NRB Remand & Allocation Prison Dispensary	030	Dispensary
Government	MOW Supplies Branch Dispensary	031	Dispensary
Parastatal	Kenya Airways Dispensary	032	Dispensary
Government	Administrative Police Training Ccollege Dispensary	033	Dispensary
NCC	Nairobi South B. Clinic	034	Clilic
Government	GSU Training Wing Dispensary	035	Dispensary
Private	Cadbury Schweppes Dispensary	036	Dispensary
Private	General Motors Dispensary	037	Dispensary
Parastatal	Railways Training School	038	Dispensary
Government	Mathare Hospital	039	Hospital
NCC	Pumwani Maternity Hospital	040	Hospital
Mission	Uzima Dispensary	041	Dispensary

FACILITIES SELECTED FOR BASELINE SURVEY
(continued)

TYPE OF FACILITY	NAME	CODE NUMBER	CATEGORY OF FACILITY
Private	Kenya Breweries Clinic (Curative)	042	Clinic
Mission	Crescent Medical Aid Biafra Clinic	043	Dispensary
Government	Mathare Valley Dispensary	044	Dispensary
Private	BAT Shauri Moyo Dispensary	045	Dispensary
Mission	Crescent Medical Aid Pumwani	046	Dispensary
Private	Masaba Nursing Home	047	Nursing Home
Mission	Mary Immaculate Kilimani (Caledonia)	048	Dispensary
Parastatal	Kenya Utalii College Dispensary	049	Dispensary
Government	Prison Staff Training College Dispensary	050	Dispensary
Government	Mathare Police Dispensary	051	Dispensary
NCC	Mathare North Health Centre	052	Health Centre
NCC	Dandora Health Centre	053	Sub Health Centre
NCC	Kariobangi Health Centre	054	Sub Health Centre
NCC	Eastleigh Health Centre	055	Health Centre
NCC	Makadara Health Centre	056	Health Centre
NCC	Ofafa Jericho Health Centre	057	Sub Health Centre
NCC	Kaloleni Health Centre	058	Sub Health Centre
NCC	Eastleigh Lions Clinic	059	Clinic
NCC	Ruaraka Clinic	060	Clinic
NCC	Huruma Lions Clinic	061	Clinic
NCC	Makongeni Clinic	062	Clinic
NCC	Maringo Clinic	063	Clinic
NCC	Kariokor Clinic	064	Clinic
NCC	Pangani Clinic	065	Clinic
NCC	Mbotela Clinic	066	Clinic
Private	Marie Stopes Clinic	067	Clinic
Private	Kenya Bus Services Dispensary	068	Dispensary
Private	Kenya Breweries FP Clinic	069	Clinic
NCC	Special Treatment Clinic	070	Special Clinic
NCC	Highridge Health Centre	071	Sub Health Centre
NCC	Karura Health Centre	072	Sub Health Centre
Government	State House Dispensary	073	Dispensary
Government	Ulinzi Dispensary	074	Dispensary

APPENDIX III

HEALTH FACILITIES QUESTIONNAIRE

Date _____

Name of enumerator _____

Code number of enumerator

Title of person to be interviewed - In-Charge of health facility

_____

1. Name of health facility _____

Code Number of health facility

2. TYPE OF HEALTH FACILITY

1 = NCC
2 = Government
3 = Private
4 = Mission
5 = Parastatal
Other (specify)

3. CATEGORY

1 = Hospital
2 = Health Centre with beds
3 = Health Centre without beds
4 = Dispensary
5 = Clinic
6 = Nursing Homes
7 = Maternity Units
Other (specify)

4. LOCATION OF HEALTH FACILITY (Use NCC Boundaries)
(define boundaries by neighbourhood areas)

1 = Central
2 = Eastern
3 = Northern
4 = Southern
5 = Western

5. SERVICES PROVIDED/OFFERED BY THIS HEALTH FACILITY

5a. Preventive/Promotive Care (0 = does NOT provide
1 = DOES provide)
(Fill in empty boxes with
either 0 or 1)

Immunisations
Ante-natal Care
Family Planning
Child Health Care
Other (specify)

5b. Does the facility provide in-patient services?
1 = Yes
0 = No

5c. If yes, what kind of in-patient services?
(0 = does NOT provide
1 = DOES provide)

General Medicine
Surgical
Obs/gynae
Other(specify)

5d. Does the facility provide general out-patient services?
(0 = does NOT provide
1 = DOES provide)

5e. What kind of specialised out-patient services are provided?
(0 = does NOT provide
1 = DOES provide)

Renal (Fill in empty boxes with 9s)

Chest

Hypertension

Diabetic

Mental

Dental

Orthopaedic

Emergency

Environmental Services

Other (specify)

5f. What support services are available at the health facility?
(0 = does NOT provide
1 - DOES provide)

Laboratory
X-ray
Pharmacy/Dispensing room
Ambulance
Other transport
Other (specify)

6. REFERRALS

6a. Do you refer patients/clients from this health facility to another?

0 = No

1 = Yes

6b) If yes, what health problems do you normally refer?

1 = All Maternity cases
2 = Surgical
3 = TB/chest
4 = Sexually Transmitted diseases
5 = Mental
6 = complicated pregnancies
Other (specify)

6c) Why are you unable to manage the above problems?

1 = Lack of specialised management
2 = Lack of equipment
3 = Lack of laboratory facilities
4 = Lack of in-patient facilities
Other(specify)

6d) Where do you commonly refer patients/clients?
(Code all that apply and fill empty boxes with 99s)

01 = KNH/Infectious Disease Hospital
02 = Pumwani Hospital
03 = Private Hospital
04 = Health Centre
05 = Dispensary
06 = Maternity Unit
07 = Mission Hospital
08 = Clinic
Other (Specify)

6e) How is patient/client transported?

1 = Patient's /clients own transport
2 = Transport provided by facility
3 = both 1 and 2 above
Other (specify)

6f) Do you receive referred patients/clients from elsewhere?

0 = No
1 = Yes

6g) If yes, What services are patients/clients commonly referred to you for?

1 = Daily dressing
2 = Removal of stitches
3 = injection
4 = Follow-up
5 = Ante-natal/Post-natal
6 = Family planning
7 = Immunisation
8 = Child growth monitoring
Other (specify)

6h) What criteria do you use for accepting these patients/clients?

1 = Residents of the area
2 = Open to everybody
3 = Referral letter
4 = Cash payment (for unreferred patients)
5 = Referred from N.C.C. facilities
Other (specify)

(Fill empty boxes with 9s)

6i) Where do you commonly receive patients/clients from?
(code all that apply and fill empty boxes with 99s)

01 = KNH/Infectious Disease Hospital
02 = Pumwani Hospital
03 = Private Hospital
04 = Health Centre
05 = Dispensary
06 = Maternity Unit
07 = Mission Hospitals
08 = Clinic
Other (specify)

6j) How is patient/client transported to your health facility?

1 = Patients own transport
2 = Transport provided by referring facility
3 = Both 1 and 2 above
Other (specify)

7. WORKING HOURS OF THE FACILITY

0 = Not open
1 = Open

Morning
Afternoon
Night
Holidays
Saturdays
Sundays
Other (specify)

8. VOLUME OF SERVICES (For January - March 1988)
(If interviewee does not know an answer code all the boxes for that answer with 9s)

8a) How many outpatients/clients on average do you receive per working day? (during daily working hours Jan. - March 1988)

i) How many new patients/clients? (If no No. in i and ii fill in boxes with 00s)

Number _____

ii) How many reattendances?

Number _____

(If no inpatients fill empty boxes with 9s)

8b) How many admissions on average do you receive per day?

Number ____

8c) How many were admitted yesterday?

Number ____

8d) How many beds does your facility have?

i) How many beds were occupied yesterday?

Number ____

ii) What was your bed occupancy rate for March, 1988?

9. CATCHMENT AREA/POPULATION

What people can receive services in this health facility?

1 = Open to everyone
2 = Civil servants only
3 = Employees only
4 = Employees and dependants
Other(specify)

What proportion of your patients/clients live outside Nairobi? (In percentage)

10. UTILIZATION OF HEALTH FACILITIES BY AGE AND SEX

How many patients/clients were seen in the last 3 months?
(if none fill boxes with 00s)

Total Number
Curative and preventive

	NEW	OLD
Children under 5 years		
0-1 year		
January	_____	
February	_____	
March	_____	
1-5 years		
January	_____	
February	_____	
March	_____	
Children under 12 years.		
January	_____	
February	_____	
March	_____	
Adult Female		
January	_____	
February	_____	
March	_____	
Adult Male		
January	_____	
February	_____	
March	_____	

10b) What is first most common reason for outpatient/clients visits? (fill 9 if does not apply)

1 = Upper respiratory infections
2 = Diarrhoea
3 = Malaria
4 = Accidents/injuries
5 = Immunisation
6 = Ante-natal
7 = Post-natal
8 = Family Planning
Other (specify)

What is the second most common reason for outpatient/clients visits?

1 = Upper respiratory infections
2 = Diarrhoea
3 = Malaria
4 = Accidents/injuries
5 = Immunisations
6 = Ante-natal
7 = Post-natal
8 = Family Planning
Other (specify)

What is the third most common reason for outpatient/client visits?

1 = Upper respiratory infections
2 = Diarrhoea
3 = Malaria
4 = Accidents/injuries
5 = Immunisations
6 = Ante-natal
7 = Post-natal
8 = Family Planning
Other (specify)

EQUIPMENT STATUS

11. Do you have broken down equipment?

0 = No
1 = Yes

If yes, how many?

What percentage of your total equipment is broken down?

12. STAFF - (if no number, fill in boxes with 00's)

Type of Personnel	No.	No. Full	No. Part
Consultants			
Surgeons			
Paediatricians			
Obs/Gynae			
Other (specify)			
Doctor			
Kenya Registered Nurses			
Enrolled Nurses			
Clinical Officers			
Public Health Officers			
Auxilary Nurses			
General Clerks			
Drivers			
Security			
Pharmacists			
Pharmaceutical Technologists			
Pharmaceutical Technicians			
Lab. Technologists			
Lab. Technicians			
Maintenance Engineers			
Maintenance Personnel			
Cleaning Staff			
Administrative Staff			
Accounts Clerk			
Statistical Clerk			
Revenue Clerk/Cashier			
Secretaries			
Other (specify)			

13. a) Who has the administrative responsibility of the health facility on a daily basis?

1 = Doctor
2 = Matron
3 = Registered Nurse
4 = Clinical Officer
5 = Administrative Officer
6 = Enrolled Nurse

Other (specify)

b) If that person is not available, who takes over the responsibility?

1 = Doctor
2 = Matron
3 = Registered Nurse
4 = Clinical Officer
5 = Administrative Officer
6 = Enrolled Nurse

Other (Specify)

14. a) What kinds of reports do you make? (0 = Don't Make
1 = Do Make)

Financial
Statistical
General
Clinical

b) To whom do you make these reports?
(Code all that apply - fill in empty boxes with 9s)

1 = City Hall/Divisional Headquarters
2 = Ministry of Health
3 = Division of Family Health
4 = Secretariat that runs hospital
5 = Board of Directors
6 = Director
7 = Nairobi PMO office
Other (specify)

15. a) Does this health facility have responsibilities to provide services to other facilities?

0 = No
1 = Yes

b) If yes, what are those responsibilities?
(code all that apply - fill in empty boxes with 9s)
(0 = does NOT apply
1 = DOES apply)

Supervision

Maintenance and cleaning

Clinical

Financial

X-ray

Food

Laundry

Transport

Other (specify)

16. FINANCIAL RESOURCES

What are the sources of finance for operating this health facility? (Code all that apply - fill in empty boxes with 9s)

(0 = does NOT apply
1 = DOES apply)

Nairobi City Commission

Government Budget

Charges directly to patients

National Hospital Insurance Fund

Other private Insurance

Contracts for payment by employer

Firm/Company resources e.g. a company clinic

Charitable organisations

Other (specify)

17. Name what other health facilities are within 3 km radius from this facility?

18. What are the five most serious problems that your facility faces? (List in order of seriousness with most serious FIRST)

APPENDIX IV

ASSOCIATION OF AFRICAN TRADITIONAL MEDICAL PRACTITIONERS OF NAIROBI AREA, MAY 1988

1. Dr. Ouma Maka Dudi
2. Dr. Mukuba N. Warui
3. Dr. Namaan Bakari
4. Dr. Musa Mulongo
5. Dr. Joel Mihingo
6. Dr. Michael Oloo
7. Dr. thomas Kambana
8. Dr. Leonard Kioko Mwangaji
9. Dr. Nelson Jogero
10. Dr. John Ashiraka
11. Dr. Jimmy Pugunya
12. Dr. P.N. Kitswi
13. Dr. Christopher O. Bonyo
14. Dr. Kilau Ndungi
15. Dr. D. Hugo
16. Dr. Maina Waithaka
17. Dr. David Karanja
18. Dr. Tobias Omusumi
19. Dr. K. Waweru
20. Dr. Obonyo Oloo Obak
21. Dr. Teresia Wanjiru
22. Dr. Tago Athieno
23. Dr. Kapira Wazanga
24. Dr. Woroka V. Ndugu
25. Dr. Nguli Mbiti
26. Dr. Kirungu Ndungi
27. Dr. Gatuma Mwangangi
28. Dr. Synla Mbiti
29. Dr. Mungote Mwanza
30. Dr. Dennis Mwangangi Wangai
31. Dr. Mwaura Mwanganu
32. Dr. Shamsodin Sidi
33. Dr. Mohammed Shariff
34. Dr. G. S. Flora
35. Dr. Makini Morris
36. Dr. Kakau Soi

Names of Astrologers and Herbalists Nairobi Area

1. Dr. Thomas Kambaba
2. Dr. Leonard Kioko Mwangaji
3. Dr. Nelson Jogero

APPENDIX V

REGISTERED PHARMACIES IN NAIROBI AREA AS OF MAY 1988

1. Abbey Pharmacy ltd.
2. Eros Chemists ltd.
3. Opa ltd.
4. Chemists ltd.
5. Jacaranda Chemists
6. Harleys ltd.
7. National Pharmacy ltd.
8. Chanis pharmacy ltd.
9. Mansion pharmacy ltd.
10. Portal pharmacy ltd.
11. Ngong Road chemists ltd.
12. Kam pharmacy ltd.
13. City square pharmacy ltd.
14. Metro pharmacy ltd.
15. Kona chemists
16. Sega chemists
17. The Nairobi Hospital.
18. Peoples pharmacy
19. Poly chemists
20. Trio Chemists ltd.
21. Avenue pharmacy ltd.
22. Teens chemists
23. Pharmadex (E.A.) ltd.
24. Karuri stores (K) ltd.
25. Mombasa medical stores ltd.
26. Muthaiga pharmaceutical agencies
27. Globe pharmacy
28. Kencity pharmacy ltd.
29. Lady myra chemists
30. Westwood pharmacy
31. Lords pharmacy
32. Cospharm ltd.
33. Thorn tree chemists
34. Pangani chemists ltd.
35. Pharmaceutica
36. Maendeleo pharmacy ltd.
37. Westons chemists ltd.
38. Sears Dispensing chemists
39. Lyntons pharmacy ltd.
40. Kam pharmacy ltd.
41. Westlands chemists (K) ltd.
42. Karen chemists
43. Rup pharmaceuticals ltd.
44. Eltons pharmacy ltd.
45. South "B" chemists ltd.
46. Olago chemists ltd.
47. Afya chemists ltd.
48. Eastleigh chemists
49. City chemists ltd.
50. Leo pharmacy
51. Kilimanjaro pharmacy ltd.
52. Tsavo chemical co.
53. Cosapharm (Westlands) ltd.
54. Karibu pharmacy

REGISTERED PHARMACIES IN NAIROBI AREA AS OF MAY 1988
(continued)

55. Shah chemists ltd.
56. Tropical pharmaceuticals
57. Ngong Hills chemists
58. Rawan chemists ltd.
59. Central chemists ltd.
60. Mathingira Kenda Medical stores
61. Famvet supplies retail ltd.
62. Medilife pharmaceuticals ltd.
63. Trichen ltd.
64. Crescent medical aid
65. Jogoo Road chemists
66. Continental chemists ltd.
67. Rhino pharmaceuticals (K) ltd.
68. Unique pharmacy ltd.
69. E.T. Monks & Co. ltd. Corner House
70. Cross Road chemists
71. Alfa pharmacy ltd.
72. La-belle pharmacy ltd.
73. Fedha pharmacy ltd.
74. Kings chemists ltd.
75. Ngenda chemists
76. Prestige pharmaceuticals ltd.
77. Muthaiga pharmacy ltd.
78. Sam chemicals ltd.
79. Jawabu chemists
80. Medvet stores (K) ltd.
81. Kendrug dispensing chemists
82. Baraka chemists
83. Rono chemists ltd.
84. Jaru ltd.
85. Letap (K) ltd.
86. Hoeschs
87. SK&F
88. Warner Lanbert
89. Lords pharmacy
90. Twiga chemical industries
91. Kenya Swiss chemical co.
92. Bayer EA
93. Lari Pharma (A) ltd.
94. Elys chemical
95. May & Baker
96. Nimikam ltd.
97. Statum pharmaceutical ltd.
98. Philips, Harrisons & Crosfield
99. Surgipharm ltd.
100. Westico ltd.
101. Jos Housen & Soehue
102. Hackmay (K) ltd.
103. Trinity Pharma ltd.
104. Bakpharm ltd.
105. Hoechst ltd.
106. Harleys ltd.

#2.B.

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NAIROBI AREA STUDY

VOLUME II

Final Report

USAID/Nairobi

November, 1988

Resources for Child Health Project

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NAIROBI AREA STUDY

VOLUME II

FINAL REPORT

November, 1988

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ACRONYMS

ALOS	Average Length of Stay
AMOH	Assistant Minister of Health
BP	Blood Pressure
CYP	Couple Year Protection
DMO	District Medical Officers
DMS	Director of Medical Services
FIFO	First-In-First-Out
FP	Family Planning
GOK	Government of Kenya
GP	General Practitioner
GSU	General Services Unit
HCF	Health Care Financing
HIS	Health Information Section
JKIA	Jomo Kenyatta International Airport
KEN	Kenya Enrolled Nurse
KICC	Kenya International Conference Centre
KNH	Kenyatta National Hospital
KRN	Kenya Registered Nurse
MCH	Maternal and Child Health
MTC	Medical Training Centre
MOH	Ministry of Health
NAS	Nairobi Area Study
NCC	Nairobi City Commission
NGO	Non-government Organisation
PHC	Primary Health Care
PHD	Public Health Department
PMH	Pumwani Maternity Hospital
PMO	Provincial Medical Officer
PS	Permanent Secretary
STD	Sexually Transmitted Disease
USAID	United States Agency for International Development

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(See Nairobi Area Study, Volume III)

A	Scope of Work - Nairobi Area Study
B	Facilities Selected for Nairobi Area Study
C	List of Administrative and Executive Headquarters Officers Interviewed by the Nairobi Area Study Team
D	Estimating Demand Function
E	Methodology for Estimating Costs of Facilities
F	Traditional Healers and Their Clients
G	Private Medical Insurance
H	Basic Courses Offered at the College of Health Professionals
J	The Legal Provision of Health Services in Nairobi
K	Broken-Down Equipment, Nairobi City Commission, Public Health Department
L	Guidelines for Patients Requiring Delivery at Pumwani Maternity Hospital
M	Areas for Further Research

CHAPTER 1: BACKGROUND

1.1 BACKGROUND

1.1.1 Introduction

The background chapter contains sections to introduce the origins of the study and precursors to the present report, to explain how the Nairobi Study Area Team interpreted its scope of work, to describe the methods used to produce its outputs, and to explain how the report may be read. It prepares the way for the substantive results in the chapters that follow by giving a perspective on why and how the study was conducted.

The growing demand for health services, coupled with declining real resources, places a high priority on strengthening the delivery of health services in Kenya. The Government of Kenya (GOK) recognizes that more efficient and effective use of existing resources is required. For the Nairobi Area, the recent revision in the legal status of Kenyatta National Hospital and the changes it is undergoing to bring about improvements and changes of service patterns elsewhere in the network of Nairobi Area health care providers.

The Health Financing Steering Committee of the Government of Kenya requested USAID assistance to identify problems in the existing health care delivery system of the Nairobi Area and to suggest options for government actions to improve the system. This request came about as a result of previous studies of Kenya's health delivery system. The Kenyatta National Hospital (KNH) study, completed in February, 1988, investigated issues of efficiency, management, and health finance and identified constraints that need to be overcome in order to improve the quality of health services at KNH. The policy measures to be introduced as part of a restructuring of

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services at KNH raise issues of how the health needs of the Nairobi population will be satisfied and also generate interest in addressing problems of efficiency and health finance in other health service delivery facilities in Nairobi. USAID/Kenya called upon REACH (Resources for Child Health), a centrally funded project of USAID, to meet the Steering Committee's request. The goal of the assignment was to provide the Steering Committee with a set of practical and implementable options for government actions which would:

1) reduce the cost of producing the existing volume of services;
2) use resources more effectively; and
3) expand the capacity of both public and private health care delivery systems to respond to future levels of demand.

REACH began its work on 6 April 1988 under the guidance and direction of the Steering Committee. The first phase of the work focused on developing an overview of the Nairobi health facilities which would provide the necessary information for the full study team to develop and carry out its work. A baseline survey was completed in draft form at the end of May and the final document constitutes Volume I of this report. To carry out the main assignment and develop options for GOK action with respect to the system of health service facilities, REACH assembled a multi-disciplinary team of 22 professionals from Kenya, the United States, and Great Britain (the REACH Nairobi Area Study [NAS] Team). The Team began work on 27 June and completed the assignment on 30 September 1988.

The present document is the Team's final report to the Steering Committee. It follows a progress report submitted on 30 July 1988 and an interim report with potential options for actions based on preliminary findings and conclusions which was discussed with the Steering Committee report during a workshop on 6 August 1988. The discussions clarified the importance of the problem areas and tested the practicality and acceptability of many of the options. This final report identifies and substantiates prominent problem areas that reduce the effectiveness of delivery of health services to Nairobi residents, identifies areas for action, suggests a set of options for each action area, and provides an analysis of the strengths and weaknesses for the options with steps that would be necessary for their implementation. Thus, this report can be used as a tool for decision making and as guide to implementation.

1.2 SCOPE OF WORK

1.2.1 Development

REACH and the Steering Committee developed the scope of work to guide the Study Teams's efforts. The scope of work was sufficiently broad to allow for interpretation in the design and conduct of the study. The Team's interpretation of the work scope determined the methods used and the outputs produced. This section reviews the work scope provided to the Team and presents the Team's interpretation of it. The following section describes the methods the Team used.

1.2.2 General Description

The scope of work (Appendix A) is motivated by the GOK's objective to use existing resources for health more efficiently and effectively and to attract additional resources into the health sector. The Steering Committee recognised the need to identify and analyse problems in the existing network of Nairobi health facilities, to specify areas for needed changes, and to determine options for actions which would bring about improvements. The critical importance of Kenyatta National Hospital as a provider of services combined with its revision in legal status and reorientation and restructuring of services presented a further motivation for efficiency improvements and changes in service patterns within the network of Nairobi Area health care providers. The areas of services that were targeted for study included:

1) outpatient curative services;
2) preventive and promotive services; and
3) maternity services and mental health services.

Both public and private facility based providers were to be considered. The scope of work has four parts:

1) overview of the Nairobi health care delivery system;
2) cost and utilisation of health service delivery;
3) efficiency improvement; and
4) policy, planning and management of health services.

Study results in each of these areas were to provide the Steering Committee and the GOK/Ministry of Health (MOH) with information for decision making. A brief summary of each of the areas of the scope of work follows.

The initial phase of the study, the overview of the health care delivery system, was aimed at describing characteristics of the facilities currently providing services in the Nairobi Area. The inventory was to include all facilities (excluding individual doctor's clinics or offices) and identify: types and number of facilities; sponsorship; type and number of personnel; location of service area; mix of services offered; and volume of services produced. The overview was to provide the basis for identifying settings and problem areas for carrying out more detailed analyses.

The costs and utilisation of health service delivery component of the scope of work was to examine and analyse patterns of service utilisation and costs of service delivery among public and private providers for: curative outpatient, preventive and promotive, maternity, and mental health service. This included estimates of average costs of selected services; average costs of treatment for selected diagnoses; estimates of entry points of care; number and types of providers used by patients for episodes of illness; comparisons across public and private facilities. Output was to develop options for modifying existing patterns of utilisation and alternative scenarios which would bring better utilisation of available resources.

The efficiency improvement component of the scope of work was to examine and analyse the efficiency of resource use and availability, and evaluate the effect on productivity for a representative set of MOH, NCC, nongovernment and private facilities. This included estimates and assessments of staffing, equipment, physical space, and pharmaceutical supplies in relation to volume of services; assessment of the distribution of services or overall efficiency; estimates and assessment of frequency and direction of referrals; and evaluation of resource use by tracer diagnoses. Output of this work was to be used to develop options for reducing costs and improving efficiency through restructuring and/or reorganising the service delivery system.

The policy, planning, and management of health services component of the scope of work was to identify and analyse policies, planning and management procedures, organisational structures, and relationships between providers which constrain efficient and effective delivery of services. The output was to be used to develop options for improved coordination and effectiveness of service delivery and changes in services offered by public and private providers.

1.2.3 Interpretation of Scope of Work

To render the scope of work operational, REACH partitioned the work into two phases: 1) preparation of an overview report of the Nairobi health facilities; and 2) design and implementation of main study.

The preparation of overview report allowed a subgroup of the Team to develop in-depth knowledge and familiarity with the range of Nairobi health facilities and suggest the focus for problem areas to the rest of the Team. To design and implement the main study, the Team took three steps: problem identification; problem classification; and problem prioritisation. This process provided greater specificity to the broad terms of the scope of work.

a) Overview Report: Baseline Survey

Six members of the Team collaborated with KEMRI to conduct a baseline survey of the network of Nairobi facilities which: produced an inventory of providers by type, size, sponsorship, location, mix and volume of services; and identified particular problem areas based on in-depth interviews at 74 of the 150 facilities. The baseline survey provided the

full Team with the general mapping of the market for health care services in Nairobi, relative shares of the major providers, and basis for identifying problem areas for more detailed analyses.

b) Problem Identification, Classification, Prioritisation

The problem identification, classification, and prioritisation steps were carried out as part of the study design and planning process which took place during a Team Planning Workshop in Mombasa from 29 June-6 July 1988. The Team spent 3.5 days working on these tasks.

The Team identified problem areas faced by the network of Nairobi health facilities through a Team review and assessment of the baseline survey and by "brain storming" on the causes of these problem areas. This process identified 12 major problem areas with possible causes attached to each. The problem areas and causes that had been identified needed to be grouped or classified in order to address them.

The Team sorted and assigned each of the problem areas to one of three task forces of the study:

1) cost and utilisation;
2) efficiency improvement; and
3) policy, planning, and management.

Once the problem areas had been identified and assigned to the Team's task forces, the Team set priorities for its work. The number and scope of the problems were more than could be handled reasonably given the Team's human and time resources (11 weeks following the completion of the study planning week). Each of the task forces was asked to rank the problem areas assigned to it according to the group's perceptions of the acuteness of the problem and its ability to address the problem given the group's expertise and the short time frame. Once the problem areas were ranked, their order was reassessed by the entire Team. This reassessment did not change the priorities.

The twelve problem areas were ranked into first and second priority levels:

1) First Priority

- Uneven Distribution of Utilisation
- Inappropriate/Inadequate Financing Mechanisms
- Inefficient Use of Resources
- Inadequate Supply of Resources
- Inadequate Policy Guideline for Operation and Corporation
- Lack of Mission Clarity for Facilities and Systems
- Inadequate Communication/Coordination

2) Second Priority

- Inappropriate/Inequitable Distribution of Resources
- Lack of Management Skills
- Lack of Evaluation of Inputs and Outputs
- Limited Information for Planning
- Non-operational Information/Reporting System

The Team gave its greatest attention in terms of depth and breadth to the first priority problem areas. The other areas were not ignored; all were treated in some way during the study. Problems related to the inappropriate distribution of resources and information systems were elevated in priority during the course of the study in light of information collected.

The Team presented its problem identification, classification and prioritisation work to representatives of the Steering Committee, Chairman Dr. P.S. Achola, Secretary Dr. W. Muya, and members Dr. B. Hagembe and Ms. L. Lankenau on the fifth day of the Mombasa Team Planning Workshop. The endorsement by the Steering Committee Representatives of the problem prioritisation, with added points of emphasis, allowed the Team to go forward with methods to address these problem areas.

During the presentation to the Steering Committee, the Team presented its concept of the output of the study. Three types of output were proposed by the Team and accepted:

1) findings regarding problems areas;
2) options for action; and
3) tools for decision making on options.

The final report would include documentation from each of the task forces regarding methodology, evidence and findings, and options for action. It would also develop a conceptual framework for integrating the options, and identify strengths, weaknesses, and implementation steps required as tools for decisions making.

The Team also discussed with the members of the Steering Committee the importance of informing nongovernment providers and other parties (constituents) who could be affected by proposed changes for the Nairobi Area as to the purpose and design of the study. The Team recommended seeking more active participation from these constituents in considering the outputs of the study. As a result of this discussion, the Team leadership and the Steering Committee jointly planned and carried out a meeting to inform a broad audience of nongovernment health service providers, local government and GOK officials, and other interested groups about the objectives and scope of the study. This meeting, held at the Kenyatta International Conference Center (KICC) on 28 July proved to be very useful for selecting the support and cooperation of private providers in carrying out the study. Several of the participants in this meeting were invited to join the Steering Committee to discuss the preliminary options at the interim report workshop.

The involvement of the Steering Committee throughout the study process has provided guidance to the Team and helped build consensus on the importance of the problem areas and the directions for actions. The Team leadership and representatives of the Steering Committee met several times during the study. The Team briefed the Steering Committee on the progress of the study at the completion of the baseline survey and at the progress and interim report workshops. The interim report provided an opportunity for the Steering Committee and the Team to review the potential options for action. The Steering Committee and other invited participants gave feedback to the Team representatives on the problem areas and options for action at a workshop discussion held on 26 August 1988.

1.3 METHODS

The identification of problems and causes, the prioritisation of problem areas combined with the identification of data collection needs provided the blueprint for the REACH NAS. Enumerators would be used to collect data through interviews using precoded questionnaires, record reviews and observation review documents and conduct interviews guided by a set of written questions.

The Team followed a systematic approach to further develop this blueprint. Beginning from the prioritised list of problem areas, each task force followed a multi-step process to produce its final output. These steps are summarised as follows:

1) hypothesis development
2) instrument development for data collection workplan preparation
3) testing and revision of instruments
4) development of data analysis plans
5) sample selection
6) enumerator training and data collection
7) data analysis
8) development of preliminary options for action
9) listing and revision of options
10) analysis of option strengths and weaknesses
11) development of implementation steps

1.3.1 Hypothesis Development

Each of the Team's three task forces worked through its assigned problem areas to identify hypotheses regarding the causes of the problem, the data collection activities required to test the hypothesis and support the development of options for action. The sources of data and the types of instruments needed were then laid out. Each group identified their overlapping data collection and analysis needs and worked out coordination plans. The problem areas and the initial probable causes identified are briefly described below.

a) Cost and Utilisation Task Force

Uneven distribution of utilisation in relation to capacity The problem of congestion vs. under-utilisation was hypothesized to result from a cluster of factors: location of facilities and services; scheduling of services; residence and workplace of consumers; consumer perception or knowledge of resources available at facilities (i.e., doctors, drugs; cost to consumer in fees, transport, waiting time); consumer perception of quality of services; and inadequate consumer knowledge (i.e., inappropriate self-referral).

Inappropriate and/or Inadequate Financing Mechanism The inadequacy or inappropriateness of financing mechanisms for health services were hypothesized as deriving from: inadequate budgeting and financial management practices within and across systems; shortage of funds arising

from unplanned or increasing costs of service; unlimited free care; weak infrastructure for third party payments; and reduced government priority to health budgets.

Inadequate Supply of Resources A hypothesis to be tested for shortage of resources was the inappropriate utilisation of services, (i.e., excessive drug prescribing and consumption practices, outpatient visits for trivial complaints).

b) Efficiency Improvement Task Force

Inefficient Use of Resources The problem of resource use was separated into human, fiscal, and physical resources categories. Human resources were hypothesized to be used inefficiently due to: inappropriate deployment with respect to training; inadequate training, and skill update; lack of appropriate supervision; inadequate personnel management capabilities; and overworked staff. Fiscal resources were hypothesized to be inefficiently used due to the inadequacy or absence of financial management and control practices. Possible causes of the inefficient use of physical resources included: inadequacy of procurement and distribution planning; inadequate maintenance and repair; misuse of material; facilities and equipment; and use of technologies inappropriate to the environment.

Inadequate Supply of Resources The problem of shortage of resources was hypothesized as deriving from the following cluster of factors; level of funding in relation to output; inability to retain staff due to work load and payment levels; inadequate planning and control in procurement of equipment and supplies; inadequate policy or planning guideline; inadequate maintenance procedures; and shortage of trained personnel.

Inappropriate and Inequitable Distribution of Resources The problem of the distribution of resources was examined by considering the adequacy and appropriateness of staffing and equipment norms and the degree to which resources are allocated according to priorities for optimising output. Policy, Planning, and Management Task Force.

Inadequate policy guideline for operation and cooperation The problem of inadequate policy guidelines grouped several possible factors as causes: the absence of an appropriate or effective organisation to implement guidelines; the absence of other mechanisms for consultation and coordination between the Ministry of Health and other providers; the limited information available for planning; and an environment of low level government regulation and perceived need for policy guidelines.

Lack of Mission Clarity The lack of clarity of objectives and functions on the part of government organisations and providers themselves derives from these possible factors: roles and functions have not been clearly defined by organisations; criteria and direction for referrals are not well identified; policy guidelines and mechanisms for implementation and government expectations for providers are not clear.

Lack of Communication and coordination The coordination and communication necessary for an urban health system to efficiently and effectively deliver care is hypothesized as absent due to: vertical and

centralised decision making; absence of well define mechanisms to communicate/coordinate across providers; existing mechanisms are not implemented.

1.3.2 Instrument Development, Workplan Preparation and Data Analysis Plans

The data identified to test these hypotheses took several forms: policy documents; record reviews; interviews with clients, administrative, and executive officers of facilities; interviews with local government, GOK/MOH officials, and officials of related institutions; and direct observation.

The Team spent two weeks preparing data collection instruments. The development of instruments took many steps. Data needs were consolidated across groups, sources for data gathering were verified, draft instruments were prepared and revised. Enumerator supervisors were trained and used to pilot test instruments with representative respondents and real records. Team members tested interview questionnaires intended for administrators or executive officers. Instruments were revised and refined with the help of enumerator supervisors after pilot testing. Drafts were than reviewed for clarity and the need for and completeness of each question. Final revisions were completed before training of enumerators. A translation into Kiswahili was made for questionnaires directed to clients at facilities.

Each Task Force developed a data analysis plan for the instruments it had developed. Data analyses were both quantitative and qualitative. Team members specified analyses relying on description statistics, cross tabulations, and on more sophisticated techniques such as multiple regression. Overall computer data entry plans were coordinated with the computer programmers under the supervision of Team member Cecily Resnick.

At the time of the final revisions to the data collection instruments and the preparation of data analysis plans, a progress report was prepared and submitted to the Steering Committee. The progress report reviewed the steps that had been taken up to that point, presented the analysis plans, and provided copies of the instruments.

1.3.3 Sample Selection

To select the outpatient and maternity facilities for study, the Team relied on a cluster approach. The advantage of this approach is that by examining each of the facilities that are in close proximity to one another, we are more able to learn information about consumer preferences for health facilities since a patient could, in principal, choose any one of the facilities in the cluster. The steps taken to select facilities were as follows. First, a map was created (Figure 1.1) which located all the 150 facilities identified in the Baseline Survey. Given the dominant position of NCC as a major provider and the distribution of its facilities across all administrative divisions, three NCC health centres were randomly selected around which to create the cluster. Health centres were chosen as opposed to other types of NCC facilities because they provide all of the services the Team intended to examine. An area with a radius of five

kilometers, with the health center at the central point, was defined. All the health facilities within that geographic area were identified and included in the cluster. This procedure resulted in the following three clusters:

1) nine facilities: five NCC and four private (includes NCC health centre with beds and one private maternity facility);

2) eight facilities; three NCC and five private (includes one NCC health centre with maternity beds and three private maternity/nursing home facilities); and

3) four facilities; one NCC and three private (includes one NCC health centre with maternity beds).

Because this procedure resulted in a sample which did not include any GOK/MOH/PMO facilities, three facilities were randomly picked from a list of PMO facilities (which excluded facilities serving only prison and military populations). NCC dispensaries were similarly excluded from the sample. Therefore, one residential and one urban NCC facility were arbitrarily included in the sample of facilities. Finally, since no facilities from Kassarani Division had been included in the sample, one NCC health centre, one private maternity unit, and one private outpatient facility were selected. Pumwani Maternity Hospital, Mathare Mental Hospital, and Kariobangi Pilot Mental Health Project are specialised facilities included at the request of the Steering Committee. Appendix B provides the complete list of the 32 facilities that comprised the sample for this study.

1.3.4 Enumerator Training and Data Collection

Two types of enumerators were trained. Forty ordinary enumerators were trained to collect information from respondents and records by using precoded questionnaires. Ten nurse enumerators were trained to carry out activity observations and review medical records. Four enumerator supervisors were trained for five days during the instrument design period, and then helped to pretest the instruments. The supervisors assisted Team members in the five-day training of the enumerators. Facility based data collection was carried out by enumerators during a three week period.

Area coordination and supervision of ordinary enumerator training and data collection was done by Team member Miss Goko with assistance from Team members Ms. Sarnoff and Mrs. Muga. Team members Mr. Maloba and Mr. Ywaya were the supervisors for one of the enumerator groups. Overall supervision of nurse enumerators was done by Team members Dr. Rae and Dr. Ongore with the assistance of Miss Likimani.

Many administrators and executive officers were interviewed by team members. A list of these individuals is provided in Appendix C.

1.3.5 Development and Testing of Preliminary Options

The process of developing options for action to address the Nairobi Area health service delivery problems began during the fourth week of the study to help focus the Team on the ultimate outputs of the study. A subgroup of the Team which included the leaders of the Task Forces met several times to identify preliminary options, each leader worked with their group to modify and update them as evidence was produced.

The interim report identified a number of major problem areas and presented potential options for action. In an effort to provide a conceptual framework for relating problems to potential options, the Team grouped the three study areas (cost and utilisation, efficiency improvement, policy planning and management) and the problem areas into what it considered to be the essential dimensions of a health care delivery system:

1) demand;
2) organisation and structure;
3) supply; and
4) environmental context.

Options were grouped around the dimensions to which they were directed. This representation is based on the Team's view that modifications to all dimensions will be necessary to create an efficient and effective delivery system. Graphic representation and a full explanation of this conceptual framework is provided in Chapter 6.

The Team presented many of these potential options in its Interim Report. The options were discussed at the Interim workshop, and the workshop participants provided feedback to the Team on the orientation and practicability of the options.

1.3.6 Option Development, Analysis of Strengths and Weaknesses and Implementation Steps

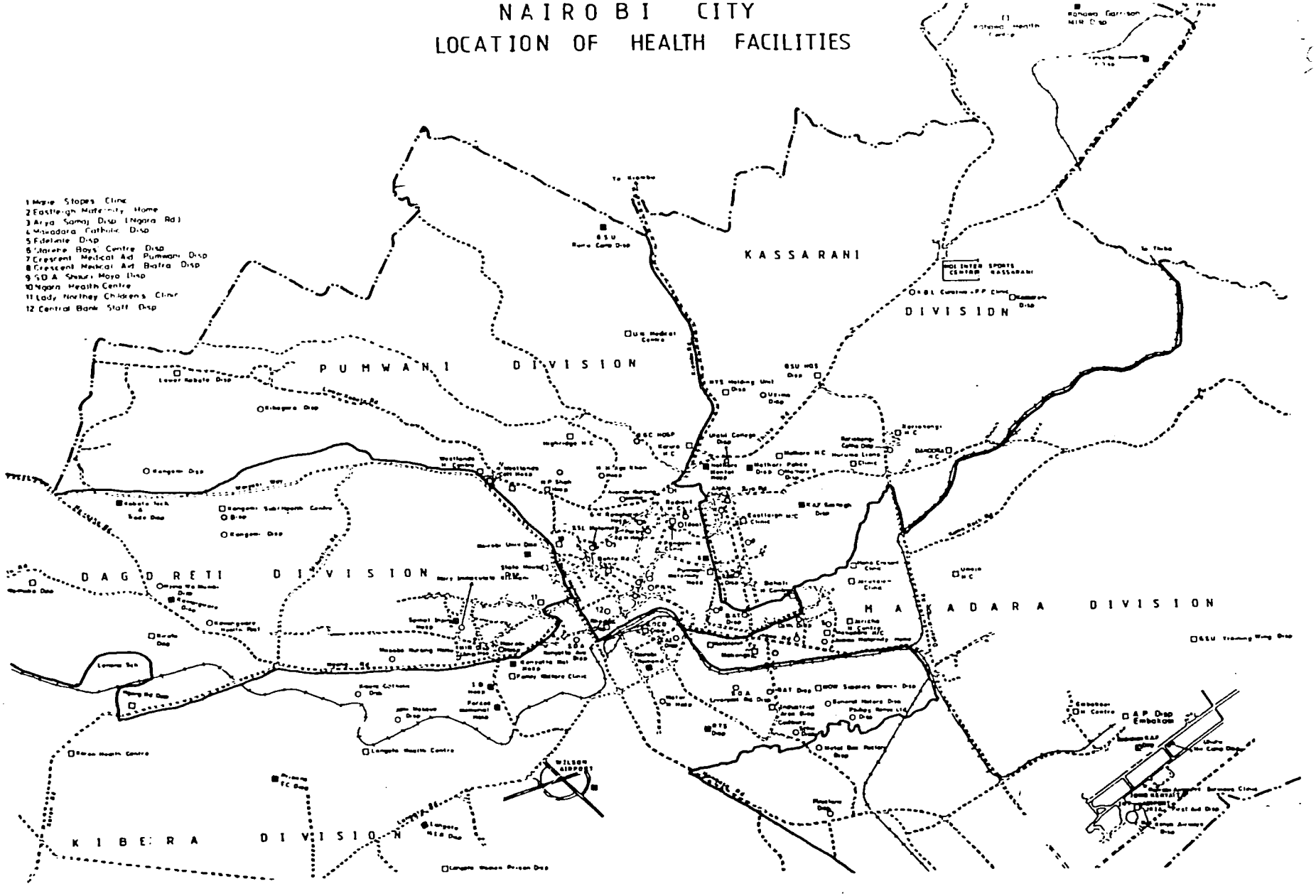
Each of the task forces reformulated the options and identified other alternatives during the final phase of its group effort. Once options were agreed upon, each task force identified the strengths, weaknesses of the options and the required implementation steps if the option were to be implemented. These then form a set of tools for decision-makers to use in discussing and selecting appropriate options for action.

1.3.7 Reading this Report

Chapter 2 briefly summarises the health facilities in Nairobi and the types and volume of services they offer. Chapters 3 - 5 provide the analysis and findings on which the options are based. Chapter 6 integrates these options, analyses their strengths, weaknesses, and provides guidance for steps to implementation.

CHAPTER 2: OVERVIEW

NAIROBI CITY
LOCATION OF HEALTH FACILITIES



2.1 OVERVIEW OF NAIROBI AREA HEALTH SERVICES

Nairobi is the largest urban centre in Kenya and covers an area of about 684 square Kilometers. The city is presently estimated to have a population of 1.5 million people. High population densities are experienced in the low income areas of Eastlands and in uncontrolled or illegal structures in slum areas. An estimated 40 percent of Nairobi residents live in slum areas. Low population densities occur in high income areas to the west and north of the city. Currently, the city population growth rate is six percent per annum, out of which four percent comes from natural increase, and two percent is due to net migration. It is expected that by the year 2000 the population of the city will approach 3.4 million, leading to a tremendous pressure to provide social services like housing, transportation, water, education and health services.

2.1.1 Nairobi Health Facilities.

Nairobi is served by a total of 154 health facilities which are registered with the Ministry of Health. These facilities comprise hospitals, health centres, maternity units, nursing homes, dispensaries and clinics. They are operated by the Government of Kenya/Ministry of Health, the Nairobi City Commission, by government parastatal organisations, and a variety of nongovernment providers (See Table 2.1). Fourteen of these facilities are hospitals with all but four offering a full range of inpatient and outpatient services. Pumwani Maternity Hospital provides maternity services only; Gertrudes Garden provides only pediatric services; the Spinal Injury Hospital and Mathari Mental Hospital offer specialised services as their names indicates. Of the remaining 140 facilities, 11 are nursing homes offering curative outpatient and limited inpatient services and maternity units offering only delivery services; 23 are health centres providing a full range of curative and preventive outpatient services; 77 are dispensaries providing only curative outpatient services; and 29 are clinics providing and maternal, child health care and/or family planning services. Figure 2.1 shows the share of health facilities managed by these providers. Private doctors, traditional healers, and birth attendants are excluded. Table 2.2 provides the distribution of these facilities by the administrative divisions of the city and category of provider. The largest provider, in terms of number of facilities, is the Nairobi City Commission (NCC), followed by the Government of Kenya (GOK)/Ministry of Health (MOH), whose facilities are managed by the Provincial Medical Office (PMO). The private sector provides one-fifth of the city's facilities. Religious organisations and missions account for 12 percent, followed by parastatals (6%) and non-government organisations (2%). This breakdown into six categories gives an impression of the number of service delivery points administered by the major providers.

FIGURE 2.1

HEALTH FACILITIES IN NAIROBI

Share managed by Providers

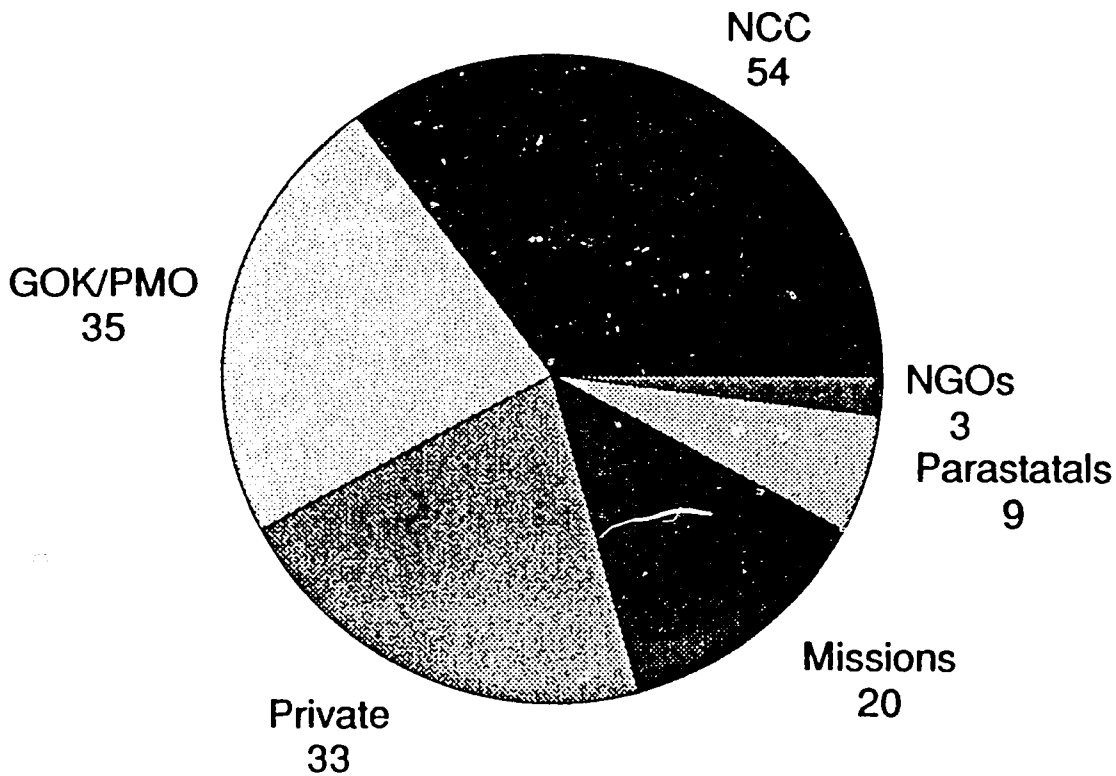


TABLE 2.1

AN INVENTORY OF HEALTH FACILITIES IN NAIROBI

Type of Facility

Category	NCC	Gov't/ MOH	Para-statal	Mission	Private & NGO	Total
Hospital	1	5	1	1	6	14
Health Centres with maternity beds	9	-	-	-	-	9
Health Centres without beds	14	-	-	-	-	14
Maternity Units/ Nursing Homes	-	-	-	2	9	11
Dispensaries with beds	-	2	2	-	-	4
Dispensaries without beds	5	28	6	17	17	73
Clinics	25	-		-	4	29
TOTAL	54	35	9	20	36	154

TABLE 2.2

DISTRIBUTION OF NAIROBI HEALTH FACILITIES BY DISTRICT AND CATEGORY OF PROVIDER

PROVIDER	DAGORETTI	KIBERA	MAKADARA	PUMWANI	KASSARANI	GRAND TOTAL
GOK/MOH HOSPITALS	1.Spinal Injury	1.Kenyatta National (Parastatal) 2.Infectious Disease . . . 3.Armed Forces Memorial			1. Mathari Metal 2. Kamiti Prison	6
NCC MATERNITY HOSPITALS/ HEALTH CENTRES WITH MATERNITY BEDS	1. Westlands Health Centre	1. Langata Health Centre 2. Bahati Health Centre	1. Makadara Health Centre	1. Pumwani Maternity Hospital 2. Ngara Health Centre 3. Eastleigh Health Centre	1. Kahawa Health Centre 2. Mathare North Health Centre 3. Dandora II Health Centre	10
PRIVATE HOSPITALS	1. Nairobi 2. Westlands Cottage	1.Mater Misericordia		1. Guru Nanak Ramgaria Sikh 2. Aga Khan 3. Gertrude's Garden Children's 4. M.P. Shah		7
PRIVATE MATERNITY UNITS AND NURSING HOMES	1. Nyina Wa Mumbi Maternity 2. Masaba Nursing Home	1. Jamma Maternity		1. Park Road Maternity & Nursing 2. City Nursing Home 3. Ideal Nursing Home 4. Avenue Nursing Home 5. Radiant	1. Alpha Maternity 2. Eastleigh Maternity 3. Mathare North Maternity Home and Family Planning Clinic	11
NCC HEALTH CENTRES W/O BEDS (SUB-HEALTH CENTRES)	1. Waithaka 2. Riruta 3. Kangemi	1. Karen	1. Embakasi 2. Umoja 3. Kaloleni 4. Jericho	1. Karura 2. Highridge 3. Pumwani	1. Kariobangi 2. Dandora 3. Baba Dogo	4

TABLE 2.2

DISTRIBUTION OF NAIROBI HEALTH FACILITIES BY DISTRICT AND CATEGORY OF PROVIDER
(continued)

PROVIDER	DAGORETTI	KIBERA	MAKADARA	PUMWANI	KASSARANI	TOTAL
GOK/MOH DISPENSARIES * WITH BEDS	1. Kabete Technical 2. Kabete Approved 3. Dagoretti Approved 4. Gitathuru Approved School 5. Kabete Juvenile Remand Home *6. MIR Ulinzi	1. Prison Staff Training 2. NRB Remand + Alloc Prison 3. Provincial Engineer 4. Langata Women's Prison 5. KNH Family Welfare *6. Langata Barracks 7. Wilson Airport	1. Admin. Police 2. Kenya Air Force Embakasi 3. C.A.U. DOD 4. Jomo Kenyatta Int'l Airport 5. Uhuru MIR Embakasi 6. G.S.U. Training Wing 7. MOW Supplies Branch	1. Loco 2. State House 3. Starehe Boys 4. Kenyatta Int'l Conf. Centre	1. National Youth Service 2. Mathari Police Lines 3. K.A.F. Eastleigh Airbase 4. Khawa Garrison MIR 5. Defence Staff College 6. GSU Headquarters Thika Road	30
NCC DISPEN-SARIES	1. Ngong Road	1. Industrial Area Lunga Lunga		1. Rhodes (Ngaira) Avenue 2. Lower Kabete	1. Kassarani	5
NCC MCH/FP CLINICS & SPECIAL CLINICS		1. Woodley 2. Nairobi South B 3. Jinnah Avenue	1. Mbotela 2. Jerusalem 3. Maringo 4. Ofafa 5. Posts & Telecom-munications 6. Hono Crescent 7. Makongeni	1. Kariokor 2. Pangani 3. Pumwani 4. Lady Northey 5. Bohra Road (Lagos Road) 6. State House 7. Muthurwa 9. Sandford Road 10. Eastleigh Lions 11. Innoculation Centre 12. Chest Clinic (Ngaira Ave.) 13. Special Treatment (STD)	1. Ruaraka 2. New Huruma (Mathari Lions)	25
PARASTATAL CENTRES/ DISPEN-SARIES/ CLINICS * WITH BEDS		1. Mbagathi Postal Training School 2. Railways Training School	1. Kenya Airways *2. University of Nairobi Health Services	1. Railway Headquarters 2. Central Bank (staff)	1. Utalii College *2. Kenyatta University	8

TABLE 2.2

DISTRIBUTION OF NAIROBI HEALTH FACILITIES BY DISTRICT AND CATEGORY OF PROVIDER
(continued)

PROVIDER	DAGORETTI	KIBERA	MAKADARA	PUMWANI	KASARANI	TOTAL
NON-PUBLIC DISPENSARIES & CLINICS (MISSION, PRIVATE, NGO)	1. Mary Immaculate Kilimani 2. Kibagara Dispensary 3. Kangemi Dispensary 4. Kawangware Health Post	1. SDA Liverpool Road Dispensary 2. Kibera Catholic Dispensary 3. Jamia Mosque Dispensary 4. Philips (K) Ltd Dispensary 5. BAT Industrial Area Dispensary 6. General Motors Dispensary 7. Cadbury Schweppes Dispensary 8. East African Industrial Dispensary 9. Firestone Factory Dispensary 10. EA Portland Cement Dispensary 11. Metal Box Dispensary	1. Makadara Catholic Dispensary 2. Edevale Dispensary 3. Mary Immaculate Bahati 4. Nairobi Airport Service Clinic	1. SDA Kenyatta Avenue Dispensary 2. SDA Shauri Moyo Dispensary 3. Crescent Medical Aid Baifra Dispensary 4. Crescent Medical Aid Pumwani Dispensary 5. Crescent Medical Aid Pangani 6. Arya Samaj Dispensary 7. EA Power & Light Training Dispensary 8. BAT Shauri Moyo Dispensary 9. Dinshow Byranjee Clinic 10. Burhani Foundation Clinic 11. Maire Stopes Clinic 12. UN Medical Survey Gigiri 13. FPAK	1. Kariobangi Catholic Dispensary 2. Uzima Mission Benedictine Disp. 3. Kenya Bus Service Dispensary 4. Kenya Breweries Curative Clinic 5. Kenya Breweries FP Clinic 6. Mathari Valley	38
	Mission: 1-3 Private: none NGO: 4	Mission: 1-3 Private: 4-11 NGO: none	Mission: 1-3 Private: 4 NGO: nons	Mission: 1-6 Private: 7-12 NGO: 13	Mission: 1-2 Private: 3-5 NGO: 6	TOTAL 154

2.1.2 Inpatient Services

Table 2.3 summarises the number of beds and volume of 1987 admissions for providers of inpatient services in Nairobi. (Number of admissions and beds was not available for all facilities.) There were over 4,915 hospital beds and over 144,467 inpatient admissions. These figures imply a 0.12 hospital admissions per Nairobi resident per year. The GOK and local government (Nairobi City Commission) institutions together operate over 80 percent of the beds and receive approximately 70 percent of the admissions.

Kenyatta National Hospital (KNH) is the largest provider both in terms of number of beds (approximately 34%) and volume of admissions (approximately 42%). KNH's recent revision in legal status to a parastatal will result in changes in its role and function. KNH will now serve as a referral hospital for the city and the country and provide only secondary and tertiary services. In 1987, KNH's occupancy rate was close to 70 percent, indicating underutilised capacity.

As a group, the seven private hospitals are the second largest providers of inpatient services, 17 percent of the beds and approximately 26 percent of admissions. The more well-known in the country include Aga Khan, M.P. Shah, and Nairobi who are well-equipped in technology and personnel to provide specialised inpatient services. Of the hospitals for which data were available, one reported an occupancy rate of 85 percent, three reported rates between 70 and 75 percent, and one was below 60 percent. These figures indicate underutilised capacity among private hospitals.

The NCC operates only one hospital, Pumwani Maternity Hospital, with 329 official beds. Supplementary beds raise the total figures to 363 beds. It also provides 216 maternity beds in its nine health centres. Together these beds represent 10 percent of total hospital beds, and account for approximately 19 percent of all admissions. Pumwani Hospital reports an occupancy rate of over 100 percent (based on 329 beds), indicating serious crowding problems. In contrast, occupancy rates for beds in health centres are quite low, ranging between 26 and 36 percent.

The GOK/MOH accounts for five of Nairobi's hospitals which together account for 31 percent of all hospital beds and eight percent of hospital admissions for Nairobi. Four of these hospitals serve special groups. Forces Memorial Hospital with 100 beds serves only the Armed Forces, the Police, and their dependents and has a relatively high occupancy rate (83.3%). The Spinal Injury Hospital (30 beds) and Mathari Mental Hospital (138 beds) are specialised facilities for spinal injuries and mental illness. With an occupancy rate close to 92 percent, the Spinal Injury Hospital is operating at very near capacity. Mathari, with an occupancy rate of 165 percent, has underutilised capacity. The Infectious Disease Hospital with 234 beds provides inpatient only for infectious disease patients. Its occupancy rate of 67 percent also indicates underutilised capacity. Kamiti Prison Hospital, with 63 beds available to the local community, is the only GOK/MOH hospital which provides nonspecialised inpatient services to the general public. Although total admissions for 1987 were unavailable, occupancy rates, estimated on basis of three months of data, are very low (38%).

TABLE 2.3

PROFILE OF INPATIENT SERVICES AVAILABLE IN NAIROBI, 1987

Facility	Total Beds	Total Admissions	Occupancy Rate
GOK/MOH HOSPITALS			
Kenyatta National Hospital (Parastatal status)	1,662	60,707	69.7
Infectious Disease Hospital	234	6,341	67.4
Spinal Injury	30	32	91.8
Forces Memorial	100	NA	83.3
Kamiti Prison (General Public only)	63	NA	38.3*
Mathari Mental	1,138	5,330	65.0
Pumwani Maternity	329	25,152	107.3*
Subtotal	**3,556**	**97,562**	
PRIVATE HOSPITALS			
Nairobi Hospital	194	10,848	85.7
H.H. The Aga Khan	139	11,657	74.7
M.P. Shah	108	6,100	70.0
Mater Misericordiae	117	5,183	59.5
Westlands	150	NA	NA
Guru Nanak	23	1,060	NA
Gertrudes Garden Children's Hospital	75	3,840	70.0
Subtotal	**866**	**38,688**	
PRIVATE NURSING HOMES AND MATERNITY UNITS			
Ideal Nursing Home	NA	NA	NA
Park Road Nursing Home	59	2,453	42.9
City Nursing Home	19	NA	75.5*
Avenue Nursing Home	37	1,405	NA
Masaba Nursing Home	50	NA	NA
Alpha Maternity	16	NA	82.7
Eastleigh Maternity	24	481	
Nyina wa Mumbi	14	1,206	47.3
Jamaa Maternity	46	NA	36.0*

NA = Not available
* estimated on basis of 3 months of bed census data

TABLE 2.3

PROFILE OF INPATIENT SERVICES AVAILABLE IN NAIROBI, 1987
(continued)

Facility	Total Beds	Total Admissions	Occupancy Rate
NCC HEALTH CENTERS			
Westlands	24	NA	NA
Langata	24	832	26.0*
Makadara	24	344	NA
Bahati	24	439	36.0*
Ngaira	24	251	27.3*
Eastleigh	24	678	NA
Kahawa	24	128	NA
Mathare North	24	NA	NA
Dandora II	24	NA	NA
Subtotal	**216**	**2,672**	
GOK/MOH AND PARASTATAL DISPENSARIES WITH BEDS			
Langata Barracks	NA	NA	
MIR Ulinzi	NA	NA	
University of Nairobi Health Services	12	NA	
Kenyatta University	NA	NA	
Subtotal	**12**	**NA**	
TOTAL	**4915**	**144,467**	

NA = Not available
* estimated on basis of 3 months of bed census data

Private nursing homes and maternity units provide over 265 beds (actual numbers could not be obtained from some facilities). Total admissions for all of these facilities were not available. However, four of the nine facilities accounted for 5,500 admissions per year. With the exception of two facilities, City Nursing and Alpha Maternity, occupancy rates indicate a large amount of underutilised capacity.

Limited inpatient facilities are provided by two GOK/MOH and three parastatal dispensaries. However, the number of beds, admissions, and occupancy rates were not available.

2.1.3 Maternity Services

Maternity services are one of the most common reasons for hospital admission in Nairobi. Table 2.4 summarises information related to inpatient maternity services. Information on total number of beds was available for all but three facilities. However, the total number of deliveries in 1987 could be provided by only one of the four private maternity homes and none of the private nursing homes. Total number of deliveries also was unavailable for Kamiti and Guru Nanah Hospitals. of the 42,220 reported inpatient deliveries, 55 percent took place at Pumwani Hospital and 19 percent occurred at KNH. Both of these facilities have maternity bed occupancy rates above 100 percent. Private, full-service hospitals accounted for 16 percent of inpatient births, and these facilities had occupancy rates ranging from 49 to 82 percent. NCC health centres accommodate around seven percent of the reported inpatient births. Occupancy rates for these facilities are low.

Maternity services operated by the NCC and private maternity nursing homes were included in this study of facilities. The evidence and findings related to these services are contained in the following chapters.

2.1.4 Outpatient Services

Outpatient services delivered by Nairobi health facilities are the main subject of this report. (Doctors clinics are excluded.) The overall volume of outpatient visits for 1987 are summarised in Table 2.5. Seventy-one percent of facility based outpatient visits occur at Nairobi City Commission health centres, dispensaries, and clinics. The next largest provider is the Kenyatta National Hospital with 12 percent of outpatient visits. Other government hospitals account for approximately one percent of outpatient visits. Private hospitals accommodate six percent of the volume of outpatient visits; government dispensaries, five percent; and nongovernment and parastatal facilities, four percent. These volumes of visits imply per capita visits of 3.5 per year for the Nairobi population. Evidence and findings related to delivery and utilisation of facility-based outpatient services are described in the following chapters.

Table 2.4

MATERNITY BEDS, ADMISSIONS, DELIVERIES, OCCUPANCY RATES BY CATEGORY OF PROVIDERS

Facility Name	Total Beds	Total Occup. (%)	Maternity Beds	Maternity Occup. (%)	Total Delivery	Delivery/ Bed
Government Hospitals						
Kenyatta Hospital	1,622	9.7	117	129.0	7,945	67.9
Kamiti Prison Hosp.	107	34.0*	15	1.3*	NA	NA
Pumwani Maternity**			363	107.3	23,351	64.3
Subtotal			**495**	**115.8**	**31,296**	
Private Hospitals						
Nairobi Hospital	194	85.7	36	67.8	1,982	55.1
H.H. The Aga Khan Hosp.	199	74.4	27	81.7	1,569	58.1
M. P. Shah Hospital	108	70.0	31	61.0	1,404	45.3
Westlands Hospital	150	NA	30	NA	200	NA
Guru Nanak Hospital	23	NA	NA	NA	NA	NA
Mater Misercordia Hosp.	117	59.5	54	49.0	1,654	30.6
Subtotal			**178**	**62.1**	**6,809**	
NCC Health Centres						
Bahati Health Centre	24		20	36.0*	429	21.5
Dandora II health Centre	24		20	NA	NA	NA
Eastleigh Health Centre	24		20	NA	661	33.1
Kahawa Health Centre	24		20	NA	118	5.9
Langata Health Centre	24		20	26.0	866	43.3
Makadara Health Centre	24		20	NA	226	11.3
Mathare North Health Ctr.	24		20	NA	NA	NA
NgaiaraHealth Centre	24		20	27.3*	235	11.8
Westlands Health Centre	24		20	NA	400	20.0
Subtotal			**180**	**29.8**	**2,935**	
Maternity Homes						
Alpha Maternity	16	82.7	16	82.7	NA	NA
Eastleigh Maternity	24	NA	24	NA	NA	NA
Jamaa Maternity	46	36.0	46	36.0*	NA	NA
Nyina Wa Mumbi	14	47.3	14	47.3	1,180	84.3
Subtotal			**100**	**47.9**	**1,180**	
Nursing Homes						
City Nursing	19	75.5	19	75.5	NA	NA
Ideal Nursing Home	NA	NA	NA	NA	NA	NA
Masaba Nursing Home	50	NA	NA	NA	NA	NA
Park Rd. Nursing Home	59	26.9	13	42.9*	NA	NA
Subtotal			**32**	**62.2**		
TOTAL	3,357		985	91.5	42,220	46.6

* = Occupancy rates estimated on basis of 3 months of bed census data.
** = Includes supplementary beds; occupancy rates estimated on basis of 3 months of bed consensus
NA = Not available

TABLE 2.5

OUTPATIENT VISITS BY TYPE OF FACILITY (1987)

Facility	Total Outpatient
GOK/MOH HOSPITALS	
Kenyatta National Hospital	573,539
Infectious Disease Hospital	3,211
Forces Memorial	NA
Kamiti Prison	NA
Mathari Mental	9,009
Pumwani Maternity	19,506
Subtotal	**605,265**
PRIVATE HOSPITALS	
Nairobi	47,591
H.H. The Aga Khan	132,395
M.P. Shah	42,342
Mater Misericordiae	52,659
Westlands	NA
Guru Nanak	NA
Gertrude Garden Children's Hospital	32,440
Subtotal	**307,427**
NCC HEALTH CENTRES, DISPENSARIES, CLINICS	
DIV I	1,886,870
DIV II	1,415,455
Subtotal	**3,302,325**
GOK/MOH DISPENSARIES**	
30 facilities (30.8 visits/facility/day)	231,924
NONGOVERNMENT and PARASTATAL DISPENSARIES*	
46.7 facilities (14.5 visits/facility/day)	167,417
TOTAL	4,614,358

* Projected figures based on average estimates by study and assumes 251 working days per year

2.2 OTHER PROVIDERS OF HEALTH SERVICES

Nairobi has a large number of medical practitioners, both general and consultant specialists, who operate their own clinic practices. The "Expenditures and Financing of the Health Sector in Kenya" report prepared for the Ministry of Health and the World Bank (Bloom, Segall, Thube, February 1986) indicates that 425 doctors were in full-time private practice in Kenya in 1983-84 and 145 of these doctors were practising in Nairobi (Table 2.6). As of April, 1988, the Ministry of Health listed 476 doctors officially registered as full-time, fee-for-service private practitioners, with 216 reported to be practising in Nairobi. These figures indicate a 48 percent increase in the number of doctors in full-time private practice between 1983-84 and 1988.

The number of doctors in private practice is further augmented by consultants working for the Ministry of Health who are allowed part-time private practices. The actual number of consultants who have part-time private practices and the hours they devote to them is not documented. However, unsubstantiated estimates indicate that full-time and part-time private practices in Nairobi may number as high as 500. A list of 400 doctors who were presumed to be in private practice was obtained through the Kenya Medical Association and a survey was undertaken to learn private medical practices. Evidence and findings of this survey are presented in Chapter 3.

Nairobi also has a large concentration of traditional healers and they provide an important source of care to Nairobi residents. As reported in the Baseline Survey, the actual numbers are now known. Nor is much information available describing their practices. Although an examination of traditional healers was not included in the scope of work for this study, the Team was able to interview a number of healers and their clients. A description of the findings regarding the practices of healers and the perceptions of clients is provided in Appendix F. Similarly , private medical/health insurance as a source of financing for care for the Nairobi population was not included in the scope of work. Although the team did not study private insurance in detail, the insurance Team did interview several insurance companies. A summary of these interviews is provided in Appendix G.

The Baseline Survey includes a listing of the 217 registered pharmacies located in Nairobi.

TABLE 2.6

DISTRIBUTION OF CERTAIN CATEGORIES OF HEALTH WORKERS BY PROVIDER 1983-84

Provider	Doctors		Clinical	Nurses	
Provider	Gen.	Specialist	Oficers	KEN	KRN
Government[1]					
-Ministry of Health[2]	588	235	1,360	7,137	2,157
-College of Health Sciences[3]	3	84			
Municipalities[4]	64[5]	?[5]	121[6]	506[7]	126[8]
Missions	112[9]	?[9]	46	1073	475
AMREF[10]	1	13	6	1	10
Private companies[11]	7+			23+	8+
Private 'market'					
-Institutions[12]	59+	56+		261+[13]	441+
-Practitioners[14]	425[15]	190[16]			
TOTAL	**1,259+**	**578+**	1,5[illegible]	**9,001+**	**3,217+**

[1] Excluding Department of Defence.
[2] Includes personnel staffing health facilities of Prisons Department.
[3] Includes Chiromo preclinical campus and clinical departments at Kenyatta National Hospital.
[4] Data from Nairobi, Mombasa, Kisumu, Nakuru, Eldoret, Thika, Kakamega, Kitale, and Embu.
[5] Fifty in Nairobi; specialists are not distinguished separately, but most municipal doctors are probably general medical officers.
[6] Seventy-two in Nairobi.
[7] Three hundred and fifty-eight in Nairobi.
[8] One hundred and twelve in Nairobi.
[9] Specialists are not distinguished separately, but most mission doctors are general medical officers.
[10] African Medical and Research Foundation; some of the health workers have duties in other countries serviced by the organisation. Fifteen other non-governmental organisations have been identified but only scanty information is available.
[11] Data from two out of the four private company hospitals.
[12] Personnel employed by private hospitals or nursing/maternity homes; data are from only 28 out of the 44 institutions, but almost all the major private hospitals are included (including Mater Misericordiae in Nairobi).
[13] Excludes enrolled nurses employed at the AgB Khan Hospital in Nairobi.
[14] Fee-for-service private practitioners (full-time).
[15] One hundred and forty-five in Nairobi and 71 in Mombasa.
[16] One hundred and twenty-thre in Nairobi and 44 in Mombasa.

Source: Bloom et al, "Expenditure and Financing of the Health Sector and Kenya", unpublished report prepared for Ministry of Health and World Bank, February 1986.

CHAPTER 3: COST AND UTILISATION

3.1 COSTS AND UTILISATION: INTRODUCTION AND OVERVIEW

Wide gaps exist in the knowledge of health service costs and utilisation in Nairobi and have impeded sound analysis and understanding of this urban health system. While there is an body of literature on the Kenyan health sector, data on costs and utilisation of health services within the Nairobi Area is limited. Factors which affect utilisation of health services in the city are not well documented. Relative costs in the public and private sectors, and factors affecting these differences have not been systematically analysed. This chapter provides a point of departure for understanding the relationship between costs and demand for health services in Nairobi.

The purpose of analysing utilisation is to understand the demand placed on facilities and services. Cost analysis provides a better understanding of the resources required to meet that demand. Costs are incurred through the use of resources such as personnel, drugs, equipment, and supplies, as well as other charges such as rent and utilities in order to supply health services to a given population. Utilisation reflects the demand placed on the health resources. Costs and utilisation of four categories of services are analysed:

1) general (or curative) outpatient services;
2) promotive/preventive outpatient services;
3) inpatient maternity services; and
4) inpatient mental health services.

The objectives of the analysis are to:

1) identify the points in the system where care was initiated for a given episode;

2) estimate the number of visits (or days of care) for each episode of illness;

3) examine the differences in utilisation between public and private facilities;

4) estimate the cost of selected services, and the differences in cost of services between public and private facilities;

5) estimate the cost of facilities and personnel, and the differences in cost of facilities and personnel between public and private facilities;

6) estimate the overall volume of services provided by facilities in the Nairobi Area;

7) estimate the patterns of utilisation for specific, high volume outpatient and inpatient services;

8) identify factors which affect the demand for services;

9) estimate overall demand in Nairobi; and

10) project future service needs and costs, based on population, trends and epidemiological data.

To carry out analyses which meet these objectives, utilisation data were collected through enumerator surveys of clients, patient record reviews, and a review of existing literature and data; cost data were obtained through detailed analysis of budgets and expenditures, and commodity price studies. Interactive interviews provided additional data on staffing, budgetary processes and other management areas. These data sets provide the basis for the estimates of demand and cost which are presented below. Extrapolation from these data allows an estimate of system wide costs and utilisation of health services in Nairobi. To provide an order of magnitude of the resource needs for Nairobi health services in the future, we use these extrapolations with linear projections of population growth and epidemiological trend.

Using data from client surveys, a demand model is developed to predict results under a number of possible changes in the delivery system, such as the introduction of fees or the presence of prepaid schemes, and other user characteristics such as age and education.

For each of these areas, evidence and options are presented. This section ends with projection of costs and demand to the year 1992. Revenue and cost implications of these projections are also presented.

3.2 PATTERNS OF UTILISATION

3.2.1 Objectives And Methodology

Patterns of utilisation of health services in Nairobi were studied to better understand what services are being utilised at what type of facilities, by what type of clients, and for what reasons. By understanding client characteristics, knowledge, attitudes and behaviour, planners may make more informed policy decisions, and estimate the impact that changes in the health system will have on client behaviour.

The analysis of utilisation patterns was based on data gathered from facilities on volume of services for 1987 and on a survey of facility clients. Data on volume of services was collected from facility records and NCC divisional reports by nurse enumerators. Team members supervised enumerators who collected data from clients using a survey instrument developed by the Team. The survey consisted of six separate questionnaires. Five were administered to clients according to the type of service they were seeking: curative; ante-natal; family planning; child health; or maternity. The sixth was a brief exit interview which was administered to clients leaving the facility irrespective of the reason for their visit. The client survey was carried out in 29 of the 31 facilities in the sample. No clients were interviewed at Mathari Hospital and no patients were found at City Nursing Home on the day scheduled for interviews. It should be noted that this facility-based approach misses population groups who obtain services in private doctor's offices or who do not use health services. Interpretation of findings regarding patterns of utilisation are limited to the population who use public and private health facilities.

The target sample size was based on estimates of daily attendance rates, wherever possible. The objective was to obtain a sample of clients approximately 20 percent of a facility's average daily attendance. When these estimates were unavailable best estimates of the number of clients the Team could expect to find in the allotted time were adopted. Planned versus achieved sample size for each of the five service questionnaires is presented in Table 3.1. The target sample size objectives were achieved for curative, ante-natal, and child health clients, but there was a shortfall in the expected number of maternity and family planning clients. A lower than expected number of maternity patients were found at the private maternity units and nursing homes, and low levels of family planning utilisation were encountered at both public and private facilities in the sample.

TABLE 3.1

PLANNED VERSUS ACHIEVED SAMPLE SIZES

Questionnaire	Planned Sample Size	Achieved Sample Size	Differences
Curative	970	1,244	28.2%
Child Health	230	254	10.4%
Maternity	350	290	-17.1%
Ante-Natal	180	249	38.3%
F.P.	150	137	- 8.7%
TOTAL	**1,880**	**2.7.4**	**15.6%**

The distribution of sample of clients by type of provider is as follows:

- NCC - 83%
- Non-government - 12%
- GOK/PMO - 5%

We can compare this distribution of outpatient visits with the distribution of NCC, GOK/MOH, and non-government/parastatal outpatient visits for 1987 reported in Table 2.5.

- NCC - 89%
- Non-government - 4%
- GOK/PMO 6%

The NCC facilities may be overrepresented while the non-government facilities may be underrepresented.

At the facilities, clients were selected to be interviewed according to sequential sampling procedures. Enumerators selected every third or fifth person from the front of the queue to the doctor or clinical officer. After completing the interview, the enumerator returned to the front of the queue to select the third or fifth client, depending on the volume of clients at the facility. At facilities with few clients, enumerators interviewed all clients who were willing to coöperate.

3.2.2 Client Profile

The client sample was almost entirely African (99.9%) and Christian (95%). Females, who represent 43 percent of the Nairobi population, constituted 64 percent of the sample. The overrepresentation of females would be expected since mothers are the primary seekers of health services for their children, and because women are always the clients of ante-natal and maternity services, and predominantly the clients of family planning services. The mean age of the sample for those over five years of age was 26 (S.D.=9.1, n=1757). For those under five years, the mean age was 11 (SD=13.3, N=388) which undoubtedly reflects the fact that the main reason for child health visits is to obtain immunisations.

Residents from all five administrative divisions of Nairobi were included in the sample. The distribution of clients by residence was:

- Makadara - 39 percent;
- Pumwani - 24 percent;
- Kibera - 17 percent;
- Kassarani - 11 percent; and
- Dagoretti - 7 percent.

Only two percent of the clients reported to be from outside Nairobi. This figure is considerably below the 11 percent estimate reported by facility managers in the Baseline Survey. There could be misreporting on the part of the clients if they believed that services could be utilised only by Nairobi residents. The Team would suspect that the true utilisation figure for non-Nairobi residents lies somewhere between two and 11 percent. The distribution of the clients' residence was strongly influenced by the overall location of facilities and the location of the facilities in the sample rather than the overall population distribution. Residents of Kassarani and Dagoretti divisions are underrepresented because facilities in these two divisions were less well represented in the sample, and Dagoretti has fewer overall number of facilities than other divisions.

The income categories established by the Central Bureau of Statistics (Statistical Abstract 1987, CBS, Ministry of Planning and National Development) were used to develop a profile of average monthly income for the sample population. This profile has important implications for the cost sharing discussed in Section 3.10. The sources of income included in the analysis were: wages and salaries, business, rental, or pension income, and remittances from relatives. The mean monthly household income was Kshs. 2,508 (S.D.=2945, n=1324). The breakdown into income groups of the population sample is shown in Table 3.2 and is also represented in Figure 3.1.

TABLE 3.2

CLIENTS OF NAIROBI HEALTH FACILITIES BY HOUSEHOLD INCOME GROUP

Income Group (Kshs./month)	Number of Clients (% in parenthesis)
Low (<699)	188 (14.2)
Middle (700-2,499)	705 (53.5)
Upper (>2500)	428 (32.3)
TOTAL	**1,324**

The mean household size was 4.5 individuals, (S.D=3.3, N=2159), similar to the 4.7 average for Nairobi. The composition of the sample by occupation was: housewife - 37 percent, wage earner - 28 percent, unemployed - 12 percent, casual worker - six percent, and student - five percent. The portion of the client sample who reported they were unemployed was similar to the Nairobi rate of 13 percent.

The average number of years of schooling completed by the interviewed client was 8.4 (S.D=3.4, N=2159). The breakdown by educational levels was: illiterate - 2.9 percent, lower primary - 3.8 percent, upper primary - 24.6 percent, secondary - 65.6 percent, and post-secondary - 3.0 percent. The only major difference between this population and the overall Nairobi population was the underrepresentation of the post-secondary graduates. This group represents about 10 percent of the Nairobi population and may be underrepresented in this study sample because the clinic practices of private doctors were not included in the survey.

In general, there is no evidence that the sample was seriously unrepresentative of the Nairobi population as a whole.

3.2.3 General Findings

a) Socioeconomic Characteristics of Client Groups

The income levels of clients of public and non-government facilities were compared (see Table 3.3 and Figure 3.2). As expected, more clients of public facilities fell into the low income group. At the NCC and PMO facilities, 14-15 percent of the clients were low income. At the non-government facilities, eight percent fell into the low income group. To determine differences in the income profile of clients who pay a fee for service versus those who obtain free care, income levels of clients at public facilities can be compared with those of clients at outpatient facilities where fees are charged. Table 3.4 indicates that a smaller percentage of clients who pay for services were in the low income bracket, while a much larger percentage were in the upper income group. Caution is required in making this comparison because of the small sample size of paying clients. Private doctors' clinics were not included in the survey and the facilities in the sample which charge fees are low cost outpatient facilities operated by religious groups. In addition, the clients of company or employer facilities tend not to pay for services provided by the employer. These clients also could be expected to have a higher mean income than the clients of public facilities. Income differences, therefore, may be understated.

There was a small difference in the household income profile of those clients using curative versus preventive services at public facilities. Table 3.5 indicates that there appears to be a higher proportion of high income clients and a lower proportion of middle income clients using preventive services compared with users of curative services. The equal proportion of low income clients using preventive services is encouraging since that group is often harder to reach with such services.

Occupational categories of clients were also compared across facilities. Clients of public facilities were twice as likely to be unemployed as clients of nongovernment facilities, 11-12 percent versus six

percent. However, the largest occupational group of clients of NCC facilities consisted of housewives (41%). Among the clients who reported that they were not the head of their household, we examined the occupation of the household head. Among NCC clients, 91 percent were either salaried employees or self-employed. Further analysis of the occupation of all heads of household is still required. Nevertheless, these figures, along with the income figures reported above, suggest some ability to pay among a sizable portion of the clients at public health facilities.

FIGURE 3.1

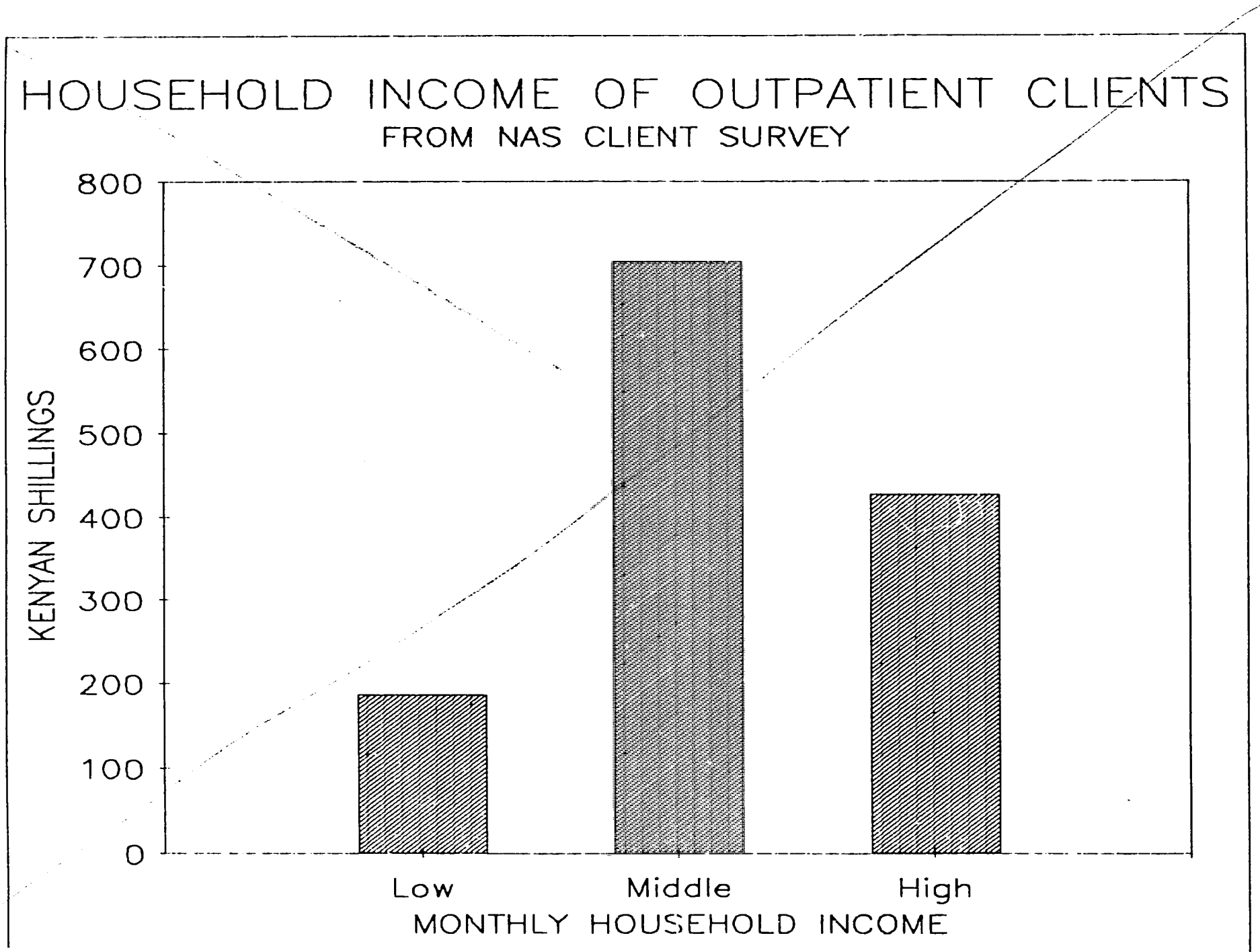

HOUSEHOLD INCOME OF OUTPATIENT CLIENTS
FROM NAS CLIENT SURVEY
KENYAN SHILLINGS
800
700
600
500
400
300
200
100
0
Low
Middle
High
MONTHLY HOUSEHOLD INCOME
Based on sample size of 1,342

FIGURE 3.1

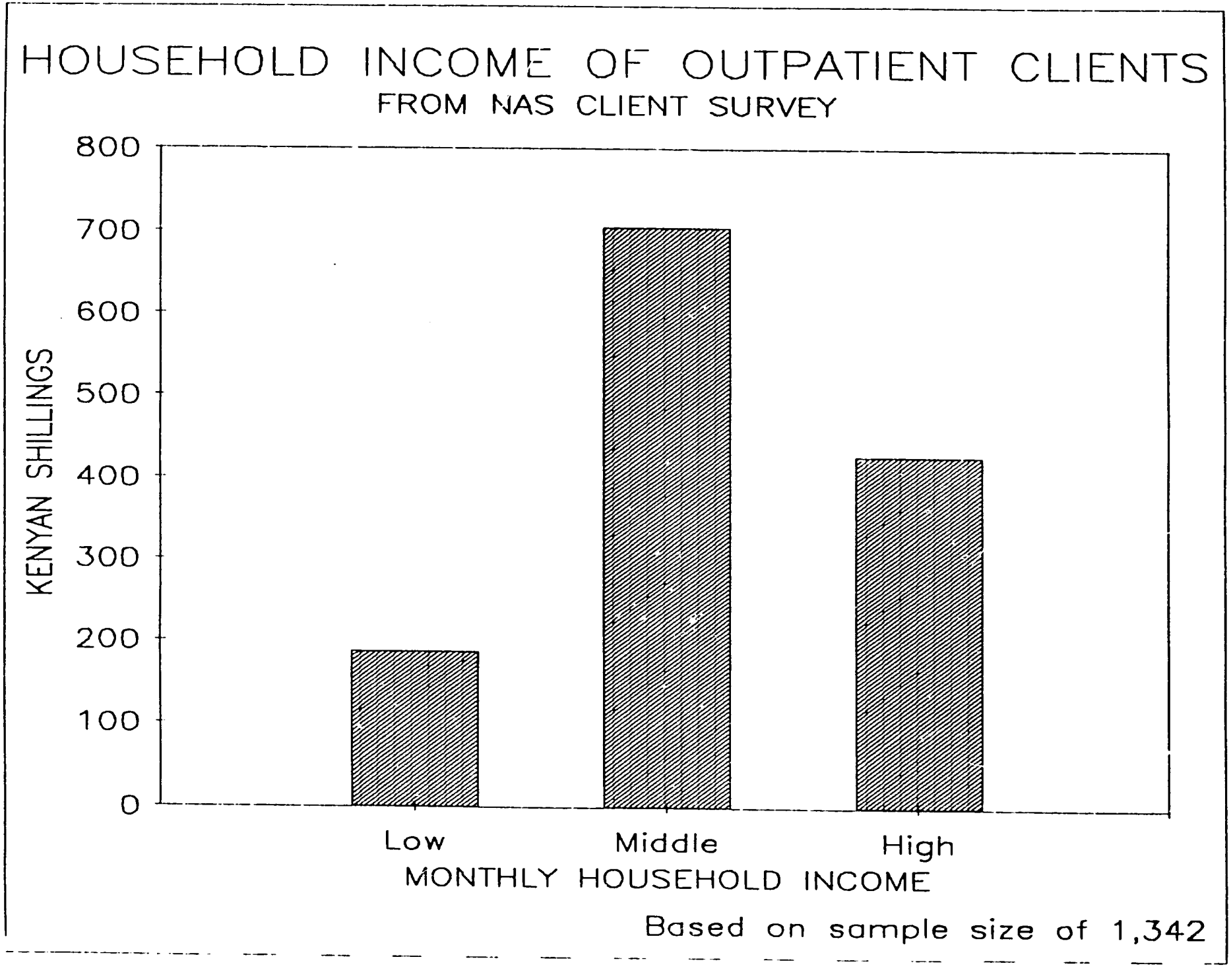

HOUSEHOLD INCOME OF OUTPATIENT CLIENTS
FROM NAS CLIENT SURVEY
KENYAN SHILLINGS
800
700
600
500
400
300
200
100
0
Low
Middle
High
MONTHLY HOUSEHOLD INCOME
Based on sample size of 1,342

FIGURE 3.2

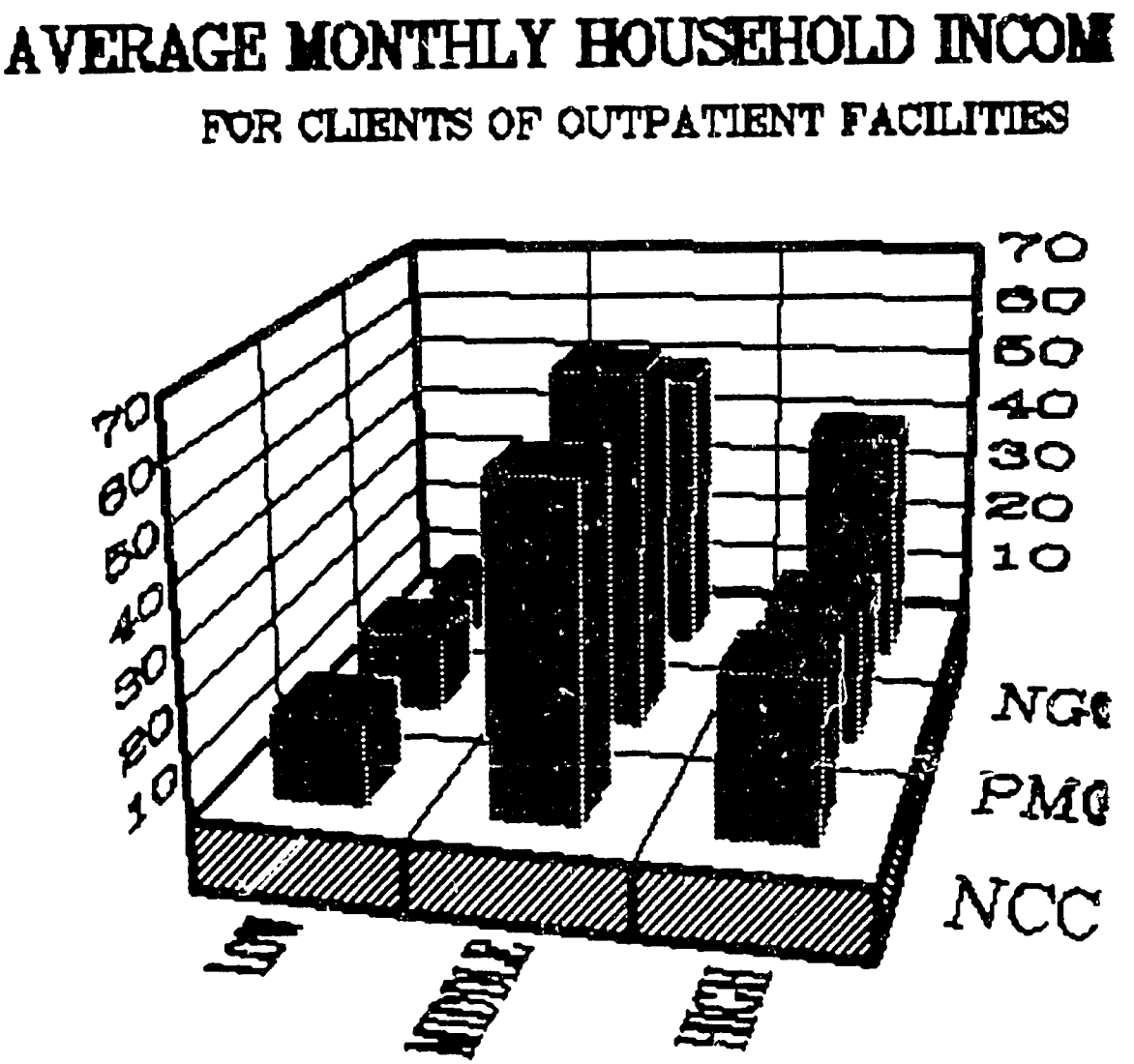

AVERAGE MONTHLY HOUSEHOLD INCOM
FOR CLIENTS OF OUTPATIENT FACILITIES
70
60
50
40
30
20
10
NGC
PMC
NCC
LOW
MIDDLE
HIGH

TABLE 3.3

AVERAGE MONTHLY HOUSEHOLD INCOME LEVEL BY TYPE OF FACILITY

Income	NCC	PMO	Non-government	Total
Low <699 Kshs. (N)	15.3% (95)	14.3% (11)	8.6% (12)	14.6% (118)
Middle 700-2499 Kshs.	56.9% (354)	62.3% (48)	50.7% (71)	56.3% (473)
Upper >2500 Kshs.	27.8% (173)	(23.4) (18)	(40.7) (57)	29.6% (248)

TABLE 3.4

MONTHLY HOUSEHOLD INCOME OF CLIENTS PAYING FOR HEALTH CARE

Income	% of Clients (#)
Low	10% (8)
Middle	53% (42)
Upper	37% (29)
Total	79

TABLE 3.5

MONTHLY HOUSEHOLD INCOME CURATIVE VERSUS PREVENTIVE CLIENTS OF PUBLIC FACILITIES

Income	Curative Clients	Preventive Clients
Low	106 (15%)	49 (15%)
Middle	402 (58%)	160 (49%)
Upper	191 (27%)	120 (36%)

b) Reasons for Facility Choice

Clients were asked the main reason for their choice of facility on the day of the interview. The most common reasons given were: proximity to house (48%), quality of service (14%), and referrals (13%). The referrals were both medical and non-medical. While proximity to the house was the principal factor influencing facility choice for all outpatient clients, forty-one percent of the sample bypassed a closer facility on the day of the interview. Factors which overrode the importance of proximity were: referral (29%); fees (15%); coming from work and not home (9%); necessary services not available at nearest facility (7%); long waiting time, and no drugs (6% each). These factors variables that health planners can manipulate to alter patterns of choice.

The reasons given by clients for visiting outpatient facilities where fees are charged differed from those reported by the entire sample. In six of the eight facilities, quality of care was the primary reason for choosing the facility. For the two private health centers in Kibera (Crescent and Catholic), proximity to the house remained the principal selection criterion. The reasons for the difference in Kibera clients are not evident.

The differences in reasons for choosing a facility between clients who pay and do not pay is consistent with the higher rate at which paying clients bypass facilities. Sixty-four percent of clients at facilities where fees are charged bypassed the nearest facility. The comparable figure for clients at NCC outpatient facilities was only 30 percent. This finding suggests that if fees were introduced at public services, the convenience of location could become a less important consideration in choosing a facility. Clients might begin to "shop around" more for higher quality care. If public facilities wish to retain their client base, they would have to provide quality care comparable to that of facilities charging similar fees. Alternatively, one could encourage the shift in demand to low-cost private facilities by charging slightly more at the public facilities. Given the introduction of fees, the Team could expect movement within the NCC system to those facilities that are perceived to offer better care. To even out utilisation within the NCC system once fees are charged, quality of services across facilities will look to be equalised and an adequate drug supply may be essential.

Different reasons for choosing a facility were also given by clients according to the type of service they were seeking. For preventive services, proximity to the house was even more important than for curative services. It was the main reason for facility choice for approximately 75 percent of the clients of preventive services. Quality of care was a more important reason in facility choice for curative clients than for clients of preventive services. Eighteen percent of the former listed quality as their main criterion, while only nine percent of the clients seeking preventive services did so. While 62 percent of the curative clients rated the services "good", and 28 percent rated them "fair" or "bad", the rating among the preventive services clients was 83 percent "good", and 11 percent "fair" or "bad". This difference could be related to the greater variation in the quality of curative services, in terms of staffing and drug supply. The focus of efforts to equalise quality across facilities should begin with curative care.

Curative clients bypassed the nearest facility more often (43%) than clients of preventive services (13-23%). The reasons given were: fees charged by the facilities; going to the facility from work instead of home; and poor drug supplies at the closer facility. These factors could affect the current patterns of congestion and under-utilisation within the NCC system. If facilities located in residential areas were open after after working hours, or if the drug supply at facilities with frequent stock shortages could be assured, or if NCC facilities were charging fees similar to those charged at private facilities, utilisation could become more evenly distributed.

c) Catchment Areas

An analysis of the area from which clients were coming to facilities was carried out at the divisional level only. The percent of the clients interviewed who reside in the division in which the facility they are attending is located is provided in Table 3.6.

TABLE 3.6

RESIDENCE OF CLIENT IN RELATION TO FACILITY LOCATION

Location of Facility*	Percent of Clients Residing in Same Division
Pumwani	48
Kibera	67
Kassarani	66
Makadara	83

* There were 149 clients from Dagoretti who went primarily to facilities in Pumani or Kibera.

An average of two-thirds of the clients live in the division where the facility is located. The lower figure for Pumwani results from the inclusion of Pumwani Hospital, which is meant to serve clients from the entire city and the fact that Pumwani division includes the city centre where the many people do not reside but work. Since divisions are large units, a facility near a divisional boundary would be expected to draw in clients from a neighbouring division.

Seeking services outside the division of residence was more common at the NCC dispensaries than at the other categories of facilities. Clients from outside the division comprised 72 percent of the total at Rhodes, and 40 percent at Ngong. The high figure at Rhodes would partly reflect the fact that it contains a special chest clinic which serves the entire city, and that it is located in the city centre near to many workplaces. However, the data suggest that the latter factor provides only a limited explanation since only 22 percent of the Rhodes clients and 11 percent of the Ngong clients came from work on the day of the interview.

The mode of transport and distance travelled also provide rough indications of the catchment area of the facility. We could assume that of all clients walked to the facility. The percent walking to NCC facilities, excluding Pumwani Hospital, was 76 percent. The mean distance traveled government facilities. The data suggest that while approximately two thirds of the clients come from within the division of the facility, some equalisation of utilisation might be achieved by greater enforcement of residential criterion of admission at selected facilities.

d) Eligibility

The team examined the clients' knowledge of eligibility criteria for using public facilities to determine if it could be a factor in the unequal distribution of utilisation. While NCC guidelines indicate that people are supposed to use the facility in their area of residence (except for the special clinics and Pumwani Hospital), in practice, clients from outside the area are not turned away. They are advised to use the nearer clinic in the future.

Among NCC clients at outpatient facilities, 46 percent thought that anyone was eligible to use the facility they were attending. Only 41 percent thought residents of a specific area were eligible. If residency were enforced as a criterion for utilisation at non-specialised clinics, facilities might be better able to adjust utilisation to fit their facility capacity. Such criterion would facilitate the planning process. Presently, it would be extremely difficult to enforce residency criteria since in Nairobi there is no official registration system by residence. An official registration system by residence would have to be implemented, either at the facility, or within the community. Any such system would be open to abuse and imply additional administrative costs. The cost of such a system would need to be compared with the costs of alternatives.

e) Common Ailments and Course of Action

The principal ailments reported by the clients were: respiratory infection (30%), joint pain/bodyache (17%), , malaria (15%), and fever (85%). These figures partly reflect the fact that the data was collected in August, a cold, dry month. Consequently, respiratory infection is common, and diarrhoea is not.

The data provide little evidence of different patterns of complaints among clients at public facilities and at facilities where fees were charged. The only exception was the higher rate of complaints of malaria at fee-charging facilities (22%) than at public facilities (14%). The type of ailment did not seem to affect the client's willingness to pay. The data on course of action also provide some evidence of willingness to pay, particularly for drugs. This is important in the design of revenue generating mechanisms.

A considerable number of the clients surveyed initially sought assistance from a shopkeeper or pharmacy. Thirty-six percent of the malaria and fever clients first visited the pharmacy, while 27 percent of the clients with upper respiratory infections (URTI) and 13 percent of the joint pain clients did so. If we add those who applied other forms of self-treatment (including using drugs available in the home), to this group, we find that over 40 percent of the malaria and fever clients

initiated some form of self-treatment without a medical diagnosis. For the case of diarrhoea where we might expect more self-treatment, the figure was only 20 percent. Self-treatment and visiting the shop or pharmacy were positively related to income. They were the first action for 22 percent of low income, 26 percent of middle income, and 34 percent of upper income clients. The same relationship was found with client's educational level. The main reason given for self-treatment and visiting the shopkeeper or pharmacy was that the Broblem was not severe. These figures suggest the need for considerable consumer education on self-diagnosis and treatment. Education should stress the appropriate actions to take, as well as the potential hazards. Without public education, clients are likely to be heavily influenced by drug company advertisements. Proper self-treatment and prevention could imply substantial savings to the government and city.

For 40 to 50 percent of the clients, the first course of action of those who fall ill is visiting the health facility. For 53 percent of the clients who visited a facility which charged for service, the visit was the first action. The comparable figure for clients of public facilities was 52 percent. The main reasons given by those attending a fee-charging facility for going to those facilities were convenience of location and perceived severity of illness. Ten percent of the paying clients stopped at a public facility first.

The frequency of going to the shop or pharmacy as the first action was similar for clients at free and fee-charging facilities. This was somewhat surprising since drugs are included in the consultation fee at facilities which charge. The mean cost of going to the pharmacist or shop was Kshs. 13, approximately one-half of the average consultation fee. Introducing fees above this level at facilities which currently do not charge could shift some clients to self-treatment as a first course of action rather than visiting the health facility. Fees, in conjunction with adequate consumer education, could reduce unnecessary visits.

f) Current Costs of Health Care to The Client

The total cost of seeking care includes fees, travel cost, and the opportunity cost of traBel and waiting time. Considering the opportunity cost of health care under the current system would help clarify the implications of implementing fees and identify areas for potential savings that could offset the fee.

Only one-third of all clients paid any money for transport at an average cost of Kshs. 3.6 (S.D=3.7, n=357). Two-thirds walked to the facility. The average distance travelled was 2.5 kilometres (S.D.=3.7, n=1977) for public facilities, and three kilometres for non-government facilities. The mean travel time by type of service was: curative - 23 minutes; preventive - 15-18 minutes; maternity - 35 minutes. The higher travel time for curative and maternity care is consistent with greater tendency of clients for these services to bypass facilities.

Outpatients at public facilities are not charged fees, with the exception of x-rays at the Rhodes Chest Clinic. At the non-government facilities, fees were charged at outpatient facilities sponsored by religious organisations. The fee schedule at the Crescent facilities is Kshs. 35 for the first visit, and Kshs. 30 for a return visit. Children are charged only Kshs. 10 for the return visit. At Kibera Catholic Health

Centre, adults are charged Kshs. 20-25 and children, Kshs. 10-15 Fees are slightly higher at Mary Immaculate Dispensary, where adults pay Kshs. 25-50 and children Kshs. 10-25. Overall, the fee schedules are similar. All tend to differentiate fees for children and adults; all include drugs in the consultation fee. Most charge an additional amount to treat venereal disease. The cost-recovery capacity of such fee schedules was not investigated.

A significant opportunity cost to clients at public facilities is waiting time. At NCC facilities, 75 percent of the clients waited over one hour; 44 percent waited over two hours. At the PMO facilities, waiting time was over one hour for 63 percent of the clients, and over two hours for 32 percent of the clients. Waiting time was much less at the nongovernment facilities. Over one-half were served within 30 minutes, one-fourth of the clients waited over one hour, and only ten percent waited over two hours. Only 10-15 percent of the clients at public facilities were served within 30 minutes.

Clients attach considerable importance to the problem of waiting time. Free service currently entails a high time cost for the consumer. Time cost is also borne by the employer, who can expect an employee to be away from work for two to three hours, while seeking health care. Waiting time was cited as a problem even at facilities with low levels of utilisation. Given its importance to clients and employers and the fact that some improvement may be possible with existing resources, one area for improvement concurrent with the introduction of fees should be the reduction of waiting time.

g) Client's Perception Of Problems And Priority Areas for Improvements

The Team examined the major problems and priority areas for improvement from the clients' perspective, to identify areas of operations that might be improved in conjunction with the introduction of fees. For curative services, the three most important problems were waiting time, lack of courtesy among the staff, and poor drug supply. The major problems were rated as shown in Figure 3.3.

The priority improvements named by all clients, irrespective of how they rated the facility, are shown in Table 3.7. Drug supply and waiting time are the two most often cited areas for improvement. Staff attitude and quality and the availability of a doctor were also important. Since questions were asked about the facility, not the service, the strict association of the problem and the improvement with a given service may be somewhat imprecise. Nevertheless, they do provide direction for planners as to where intervention is needed.

FIGURE 3.3

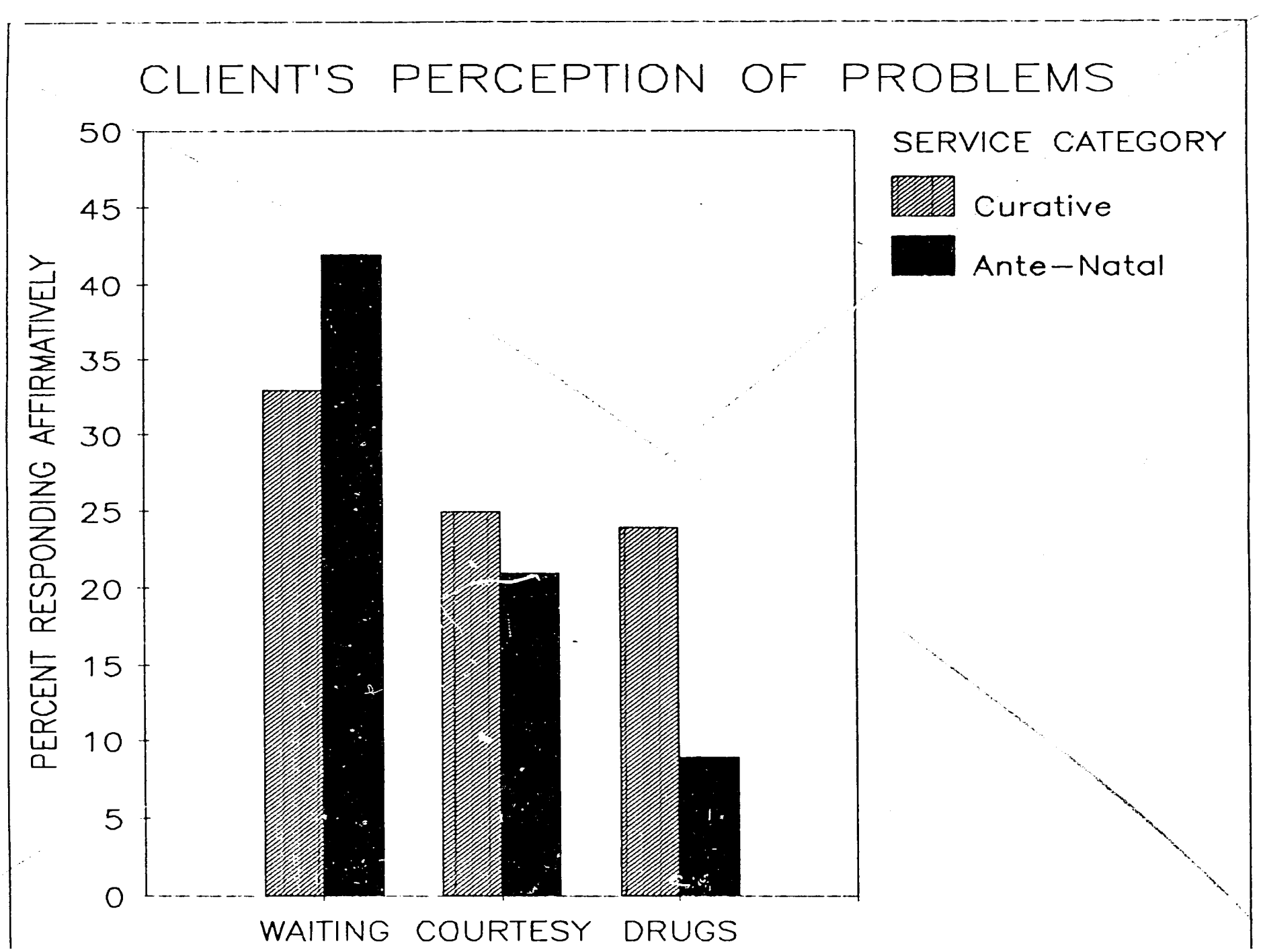

CLIENT'S PERCEPTION OF PROBLEMS
PERCENT RESPONDING AFFIRMATIVELY
50
45
40
35
30
25
20
15
10
5
0
WAITING
COURTESY
DRUGS
SERVICE CATEGORY
Curative
Ante-Natal

FIGURE 3.3

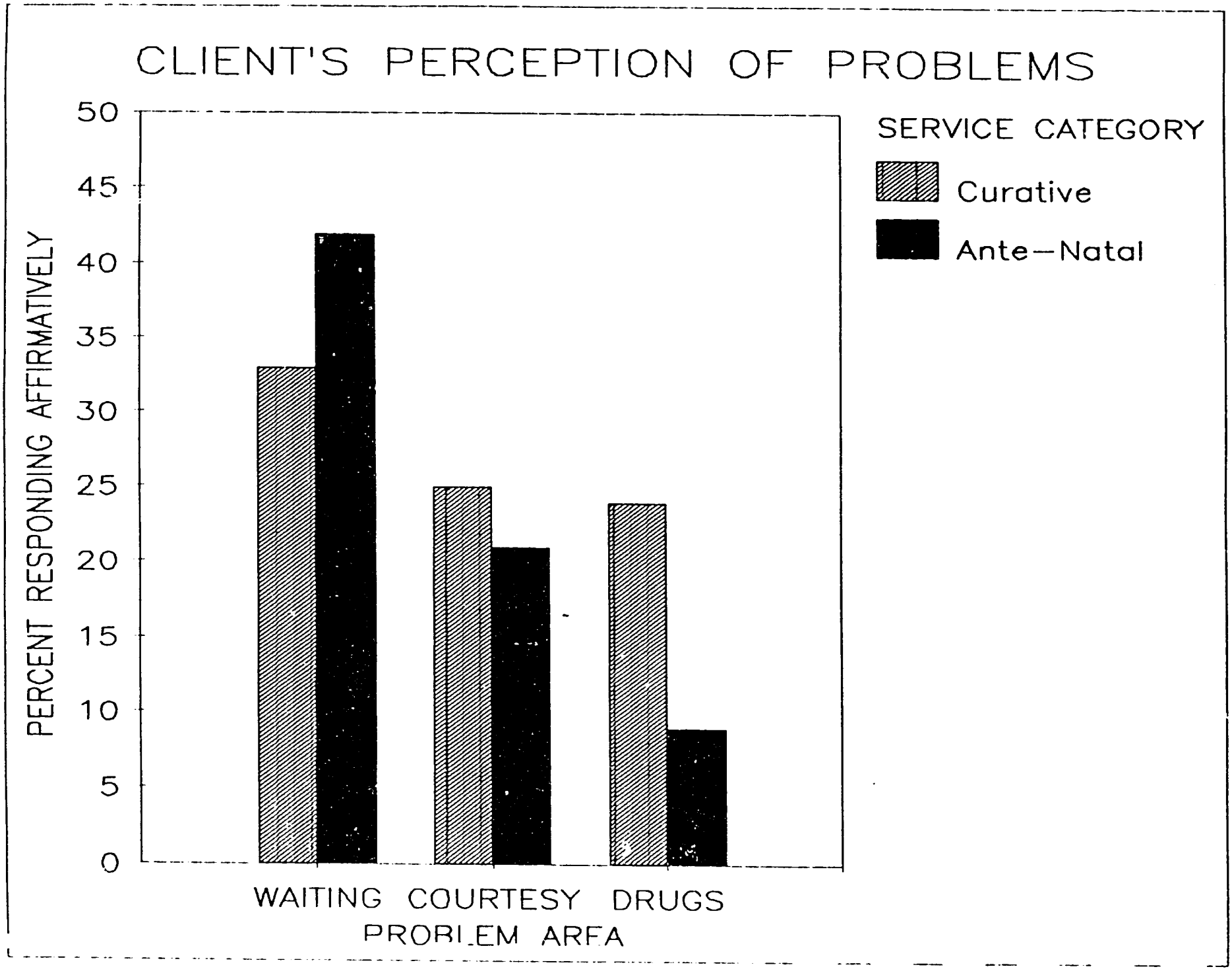

CLIENT'S PERCEPTION OF PROBLEMS
PERCENT RESPONDING AFFIRMATIVELY
50
45
40
35
30
25
20
15
10
5
0
WAITING
COURTESY
DRUGS
PROBLEM AREA
SERVICE CATEGORY
Curative
Ante-Natal

TABLE 3.7

PRIORITY AREAS FOR IMPROVEMENTS

Service	Improvement (% of clients) Drug Supply	Waiting Time	Staff Attitude	Doctor	Schedule
Curative	21	18	11	12	
Ante-natal	13	19		11	
Family Plan.		18		8	8
Child Health	24	18	7		

3.2.4 Findings: Maternity Services

Utilisation of maternity services is unevenly distributed both across public and private facilities, and within the public system. The maternity bed occupancy rates for 1987, are shown in Table 3.8.

TABLE 3.8

BED OCCUPANCY RATES FOR FACILITIES OFFERING MATERNITY SERVICES

Type of Facility	Name of Facility	No. Beds (Maternity)	Occupancy Rate (percent)
Government/ NCC Hospital	Pumwani	329[a]	116.3[b]
	Kenyatta	117	85.2
	Kamiti	15	1.3[b]
NCC Health Centre	Bahati	20	36[b]
	Ngaira	20	27[b]
	Langata	20	21.6[b]
Private Hospital	Nairobi	36	67.6
	Aga Khan	27	81.7
	MP Shah	31	61
	Mater Miseri-corida	54	49
Maternity Homes	Nyina Wa Mumba	14	47.3
	Jamaa	46	36
	Alpha	16	82.7
Nursing Home	Park Rd.	13	42.8

[a] Number of regular beds; an additional 34 beds considered temporary would bring the total to 363 and result in an occupancy rate of 107.3 percent.

[b] Occupancy rate was calculated for a three month period in 1987. The Pumwani Hospital occupancy rate is based on the first three months of 1988.

High occupancy rates are seen at the public referral hospitals, Kenyatta and Pumwani. Kamiti Hospital has virtually no deliveries. Private hospitals had moderate to high occupancy rates. In general, the maternity and nursing homes had relatively low occupancy rates. The one exception was Alpha Maternity home. There is some evidence that these occupancy rates are related to the clients' perception of quality of care at the facility. At Alpha Maternity, which has a high occupancy rate, 80 percent the clients rated the service "good". Park Road, with a low occupancy rate, had 33 percent of clients rate the service "good". Improvements in quality of care at private maternity and nursing homes could help raise occupancy rates. Occupancy rates at the NCC maternity units were consistently low and indicate substantial underutilisation of a critical resource. One goal would be to shift demand from the referral units to either the private facilities, or NCC health centres, whenever appropriate. To help achieve this, we need to understand why clients choose the maternity facilities they utilise. The Team, therefore, examined the reasons for choice of facility given by maternity clients to identify courses of uneven utilisation.

Seventy-four percent of the maternity clients that were interviewed claimed to have been referred to the facility where they delivered. This reflects the fact that 77 percent of the maternity clients interviewed were at Pumwani. Of the 214 Pumwani clients interviewed, 85.5 percent had been referred by a medically trained person and 14.5 percent had arrived unreferred at the hospital. Of those referred, 97.5 percent were referred from NCC facilities.

To obtain a broader sample of maternity clients, we examined the responses of ante-natal clients regarding where they plan to deliver, and why. Among those clients, 48 percent based their choice on referral and 28 percent on quality of care. Quality was more important for the choice of maternity facility than for any other service. Efforts to shift utilisation from the referral facilities would have to focus on the referral process, and on the perceived quality of care.

Table 3.9 compares the fees at two private facilities, Park Road and Alpha, with fees in the public facilities. Private facilities charge five to eight times more than the NCC. It is evident that the private facilities do not compete with NCC facilities on the basis of price. A sliding scale of fees at Pumwani based on income would be one option to consider, to reduce congestion.

TABLE 3.9

FEES FOR MATERNITY SERVICES

Facilities	Park Road Maternity	Alpha Maternity	Jamaa Maternity	NCC Mat. Units.	Pumwani Mat. Hosp.
(A) Labour Charge Per Normal Delivery	550.00	450.00	400.00	200.00	200.00
(B) Ante-natal Care Fee	400.00	200.00	400.00	none	none
(C) Daily Charge Ward Bed	200.00	130.00	290.00	none	none
(D) Average Length of Stay (Days)	3.8	3.3	6.6	none	none
(E) Average Charge for Ward Bed (C X D)	760.00	429.00	1,914.00	none	none
(F) Average Total Charge Per Delivery (A+B+E)	1,710.00	1,079	2,714	200.00	200.00

The income breakdown of the Pumwani clients indicates that it is not primarily the poor who are using the facility; of the 112 clients who provided data on income, only 13.4 percent (15), fell into the lower income bracket. Seventy-five percent reported the household heads were wage or salary earners, 13 percent were self-employed and less than one percent were unemployed. These data suggest that there may be some room for a fee increase.

To change the demand for maternity beds and reduce congestion at the referral hospitals requires changes in referral policies and improvements in services. The NCC referral practice could in fact be more liberal. Current policy is to refer all primaparae and high risk women (gravidae of five or above). The Team suspects that there is a degree of risk aversion among the NCC health centre staff that may lead to "excess" referrals (see Section 5.7). The lack of adequate transport, should a complication occur, leads to over-referring.

The need for a reliable backup transport system to serve the NCC health centres is apparent from discussions with their staff. These facilities should be given priority in the transport queue. One option would be to have a private transport firm contracted to provide the service. Another, would be to improve the NCC transport system. The cost-effectiveness of each option requires further study.

Some limited change in the over utilisation could be effected by measures to restrict access of non-referred clients. Education to inform both NCC staff and potential clients regarding the population that Pumwani and Kenyatta are meant to serve could be carried out at all health facilities. The need for such education is suggested by the finding that 55 percent of the Pumwani clients believed that "anyone" was eligible to use the hospital while only 29 percent said that it was a referral hospital. Higher fees for non-referred clients could serve a dual purpose of reducing walk-ins, and encouraging attendance at ante-natal clinic.

Another possibility is to apply different fees at NCC health centres and public hospitals. Currently, the fee is Kshs. 200 at both categories of facility. Lower fees at health centres might provide an incentive to deliver at the health centre rather than the hospital. Given the finding that 83 percent of the Pumwani clients rated the current fee as reasonable, there seems to be some room for a moderate increase.

Further understanding of the key factors that contribute to the clients' perception of quality for maternity services is required. We do not know if it is the doctor, theatre, or facility size that contribute to the image of good quality care. Within the small sample of twenty-six clients who had delivered at an NCC health centre, all of those at Bahati and Ngaira rated the services as "good". All of those at Langata rated the service "fair" but the main problem cited was poor food. Since the food is transported from Pumwani to Langata, it tends to arrive late and irregularly due to the existing transport constraints. A small kitchen at the health centre might make some contribution to the perceived quality. Given the importance of quality to client choice, this area merits further investigation, as part of an effort to shift demand to underutilised facilities.

The issue of home deliveries in Nairobi was not investigated in this facility-based study. Since only 13.4 percent of the Pumwani clients reported incomes that fell into the low income bracket, NCC maternity facilities may not be serving the population of the pregnant women who are poor.

In reviewing NCC division-level reports, we note that in July 1988, Division I reported that 11 percent of women bringing their newborns to the facility had delivered at home. The figure for Division II was 13 percent (April 1988). This very limited data suggest that a large number of women in Nairobi deliver at home. This issue merits further study. Since low income women are usually at higher risk of complication associated with delivery, there is need to ensure that they receive adequate maternity care.

To improve the quality of home deliveries one option would be to revive the system of private midwives. A second option would be to train and register traditional birth attendants. A third option would be to

improve the mechanism for assessing ability to pay and waive the fee at NCC facilities for the poor. All of these should be considered once a more in-depth investigation confirmed the high incidence of home deliveries in Nairobi.

3.2.5 Findings: Promotive Services

Volume of services data on preventive services was collected primarily at NCC facilities. Private facilities provide very few promotive services, and NCC provides the bulk of preventive care for Nairobi residents. In general, low rates of utilisation of preventive services were evident at the NCC facilities in the sample. Annual and average daily attendance rates for 1987, are presented in Table 3.10.

TABLE 3.10

NCC VOLUME OF PREVENTIVE SERVICES (1987)

		Ante-Natal & Post-Natal		Child Health		Family Planning	
Category	Facility	Per Year	Per Day	Per Year	Per Day	Per Year	Per Day
Health Centres	Langata	12,221	49	13,470	54	3,747	15
	Ngaira	7,333	29	10,072	40	4,079	16
	Bahati	3,028	12	5,708	23	1,347	5
Sub-Health Centre	Pumwani	3,990	16	6,397	26	1,594	6
	Jericho	2,812	11	7,403	30	1,559	6
	Kaloleni	1,324	45	4,449	18	656	3
	Dandora I	16,702	67	42,773	172	5,040	20
Clinics	Makongeni	4,581	18	6,797	27	1,065	4
	Pangani	7,803	31	12,520	50	2,784	11
	Maringo	1,912	8	5,612	23	1,395	6
TOTAL		**61,706**	**286**	**115,201**	**463**	**23,266**	**92**

The highest volume of services was found at Dandora I sub-health centre and Langata health centre. The first is serving a very densely populated catchment area and in 1988, a second facility was opened at Dandora II. Langata health centre may draw a larger number of clients Because it is relatively far from other health facilities and readily accessible to Kibera residents.

In general, the clinics experience the lowest volume of services. Volume of services is most evenly distributed across the three types of facilities for child health visits. Given how often the clients of preventive services mentioned the improvement of the drug supply at their facilities, there is some suggestion that the provision of integrated services at the clinics might help redistribute demand.

As mentioned above, the overriding reason for choosing a facility by clients of preventive services was proximity to the house. It was the principle criterion for 75 percent of the clients. This finding suggests the need for more outreach programs to supplement facility-based services. It would not be cost-effective to open many more clinics when utilisation levels are so low. Outreach programs could promote existing services in a larger geographic area, as well as bring those services into a greater number of currently underserved communities. Community-based health care programs could provide a model for some of the changes.

The priority improvements listed by the clients of preventive services also provide some guidance as to the changes that could increase utilisation. As mentioned above, drug supply and reduced waiting time were commonly cited. In light of the low levels of utilisation, long waiting time would seem avoidable with some adjustments in operations. NCC facilities are crowded for ante-natal and child health care between 9 and 11 am By 11:30, almost all clients have been served. One option would be to divide the clients into two groups and assign a scheduled visit time to each group. One could come at 9 am and the other at 11 am Since the preferred time of visit of the clients was early morning for 75-80 percent, and late morning for 10-12 percent, such a schedule may prove acceptable to the majority.

Clients lack awareness of the services available at the facilities that they are currently using, which could also contribute to low utilisation. Curative clients were asked a series of questions to assess their knowledge of family planning, ante-natal care, and immunisations, and where are they available. Among the curative clients, 16 percent claimed not to know what family planning was, and 54 percent did not know if it was available at the facility where they were interviewed. Among the curative clients attending NCC facilities that offer family planning services, 57 percent did not know that that service was available. Of those who said it was not available at a facility, 37 percent did not know where to seek family planning service. At the two NCC dispensaries, Rhodes and Ngong, only 15 percent of the clients did not know about family planning, but 83 percent did not know whether it was available at the dispensary. Comparable results were found in relation to the other preventive services.

The findings present a strong argument for the need for a campaign to educate potential clients on the services that are offered at the might increase demand for preventive services.

3.2.6 Options

a) To change utilisation patterns, the following options should be considered:

1) Use planning capability to determine locations of facilities, schedules of services.

2) Adjust operations of facilities to relieve congestion/ underutilisation, e.g. open residential facilities in evenings; avail all services when facility is open such as drug supply for

24-hour facilities; establish convenient locations and schedules for promotive services; and establish outreach preventive services in communities without facilities.

3) Use appointment system and hours of service to relieve congestion and underutilisation.

4) Provide integrated services (preventive, promotive, curative).

5) Introduce fees which create an incentive to alter utilisation patterns.

3.3 WILLINGNESS TO PAY

Several questions were included in the client survey to assess consumers' willingness to pay for health services. First we examined client practices to see if people do pay for health care. Among the curative clients at NCC or PMO facilities, 66 percent reported they had visited a facility that charges fees for service at some time. Of those, 80 percent said they did so rarely. The reasons for visits to facilities which charge fees included: consultation for illness (82%); drugs (40%); maternity services (4%); and laboratory or x-ray exams (3%).

Visits to traditional healers were also considered as an indication of willingness to pay. Only 11 percent of the curative clients claimed to have ever visited a traditional healer. It is possible that this figure is an underestimate since clients might be reluctant to admit using traditional medicine, especially when interviewed at modern health facilities. A greater frequency of crossing between the public and traditional sector is suggested by the traditional healer client survey (see Appendix F). The courses of action followed in seeking care also revealed a willingness to pay. Among the clients of curative services, 22 percent first went to the shop or pharmacy.

Direct questions about client willingness to pay for a visit were also asked (see Table 3.11). Overall, sixty-two percent reported they were willing to pay to ensure better services at the facility where they were interviewed. At public outpatient facilities, the figure was 64 percent; facilities at dispensaries (74%) were most willing to pay for a visit. Sixty-five percent of those at clinics and 58 percent at health or sub-health centres were willing to pay.

TABLE 3.11

WILLINGNESS TO PAY FOR A VISIT BY TYPE OF FACILITY

	Percent of Clients (n)			
Response	NCC	PMO	Non-governmental*	Total
Yes	62.6% (450)	59.5% (50)	59.5% (25)	38% (320)
No	37.4% (269)	40.5% (34)	40.5% (17)	62% (525)
TOTAL	**719**	**84**	**42**	**845**

All clients were asked if they thought outpatients pay visit charges to raise funds for drugs and supplies for the facility.

Table 3.12 indicates that fifty-two percent of all respondents answered affirmatively. At public facilities, 50 percent of the clients were willing to pay. At company facilities, the figure was 31 percent.

Seventy-three percent of outpatients at the private mission-based facilities that charge agreed that outpatients should pay for visits to raise funds for drugs and supplies. At the public facilities, the indicated willingness to pay could be tapped by introducing charges for drugs and supplies.

Within the public facilities, clients of clinics were most willing to pay a fee for drugs and supplies (66%). The comparable figure for the dispensary clients was 56 percent, and for clients of health centres and sub-health centres, 47 percent. The fact that clinic clients were most willing to pay even though clinics do not provide many drugs suggests that there may be an interest in providing more curative care at those facilities.

Willingness to pay a fee for drugs and supplies showed a slight negative relationship with income. Sixty-four percent of lower income clients were willing to pay, while 50-55 percent of the middle and upper income clients were willing to pay.

TABLE 3.12

WILLINGNESS TO PAY TO IMPROVE DRUGS/SUPPLIES BY FACILITY

	Percentage (n) of Clients			
Response	NCC	PMO	Non-government	Total
Yes	51.9% (924)	47.9% (45)	58.2% (135)	855
No	41.0% (730)	45.7% (43)	35.3% (82)	1,104
Don't Know	7.2% (128)	6.4% (6)	6.5% (15)	149
TOTAL	**1,782**	**94**	**232**	**2,108**

3.4 DEMAND ANALYSIS

This section presents the results of the estimates for and analysis of the demand functions for the services of the sample facilities. The principal objective was to investigate the main factors that influence the quantity demanded of curative outpatient services in Nairobi. Of particular interest is the effect of fees on the number of visits to health facilities when taking into account factors such as income, quality of services, etc. The demand analysis undertaken uses the same data form the survey of patterns of utilisation.

Not all factors that influence the demand for curative outpatient services are shown in the results. The estimated demand function is:

$$DV = 2.4593 - 0.4779\ ED + 0.0277AG - 0.00006MC$$

$$(1.9) \qquad (1.7) \qquad (1)$$

$R = 0.054$

$DF = 77$

Where:

DV = quantity demanded of curative outpatient services measure in visits made to the facility over the last three months,
ED = level of education attained, measured in years
AG = age of respondent in years,
MC = money costs in Kshs. It is the sum of cost of travel to the facility and fees charged at the facility.
The t-ratios are in parenthesis.

The coefficients of the explanatory variables in Equation (1) have the expected signs (see Appendix D) The coefficients for education and age are significant at high levels of confidence. The negative coefficient for money costs is consistent with the general belief that fees would discourage utilisation. However, it should be noted from Equation (1) that the negative effect of fees on the demand for health services is very small and statistically weak.

NAS Team calculations indicate that the elasticity of demand with respect to money costs is about 0.04. This means that a 100 percent increase in money costs (i.e., a doubling of money costs) would cause demand to fall by only four percent. Given these estimations, the demand for curative outpatient services would appear very inelastic with respect to money costs. This result implies that the introduction of fees in the facilities would decrease utilisation very little. Therefore, fees would generate revenue without significantly reducing utilisation of health services and suggest considerable scope for generating revenues for health service through cost sharing arrangements. These results are tentative, and require further research investigations.

Equity issues need to be considered in conjunction with introducing user charges at facilities. Consideration of equity issues was beyond the scope of this study. Nevertheless, the government must take account of them. Policies on cost sharing, however, apply to services other than health. It cannot be the task of the public health, in this instance, to address the equity issues on its own. National policies are required regarding what mechanisms will be used to determine economic indigency and what type and amount of services these individuals will be entitled to with charge.

Current governmental policy is to use tax revenue to provide free medical care to all Kenyans, irrespective of income class. Low income households can obtain free medical care from public health facilities (NCC and PMO). Employed individuals, however, frequently, have access to good health services through their employers. Many of these employees are government or parastatal organisations. If user fees were introduced at public health facilities, the burden will fall entirely on the low-income and poor, since the high-income individuals will continue to enjoy free health care services from employers. When the employer is the government, tax revenue will be used to provide free medical coverage to high-income individuals while the low-income individuals (who also generate national revenue and pay taxes) will have to pay for health services.

The case of NCC workers is illustrative. The salaried staff (i.e., the higher-income) are eligible for unlimited medical cover for themselves and up to Kshs. 10,000 per annum for their families. On the other hand, the wage earners (i.e., the low-income) do not have any medical coverage and must obtain and pay for their health care services. If user fees are introduced at public facilities, the non-salaried staff of NCC will bear the full burden while the salaried cadres bear little or no burden.

Thus user charges have serious equity implications: they make the poor worse-off relative to the higher income individuals. Viewed this way, use fees are very regressive and the incidence of their burden is inequitable.

3.5 THE PRIVATE DOCTOR SECTOR IN NAIROBI

3.5.1 Private Clinics: Evolution and Structure

This chapter describes private doctor practice in Nairobi. Very little is known about the private doctor's practice in Kenya. It consists of private medical doctors, operating alone or with one or more partners, on a full or part time basis. They provide curative outpatient services and ambulatory surgery in moderate clinics, and admission and treatment of patients in private hospitals.

The data on which the information in this chapter is based was collected through questionnaires that were mailed to private doctors in Nairobi in May, 1988. The doctors were requested to fill the questionnaires and return them to the research team by June 1988. Of 400 questionnaires that were mailed, 64 (16%) of them were completed and returned within the specified time period. The analysis that follows proceeds on the assumption that the doctors that returned questionnaires are a representative sample of the private clinics in Nairobi.

a) Growth of Private Clinics in Nairobi, 1942-1988

The private clinic sector in Nairobi has grown from a small sector in the 1940s and 1950s, to a large competitive sector that is now serving at least 144,000 patients per month. An average private clinic serves about 360 patients per month. If there are 400 private clinics in Nairobi, the entire private clinic sector may be serving up to 144,000 patients per month.

A typical private clinic in Nairobi is owned and operated by a single medical doctor or (in about 22% of the cases) by a medical doctor with 1-2 partners. The questionnaires that were returned indicate that over the period between 1942 and 1963 (a time span of approximately 21 years), the private clinic practice Nairobi remained quite small. However, after independence, the sector expanded rapidly. Between 1964 and 1975, private practice grew at an annual rate of 24 percent. This rate declined to about eight percent between 1976 and 1988. This information is depicted in Table 3.13.

b) Characteristics of Doctors in Private Practice

Approximately 64 percent of the private clinics presently in Nairobi are owned by Kenyans, 25 percent by British citizens, and 11 percent by doctors of other nationalities. The majority of doctors in private practice in Nairobi are between 40 and 60 years; their mean age is 47 years and the most frequent age bracket is 41-50 years (Table 3.14).

About 78 percent of these doctors concentrate exclusively on their private practice. Only 22 percent have employment outside their clinics. The bulk of the doctors currently in private practice in Nairobi were previously employed by the Ministry of Health (Table 3.15).

TABLE 3.13

GROWTH OF THE PRIVATE CLINIC SECTOR IN NAIROBI, 1942-1988

Period	Number of Clinics	Percent of Total	Annual growth rate (%)
1942-1952	2	3.3	7.1
1953-1963	5	8.2	
1964-1975	24	39.3	24.0
1976-1988	30	49.2	8.0
TOTAL	**61**	**100.0**	**13.0**

TABLE 3.14

AGE OF PRIVATE DOCTORS IN NAIROBI

Age Bracket	Percent of Doctors
31 - 40	20.6
41 - 50	46.0
51 - 60	25.4
61 - 75	8.0
TOTAL	**100.0**

(Sample size - 63)

TABLE 3.15

PREVIOUS EMPLOYERS OF THE PRIVATE DOCTORS IN NAIROBI

Previous Employer	Percent of Doctors
Ministry of Health	51.6
University of Nairobi	9.7
None	8.1
Nairobi City Commission	6.5
Employer was outside Kenya	6.5
Other	19.6
TOTAL	**100.0**

(Sample Size - 62)

Source: Survey data

In summary, the private doctor practice in Nairobi is dominated by middle-aged doctors, must of whom are Kenyans. There is need to determine the effect that the rapid expansion of the private private in Nairobi since independence has had on the structure of the sector. It is important to determine, for example, whether expansion has made private practice more competitive and what has happened to the costs. Twenty years from now a large proportion of the private doctors will be nearing retirement. Government should have a policy of replacing retired doctors in the private sector to ensure that medical care in this sector is not disrupted by the natural retirement of private doctors.

c) Health Personnel and Support Services in Private Clinics

The number of employees in private clinics is rather small ranging from 1-2 persons per clinic (Table 3.16).

d) Specialisation of Private Doctors

The General Practitioner (GP) is the single most important category of private doctors in Nairobi. Approximately 39 percent of private doctors in Nairobi are GPs. These doctors deal with the common health problems in the city: upper respiratory diseases, malaria, skin diseases and family health problems. These problems are also the focus of the public health sector. Table 3.17 shows specialisation of private doctors in Nairobi. Notice that the private clinic sector provides a wide range of medical and health services.

Only 62 percent of private clinics have diagnostic support services such as laboratories, x-rays, theatre and pharmacies. Table 3.18 shows the types of support services reported by private doctors.

In summary, the majority of private clinics in Nairobi do not have access to diagnostic equipment. Such clinics must therefore base much of their diagnosis on patient history. The price of support services in the private clinic sector is likely to be quite high given the relative shortage of these services. There is need to explore ways of expanding the supply of support services in the private doctor sector. Wage employment in the private clinics can only be increased by expanding the number of private clinics.

TABLE 3.16

PERSONNEL IN PRIVATE CLINICS

Type of Personnel	Average Number Per Clinic	Number of Clinics
Registered Nurses	1.4	9
Pharmacists	1.0	2
Enrolled nurses	2.0	4
Laboratory Technologists	1.6	8
Radiologists	2.0	2
Record clerks	1.3	20
Drivers	1.1	7
Cleaners	1.1	37
Laboratory Technicians	1.5	2
Other	1.5	24

TABLE 3.17

SPECIALISATION OF PRIVATE DOCTORS

Area of Specialisation	Percent of Doctors
General practice	39.1
Dental care	10.9
Pediatrics	7.8
Surgery	6.3
Medicine	6.3
Obstetrics/Gynecology	6.3
Eye	3.1
Anesthesia	3.1
Radiology	1.6
Other	15.5
TOTAL PERCENTAGE	**100.0**

(Sample size - 64)

TABLE 3.18

SUPPORT SERVICES IN PRIVATE CLINICS

Type of Support Service	Percent of Clinics
Laboratory	26.7
X-ray	15.0
Pharmacy	16.7
Ambulance	1.7
Theatre	1.7
None	38.2
TOTAL PERCENTAGE	**100.0**
(Sample size - 60)	

Source: Survey Data

3.5.2 Delivery Of Clinic Services

The quantity of health service supplied by the private doctor sector in Nairobi, the profitability of these services, and the pattern of their utilisation, are issues about which virtually nothing is known at the moment. Consequently, policies for managing demand and supply of the private doctor services cannot be designed with much confidence. This section provides information that policy makers can use to intervene in the private clinic sector in a manner that would make its activities serve best the public interest of better health for all.

a) Service Delivery

On average, private clinics in Nairobi provide medical care to approximately 360 patients per month (Table 3.19). Most private clinics treat approximately 150 to 500 patients. Only a few clinics serve over 800 patients per month. But a significant number of clinics, about 20 percent, cater to less than 150 patients per month. Thus, there is a wide variation in the number of patients seen by a private clinic every month.

Private clinics are not able to deal effectively with all the health problems brought to them. About 86 percent of private clinics refer patients to other health facilities for follow-up management, or for specialised treatment. The health problems commonly referred by private clinics to other clinics are as shown in Table 3.20.

The reason why most clinics refer patients is because they are not specialists in patients' problems. This is consistent with the earlier finding that a typical private doctor is a GP. Table 3.21 shows that lack of specialisation is the dominant reasons for patient referrals by private clinics.

Private doctors refer patients to both government and private hospitals or to consultant clinics. As can be seen from the Table 3.22, a large proportion of private doctors in Nairobi refer patients to government hospitals. With the closure of adult outpatient departments at Kenyatta

National Hospital, where the many patients can be presumed to have been referred, the pattern of referrals for the private clinic sector should be very different from the one shown in Table 3.22.

Private clinics receive patients referred both from outside and from within the private health sector. About 58 percent of private clinics receive referred patients.

An important result that follows from the referral pattern just discussed is that the private clinics and public health institutions in Nairobi are interdependent. These two health subsectors assist one another in dealing with patient's problems. The remarkable aspect of this interdependence is that it is not planned. It is dictated by the prevailing health care technology, and by the comparative advantages of the two sectors in dealing with health problems (as perceived both by doctors and by patients). A given health problem can shift back and forth between private clinics and public health institutions due to differentials in health care technologies and to differences in the perceived efficacies of medicines of the two sectors. It is these differences that are the source of interdependence of the two subsectors.

TABLE 3.19

PATIENTS SEEN BY A PRIVATE CLINIC PER MONTH

Number of Patients Per Month	Percent of Doctors Reporting This Number
3 - 130	21.4
150 - 300	30.4
350 - 500	26.8
850 - 1,050	7.1
TOTAL PERCENTAGE	**100.0**
Average per Month	359

(Sample size - 56)

TABLE 3.20

HEALTH PROBLEMS REFERRED BY DOCTORS

Type of Health Problem	Percent of Doctors Referring the Problem	Sample Size
Maternity	60.4	53
Surgical	83.0	53
TB/Chest	47.2	53
STD	18.9	53
Mental	60.4	53
Completed Pregnancy	44.2	52
Other	30.8	52

TABLE 3.21

REASON PATIENTS FOR REFERRAL BY PRIVATE DOCTORS

Reason for Referral	Percent of Doctors Giving This Reason
Lack of Specialisation	60.4
Lack of Equipment	26.9
Lack of Laboratory Facilities	19.2
Lack of Inpatient Facilities	34.6
Other	34.6

(Sample Size - 52)

TABLE 3.22

PATIENTS REFERRALS BY PRIVATE CLINICS

Place of Referral	Percent of Doctors	Sample Size
Government Hospital	75.0	54
Government Health Centre	13.5	52
Government Dispensary/Clinic	5.8	52
City Commission Hospital	15.4	52
City Commission Health Centre	9.6	52
City Commission Dispensary	7.7	52
Private Hospital/Nursing Home	72.2	54
Private Health Centre	9.3	54
Private consultant Clinic	63.6	55
Religious Hospital	13.0	54
Religious Health Centre	5.6	54
Religious Dispensary/Clinic	3.7	54

Source: Survey Data

b) Constraints To Service Provision

Medical services in private clinics are constrained by two sets of factors: 1) restrictive entry of doctors into the private sector, and 2) constraints to expansion of medical services after doctors have entered private sector. The factors restricting entry into private practice are professional and financial in nature. The professional inhibitions have to do with the long training required of doctors, and the tedious licensing procedures. The financial constraint concerns the fairly large start-up capital that doctors acquire before they can set up private practice. The doctors reported a start-up capital ranging from Kshs. 7,000 to Kshs. 300,000. The average start-up capital for the 64 doctors who returned the questionnaires was Kshs. 57,322.90. This is a large sum of money that many new doctors would have difficulty raising. The doctors who returned the questionnaires stated that they raised start-up capital through loans, personal savings, or with the help of family resources.

The factors that restrict expansion of service after entry include lack of support services, and shortages of certain categories of health personnel. The impacts of these constraints were investigated using the analytical concept of a production function. Regression of health services delivered per month (H) on medical personnel (L) and support services (D) revealed that both of these factors are important determinants of medical services provided by private clinics. The regression results are in equation (1). Note that D = 1 if a clinic does not have support services and zero otherwise. (The t-ratios are in parentheses).

$$H = 227.0 + \underset{(3.8)}{59.0\,L} - \underset{(2.6)}{185.0\,D}$$

Equation (1):

$R(2) = 0.18,$
$DF = 53$

Where:

H = number of patients treated per month.
L = medical personnel
D = support services

Equation (1) shows that an increase in medical personnel and support services in private clinics would lead to an expansion of medical services in that subsector. More specifically, an additional medical staff in the clinic sector would increase the number of patients served per month by 59. Also, as we move from clinics with support services to those without, the monthly number of patients served drops by 185.

However, a more disaggregated regression equation shows that withdrawal of some categories of health personnel from the private sector would, in fact, increase medical services in that sector. That is, some categories of health personnel in private clinics are oversupplied. Equation (2) shows relative contributions of different categories of health personnel in private clinics.

Equation (2):

$$\begin{aligned} H = {} & 117 + \underset{(3.8)}{} \; 370\,L1 + \underset{(3.9)}{} \; 194\,L2 + \underset{(4.0)}{} \; 224\,L3 - \underset{(3.0)}{} \; 167\,L4 \\ & + \underset{(2.5)}{} \; 187\,L5 - \underset{(1.8)}{} \; 140\,L6 + \underset{(1.5)}{} \; 221\,L7 + \underset{(1.1)}{} \; 56\,L8 \\ & - \underset{(0.90)}{} \; 47\,L9 + \underset{(0.37)}{} \; 35\,L10 + \underset{(0.39)}{} \; 15.5\,L11 \end{aligned}$$

$R(2) = 0.51$
$DF = 44$

Where:

L1 = Laboratory technicians
L2 = Record clerks
L3 = Cleaners
L4 = Registered Nurses
L5 = Radiologists
L6 = Drivers
L7 = Pharmacists
L8 = Enrolled Nurses
L9 = Laboratory technologists
L10 = Medical Doctors
L11 = Other personnel

According to Equation (2), registered nurses are oversupplied in private clinics and do not represent constraint in the provision medical care in private clinics. (However, it should be noted in Section 3.6 that registered nurses are not over supplied in private facilities.) The most important constraint on medical care in this sector are the laboratory technicians, cleaners, record clerks, radiologists, and drivers. Equation (2) brings out the importance of complementarity of medical and non-medical personnel in the provision of health services. It is important to point out that the regression results shown in Equations (1) and (2) are only indicative of the technical relationships in the delivery of health services in private clinics.

c) Alleviation of Constraints

A question of policy interest at this point is: how can the factors that constrain expansion of health services in private clinics be removed? Consider, for example, the entry restrictions. How can these be overcome? The two important barriers to entry into private practice are the licensure requirements and lack of start-up capital. Liberalisation of licensing requirements while increasing the supply of services would pose grave danger to service quality. This is because unqualified doctors would be permitted to set-up private clinics. It appears that the barrier that should be the target of policy is the start-up capital. Doctors who qualify for private practice should be assisted through appropriate loan schemes. Support services should also be targets of public policy. Ways can be designed to assist private doctors in establishing support services for their clinics. Regression results indicate that redistribution of medical personnel, especially registered nurses from private clinics to public clinics, would increase the amount of medical services in Nairobi. The redistribution can be achieved in two ways. One, by fixing a wage floor or ceiling for registered nurses in private clinic sector. Equivalently, a tax can be levied on private clinics in direct proportion to the number of registered nurses the clinics have on their payroll. The second method of shifting registered nurses from the private sector clinics is to improve the working conditions of this category of personnel in the public sector. Wage controls, although easier to implement, would lead to undesirable parallel market practices.

3.5.3 Profitability of Private Clinics

The existence of unsubsidised private clinics in Nairobi is sufficient evidence that these clinics are profitable, otherwise no one would set them up. The crucial questions, however, are:

1) How profitable are private clinics?

2) Given the scarcity of public funds, how can the government use some of the profits of private clinics to promote the social objective of better health for all?

It has been asserted that private doctors in Kenya make five to ten times the income of doctors in the public service (Ministry of Health 1986). Our data provide strong support for this assertion.

The profit (P) of a private clinic can be derived from the following expression:

$$P = H.F - W - R - M \qquad (3)$$

Where:

P = Profits of a private clinic per month
H = Number of patients served by a private clinic per month
F = Fee charged per visit
W = Monthly wage bill (excluding doctor's salary)
R = Monthly rent (excluding depreciation and other overhead costs)
M = Monthly cost of medicines and drugs. (M is analogous to cost of materials in a private firm).

Expression (3) is the standard profit equation for a firm whose motive is to make profits, and is therefore fully applicable to a private clinic.

To obtain P, (i.e., the monthly profit of a typical clinic) one only needs to plug average values of H, F, W, R and M into Equation (3). The sample means for H, F, W, R, and M are 359, 113, 6,933 4,330, and 5,414 respectively. Thus, P = Kshs. 23,890 per month. Much of this profit is not taxed. Assuming a net after tax wage income of Kshs 4,000 to 5,000 for doctors in the public sector, it can be seen that an average medical doctor in private practice earns at least four to five times the income of his/her counterpart in the public sector. Since there are many cost items excluded from the equation, these results should be interpreted with caution.

Given that the average amount of investment required to start up a private clinic is about Kshs. 57,000 it can be seen that the annual rate of return on capital invested in private clinics is very high. This rate of return works out to be approximately 400 percent per annum. Thus, after entering the market for clinic services, a doctor who is able to generate an average volume of patients can recoup his initial investment within a very short period.

The profitability results of private clinics have two clear policy implications. First, the problem of inability to raise start-up capital that many doctors now face when they attempt to enter the market for clinic services can easily be overcome by establishing a special loan scheme for doctors embarking on private practice. The doctors would face no problem at all in repaying the loans obtained under the scheme. Second, the government can raise substantial revenue from private clinics by taxing of their profits. Clinic taxes would not lead to a decline in clinic services if they are in a lump sum form. This is because private doctors would act as if their start-up capital has increased. Since start-up capital is recouped within a short period, clinic taxes, unless they are astronomically high, would affect the supply of private clinic services very little. The best way to impose such taxes is to increase licence or registration fees for private clinics.

It is important to point out that a government loan scheme for private doctors could do more to increase health services coverage in the city than what the public expenditure of the same amount (on government health facilities) could do. The foregoing analysis indicates that the private clinics in Nairobi are an untapped resource in as much as health services coverage in city is concerned. It also shows that the rate of profits in private clinics accounts to a large extent for the tendency of doctors in Nairobi to choose private practice over public service. It has been estimated that approximately 60 percent of doctors in Kenya are in the private sector (Mwabu, 1986). Given the high profitability of private clinics, there is very little the government can do to retain doctors in public health sector, or to attract those already in private practice into public services.

3.5.4 Service Utilisation

The services of private clinics are utilised by a cross-section of patients. Private clinics in Nairobi serve businessmen, professionals, informal sector operators, peasants, and the unemployed. They also treat patients of all types of socioeconomic backgrounds, Tables 3.23 and 3.24 show categories of patients treated by private clinics, including their economic backgrounds.

In order to use services of private clinics, patients pay (on the average) Kshs. 113.00 per visit. Contrary to popular belief, private clinics charge very moderate fees for their services. The majority of private clinics (about 66%), charge patients a fee of Kshs. 25 - 100 per visit. The highest fee charged was Kshs. 300. This is far below the maximum fees of traditional healers. Table 3.25 shows the fee structure in private clinics.

TABLE 3.23

CATEGORIES OF PATIENTS TREATED BY PRIVATE CLINICS

Category of Patients	Percentage of Doctors Reporting to Treat This Category
Businessmen	75.0
Professionals	76.7
Semi-skilled workers	85.0
Unskilled workers	60.0
Peasants	33.3
Small-scale businessmen/informal sector operators	70.0
Unemployed	36.0

(Sample Size - 62)

TABLE 3.24

PATIENT'S ECONOMIC BACKGROUND

Income Class	Percent of Doctors Reporting to Treat These Patients
Upper income class	1.7
Middle income class	11.9
Low income class	14.0
All income classes	57.1
Upper plus low income classes	8.5
Middle plus low income class	6.8

(Sample size - 62)

TABLE 3.25

FEES PER VISIT IN PRIVATE CLINICS

Fee Per Visit	Percent of Doctors Who Charge this Fee
25 - 60	24.5
70 - 100	41.5
120 - 150	13.2
175 - 200	7.6
225 - 300	7.6
TOTAL PERCENTAGE	**100.0**

Average Fee Charged Per Visit Kshs. 112.70

(Sample Size - 53)

TABLE 3.26

METHODS USED BY PATIENTS TO PAY FOR TREATMENTS

Method of Payment	Percent of Doctors Accepting This Method
Cash from pocket subject to refund by Government, employer, insurance etc.	87.4
Cash from pocket without future refund	72.6
Invoicing employer	68.3
Treated on credit and billed later	71.4
Other	95.0

(Sample size - 63)

Source: Survey Data

Patients use a variety of methods to pay for services at private clinics. As can be seen from Table 3.26, payments referred by insurance, government or employers are important mechanisms for paying for health services in private clinics. Direct cash payments without future refunds also predominate.

A fundamental question at this point is: what extent do fees discourage utilisation of private clinics? Cost recovery in the public health sector cannot be meaningfully discussed without an answer to this question. The question can be answered by estimating demand functions for clinics services. Demand functions for clinic services show how quantities of clinic services that patients would like to use can change (increase or decrease), as the fees charged (increased or decreased) take into account income of patients, their illnesses, quality of services, and a list of other factors.

Only some of the determinants of demand were included in the estimated equations. The following are results of the estimated demand functions. (The t-ratios are in parenthesis).

$$(1) \quad HD = 332 + \underset{(20.5)}{0.0007A} - \underset{(5.2)}{1.03P}$$

$$R2 = 0.90$$

$$DF = 48$$

Where:

HD = Quantity of clinic services used per month (measured in visits per month)
A = Age of the clinic (i.e. the number of years the clinic has been in operation)
P = Fee charged per visit (in Kenya shillings)

The age of clinics captures the fact that utilisation of a clinic is affected by the information patients possess about that clinic. This information takes time to acquire. Alternatively, can be viewed as capturing the fact that a new clinic takes time to attract patients.

The regression esults shown in Equation (1) indicate that age of clinics and the fees they charge significantly influence utilisation of clinic services.

The coefficient of the age variable is very small but highly significant, indicating that new doctors take time to establish themselves in private practice. The coefficient of P, the fees charged by private clinics, shows that a fee increase of one shilling would reduce monthly visits to private clinics by one. The elasticity of clinic visits with respect to the fees charged (P) is 0.33. That is, a 10 percent increase in fees for example would reduce demand for clinic services by 3.3 percent. This indicates that utilisation of clinic services is not very sensitive to changes in costs of treatment. Price inelasticity of medical care has been the subject of much controversy in recent years (see for example Akin [1986, 1987], Gertler [1987]).

The data from private clinics in Nairobi give strong support to the stream of literature showing low price elasticities for medical services in developing countries. The regression results obtained with data on private clinics show that patients are more sensitive to fees on subsequent visits than to fees on first visits.

This information is contained in Expressions (2) and (3) below. (The t-ratios are in parentheses).

$$(2) \quad HD = 425.8 - \underset{(2.9)}{0.73}\ P1 \ , \ R(2) = 0.29$$

$$(3) \quad HD = 491. - \underset{(3.2)}{1.78}\ P2 \ , \ R(2) = 0.19$$

Where:

HD = Visits to private clinics per month
P1 = Fee charged for the first visit
P2 = Fee charged for the second visit

As can be seen, the coefficient of P2 is about two times the coefficient of P1, indicating that fees for subsequent visits have a bigger impact on demand than fees paid for the first consultation. This result suggests that fees for repeat visits under cost recovery programs should be lower than fees for the initial visits.

As one would expect, income has a significant effect on demand for clinic services. As income rises, the demand for clinic services also rises. Thus, other things being equal, high income households would use private clinics more than low income households.

Expression (4) below shows the effects of income and price on demand for clinic services.

$$HD = 242 + \underset{(2.2)}{79.5\ Y} - \underset{(3.0)}{0.72\ P}, \quad R(2) = 0.26$$

Where:

HD and P are defined as before and Y is dummy that takes a value of one if a patient belongs to upper income class and zero otherwise.

In summary, the responsiveness of demand for clinic services to the fee charged is very low - about 0.33. This means that a one percent charge in the fee charged, would change demand by 0.33 percent. For example, if the present average fee of about Kshs. 113 is increased by 10 percent to Kshs. 126.30, the monthly number of visits to private clinics would fall by 12 visits, (i.e., from 360 to 358 visits per month).

The private clinic sector serves about the some type of population as the public sector. The sector serves people of all categories and of all socioeconomic backgrounds. The health problems handled by private clinics are basically the same as those handled by public health facilities. Thus, it can be presumed that the own price elasticity of demand for medical care is the same in the two sectors. Consequently, cost recovery programs in the public sector would not significantly reduce demand for public health services, provided that the quality of these services is comparable to that of private services.

3.6 VOLUME OF SERVICES

3.6.1 Volume of General Outpatient Services

Of the 29 facilities in the main sample, data was collected from 20 which provide outpatient services. The remaining nine facilities either do not provide outpatient services or did not have service records available. Records at individual facilities and NCC divisional records of general outpatient care, family planning, well child care, and ante-natal care during 1987 were reviewed and abstracted. The volume of outpatient services provided by these 20 facilities during 1987 is shown in Table 3.27.

This table indicates that the 20 facilities provided almost one and a half million patient visits during 1987, inclusive of general curative outpatient and preventive/promotive (ante-natal, child health and family planning) care. Of these outpatient visits 84.5 percent were for general curative care, and 15.5 percent were for preventive and promotive care. Public facilities generally provided a much higher volume of services, with the mean volume per facility being four times higher for the public health centres, dispensaries and clinics than for their counterparts in the private sector.

The NAS Team estimated a total of 4,614,358 outpatient visits in 1987 (excluding private physician's offices) or an average of 3.6 visits per capita per year (using the 1987 population estimate for Nairobi at 1,288,442,). The sample of outpatient facilities for this study included 1,471,434 visits in 1987, representing perhaps 32 percent of the annual outpatient visits for the city.

Viewed system-wide, public and private facilities have similar numbers of physicians, clinical officers and registered nurses per facility. Public facilities have far more enrolled nurses and support staff per facility. (Table 3.28).

Seen another way, staffing determines the amount of time clinical staff are able to devote to patients. As the public facilities see five times more patients on the average than private facilities, the number of patients the clinical staff see are several times higher in these facilities. (Table 3.29).

TABLE 3.27

VOLUME OF OUTPATIENT SERVICES: 1987 ANNUAL

Facility Name	General Outpatient	Preventive/ Promotive	Total Visits
Bahati	101,741	10,083	111,824
B.A.T. Shauri Moyo	10,492	283	10,775
Central Bank Staff Clinic	25,780		25,780
Crescent Pumwani	8,304	91	8,395
Dandora 1	168,964	64,523	233,487
Jericho Sub Health Center	205,606	11,774	217,380
Kaloleni Sub Health Center	71,760	6,429	78,189
Kenya Breweries	44,224	23,774	67,998
Kenya Bus Services	21,855		21,855
Langata Health Center	92,637	29,438	122,075
Loco Dispensary	32,100		32,100
Makongeni		12,443	12,443
Maringo Clinic		8,919	8,919
Mary Immaculata Dispensary	20,036		20,036
Mbagathi	8,616		8,616
Ngaira Road	70,719	21,484	92,203
Ngong Road Dispensary	49,405		49,405
Pangani MCH/FP Clinic		23,107	23,107
Pumwani Sub Health Center	113,359	11,981	125,340
Rhodes	201,507		201,507
TOTAL	**1247,105**	**224,329**	**1,471,434**

Facility Type		General Outpatient	Preventive/ Promotive	Total Visits
PUBLIC	MINIMUM	32,100	6,429	8,919
	MAXIMUM	205,606	64,523	233,487
	RANGE	173,506	58,094	224,568
	N	10	10	13
	MEAN	110,780	20,018	100,614
PRIVATE	MINIMUM	8,304	91	8,395
	MAXIMUM	44,224	23,774	67,998
	RANGE	35,920	23,683	59,603
	N	7	3	7
	MEAN	19,901	8,049	23,351
TOTAL	MINIMUM	8,304	91	8,395
	MAXIMUM	205,606	64,523	233,487
	RANGE	197,302	64,432	225,092
	N	17	13	20
	MEAN	73,359	17,256	73,572

TABLE 3.28

OVERALL STAFFING PATTERN PER FACILITY

Cadre of Staff	Type of Facility Public	Private
No. of Physicians	1.0	0.8
No. of Clinical Officers	1.8	1.0
No. of Registered Nurses	2.2	2.3
No. of Enrolled Nurses	12.6	2.0
No. of Support Staff	11.3	3.7

TABLE 3.29

VISITS FOR EACH CADRE OF STAFF: 1987

Cadre of Staff	Type of Facility Public	Private
Visits per physician	214,423	39,577
Visits per clinical officer	81,749	32,691
Visits per clinical staff	59,185	17,903
Visits per registered nurse	65,399	23,351
Visits per enrolled nurse	8,662	13,621
Visits per auxiliary staff	7,649	8 603
TOTAL VISITS	**1,307,979**	**163,455**

Source: Survey Data

Assuming that each staff person worked 249 days during the year, eight hours per day, and 60 minutes per hour, the amount of time each clinical staff person would have per patient is approximately two minutes in the public facilities versus approximately seven minutes in the private facilities. Though the NAS team did not conduct a medical assessment of the quality of care in these facilities, the question of what level of diagnostic accuracy can be achieved in two minutes is unavoidable. Auxiliary personnel (registered and enrolled nurses) would be able to spend an average of sixteen minutes and fourteen minutes respectively per patient.

Presence or absence of clinical staff do not account for high utilisation at individual facilities. For example, Loco Dispensary is well staffed but has relatively low utilisation, due in part to the limited population which can utilise this facility. Both private and public facilities showed a wide variation of utilisation relative to clinical staff.

Of the total of one and a half million outpatient visits in the sample, fifteen percent of these visits were for promotive services compared to 85 percent for curative services. For those facilities providing a high volume of general outpatient services (over 50,000 per year), all but one (Rhodes) also provided a high volume of preventive services. Very few of the facilities with lower general outpatient utilisation offered preventive services. The availability of preventive services may make a facility a "more complete" provider and in turn affect the convenience and perception of quality by the client population. Preventive services alone do not draw sufficient clients to be cost-effective. This is discussed below in the section on preventive and promotive services.

3.6.2 Volume of Services by Diagnosis

a) Patterns and Volume

During the NAS baseline survey, interactive interviews with facility In-Charges were used to identify the major reasons for visits to curative outpatient facilities. These interviews represented perceptions of volume on the part of the provider, rather than the actual number of patient visits. Table 3.30 indicates major reasons for visits, according to providers.

TABLE 3.30

MAJOR REASONS FOR OUTPATIENT VISITS AS REPORTED BY IN-CHARGES

1. Upper respiratory infections
2. Diarrhea
3. Malaria
4. Accidents and injuries
5. Immunization
6. Family planning
7. Ante-natal care
8. Post-natal care
9. Mental health
10. Infertility

As part of this investigation of the main study, nurse enumerators visited the 31 facilities in the sample. To review patient records, they randomly selected groups of 100 patient cards and tallied diagnoses by category. A total of 7,450 patient records were reviewed at 19 facilities, in two stages of sampling. The five main reasons for general outpatient visits reported by the In-Charges (upper respiratory tract infection, diarrheal diseases, malaria, accidents and mental illness), appeared as the primary diagnosis on a total of only 23.8 percent of the patient records in the first sample. This is much lower than would be expected for the five major diagnostic categories. Further analysis during the second sampling stages revealed that this was a case of under-reporting. Twenty-five percent of patient records had no diagnosis, and an additional 7.9 percent had an illegible diagnosis. Therefore, about one-third of all patient records provided no usable diagnosis.

Mental health, though reported to be a major reason for utilisation during the In-Charge interviews, appeared on an insignificant number of records (less than 1%) as a diagnosis. Sexually transmitted diseases (STDs) did prove to be a major reason for utilisation. STDs were not

included in subsequent analyses however, as this arose late in the data design and collection process. Data from the 19 facilities were updated and adjusted in Table 3.31.

To permit the use of patient records in estimations of the proportionate mix of services, the same proportionate distribution of diagnoses is assumed for those visits without diagnostic information as for records with diagnostic information. This assumption permits the use of the available diagnoses as indicators of all diagnoses. Cost estimates are based on these four main diagnostic groups.

A separate sample of 1,174 patient records were reviewed and abstracted in 21 facilities, including 538 from NCC, 100 from PMO and 536 from non-government facilities to identify inputs such as investigations, laboratory examinations, medications and procedures. At these facilities, the distribution of visits for the four major illness categories is provided in Table 3.32.

TABLE 3.31

MAJOR DIAGNOSIS INDICATED ON PATIENT RECORDS

Diagnostic Category	Percent of Diagnosis	Cumulative Percent of Diagnoses
URTI	30.1	30.1
Diarrheal Diseases	13.7	43.8
Malaria	12.0	55.8
Accidents	9.3	65.1
STD	6.6	71.7
Other	28.3	100.0

TABLE 3.32

PERCENTAGE OF VISITS AMONG FOUR MAIN DIAGNOSTIC GROUPS

Diagnostic Category	Type of Facility		
	NCC	PMO	NGO
URTI	52.4	24.0	43.7
Malaria	13.0	27.0	26.1
Diarrheal Diseases	15.2	24.0	17.3
Accidents	19.4	25.0	12.9
TOTAL	100.0	100.0	100.0

Source: Survey Data

Comparing fee for service facilities and free service facilities in the private sector, there were no significant differences in the mix of services. This is not conclusive however, due to the small size of the sample of non-charging, non-governmental facilities.

Overall, 68 percent of patients had only one visit per illness. However, NCC facilities have a significantly higher utilisation for follow-up visits. Only one percent of patients at PMO and non-government, facilities had more than two visits per illness episode, while 13.6 percent of all patients seen at NCC facilities returned more than two times per illness. While drugs were prescribed or given out an average of 1.7 times per visit, it is evident that patients received very few laboratory examinations for confirming diagnoses.

URTI was the major reason for patient visits overall (Table 3.32). These patients tended to be young. Of the 498 patients visiting for URTI, half were under five years of age and 65 percent were under 15. Table 3.33 shows some indicators of patient management from the sample.

TABLE 3.33

PATTERNS OF PATIENT MANAGEMENT

Percentage of Patients	URTI	Malaria	Diagnostic Diseases	Accidents
Diagnostic Examinations:				
X-Ray	0.8	0.5	0.6	2.2
Sputum exams	0.0	0.0	0.0	0.0
Blood for MPS		8.2	1.7	
Hb.	0.4	1.4		
Stool for ova and cyst	0.4	0.5	6.3	
Other examinations	0.6	0.5	1.1	0.5
Medications and Treatment				
Class I Antibiotics	77.7	32.5	47.4	58.5
Class II Antibiotics	4.6	1.4	1.7	12.0
Antihistamines	27.5	12.9	4.0	1.1
Cough Mixture	57.0	10.5	7.4	0.5
Fansizar	0.4	7.7	0.6	
Chloroquine	6.9	72.2	6.9	0.0
Camoquine	0.4	11.5	1.1	
Antihistamines	12.9			
Cough Mixture	57.0	10.5	7.4	0.5
ORT	0.8	1.0	17.7	
Metronidazole	1.0	6.9		
Analgesics	66.1	64.1	31.4	51.1
Tetanus Toxoid	1.6			69.0
Vitamins	19.0	16.7	16.0	7.1
Other medications	20.7	29.2	47.4	23.1
Procedures				
Sutures/stitching	1.0			8.2
Wound dressing		67.4		
Other procedures	2.6	5.3	1.1	4.9
Average Visits per diagnosis.	1.6	1.6	1.3	1.6

b) Patient Management and Treatment Patterns

Malaria was the second major reason for patient visits overall, representing about 20 percent of the patients seen for the four main reasons. Only one in eleven (9%) patients with a diagnosis of malaria received a confirming diagnostic exam with their drugs. About 33 percent of all malaria patients received antibiotics in addition to malaria treatment, and two out of three received analgesics.

Patients with diarrheal diseases show a similar pattern of few diagnostic exams and frequent drug intervention. One-half received antibiotics. There is no supportive laboratory evidence indicating that this treatment protocol was necessary, as antibiotic treatment for diarrheal diseases is normally limited to infective enteric fevers (i.e. Shigella, Salmonella, Cholera, etc.), which are notifiable diseases. Anti-diarrheal mixtures were administered to or prescribed for one-third of all patients with diarrhea; one-third received analgesics and 16 percent received vitamins.

Accidents represented 17.1 percent of patient visits for the four major diagnostic groups at outpatient facilities. Public facilities had higher percentages (19.4% at NCC, 25.0% at PMO) than the private facilities (12.9%). Under this category, fractures, burns, cut wounds, puncture wounds and soft tissue injuries were counted.

Many patient records indicate that multiple prescriptions are issued or administered, which are not indicated by the diagnosis. For example, a patient presented for URTI receives chloroquine, though there is no diagnosis for malaria. This may be a result of weaknesses in the laboratory diagnosis system to confirm a diagnosis of malaria; or it may indicate a clinical assumption (appropriate or not). Similarly, one-third of all patients with a malaria diagnosis received Class I Antibiotics. These patterns indicate multiple prescriptions and treatment for illnesses not represented by the primary diagnosis.

The cost of treating for all suspected illnesses (false positives) may be more than the cost of confirming secondary diagnoses by laboratory tests. For purposes of costing a visit and course of treatment for URTI, however, the cost of the chloroquine is included for the calculation. Even though it is not part of the course of treatment for URTI it must be included as part of the total input for treating the patient diagnosed with URTI.

3.7 COST OF SERVICES AND FACILITIES

3.7.1 General Outpatient Services

As demonstrated above, the four major diagnoses on which this discussion is focused cover about two-thirds of all general outpatient services. The same four diagnoses form the basis for estimating costs of services. These costs of outpatient services are derived by combining utilisation data with detailed cost data to provide an estimate of the cost of the four main diagnostic groups.

Methodology for developing facility and staff costs is provided in Appendix E. Costs of drugs, laboratory exams and procedures were gathered from all facilities in the sample. Uniform selection of drugs is assumed such that if three possible courses of treatment for gonorrhea include:

(1) four mega-units aqueous penicillin + probenicid tablets three daily x 4/7;
(2) Cotrimozazole eight od x 3/7;
(3) Lideprin Forte four od x 3/7;

each of which is of comparable medical value, and if the patient record indicated that some Class 1 Antibiotic was prescribed, a single identical course of treatment using Class 1 Antibiotics is assumed for all facilities. Actual costs to each facility for treatment components are based on a review of procurement and purchasing records, from documents related to tendering of drugs and other supplies and from other sources of price and cost data provide by administrative personnel at the various facilities. The average costs for these inputs are shown in Table 3.34.

The average fixed cost of an outpatient visit is determined by dividing the total fixed cost of a facility (staff and other costs, excluding drugs) by the number of outpatient visits to that facility. An average staff time is assumed per visit. No attempt was made to allocate a higher proportion of staff time for any particular category of diagnostic services, as this would require an intensive time-based study and analysis. The cost estimate can be expressed as:

$$AVop = \frac{OC + OH + DC + PC}{TV},$$

Where:

AVop = Average cost per outpatient visit
OC = Operating costs (including salaries, vehicles and transport, non-pharmaceutical materials, and maintenance)
OH = Overhead costs (including administrative allocation, utilities)
DC = Drug costs (including costs of drugs and all other pharmaceutical inputs)
PC = Procedures costs (including all diagnostic procedures, laboratory tests, radiographs, and others)
TV = Total outpatient visits during the period of observation

Though estimates are based on data for four diagnostic categories, rather than on all services, these four represent the majority of costs for the facility. These estimates are therefore considered reliable.

For NCC health centres with maternity beds (Bahati, Langata and Ngaira), fixed costs were allocated to either outpatient or maternity services. This was done according to estimates of facility resources devoted to each (e.g., staff). Other costs (electricity, water, maintenance, etc.) were allocated based on the physical space used by these different units. The proportionate allocation of these costs are shown in Table 3.35.

Fixed costs (all costs excluding drugs) per visit vary greatly between facilities. Table 3.36 indicates costs for the NCC and non-governmental facilities in the sample. Table 3.37 indicates costs of NCC facilities alone. Table 3.38 indicates private facilities alone.

TABLE 3.34

AVERAGE COST OF DIAGNOSTIC AND THERAPEUTIC INPUTS (Kshs.)

Service Category Curative Outpatient Costs	Facility Type NCC	PMO	NGO
MEDICATIONS			
Antibiotics Class I	35.7	42.9	47.7
Antibiotics Class II	142.9	142.9	171.6
Vitamins	7.2	7.2	7.2
Analgesics	3.0	3.0	3.8
Chloroquine	2.0	2.0	2.0
Cough Mixture	6.0	6.0	3.5
Fansidar	10.6	10.6	13.5
Camoquine	0.9	3.0	4.1
ORS (sachet)	2.0	2.0	2.0
Flagyl	3.6	11.0	20.9
Tetanus Toxoid	9.0	9.0	9.0
Antihistamine	0.6	3.8	3.9
Kaolin mixture	2.0	2.0	1.3
Other*	17.3	18.9	23.3
LABORATORY X-RAY EXAMS			
X-Ray	120.0	120.0	140.0
Sputum from AFB	40.0	35.0	70.0
Blood for MPS	30.0	35.0	47.5
Hb.	30.0	35.0	47.5
Stool for o/c	30.0	30.0	52.5
Other*	50.0	51.0	71.5
PROCEDURE			
Stitching	5.0	5.0	5.0
Wound dressing	5.0	5.0	4.8
Other*	5.0	5.0	4.9

*"Other" prices are calculated as the simple mean cost within each category

TABLE 3.35

ALLOCATION OF COSTS FOR OUTPATIENT SERVICES AT THREE NCC HEALTH CENTRES

	BAHATI	LANGATA	NGARA
Staff			
Maternity	56%	40%	44%
General Outpatient	29%	42%	34%
MCH/FP	15%	18%	22%
TOTAL	100%	100%	100%
Other Fixed			
Maternity	40%	38%	37%
General Outpatient	37%	41%	42%
MCH/FP	23%	21%	21%
TOTAL	100%	100%	100%

TABLE 3.36

COSTS PER VISIT FOR OUTPATIENT SERVICES
(Excluding Drug Costs)

All Outpatient	Staff Costs	Overhead Costs	Total Visits	Fixed Cost	Cost/ Visit
B.A.T. Shauri Moyo	342,060	260,103	10,775	602,163	31.75
Bahati Health Centre	693,792	68,456	111,824	762,248	7.85
Central Bank Staff	1,829,604	361,738	25,780	2,191,342	70.97
Crescent Pumwani	175,123	3,760	8,395	178,883	20.86
Dandora 1	1,509,231	64,801	233,487	1,574,032	6.46
Jericho Sub Health Centre	1,492,945	160,588	217,380	1,653,533	6.87
Kaloleni Sub Health Centre	1,109,635	98,090	78,189	1,207,725	14.19
Kenya Breweries	1,756,497	781,950	67,998	2,538,447	25.83
Kenya Bus Services	211,200	114,000	21,855	325,200	9.66
Langata Health Centre	1,323,483	8,323	122,075	1,331,806	11.94
Makongeni	329,075	154,741	12,443	483,816	26.45
Maringo Clinic	186,755	15,750	8,919	202,505	20.94
Mary Immaculate Dispensary	115,863	39,068	20,036	154,931	5.78
Ngaira Road Health Centre	1,201,704	4,585	92,203	1,206,289	14.11
Ngong Road Dispensary	953,390	7,608	49,405	960,998	19.30
Pangani MCH/FP Clinic	332,970	47,044	23,107	380,014	14.41
Pumwani Sub Health Centre	1,194,705	113,789	125,340	1,308,494	9.53
Rhodes	1,170,580	10,322	201,507	1,180,902	5.81
Mean	1,040,815	116,654	83,658	1,157,469	18.01
Standard Deviation	662,662	174,012	68,524	723,312	13.92
Minimum	115,863	3,760	8,395	154,931	5.78
Maximum	1,205,805	781,950	233,487	2,538,447	70.97
n=	21	21	21	21	21
TOTAL	**21,857,117**	**2,449,731**	**1756,820**	**24,306,848**	**378.16**

TABLE 3.37

FIXED COSTS PER OUTPATIENT VISIT AT NCC FACILITIES
(Excluding Drugs)

Public Outpatient	Staff Costs	Overhead Costs	Total Visits	Total Cost	Cost/ Visit*
Rhodes	1,170,580	10,322	201,507	1,180,902	6.89
Dandora 1	1,509,231	64,801	233,487	1,574,032	7.77
Bahati Health Centre	693,792	68,456	111,824	762,248	7.85
Jericho Sub Health Centre	1,492,945	160,588	217,380	1,653,533	8.64
Pumwani Sub Health Centre	1,194,705	113,789	125,340	1,308,494	11.47
Langata Health Centre	1,323,483	8,323	122,075	1,331,806	11.94
Ngaira Road Health Centre	1,201,704	4,585	92,203	1,206,289	14.11
Kaloleni Sub Health Centre	1,109,635	98,090	78,189	1,207,725	16.48
Pangani MCH/FP Clinic	332,970	47,044	23,107	380,014	17.48
Ngong Road Dispensary	953,390	7,608	49,405	960,998	20.48
Maringo Clinic	186,755	15,750	8,919	202,505	23.73
Makongeni	329,075	154,741	12,443	483,816	39.91
Mean	766,551	50,273	85,059	816,824	15.562
Standard Deviation	443,289	55,163	75,089	449,062	8.962
Minimum	186,755	4,585	8,919	202,505	6.89
Maximum	1,509,231	160,588	233,487	1,653,533	39.91
n=	12	12	12	12	12
TOTAL	**11,498,265**	**754,097**	**1275,879**	**12,252,362**	**186.75**

* Cost per visit includes an allocation of central NCC administrative costs

TABLE 3.38

FIXED COSTS FOR OUTPATIENT SERVICES AT PRIVATE FACILITIES

Private Outpatient	Staff Costs	Overhead Costs	Total Visits	Total Cost	Staff/ Visit
Mary Immaculate Dispensary	115,863	39,068	20,036	154,931	5.78
Kenya Bus Services	211,200	114,000	21,855	325,200	9.66
Crescent Pumwani	175,123	3,760	8,395	178,883	20.86
Kenya Breweries	1,756,497	781,950	67,998	2,538,447	25.83
B.A.T. Shauri Moyo	342,060	260,103	10,775	602,163	31.75
Central Bank Staff Clinic	1,829,604	361,738	25,780	2,191,342	70.97
Mean	632,907	222,946	22,120	998,494	27.4758
Standard Deviation	703,764	248,076	20,249	982,183	21.3869
Minimum	115,863	3,760	8,395	154,931	5.78
Maximum	1,829,604	781,950	67,998	2,538,447	70.97
n=	6	6	6	6	6
TOTAL	**4,430,347**	**1560,619**	**154,839**	**5,990,966**	**164.86**

The average cost per visit was about Kshs. 24 in the private facilities, compared to about Kshs. 17 in the public facilities. Of the public facilities, the most expensive were two PMO facilities providing outpatient services (Mbagathi and Loco Dispensary; see Table 3.39). There was insufficient information was available to estimate average unit costs of outpatient visits at the three PMO facilities (Mbagathi, Kamiti Prison Dispensary, and Loco Dispensary) beyond the cost of staff. Further cost estimates for public facilities are based on NCC facilities.

TABLE 3.39

AVERAGE STAFF COSTS PER VISIT

Public Outpatient	
Rhodes	5.81
Bahati Health Centre	6.20
Dandora 1	6.46
Jericho Sub Health Center	6.87
Pumwani Sub Health Center	9.53
Langata Health Center	10.84
Ngaira Road Health Center	13.03
Kaloleni Sub Health Center	14.19
Pangani MCH/FP Clinic	14.41
Ngong Road Dispensary	19.30
Maringo Clinic	20.94
Makongeni	26.45
Mbagathi	34.87
Loco Dispensary	44.55
Private Outpatient	
Mary Immaculate Dispensary	5.78
Kenya Bus Services	9.66
Crescent Pumwani	20.86
Kenya Breweries	23.83
B.A.T. Shauri Moyo	31.75
Central Bank Staff Clinic	70.97

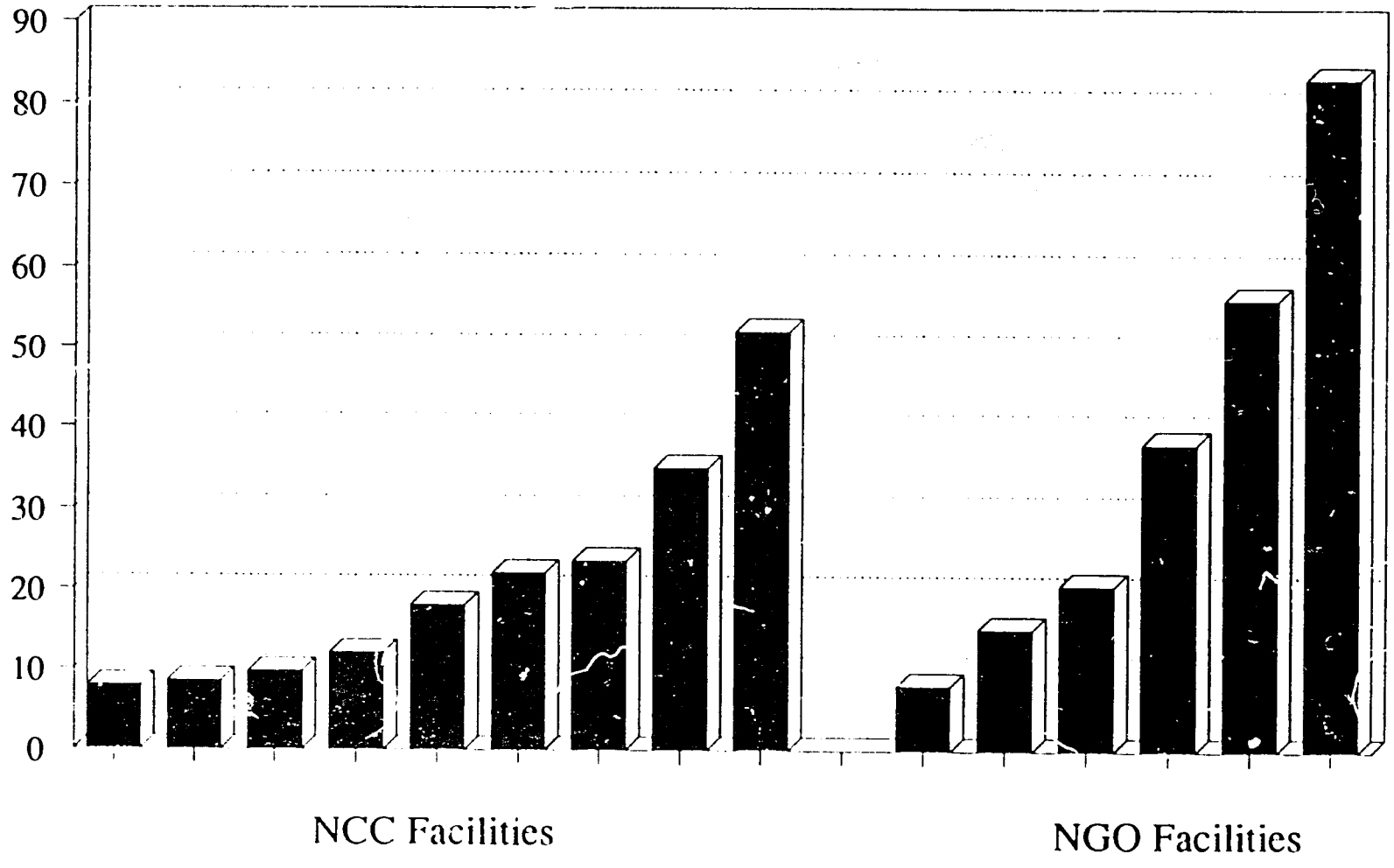
Thus, the mean fixed cost of an outpatient visit reveals wide variation, from Kshs. 5.78 to 70.91. Overall, on a fixed cost basis, an outpatient visit is more expensive in private facilities, with a mean per visit of Kshs. 27.48 compared to Kshs. 15.56 for the public facilities. These average fixed costs are graphed in Figure 3.4.

For the NCC facilities, the cost per visit is inversely related to volume of services. Three of the four facilities which cost the most to operate on a per visit basis are clinics offering only preventive/promotive services, with low volumes of visits. Figure 3.5 is a graphic representation of how per visit costs are related to the volume of service.

Combining the fixed cost per visit with costs for medications, examinations and procedures, the full cost of a curative outpatient visit is shown in Table 3.40.

FIGURE 3.4

AVERAGE FIXED COST PER VISIT
PUBLIC AND PRIVATE FACILITIES



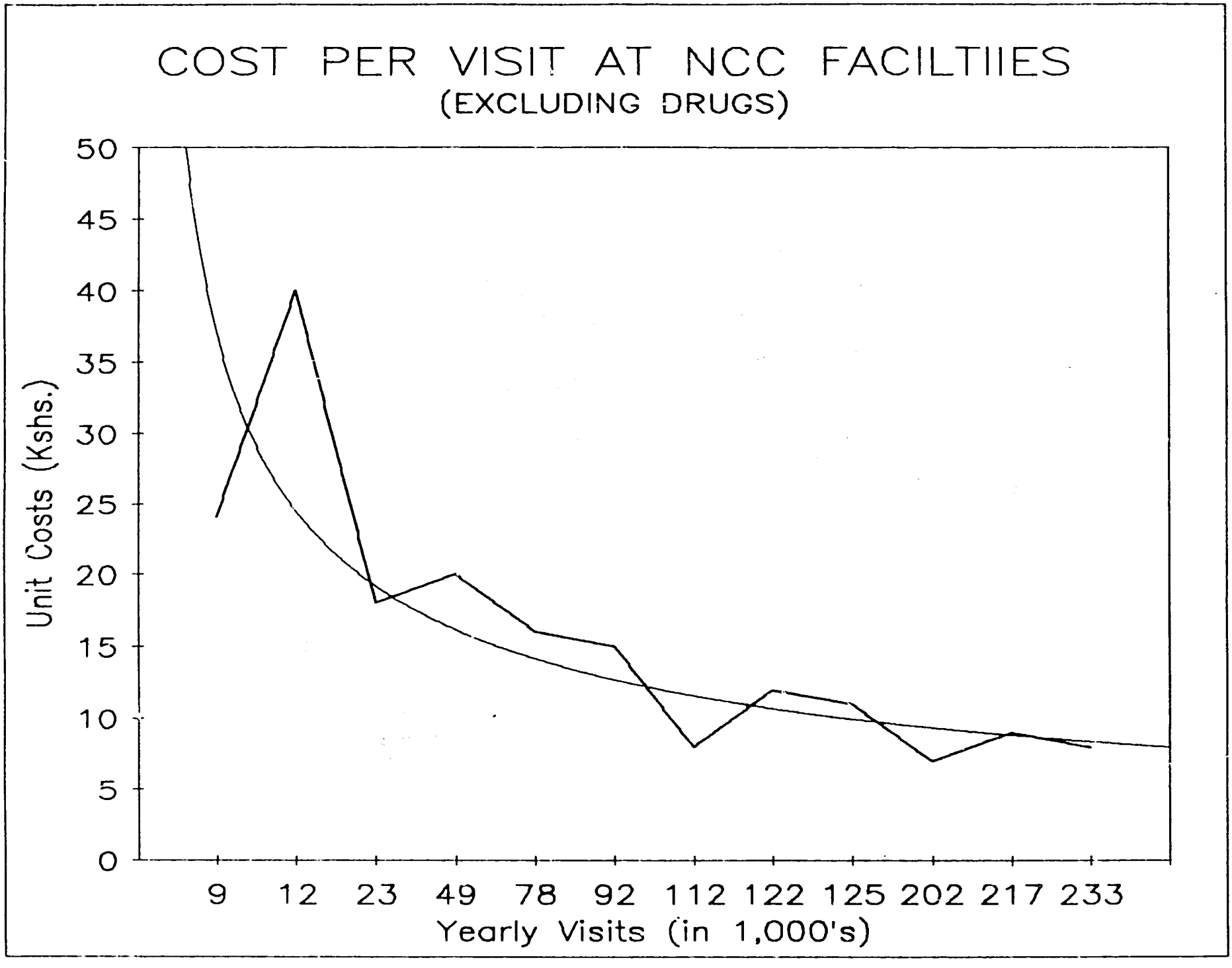

COST PER VISIT AT NCC FACILTIIES
(EXCLUDING DRUGS)
Unit Costs (Kshs.)
50
45
40
35
30
25
20
15
10
5
0
9
12
23
49
78
92
112
122
125
202
217
233
Yearly Visits (in 1,000's)

FIGURE 3.5

TABLE 3.40

AVERAGE COSTS PER OUTPATIENT VISIT

Cost Category	Facility Type NCC	PMO	NGO	Mean	Standard
BASIC SERVICE COST	15.56		27.48		
DRUG COSTS					
URTI	69.57	43.47	84.57	65.87	16.98
Malaria	84.30	51.96	57.30	64.52	14.16
Diarrheal Diseases	82.18	79.89	91.56	84.54	5.05
Accidents	84.77	53.61	59.34	65.91	13.54
Other	80.21	57.23	73.19	70.21	9.61
LABORATORY COSTS					
URTI	1.82	0.00	1.60	1.14	0.81
Malaria	9.75	0.83	0.00	3.53	4.41
Diarrheal	4.94	0.00	6.49	3.81	2.77
Accidents	2.69	0.00	6.09	2.92	2.49
Other	4.80	0.21	3.54	2.85	1.94
PROCEDURE COSTS					
URTI	0.17	0.00	0.65	0.27	0.27
Malaria	0.00	0.00	1.25	0.42	0.59
Diarrheal	0.00	0.00	0.35	0.12	0.16
Accidents	3.75	4.67	5.02	4.48	0.54
Other	0.98	1.17	1.82	1.32	0.36
TOTAL COSTS					
URTI	87.12		114.29	100.71	
Malaria	109.61		86.03	97.82	
Diarrheal	102.68		125.87	114.28	
Accidents	106.77		97.93	102.35	
Other	101.55		106.03	103.79	

There is an apparent, general pattern of high utilisation of facilities, and high number of prescriptions relative to the number of confirmatory examinations performed. When services are provided free of charge there is always a possibility of "unnecessary" utilisation; that is, utilisation for reasons which do not require medical attention, such as mild colds, very minor injuries, and so forth. To the extent that some of the observed utilisation may be unnecessary, high costs are incurred by the system and resources are utilised inappropriately.

It is evident that there is much unevenness in the prescription and consumption of drugs. Outpatient records indicate that facilities write an average of 1.7 prescriptions per outpatient visit (including visits which do not result in a prescription). Public facilities have less clinician and laboratory input per visit. Antihistamines and analgesics are the most commonly prescribed drugs, but there is also a strong tendency to provide multiple prescriptions without confirming diagnoses. There is clearly need

to achieve a more appropriate level of consumer utilisation. When considered with the fact that in public facilities a clinician spends only two minutes of time per visit, there seems to be a "shotgun" approach by which drugs are prescribed based on guesswork, possibility and probability. As the quantity of drugs prescribed is less than the quantity of drugs the facility has available, the drugs which cannot be provided at the facilities are either purchased outside or are simply not consumed. It could not be determined what prescriptions were actually dispensed by the facility and if these drugs were correct for diagnosis.

Table 3.41 indicates total outpatient facility costs when drug costs are included for NCC facilities; non-government facilities; and Table 3.42 indicates the same for all facilities.

The various cost categories were expressed as percentages of total costs, seven and eight, on average, 69 percent of expenditures in NCC facilities are on drugs and 29 percent is on staff. For non-government facilities, drugs account for 58 percent of total expenditures and staff absorb 32 percent. When all facilities are taken together, drugs account for 63 percent and staff 33 percent.

The proportion of total expenditure on drugs was significantly higher than expected. Usually staff costs constitute a higher proportion of total facility costs than drug costs. There are four reasons why drug costs constitute such high proportions of total costs compared to staff costs:

1) Drug prices in Kenya are not controlled and are generally high. The government influences wages and salaries of facility staff so that they do not rise as fast as the general price level. In addition, public facilities are not fully staffed (see Sections 4 and 5 regarding unfilled posts).

2) Administrative costs of the divisional centres and City Hall have not been apportioned to the NCC facilities.

3) Non-government facilities like B.A.T. Shauri Moyo, Kenya Breweries and Central Bank of Kenya, tend to procure expensive drugs.

4) There are extensive multiple prescription practices which unduly raise the drug costs per patient. There is also considerable room for wastage and diversion of drug supplies in the system. These factors lead to higher drug costs and lower staff costs than would be expected.

TABLE 3.41

TOTAL OUTPATIENT COSTS; NCC FACILITIES, 1987 (Kshs.)

Facility	Staff Costs	Other Costs	Drug Costs	Total Visits	Staff Total-%	Drugs Total-%
Dandora 1	1,509,231	64,801	3,036,504	233,487	32.7	65.9
Bahati Health Centre	693,792	68,456	2,586,729	111,824	20.7	77.2
Langata Health Centre	1,323,483	8,323	1,675,709	122,075	44.0	55.7
Ngaira Road Health Centre	1,201,704	4,585	2,246,964	92,203	34.8	65.1
Jericho Sub-Health Centre	1,492,945	160,588	5,791,951	217,380	20.1	77.8
Kaloleni Sub-Health Centre	1,109,635	98,090	478,796	78,189	65.8	28.4
Makongeni	329,075	154,741	-	12,443	68.0	-
Maringo Clinic	186,755	15,750	-	8,919	92.0	-
Ngong Road Dispensary	953,390	7,608	1,759,726	49,405	35.0	64.7
Pangani MCH/FP Clinic	332,970	47,044	16,752	23,107	83.9	4.2
Pumwani Sub-Health Centre	1,194,705	113,789	4,914,466	125,340	19.2	79.0
Rhodes	1,170,580	103,220	4,679,016	201,507	19.7	78.6
Mean	766,551	56,466	2,718,661	85,059		
Standard Deviation	443,289	53,750	1,810,392	75,089		
Minimum	186,755	4,585	16,752	8,919		
Maximum	1,509,231	160,588	5,791,951	233,487		
n=	12	12	10	12		
TOTAL	**11,498,265**	**846,995**	**27,186,613**	**1,275,879**		

TABLE 3.42

TOTAL OUTPATIENT COSTS; NCC FACILITIES, 1987 (Kshs.)

Facility	Staff Costs	Other Costs	Drug Costs	Total Visits	Staff Total-%	Drugs Total-%
Mary Immaculate Dispensary	115,863	39,068	157,915	20,036	37.0	50.5
Kenya Bus Services	211,200	114,000	240,000	21,855	37.4	42.5
Crescent Pumwani	175,123	3,760	110,691	8,395	60.5	38.2
Kenya Breweries	1,756,497	781,950	3,133,082	67,998	31.0	55.2
B.A.T. Shauri Moyo	342,060	260,103	1,197,900	10,775	19.0	66.5
C.B.K. Staff Clinic	1,829,604	361,738	3,255,140	25,780	33.6	59.8
Mean	632,907	222,946	1 156,390	22,120		
Standard Deviation	703,764	248,076	1 276,339	20,249		
Minimum	115,863	3,760	110,691	8,395		
Maximum	1,829,604	781,950	3,255,140	67,998		
n=	6	6	6	6		
TOTAL	**4,430,347**	**1,560,619**	**8,094,728**	**154,939**		

Average total costs per outpatient visit are provided in Tables 3.43 to 3.45. Costs of an outpatient visit range from Kshs. 30 in NCC facilities to Kshs. 91 in non-government (or private) facilities. The average cost for all facilities taken together is Kshs. 39. The higher per visit costs of private facilities are a result of the higher staff wages and salaries paid by private facilities and the higher per visit drug costs resulting from the procurement of expensive drugs. Private facilities like B.A.T., Shauri Moyo, Central Bank staff clinic and Kenya Breweries also provide higher quality services compared to NCC facilities.

TABLE 3.43

AVERAGE TOTAL AND DRUG COSTS, NCC FACILITIES, 1987 (Kshs.)

Facility	Total Cost	Drug Cost/ Visit	Total Cost/ Visit
Dandora 1	4,610,536	13.01	19.75
Bahiti Health Centre	3,348,977	23.13	29.95
Langata Health Centre	3,007,515	13.73	24.64
Ngaira Road Health Centre	3,453,253	24.37	37.45
Jericho Sub-Health Centre	7,445,484	26.64	34.25
Kaloleni Sub-Health Centre	1,686,521	6.12	21.57
Makongeni	483,816	---	38.88
Maringo Clinic	202,505	---	22.70
Ngong Road Dispensary	2,720,724	35.62	55.07
Pangani MCH/FP Clinic	396,766	0.72	17.17
Pumwani Sub-Health Centre	6,222,960	39.21	49.65
Rhodes	5,952,816	23.22	29.54
Mean	2,635,458	21.31	30.98
Standard Deviation	2,300,140	---	---
Minimum	202,505	---	---
Maximum	7,445,484	---	---
n=	12	---	---
TOTAL	**39,531,873**	---	---

TABLE 3.44

AVERAGE TOTAL AND DRUG COSTS, PRIVATE FACILITIES, 1987 (Kshs.)

Facility	Total Cost	Drug Cost/ Visit	Total Cost/ Visit
Mary Immaculata Dispensary	312,846	7.88	15.61
Kenya Bus Services	565,200	10.98	25.86
Crescent Pumwani	289,574	13.19	34.49
Kenya Breweries	5,671,529	46.08	83.41
B.A.T. Shauri Moyo	1,800,063	111.17	167.06
Central Bank Staff Clinic	5,446,482	126.27	211.27
Mean	2,347,616	52.28	90.97
Standard Deviation	2,327,517	---	---
Minimum	289,574	---	---
Maximum	5,671,529	---	---
n=	6	---	---
TOTAL	**14,085,694**	---	---

TABLE 3.45

AVERAGE TOTAL AND DRUG COSTS ALL FACILITIES, 1987 (Kshs.)

Facility	Total Cost	Drug Cost/ Visit	Total Cost/ Visit
Bahati Health Centre	4,277,622	23.13	38.25
B.A.T. Shauri Moyo	1,800,063	111.17	167.06
Central Bank Staff Clinic	5,446,482	126.27	211.27
Crescent Pumwani	289,574	13.19	34.49
Dandora 1	4,610,536	13.01	19.75
Jericho Sub-Health Center	7,445,484	26.64	34.25
Kaloleni Subhealth Center	1,686,521	6.12	21.57
Kenya Breweries	5,671,529	46.08	83.41
Kenya Bus Services	565,200	10.98	25.86
Langata Health Centre	3,895,158	13.73	31.91
Makongeni	483,816	-	38.88
Maringo Clinic	202,505	-	22.70
Mary Immaculate Dispensary	312,846	7.88	15.61
Ngaira Road Health Centre	4,400,142	24.37	47.72
Ngong Road Dispensary	2,720,724	35.62	55.07
Pangani MCH/FP Clinic	396,764	0.72	17.17
Pumwani Sub-Health Center	6,222,960	39.21	49.65
Rhodes	5,859,918	23.22	29.08
Mean	3 127,102	24.66	39.34
Standard Deviation	2 390,036	-	-
Minimum	202,505	-	-
Maximum	7 445,484	-	-
n=	18		
TOTAL	**56,287,844**		

3.7.2 Options

To ensure more appropriate consumer utilisation of outpatient services and drugs, the following options should be considered:

1) Reduce trivial or frivolous demand and encourage appropriate utilisation by implementing charges for selected services.

2) Reduce congestion by establishing and enforcing appropriate referral mechanisms.

3) Develop and implement a public education program regarding what services are offered at each facility and appropriate self care measures.

4) Develop and implement education program for consumers and providers on the need to reduce over-prescribing practices for pharmaceuticals.

5) Introduce charges for all pharmaceuticals.

6) Apply strict guidelines for confirming diagnoses before prescribing.

3.7.3 Preventive and Promotive Services

a) Volume of Services

Promotive and preventive (MCH/FP) outpatient services were studied in the thirteen facilities (10 NCC, three non-government) in the sample which provided these services. Data were collected using the same forms and sources as for general outpatient services. The volume of promotive/preventive services provided at these facilities are shown in Table 3.46.

TABLE 3.46

VOLUME OF MCH/FP SERVICE IN SAMPLED FACILITIES: 1987

Facility	Yearly Visits: Ante-Natal Post-Natal	Child Health	FP	Total
Bahati	3,028	5,708	1,347	10,083
BAT Shauri Moyo			283	283
Crescent Medical Aid:				
Pumwani			91	91
Dandora 1	16,702	42,773	5,048	64,523
Jericho Sub-Health Center	2,812	7,403	1,559	11,774
Kahuleni Sub-Health Center	1,324	4,449	656	6,429
Kenya Breweries	5,941	15,971	1,862	23,774
Langata Health Center	12,221	13,470	3,747	29,438
Makongeni	4,581	6,797	1,065	12,443
Maringo Clinic	1,912	5,612	1,395	8,919
Ngaira Road	7,333	10,072	4,079	21,484
Pangani MCH/FP Clinic	7,803	12,520	2,784	23,107
Pumwani Sub-Health Center	3,990	6,397	1,594	11,981
TOTAL	**67,647**	**131,172**	**25,510**	**224,329**
Minimum	1,324	4,449	91	91
Maximum	16,702	42,773	5,048	64,523
Range	15,378	38,324	4,957	64,432
n=	11	11	13	13
Mean	6,150	11,925	1,962	17,256

As can be seen from this table, about one quarter of a million promotive/preventive services were offered all together, or about 15 percent of all outpatient services provided by the sampled facilities. All of these 13 facilities offered family planning services, while eleven of these offered ante-natal and child health in addition to family planning services. Two of these facilities, both private company dispensaries, offered only family planning services. These were low level providers with a total of 304 family planning visits (contraceptives) to their staff. The high volume providers were mostly NCC facilities, especially Dandora, Langata, Pangani and Ngaira Road, Kenya Breweries also provided a high volume of all preventive/promotive services.

The most widely used services in this category were child health/immunisation services, which accounted for over half of all promotive/preventive services. The rest were mostly ante-natal/post-natal care, with a smaller number for family planning services. Clients visited facilities for preventive services as many as 13 times during the year, though three visits was the mean and three quarters of the clients visited five times or less during the year. This would seem to be a normal or even low level of utilisation for these clients, as all three services would normally involve several visits. The mean number of visits for well-child care was 4.11; for ante-natal care the mean number of visits per patient was 4.06, and family planning visits averaged 2.94 per patient. NCC

facilities had a higher mean number of visits per client, with almost four compared to about two for PMO and NGO facilities. This is also expected, as all ante-natal care visits and 96.9 percent of child health visits occurred in NCC facilities, Family Planning services, requiring fewer visits, were proportionally distributed between NCC, PMO and NGO. Half of all preventive services were given in clinics, the other half in health centres.

A high percentage of children immunised at the sampled facilities received immunisations for DPT (97.7%), Polio (97.9%), and BCG (97.8%), though data collection was not designed to determine if these were complete series. Coverage for measles was low (31 3%). Pregnant women also had a fairly high coverage for tetanus toxoid (85.9%).

Most family planning visits involved oral contraceptives, accounting for 64.9 percent of these visits. Other contraceptives dispensed during visits, in descending order of frequency, include IUD's (12.5%), depoprovera injections (10.8%), condoms (7.7%), and spermicides (4.1%). Laboratory services related to family planning and ante-natal care were quite infrequent, occurring in less than one percent of these visits. This could be an indication that visits for laboratory services are referred to the special treatment clinic, though data to support this supposition was not obtained.

b) Costs

Costs of preventive/promotive services are estimated by following the same basic methodology as for curative outpatient services. Average unit costs are calculated in the same manner as for general outpatient services. Cost data were derived from various sources. Vaccine costs were taken from the National Public Health Laboratories. Oral contraceptive costs were taken from Ministry of Health purchase records. Other costs were provided by the USAID Mission in Nairobi.

Vaccine costs are based on single dose applications. Other medications assume a standard course of treatment. Quantities for family planning commodities are based on average length between visits for family planning clients. One year of coverage is assumed for an IUD insertion, as this procedure generally lasts longer than the one year period of observation. Family planning visits excluding IUD average 3.4 per client in 1987. This would mean a family planning client returns on the average of once every 15.3 weeks; this is therefore assumed as the period of coverage for temporary methods of contraception (injections, orals, condoms and spermicides). For this period the following quantities of contraceptives are assumed, based on standard calculations of Couple Year Protection (CYP) developed by the Centers for Disease Control in Atlanta: condoms = 29.4 (based on 100 per year); spermicide = 29.4 applications (based on 100 applications per year); and oral contraceptives = 3.8 cycles (based on 13 [Bcles per year). The cost data in the Table 3.47 represent estimates based on these assumptions.

TABLE 3.47

COSTS OF INPUTS FOR MCH/FP SERVICES

Preventive/Promotive Services	Cost
Medications	
DPT	2.60
A Polio	5.42
Measles	2.71
BCG	0.90
Vitamins	7.20
Tetanus Toxoid	1.15
FeSo4	5.40
Analgesics	3.00
Antibiotics Class I	35.70
Antibiotics Class II	142.90
Antitrichomonal tabs	73.50
Antitrichomonal Suppos.	73.50
Antifungal	60.00
Oral Contraceptives	12.26
Depoprovera	19.47
Condom	11.17
Spermicide	22.85
Procedures	
IUD	27.36
Laboratory Exams	
Kahn Test	60.00
Haemoglobin	30.00
HVS - c/s	100.00
Wet Smear	30.00

The average cost of a preventive visit is assumed to be the same as the average cost of of a general outpatient visit. This is employed for comparative purposes even though the cost of a preventive visit is known to be more than the cost of a general outpatient visit. An even average requirement of staff time is assumed for all visits, rather than attempting to allocate a higher proportion of staff time for any particular kind of preventive/promotive visit, as this would require an intensive time-based study and analysis. This cost estimate can be expressed as:

$$AVop = \frac{OC + OH + DC + PC}{TV}$$

Where:

- AVop = Average cost per outpatient visit
- OC = Operating costs (including salaries, vehicles and transport, non-pharmaceutical materials, and maintenance)
- OH = Overhead costs (including administrative allocation, utilities) pharmaceutical inputs)
- PC = Procedures costs (including all diagnostic procedures, laboratory tests, radiographs, and others)
- TV = Total outpatient visits during the period of observation

Based on these assumptions and the observed application of medicines, vaccines, laboratory exams, and procedures, Table 3.48 provides estimates for the average cost for preventive/promotive services per patient visit.

TABLE 3.48

AVERAGE COST FOR PREVENTIVE/PROMOTIVE VISITS-NCC FACILITIES (Kshs.)

STAFF/OVERHEAD COST:	15.560
MEDICATIONS:	
Ante-natal Visit	5.403
Family Planning Visit	6.653
Child Health Visit	25.947
LABORATORY:	
Ante-natal Visit	3.441
Family Planning Visit	0.506
Child Health Visit	0.000
PROCEDURES:	
Ante-natal Visit	0.000
Family Planning Visit	1.229
Child Health Visit	0.000
TOTAL COST:	
Ante-natal Visit	24.444
Family Planning Visit	23.948
Child Health Visit	41.507

These costs are calculated by the total cost of resources consumed or used during a visit, such that a child health visit reflects all medications consumed, rather than just vaccines consumed, during that visit.

This cost analysis reveals a difference in cost between a general outpatient visit and a preventive/promotive outpatient visit. Facilities offering only MCH/FP services are more expensive per visit than are the integrated facilities. For Bhati, Langata and Ngaira, the costs of preventive services versus general outpatient services were estimated based upon allocation of staff and other fixed costs. The estimated cost of a general outpatient visit was about Kshs. 8.40 at these three facilities, compared to an estimated preventive visit averaging Kshs. 20.40. For the purposes of estimated costs across facilities, however, the fixed cost of a preventive visit is based on the overall fixed cost of outpatient services.

When considering the cost of preventive versus curative services, one must keep in mind that these are essentially two different health care strategies. While a unit of preventive care may cost more than a unit of curative care, the total cost of prevention is still well below the total

cost of curing preventable diseases. Social benefits are assembled to exceed social costs. The reasons for considering the cost of these services is to reduce this all important category of services.

3.7.5 Options:

a) To improve utilisation of preventive and promotive services, the following options should be considered:

1) Establish discounts of fees for curative services or other incentives for use of preventive services.

2) Integrate MCH/FP services into full service facilities.

3) Establish systems to provide or reimburse some MCH/FP services (e.g., immunisations) through private physicians' offices.

4) Give private doctors free space in MCH/FP clinics to provide curative services on fee paying bases during hours of service.

5) Provide preventive services on an outreach basis.

6) Develop appointment system for ante-natal care and child health services.

7) Close underutilised facilities.

b) To achieve scale economies, the following options should be considered:

1) Use planning capability to determine location and schedules of services.

2) Adjust operations of facilities to relieve congestion/under-utilisation (e.g., open residential facilities in evenings); avail all services when facility is open, such as drug supply in 24 hour facilities; establish convenient locations and schedules for promotive services; establish outreach preventive services in communities without facilities.

3) Use appropriate system and hours of service to relieve congestion and under-utilisation.

4) Provide integrated services (preventive, promotive, curative) in all facilities.

5) reduce operations in under-utilised services/facilities and reallocate work assignments of staff.

3.7.6 Maternity Services

A total of 985 maternity beds have been identified in Nairobi, distributed as shown in Table 3.49. Overall occupancy is quite high, owing to the high volume of maternity patients at Pumwani Maternity and at Kenyatta National Hospital. Overall occupancy for all beds system wide was about 91.5 percent in 1987 for these facilities, but occupancy is quite uneven, ranging from an average of 29.8 percent in the NCC Health Centres to 115.8 percent in the public hospitals. These two extremes are at below 40 percent occupancy to be non-cost effective, and occupancy of over 100 percent brings obvious disadvantages to the maternity patient. Occupancy in private facilities ranges from 42 percent to 83 percent. There were 42.9 deliveries for each of the 985 beds, or an average of one delivery per bed about every eight and a half days. There are about 115 inpatient deliveries per day in Nairobi, of which an average of 64 are delivered at Pumwani. Thus Pumwani, with 37 percent of the beds, provides about 55 percent of the delivery services.

For Pumwani to reduce its occupancy rate to a more manageable 93 percent, and assuming that average length of stay were to remain the same, Pumwani would have to off-load some 5,320 deliveries. On the other hand, if the NCC Health Centres were to bring productivity to the city wide average, these 140 beds would be providing around 5,300 delivery services more than the current level.

Eight facilities offering maternity services were visited, five NCC facilities and three private. Half of these facilities were included in the sample of facilities providing outpatient preventive/promotive services (Kalolene Sub-Health Centre, Bahati Health Centre, Ngaira Health Centre, and Langata health Centre), as discussed above. The other four (Pumwani Maternity, Alpha Maternity, Park Road Nursing Home and Jamaa Maternity Service), do not offer outpatient services or could not provide data on outpatient services as data was not available.

In keeping with general guidelines, NCC Health Centres delivered only a few primiparous women, with 94 percent of patients being multiparous (between para one and para four). Primiparous deliveries were concentrated in Pumwani and Alpha Maternity. Overall parity for the sample of 600 women is shown in Table 3.50.

TABLE 3.49

MATERNITY BEDS, ADMISSIONS, DELIVERIES, OCCUPANCY RATES BY CATEGORY OF PROVIDERS

Facility Name	Maternity Beds	Maternity Occup. (%)	Total Delivery	Delivery/ Bed
Government Hospitals				
Kenyatta Hospital	117	129.0	7,945	67.9
Kamiti Prison Hosp.	15	1.3*	NA	NA
Pumwani Maternity**	363	107.3	23,351	64.3
Subtotal	**495**	**115.8**	**31,296**	
Private Hospitals				
Nairobi Hospital	36	67.8	1,982	55.1
H.H. The Aga Khan Hosp.	27	81.7	1,569	58.1
M. P. Shah Hospital	31	61.0	1,404	45.3
Westlands Hospital	30	NA	200	NA
Guru Nanak Hospital	NA	NA	NA	NA
Mater Misercordia Hosp.	54	49.0	1,654	30.6
Subtotal	**178**	**62.1**	**6,809**	
NCC Health Centres				
Bahati Health Centre	20	36.0*	429	21.5
Dandora II health Centre	20	NA	NA	NA
Eastleigh Health Centre	20	NA	661	33.1
Kahawa Health Centre	20	NA	118	5.9
Langata Health Centre	20	26.0	866	43.3
Makadara Health Centre	20	NA	226	11.3
Mathare North Health Ct	20	NA	NA	NA
Ngaira Health Centre	20	27.3*	235	11.8
Westlands Health Centre	20	NA	400	20.0
Subtotal	**180**	**29.8**	**2,935**	
Maternity Homes				
Alpha Maternity	16	82.7	NA	NA
Eastleigh Maternity	24	NA	NA	NA
Jamaa Maternity	46	36.0*	NA	NA
Nyina Wa Mumbi	14	47.3	1,180	84.3
Subtotal	**100**	**47.9**	**1,180**	
Nursing Homes				
City Nursing	19	75.5	NA	NA
Ideal Nursing Home	NA	NA	NA	NA
Masaba Nursing Home	NA	NA	NA	NA
Park Rd. Nursing Home	13	42.9*	NA	NA
Subtotal	**32**	**62.2**		
TOTAL	**985**	**91.5**	**42,220**	**46.6**

* = Occupancy rates estimated on basis of 3 months of bed census data.
** = Includes 34 supplementary beds; occupancy rates estimated on basis of 3 months of bed consensus
NA = Not available

TABLE 3.50

OVERALL PARITY FOR THE SAMPLE

Parity=0.....	21.1%
Parity=1.....	20.9%
Parity=2.....	22.8%
Parity=3.....	18.3%
Parity=4.....	9.6%
Parity=5.....	4.1%
Parity=6.....	1.2%
Parity=7.....	1.4%
Parity=8.....	0.0%
Parity=9.....	0.2%
Parity=10.....	0.0%
Parity=11.....	0.2%

As can be seen, only three percent of women delivering in these facilities were at parity of six or more.

Length of stay varied among the facilities. Overall length of stay averaged 4.1 days for a normal delivery. Jamaa Maternity had the longest length of stay, at 6.6 days, followed by Park Road at 3.8 days. When we exclude women patients who had a length of stay over two weeks, Jamaa still had the longest average length of stay, with 5.1 days. This holds true if only patients staying one week or less are considered, with an average length of stay of 4.1 days. Looking at length of stay of eight days or less, Pumwani appears to have the shortest length of stay, followed by Ngaira and Langata. Bahati had the longest average length of stay of the NCC Health Centres. (Table 3.51).

TABLE 3.51

AVERAGE LENGTH OF STAY FOR NORMAL DELIVERIES

	Mean Length of Stay	Mean Excluding Over 2 Wks.	Mean Excluding Over 8 Wks.
Pumwani	2.9	2.4	1.7
Bahati	3.6	3.6	3.3
Alpha	3.3	3.3	2.4
Park Road	3.8	3.4	2.8
Ngaira	1.8	1.8	1.8
Jamaa	6.6	5.1	4.1
Langata	2.8	2.3	2.1

A total of 470 patient records were reviewed at maternity facilities, including 200 at Pumwani, 50 at Jamaa Maternity, 50 at Alpha Maternity, and the remainder at NCC health centres. Overall, these patient records indicate low utilisation of laboratory services and drugs. For example, 10.2 percent of maternity patients in the sample received Class I

Antibiotics; none received Class II Antibiotics. Less than three percent received tranquilizers, sedatives or anti-hypertensives, and less than one percent received drugs other than, Ergometrine or Synometrine (83.6%), Syntocinon (5.1% positive), Analgesics (7%) and Vitamin K (10%). Laboratory services were performed on less than one percent of all maternity patients. Procedures were also performed infrequently. Nineteen percent of all women received Episiotomy, 8.1 percent received IV Fluids, and only 0.6 percent received blood Transfusions.

To estimate the costs of maternity services, the same methodology is used as for general outpatients, with a slight modification. Instead of deriving costs based upon the number of patient visits, costs are based on bed days (as distinct from patient days). For the purpose of this costing exercise, inputs for normal delivery beyond the cost of a bed day include the items shown in Table 3.52. Cost of inpatient services is therefore represented as:

$$ACa = BC(ALOS) + DC + PC,$$

Where:

ACa = Average cost per maternity admission
BC = Cost per bed day (including staif, food, and ward operating costs)
ALOS = Average length of stay
DC = Drug costs per admission (including costs of drugs and all other pharmaceutical inputs)
PC = Procedures costs (including all diagnostic procedures, laboratory tests, radiographs, and others.

TABLE 3.52

COSTS OF INPUTS FOR MATERNITY SERVICES

Maternity Services	NCC	NGO
Laboratory Exams		
All cultures and sens.	90.0	135.0
Hemogram (HB, WBS, haemato.	50.0	145.0
Blood grouping	150.0	200.0
PTT (PTI)	25.0	70.0
Blood slide for malaria para.	35.0	60.0
Urinalysis	25.0	45.0
Stool for o/c	30.0	80.0
U/E	160.0	230.0
Esbach test	50.0	50.0
Blood sugar	155.0	180.0
Other	77.0	119.5
Other Procedures		
IV Fluids	120.0	180.0
Blood transfusion	200.0	600.0
Episiotomy	50.0	300.0
Other	123.3	399.8
Medications		
Antibiotics Class I	50.0	36.0
Antibiotics Class II	1,500.0	1,500.0
Antihypertensive	2,615.0	4,344.0
Sedatives	29.0	29.0
Tranquilizers (class I)	29.0	29.0
Analgesics	3.0	30.0
Ventoline	74.8	74.8
Ergometrine	1.3	2.0
Syntocinon	3.4	200.0
Digoxin	94.8	94.8
Hypoglycemic agents (Ins.)	1,090.2	1,090.2
Anti-D	4,500.0	4,500.0
Vitamin K injection	22.5	22.5
Heparin	1,260.0	1,260.0
Warfarin	4.5	4.5
Other	751.8	798.0

Patient records were available only at the NCC facilities. Based on these records, the diagnostic and therapeutic costs of a normal delivery are estimated as:

Cost of medication per patient.... 142.906
Cost of laboratory per patient.... 3.115
Cost of procedures per patient.... 81.847

TOTAL COST PER PATIENT 227.868

The daily bed cost at the maternity facilities stayed within a rather narrow range (Table 3.53).

TABLE 3.53

AVERAGE DAILY BED COST

Facility	Staff	Other	Bed Days	Fixed Costs	Cost/ Bed Day*
Langata Health Centre	882,322	5,185	7,300	887,507	122.61
Bahati Health Centre	883,008	45,637	7,300	928,645	128.24
Ngaira Road Health Centre	944,196	2,693	7,300	946,889	130.74
Alpha Maternity Hospital	258,000	545,082	5,840	803,082	137.51
Pumwani Maternity Hospital	12,368,733	5,835,289	132,495	18,204,022	138.42
Mean	3,067,252	1,286,777	32,047	4,354,029	131.51
Standard Deviation	4,657,503	2,283,456	50,227	6,925,174	5.91
Minimum	258,000	2,693	5,840	803,082	122.61
Maximum	12,368,733	5835,289	132,495	18,204,022	138.42
n=	5	5	5	5	5

*Excluding examinations, medications and procedures

The cost per normal delivery therefore is closely related to the length of stay of the patient. From the available data, these costs ranged from Kshs. 463.20 at Ngaira Health Center to Kshs. 689.53 at Bahati Health Center, with a normal delivery at Pumwani costing an average of Kshs. 629.29.

3.7.7 Options

To improve the utilisation, efficiency, and effectiveness of maternity services, the following options should be considered:

1) Reduce congestion at Pumwani Hospital by establishing and enforcing appropriate referral and/or transport procedures and mechanisms.

2) Charge higher fees for hospital deliveries.

3) Charge higher fees for non-referred hospital deliveries.

4) Close some or all of NCC maternity units; upgrade one or two units to handle higher risk. Subsidise private facilities to deliver the overload of NCC deliveries.

5) Re-institute system of domiciliary midwives who are resident in the estates.

6) Develop capacity of traditional birth attendants in Nairobi.

3.7.8 Mental Health Services

For the purpose of this study, mental health services were restricted to inpatients at Mathari Hospital and outpatients at the Kariobangi Community Mental Health program. Originally a separate sub-study was designed to assess cost and utilisation at several outpatient facilities, but data collection identified an insignificant level of diagnoses of mental illness at these facilities (0.7% of all general outpatient visits) Nevertheless, the cost of treating outpatients can still be estimated with the available data.

Mathari Mental Hospital, the largest psychiatric facility in the Nation, has 1,043 beds. These include 635 general care beds (with an average occupancy rate of 83%) and 408 maximum security beds (with an average occupancy rate of 58%). In-patients at Mathari are diagnosed with both major and minor diagnoses, though for purposes of this study only the major psychiatric disorders of manic depressive psychosis, schizophrenia, and severe depressive illnesses were reviewed. A total of 70 records were sampled from among these patients from the 1987 files.

Utilisation of diagnostic services was low, as psychiatric patients do not require as many investigative procedures as other patients presenting for physical illnesses: 11.5 percent of the patients had blood slides for urinalysis, blood sugar, and stool exams, and one of the seventy patients had ESR, 7.1 percent had various other laboratory tests, and 10 percent of the received at least one ECT.

Three-quarters of the patients received Class I Tranquilizers (e.g. Largactil or Chlorpromazine), and another 15.7 percent received the more expensive Class II Tranquilizers (e.g. Modecate); 15.7 percent received Artane in combination with Largactil. Almost half (45.7 percent) received anti-depressants, and an additional 21.4 percent received sedatives. 11.4 percent of the patients received Class I Antibiotics; this same number received Analgesics. A few patients received antihypertensives, antihistamines and multivitamins. About half (45.7%) of the patients received psychotherapy, and over two thirds received occupational therapy. 10 percent received a wide range of other drugs.

The cost of a bed, and the cost of an average admission, are determined by following a methodology similar to that used for maternity services. A cost per bed day is established by allocating staff and operating costs to the beds at the facility, and a patient cost is then derived as follows:

ACa = BC(ALOS) + DC + PC,

Where:

ACa = Average cost per maternity admission
BC = Cost per bed day (including staff, food, and ward operating costs)
ALOS = Average length of stay
DC = Drug costs per admission (including costs of drugs and all other pharmaceutical inputs)
PC = Procedures costs (including all diagnostic procedures, laboratory tests, radiographs, and others)

An average requirement of staff time is assumed, rather than attempting to allocate a higher proportion of staff time for any particular category of diagnostic services, as this would require an intensive timebased study and analysis.

Costs of mental health services are calculated based on an average occupancy rate of 76.4 percent, which is a derived rate based on rates from the different wards. Based on 9,741 admissions reported, excluding transfers in and out, and a total number of beds days of 380,695, this would yield and average length of stay of 29.9 days. A one year course of treatment, which continues after discharge, is assumed for medications. This length of treatment is chosen as an analytical convenience, as the true course of treatment is not evidenced by the records. Course of treatment depends on individual patients, but this convenience is chosen in the absence of more detailed data. The bed day cost of 103.50, multiplied by the average length of stay of 29.9 days, gives us a bed cost per discharge of Kshs. 3,094.65. In considering the additive costs of drugs and procedures, however, more reliable estimates could be derived through more detailed study and analysis. Estimated costs per admission are shown in Table 3.54.

TABLE 3.54

ESTIMATED COST PER ADMISSION: MATHARI HOSPITAL, 1987
(In Kshs.)

Cost per bed day.....	103.50
Cost of medication.....	4203.83
Cost of procedures.....	2816.62
Cost of laboratory exams...	32.57
ALOS.....	29.29
TOTAL COST.....	**10,147.67**

3.7.9 Options

To improve the utilisation and effectiveness of mental health services, the following options should be considered:

1) Develop and implement a public education program to improve understanding of mental illness.

2) Train outpatient providers regarding appropriate diagnosis, treatment and referral for mental illness.

3) Release patient with minor mental illnesses which do not require inpatient treatment to outpatient programs.

3.8 PROJECTIONS COSTS

3.8.1 Resource Requirements

The average cost for outpatient visits can be estimated by considering the cost per visit for each diagnostic group and allocating a weight based on the proportion of all visits represented by that diagnostic group. Weighted costs are shown in Table 3.55.

TABLE 3.55

WEIGHTED COSTS

	NCC	NGO
URTI	87.12	114.29
Malaria	109.61	86.03
Diarrhea	102.68	125.87
Accidents	106.79	97.93
Other	101.55	106.03
AVERAGE WEIGHTED COST	**99.82**	**108.66**

From the total expenditure and utilisation records from NCC facilities, we know that the average cost per visit is much lower, at about 30. The difference between this estimated cost and the observed cost is a result of medications, examinations and procedures ordered but not paid out of the NCC budget. The actual cost to an NCC facility is what is incurred at that facility. The estimated cost per visit is what the cost would be if all of the orders indicated on the patient records were realised, either at the NCC facility or elsewhere. This difference is substantiated by reviews of central records, which indicate that only a few of the drugs ordered by facilities are actually delivered. These reviews were made of records during months in which funds were generally available. During these sample months, for example, Langata Health Centre received 7.5 percent of ordered drugs, while Bahati received 85 percent of ordered drugs. Overall, the sample indicates that 36.6 percent of ordered drugs are actually received. Drugs which are prescribed but not available must therefore be obtained from another source or are else are not obtained. Preventive outpatient services cost more in staff and overhead inputs than curative outpatient services, but less in drug and laboratory inputs, such that overall costs are very nearly the same. Curative outpatient visits are used in projecting total costs.

Approximately 67 percent of all outpatient visits in Nairobi are provided by the NCC, and 33 percent from other providers (PMO and NGO). This proportionate weight based on volume of services provided is assigned to the unit costs, providing an estimated average cost of an outpatient visit in Nairobi as Kshs. 104.94.

The total population for Nairobi in 1987 was estimated at 1,288,442. Based on the estimate of 3.5 outpatient visits per individual per year, the total number of outpatient services provided during 1987 is estimated at

4,509,545. The cost of these visits for all of Nairobi during 1987 would therefore be approximately 473,209,279 Shillings. The current population growth rate for Nairobi is estimated at 5.31 percent per year, which would indicate a population growing to about 1,669,032 by 1992. Assuming a static morbidity rate and that other demand factors remain constant for the next five years, this would represent a demand of 5,841,612 annual outpatient visits in 1992. In constant (1987) Shillings the cost of providing those services would be 612,989,774 Shillings. If demand and costs remain the same, this will mean an additional requirement in terms of recurrent costs of 139,780,495 Shillings per year by 1992. This also assumes sufficient current excess capacity to absorb the increase in population. If capacity were not sufficient, an additional capital investment would be required. This resource requirement would need to be met by all sectors. If individuals who are not residents of Nairobi access services within the city, the total costs and total increase would need to be adjusted according to the number of non-resident users.

The study has indicated that drugs represent a very large proportion of all costs to the Nairobi Area health system. If we assume that 40 percent of all costs are for drugs, the drug cost for Nairobi would increase by perhaps Kshs. 60,000,000 per year, with concomitant foreign exchange considerations.

Revenues can, of course, be generated from a number of different sources. The amount of revenue generated depends on the services for which fees are charged and the levels of those fees. For example, if a fee of Kshs. 20 is charged for outpatient visits, NCC facilities would raise Kshs. 60 million at current levels of utilisation. Estimates of household income presented in Section 3.2 have shown that 85 percent of all patients fall into the middle of high income categories. All three categories of facilities are seeing patients from low, middle, and higher income groups, though the higher income patients tend to utilise NCC less often. It is clear however, that there is a critical mass of patients who utilise free services and which are able to and can be expected to share the costs of those services in an equitable manner. Even if we were to assume that all of those reporting low household income are to be treated as indigent, and allowed these low income families to be exempt from cost sharing, the projected revenues would only be reduced by perhaps 15 percent.

On the other hand, shifts in demand could lower the resource requirements. A 10 percent overall increase in utilisation of curative services for minor ailments, accompanied by a 10 percent decrease in utilisation of drugs, would cut the increase in outpatient costs by about half.

3.8.2 Options

To improve resource mobilisation, the following options should be considered:

1) Introduce/increase cost sharing (fees) to generate revenues (with priority areas for consideration such as curative visits, x-rays and lab tests, drugs).

2) Create incentives for private sector providers to expand services (e.g. provide staff, subsidies).

3) Expand third party payments, (e.g. employer payments for health services, insurance coverage.

4) Implement mechanisms/incentives/legislation for employers to share in the burden of providing health care services for employees.

5) Increase the taxation authority of local government to collect more tax money for health.

3.8.3 External Environment

Foreign exchange options are outside the scope of this study; indeed, these are beyond the scope of the health sector in general. However, it is clear that this is an area of significant constraints, and certain decisions within the health system can influence foreign exchange positively or negatively. The principle decision has to do with drugs; secondarily this is related to other strategic and managerial decisions as discussed in this report.

Drug costs are one of the largest single cost categories in the Nairobi Area health system. Drug purchases represent a significant amount of foreign exchange. As has been shown above, an unknown amount of drugs are prescribed inefficiently due to a shortage of manpower and diagnostic equipment.

3.8.4. Options

To conserve foreign exchange, the following options should be considered:

1) Reduce the use of finished products which use foreign exchange allocation.

2) Strengthen local production of products where feasibility studies indicate cost-effectiveness.

3) Improve coordination between the Ministries of Health, Commerce, and Finance and the Central Bank for importing inputs (finished and raw) which are high priority for the Ministry of Health.

4) Have the Ministry of Health determine priority for foreign exchange allocations for imported inputs (e.g. low priority for locally available products, high priority for products which contribute to meeting health goals).

CHAPTER 4: EFFICIENCY IMPROVEMENT

4.1 EFFICIENCY IMPROVEMENT

Operational efficiency in a system or an organisation implies achieving a specific objective without wasting resources. The degree to which the programme or system objectives are achieved can therefore be regarded as a measure of efficiency. To be efficient, the health delivery system must use available resources to obtain the most favourable or best outcome that can be achieved given various known constraints. Resources include fiscal, personnel, supply, equipment, and facilities in the process of health delivery. The focus of the NAS Team was to review and analyse the operational efficiency of health services delivery in the Nairobi Area and the factors which contributed to the inefficient use of resources.

To address the objectives of the study, the NAS Team considered the location of facilities, resource availability, services provided at each facility, administrative organisation, and type of facility and focused on examining the following constraints in the provision of health services in Nairobi:

1) inefficient utilisation of available resources;
2) inadequate supply of resources;
3) lack of managerial skills; and
4) inappropriate and inadequate distribution of resources.

Probable causes were discussed and data needed to test the hypothesis and assist analysis were identified. The Team reviewed the resources used in the provision of health care, vis a vis, personnel, equipment, drugs and supplies, and facilities. The following provides a brief background on the resources examined.

a) Personnel

People who work in a health delivery systems are one of its most important resources. In part, it is the quality of the doctors, nurses, technicians, and support staff that determines the quality of health service. The training that personnel receive and how they are utilised have a direct effect on efficiency. Health manpower training institutions, administrative training, in-service training, manpower deployment and assignment policies, personnel skill and performance appraisals, and morale were examined.

b) Equipment

To provide the best possible health services, a health facility must get the most out of the limited resources available to it. Equipment increases clinical efficiency by providing a tool for diagnostic or therapeutic services and increasing productivity.

c) Drugs and Supplies

A major problem within a health delivery system is shortage of drugs and supplies. The study analysed management policies for drugs and supplies, drug and supply procurements, and stock maintenance procedures of various health facilities.

d) Facilities

A health facility provides the avenue of access for health delivery to the consumer. The services a facility provides may be inappropriate for the area, inappropriately utilised by the consumer, and over or under-specialised for the type of services offered. Efficiency may be improved by making better use of facility and physical resources. Demand for services should guide allocation of physical resources to facilities.

Data were obtained from record reviews, interviews and surveys, and direct observation. The Team: assessed space, maintenance, pharmaceutical and medical supplies, and operation of facilities in relation to volume and type of services; reviewed the distribution of services, and the frequency and direction of referral; and assessed the utilisation of resources considering overall health delivery system efficiency for both the public and private sector facilities.

4.2 TRAINING OF HEALTH MANPOWER

A health system is the mechanism that transforms a society's general resources (i.e., finance, capital, institutions, manpower) into health services aimed at meeting that society's health needs. The health system has both static and dynamic aspects. A subset of the dynamic aspect is the health manpower system. It comprises all interacting policies, structures, and mechanisms related to the planning, production and use of manpower.

One of the crucial determinants of efficiency of a country's health system is the availability of adequately trained manpower. Production of health manpower relates to both basic and post-basic education and training of the health labour force. In Kenya, health manpower production is under the control of the Ministry of Health. Presently the production of manpower is carried out by public training agencies and programmes, and private teaching institutions, each with its own policies and objectives. This fragmentation of control and diversity of interests have led to training institutions that train personnel without adequate attention to health manpower plans or needs.

This section reviews the major health training institutions in Nairobi and their curriculum. The major objectives of the review are to:

1) determine the type of opportunities for training offered in each institution;

2) determine the basic requirements for each course;

3) determine the normal output of each institution and rate of attribution;

4) determine whether there is a need for revising the institutions curriculum structures;

5) identify factors that might hold back the production of effective health manpower; and

6) determine cost of training by training institutions.

All institutions involved in health manpower training in Nairobi Area were studied: Nairobi Hospital School of Nursing; Karen College of Home Economics and Nutrition; Pumwani Maternity Hospital School of Midwifery; Department of Advanced Nursing; University of Nairobi; Divisions of Family Health of MCH/FP; AMREF Training Centre; Parklands Public Health School; Mathari School of Nursing; Aga Khan Hospital Training Program; Mater Misericordiae Hospital School for Kenya Registerd Midwives; and College of Health Professions. The personnel trained at these institutions are employed by various providers in the national health system. Seven of the above training institutions are operated by the government, and the others are private institutions. AMREF and the Division of Family Health also organise and implement continuing education programmes geared to update the knowledge, skills, and attitudes of health workers.

4.2.1 The College of Health Professions

The College of Health Professions (the College) has been and continues to be the main supplier of trained health care staff for both public and private health facilities in Nairobi and the rest of the country.

The College, previously known as the Medical Training Centre (MTC), was established in 1927. Initially it offered a few post-basic courses and an array of basic courses. Today it has delegated the majority of the basic courses to constituent MTCs at provincial and district levels. These MTCs include, among others, Nakuru, Mombasa, Nyeri, Kakamega, Kisumu, Embu, Machakos, Matuga, Meru, Muranga, Thika Garissa, Eldoret, Kilifi, and Homa Bay.

Courses currently offered in the College are: Environmental Health Science, Food Science and Inspection, Medical Laboratory Technology, Entomology, Kenya Registered Nursing, Pharmacy, Physiotherapy, Occupational Therapy, Dental Technology, Orthopaedic Technology, Diagnostic Radiography, Medical Records Technology, and Clinical Dental Health. Appendix H provides details of the courses, number graduating in 1987, and the duration of the course.

According to senior administrators of the College, the time allocated for practicals is not adequate. The trainees require more exposure to the contemporary health problems they will be required to diagnose in the field. MTC administrators are also not satisfied with the current curriculum.

The MTCs are not adequately equiped to handle the curriculum offered due to inadequacies of equipment, laboratory facilities, personnel, boarding facilities, library space and capital. Inadequacy of laboratory facilities is the major constraint. Physical space for expansion is not a problem. Besides the immediate space within, the College has 30 acres of land in Southlands.

Underlying all these problems is the lack of funds allocated to the College for recurrent and development purposes. The shortage of funds has caused the discontinuance of some major courses such as Medical Engineering Technology, Electro Cardiography, Electro Encephalography and Community Oral Health.

As shown from our research, there was a steady increase in graduates from 1980 to 1984. For 1984 to 1986 the graduating numbers were static and there was a reduction of 40 percent (35 graduates) in 1987. The College has not increased the number graduating for the last four years. This happens at a time when demand for health services personnel is increasing tremendously due to demographic and socioeconomic changes. The importance of this problem can be further illustrated by the fact that in 1987 there were no trainees graduating in the following courses: Anaesthesia Clinical Officers, T.B. and Leprosy Clinical Officers, Entomology Field Laboratory Technicians, Radiographic Film Processors, Medical Engineering Technologists, Electro Encephalography, and Community Oral Health.

The number of Ophthamology Clinical Officers, Orthopaedic Clinical Officers, Paediatrics Clinical Officers, Registered Midwives, Intensive Care Nurses, and Pharmaceutical Technology graduating annually also shows

a diminishing trend. The implication of this trend is that eventually there will be an acute shortage of required cadres of medical staff. This could contribute to further under-utilisation of existing health resources.

The College of Health Professions does not offer opportunities for post-basic training in pharmacy, dental technology, medical records technology, physiotherapy, orthopaedic technology, occupational therapy, diagnostic radiotherapy and community nutrition. This creates a problem for the health professional interested in continuing education and maintaining skill levels.

According to the In-Charge of the Colleges the cost of training a student is approximately Kshs. 83,110 per year. Individual trainees do not pay as the government meets all the training costs.

TABLE 4.1

HEALTH MANPOWER TRAINING INSTITUTIONS

NAME OF THE INSTITUTION	YEAR ESTABLISHED	TYPE OF COURSES OFFERED	BASIC REQUIREMENTS	# TRAINEES ADMITTED PER YEAR
1. Nairobi Hospital School of Nursing	1956	Kenya Registered Nurse	KCE "O" level Div.II Credits in four science subjects	50
2. Karen College	1967	Community Nutrition	"O" Div. III with a pass or literature plus a pass in one science subject.	30
3. Pumwani Maternity Hospital School of Midwifery	1926/27	KEMW	KEN	90 To 100
		KRMW	KRN	20 To 40
4. Department of Advanced Nursing University of Nairobi	1968	Advanced Nursing	KRN 'O' level with Sciences	20 to 25
5. Division of Family Health Sch. of MCH/FP	-	MCH/FP	KEM,KRM, Co.,Diploma in paediatrics,	500 ECN 80 KRN 30 CD
6. AMREF Training Centre	1986	Community Health	Middle cadres of health workers of clinical officers,medical assitants etc	9(1987) (3in1988)

TABLE 4.1

HEALTH MANPOWER TRAINING INSTITUTION
(continued)

NAME OF THE INSTITUTION	YEAR ESTABLISHED	TYPE OF COURSES OFFERRED	BASIC REQUIREMENTS	# TRAINEES ADMITTED PER YEAR
7. Parklands Public Health School	1968	Health visitors course	Enrolled Mid-wifery Nurse must be an employee of City Commission	7(1987) 13(1988)
8. Mathari School of Nursing	-	Enrolled psychiatric Nursing	ECN	30
		Kenya Registered psychiatric nursing	KRN	42
9. Aga Khan Hospital	-	Masters in Radiography	Basic training in Radiography	
		Hospital Management Trainee	Basic Degree	
		Administrative Residency	Already Registered elsewhere for masters in Hosp Administration	3
		Management Administrative fellowship	Accredited master's degree in H.A Interest in Health delivery in the third world	1
10. Matermiscericordie Hospital School	1962	Kenya Registered midwifery	KRN Holder	60

Source: Survey Data

TABLE 4.2

POST-BASIC TRAINING COURSES

NAME OF INSTITUTION	PRESCENCE OR ABSENCE OF FURTHER TRAINING OPPORTUNITIES	AVAILABLE POST-BASIC TRAINING COURSE	RECOMMENDED NEW COURSES
1. Nairobi Hospital of Nursing	Present	Intensive Care	NONE
2. Karen College	Absent	NONE	Diploma in Community Nutrition
3. Pumwani Maternity Hospital School of Midwifery	Absent	NONE	Diploma courses in Public Health, Adv. Nursing, Psychiatry, Family Planning and Midwifery teaching
4. Department of Advanced Nursing, University of Nairobi	Absent	NONE	1. Bachelors degree in Nursing 2. Graduate courses leading to master degree 3. Psychiatric Nursing Medical/surgical nursing, paediatric nursing, etc.
5. Division of Family Health School, Child Health and Family Planning	Present	MCH/FP	NONE
6. AMREF Training Centre	Absent (although opportunities for doctors are available in U.O.N.	NONE	Masters of Public Health for middle middle healthy masters
7. Parklands Public Health School	Absent	NONE	NONE
8. Mathari School of Nursing	Absent	NONE	Exchange programme for intellectual intercourse
9. Aga Khan Hospital	Present	M.A. in Hospital Administration	Start medical school offerin postgraduate training opportunities for all cadres
10. Mater Misericordiae Hospital School of Kenya Registered Midwives	Absent	NONE	Diploma in Advanced Nursing

TABLE 4.3

INSTITUTIONS CURRICULUM

NAME OF INSTITUTION	SATISFIED OR NOT SATISFIED WITH THE PRESENT STRUCTURE OF CURRICULUM	RECOMMENDED CHANGES
1. Nairobi Hospital School of Nursing	YES	NONE
2. Karen College of Home Economics and Nutrition	NO	1. Increase the course duration 2. Revise the breadth of the subject ma 3. Increase time for field attachment. 4. Increase the minimum entry requireme
3. Pumwani Maternity Hospital School of Midwifery	YES	NONE
4. Department of Advanced Nursing, University of Nairobi	NO	Phase out the short course and instead introduce a degree course in Nursing.
5. Division of Family Health School of MCH/FP	NO	Reduce the course duration to seven wee
6. AMREF Training Centre	YES	More time for field attachment.
7. Parklands Public Health School	NO	1. Reduce numbre of lectures to avoid repetition. 2. Increase fieldwork duration. 3. Strengthen the Family Planning eleme
8. Mathari School of Nursing	NO	1. Revise the curriculum, tailor it to contemporary social economic changes the society.
9. Aga Khan Hospital	YES	NONE
10. Mater Misericordiae Hospital School for Kenya Registered Midwives	YES	NONE

TABLE 4.4

COST OF TRAINING AND SOURCE OF FUNDS

NAME OF TRAINING INSTITUTION	COST PER TRAINEE PER YEAR (in Kshs.)	TOTAL EXPENDITURE IN 1986/87 (Kshs.)	SOURCE OF FUNDS
1. Nairobi Hospital School of Nursing	139,500	13,,500,000	User charges
2. Karen College	37,545	1,828,103.20	Ministry of Health
3. Pumwani Maternity Hospital School of Midwifery	12,400	included with Hospital Allocation	NCC and government
4. Department of Advanced Nursing, University of Nairobi	50,000	not available	1. Student fees thr sponsors 2. WHO & UNICEF don equipment 3. Ministry of Educ
5. Division of Family Health (continuing education on Maternal Child Health and Family Planning)	25,000	10,000,000	1. USAID 2. Ministry of Heal
6. AMREF Training Centre	260,000	170,000,000	1. CIDA 2. AVSI 3. GTZ 4. DSE
7. Parklands Public Health School			NCC and KEPI
8. Mathari School of Psychiatry Nursing	36,000	1,245,616	Donated teaching materials
9. Aga Khan Hospital (Nursing Programme)	224,000	8,960,000	Kenya Government (M and patient fees
10. Mater Misericordiae Hospital School for Kenya Registered Midwives	not available	not available	patient fees

4.2.2 Other Training Institutions

Table 4.1 provides information on course requirements, and graduates per year by other health training institutions in Nairobi. There are a number of personnel trained in paramedical and nursing skills in the health system, (e.g., clinical officers, medical assistants, public health officers, registered nurses, etc). However, after training, there are few opportunities for further studies for mid-level health workers, and opportunities are rare for advanced training for junior staff (see Table 4.2). In the training institutions surveyed only Nairobi Hospital, Aga Khan Hospital, and College of Health Professions offer opportunities for further training. According to the In-Charges of the facilities studied, inadequate opportunities for further training was a contributing factor to low staff morale.

The structure of the curriculum varies with course and institution. As can be seen from Table 4.3, heads of five institutions were not satisfied with their current curriculum and would like various changes to be made.

Generally, with exception of AMREF's public health curriculum, the curriculums for the other institutions have not been revised for several years. The curriculum for various cadres of health manpower training should be tailored to the socioeconomic and technological changes in the health needs of society and shifts in the disease patterns. The training institutions should create a mechanism which ensures flexibility in modifications in the curriculum. To be effective this function must be continuous, since evaluation (hence revision) is a process and not an event.

Table 4.4 shows that the cost of health manpower production for Nairobi and the country as a whole varies among institutions. The public training institutions are financed mainly by the Government of Kenya and the Nairobi City Commission. Non-governmental training institutions are funded by agencies and specific institutions. The annual cost varied from Kshs. 12,400 per trainee in Pumwani Maternity Hospital School of Midwifery to Kshs. 260,000 in AMREF Training Centre. The cost of training per trainee was substantially higher in private sector training institutions than in the public training institutions. For the private training institutions Nairobi Hospital, Aga Khan Hospital, and AMREF, the cost of training one student for a year ranged between Kshs. 139,500 to Kshs. 260,000. The average cost per trainee in public training institutions ranged from Kshs. 12,400 to Kshs. 50,000.

The high cost of training personnel in the private institutions was attributable mainly to the small numbers of trainees per year which made it difficult for these institutions to enjoy economies of scale in manpower production. The relatively higher annual intakes of the public institutions provided for lower average cost per trainee.

It is clear from the evidence gathered that it would be more efficient for training of all health manpower requirements in the country to be undertaken by a selected number of public institutions due to their ability to enjoy economies of scale. The private sector health providers could participate through financial contribution and consultation on curriculum

and other training issues. Interviews with the heads of training institutions found that constraints facing most of these institutions were inadequate boarding facilities, equipment, laboratory facilities, qualified personnel, funds, library facilities and physical space for expansion. As shown in Table 4.5, 26 percent of the heads interviewed identified boarding facilities as a constraint while 16 percent, 13 percent, and 13 percent reported shortage of equipment, laboratory facilities, and personnel, respectively, as constraints facing their institutions.

TABLE 4.5

FACTORS AFFECTING INSTITUTIONS

Factors	% of Institutions Which Named Factor as a Constraint	% of Institutions Which Perceived Factor as the Major Constraint
Equipment	16%	13%
Laboratory Facilities	13%	13%
Personnel	13%	-
Physical Space for Expansion	3%	14%
Boarding Facilities	26%	25%
Funds	10%	25%
Library Facility	10%	-
Audio-visual Materials	13%	-
Typing Facilities	3%	8%
Other	3%	12%

Note: Parklands Public Health School, Mater Misericordiae School of Midwifery, and Nairobi Hospital School of Nursing stated that they were adequately equiped to handle all their courses.

4.2.4 In-service Training

In-service training is the short-term continuing education programme to update the knowledge, skills and attitudes of practicing health workers. In-service training programmes for health manpower in the Nairobi Area are very limited. The programmes available are organised by AMREF and the Ministry of Health, Division of Family Health.

In its endeavour to provide in-service training, AMREF works closely with the Ministry of Health in identifying priority in-service training areas and in selecting candidates. No fees are levied on continuing education candidates. The courses currently conducted by AMREF are:

1) A six week course for training teachers. The purpose is to enable the teachers to identify needs in the field and conduct a baseline survey. At the end of the course the teacher should be able to effectively train other health workers in the field. The intake ranges from 10 to 20 trainees for each class.

2) Distant training of health workers through the communication media. Over 1,000 students (health workers) are enrolled in various programmes in African countries.

3) Library development programme is charged with the responsibility of establishing and developing libraries in district hospitals. This is done through one week workshops organised in various district hospitals. The aim is not only to make relevant reading materials accessible, but also to encourage the health workers in the field to update their knowledge. As a back-up for the programme the AMREF health planning material production unit prints appropriate books at an affordable cost.

4) Continuing Education Unit organises refresher courses for the health staff already in the service. The lecturers cover a wide range of areas such as, environmental health, maternal child health, nutrition, family planning, etc. The courses are of short duration.

5) Health planning, management, and evaluation unit deals with the organisation of one to two week refresher courses on planning, management and evaluation for health staff.

AMREF currently is negotiating with the College of Health Professions and Moi University regarding the possibility of assimilating AMREF's Public Health Diploma course. However, Moi University intends to offer advanced (post-graduate) specialised courses in medicine. To be self-financing, AMREF proposes to develop its own tertiary care hospital, which will be the only one of its kind in Kenya. Their reasoning is that there is no justification to spend time and money to fly a patient to a facility where they will not receive appropriate/special care. The proposed hospital is intended to provide this service.

The other provider of in-service training, The Division of Family Health, is mainly concerned with continuing education programmes. It is involved in conducting short refresher courses. Workshops are the main vehicle for educating the practising health staff.

The Division of Family Health offers courses for trainers once or twice a year. Staff eligible for the training are holders of MCH/FP certificates and have worked for at least one year. Intake varies from 20 to 25 candidates per year, and there is virtually no attrition. Upon completion of the two to four week courses, the graduates are awarded the Certificate of MCH/FP Course Attendants. The graduates are instructed to train their counterparts in the field.

The Division of Family Health offers a family planning technology skill updating course for ECM's, and KRNs. Approximately 20 to 30 professionals attend the one week course once a year in Nairobi. The course is for informing the participants of the latest developments (new contraceptives, birth control pills, their pros and cons, etc.) in the field of family planning.

The Division of Family Health in each of its provincial and district centers also train community based distributors and field educators. Upgraded health personnel are given first preference. The two courses are of very short nature. The graduates distribute contraceptives and educate their clients (the public).

Approximately 91 percent, 73 percent, and 50 percent of In-Charges in the sample of NCC, NGO, and PMO respectively did not have administrative training. This issue is likely to have contributed to the inefficient operation of the health facilities.

Based on these findings it is clear that the existing opportunities for in-service or continuing education are inadequate. Until such opportunities are expanded, it may be difficult to optimally utilise the existing manpower potential.

4.2.5 Options

a) Health Manpower Training: To Ensure the Highest Quality of Health Manpower Training in the Nairobi Area, the following options should be considered:

1) Fully Utilise Existing Facilities

Ideally, health manpower production should be under the control of Ministry of Education but to ensure that the institutions meet the needs of the health delivery systems, health manpower planners should provide manpower needs and facility utilisation. A proper estimation of the required number of each category of health manpower required should be done. Information on the manpower loss (through death, retirement, shift of occupations, emigration, etc.) should also be routinely collected and used to plan manpower requirements and to assist training institutions to know the demand for various types of health personnel. This will allow the institution to be in a position of shifting resources to train required cadres of staff. The institution should be open to staff from other health providers, (e.g. PMO, private) not just NCC providers.

2) Expand Post-Graduate Training

Suitable post-graduate training opportunities for nurses are lacking in Kenya. The two year course offered in the School of Advanced Nursing in Nairobi University is too general. For example, if the training institutions are allowed to prepare their own syllabuses in nursing, this will probably increase their flexibility. The Nursing Council of Kenya should conduct examinations but allow the training institution to prepare their trainees for the examinations.

3) Offer Short-Term Intensive Upgrade Courses

The training institutions should revise their curriculum. They should explore the possibility of reducing the course durations without lowering the quantity and quality of the subject matter taught. The institutions may also need to redistribute their time and increase the duration of students' exposure in the field. For example, some of the In-Charges of private training institutions feel that KRN syllabus can be covered within

18 months of intensive training instead of the current 3.5 years. This has worked in North America and other countries. If the training period was reduced to even two years, the cost per trainee would be reduced drastically.

b) In-service Training: to ensure continued high quality staff, the following options should be considered:

1) Strengthen training programmes for upgraded staff;

2) Introduce special in-service training programme for the practising health facility administrator.

4.3 HEALTH MANPOWER MANAGEMENT

The ability to obtain an optimal productivity from personnel is a challenge that confronts all providers of health services. The difference between optimal productivity and actual productivity can be presented as a degree of efficiency. Major factors that determine the degree of efficiency are management of human resources and the application of these resources in the delivery of health services.

One of the questions the Team addressed was whether the Nairobi Area health providers could accomplish improvements in the delivery of health services by more efficient management and allocation of the available personnel resources. Evidence from the study shows that available personnel are often not utilised efficiently due to inadequate health manpower management. Management is responsible for all matters related to the employment, use, and motivation of employees. Management should determine both the productivity, and personnel coverage for each service in order to increase staff productivity and morale, provide a more stable work environment, and help retain staff. Better work environment and morale may influence staff attitudes towards the health system, ultimately determine their performance, and help the system in achieving its objectives.

4.3.1 Staff Development and Satisfaction

There are many factors that influence the ease or difficulty of obtaining and retaining personnel with desired skills and abilities. These factors include: monetary remunerations, staff performing tasks they did not train for, performance of multiple roles, continuing education programmes, intellectual/job satisfaction, benefits from training, appropriateness of procedures and practices of selecting staff for training, performance evaluation, supervision, working environment, medical cover, etc.

Availability of skill-update programmes is necessary for maintaining the productivity of the health workers. Thus, continuing education, post-basic or in-service training are necessary for efficient staff performance. Where possible health workers should specialise in their lines of training. About 55 percent of the staff surveyed had no post/in-service training.

Inefficient operation of the facilities in Nairobi Area may also be attributed to staff performing duties they were never trained for and/or performing multiple roles leading to divided attention. As illustrated in Table 4.6 between 14 percent and 31 percent of the respondents were performing various duties, besides their primary ones, that they were not trained for.

Continuing education programmes are vital in updating the knowledge, skills and attitudes of the health workers. Such programmes include short duration seminars and workshops. They provide a venue for intellectual intercourse. In addition, opportunities for post-basic or in-service training (mentioned earlier) are essential for enhancing competence of health manpower. Such training helps to improve workers'

morale and efficiency. As shown in Table 4.7, 51 percent of the workers surveyed had attended post-basic training in their areas of specialisation and between 11 percent and 30 percent in various other areas.

To motivate health staff to undergo training, remunerations or benefits from training must be explicit. As shown in Table 4.8, the staff were surveyed identified improved performance or job satisfaction as the major benefit they received. However, seven percent of the staff responded that they did not receive any benefit after training.

Other factors which could lower staff morale and efficiency include: inappropriate training selection practices and procedures, lack of techniques and criteria used in appraising personnel, lack of clear criteria in selecting and promoting personnel, lack of delegation of duties, and inexplicit policies and procedures regarding the lay-off and dismissal of personnel.

In the survey, 49 percent of the respondents felt that the existing procedures and practices in selection of staff for training were not appropriate. The problems in the mechanisms of recruiting staff for training were identified as favouritism, lack of information, low priority procedure for training, inadequate training facilities, and supervisors not recommending staff (see Table 4.9).

TABLE 4.6

OTHER STAFF DUTIES

Type of Other Duty Performed	Percentage of Staff Performing Other Duties	Percentage of Staff Not Trained for Their Other Duties Performed
Administration	19	38
Clinical duties	24	30
Stores management	14	50
Data collection	20	47
Maintenance of equipment	16	40
Nursing duties	31	36

TABLE 4.7

POST BASIC/IN-SERVICE TRAINING

Field of In-service Training	Percentage Attended Training
My field of specialisation	51
Additional/New field	22
Administration/management	11
Health information	30
Other duty I am performing	-

TABLE 4.8

BENEFIT FROM TRAINING

Benefit	% of Staff That Benefited
None	7
Promotion	8
Salary increase	8
Improved performance	59
Job satisfaction	11
Other	7

TABLE 4.9

PROBLEMS IN SELECTION OF TRAINEES

Problems	% of Staff
Favouritism	22
No recommendation by supervisors	7
Lack of information	20
No established procedure for training	12
Training not a priority in our facility	12
Unavailability of training	10
Other	17

Such complaints could easily frustrate the health staff and undermine the overall efficiency in the delivery of health services.

The existence, clarity and frequency of the staff performance appraisal and evaluation mechanism is a vital tool for enhancing staff productivity. Table 4.10 shows that staff performance appraisal is not a well established mechanism in most facilities. Only 16 and 19 percent of the surveyed staff were evaluated either monthly or annually. About 29 percent of the staff had never been evaluated and 17 percent did not know whether they were ever evaluated.

Only 37 percent of the respondents rated the staff performance appraisal system in their facility excellent or good and 36 percent rated it as fair, poor, or very poor (see Table 4.11).

TABLE 4.10

PERFORMANCE APPRAISAL

Evaluation	Percent
Never	29
Monthly	16
Annually	19
Don't know	17
Other	19

TABLE 4.11

APPRAISAL SYSTEM

Opinion	Percent
Excellent	8
Good	29
Fair	16
Poor	12
Very poor	8
None	14
Other	13

Delegation of responsibilities is a vital fact of efficiency improvement in the facilities. The survey data shows that 16 percent and 67 percent of the staff interviewed said they reported to the section supervisor and In-Charge of the facility respectively, while five percent of the respondents reported to no one. Most of this five percent were doctors and clinical officers. Some of the respondents reported to the Medical Officer of Health stationed quite far from the health facilities (i.e., in City Hall, Ministry of Health headquarters), which reduced efficiency at the facility level. Management ability and adequate supervision are crucial if the system is to ensure efficiency.

The fact that 67 percent of the respondents reported to the In-Charge of the facilities is a reflection of poor delegation of duties. It is very difficult for one person (the In-Charge) to monitor the work of all members of staff. Such concentration of responsibilities is bound to create inefficiencies in health care delivery.

High labour turnover from health facilities is another factor which can have negative impact on labour productivity as it creates instability among the workers. Evidence gathered from the staff surveyed shows that 53 percent had changed employers at one time or the other. Relatively few people had moved from parastatal, NCC, or private health facilities.

Employees who had moved from Ministry of Health did so mainly because of higher salaries offered elsewhere, nearness of the other employer to the employees' residence and better working environment provided by the other employer. Those who had moved from the private sector gave better working environment, job security and higher salaries offered as the main reasons. Generally the employees moved from one employer to another in search of higher salaries, nearness to their areas of residence, better working environment and job security.

Table 4.12 includes what the staff regarded as areas important for improving staff welfare: salary; provision of training opportunities; housing; and rapid promotion are areas

TABLE 4.12

IMPROVEMENT IN STAFF WELFARE

Area of Improvement	% Regarding it as The Most Important
Housing	11
House allowance	3
Owner-occupied house allowance	1
Salary increase	27
Rapid promotion	10
Physical facilities	8
Transport	5
House allowance of married women	8
Training opportunities	11
Other	16

4.3.2 Assessment of Staff Performance Across Facilities

Observations were made of staff performance at 26 facilities. These observations ranged from patient reception, performance of specific tasks, and staff attitudes towards patients and their work.

At reception, activities of staff covering reception of patients, registration, attitude of staff, availability of staff, directions given to patient by staff and responses to patient enquiries were observed. Using these indicators, the enumerators rated the quality of services provided in each facility as either very poor, poor, fair, good or excellent.

All quality of service at PMO and private facilities were rated good or excellent with only 86 percent of the NCC facilities given similar rating (see Table 4.13).

a) Reception Time

The average time taken to serve one patient was evaluated and the findings are shown in Table 4.14. The shortest waiting time at the reception was at PMO facilities and the longest in NGO facilities.

b) Consultation Time

Average time spent in the consulting rooms per patient was also observed as shown in Table 4.15. Private facilities show the longest consultation time, an average of 5.34 minutes. This is low but when one considers the range (i.e. 3.12 to 16 minutes), it is clear that there are some private facilities where adequate time is accorded to patients. In PMO and NCC, there is no adequate consultation time. This may explain their high workload and shortage of staff.

TABLE 4.13

OBSERVED FACILITY QUALITY OF SERVICE

Rating	NCC	PMO	Private
Good to Excellent	86%	100%	100%
Fair	14%	0	0

TABLE 4.14

AVERAGE TIME TAKEN AT RECEPTION DESK

	NCC	PMO	Private
Average time (minutes)	1.1	1.0	3.0
Range (minutes)	(0.5-3)	(0.5-1)	(0.5-10)

TABLE 4.15

AVERAGE TIME FOR CONSULTATION

	NCC	PMO	Private
Average time (minutes)	1.75	2.58	5.34
Range (minutes)	(0.5-4.2	(2.33-2.85)	(3.12-16)

c) Drug Dispensing

In the drug dispensing area, the time taken is shown in Table 4.16. This includes verbal instruction to a patient in the use of drugs, and responding to patient's questions on use of drugs. An average 1.5 minutes is deemed as adequate. It is evident that all the facilities are below this.

d) Instruction

Measurement of clarity of instructions were performed and responses to patient questions about the use of drugs were observed and results shown in Table 4.17. The above findings show that there is some relationship between the time given to serve patients (see Tables 4.15, 4.16) and clarity of instructions. When inadequate time is given to serve a patient, as is the case with NCC, the patient is confused.

e) Drug Referral

Observation on whether patients were referred back to the doctor for alternative prescriptions showed that NCC had the highest percentage of facilities which did so (see Table 4.18). This situation may be caused by the unavailability of drugs which the doctors had prescribed.

Other observations were made on whether patients were given adequate instructions about various destinations within the establishments. All facilities gave adequate instructions, there were no significant differences between them.

f) Conclusion

In conclusion, work pressure, shortage of staff, and lack of drugs play a major role in the determination of the quality of health care provided by Nairobi Area facilities. According to the measures used, private facilities tended to have a higher rating, followed by PMO and lastly by NCC. Private facilities may possess key factors in offering effective service (i.e. manpower, money, materials).

NCC shows a serious discrepancy in sterilisation and asceptic techniques. Syringes and needles are still boiled which is rather risky. Dressing of wounds generally lacked adequate sterilisation. The techniques and materials used are generally unsterile. There is inadequacy of time in serving patients in all areas: reception, clinical examination and review, and pharmaceutical service counter.

TABLE 4.16

AVERAGE TIME TAKEN IN DISPENSING ROOM

	NCC	PMO	Private
Average Time (Minutes)	0.6	1.37	1.2
Range (minutes)	(06.-3)	(0.5-1)	(0.62-3)

TABLE 4.17

CLARITY OF INSTRUCTIONS

	NCC	PMO	Private
Clear	7.6%	100%	90%
Unclear	92.4%	0	10%

TABLE 4.18

REFERRED BACK TO DOCTOR

	NCC	PMO	Private
Referred back	53.8%	33%	30%

4.3.3 Staffing Efficiency Options

Efficiency may be improved administratively by making better use of personnel and physical resources. In both cases the demand for services should guide allocations. Once overall allocations are made, the scheduling of staff, facilities, and equipment should again follow demand to assure efficiency.

The level of staffing in a facility is a crucial factor in the efficiency of its operations. Since personnel is the most single costly resource, personnel should be used as efficiently as possible. This involves striking a balance between overstaffing, (not utilising personnel to maximum capacity) and understaffing (which would decrease quality of care).

Although attempts have been made in the past to formulate staffing norms, our investigation showed that there are still major weaknesses in establishing effective and objective staffing norms:

1) Existing staffing guidelines were mainly based on facility type and number of beds in a facility. Our findings show that the facility type and the number of beds in a facility were poor indicators of volume of service provided by a facility. There were many cases where dispensaries handled higher numbers of patients than a health centre. Similarly, there are cases where health centres handled higher numbers than hospitals. The numbers of patients treated by the same type of health facility varied greatly from one facility to the other depending on the location of the facility, services provided, and other factors.

2) The existing staffing guidelines are not properly understood. A large number of staff interviewed at Ministry of Health and at various health facilities were not aware of staffing guidelines. In order to implement the existing staffing guidelines, it is essential to familiarise In-Charges of health facilities with the guidelines and the rationale or bases on which they are developed.

3) In-Charges who are aware of the existing staffing guidelines often do not observe the guidelines, especially in the public sector health facilities. This was largely due to shortages of trained health manpower or lack of resources to acquire the required numbers.

To develop more objective staffing norms, health providers need to be guided more by the volume of services of work load than by facility type or number of beds.

4.3.4 Options

a) To ensure that the health facilities in the Nairobi Area plan, manage and utilise personnel resources efficiently, the Team recommends the following options:

1) Deploy Personnel Only in Area of Training Specialisation

Set up a health manpower unit. This would be the organisation base from which the health manpower process should be directed - planned, controlled, and influenced. It should be charged with following responsibilities for planning, coördinating, monitoring and evaluation, research and development, and information collection and analysis for deploying health personnel.

2) Develop and Implement Promotion Criteria Based on Performance

The criteria used in selecting and promoting personnel should be stated clearly. Techniques and criteria used in evaluating staff performance should be clearly stipulated. The appraisal mechanism should be a formal procedure. Staff should be given feedback on their performance promptly. A career structure will make it possible for the deserving members of staff to advance within the facility. That is, promotion within the place of work may be an effective incentive.

3) Assign Personnel Who Have Relevant Managerial Training to Plan, Manage, and Administrate Facilities

Improve supervision at the facility level. This is because thoroughness of supervision is an important determinant of efficiency of any institution.

4) Reward Outstanding Performance with Bonus, Public Recognition, Awards

A commission should be set up to review the monetary remunerations, housing, and training opportunities for the health staff. Monetary remunerations can be used as a means of keeping the facilities adequately staffed. Salary increments and/or other benefits should be tied to performance. The staff should be involved, consulted, and be given an opportunity to offer suggestions.

5) Develop and Implement Job Descriptions for Executive, Supervisory, and In-Charge Personnel

There should be clear job descriptions for various management personnel of health staff. Each member should be made aware about his/her expected contribution in the production of health services.

6) Train Staff Currently Assigned Administrative Duties in Relevant Managerial and Planning Skills

b) To make more efficient use of personnel the EIS Team recommends that a choice be made between:

a) Develop and implement staffing norms based on volume of service Undertake a review of staffing needs and subsequently establish staffing norms for all cadres.

b) Develop and implement productivity norms for facilities and resources.

Apply the staffing norms used by the private hospitals in Nairobi as an interim step, then adjust those norms to fit PMO, NCC situation.

4.4 DRUGS AND SUPPLIES

Given the importance of drugs and supplies in the provision of health services and their relative weight in the health budget, it is crucial that health care providers manage their stores and supplies efficiently in order to consume the supply of already limited resource.

The Government of Kenya's Gross National Budget for the finance year 1987/1988 was Kf. 2.1 billion. The Ministry of Health received about Kf. 168 million or roughly eight percent of this. Nearly 50 percent of the Health Budget was spent on drugs, supplies and equipment (Kf. 84 million - Financial Review of 6 July 1987).

The main objective of a plan for drug and supply systems is to to meet demand. Procurement, receipt, storage, stock and control through distribution must:

1) Provide a steady flow of drugs and supplies to meet demand.

2) Ensure continuity of supply by maintaining effective relations with existing suppliers and cultivating new sources of supply either as alternatives or to meet emerging or planned needs.

3) Purchase efficiently and wisely to obtain the best value for every shilling spent.

4) Manage inventory to provide the best possible service to the user.

5) Maintain sound cooperative relations with other departments provide information to ensure smooth flow of information for planning.

6) Develop sound staff policies and procurement procedures in order to operate an effective and efficient supply system.

A supply system can be summarised as the:

- Right quality
- Right time
- Right quantity
- Right source
- Right price

When adhered to, the five 'Rights' are control measure in themselves. The right quality should be determined by technical staff (user). Where possible, the lowest price with right quality should be considered. Frequently, the right quality is not always the cheapest on the market but will prove to be cheaper in the long run.

4.4.1 Evidence and Findings

The Team reviewed the policy guidelines for procurement of drugs and supplies for NCC, PMO, private and parastatal facilities. Table 4.19 summarises procurement methods.

The PMO facilities follow the guidelines of the Government of Kenya Supplies Manual (see Appendix I). At present, all use the Rural Health Drug Ration Kit system that is supplied by the Medical Supplies Coordinating Unit. Parastatal and private facilities appear to have informal guidelines for maintaining stock and order from local suppliers, or purchased by the specific drugs needed each day.

The NCC facilities order from a catalogue of standard items (16%), from inventory or to maintain minimum stock (32% and 20% respectively), or they order what CMS stock is available (24%).

The NCC facilities request drugs and supplies through the Divisional Headquarters. Approvals are forwarded to the Central Medical Stores. All of the NCC facilities order from Central Medical Stores, but they may have to use other procurement procedures in case of shortage, as Table 4.20 shows.

TABLE 4.19

DRUG AND SUPPLY PROCUREMENT

Order Basis	PMO	NCC	Private	Parastatal
Catalogue	-	16%	9%	-
Kit system	100%	-	-	-
Inventory	-	32%	37%	-
Minimum stock	-	20%	27%	100%
CMS stock	-	24%	-	-
Demand	-	8%	-	-

TABLE 4.20

PROCUREMENT OF DRUGS AND SUPPLIES

Request	PMO	NCC	Private	Patastatal
Order from CMS	67%	70%	-	34%
Request to Purchase	-	10%	14%	33%
Procure direct	-	-	67%	33%
Procure from other Facilities	33%	10%	5%	-
Other	-	10%	14%	-

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TABLE 4.21

SHORTAGE OF DRUGS AND SUPPLIES

Facility	Drug Shortage Problem		Supply Shortage Problem	
	Minor	Serious	Minor	Serious
NCC	33%	67%	30%	70%
PMO	-	100%	-	100%
Private	100%	-	100%	-
Parastatal	50%	50%	50%	50%

TABLE 4.22

ORDERING DRUGS AND SUPPLIES

Criteria	PMO	NCC	Private	Parastatal
Regular Basis	-	60%	38%	50%
When Out	33%	10%	16%	-
Maintain Minimum Stock	-	30%	46%	50%
Other	67%	-	-	-

TABLE 4.23

RECEIVED DRUGS AND SUPPLIES ORDERED

Facility	Yes	No
NCC	-	100%
PMO	-	100%
PRIVATE	100%	-
PARASTATAL	50%	50%

Source: Survey Data

Table 4.21 indicates that 70 percent of NCC facilities experience serious problems in shortages of drugs and supplies. This appears to be a problem of Central Medical Stores since 60 percent of the facilities stated that they ordered drugs and supplies on a regular basis (see Table 4.22) and 100 percent of the facilities (see Table 4.23) stated they did not receive all the supplies and drugs they had ordered.

The Rural Health Drug Kit (Kit) system being used by PMO facilities is a pre-packaged drug system that has either a Health Centre Kit with 39 items, or a Dispensary Kit with 31 items. To determine what drugs to include in each Kit, a study of rural morbidity patterns was conducted. Quantities are based on daily utilisation patterns of the facilities which were studied. The system was designed for rural health facilities and has not been redefined to address the demand of disease patterns in urban areas and sophistication in urban health facilities. This system has yet to be worked out to adequately meet drug requirements of Nairobi PMO facilities.

Based on interview responses, the Team found a need for a wider range of drugs for the Nairobi Area, if a Kit system is to be established for urban facilities. All PMO respondents stated that certain drugs are inappropriate for pregnant mothers, breast feeding mothers, and young children. In Table 4.21, all PMO facilities stated that drugs and supplies were a serious problem. On the other hand, a positive aspect is that the Kit system simplifies management of drugs of supply. Only one major tender is administered, there is one distribution period each month, supply is estimated on planned demand, supply is steady, and prepacking eliminates waste, loss and damage. But this has not eliminated the shortage of drugs at PMO facilities.

The Rural Health Drug Ration Kit has served to reduce congestion at district hospitals. It is recommended that an appropriate urban kit should therefore be able to reduce congestion at the NCC and other facilities in Nairobi Area.

During the interviews, In-Charges at NCC and PMO facilities noted that they do not have specific budget allocations, but that provisions are established for each facility. As shown in Table 4.23, the drug and supply requests sent to Central Stores are never fully honoured. The Team found that many of the facilities over-ordered drugs and supplies to offset this anticipated shortage. Over-ordering creates two problems: 1) it provides inaccurate information for central planning; and 2) it creates surpluses of under-utilised drugs and supplies that consume storage space, are misplaced, and expire before they are used.

Other problems associated with never receiving the items order relate to emergency purchases, procurement process, and budget planning. When items are required on an emergency basis, the justification for purchase normally supports the need to acquire the item immediately without proper negotiation to purchase the best quality at the lowest price. Most emergency purchases are acquired at a price higher than normal. During this timeframe, shortages occur, prices increase, and the vendor who successfully receives the tender may not be able to deliver the requested items.

Another problem is that budgetary allocations are based on the cost of previous consumption. This planning does not account for the utilisation of drugs and supply based on service needs but only considers what was received during the previous fiscal year. Table 4.23 showed that the NCC and PMO facilities stated they did not receive all the drugs and supplies requested. This situation implies that drug and supply budgets are understated. The overall budget process for NCC and PMO facilities is unclear. Most facilities stated they did not have budgets for supplies and drugs and ordered "as and when required" without knowing their financial limits or constraints.

Private facilities stated that they established supply needs (Table 4.19), based on inventory (37%), minimum stock (27%), and patient demand (27%). Since private facilities charge for services, they normally do not experience shortages as experienced by NCC and PMO facilities (see Table 4.21 and 4.23). The cost of drugs and supplies are charged directly or added to the service charge. Occasionally, a shortage of drug or supply will occur in the local market, but most private facilities maintain minimum inventories (46%) that allow for substitution during these shortage (see Table 4.22).

4.4.2 Options

Drugs and supplies account for up to 50 percent of a health facility's annual expenditures. The ability to accurately plan for utilisation and to ensure the availability of materials is essential for an efficient health delivery system. Options to consider include:

1) Revise the drug and supply procurement system

The procurement procedure for PMO and NCC facilities are long and cumbersome. The time between requisition and delivery of goods to user from Central Medical Stores could be reduced.

2) Contract to private firms for provision warehousing and distribution of drugs and supplies

The local pharmaceutical and supplies industries should be supported. They will support growth which will generate competition that will act as a self-restraining price control measure.

3) Rationalise budgeting and expenditure systems for health care providers

The budget system will require estimates for drugs and supplies. These estimates should be based on utilisation.

4.5 PHYSICAL SPACE AND SERVICE ALLOCATION

The extent to which the existing health facilities can be modernised, expanded or equiped for the future depends to some degree, on availability of physical space. Investigations by the Team into the current states of physical space availability for health facilities in the city indicate that a large proportion of the facilities are already constrained by inadequate space.

4.5.1 Physical Space

About 42 percent of the facilities studied reported that they were constrained by inadequate physical space. This has negatively affected the quality and quantity of services provided. Those reporting inadequate space were evenly distributed among private, NCC, and PMO facilities. One of the space problems identified in the PMO facilities is that the building in which the health facilities are housed are owned by corporations or departments which are not under the control of the Ministry of Health. PMO officials interviewed regarded this as a limitation on their ability to change or expand these facilities. Some private sector health facilities were housed in rented premises. This not only limited the extent to which the health facilities could change or expand their space, but also added a risk element due to the fact that the future plans of landlords are largely unpredictable.

The following are illustrations of how lack of adequate space affected the provision of health services in some of the facilities studied:

- The NCC chest clinic, the only one of its type among NCC facilities, was unable to instal x-ray equipment because there was no space.
- Several NCC facilities stopped maintaining patients medical records because there was no space for filing cabinets.
- Some health centres were not giving health educational lectures to patients because they lacked a lecture room.
- One NCC health centre could not install an autoclave in the kitchen as there was not proper space.
- A private sector dispensary did not offer family planning services due to lack of space.
- The Pumwani Maternity Hospital kitchen is located between the laundry and the boiler rooms and has no room for expansion yet is expected to feed all hospital patients and maternity patients in health centres.

- Some NCC health facilities did not have space for proper storage of vaccines.

- A large number of facilities lacked proper waiting rooms, staff rooms, and offices.

Although a large number of health facilities were constrained by inadequate physical space, there is evidence that a number of them had space which was either unused or was not used in the best way possible. Of the facilities studied, 27 percent reported that there were rooms which were not used at all. Unused rooms ranged from one to six. NCC had the majority of facilities with unused rooms. This was due to a lack of specific staff cadres. For instance, a number of NCC facilities had empty rooms because they were reserved for doctors, but the facility had no doctor available.

These findings show that a significant proportion of health facilities are constrained by inadequate or inappropriate physical space utilisation. If the space was more efficiently utilised, the quantity and quality of services could be improved substantially.

4.5.2 Maternity Services

One of the areas of underutilisation of the existing physical facilities is demonstrated by the low bed occupancy rates of some inpatient facilities with maternity beds. Kamiti averaged a mere 1.3 percent occupancy during the month of May, 1988. NCC Maternity Units had less than 30 percent bed occupancy rates in May 1988. Although Jamaa and Park Road Nursing Homes, two private sector facilities, averaged higher rates than the NCC facilities and Kamiti, their occupancy rates were low, nevertheless (36% and 42.8% respectively).

The Team investigated why the NCC maternity units were underutilised while Pumwani Maternity Hospital is heavily congested. Several factors were identified which may explain the situation:

1) maternity patients perceived that quality of health services provided at the maternity units;

2) shortages of essential resources; and

3) irregular supply of meals.

Survey results showed that women with uncomplicated pregnancies, presumably the main users of the NCC Maternity Units, were reluctant to go to these units for delivery. The fact that the Units do not have theatres and are not usually manned by doctors tended to make expectant mothers believe that the Units could not handle complications arising during the course of delivery.

According to the In-Charges of the Maternity Units studied, meals were another factor which discouraged mothers from delivering at the Maternity Units. Transportation of food prepared centrally at Pumwani Maternity Hospital for the Maternity Units is often problematic due to a shortage of vehicles. Mothers delivering at the Maternity Units occasionally go without any meals during the day or they may receive food that is cold. In addition, the unit cost of transporting food from Pumwani Hospital to the Maternity Units is high because of the small number of mothers delivering. Our study found that with the exception of Eastleigh Maternity Unit, NCC Maternity units had less than one admission per day between January and December 1987.

Currently NCC operates nine Maternity Units in the city, each with 20 beds and four labour beds. While these Units were expected to decongest Pumwani by handling all the uncomplicated maternity cases, the criteria for referral to Pumwani appear to be liberally interpreted (see Chapter 5).

4.5.3 24-Hour Health Facilities

With the exception of Jericho Health Centre, Ngaira Road Dispensary, and the major private hospitals which operate emergency and casualty services, Nairobi health facilities provide outpatient services only during the day. The only non-fee charging facilities offering 24-hour, seven-day outpatient services are the above two NCC facilities.

Table 4.24 provides attendance statistics for Ngaira Road Dispensary and Jericho Health Centre. Between May and June, Ngaira Road Dispensary handled an average of 18,669 outpatients per month during the day (8 am - 5 pm) and 4,750 outpatients per month during the night (5 pm - 8 am). Thus, 20 percent of total number of outpatients treated per month in the dispensary attended the facility at night. During the same period, Jericho Health Centre served an average of 16,310 and 5,759 outpatients per month during the day and night respectively. The night outpatient attendance at Jericho constituted 26 percent of the total monthly outpatients. Although Ngaira Road Dispensary has higher overall and daytime outpatient attendance than Jericho Health Centre, the night attendance at the former is lower than at Jericho Health Centre. The difference in the level of utilisation of the two facilities is largely attributed to the location of the two facilities.

TABLE 4.24

24-HOUR FACILITIES

Facility	May	June	July
JERICHO HEALTH CENTRE			
Day 8 am - 5 pm	16,167	16,440	19,021
Night 5 pm - 8 am	6,213	6,375	5,142
NGAIRA ROAD DISPENSARY			
Day 8am - 5pm	17,910	19,075	NA
Night 5pm - 8am	4,895	4,557	4,798

Ngaira Road Dispensary is located near the city centre where there are more people during the day and less after office norms, leading to congestion during the day and under-utilisation at night. Although the facility does not keep data showing attendance at different times of the night, the information gathered through interviews with the In-Charge of the facility showed that the majority of people attending Ngaira Road Dispensary during night do so mainly between 5 and 8 pm, with small numbers reporting after 9pm. Inadequate security at night was given as one of the factors contributing to low, late night attendance at the dispensary. The lower night outpatient attendance at Ngaira Road Dispensary compared with Jericho suggests that Ngaira is less suitable as a 24-hour health facility.

Jericho Health Centre is located in one of Nairobi's highly populated residential areas, Eastlands. Slightly over 52 percent of the outpatients who use the Health Centre are females and 57 percent are below 16 years old. Table 4.25 shows the distribution of the night outpatient attendance at Jericho Health Centre for the month of May 1988. While the numbers decline with late hours of night, significant numbers of people are seen at various times of the night.

TABLE 4.25

NIGHT ATTENDANCE AT JERICHO HEALTH CENTRE

Time:	5-7p.m.	7-9p.m.	9-11p.m.	11-8a.m.	Total
Number:	2,930	1,809	931	543	6,213
% of Total:	47	29	15	9	100%

The level of utilisation of Jericho Health Centre and Ngaira Road Dispensary show that while the number of 24-hour facilities need to be improved, the location of such facilities should be given adequate attention to ensure optimal utilisation and efficient resource allocation.

Interviews with the In-Charges indicated that night health services catered more for emergencies or casualties, adults and school children with minor ailments who did not want to disrupt their day activities seeking medical attention, and people who wanted to avoid long queues at NCC health facilities during the day.

A more widespread distribution of night health services could be an effective strategy of reducing daytime congestion at health facilities in the city as well as reducing time lost by workers and school children seeking medical treatment during daytime hours.

4.5.4 Options

To serve the population of the City of Nairobi, health facilities should provide adequate space for quality delivery of health services, the following options should be considered:

1) Location and size of health facilities should be planned to enable them to perform their functions effectively and to facilitate future expansion if need arises.

2) Functions of the existing health facilities should be restructured to facilitate efficient utilisation of available space demanded in large volumes and vice versa.

3) Close some of the facilities which are underutilised during the day and convert health facilities in the densely populated residential areas into 24-hour facilities.

4.6 MAINTENANCE AND UTILISATION OF EQUIPMENT

A major resource in the delivery of health services is medical equipment. Equipment assists doctors in diagnostic or therapeutic treatment of patients in the delivering care. It can be in the form of a sphygmomanometer aneroid, an auroscope, or a stethoscope that assists in diagnostic services, or it can simplify a task or ensure that infectious diseases are controlled or prevented.

4.6.1 Evidence and Findings

A variety of items commonly found in NCC facilities, (not all inclusive) that can be classified as medical equipment are shown in Table 4.26. The number of medical items in the facilities surveyed differed greatly from one health centre to another, with as low as ten items in one facility and as high as 691 in another. This varied range of available medical items was also noted in clinics and dispensaries surveyed.

The problems associated with medical equipment normally occur because of overuse or inadequate maintenance. The overuse of equipment is usually the result of inadequate funds, unavailability of spare parts and/or inadequate maintenance. Table 4.27 shows that a number of the facilities surveyed had problems with broken equipment: 94 percent of NCC; 71 percent of PMO; and all the parastatals reported they had one or more items of broken equipment.

An inventory of equipment requiring repair or replacement at Nairobi City Commission, Public Health Department Divisions I and II (see Appendix J), found a majority of these items to be blood pressure machines and sterilisers. The overall proportion of equipment requiring service or replacement in the Nairobi Area was almost 50 percent (see Table 4.28). This finding is further supported by the fact that 19 percent of NCC, six percent of PMO, 17 percent of mission, and 13 percent of private facilities surveyed regarded lack of functioning equipment as either the first or second most serious problem in their facilities.

As shown in Table 4.28, government and private facilities reported the highest number of equipment requiring repair or replacement. Stethoscope, filing cabinets, heaters, cooking stoves, fridges, infant weighing scales, adult weighing scales, and diagnostic sets were equipment needed.

The inefficiencies related to the shortage of this equipment are numerous. In some instances patients have to be referred to another facility because they cannot be treated; in others, the doctor is unable to complete a diagnosis or treatment because equipment is not available or instruments are not sterilised. When a patient cannot be treated, inefficiencies arise in use of personnel, facility, and equipment, not forgetting the inconvenience to the patient.

TABLE 4.26

COMMON MEDICAL EQUIPMENT ITEMS IN NCC HEALTH FACILITIES

Autoclave	Cheatle forceps medium
KEPI Fridge and gas cylinder	Gallipot stainless medium
Oxygen cylinder + wheel + Flowmeter	Gallipot stainless small
Mackintosh	Dissecting tootted forceps small
Steriliser small and steriliser large	Stainless tray
Instrument container lid small	Thermometers
Stainless jars lid	Instrument container lids
Jars with lids	Examination couch
Torch plastic	Speculum 3 1/2"
Instrument container lid medium	Speculum 4" (cuscos)
Cheatle forcep large	Speculum 5" (cuscos)
Dissecting forceps toothed small	Cervical dilator
Artery forcep small	Family planning couch lithotomy
Artery forcep medium	Dressing scissors
Bar syringe metal	Angled poised light
Needle holder	Bowls stainless small
Sputum mug	Foetal scope
Syphgometer	Petela hammer as handle
Instrument tray lid	Receiver large
Baby weighing scale	Scissors 7"
Bathroom weighing scale	Stethescope BP machine
Spencer wells forcep	Bowls stainless small

The Team could not accurately estimate the cost of personnel and facility inefficiencies given the limited time of this study, but the team estimated the cost of replacement equipment for the Nairobi City Commission. Appendix J shows the NCC facility and estimates the cost of replacing equipment to be Kshs. 1,972,420.

At Pumwani Maternity Hospital the Team identified a need for 30 blood pressure (BP) machines to provide vital monitoring of patients in the wards. The inventory showed that the hospital currently has only three BP machines. Assuming that a blood pressure machine suitable for Pumwani Maternity Hospital costs Kshs. 1,500, a tender of Kshs. 40,500 would provide the facility with an additional 27 BP machines for patient care. Presently the sisters are required to carry the three blood pressure machines from bed to bed and floor to floor. With 321 beds at Pumwani, the time required for a sister to transport a BP machine from one ward to another, several times a day, quickly adds up to the cost of one replacement of BP machine. Considering that the shortage has existed for a long time, the inefficient use of nursing staff's time and the related cost of that time, presumably, is much higher than the cost of replacement of all 27 blood pressure machines.

Review of the equipment procurement process at private facilities revealed that a majority (52%) acquired their equipment through a written order and tender system. It also showed that most equipment and spares were obtained locally. Although 50 percent of the facilities did not have procedures or guidelines for procurement of equipment or spare parts, most had received the equipment they requested in the prior year. A majority of the equipment items acquired were diagnostic equipment such as stethoscopes, blood pressure machines, diagnostic sets, and forceps.

Areas identified as serious maintenance function problems relate to obtaining: spares (50%); funds (47%); and regular service (40%). The areas identified as functioning well were: maintenance staff support (70%); regular service (53%) obtaining spares (47%); and funds (40%). The 53 percent responding that adequate service was functioning well were all from private facilities in the survey. The 40 percent responding that adequate service was a problem were all from NCC and PMO facilities. Table 4.29 shows how serious those surveyed ranked the problems associated with maintenance of equipment among all the facilities surveyed.

Because of the varied types of equipment, the maintenance personnel require specific knowledge and training to maintain the equipment in working order. The data on broken equipment (Table 4.27) further emphasise that NCC and PMO facilities have problems servicing broken equipment in their facilities. When asked is standardisation of equipment should be a consideration for Nairobi health facilities, 83 percent responded positively. But upon further discussion, over 60 percent believed that the issue of standardisation of equipment is not a practical idea.

TABLE 4.27

FACILITIES WITH BROKEN EQUIPMENT

Type of Facility	% With Broken Equipment
Parastatals	100
Nairobi City Commission	93
Provincial Medical office	70
Private	27
Mission	20

TABLE 4.28

EQUIPMENT REQUIRING REPAIR OR REPLACEMENT

Type of Facility	% Requiring Repair Or Replacement
Provincial Medical Office	54
Private	54
Mission	50
Parastatal	50
Nairobi City Commission	29

TABLE 4.29

PROBLEMS ASSOCIATED WITH MAINTENANCE OF EQUIPMENT

	% of Responding Facilities		
Area of Problem	Not a Problem	Serious	Very Serious
Spare parts	44	6	50
Regular servicing	53	7	40
Procedures not specified	79	-	21
Cumbersome procedures	77	-	23
Lack of local funds	40	13	47
Lack of foreign exchange	87	-	13

Preventive maintenance involves planning appropriate regular servicing and checks of equipment before breakdowns occur. Many facilities use equipment without servicing until it breaks down. Of the surveyed facilities, 86 percent have never had a preventive maintenance plan or had checks done on the equipment in their facility and 61 percent did not have preventive maintenance guidelines and procedures. This lack of preventive maintenance was noted at all the NCC and PMO facilities surveyed.

The development of standard criteria for equipment purchases would reduce the problems identified in Table 4.29. Developing criteria based on spares availability, training of maintenance personnel, availability of local service, and other factors would allow the health facilities the optimal use of their equipment.

4.6.2 Options

a) To provide adequate medical equipment for the delivery of health services, health facilities should properly maintain equipment. Options to be considered are:

1) Contract with private firms for equipment and facility maintenance.

2) Coordinate equipment purchases and maintenance among providers.

3) Implement policies of preventive maintenance.

4.7 MENTAL HEALTH SERVICES

Mental illness is currently a major problem not only in Nairobi, but in the whole country. It is estimated that 30 percent of people attending health facilities in the country suffer from some form of mental illness, with many of them going largely unrecognized and receiving inappropriate treatment. There are 2,500 to 3,000 admitted mental patients in inpatient mental health facilities on any given day.

Primary health care programmes have not yet integrated mental health effectively. The increasing attention mental health care is receiving in the country is shown by the recent creation of the Division of Mental Health care in 1987. The functions of the director of Mental Health Services are to:

1) advise the government on mental health services;

2) ensure the provision of mental health services in the country; and

3) develop and implement a national mental health policy.

The last three years have seen a considerable change in the structure of mental health services, with emphasis given to decentralization. Many patients are now referred to district and provincial hospitals where qualified psychiatric staff have been posted. Registered and enrolled psychiatric nurses have also been posted in twenty districts to provide outpatient or mental health services. The district psychiatric units are expected to handle the less complicated cases and refer the difficult ones to Mathari Mental Hospital. In the Nairobi Area, there are plans to launch a training programme for improving the diagnostic skills of NCC Personnel.

Kenya has 34 psychiatrists and 15 practising in Nairobi. Trained mental health personnel such as psychiatric social workers and psychiatric nurses are inadequate due to ineffective utilisation and organisation of resources. Major constraints in the delivery of mental health services, according to senior personnel involved in the delivery of these services, are: inequitable distribution of services in urban areas; shortage of psychiatric personnel in some districts; shortage of psychiatric trainees; irregular supply of drugs; and negative public attitude towards mental illness.

4.7.1 The Mental Treatment Act Cap. 248

The admission and treatment of mental disorders in a Kenyan mental hospital is governed by the Mental Treatment Act. Cap 248. The procedures involved in admitting the patient are very long and confusing. Parts IV, V, VI and VII (Sections 6-28) of the Act describe the two ways through which a patient can be admitted to a mental hospital: voluntary admission for temporary treatment; and commission by a magistrate.

Voluntary admission is by application, if the patient is over 16 years old, or can be made by parents or guardian. These applications must be accompanied by a medical certificate from a doctor confirming that the patient has been examined and diagnosed as mentally sick. The doctor who gives such a certificate has to be either the patient's usual doctor or one that the Director of Medical Services (DMS) has approved. When the patient wants to leave the hospital he must give 72 hours notice to the In-Charge who then informs the visiting committee.

A patient can be admitted in a mental hospital for temporary treatment if the husband, wife, relative or Attorney General makes an application. The application must be accompanied by a medical recommendation signed by a DMS approved doctor. The recommendation is valid for 14 days. The law states that a patient admitted for temporary treatment will not stay in the hospital for more than 12 months.

The NAS Team was informed that 5-10 percent of all mental patients will need permanent admission in a mental hospital while 25 percent will require re-admission in the future. Fifteen to 20 percent of patients are who are discharged require close monitoring.

Reception orders are written by a magistrate in the jurisdiction of the person with mental disorder. The process for getting these reception orders is made by petition, and the application must be supported by an affidavit and a certificate from a doctor. If the magistrate is satisfied that there is a case, he examines the patient and makes the reception order. If he is not convinced that there is a problem, he can make further inquiries. He decides who will take custody of the patient while he/she is waiting to conclude the inquiry. Finally he/she may dismiss the petition or make the reception order depending on his judgement.

In the case of any mentally ill person found wandering about, a police officer above the rank of Assistant Inspector, an officer in charge of a police station, or an Assistant Chief within whose limit of jurisdiction the patient resides, can take the wandering person into custody. The mentally ill person is then referred to a magistrate who may authorize detention and treatment of persons in a mental hospital or any other suitable place for up to 28 days while awaiting the report of a doctor. The patient may not be detained in any police station or prison unless no other suitable accommodation is available. No person will be admitted to a mental hospital under a reception order unless he/she has copies of the medical certificate and the reception order.

The major problem presented by these procedures on the decision of where to send the mentally disturbed person is left to the magistrate's discretion rather than a doctor. Revision of these admission procedures as laid down by law is long overdue.

4.7.2 Mathari Mental Hospital

The hospital was opened in the 1920's for post World War I mental cases. Today, Mathari Mental Hospital functions as the most important referral centre for mental patients in the country.

However, the role of the hospitals as a referral centre has been limited by shortage of lower level health facilities with inpatient capabilities. Availability of such facilities would facilitate Mathari Mental Hospital in becoming a more effective referral centre. Currently, the hospital is used more or less as a catchment hospital for the Nairobi Area. Low specialist care has resulted because of the heavy workloads of the available specialists.

Referral of patients to the district psychiatric units has not worked well because the units are poorly equiped to handle such roles. Moreover, some sections of Mathari Mental Hospital require considerable physical improvement in order to create a conducive environment.

Until 1961, Mathari Mental Hospital was the sole mental hospital in Kenya. Between 1961 and 1966, mental wards were opened in Kakamega, Nakuru, Murang'a, Nyeri, Machakos and Mombasa. These facilities are manned by psychiatric doctors, Kenya registered psychiatric nurses, and Kenya enrolled psychiatric nurses.

There are 22 beds in each of the above mental wards, but the average number of patients in each of the units is 60, indicating that the demand for mental inpatient beds is higher than the beds available. Early in 1981 two more mental wards were opened in Kisumu and Kisii and recently, two mental hospitals were opened up in Eldoret and Gilgil. However, the importance of Mathari Mental Hospital as a referral hospital has not decreased. However, the opening of the above mental wards and hospitals has eased the pressure on Mathari Hospital and have helped to reduce new admissions to Mathari Hospital.

Although there is an established referral system between Mathari Mental Hospital and the psychiatric units in the district and provincial hospitals, the numbers involved were not available, in summary form, to the Team.

Table 4.30 indicates new admissions to Mathari Mental Hospital have declined gradually over time.

TABLE 4.30

ADMISSIONS TO MATHARI MENTAL HOSPITAL

Year	New Admits	Readmits	Total
1980	2,240	3,037	5,277
1981	2,101	2,059	4,160
1982	2,141	3,879	6,020
1983	1,621	2,923	4,544
1984	2,127	3,350	5,477
1985	1,855	1,967	3,822
1986	1,844	3,861	5,705
1987	1,716	3,471	5,187

Source: Mathari Mental Hospital Records (1987)

As indicated in Figure 4.1, the number of re-admissions to Mathari Mental Hospital have been generally higher than new admissions but fluctuates widely. In the view of Mathari Mental Hospital specialists, the high incidence of re-admissions can be attributed to the following factors:

1) lack of continuing treatment after patients have been discharged;
2) lack of awareness of mental health in the community;
3) lack of rehabilitation facilities; and
4) lnadequate preparation of the patients to the outside society.

The number of new-admissions and re-admissions from Nairobi Province to Mathari Mental Hospital have been decreasing over time (see Figure 4.1). The declining trend can partly be attributed to the opening of the Mental Pilot Project in Kariobangi (see Section 4.7.4). In 1983, 1,381 female and 2,096 male patients were admitted in Mathari Mental Hospital. Table 4.31 shows that there were more new male (68%) than female (32%) patients admitted into the hospital in 1987 (also see Figure 4.2).

TABLE 4.31

NAIROBI ADMISSIONS 1987

	Distribution of Cases By Sex		
Age	Male	Female	Total
10 < 15	4	6	10
15 < 20	45	31	76
20 < 25	91	33	124
25 < 30	87	35	122
30 < 35	45	18	63
35 < 40	28	13	41
40 < 45	8	4	12
45 < 50	16	9	25
Over 50	17	11	28
TOTAL	**341**	**160**	**501**

The overall high rate in the increase of mental patients between the 15 < 20 age bracket might be attributed to abrupt physical and psychological changes from adolescence to adulthood. At this age group, the patient requires more guidance and counselling. The trend might also be attributed to unemployment among "O" level School leavers unemployment. (see Table 4.33).

FIGURE 4.1

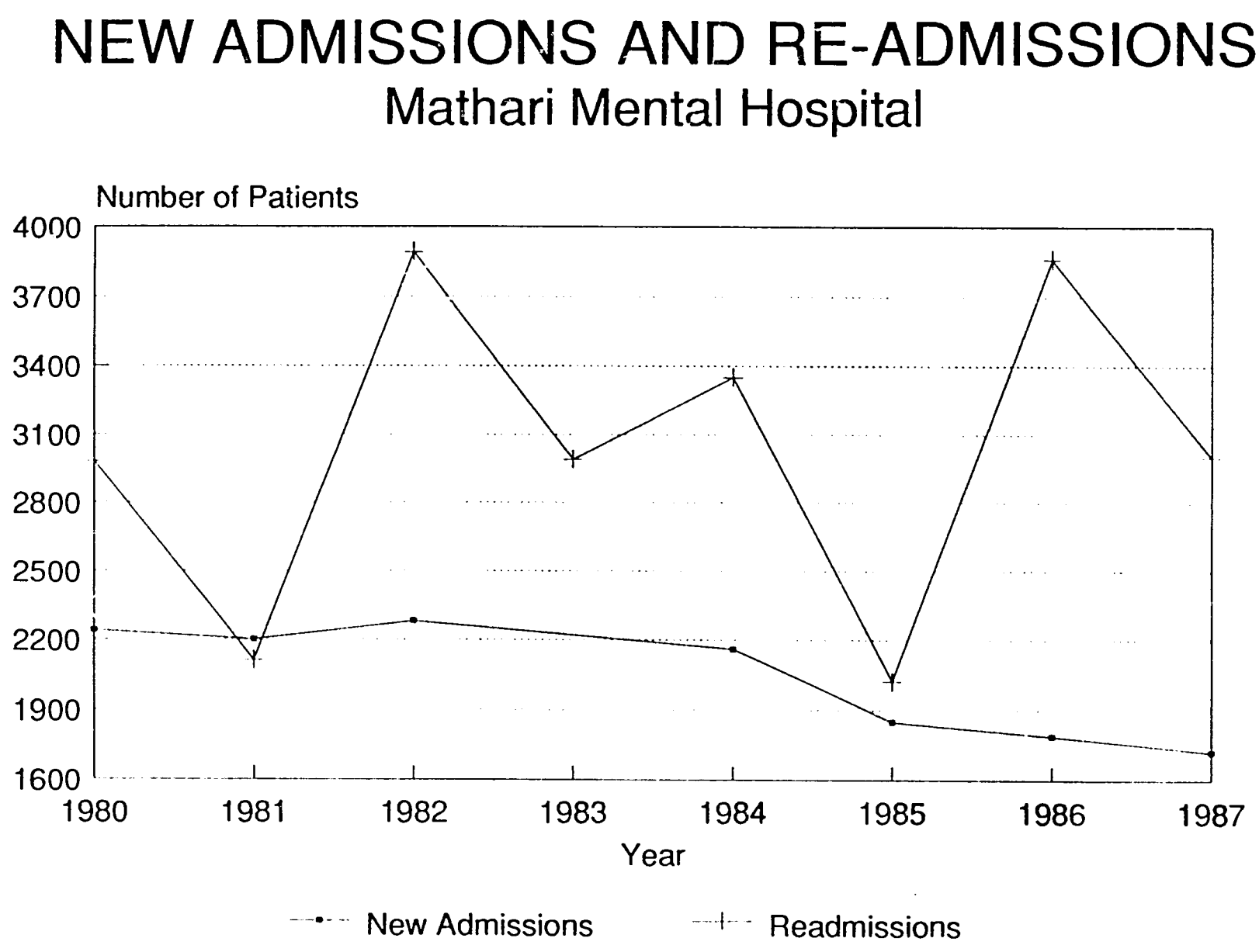
NEW ADMISSIONS AND RE-ADMISSIONS
Mathari Mental Hospital
Number of Patients
4000
3700
3400
3100
2800
2500
2200
1900
1600
1980
1981
1982
1983
1984
1985
1986
1987
Year
New Admissions
Readmissions

FIGURE 4.2

SEX AND AGE OF NEW PATIENTS

Mathari Mental Hospital - 1987

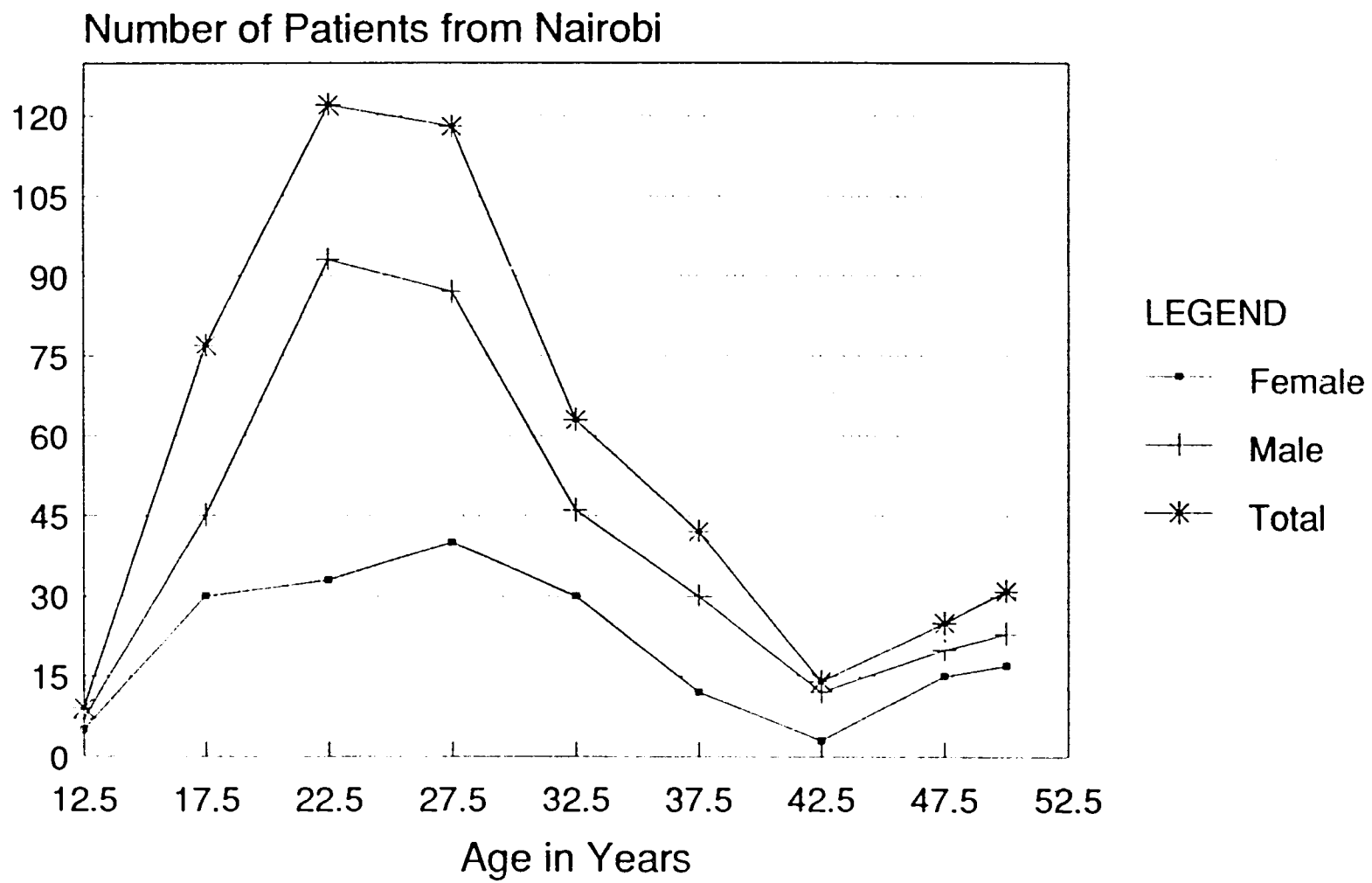

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TABLE 4.32

DISTRIBUTION OF KARIOBANGI H/C MENTAL PATIENTS BY OCCUPATION (1987)

Occupation	Patients	Percent
Students	48	8
Employed	132	23
Unemployed	396	69
TOTAL	**576**	**100%**

Source: Kariobangi Mental Pilot Mental Project Records (1987)

According to the Director of Mental Health Services, about 75 percent of the mental illness can be attributed to unfavourable psycho-social circumstances such as stress at place of work and family tensions. Moreover, alcoholism and drug abuse have also become major contributing factors, especially in Nairobi and urban areas. Other causes are malaria infections, organic psychosis, physical disorders resulting from head injuries, and accidents sustained during birth. Genetic factors also account for a large number of mental patients in hospitals. A large proportion of mental inpatients are in hospitals due to legal requirements following criminal activities committed by the patients.

4.7.3 Activity Observations in Mathari Mental Hospital

With few exceptions (especially in female wards), the nurses and doctors were generally responsive to the patient's needs. However, the quality of care in the hospital was low as the following observations illustrate:

1) drugs were administered to patients without spoons or measures;

2) patients were usually crowded during administration of drugs;

3) patients used water from the same cup to swallow drugs, passing from one patient to the other without washing;

4) except in the amenity ward where patients were served meals while seated in the dinning hall, patients were crowded during the serving of meals in the other wards; and

5) patients were dirty, and dressed in torn clothes.

The occupational therapy for patients at the hospital was comprehensive and varied. Patients washed their utensils after meals, cleaned their rooms, changed their linen, bathed themselves and went to toilets unassisted (with exception of bedridden patients who were assisted by nurses or other patients) all as part of occupational therapy activities. Except when the patients were together for occupational

group therapy (e.g., singing or telling stories), patients were left on their own but under the supervision of a particular person. This helped to create a sense of responsibility for the patients.

In the Maximum Security Unit patients were given various tasks such as knitting, crocheting, and carpentry to occupy themselves. This helped not only to alleviate idleness but also indicated skills which would be useful later. In some to the wards, patients were kept busy through indoor games, films, and discussions.

From the survey data and interviews with senior staff the following were identified as constraints to efficient operations:

1) The decision making process should be strengthened. The In-Charge of the hospital made staff decisions mainly with respect to subordinate staff.

2) Decisions affecting senior Medical Personnel were normally handled by the Ministry of Health. This weakens the disciplinary mechanism, with some staff at the hospital bypassing the In-Charge and dealing with the Ministry of Health head office directly.

3) The hospital is constrained by inadequate maintenance of equipment and buildings. The hospital has no maintenance workshop, although the Ministry of Works has a shed in the compound for repair of water taps, electricity system, doors, etc. Poor maintenance of equipment was largely attributed to unavailability of spare parts and shortage of funds.

4) The hospital's allocation of funds for development expenditure was inadequate.

5) Shortage of diagnostic equipment, drugs, supplies, laboratory supplies and transport also constrained the operations of the hospital.

In the amenity ward the nurses and subordinate staff cleaned the rooms and changed patients linen. Unlike in the Maximum Security Unit where visitors were rare, many relatives visited their patients in the other wards.

4.7.3 The Mental Pilot Project

The Mental Pilot Project in Kariobangi Health Centre was conceived and initiated on 1 March 1983, when a team of specialists from Mathari Mental Hospital was formed to design a follow-up programme of the mental patients treated in the hospital. The Pilot programme began operations in March 1985 with a drug administration programme for mental illness. The programme objectives are to:

1) Provide an environment conducive to the well being of the mentally sick people, to restore their mental health hence make them productive members of the society.

2) Provide mental illness treatment service as an integral part of other services offered in a health centre. To change the negative attitude of the public towards the mentally sick people.

3) Facilitate treatment and eventual acceptance of the patient into the society.

4) Facilitate identification of mental problems at their early and treatable stages.

5) Facilitate a follow-up of the mental patients at their homes, for evaluation of their healing process and continued observation and treatment.

There are similar projects in Embu, Kericho and South Nyanza. Although they are mainly primary health care units, effort is being made by the Division of Mental Health (which was started in 1987) to fully incorporate mental illness as one of the basic elements of the primary health care. All the cadres of medical staff are exposed to mental cases in Mathari Mental Hospital in the course of their training. However, the Director of the Division of Mental Health is intending to post a Kenya Registered Nurse and four Enrolled Psychiatric Nurses in each of the primary health care units to strengthen the mental health component.

The task of identifying patients for the Mental Pilot Project lies with the hospital staff, the relatives of patients, and staff of health care facilities in the Nairobi Area. Every morning the staff is to check the previous nights admissions and pick the names of the patients from Eastlands Area in Nairobi. Through the help of the patients and the Mathari Hospital Staff, the Pilot Project team is able to identify the patient's relatives and to visit their homesteads.

The purpose of the follow-up is to identify the cause of the mental illness, including the historical background and the socioeconomic characteristics of the patients household. According to the staff of the Pilot Project, mental problems are largely caused by either the family history/genetic factors, drug addiction/alcoholism, stress in the place of work, or family problems. The latter may be social (e.g., lack of rapport either between spouse and the immediate relatives, etc.) or economic (e.g., unemployment, poor housing, lack of school fees, household maintenance costs). The above factors explain why mental illness has no socioeconomic boundaries, as it affects both poor and rich.

Mental cases handled at Kariobangi Health Centre have been on the increase. There were 154, 194 and 576 mental patients attended to in 1985, 1986 and 1987 respectively. Currently the ratio of men to women with mental illness is 2:1. Although the Mental Pilot Project receives patients from all parts of Nairobi, the pilot team confines its fieldwork activities in Eastlands, mainly due to the fact that the project is still experimental and the team is very small when compared to the population of the catchment area (which is about 600,000 people).

The Pilot Project is not adequately equiped to handle all the mental cases brought to it. Though the Pilot Project is supposed to be manned by the NCC, the Commission does not have its staff run the project. The patients who are seriously sick are referred to Mathari Mental Hospital since the Pilot Project does not have inpatient facilities.

When the Pilot Project started, a meeting for In-Charges of all the NCC facilities was held to brief them on how to identify the mental cases. They were requested to refer the patients to the Kariobangi Health Center. Patients are now referred to the Pilot Project from facilities such as Eastleigh Health centre, Kassarani Health Centre, Riruta Health Centre, Mathari Mental Hospital, and Southlands Health Centre. The relationship between the Pilot Project and Mathari Mental Hospital is unique because the referals are two-way. In other words, the Pilot Project refers serious cases to Mathari, while the latter refers patients back to the Pilot Project for continued treatment and follow-up.

The Pilot Project team is composed of: one consultant psychiatrist; two psychiatric registrares; one community psychiatric nurse; two Kenya Registered Nurses; one Kenya Enrolled Nurse; one social worker; one nutritionist; and one occupational therapist. A psychologist should also be assigned to the team, but there are just two psychologists at Mathari Mental Hospital and due to their busy schedules cannot be available for the project. The team is attached to Mathari Mental Hospital, so they are not employees of the NCC.

The Pilot Project team is located normally in the Kariobangi Health Centre one day a week (Tuesday). The remainder of the week is for field follow-up of patients. The clinic receives an average of five patient referrals from other facilities per week. The clinic treats approximately 15 patients each week.

The Pilot Project has been experiencing problems, such as shortages of manpower, drugs, means of transport, accommodation facilities, and day care facilities. There is also lack of psychiatric knowledge in the general health workers of NCC, and ignorance of the general public about the needs of mentally ill people. According to the staff involved in the Pilot Project, its main achievements to date are:

1) Improving the attitude of the public toward the mental patients in the catchment area.

2) Establishing a mechanism to diagnose mental cases in the early stages.

3) Providing a model for delivering an integrated package of health services.

4.7.5 Options

a) To provide an environment conducive to the well-being of the mentally sick people, and to ensure that the treatment of mental illness is an integral part of services offered in health centres. The following options should be considered:

1) Mathari Mental Hospital should strictly function as a national referral centre.

2) Introduce mental health dimension in all the health centres.

3) Increase the intake of psychiatric nurses in the College of Health Professions, and also introduce psychiatric course in all the Medical Training Centre.

4.8 PUMWANI MATERNITY HOSPITAL

Pumwani Hospital is heavily congested due to the under-utilisation of the NCC maternity units (see Section 4.5.2 and Chapters 3 and 5) and the relative high cost of maternity services in the private health facilities. However, congestion is only one of the factors that has contributed to the low standard of services offered at Pumwani hospital.

Pumwani is the largest maternity hospital in the country. Opened in 1926, it now has 321 beds and admits more than 20,000 patients a year. In 1987, the hospital admitted 25,152 cases and delivered an average of 2,000 babies per month. Pumwani Hospital serves as the maternity referral hospital in the city and runs a training programme for Kenya Registered and Enrolled Midwives.

4.8.1 Evidence and Findings

The operations of Pumwani Maternity Hospital have been constrained by several factors. From reviews of the Annual Reports of the hospital and through interviews with the In-Charge of the hospital the following problems were identified: overcrowding of patients, shortage of doctors, shortage of nursing staff, shortage of supplies and equipment, lack of spare parts, delay in repair of equipment, inadequate transport, leaking roofs, damaged furniture and fittings, and breakdowns in telephone services.

The overcrowding is illustrated by the fact that the hospital had an average bed occupancy rate of 107 percent for the period January through March 1988. Activity observations at the hospital showed that patients often shared beds.

During 1987, the hospital operated with a 58 percent and 16 percent shortfall in the authorised positions for doctors and nursing staff respectively (see Table 4.33). Two of the factors contributing to the shortage of doctors at Pumwani can be attributed to the relatively poor terms of service and the heavy load of work in both normal and Caesarian deliveries. During the early 1980s, NCC doctors enjoyed higher salaries than doctors employed by Ministry of Health. This situation was reversed by the Ramtu Salary Commission when it raised salaries of central government employees. Today, NCC doctors and nurses receive lower salaries than their counterparts in the Ministry and major private hospitals in the city. The impact of the heavy work load at the hospital can also be illustrated by the fact that some doctors who were posted to Pumwani Hospital from Kenyatta National Hospital in 1987 opted to go back to KNH, citing heavy work load as the reason for their action.

TABLE 4.33

STAFF ESTABLISHED - PUMWANI MATERNITY HOSPITAL
(1987)

Category of Staff	Established Posts	Existing Staff	Vacancies No.	%
Doctors	24	10	14	58
Nurses	189	158	31	16
Admin	217	175	42	19
All Staff	430	347	83	19

Source: Pumwani Maternity Hospital 1987 Annual Report

The problem of inadequate or lack of supplies and equipment at the hospital was observed by the Team in the following examples:

1) There were adequate linen supplies for mothers and babies. Observations showed that many new born babies were wraped in torn and/or soiled linen. Essential cleaning supplies like toilet soap or scouring powder were not in stock when the Team visited the hospital in August 1988.

2) Three blood pressure machines were found when 30 were needed. Considerable time was wasted as nurses waited for the few BP machines to be available.

3) The laboratory was unable to perform urea and pregnancy tests due to lack of laboratory supplies.

4) Transport was a major problem; one ambulance transported both patients and food to Maternity Units.

5) Lack of spare parts and long delays in repairing equipment also affected the volume and quality of service provided by the hospital.

6) The hospital's autoclave, boiler, washing machine, standby generator, lights and leaking roofs were some of the items that were in need of repair and maintenance.

Although the medical superintendent is the overall In-Charge of the facility, the MOH/NCC has control over many essential functions in the hospital. These include decisions relating to the types of services to be provided, maintenance of equipment, staff composition, and staff discipline.

The superintendent controls petty cash allowances of only Kshs. 1,000 and makes decisions on minor issues or emergencies. The superintendent does not have adequate control or supervision over doctors, nursing sisters and other cadres, as the position is not empowered to discipline the staff or issues warning letters. Warning letters can only be written by the MOH

at City Hall. Disciplinary cases forwarded by the superintendent to the City Hall have not been addressed, leading to a situation where the staff has tended to defy the superintendent's instructions.

This situation has created low staff morale. The Team observed cases of doctors not reporting for work, leading to insufficient care for mothers and babies. In 1987, the hospital had 278 fresh stillbirths, 171 stillbirths, 341 neo-natal deaths and 16 maternal deaths. The total number of stillbirths and neo-natal deaths constituted 3.4 percent of the all deliveries in the hospital in 1987. Comparison figures for other hospitals in Kenya are not available, and comparisons with facilities outside Kenya are inappropriate. This is an area, however, which requires further monitoring and explanation.

The following summaries of activity further emphasise these problem areas and the quality of care at Pumwani:

1) Inadequate attention was given to the patients. It was noted that some doctors took as few as three minutes to examine patients, an exercise which normally requires about fifteen minutes.

2) Inadequate observation of mothers in the labour ward. Patients in the labour ward were often left for long periods without attention from nurses or doctors.

3) Some of the mothers went without meals, and mothers who had just delivered had to queue for food irrespective of their conditions.

4) Care of babies was poor, many were often left unattended or allowed to sleep on wet or soiled linen.

5) In some cases, mothers who had delivered were not sutured for up to twelve hours.

6) In several cases mothers were delivered by student midwives without supervision.

7) Linen was inadequate for both mothers and the babies.

4.8.2 Options

The complexity of a hospital environment requires close management of everyday operations. Authority, responsibility and accountability for decisions must be clearly delineated. A hospital must have a director or head administrator with a span of control to direct daily operations, to delegate responsibility to lower level managers, and to plan for the future. The hospital must strike a balance between a structure that has many layers and small spans of control or few layers and large spans of control.

In the case of Pumwani Hospital, authority, responsibility, and accountability are centralised at City Hall. There are few management layers at the hospital itself, each with limited control. The

centralisation of control at City Hall and its wide span of decision-making responsibility and control, at great distance from everyday operations, hampers the efficient and effective management of daily operations. Because the span of control is so wide and centralised, basic operating decisions are not taken, and future planning and strategic thinking do not take place. The result is a deterioration of services.

To establish Pumwani Hospital as an efficient institution while delivering high quality maternity services, the following options should be considered:

1) Centralise management of daily operations at the hospital and give the chief administrator authority, responsibility, and accountability for decision making; create future/strategic planning functions at City Hall.

2) Revise Pumwani's status to that of a parastatal. Place management and planning functions under the authority and control of a Board of Directors.

4.9 TRANSPORT

Lack of or inadequate transport is generally regarded by In-Charges of facilities as the most serious constraint in the provision of health care in the city (see NAS Volume I). The transport problem can be attributed to an inadequate supply of transport facilities, poor maintenance of the existing vehicles, and inefficient management and utilisation of vehicles available.

4.9.1 Ambulance Service

Table 4.34 shows that the institutions providing ambulance services in the city have a total of 28 ambulances among them with only 16 of the vehicles operational in August 1988. There were only 12 operational ambulances, catering to general public calls and servicing an estimated population of 1.5 million people. In some parts of the world, an ambulance for 10,000 people is regarded as effective coverage. Using this coverage, Nairobi requires 150 ambulances, but presently has less than 13 percent of this requirement even when ambulances under repair are taken into consideration.

TABLE 4.34

AVAILABLE AMBULANCES

Institution	No. of Ambulances	Operational in August 1988
NCC	10	9
St. Johns	3	3
KNH	9	2
PMO	6	2
TOTAL	28	16

The Nairobi City Commission currently has ten ambulances, the largest squad in the city. These ten ambulances are distributed as follows:

- Division I - 1
- Division II -1
- Pumwani Maternity - 1
- Head office - 7

According to the ambulance service supervisor, the ten ambulances are not adequate and this inadequacy is compounded by the fact that some of the ambulances are out of operation for long periods waiting for repairs. The repairs are undertaken at the central NCC workshop.

The seriousness of long delays in maintenance of NCC vehicles is illustrated by the following facts from the 1986 and 1987 annual reports of the Ambulance Services, Pumwani Maternity Hospital, and the Public Health Department (PHD) Progress Report for the period 1 - 15 May 1988:

- An ambulance which had an accident on 30 September 1986 was not returned to road service until February 1987.
- Two ambulances which had accidents respectively on 15 April and 24 July 1987 were still at the Marshalls workshop undergoing repairs in January 1988.
- According to the Pumwani Hospital 1987 Annual Report, two utility vehicles were parked at the NCC Transport Depot "for years" before they were repaired at the end of 1987.

As shown in Table 4.35, the transport problem arising from a large proportion of vehicles off the road due to lengthy repair periods also affected other vehicles such as the tippers, refuse collectors, tractors and bulk compactors.

TABLE 4.35

VEHICLE REPAIRS

Vehicles	Total	No. in Service	No. Under Repair	% Under Repair	Longer Than 4 Weeks
RCs (Refuse Collectors)	10	1	9	90%	7
RVs	25	8	17	68%	15
BCs (Bulk Compactors)	8	1	7	88%	6
Tippers	2	1	1	50%	1
Tractors	4	0	4	100%	4
Ambulances	9	3	6	66%	N.A.

Source: PHD Progress Report, 1 - 15 May 1988.

One of the major causes of long delays in repairs was the requirement that all requisitions for spare parts be procured through the accounts section at the City Hall. This procedure was changed at the beginning of 1988 to allow the workshop to order spare parts directly from the dealers. Personnel from the NCC supplies section were seconded to the NCC central workshop to process requisitions.

The high rate of accidents involving the NCC ambulances squad is also a contributing factor to the problem. In 1986, four of the six ambulances stationed at the Fire Station were involved in accidents, with one stationed at Pumwani Maternity Hospital involved in an accident which immobilised it until 1987. In 1987, two of the ambulances at the Fire Station were involved in accidents immobilising each of them for between five and seven months.

Another problem with NCC ambulances is that they are not well equiped. Efficient management of the squad is constrained by the unserviceable V.H.F. radios used in the ambulances. Both the 1986 and 1987 Annual Reports of the NCC Ambulances Services reported that "V.H.F. Radio System of ambulances is very bad due to old and unrepairable radios".

The breakdown in the radio system has reduced the ability of the supervisor to control the movements of ambulance drivers. Drivers tended to take a long time to respond to calls. Records showed that it took between one and two hours for ambulances to respond to calls and report back to the station.

Payment for NCC ambulances services were also not well administered. Until 30 June 1988, when it raised ambulance charges to Kshs. 100 per call, NCC ambulances charged Kshs. 50 per call. In 1986, Kshs. 134,550 was raised from 6,139 calls and in 1987 Kshs. 191,100 from 8,063 calls. Thus, only 2,691 (44%) and 3,822 (47%) calls were paid for in 1986 and 1987 respectively. The reasons for these unpaid calls are not clear. The money collected in both years did not meet the fuel bill. Investigation by the Team found that there was not a strong mechanism to ensure that all the money collected by drivers for ambulance services was surrendered to the office. There were also no regular appraisals of drivers with regard to time taken to respond to calls and petrol consumption in relation to the distance traveled, misuse of petrol supplied to the ambulances or of money from the services rendered.

The public institutions with ambulance facilities in Nairobi Area are the Kenyatta National Hospital (KNH) and the Nairobi Provincial Medical Office. KNH has nine ambulances but only three (33%) were operational when the survey was carried out. The rest of the ambulance fleet, a donation from Japan, had been immobilised for long periods awaiting repairs. Two of the ambulances had been off the road for four years each.

Of the three operating KNH ambulances, one is located at KNH hospital and two at the Infectious Disease Hospital (IDH). The ambulances do not provide services to the public but they mainly transport patients to and from IDH and a number of other facilities. No fee is charged to the patient for this service.Due to general shortage of other transport vehicles at the hospital, available ambulances are also used to transport staff, food, and other supplies.

The effect of poor maintenance and delayed repair of cars is shown by the fact that in September 1988, out of a fleet of 34 vehicles (including ambulances) only fourteen (41%) were on the road.

According to an internal report prepared by the maintenance unit of KNH in September 1988, the causes of the maintenances problems were identified as inadequate tools and equipment to repair vehicles at the KNH workshop, lack of an organised transport system, poor management and associated discipline, carelessness of drivers, and lack of spares.

Health facilities under the Provincial Medical Office (PMO) have a total of six ambulances among them, located at the Spinal Injury National Hospital, Kamiti, Nyayo House, and Jomo Kenyatta International Airport (JKIA). However out of these six, only two (33%) were operational in September 1988. These two were located at the Spinal Injury Hospital and JKIA.

Like KNH ambulances, the PMO ambulances do not cater for the general public. They transport PMO facilities patients, staff and supplies. The ambulances are more involved in the transportation of staff than patients, partly due to shortage of other types of transport. The transport facilities have been aggravated by poor maintenance and repair work which require long periods for completion. Out of six cars (excluding ambulances) at JKIA, two were grounded although they needed relatively minor repairs.

St. John's Ambulance, the most important private provider of ambulance services in Nairobi, began services in 1939. St. John's Ambulance is run by the council of St. John Kenya, a charitable institution. In addition to providing ambulance services, St. John's council operates a first-aid training programme for many institutions in the country and provides volunteers for provision of services and fund raising activities. The organisation does not receive overseas or government financial assistance.

Currently St. John's has a small squad of three ambulances but there are plans to add three more by December 1988. St. John's charges Kshs. 100 per call within Nairobi. They also go anywhere in the country and charge Kshs. 9 per kilometre inclusive of driver and ambulance attendant. The executive officer of St. John's believes that raising the charges beyond the present level would make the services out of reach for most people. In 1987 the three ambulances covered a total of 88,039 kilometre and responded to 2,000 calls. The amount of money raised was Kshs. 351,000.

In addition to St. John's Ambulance, there are a number of private hospitals and organisations with one or two ambulances. These, however, are not available to the general public.

In general, the inadequacy of ambulance services is aggravated by inefficient utilisation of available ambulances, and lack of coördination among the providers. Interviews with St. John's Ambulances and NCC Ambulance Services showed that the problem of two or more ambulances responding to the same call occured frequently.

4.9.2 General Transport

As in the case of ambulances, the shortage of cars is caused by poor maintenance, long delays for repairs, and inefficient utilisation of available resources.

Examples include:

- Supervision of NCC facilities was carried out irregularly because transport for supervisors from the divisional headquarters was inadequate or unavailable.
- Transfer of patients and food from Pumwani Maternity Hospital to Maternity Units was constrained by inadequate transport, resulting in congestion at the former and underutilisation of the latter.
- Some NCC and PMO facilities which shared doctors often operated without the doctor because of lack of transport for the doctor.
- Shortage of staff cars led to use of ambulances to transport staff and supplies.
- Some facilities lacked drugs and supplies because there were cars to collect the supplies from the Central Medical Stores.

4.9.3 Options

To reduce transport constraints in the provision of health services in Nairobi, providers should consider the following options:

1) Improve efficiency in the maintenance and repair of vehicles.
2) Allocate more financial resourses to facilitate acquisition of additional transport facilities.
3) Centralise all transport facilities for public sector providers.
4) Contract all transport needs for NCC and PMO from private providers.
5) Provide incentives for private ambulance to establish more ambulance services in Nairobi.
6) Nairobi establish coordination mechanism of the existing public and private sector provides ambulance services.

CHAPTER 5: ORGANISATIONAL AND LEGAL STRUCTURE FOR HEALTH SERVICES IN NAIROBI AREA

5.1 ORGANISATIONAL AND LEGAL STRUCTURE FOR HEALTH SERVICES IN NAIROBI AREA

This section describes the organisational structures for the major providers of health services in Nairobi according to the administrative lines of authority by which they are controlled and the laws which govern the provision of health services. This section closes with options for improving the administrative structure.

5.1.1 Administrative Structure for Entire City

All health providers are required to operate within the laws passed by Parliament. A summary of the legal provision of Nairobi health services is attached in Appendix K. Providers must follow the Ministry of Health's policies regarding technical matters (see Section 5.2 on inspection, licensing and monitoring). Within this broad legal and policy framework, there is considerable variety in the administrative structures, licensing and inspection requirements, procedures for appointing staff and setting salary levels, and in sources of funding. Figure 5.1 describes the organisational relationships which affect the management and administration of health services in the city.

- Private facilities are run by boards of directors or single owners, who may not be health professionals. The services have to generate enough income to cover their costs. They may do this by linking associated businesses, e.g., a clinic and a pharmacy.

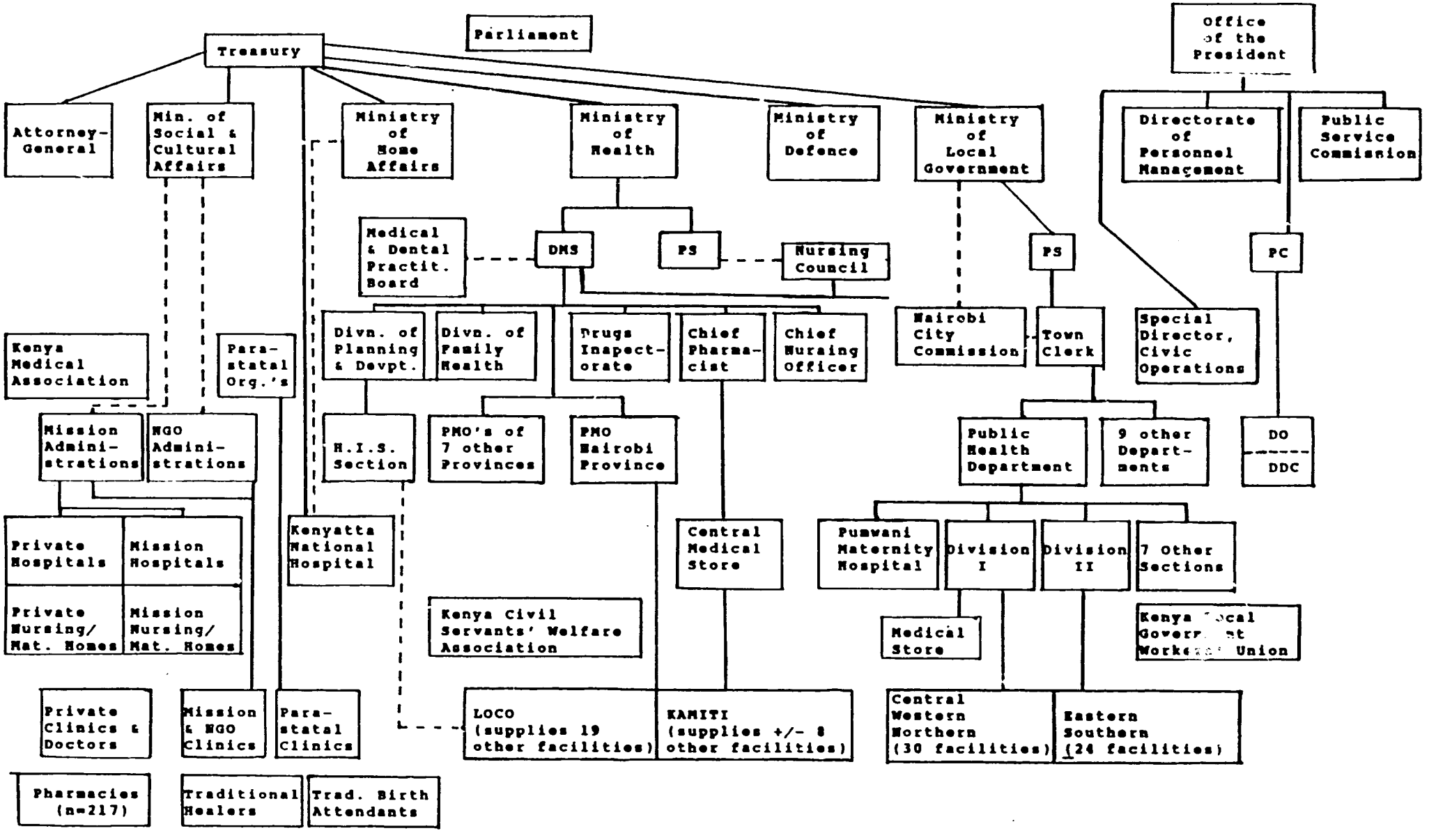
- Mission and NGO facilities have their own administrative organisations which may range country-wide or world-wide.

- Services offered are determined by the organisation's objectives (e.g., family planning) and are funded by a variety of mechanisms, including donations from benefactors and cost recovery from clients.

- Parastatals are a mixed category (see Table 2.2 in Chapter 2). The clinics exist primarily to provide health services for their employees, but Kenyatta National Hospital is the referral hospital for the entire country. Parastatals may be funded from the Treasury, from the parent organisation, or from more than one source. Some parastatals fund and manage their facility entirely on their own, while others receive a portion of resources from the government.

FIGURE 5.1

NAIROBI AREA HEALTH SYSTEMS



- Ministry of Health facilities are managed by the PMO in Nairobi. Some of these facilities are substantially different from those in the other seven provinces as their clients are principally members of organisations or institutions (see Table 2.2, Chapter 2) rather than residents of the area surrounding the facility. The Ministry of Health provides a varying share of the resources for running these facilities; the parent ministry may provide buildings, nonmedical staff, transport, etc., and can fundamentally affect the operation of health services (see Section 5.1.2 below).

- NCC facilities are run by the Medical Officer of Health who directs the Public Health Department. This is one of ten departments in City Hall, which are responsible for education, housing, planning and urban development, water, sewage, garbage removal and street cleaning. Thus, the Town Clerk and the Commissioners are concerned with managing the social and physical infrastructure of the entire city. The Public Health Department is responsible not only for providing health services, but also for a wide variety of public health activities (see Section 5.1.3). The NCC operates under the Ministry of Local Government.

5.1.2 Appointment and Responsibilities of the Medical Officer of Health in Nairobi

The laws which empower the Medical Officer of Health in Nairobi to provide public health services are provided mainly by the Public Health Department of the Nairobi City Commission. The provision of health services within the city is governed legally by the Local Government Act Cap. 265 and the Public Health Act cap. 242. The Nairobi City Commission provides health services to the city residents in accordance with Section 145 (i) of the Local Government Act and Section 32 (1) of the Public Health Act.

The Public Health Department is headed by the Medical Officer of Health (MOH), whose appointment is provided for under the Local Government Act, Section 107 and also the Public Health Act, Section 9 (2). He is appointed by the Public Service Commission to the Municipal Council but both the Ministry of Local Government and the Minister of Health must sanction the appointment. The medical officer of health must be a medical practitioner (Section 9 [4], Public Health Act).

According to the Local Government Act Section 131 (1), the MOH is the chief medical adviser for the municipal council and is responsible to the municipal council for all matters relating to health in the municipality. The powers to carry out his duties in the municipality are conferred and imposed upon him in accordance with Section 131 (2) of the Local Government Act and Section 13 of the Public Health Act.

The MOH is answerable to the Executive Officer of the municipal council, the Town Clerk. However, the Medical Officer of Health can carry out duties assigned to him by the Director of Medical Services (Section 9.5 of the Public Health Act). When he is carrying out such duties he

reports directly to the DMS but he must inform the Town clerk of such assignments. This is done through the Public Health Committee which is the standing committee dealing with health matters in the municipality.

5.1.3 The Appointment and Responsibilities of the Provincial Medical Officer in Nairobi

Unlike other provinces in Kenya, there was no Provincial Medical Office in Nairobi until August 1987. Before then, the Public Health Department of the Nairobi City Commission was responsible for providing public health services to the city residents (Local Government Act, Section 131). This has been the case since Nairobi acquired the status of a city.

The DMS established the Provincial Medical Office in Nairobi to supervise and coordinate the activities of all the Ministry of Health facilities which were previously supervised and supplied by Kenyatta National Hospital. After a Presidential Order of April 1987, which changed the legal status of the KNH to a parastatal, it could no longer supervise those facilities. Interviews with several senior staff indicated that this was the main reason for creating the PMO's office.

The PMO is appointed in accordance to the Public Health Act Section 9 (1) and is the representative of the DMS in the Province. The PMO reports directly to the DMS.

The PMO has described its functions in a document entitled "Functions of the Provincial Medical Office, Nairobi" (dated and signed by the PMO 28 July 1988) and signed by the PMO. The document describes the responsibilities of staff in the provincial positions. According to the document, the functions of the office are to cover facilities in the entire city.

Relationship Between the PMO and the Public Health Department/NCC

The absence of clearly defined roles has resulted in duplication of effort between the Provincial Medical Office and the Public Health Department/NCC. This is particularly apparent in the area of inspection of premises where coordination between the PMO's office and the MOH's office on licensing inspection and monitoring is lacking. A case has been cited where Public Health Officers from the Public Health Department closed a premise but the PMO Health Officers advised that the premise be reopened. This advice was interpreted as a directive from the PMOs office to PHD/NCC to reopen the premise. During an interview at the Law Reform Commission, the NAS Team was told that such confusions would constitute sufficient grounds for amending the law.

Absence of clearly defined roles and functions also result in lack of coordination and consultation in planning for the health services. Other districts throughout the country had prepared their five-year plans as part of the Sixth National Development Plan, but there was no such plan for Nairobi, partly due to confusion as to who is responsible for this function.

Private facilities that previously were required to notify infectious diseases to the MOH in accordance with Section 18 (a) of the Public Health Act, have now been instructed to report directly to the PMO's office. In other provinces, all health information is reported to the District Medical Office. This is also the system followed in Mombasa, which is a municipality and a district (see Section 5.6)

5.1.4 Administrative Operations

The administrative arrangements within which these organisations and institutions operate, differ in some important aspects.

a) Licensing

Licensing through the Medical and Dental Practitioner's Board is only necessary for the private sector offering allopathic services (see Section 5.2 below). The missions and NGOs have to register with the Ministry of Health and the Ministry of Culture and Social Services. Traditional healers are not required to be licensed but may register with the Ministry of Commerce and Industries. When the public sector (GOK or NCC) wishes to open a new health facility, they are registered as a new facility with the Ministry of Health and do not have to obtain a licence.

b) Inspection

Inspection has developed so that there are three distinct elements being conducted within the city. The first is inspection of buildings which is the responsibility of the City Commission. The second is inspection of the functioning of services by a team of medical and public health staff. In the past this was done by the NCC Public Health Department, under the authority of the city by-laws. As soon as the PMO staff were in place, the Provincial Health Management Team began inspection of all facilities (government, NCC and private), beginning in the north-west portion of the city. The third aspect of inspection is drugs. The drugs inspectorate in the Ministry of Health carries out some of these inspections and others have been taken over by staff posted to the PMO. Thus all facilities except those managed by the government may have "outsiders" coming to conduct an inspection of their activities.

c) Staff Appointment

Staff Appointments are subject to the laws relating to medical services. For example, staff designations and duties must correspond to the public examinations by which they qualified, registered or enrolled. Within this legal requirement, private providers can hire whom they choose, as long as employment regulations are met. Missions may use staff who are virtually volunteering their services.

By contrast, the systems for appointing staff in the public sector are structured. Civil servants in both the Ministry of Health/PMO and the NCC/PHD are appointed through the Public Service Commission for the most senior posts through level 19 (job group 1, which includes senior health assistants, lab technicians, staff nurses and staff midwives, health visitor II, clinical officers, investigators, senior clerical officers, records officer, Stenographer I, Supervisors for laundry and catering, and

Foreman I). Everyone below this level in NCC is appointed by the Commissioners, whereas in the Ministry of Health these staff are appointed by the department in which they will work.

However, even though MOH/PMO staff are hired by the same body, the criteria for subsequent promotions are not the same. For example, Ministry employees qualify to apply for a new post after serving three years. In order to attract staff to NCC, staff from the Ministry have been hired by NCC at a grade and salary higher than their more experienced NCC colleagues.

Within the parastatals, staff appointments and promotions are made under the rules of organisation. For example, the armed forces clinics are staffed by military personnel within the military rank structure.

d) Salary Levels and Allowances

In the public sector, salary levels and allowances are not identical for staff with comparable qualifications and experience. This is, in part, because the MOH/PMO and the NCC follow different schedules for revising appointments and upgrading staff, and also because employees of these two organisations are members of separate unions and each organisation has different funding priorities. In the private sector, employees may be unionised and salaries are negotiated through collective bargaining, or they may be responsible for negotiating their remuneration directly with the owners of the business.

e) Funding

Funding for health service comes from general tax revenues allocated by the Treasury, income-generating municipal services, general revenues of the organisation, fees charged to patients, payments for drugs, inter-governmental aid, and charitable donations. For the GOK/MOH facilities in Nairobi, resources are provided by a variety of parent ministries and parastatals. This situation is unlike the other provinces where GOK health services are funded entirely by the Ministry of Health. Nearly all of the facilities listed as GOK/MOH dispensaries in Table 2.2 receive resources from another Ministry (e.g., Defence, Home Affairs) or from another organisation (e.g., Railways, J.K International Airport). The MOH/PMO contribution usually, but not always, includes technical staff and drugs. The other organisation usually provides the building, staff and the resources for its security, cleaning, and maintenance. The great variety of arrangements for covering recurrent costs makes clear definitions of "government", parastatal, or privately managed facilities difficult.

NCC facilities are funded by the City Commission, which receives revenue from the Ministry of Local Government and generates revenue from some of its services. The municipality is also empowered to raise revenue through rates, Local Government Act Section 216 (1), (2). The Public Health Department competes with nine other municipal departments for its share of the NCC's financial resources, both for recurrent costs and for capital development.

The private sector relies on a range of funding arrangements, from charitable donations to profit-making businesses. Some health services are provided by employers on site for the benefit of the work force and to

increase productivity. Other health services are linked through related businesses, such as pharmacies to a private clinic providing medical services.

From time to time, the Nairobi Area health system receives resources from foreign aid. Both the donor's priorities and the complexity of the financial structures in the city have encouraged the practice of donating capital equipment resources (e.g. essential equipment for KEPI). The recurrent costs for such gifts are the responsibility of the recipient vertical programmes or organisations.

f) Geographic

Geographic boundaries of administrative responsibilities are not represented in the organisational structure in Figure 5.1. The city boundaries enclose 684 square kilometres, making it the smallest area of the eight provinces with the highest population density (approximately. 2,200 per square kilometres). However, population density varies greatly within city boundaries. The division of the city into Districts is being discussed. Suggestions range from treating the city as a District/Province (one administrative area), to dividing it into nine districts according to the parliamentary constituencies.

g) Communication

Communication between the major Nairobi health providers takes place on an ad hoc basis. Within the public sector, the DMS's fortnightly Briefing Committee provides a forum for communication between executive officers. The present MOH/NCC attends but his predecessor did not. As yet, there is no established mechanism whereby the Provincial Medical Office and the MOH/NCC can meet regularly to coordinate their plans and activities. The lines of communication are rather weak. The result gives Nairobi a poor data base, poor health planning and no clearly identified points of contact for organising specific programmes or activities, and no single "clearing house" for the city's health matters.

The health information system, administered by the Ministry of Health in Afya House, provides the framework for communication of information regarding health status and services delivered. The lines of communication are broken at critical points (Section 5.6) so the information on the whole city's health status and services is incomplete. The bottlenecks and gaps in the upward flow of information prevent feedback to major providers.

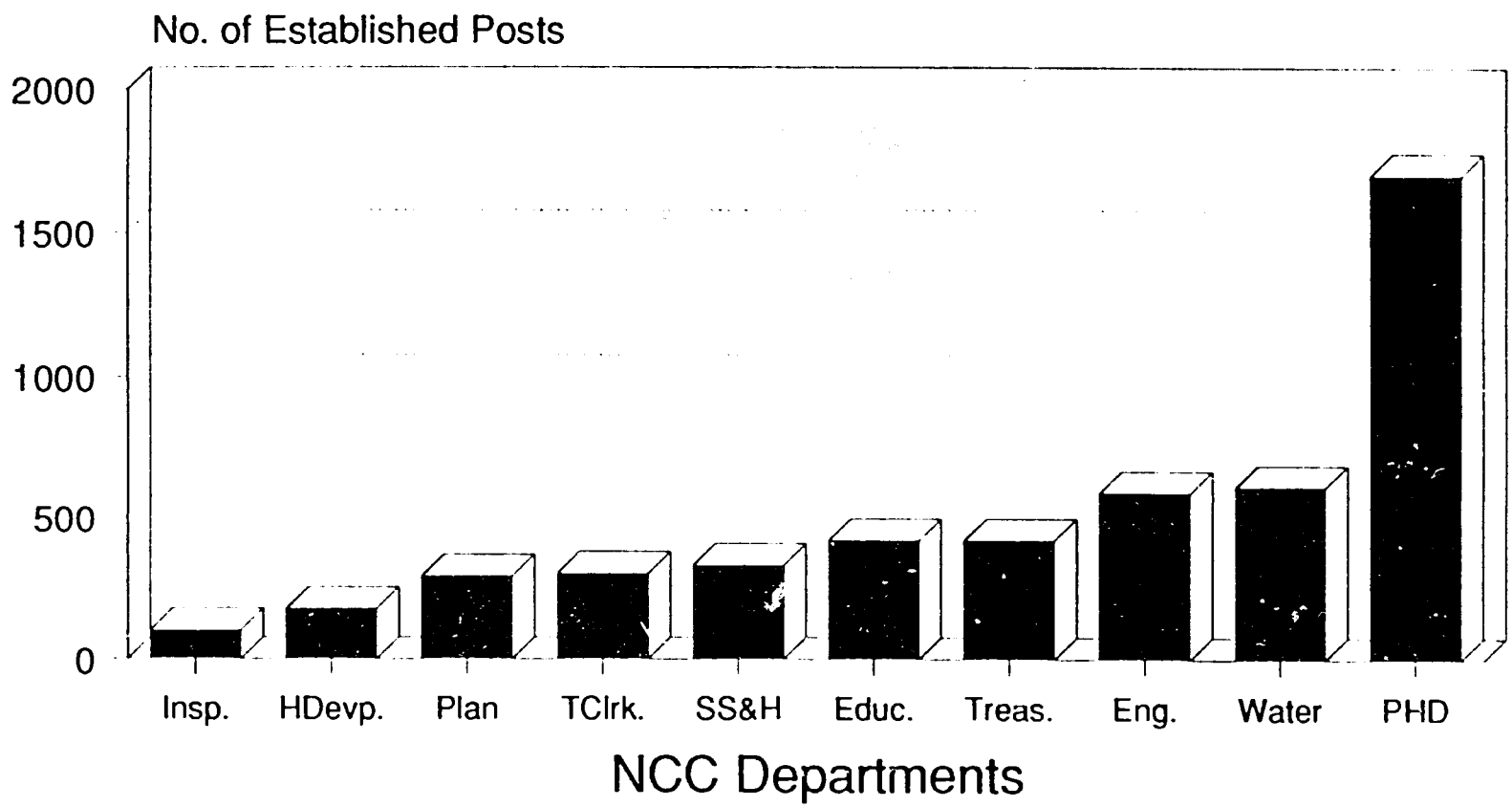
Thus, Nairobi Province is unique in many respects, especially its complex arrangement of multifaceted health providers. The following sections describe the administrative structure of the two major providers in detail, a sample of private providers, then reviews the structures in other provinces and urban areas.

5.1.5 Administrative Structure of the Public Health Department (PHD)

The PHD is the largest of the Nairobi City Commission's ten departments and has more than one-third of the 5000 established posts within the commission (see Figure 5.2).

FIGURE 5.2

NCC POSTS, BY DEPARTMENT
(Established Posts 1987)



Since March 1983, when the elected city council was dissolved, the policy making body for Nairobi has been the City Commission, consisting of a varying number of commissioners (appointed by the Minister of Local Government) and the Town Clerk (Secretary to the City Commission), who is the administrative executive officer. The present Town Clerk is acting; the holder of the post is supposed to be appointed by the Public Service Commission. Policies have to be approved through the committee system. Policy relating to health must be considered by the following committees which will approve or defer the proposal, or ask for ratification:

1) Heads of Department or Chief Officers Meeting (monthly) attended by the City Treasurer and the Town Clerk;

2) Public Health Committee (monthly) chaired by appointed Commissioner; and

3) Full commission (monthly), chaired by the Chairman (formerly the mayor).

All of the committees are chaired by a commissioner, chosen by his or her colleagues. Commissioners are allowed to vote if they are members of a particular committee. All may vote in the full commission. Executive officers are In Attendance at the final policy-making vote. A technical health issue can be treated as an administrative matter, thus avoiding the policy approval process, if the Ministry of Health announces a new technical policy.

The entire committee and department structure falls within the organisational hierarchy of the Ministry of Local Government; the Town Clerk is responsible to the Permanent Secretary of that Ministry.

5.1.6 Organisation of the Public Health Department

The number of established posts for each of the department sections are shown in Table 5.1 to indicate the relative size of each section.

This structure gives no specific duties to the Deputy Medical Officer of Health. In contrast, the second largest department, Water and Sewage, has two deputies, each of whom are given specific areas of responsibility (i.e., Deputy General Manager in Engineering and Deputy General Manager in Commercial).

From the organisation chart, it is not clear where one would find the hub of the information system. Some data would be with the epidemiology and Disease Control Section, and some with Divisions I and II, and Pumwani Maternity Hospital. The organisational structure also lacks the equivalent of a senior public health nurse. Lines of communication, coordination and representation for nurses stop with the Divisional superintendents, and then are taken over by medical officers.

TABLE 5.1

ESTABLISHED POSTS

Section		Number of Posts	Percent of Total
1.	Administration	17	1
2.	Health Inspectorate	43	2
3.	Mortuary	8	*
4.	Communicable Disease Control	130	7
5.	Division I	658	38
6.	Division II	464	27
7.	Cleansing	83	5
8.	School Health Services	37	2
9.	Ambulance Services	36	2
10.	Pumwani Maternity Hospital	255	15
11.	Nutrition (2nd Urban Project)	16	1
	TOTAL	**1,743**	**100**

* Less than 1%
Source: Staff and Salary Records 1987, Nairobi

5.1.7 Staffing of the Public Health Department

The Public Health Department has the largest number of staff in post, but only 72 percent of the established posts are filled. The vacancies in PHD are far most serious at the upper end of the administrative structure. For the top eight job groups, only one-third of the 155 established posts are filled. The posts in these jobs groups include:

MOH

Deputy and Assistant MOHs

Medical Superintendent
Chief Consultant & Registers

Senior Medical Laboratory Technicians

MOI and MO

Senior Medical Officer

Chief Assistant & Senior Public Health Officer

Communicable Disease Control Officer

Matron and Assistant

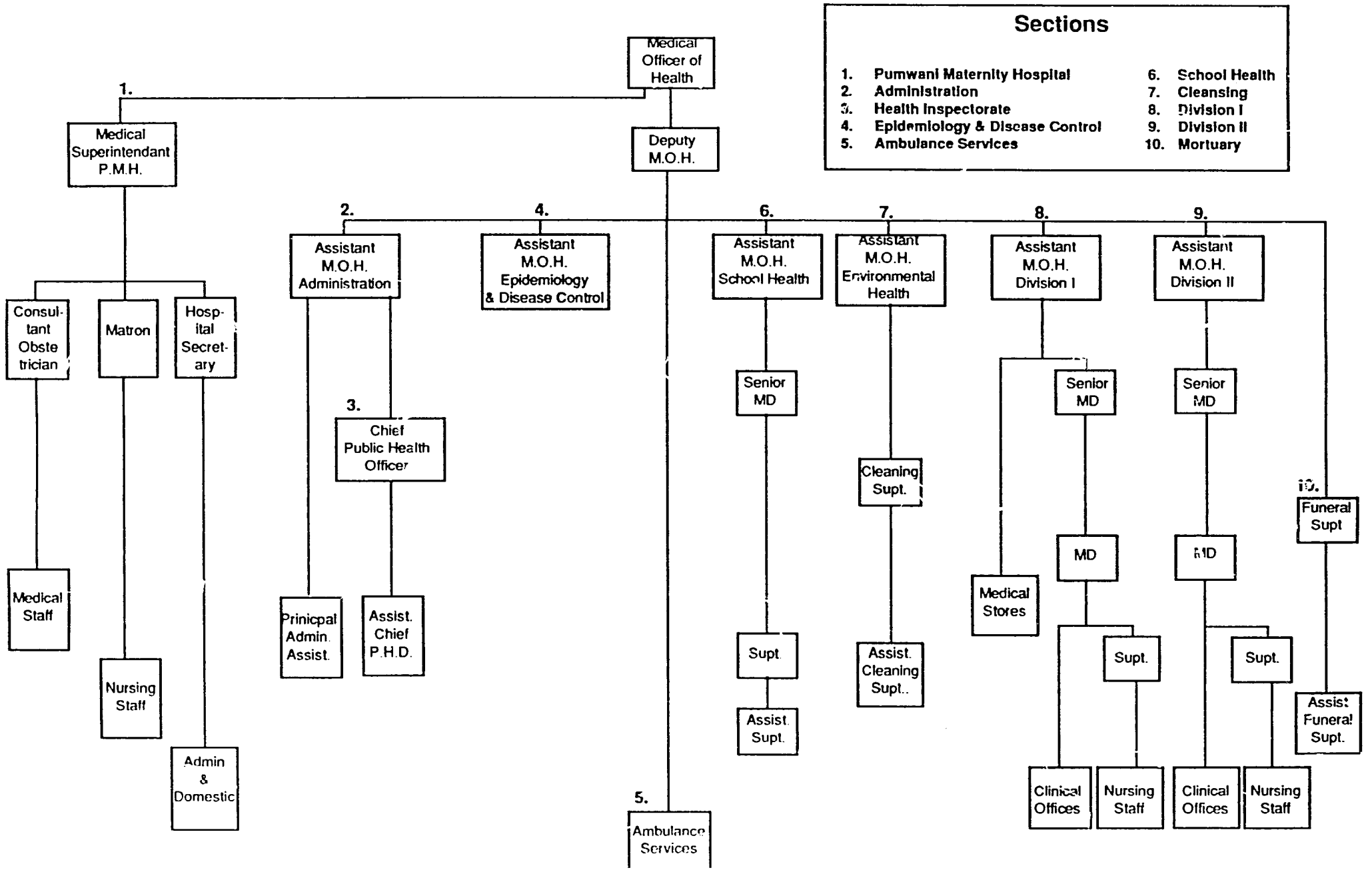
Principal Administrative Assistant

Hospital Secretary

The Head of Section post is currently vacant for five out of the seven sections on the upper level in Figure 5.3. The Assistant MOH (School Health) is Acting Assistant MOH (Administration). The only post at this

FIGURE 5.3

ORGANIZATION CHART FOR THE PUBLIC HEALTH DEPARTMENT, NCC



level properly filled is the medical superintendent of Pumwani Maternity Hospital. Last year this post was also vacant. In two sections, the post of both section Head and second-in-command are vacant (Administration and Division I). Overall, the vacancies at senior levels leave a thin administrative network. Reasons for such a high rate of vacancies at senior levels are examined in Chapter 4.

5.1.8 Functions and Responsibilities of PHD/NCC

The Public Health Department is responsible for providing outpatient curative services, clinic-based maternal and child health care, and inpatient maternity services at nine health centres and Pumwani Maternity Hospital. It also manages the chest clinic and the special treatment referral clinic for sexually transmitted diseases and provides 24-hour outpatient services at two facilities in the city.

These health services are managed under four separate sections. Primary curative services, all MCH/FP services and the Maternity units are managed by two Divisions. Pumwani Maternity Hospital is managed by the medical superintendent. The two specialist clinics fall within the Epidemiology and Disease Control section, which is also responsible for investigating the reported communicable diseases, control of malaria, rodents and vermin, the inoculation centre, and laboratory services. Laboratory services are found at Pumwani Maternity Hospital, Ngaira (Rhodes) Avenue Dispensary and Jericho Sub-Health Centre.

The Epidemiology and Disease Control section also has a statistical office where the reports of individual cases of communicable disease (MED 25) are compiled into the Infectious Diseases weekly report (MED 26/MOH 712). However, much of this office's time is spent preparing invoices for sector control and registering births and preparing certified copies of birth certificates for Nairobi Province. Deaths are registered at the City Mortuary which is in a separate section of the Public Health Department.

The curative facilities report cases of communicable disease for children up to six years old to their Divisions. The Divisions prepare monthly summaries of all services provided. These reports and reports from Pumwani Maternity Hospital, the cleansing section, EDC, School health, the the health inspectorate, the mortuary, and the ambulance section are sent to the Assistant MOH (Administration).

The ambulance services has nine vehicles. In April two-thirds were immobilised awaiting spare parts. The ambulances are stationed at the Fire Brigade which is part of the City Engineering Department, NCC. Pumwani Maternity Hospital has a separate establishment of three ambulance attendants, but the posts are vacant. Staff from the ambulance section have been deployed at the hospital. (see chapter 4 for a discussion of the transport system).

Cleansing is one of the smaller sections with 5.1 percent of the PHD's established posts. On the information board outside City Hall, it is listed first under the Medical Officer of Health's list of responsibilities. This section is reported to absorb 70 percent of the MOH's time. A special Director of Civic Operations (SDCO) was appointed by

the President to tackle civic problems, including garbage. The SDCO instituted fortnightly reports from the PHD on a range of public health matters and related logistics (e.g., vehicle repairs), and reports directly to the office of the President.

The functions and responsibilities of the Public Health Department are extremely diverse. The organisational structure of the PHD is not parallel to the functional lines found in the GOK health system. This situation creates difficulties in coordination between the two public providers, and between the NCC and donors. Moreover, the City Commission's role in setting priorities and interpreting health policies, and the additional input of the special Director of Civic Operations means that the Public Health Department must respond to three different foci - the City Commission, the Ministry of Health, and the Office of the President.

5.1.9 Administrative Structure of the Provincial Medical Office

The Minister of Health is a political appointee who sits in Cabinet. The senior administrative civil servant is the Permanent Secretary (PS) and the senior technical advisor is the Director of Medical Services (DMS). The DMS is responsible for organising, controlling, and coordinating health services in the whole country and for approving the appointment of the Medical Officer of Health for Nairobi City Commission. As ex-officio Registrar of the Medical and Dental Practitioners Board, the DMS also has a significant role in the licensing of private practices (see Section 5.3).

The DMS delegates authority to his eight Provincial Medical Officers, who in turn delegate to their District Medical Officers (DMOs). Since the introduction of the district focus policy in 1983, the DMOs have taken primary responsibility for planning and implementing health policy at an operational level. They report to their PMO, who coordinates districts of the province.

The headquarters of the Ministry of Health houses the Health Information Systems Section (in the Division of Disease Control) which compiles a national report on health services and morbidity data from all districts in Kenya. The section should receive data from all Nairobi health facilities. The Division of Family Health from which the KEPI and family planning activities are coordinated is also under the Ministry of Health.

5.1.10 Organisation of the Nairobi Provincial Medical Office

The Nairobi Provincial Medical Office (see Figure 5.4) was established in August 1987 and is located in Nyayo House, the Provincial Commissioner's headquarters. The office is headed by the Provincial Medical Officer, who is the leader of the provincial Health Management Team. The Nairobi Provincial Medical Office has major differences from other provinces which include: the absence of defined districts; the absence of a provincial or district hospital (see Section 5.1.4 below); and the diversity of facilities under its supervision as a result of Kenyatta National Hospital reorganisation.

a) Staffing

At present, the posts of pharmacist, accountant and supplies officer are vacant. Facility level staff with a public health and MCH/FP training are being posted at GOK/PMO facilities so as to provide more integrated services. Accurate information regarding the size of the staff establishment or the percentage of posts that are vacant is not available. The provincial medical office is uncertain for which facilities it has total responsibility because some of the dispensaries it supervises have staff provided by other parent organisations.

b) Functions and Responsibilities

By authority delegated from the Ministry of Health, the Provincial Medical Office is responsible for coordinating health services in Nairobi.

In July 1988, the PMO produced a document entitled Functions of the Provincial Medical Office, Nairobi. This document gives a picture of the intended scope of the office. The central function of the Provincial Medical Officer is to manage health services in the province and coordinate other providers of health services in Nairobi. Other functions identified are to:

1) manage directly the government health facilities in Nairobi Province;

2) establish monitoring mechanisms to maintain health care standards;

3) maintain statistics of disease patterns, epidemiological surveillance, and develop strategies for intervention;

4) inspect and approve licensing of all public and private medical and health-related institutions (including pharmaceutical shops) in the province;

5) register and maintain inventories of all registered medical facilities in the province;

6) plan new medical facilities and expand or improve of the existing ones in liaison with the Nairobi District Development Committee, and the Permanent Secretary, of the Ministry of Health; and

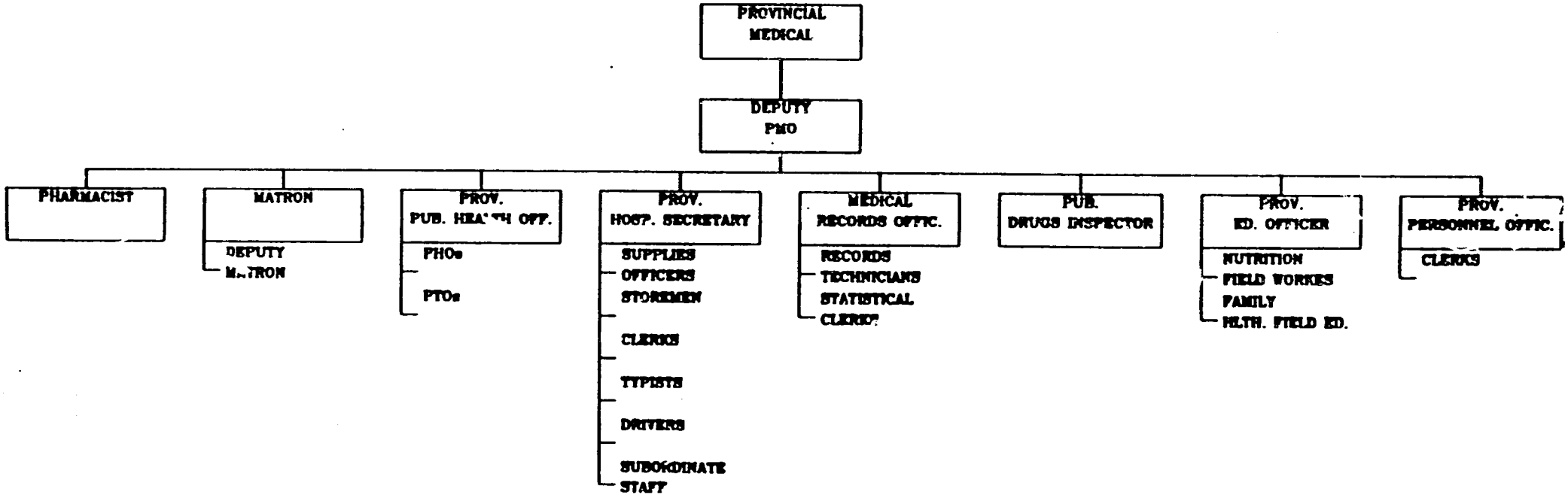
7) enforce eight statutes listed which relate to health.

The list of eight statutes does not include the Local Government Act, Cap. 265. Since several of the functions listed above have been performed for many years by the PHD/NCC, this omission creates duplication of effort and a period of confusion until the statutory responsibilities of each organisation are clarified (see Section 5.2), or until the overlapping roles are defined through mutual agreement.

FIGURE 5.4

ORGANIZATION CHART

PROVINCIAL MEDICAL OFFICE, NAIROBI



5.1.11 Findings From Interviews

This section summarises the results of the structured interviews with In-Charges of facilities and the interviews with executive officers.

a) Knowledge of Structure for Management and Coordination

Nairobi health providers at facility level are not well aware of the overall administrative structure and the duties which guide the superior levels in the fulfillment of their duties.

The In-Charges of facilities were asked if they had an organisation chart showing the administrative structure of their own organisation or facility. Only four charts were available: Pumwani Maternity Hospital, Central Bank Staff Clinic, Division I (where the Acting Senior Medical Officer had prepared it for her students), and the office of the MOH/NCC. This last chart does not show all the connections between the various levels of the PHD and the other departments even though all the departments are show on the chart.

Three-quarters of the In-Charges surveyed did not know what role the Provincial Medical Office played. Those who did know mentioned coordination, supervision, inspection, or collecting statistics. Two-thirds of the sample did not know what duties the PMO had been performing. The PMO identified his main responsibilities as coordination and supervision. The MOH/NCC saw the PMO's role as that of coordinator.

These private facilities and two NCC facilities reported they were unaware of the existence of the Nairobi Provincial Medical Office. However, according to records at the PMO, both NCC facilities had been visited by provincial staff. Three of the 13 facilities and five of the ten private facilities considered themselves to be under the authority of the PMO.

The sampled In-Charges were unanimous in the view that there should be "a body which takes a coordinating role for all the health providers in Nairobi, public and private". Half of them said that the coordinating body should consist of representatives of all health providers in the city. This was the majority preference of private sector In-Charges.

b) Inventories of Medical Facilities

The list of facilities in Table 2.2 and the map of their location (Chapter 1) was compiled by the NAS Team. A complete inventory of facilities was not available.

At NCC, the Divisions have facilities listed by type according to the administrative division in which they are located (Dagoretti, Kibera, Makadara, Pumwani, Kassarani). However, the lists are not up-to-date. Some facilities are known by two names creating some confusion and duplication in recording facility statistics.

At the Provincial Medical Office, the complete list of facilities is kept with the Deputy PMO. The NAS Team was not able to obtain this list. The available lists were unsystematic, with no consistency in the facility names, identification of facility type, or responsibility for management. The available lists did not include private facilities.

c) Information Systems

The PMO is also responsible for maintaining statistics on disease patterns, providing surveillance on diseases and conditions, and monitoring health care standards. The Office had made an impact in this respect with private providers. Almost all of those interviewed reported that they had been visited and told to fill out statistical returns. However, those interviewed seemed unclear about what they were supposed to do with the forms when they had completed them, and did not seem to know where to send them. Prior to the establishment of the PMO, they may have been instructed to send information to the MOH/NCC.

The point of contact for the PHP/NCC information system is the MOH/NCC. The Town Clerk must give permission for the release of NCC information and no progress has been made on this matter within the Public Health Department. The lack of a focal point for information was demonstrated when the NAS Team asked for copies of the most recent monthly reports. The Administration Section had copies of MCH/FP returns, and data on seven communicable diseases among children 0-5 years old. Although the KEPI summaries had been seen at the Divisions and copies are sent to NCC, KEPI summary forms were not available at City Hall. The outpatient curative forms are sent directly to Afya House. No copy is filed at NCC. The system for logging in forms, arranging them by month and collecting them is not well organised. Potential users of data (e.g., the Assistant MOH Administration)) told the NAS Team that he did not know who was supposed to be in charge of the information system, and could not extract data he needed. The immense amount of information processed every month by NCC facility staff is compiled without resolving any errors.

The PMO staff have asked the NCC facilities they visited to send them statistical returns on Ministry formats directly to the PMO. A few NCC facilities have done so but a complete list of facilities for summarising statistics is not available. The denominator summary statistics being compiled in the PMO is not always consistent, making interpretation of these summaries difficult. Section 5.6 describes the health information system in more detail.

d) Planning

The planning process within the PHD/NCC involves preparation of financial estimates of their needs for the coming year by Section Users. These estimates use the input of facility In-Charges on drugs, equipment, maintenance, etc. (see Section 5.5.1). Although the Section Users meet to discuss and defend their proposals, there is no unit within the Public Health Department which specialises in planning. The ten sections compete with each other for the PHD's share of NCC resources. Operational workplans for increasing the efficiency of existing resources are not prepared. The senior executive officers in the PHD seemed to be treated as district representatives in such matters. At the time of the NAS Team's interview the PMO had not attended any Division of Disease Control meetings

because no invitation had been extended to it. The five-year development plan for health had not been prepared for Nairobi Province. In previous years, if the MOH/NCC had prepared the plan, it would have been sent to the Ministry of Local Government rather than the Ministry of Health. According to the PMO, it now has responsibilities to coordinate such planning.

e) Location Planning

There is, as yet, no structure which can link together the development planning for health facilities in NCC, the licensing activities of the Medical and Dental Practitioner's Board (which affects the location of private health services), and the data base in the Provincial Medical Office.

f) Inspections

The apparent overlap of activity by the Provincial Medical Office and the Public Health Department (see Section 5.2) and the absence of a formal structure to coordinate these activities creates confusion between and among providers and organisations.

5.1.12 Conclusion

The Nairobi Provincial Medical Office is a very new office. It is beginning its operations in an environment where a well-established public provider of health services already exists and in the absence of the usual provincial structure, that is, the District Medical Officers and their Health Management Team, and acute district and provincial hospitals.

Based on the evidence and findings from interviews with the In-Charges and executive officers, it appears that a suitable structure and mechanisms for the coordination of the health systems in Nairobi have yet been established. The rural Provincial model cannot work without establishing districts. To date, there have been no clear guidelines from the Ministry of Health to public and private providers clarifying the role and functions of the PMO. In the short term, the Provincial Medical Office needs to consolidate and develop a workplan for its own operations before taking on the supervision of the whole city. The Public Health Department should reorganise some of its own operational structures so that the functions requiring coordination are identified and focused.

5.1.13 Options

Nairobi Province is an urban environment with a higher population density than other provinces and a large and diverse number of public and private providers of health services. All levels of health care, from single function clinics to the national referral hospitals services are available within the city. This environment requires an organisation structure that is expressly suited to the situation, and can adequately delineate authority, responsibility, and accountability. The roles, functions and relationships between the MOH of NCC and PMO have not been clearly defined. The absence of definition has created confusion, duplication, omissions, and inconsistencies. The roles of the major providers and the relationships between the public and private sectors need

to be clarified. The relationships governing provision of primary, secondary and tertiary care by all sectors need to be defined.
To improve organisation and structure for the improvemnt of health service delivery in the Nairobi Area, the following options should be considered:

1) Create a new entity with responsibility, accountability and authority to:

   - Interpret GOK/MOH policy guidelines for Nairobi.
   - Collect and disseminate information necessary for planning. and
   - Promulgate regulations that establish criteria for assessing standards of performance, and that assure control of quality.

2) Establish a body which includes representation of all health providers in the city to coordinate provision of services and to cooperate on issues related to health.

3) Remove curative and preventive health services from the municipal authority and establish under the Ministry of Health.

4) Strengthen the present structures of the public sector providers.

5) Change/amend the legislation so as to clarify roles and functions of existing bodies, i.e. the PMO and the Public Health Department NCC and private sector including NGOs.

6) Assign specific duties to the existing bodies, particularly the PMO and the MOH, in accordance with the Public Health Act Section 9 (5).

5.2 INSPECTIONS LICENSING AND MONITORING

The issues addressed in this section are related to inspections and licensing of premises for both trade and medical practices. Regular monitoring, to ensure that high standards of medical and nursing practices are maintained, is also discussed.

5.2.1 Requirements for Registration and Licensing of Doctors

All legal matters pertaining to registration and Medical Practitioners and Dentists in Kenya are provided for in the Medical Practitioners and Dentists Act, Cap 253. All doctors and dentists wishing to practice in Kenya must register with the Medical Practitioners and Dentists Board. Failure to register with the Board constitutes an offence under Section 22 of the Act.

To be eligible for registration, one must demonstrate to the Board that one is professionally qualified. One must be trained and have completed an internship in Kenya or have qualified from a medical school outside Kenya and passed the Board's assessment procedures stipulated in the Registration, Licensing, Assessment and Internship Training Rules (1979), (5). The application must be accompanied by certified copies of relevant degrees, completed prescribed forms, and a fee.

All registered doctors are gazetted every year. All doctors working in private practice must be licensed and should display their licences in their place of work. Doctors working in government institutions are not required by law to display their licences. A valid licence bears the signature of the DMS, who serves as Registrar of the Board. The Board is set up to serve the interests of the public in general as well as those of the doctors and dentists in Kenya. Doctors are expected to abide by the lawful directives from the Board, which in turn expects maximum cooperation and esteem from the practitioners. The Board may remove a doctor's name from the register or cancel the licence if the doctor is found guilty of any infamous or disgraceful conduct in a professional respect.

The types of conduct which raise disciplinary issues include the following:

1) Termination of Pregnancy: It is against the laws of Kenya to terminate pregnancy on demand. However, a termination can be carried out if, in the opinion of the attending doctors, it is necessary in the interest of the health of the mother or baby;

2) Issuing Medical Certificates: All such certificates must be accurate and true;

3) Prescribing Drugs: Doctors should be conversant with the pharmacy and Poisons Act, and the Dangerous Drugs Act, and they should obtain consent from the patient, whenever possible, before administering any anaesthetic. They should also not abuse professional confidence by disclosing to a third party information obtained from a patient in confidence;

4) Disregard of Personal Responsibilities to Patients Under their Care and Treatment: A doctor should not fail to visit his patients when called upon to do so without making alternative arrangements. It is also wrong to give unskilled or careless treatment of a complaint which has been properly diagnosed; and

5) Conduct Derogatory to the Reputation of the Profession: It is against the Professional conduct and also a breach of the Dangerous Drugs Act to be under the influence of alcohol. Doctors must avoid appearing in public while under the influence of alcohol and they certainly not work with patients while intoxicated.

The Code of Professional Conduct and Discipline is issued by The Medical Practitioners and Dentists Board. Disciplinary powers are conferred upon the Board in Sections 20 and 21 of the Act, and by the Disciplinary Proceedings (Procedure) Rules 1979 (2). A tribunal carries out the disciplinary procedures governed by Rules of Procedure made by the Minister of Health in consultation with the Board in accordance to Section 23 of the Act. The Board receives a report from the chairman of the Preliminary Inquiry Committee whose primary function is to establish whether or not a case exists to necessitate the personal appearance of a practitioner before the full Board. The proceedings of the Preliminary Inquiry Committee are held on camera. The chairman of the Board then consults the Attorney General, who advises on the need for the Board to hold a formal inquiry into the doctor's professional misconduct. The purpose of the Board sitting as a Tribunal is to protect the public as well as the medical profession. In deciding the case, the Board also considers what is in the best interest of the doctor. The Tribunal then decides on one of the following courses:

1) admonish a doctor and conclude the case, and warning letters are sent to the doctor;

2) place a doctor on probation, for a period not exceeding six months;

3) direct suspension of a doctor's registration or licence for a period not exceeding 12 months; or

4) direct erasure, of a doctor's registration remains effective indefinitely unless the doctor makes a successful application for restoration of his name on the register.

The decision of indefinite erasure must be reached by two-thirds majority of the Board members. A doctor who has been erased from the register may make an application for restoration after 12 months. He may apply at six month intervals until he is successful. Each application is determined on its merits, considering, the nature and gravity of the offence, the length of time since suspension and erasure, and the conduct of the applicant in the intervening period.

5.2.2 Evidence and Findings

From activity observations at facilities and interactive interviews with the facility In-Charges, the NAS team found that there is lack of discipline amongst the professionals. Doctors are known to report to work late, be intoxicated, and fail to report when on call. At Pumwani Maternity Hospital, patients were observed to be left alone while in labour, and sometimes to deliver without the help of the medical or nursing staff. The process of disciplining or deregistering the indisciplined doctors is long, and mechanisms for monitoring the activities of doctors at work are not clearly laid down.

In spite of the very lengthy and detailed procedure for taking disciplinary action against a doctor, there are no clear guidelines on reporting procedures. Cases of indisciplined doctors have been reported within organisations through informal channels, without any disciplinary action being taken.

5.2.3 Requirements for Registration and Licensing of Nurses

The Nursing Council of Kenya is the body which overseas the welfare of nurses. All qualified nurses must be registered and licensed with the Council. The functions of the Council as laid down in the Nurses Act Cap 257 include the following:

1) Establish and improve standards of all branches of the nursing profession to safeguard the interests of all nurses.

2) Establish and improve the standards of professional nursing and health care within the community.

3) Provide for, with the approval of the Ministries, training of nurses, regulation of syllabuses of instruction and courses of training for nurses to conduct examinations for nurses.

4) Recommend institutions to the MOH to be approved for training of nurses.

5) Prescribe badges, insignia or uniforms to be worn by nurses.

6) Take disciplinary measures whenever necessary to maintain proper standards of conduct among nurses.

7) Maintain for the standard of nursing care, qualified staff, facilities, conditions and environment of health institutions and take disciplinary measures to maintain a proper standard of nursing care in health institutions.

8) Direct and supervise the register, rolls and records.

9) Advise the Ministries of Health on matters concerning all aspects of nursing.

It is an offence for any qualified nurse to practice without being registered, enrolled or licensed. It is also an offence to wear any uniform, badge or other distinguishing devise prescribed for registered, enrolled or licensed nurses unless the individual is properly qualified. Furthermore, it is an offence to employ an unregistered nurse to work in a health institution.

Only persons authorised in writing by the Council can enter health institutions to check the status of nurses employed there or to check the premises or the standard of nursing care.

5.2.4 Evidence and Findings

The NAS team was informed of nurses who had been trained informally on the job and given the white uniforms and duties of trained nurses. The team also observed instances in public and private health centres and dispensaries where aseptic techniques for dressing wounds were carried out either by patient attendants or by nurses. No forceps were used and the dressings was not sterile. In laboratories, the staff did not use gloves when drawing blood from the patients.

Given the large numbers of health institutions and private clinics in Nairobi, there is a need to intensify inspections and monitoring of nursing procedures. However, one constraint is that the Provincial Matron is authorised by the Council to carry out the inspections and give the Council a report.

5.2.5 Requirements for Licensing Health Premises

According to Part III of the subsidiary legislation, no private practitioners will be licensed unless the premises where the clinic is situated have been approved by the Board. Once registered, a premises is to be kept clean and in a good state of repair.

Premises are open for inspection by an authorised officer of the Board. The Chairman of the Board delegates this duty of premise inspection to public health officers. In Nairobi, these inspections are currently being done from the Provincial Medical Office, on instructions from the DMS. Previously this function was carried out by Public Health Officers in the Nairobi City Commission, but some inspections were still being conducted from the Ministry of Health headquarters. In the PMO's office three persons are authorised to sign the inspection report: the Provincial Public Health Officer, the Provincial Matron and the Provincial Medical Officer. All licensed health facilities are required by law to notify the Medical Officer of Health of any notifiable diseases which are treated in the NCC facility.

5.2.6 Evidence and Findings

None of the private facilities visited by the NAS Team were reporting any diseases to the MOH/NCC, the Provincial Medical Office, or to Ministry of Health headquarters.

The NAS Team observed dirty and blocked toilets, dirty wards, faulty electrical wiring, and an unsanitary kitchen. Due to the faulty electrical wiring an incubator was not in use and premature babies had to be nursed in an ordinary cot which may not have been warm enough for their survival. Lack of Mortuary facilities, or proper arrangements to facilitate immediate transport of bodies to a mortuary, were inadequate in a few private facilities. The legislation requires all nursing homes to have access to a mortuary, either on the premises or elsewhere (e.g., at another facility).

5.2.7 Drug Inspections

The Pharmacy and Poisons Act, Cap. 244, provides for all legal requirements of pharmacists. All practising pharmacists are required by law to register with the Pharmaceutical Society of Kenya. This Society serves as the Pharmacist's Board with the DMS as Chairman. No person other than a registered pharmacist should dispense drugs except someone under the immediate supervision of a pharmacist. All pharmacy premises must be registered. A licensed facility is required under law to maintain accurate records of all drugs to which the Pharmacy and Poisons Act and the Dangerous Drugs Act apply.

The DMS, as Chairman of the Pharmacists Board, has delegated all duties related to drug inspections to the Drug Inspectorate Department, which is based at the Ministry of Health headquarters. The Acting Head of the Department said that his department is the enforcing body for the Ministry of Health. A Gazette Notice, No. 1730 of 23 June 1978, authorises the staff of the Drug Inspectorate Department to carry out drug inspections.

The main functions of the Drug Inspectorate Department are to:

1) Enforce the requirements of the Pharmacy and Poisons Act Cap. 244; Dangerous Drugs Act Cap. 245; Food, Drug and Chemical Substances Cap 254; Medical Practitioners and Dentists Act Cap 253; Nurses Act Cap 257; and the Veterinary Surgeons Act Cap. 366 to control the importation into and exportation from Kenya of drugs and chemical substances.

2) Deal with procedures of analysis and sampling of locally manufactured and imported drugs, cosmetics and chemical substances for quality control purposes.

3) Control narcotic drugs carried by international passenger aircrafts and ships as required by International Air Transport Association (IATA) regulations.

3.2.8 Evidence and Findings

The NAS Team observed that in all of the NCC facilities surveyed, drugs were dispensed by enrolled nurses, whereas in five out of 11 private facilities, drugs were dispensed by unqualified staff such as ungraded nurses or a secretary. In government facilities, pharmaceutical technologists and technicians were in post. In a number of instances, the drugs were dispensed in unlabeled bottles and the patients were not given

clear verbal instructions on how to take the drug. The observers heard instructions such as "take these tablets at night but you can also take them in the day time".

5.2.9 Evidence and Findings Related to Inspections, Licensing and Monitoring

There is a great need to strengthen inspections for licensing and to continuously monitor the standard of patient care in Nairobi. Based on information supplied by the DMS, the acting Registrar of the Nursing Council and the acting Head of the Inspectorate Department, none of the private facilities visited by the NAS Team had been inspected during the last year.

The major constraints associated with inspections for licensing are:

1) Acute shortage of staff in the Inspectorate Department. The Department has posted two members to the PMO in Nairobi, but considering the number of pharmacies in Nairobi, there is not enough staff to cover the workload.

2) Inspections are being carried out by several teams. The PMO team and the Drug Inspectorate team from Afya House are both carrying out inspections. Currently these teams are not coordinated and are responding to DMS and Nursing Council's directives to carry out inspections. It is the prerogative of the DMS in his capacity, as an ex-officio member of all the Boards and as the professional head in the Ministry of Health, to assign the duties of carrying out inspections to any team that he believes will perform such duties in the best way. The DMS is currently delegating to the PMO team, although the responsibility for inspections have not been removed from the Public Health Department of NCC officially.

   The officials of the Nursing Council cannot carry out all the inspections in Nairobi because they also inspect institutions which conduct nursing training and the syllabuses used. The staff are few in number and very busy. If the Provincial Matron were to devote full time to inspecting registration details and nursing procedures, allowing half an hour travel each way to reach the facility and spending only half an hour on each staff member, it would take over four months for her to cover the 141 non-hospital facilities in Nairobi. To inspect the hospital staff would take another three and a half months, making a total of almost eight months' full-time work. At the present rate of inspection (two or three facilities, one morning per week), the Provincial Medical Office would require several years to cover the city. The time allowed by their schedule is only sufficient to spend seven to eight minutes inspecting the registration and procedures of all nursing staff. This would not constitute an adequate inspection.

3) There is no coordination of activities between the Public Health Department inspectors, the PMO inspectors and the Drug Inspectorate Department. The inspections are mainly based in requests by people who wish to be registered or who wish to make complaints.

5.2.10 Options

To ensure and control the quality of the health services that are delivered to the Nairobi population, the following options should be considered:

1) Develop and implement quality assurance program with required reporting by all facilities of:

   - o professional licensing
   - o medical protocol
   - o patient education protocols
   - o staff training
   - o pharmacy guideline

2) Establish quality control program which regularly reviews service delivery of all providers.

3) Strengthen responsibility for regular on going monetary and surveillance of facility and authority to take action.

4) Strengthen the linkages between existing licensing, monitoring and inspections bodies in Nairobi.

5) Establish peer review mechanisms and procedures.

5.3 POLICIES AND OBJECTIVES

After Independence, the fight against disease, ignorance and poverty was made a national priority. In pursuit of this goal, government health services were provided free of change. The concept of cost sharing was included in the KANU Manifesto which said that "the Government should share the financial responsibilities for its services more extensively with the beneficiaries of those services". The Ministry of Health's share of recurrent expenditures has been reduced from nine to eight per cent (See Sessional Paper No. 1 of 1986 on Economic Management for Renewed Growth, Republic of Kenya). This reduction was to be achieved by reducing costs through improved management of health facilities and the health care system.

5.3.1 Health Policy in Nairobi

a) Primary Health Care and Prevention/Promotion

The GOK has adopted primary health care as an approach to the promotion of health and provision of health services. In Nairobi, emphasis have been placed in slum areas (illegal settlements) where it is estimated that 40 percent of Nairobi residents live. Services emphasised include:

- Maternal and child health/family planning
- Immunisation
- Nutrition
- Growth monitoring
- Primary curative services
- Psychiatric care
- Dental health

Guidelines for urban primary health care in Kenya are provided in Chapter 6 of the National Guidelines for the Implementation of Primary Health Care in Kenya (Ministry of Health, Government of Kenya, 1986). It provides an outline for organising community health committees, coordinating of extension workers from different sectors, and motivating decision-makers, the community, executive officers and politicians.

The Ministry of Health has been urged to train not only its own staff but also urban personnel working in other sectors. The District/Provincial level of the Development Committee has the responsibility of training, motivation, policy formulation on slum development and other aspects of the urban environment, and coordinating the various sectors. The municipality (NCC) is responsible for establishing interdepartmental steering committees.

With the support of UNICEF, some progress has been made on primary health care policies for Nairobi. In February 1988, a seminar in child survival was held, attended by the chief officers from several departments of NCC and the commissioners.

Interviews with the Nairobi City Commission Medicine Officer of Health and Assistant Medical Officer of Health revealed that a proposed UNICEF sponsored child survival project will include primary health care activities in Nairobi. Other NCC community-based PHC activities are:

1) a nutrition project previously sponsored by the World Bank for Dandora area (Urban II project); and
2) a community based family planning project for strengthening NCC family planning services sponsored by the Family Planning International Assistant (Kenya T.14)

b) Nairobi Community Based Health Care

Policies regarding health services for slum areas are not defined. Until the city commission accepts that they have a responsibility for the city's slum areas, there will be no clear policy on health for the areas.

Non-government organisations (NGOs) have supplemented government efforts through the following Primary Health Care activities strategies mainly in illegal settlements areas:

- Identifying priority areas for PHC
- Facilitating communities in identifying their problems determining their priorities and making their decisions.
- Assisting with input such as personnel finances and community supplies on short term basis.
- Training of community to generate resources through development of income generating activities for women, youth group and others.
- Training local community health care workers.

5.3.2 Ministry of Health Views on the Private Sector

The Ministry of Health recognises the important role played by the NGO private sector in the provision of health services in Kenya. On a number of occasions when addressing NGO's, the DMS has assured them of government support. NGOs provide 35-40 percent of health services, particularly in the rural areas. In Nairobi, six of the 14 hospitals are private. All the 11 nursing and maternity homes are either private or Mission supported. Of the 73 dispensaries (without beds) in the city, 34 are either private or mission supported.

The GOK encourages NGOs to expand and gain more coverage to complement the efforts of the Ministry. NGOs are also encouraged to provide health services in slum areas where the government has not been able to build health facilities. Some of the incentives which the government gives NGOs include:

1) allowing private hospitals to import medical equipment duty free;

2) allowing NGOs to import vehicles and medical equipment duty free; and

3) training of Kenyan health workers and allowing the private sector to employ them even before they have worked with the government.

5.3.3 Ministry of Health Support to Private, Mission and Parastatal Facilities

The Ministry of Health has seconded several doctors and a pharmaceutical technician to Pumwani Maternity Hospital in an effort to improve the staff shortage situation. Mbagathi and Loco facilities which serve staff of parastatal companies, have drugs and dressings provided by the Ministry of Health.

Other policies include guidelines for private hospitals on acceptance of emergency cases, use of government facilities on referral of acute and "cold" cases, and maternity referral guidelines issued by Pumwani Maternity Hospital. However, no comprehensive policy document exists for Nairobi that addresses secondary and tertiary referrals, and the relationships and expectations for private providers.

When asked what role the PMO has in Nairobi, a few private facilities said that the Ministry of Health, through the PMO, was coordinating services in Nairobi and encouraging exchange of information between the providers in Nairobi. One private facility said that the role of the Ministry of Health was to enforce rules and regulations.

5.3.4 Community Mental Health Care

The Kariobangi Pilot Mental Health Project Clinic is the only facility for outpatient mental problems and is only offered one morning per week. The main function of the Mathari Mental Hospital outpatient clinic is to provide drug treatment for the discharged psychotic patients. Kenyatta National Hospital (KNH) deals mainly with patients with neurotic, psychosomatic and neuropsychiatric disorders who are referred there from other parts of the country or from other specialised (KNH) clinics. The Director of Mental Health in Kenya reported that 20-30 percent of patients seeking medical treatment in general outpatient clinics are suffering primarily from psychiatric disorders. From the baseline study, the Team also found that there is willingness to expand the present health services offered by the primary health care facilities in Nairobi to include psychiatric care. The establishment of a community mental health care programme would facilitate follow-up for mental patients discharged from Mathari Mental Hospital and provide many other benefits.

In communities where there are primary health care programmes, particularly those that emphasise community based health care, mental health education can easily be introduced. However, these programmes would have to work closely with the nearby health facilities, including health centres and clinics.

5.3.5 Access to Health Care

Access to care in terms of physical access (distance, travel time), eligibility, or qualifications required to receive care at a particular facility, are discussed in this section.

The 1979 population figures from the most recent census have been used to calculate the population per facility for two types of service and NCC facilities (Table 5.3). Even though the population figures are not current, the data reveal some important effects of location planning decisions and licensing of health facilities. These are:

1) Population per primary curative facility offering walk-in and ambulatory services varies considerably among administrative advisors. The smallest number of people per facility is Pumwani, and the largest served is Kassarani.

2) In terms of population per immunisation clinic, the best served is Dagoretti and the worst served is Kassarani. Using the 1979 figures, the average catchment population implies that in Kassarani the average facility has about 700 newborns per year who should receive immunisations (assuming a CBR of 40 per 1000).

3) With regard to population per NCC facility (health centres with and without beds, dispensaries and MCH/FP clinics) Pumwani is the best served, and Dagoretti is the worst served.

These examples show that accessibility of health services, in terms of distance or travel time and in terms of congestion or waiting time, varies greatly for residents of different parts of the city. Kassarani and Dagoretti are the worst served divisions.

The facilities supervised by the PMO were excluded from these calculations because some cater to special groups (i.e. a city resident cannot generally walk into some PMO facilities and receive care). At Kamiti Hospital, the NAS Team found a facility which usually sees 5- 6,000 patients per month but was practically deserted. The general public was suddenly barred from using the outpatient and MCH services because of security problems. The decision to close the facility to the general public was made by staff from the parent ministry: Home Affairs.

TABLE 5.3

POPULATION PER FACILITY IN NAIROBI FOR SELECTED TYPES*

Service/Facility	Dagoretti	Kibera	Makadara	Pumwani	Kassarani	Total
Population (1979 Census)	130,902	143,196	161.271	166,200	226,2206	827,775
Percent of Total	16%	18%	19%	20%	27%	100%
Population per Primary Curative Facility**	10,900	13,000	9,500	5,700	17,400	
Number of Facilities	(12)	(11)	(17)	(29)	(13)	(82)
Population per Immunisation Service Point	32,700	23,900	11,500	7,200	25,100	
Number of Facilities	(4)	(6)	(14)	(23)	(9)	(56)
Population per NCC Facility	26,200	23,900	12,400	8,300	25,100	
Number of Facilities	(5)	(6)	(13)	(20)	(9)	(53)

* Excludes Pumwani Maternity Hospital, parastatals, and some government facilities.

** Ambulatory primary curative service includes hospitals with walk-in outpatient departments; facilities which offer preventive services only (i.e., MCH/FP) are excluded.

The most vulnerable members of the community may not have the financial resources needed to use fee-for-service facilities. Lack of access to economic constraints also includes costs such as time from work for unsalaried workers, and the cost of transport if the nearest free services are far away. Transport costs and lost income also deter the poorest members of the community from complying with referrals for diagnostic or secondary care. The data from newly delivered mothers at Pumwani Maternity Hospital show that the lowest income group was less represented in the random sample of 241 women. The delivery fee of Kshs. 200 at Pumwani may present a barrier to access for the lowest income group.

The public sector has several possibilities at its disposal for distribution of facilities. First, the NCC planners can target new development funds to the areas which are presently underserved in terms of the rest of the city. Second, the government can address the problem of delivering health services to illegal (slum) settlements. Third, the licensing bodies can draw up a list of geographical areas in which no further health facilities will be authorised until the present distribution of services is adjusted.

5.3.6 Health as a Priority

The extent to which health is a priority in Nairobi is indicated by looking at the Public Service Commission's appointments and by reviewing recent government policy developments.

a) Senior Executive Posts in the Public Health Department

The Public Health Department has three times more established posts than any other department in NCC and accounts for 35 percent of total established posts. The PHD's share of established senior posts (grades 1-8) is lower (26%), but it still has twice as many senior posts allocated to it than any other department. However, only one-third (35%) of the posts for senior staff are filled. This is the highest percentage of vacancies at a senior level for any of the NCC departments. Health appears to have the lowest priority in terms of adequate levels of senior executives and senior managers in position. This may be partly a result of the scale of remuneration and allowances which make these posts unattractive to senior physicians.

b) Health as a Priority in Government Policy

The introduction to this section reviews developments in government policy priorities regarding the health sector. The most recent publication, Sessional Paper No. 1 (1986), suggested that the necessary cost savings could be achieved through improved management of resources. Since then, policy makers have been working to make the economic reforms announced in that document operational. The Ministry of Health has been identified as one of the suitable candidates for cost recovery (along with Education and Agriculture). However, details of how such a strategy might be implemented have not been worked out. Careful analysis of the ability of users to pay is planned, with special emphasis upon the most vulnerable socioeconomic groups. UNICEF and the Ministries of Planning and Finance

are developing a study of effective demand to assess ability to pay. The objective of this study is to recommend a cost recovery strategy which will not adversely affect the well-being of the poorest.

A strategy for dealing with vulnerable socioeconomic groups cannot be effectively handled by individual service sectors such as health or education. It requires formulation of a comprehensive national policy of how disadvantaged groups would be assured of access to essential services following implementation of cost sharing programmes. A broad-based study, initiated at the national level could provide information required for formulation of such a strategy.

5.4 MANAGEMENT PRACTICES

This section describes the findings of the NAS Team on management practices for planning, decision-making, deployment and supervision of staff, procurement of drugs, medical supplies and equipment, and ensuring that buildings and equipment are maintained. The information is drawn from the interviews conducted by Team members with facility In-Charges, their supervisors, and executive officers in the Provincial Medical (PMO) Office and the Public Health Department, NCC.

5.4.1 Planning and Budgeting

The PMO is responsible for coordinating and planning the Nairobi Province's health activities. As the PMO becomes more established, it will be the central repository of the data needed by health planners. For the present, planning is carried out by the Provincial Health Management Team. Staff responsible for a particular area provide the Hospital Secretary with their inputs from which budget estimates are prepared. These estimates rely on the previous year's budget, which is usually increased by a fixed percentage to cover rises in costs. The PMO's budget was prepared for the first time this fiscal year (FY 1988/89) and an explanation regarding the budgeting process follows.

The process drew on rural norms for estimating facility workloads and drug requirements. The planning process in the PMO did not produce a document describing expected activities and their costs or operational workplan. Due to absence of District Health Management Teams trained in planning and management practices, the PMO is currently limited in its ability and orientation, and inadequately prepared for managing and coordinating city-wide planning for health services.

The Public Health Department of the NCC has no specific planning unit. The task of planning appears to be interpreted as applying to development budgets, which are prepared in another department. For generating the PHD's annual operating budget estimates, proposals are prepared by user section heads. These are discussed and justified in a plenary meeting. No integrated annual operational plan is produced. Budget estimates may be reduced by senior executives before the total PHD proposal goes to the City Treasury Department where final reductions are made. It was not possible to determine the basis on which section line-items are reduced.

At NCC, specific plans for primary health care seem to depend substantially upon donor initiative. The concept of making plans to increase the efficiency of existing resources for routine services was absent.

The In-Charges of NCC, PMO, and private facilities were asked what inputs they provided to the process of budgets preparation. Just over half said they provided input on one or more of nine items (see Table 5.4). Those who provided no input were equally distributed between the NCC facilities and the private sector.

TABLE 5.4

FACILITY IN-CHARGES PROVIDING INPUT FOR BUDGET ESTIMATES

Budget Item/Number	NCC	PMO	Private	Total
New equipment	4	2	5	11
Drugs	2	1	5	8
Expansion of services	3	2	3	8
New facilities, extensions	3	1	3	7
Maintenance	3	1	3	7
Personnel	2	1	3	6
Transportation	1	2	2	5
Water, phone, electricity	2	1	2	5
In-Charges giving no input on any topic	5	1	5	11

Although it is highly appropriate for facility level staff to provide input to the budgeting process on resource use, they often seemed unaware how their inputs would be used. The majority of facility In-Charges had not received adequate training or orientation for the tasks.

5.4.2 Catchment Areas and the Location of Facilities

The NAS Team investigated the criteria used for deciding the location of new public facilities. From the information gathered, there were no clear guidelines for facility location criteria.

In-Charges were asked if they knew the total number of people that their facility was expected to serve. One-fifth could name a figure, and most of these were in the private facilities. One In-Charge informed the NAS Team that it serves mainly the city centre population, estimated at 9,000. Two private facilities could estimate their target populations, one a private company and one a parastatal, both of which serve only the employees of those companies. The only mission facility which estimated its target population is at Kibera and serves a number of villages in that slum area. The In-Charge estimated 200,000 persons to be the population of the villages. The majority of the facilities whose In-Charges could not quote a figure for the target population were free public facilities open to anyone. Only one of the 11 NCC In-Charges estimated a catchment population. Most of the others merely named the estates which their facilities were expected to serve. Catchment areas do not appear to be absolute, since neighbouring NCC In-Charges sometimes named the same estates. None of the three PMO In-Charges interviewed could estimate target population or catchment area. The absence of data on catchment populations for facilities makes it difficult for staff or their supervisors to monitor and evaluate vital aspects of performance such as coverage for preventive services, congestion, and workload for curative services.

5.4.3 Staffing Norms

Information on staffing norms should be available so that managers can be informed when posts are vacant. In-Charges were asked if they had staffing norms for their facility. One-third of the facilities with ambulatory services said they knew what staff they were supposed to have (45% of 11 private; 33% of 3 PMO; and 27% of 11 NCC). Pumwani Maternity Hospital provided a specific list of established posts, which included vacancies, from their annual report for 1987. The nursing supervisors did not have written norms.

The norms shown in Table 5.5 were produced by the Acting Senior Officer of Division I, NCC. It is interesting to note that the clerical and domestic staff needed at maternity units were not specified.

TABLE 5.5

STAFFING NORMS FOR NCC HEALTH FACILITIES FROM THE FIVE YEAR PLAN

	Dispensaries	MCH/FP Clinics	Maternity Units
Medical Officer	1	0	0
Clinic Officer	2	0	0
Nursing Officer	2	1	1
Midwife	0	0	12
Enrolled Nurse	5	4	0
Assistant in Clinic (ungraded)	2	2	9
Clerical Officer	2	0	?
Domestic Staff	3	3	?

Source: "Survey on Manpower Requirements and Supply in the Public Sector (1987-1993)", Form sent to Division I from the Directorate of Personnel Management, Office of the President.

The facility In-Charges were asked what criteria were used when setting these norms. Their responses were as follows:

1) A large proportion of private facilities (45%) used workload (patients per staff).

2) NCC In-Charges thought that norms were set according to facility type (35%), health needs of the population (20%), population size (10%), or workload (1%). The rest did not know.

3) One PMO In-Charge said norms were determined by workload, and the other two did not know how they were set.

These answers reflect that workload was perceived as the principle criteria for setting staff norms (28% of sample). However, output of patients per staff in NCC and PMO facilities is not calculated, monitored, or evaluated.

When asked how often the norms were reviewed, 60 percent of In-Charges did not know; another 20 percent said that the norms had never been revised. In private facilities, two In-Charges said norms were revised annually, and three said they were updated as needed. The In-Charges of NCC facilities were very unsure about who revised the norms. Two named the NCC as the responsible body. All three PMO In-Charges said that the norms for their facilities would be revised by the PMO.

The findings on staffing norms indicate that although one-quarter of facility In-Charges provided information on personnel for the budgetary process, they were not aware how this information was used. Many In-Charges did not know who was responsible for altering staff norms when the norms were revised, or what criteria were used. These factors imply that the staff responsible for day-to-day management of the facilities have no "target" workloads which they can use to assess their actual staff workload (patients per staff). Thus, they lack a standard which they could use in presenting a case altering the number of staff.

At the supervisory level, the nursing officers were unaware of formal staffing norms. By contrast, the section head of Division I was well aware of the norms, was using them as a basis for staffing the facilities being opened in the Division as provided in Table 5.5.

5.4.4 Deployment and Supervision of Staff

In facilities managed by the PMO, staff may be moved without consultation with the medical officer In-Charge. The PMO moved staff in order to balance the portfolio of skills at each facility.

The NCC Divisions have responsibility for duty rosters to cover the 24-hour services at Jericho (Division 1) and Rhodes/Ngaira Avenue (Division II). Division I seems to have fewer clinical officers and treats staff as a pool, to be deployed where needed. When a clinical officer has finished the month (one week of nights, three weeks of leave), he or she is often transferred to another facility since the vacancy created at the first facility will be filled by someone just back from leave. Division II has a more stable deployment system. Clinical officers and senior nurses are more strongly attached to specific facilities.

Both Divisions used staff "ladders", a coloured card showing individual staff members posted there, each colour representing a separate designation. This seemed a practical and imaginative way of keeping track of where staff were currently deployed.

The average number of staff supervised by the In-Charge was far higher in NCC facilities (25 per In-Charge) than in the PMO or private facilities (16 and 4 per In-Charge respectively). NCC facilities also had fewer supervisors. These findings indicate that the style of supervision in NCC facilities is more centralised (less delegation), with a small number of supervisors responsible for a large group of subordinate staff. Kamiti Prison Hospital and Pumwani Maternity were exceptions. Each had identified areas for which the senior staff were responsible, so the supervisory base was broader.

Only one-third of the sampled facilities received regular supervisory visits. The most frequent answer (36%) was that the supervisor "dropped in", or was "passing by". More frequent supervision was suggested as the best way to improve supervision. However, the In-Charges seem to extend their superintendents' informal style to their own supervisory approach. The majority (76%) meet staff when the need arises, and two-thirds talk to their staff informally. Only one-third of the In-Charges hold regular meetings with their staff.

The exception to this style was Pumwani Maternity Hospital, which uses an impressive set of written guidelines and supervisory checklists for staff supervision and evaluation of performance. However, this supervisory system only applies to the nursing staff. The Medical Superintendent can only report details of professional negligence of doctors to the MOH/NCC. The Medical Superintendent has no authority to take disciplinary action against doctors who fail to respond when on-call, or who do not report to participate in perinatal review meetings. Section 5.2 discusses options for monitoring professional performance through the licensing system, and Section 5.7 explores the issues of quality assurance and quality control.

5.4.5 Decision Making

The NAS Team used a series of structured questions to assess the degree of centralisation in decision making.

Table 5.5 provides a summary of responses as to who made decisions about aspects of personnel management. Issues involving commitment of resources are made at the central level in the public sector (salaries and allowances, hiring). In private facilities, such matters are settled closer to the level of the facility manager. The NCC In-Charges perceive that disciplinary decision-making is relatively centralised, yet these issue have the greatest impact within the facility itself. For NCC, the Divisional Headquarters only features as a significant centre of decision-making for in-service training (60%) and deployment (35%). The supervisors thought they made decisions about leave, performance review and deployment. This indicates that even though the Divisions are responsible for direct supervision of the NCC facilities, they have been delegated limited authority for managing the personnel assigned to them.

TABLE 5.6

DECISIONS ABOUT PERSONNEL MANAGEMENT
(FACILITIES REPORTING DECISION AT HIGHEST LEVEL OF ORGANISATION)

	NCC	PMO	Private	Total
Deployment	2	1	1	4
Review of Performance	2	0	2	4
In-Service training	4	1	1	6
Basic training	5	1	2	8
Leave	7	1	2	10
Discipline	7	2	2	11
Promotion	8	3	3	14
Salaries & allowances	11	3	3	15
Hiring	11	3	2	16

Hours of operation for public facilities are set by the top level management. The private sector had more autonomy. When the 24-hour service was started at two NCC dispensaries, the decision was made by the City Council. The PHD conducted an analysis of the volume and timing of cases at the 24-hour services, and used the analysis to support closing one clinic outside normal working hours. The decision was overruled by the Council. Given the stress on an already understaffed health system, further investigation of the utilisation of these services is needed.

5.4.6 Management of Facilities

Table 5.7 shows that nurses (both Kenya Registered Nurses [KRNs] and Kenya Enrolled Nurses [KENs]) are the In-Charge in about 63 percent of the facilities. KRNs (including Matrons) serve as In-Charges in about 44 percent of the facilities. At NCC facilities KRNs are In-Charges in all the Health Centres and the sub-health centres. KENs are In-Charges of the MCH/FP clinics. At three-quarters of the PMO's facilities, doctors are the In-Charges. The picture is not so clear in the private facilities where the In-Charges include administrative officers and a chartered secretary. However, clinical officers are in charge of two facilities. In the mission facilities, the In-Charges are mainly nurses, both KRNs and KENs. The Crescent Medical Aid, which runs several health facilities in the city, has a well-trained and experienced Administrative Officer. Although nurses and doctors handle running of the facilities, they have strong support from the administrator who handles administrative duties such as ordering and purchasing equipment and drugs.

Table 5.7

IN-CHARGES OF FACILITIES

	Doctor	Matron	KRN	Clinical Officer	Admin. Officer	EN	Other
NCC	-	-	8	-	-	3	-
PMO	3	-	1	-	-	-	-
Private	-	1	-	2	1	-	1 (chartered secretary)
Mission	1	1	1	-	-	2	-
Parastatal	1	-	-	-	-	-	-
TOTAL	**5**	**2**	**10**	**2**	**1**	**5**	**2**

5.4.7 Employment of Doctors and Nurses

All NCC doctors are employed on full-time basis. The only part-time doctors working in NCC facilities were found in two facilities and they had been seconded by the Ministry of Health to NCC from KNH. At the PMO's facilities, doctors are employed to work full-time but at Mbagathi C.T.S. the doctor is seconded by the Ministry of Health to work there for only three months at a time. At Mathari Mental Hospital, the consultants are employed full-time but all four have private clinics in the city.

Doctors working in 54 percent of the private and mission facilities are employed on a part-time basis. These doctors have various modes of operation (e.g., one doctor working for a private company also runs his private clinic but he covers several company facilities). Sometimes he is on call or he visits the company facilities on specific days of the week, Another private company doctor spends four hours every day at the company facility after which he goes to his private clinic. The doctor is on call 24 hours for the company but spends only limited time at the facility. In another private company, some employees (particularly the managers) can either be treated by the private doctors selected by the company or can be seen by a clinical officer In-Charge of the company dispensary.

Nursing homes have one full-time doctor who sees outpatients and inpatients. However outside doctors admit the majority of the patients to the nursing homes. One nursing home has up to 30 doctors who admit and treat their patients. These doctors spend between three to four hours per day in the nursing home attending their patients whenever necessary.

Doctors and nurses working in the prisons and General Service Unit (GSU) facilities are under the PMO in Nairobi and are actually supervised from Kamiti Prison Hospital. However those working for the Armed Forces, the Central Bank and other parastatals, such as the University of Nairobi, are employed by the parastatals themselves.

In mission facilities, such as Mater Missericordiae Hospital, Mary Immaculate, and Kibera Catholic Dispensaries, the nuns provide unpaid labour. There are also a number of volunteers working for the Crescent Medical Aid. Some of them are foreign doctors.

Nurses, both Enrolled and Registered, in all facilities work full-time. An administrator in one of the nursing homes said that, based on the workload, she hires nurses part-time when she requires them. She keeps telephone numbers and addresses of the good nurses who have previously worked for her.

5.4.8 Procurement and Management of Supplies

For In-Charges, procurement entails obtaining drugs, supplies, or equipment.

The NCC facilities which submitted a written request countersigned at Division headquarters and forwarded to NCC Medical Stores.

Drugs are identified by a five-digit code from a catalogue, arranged in alphabetic order. The NCC In-Charges employ several strategies to obtain the drugs they need: some order more than needed in the hope that one of the items is in stock; others find out what is currently in stock and only order what is available, but not necessarily what the facility needs; large facilities order weekly; smaller ones every two weeks. The schedule is prearranged to facilitate logistics. The Medical Stores staff write the quantity issued in a separate column for each item requested, so it is possible to see the shortfall. The pharmacy staff issuing these supplies do not substitute for an item that is out of stock.

During the course of this study, the facilities supervised by the PMO switched from being supplied though Central Medical Stores to the Rural Health Drug Ration Kit system (Kit). The system was not functioning well. All three facilities surveyed were supposed to be using Kit at the time of the NAS Team's visit, but one had inadvertently been dropped from the list so alternative arrangements were in place. Although the pharmaceutical technologists/technicians at the supervising facilities (Kamiti Hospital and Loco Dispensary) had prepared estimates of their drug needs before starting to receive Kit, the supplies they received were insufficient. The Kit does not contain all the supplies on the stock sheet. One In-Charge of a dispensary complained that lotion for cleaning wounds was not included in the Kit. Since he did about 20 dressings a day, the gauze supplied was exhausted long before the next supply period. The Kit system has not been adjusted for the high-volume workload of the urban facilities, and the quantities supplied are known to be inadequate for the supply period. The Kit system requires two additional clerks for record keeping.

Private facilities using curative drugs used multiple procurement procedures. Most purchased locally, either directly (70%) or through tenders (20%). Three ordered from a central store and one requested supplies through the supervisor. The use of multiple procedures may indicate that the private sector experiences shortages, but is free to obtain the necessary drugs through alternative means.

Vaccines and family planning supplies follow separate routes. Vaccine for all Nairobi facilities is collected from the Central Vaccine Store at KNH, and stored at two NCC health centres. Bahati supplies all public and private facilities within Division I and Ngaira Road Dispensaries supplies those in the Division II.

When facilities procure vaccine, their request does not indicate either the quantity remaining in stock (balance) or the dose administered or used during the supply period. Several times the NAS Team saw that doses requested had been overwritten with doses issued. This procedure is not the same as that followed by twelve districts outside Nairobi.

Family Planning supplies are picked up from the GOK Central Medical Store Annexe by the two NCC Divisions. Private providers are supplied by the Division of Family Health.

The NAS Team encountered a great variety of stock management practices. Nearly all staff described the practice of examining the expiry date of newly received drugs and placing the oldest stock nearest the front, to be used first. The system is preferable to the simpler rule of First-In-First-Out (FIFO). The variation came in stock record-keeping. At some facilities, all items were accounted for in the stock records. At others, bulky liquids such as cough syrup were not recorded. A few facilities kept records only of injectables and antibiotics. The standard NCC procedure is that all items should be recorded. Supervisors were unaware of the variations found by the NAS Team.

A register showing patient's name, the items issued, and the quantity of each makes it a relatively simple task to monitor diagnosing, prescribing, and consuming practices. The NCC facilities have the registers for doing this. At one of the PMO facilities, the prescriptions are filed and kept for three years, but there was no record showing the name of the patient and the drugs issued. This made it a tedious task to check on whether accepted courses of therapy were being prescribed.

5.4.9 Procurement of Equipment and Spare Parts

One-third of the In-Charges said they placed verbal requests for equipment and spare parts with supervisors. Another 20 percent put their requests in writing. All but one of the NCC In-Charges used these procedures. By contrast, half of the private sector facilities obtained equipment and spare parts through direct purchase.

Spare parts had not often featured in the public sector's procurement experience. Only one-quarter of these In-Charges had made a request (via their supervisor), and the remainder of the sample had never procured spares, or did not know how to do so.

Appendix I describes the procedures for procurement in the Ministry of Health and in NCC. Both are under the general guidelines in the Government of Kenya Supplies Manual (Ministry of Finance and Planning) and subject to rules published by the Treasury. This section draws attention to some of the procedural problems with the current procurement process:

1) In spite of the lengthy process designed to prevent funds being spent on expensive choices, the NCC procurement process fails to take quality into account when procuring equipment. The NAS Team found a room full of 20 brand new sterilisers that had blown up the first time they were plugged in, and blood pressure machines which did not work.

2) In NCC, administrative staff decided whether to seek technical advice on items of equipment and users are not automatically included in the procurement discussions.

3) In NCC, the ability of suppliers to provide technical backup, or even the most basic spare parts (such as a light bulb for a microscope), is not taken into consideration. The result has been that when a piece of equipment breaks, the "middle-man" type of supplier is unable to do anything to solve the problem. These problems result because the organisation which has many diverse functions and does not understand the special quality requirements of medical equipment. The PHD's problems arising from the procurement of substandard equipment could be avoided if the procurement process included a Technical Evaluation Committee, as established in the Ministry of Health.

4) In NCC it is the responsibility of the Section User who requested the equipment to check on its quality before accepting it. This task is delegated to a member of the Technical Evaluation Committee in the Ministry of Health. Thus the people checking for quality before accepting the delivery are the same people as were involved in the evaluation of the tenders.

5) Neither of the public procurement procedures give enough attention to service contracts or the supply of standard spare parts. By contrast, private providers typically have service contracts to cover the maintenance of their equipment. This is only done for a very limited number of items (e.g., oxygen cylinders) in the public sectors.

6) The public sector tendering processes do not take into consideration the economic cost of tardy or incomplete deliveries. The record of the supplies on this matter should be taken into consideration.

The essential element in improving the procurement process is to involve the users and technical evaluators whose experience with the equipment makes for more qualified evaluations.

5.4.10 Repairs and Maintenance

Repairs and maintenance for NCC are done by the maintenance unit of the NCC City Engineers Department. None of the surveyed NCC facilities had a maintenance unit or any maintenance staff attached to the facility. More than half of these facilities said that regular preventive maintenance was never done. Inadequate maintenance and emergency repairs are one of the biggest problems for NCC facilities. If inspected, some of the facilities would be closed due to roof leaks or filthy, blocked toilets.

All of the three PMO facilities had a maintenance unit which could handle repairs. The staff and materials are supplied by the parent organisation involved: at Loco, Kenya Railways; at Kamiti, the prison staff; and at Mbagathi, the Post Office. However, regular preventive maintenance was only carried out at one of these facilities.

Most of the private facilities (73%) did not have any maintenance unit or staff. Preventive maintenance was done annually or as required at more than half of the facilities.

Regular preventive maintenance was reported at only 12 percent of the surveyed facilities. Considering the capital invested in the structure, this item should qualify for a share of the recurrent budget.

5.4.11 Coordination of Ambulance Services

Ambulance services for public use are available on call from the Nairobi City Commission and St. John's Ambulance Services. Both organisations charge a minimum fee of Kshs. 100 for a call within the city. St. John's also operates outside the city where it charges Kshs. 9 per kilometre for a call. The Ministry of Health uses ambulances in the city but they are facility based and are mainly used to transfer patients to Kenyatta National Hospital from other Ministry of Health facilities. The Armed Forces also have ambulances which are used strictly by Armed Forces personnel and their families. The Ministry of Health and Armed Forces ambulances are not available to the general public on call.

Currently there is a problem of coordination of the ambulance services. The NAS Team has been told that on several occasions more than one ambulance has responded to a call and gone to pick the same patient. This is unfortunate particularly when there is greater demand for ambulance services than the two organisations can supply. (see also Section 4.9)

5.4.12 Options

a) To improve the management of services, resources, and facilities, the following options should be considered:

1) Use planning capability to determine locations of facilities.

2) Delegate management and disciplinary authority to each facility.

3) Assign personnel who have relevant managerial training rather than medical or technical persons to plan, manage and administer facilities.

4) Develop and implement job descriptions which specify tasks expected of employees and review on a periodic basis.

5) Develop and implement promotion criteria based on performance.

6) Reward outstanding performance with bonuses, public recognition and awards.

b) To improve the function of emergency transport, the following actions should be considered:

1) Establish a Central Dispatch to coordinate city-wide ambulance services.

2) Establish a coordinated ambulance system for PMD and NCC.

5.5 INFORMATION SYSTEM

A functioning system for providing the necessary health and related information is a prerequisite for effective and efficient management of health services. The system should be able to capture data that relate to health services delivery, analyse and interpret the data, and distribute the acquired information. The information obtained should be accurate and complete to enable decision makers to perform their tasks and assist in improving the functions of planning, monitoring and evaluating health programmes. The system should also be able to respond to special non-routine information needs arising from researchers and frequently for crisis management. The structure and organisation of such a system should have operational links and facilitate communication across providers of different types of health services in an effort to maximise the usefulness of the information. Data on health services utilisation, resources and status of the recipients should form the basic contents of the information system and should draw from both primary and secondary sources. This section identifies the reporting structures that constitute an information system and then focuses attention to the existing structures in Nairobi Province, examining the inherent problems and causes. The following sections states the policy guidelines laid down for reporting and relates them to findings from the survey carried out. Options form the final part of this section.

5.5.1 Reporting Structure, Ministry of Health

The Ministry of Health collects and compiles returns from facilities mainly through the District Medical Officers of Health. The Ministry has a centralised unit for this purpose called the Health Information Section (HIS) which was created by amalgamating the vital Health Statistics unit with the Evaluation and Research unit of the Division of Family Health. In an attempt to collect data which adequately covers the whole country, the section was decentralised in 1985. The District collects and does the initial compilation of data, Nairobi, not being a district, was not included. The section compiles health statistics and has recently included management information processing from secondary sources.

The section is responsible for centrally compiling data on outpatient morbidity, inpatient discharge sheets, summary of infectious diseases, immunisations, nutrition (growth monitoring), family planning, and child care statistics. Processing the returns for outpatient, inpatient and infectious disease statistics uses the largest portion of human and material resources available for Health Information Section. The processing is assisted by the Central Bureau of statistics and the government computer centre. The whole process between filling in forms at the facilities to publishing the summaries at HIS takes up to one year. Returns on immunisations, which is carried out under a bilateral project agreement, has no agreed upon collecting and processing procedures. It is not unusual to observe institutions in Nairobi sending their returns to different officers, making timely processing difficult.

Under the current organisation of HIS, the districts submit monthly summary activity reports covering all the seven areas. Returns from private providers are included. This system has not been established for Nairobi province. Returns obtained by HIS are usually incomplete due to the fact that not all private providers facilities report. This problem is critical for Nairobi as there is no district medical officer of health where the private provider institutions could deliver their returns.

Provincial Medical Office obtains information in a fragmented and erratic manner. Institutions that are supervised by the PMO are at times bypassing and taking some types of returns directly to the HIS.

5.5.2 Reporting Structure, Nairobi City Commission

The reporting structure of the Public Health Department of NCC is unique. The original design and purpose does not provide a system of providing detailed health statistics in an efficient manner. There are three levels of reporting within the Public Health Department: facility, division, and central.

The facilities submit all information on outpatients, inpatients, and other services statistics to the divisional headquarters. At the division, statistics are aggregated for all the facilities and sent to the Assistant Medical Officer of Health (AMOH) responsible at the City Hall. This office compiles information for the whole Public Health Department. Facilities send returns on infectious diseases and births directly to the Epidemiology and Disease Control (EDC). The AMOH also receives returns from the EDC section on infectious diseases. Copies are passed to the Ministry of Health. The EDC submits verification of births to the Registrar General at the Attorney General's Chambers.

The third direction of reporting health specific information is immunisation. Facility summaries are passed to the KEPI processing structures through collection centres of supplies at the division level. At the facility level, the In-Charges have overall responsibility for compiling returns.

Administrative divisions compile returns from facilities. Specific staff are assigned that duty through none has post-basic training in medical record processing. Returns from the division are taken to City Hall in the form of a monthly report. There are standard formats for the divisions and the returns lack details, i.e. outpatient disease pattern.

The overall Health Information System section suffers from inadequate resources and their activities are not given high priority by the Ministry, as evidenced by the absence of an operating budget for the period before financial year 1988/89. In addition, the duplication of efforts across PMO, NCC, and the Ministry is a costly and inefficient use of limited resources.

5.5.3 Policies on Reporting

The Ministry of Health enforces the Public Health Act and in so doing is expected to collect and distribute information relevant to the health sector in the country. Enforcement of this act would be an easy way of implementing an information reporting policy for all providers. Further gazetting a disease binds all institutions to report as required by the Act.

There are no specific guidelines for reporting by Nairobi providers. The current model for rural districts does not apply due to the diversity of the providers. Further specification on the types of information to be reported, channels, formats and frequency has not been laid down. The Ministry of Health designs and requires formats for data which are not used by the NCC or other private providers.

The PHD guidelines for reporting are uniform only as far as frequency and contents are covered. Reporting or making returns outside the centralised NCC structure is nonexistent. The NCC reporting puts greater weight on administrative information. Health service statistics do not place an emphasis on these reports. If formats of reporting vital health data were standard for all providers, the situation would be improved. However, one of main causes of non-reporting is the lack of forms. Responsibility for supplying forms is not well defined.

5.5.4 Evidence and Findings on the Existing Information System

The existing information system as a whole needs further improvement on performance. This section outlines some of the observed weaknesses of the current system.

One of the main features of Nairobi Health Information System is that the quality of output, in terms of accuracy, timeliness, and completeness, reduces its usefulness to those who would use the data to improve health service delivery. The data collection systems do not provide a mechanism for accuracy checks. Data is handled by staff who may not be adequately trained to detect users. At all NCC facilities surveyed, staff with no formal training in data processing are responsible for data collection. The results of this situation are reports containing different figures for the same phenomenon.

The usefulness of data is further reduced by the absence of specific details (i.e. NCC returns do not have outpatient disease patterns). Private facilities do not provide reports as a routine, (important areas are left out). Thus, it is a difficult task to obtain an overall understanding of the health situation in the city due to incompleteness of data. The delay between collection of data and making data available for use poses many problems. The Ministry of Health is most affected with time lags of up to one year.

There is acute shortage of skilled staff to produce effective information for Nairobi. In only one facility was data collection carried out by a statistical clerk. Three NCC facilities listed the problem as very serious. None of staff of the PHD had a job description relevant to

data handling at the divisional level. Staff at facilities do not perceive the need to overhaul the present data processing system. Only one In-Charge recommended that staff be trained in medical records. No NCC staff attended training in medical records field, except in the EDC section.

Initial compilation tools are also inadequate to handle the data processing required. At the division level of the NCC, pens and paper are used to do the aggregation required. At the PMO's office, calculators are used, but considering the volume of data, these mechanisms should be strengthened to reduce time lags and errors in data summaries.

There are no policies on reporting formats as disclosed in the interviews at facilities. Of the facilities in the sample, only 31 percent used the established Ministry of Health formats, and 24 percent do not report at all. Confusion or lack of understanding on reporting guidelines has resulted in some Nairobi facilities reporting directly to the HIS and by passing the PMO's office. Very few In-Charges of facilities considered themselves under the authority of PMO and requests to make returns to the office may be seen as unnecessary demands. Further, the NCC had been communicating directly with Ministry of Health headquarters before creation of the PMO and to date, protocols have not been established. All NCC, and GOK facilities In-Charges felt that there was need to coördinate information statistics across providers. Four of the private provider group felt this was not necessary.

The information feedback system is virtually nonexistent. Only one In-Charge at a private facility stated that they ever received feedback when they forwarded returns to the Ministry. The situation is the same for NCC. Divisional facilities receive some feedback from City Hall.

The use of the information for decision making is weak. Both the executive officers and supervisors interviewed claimed that although returns are poor, it provides enough information for decision making. However, they require administrative information. Planning and management for most of the health facilities in Nairobi are not supported by a strong information base.

The structure of information coördination does not allow transfer or sharing. Thus, Division I of NCC does not routinely receive information about Division II and vice versa. Reporting is very centralised and provides little vertical sharing of information across providers.

5.5.5 Options

To improve communication, information, and reporting in the Nairobi health system, the following options should be considered:

1) Create an entity with responsibility, accountability and authority to collect, compile, and disseminate information necessary for planning in a timely manner.

2) Establish an information system for Nairobi within an already existing office.

5.6 REFERRALS

This section describes the structure of referrals in Nairobi and the pattern of referrals revealed through interviews with In-Charges of health facilities. Patterns of referral to Pumwani Maternity Hospital are discussed using data from maternity cases interviewed at Pumwani (or who delivered there and were transferred elsewhere).

5.6.1 The Nairobi Referral Structure

The model for referral at the national level is vertical, with the rural health facility at the base referring up to sub-district hospital, district hospital, and provincial hospital and from there to the national referral centre, Kenyatta National Hospital (KNH). The pattern referral observed in Nairobi is both vertical and horizontal.

This section presents evidence from the survey which shows that the major referral centers are: KNH, NCC Special Treatment Clinic for sexually transmitted diseases, Mathari Mental Hospital, Pumwani Maternity Hospital, the NCC Chest Clinic, and the NCC Maternal and Child Health Clinics. Absent from the picture are district and provincial hospitals. Emergency casualty cases, acute cases, and "cold" cases needing specialist's attention are all referred directly to KNH. The remainder of this section briefly describes each of the referral centres.

a) Kenyatta National Hospital (KNH)

KNH is a recently created parastatal institution. A patient is referred from KNH to a specialised institution in Nairobi after a doctor makes a clinical diagnosis. These are: Mathare Mental Hospital, Infectious Disease Hospital, NCC Chest Clinic, and the NCC Special Treatment Clinic. KNH doctors also refer patients to the nearest NCC Maternal and Child Health Clinics for child health immunisation, family planning, and postnatal care. Patients are referred to NCC and PMO dispensaries or health centres for follow-up procedures such as dressings, injections, removal of stitches, and continuing medication.

b) Pumwani Maternity Hospital (PMH)

Ante-natal women are booked for delivery by NCC facilities on the basis of guidelines issued by the Pumwani Maternity Hospital. Patients without a booking but who are in labour are also accepted. PMH also receives cases that are booked for delivery elsewhere but who develop unanticipated complications during labour or post-partum women referred for surgical contraception. Once women have delivered, they are sometimes transferred from PMH to a NCC Maternity Unit where they stay for two to four days. This is done to ease congestion at the maternity hospital and provide necessary follow-up.

c) Nairobi City Commission Facilities

All NCC facilities refer patients to KNH and receive referred patients from KNH. NCC facilities refer ante-natal women to PMH or to NCC facilities with beds. All NCC facilities refer patients across their own facilities either because a particular facility does not offer the necessary services (e.g., dispensaries refer patients to MCH/FP Clinics for preventive and promotive services and these clinics refer to dispensaries for curative services), or because there is a facility offering appropriate services closer to the patient's residence or working area. NCC facilities do not generally refer patients to PMO facilities, most of which are not open to the general public. Patient's requiring specialised care are referred directly to facilities, such as the Infections Disease Hospital, NCC Special Treatment Clinic, and Chest Clinic. These facilities also refer patients to NCC facilities for follow-up.

d) PMO Facilities

The PMO facility's main referral centers are KNH and NCC for those services which are not available at that government facility. PMO facilities also refer patients to specialised institutions such as the Armed Forces Memorial Hospital, Mathari Mental Hospital, NCC Chest Clinic, Special Treatment Clinic and the Infectious Disease Hospital, PMO facilities receive patients referred from KNH and specilised clinics for follow-up.

e) Mission Facilities

Mission facilities refer patients to their own facilities, KNH, NCC and special institutions. Any referred patient that they receive from public facilities is the result of the patient's request to be treated at the mission facilities.

f) Private Facilities

Private hospitals receive all referred patients from public and other private providers. The criterion for admission of non-emergency cases is the ability to pay. Private providers refer patients to KNH, other private clinics, NCC MCH/FP Clinics, the Chest Clinic and the STD Clinic.

5.6.2 Patterns of Referral at Primary and Secondary Level

This section presents findings from interviews with In-Charges at health centres, dispensaries, maternity units, maternity hospitals and nursing homes. The Baseline Survey (Volume I of the Nairobi Area Study) surveyed a sample of 76 In-Charges about referrals. More details were provided by a smaller sample of 25 In-Charges during the main study. This chapter draws on both sources of data to describe referral patterns.

a) Referral Points

All In-Charges surveyed said that their facility referred patients. They were then asked where they commonly referred patients. Table 5.8 ranks responses in order of the most commonly used referral points. The data show that:

1) Every In-Charge interviewed by the NAS Team said patients were referred from their facility to KNH.

2) All of the public sector In-Charges said their patients were referred to STC for sexually transmitted diseases but only a smaller percentage of the private facilities did so.

3) Nearly all facilities refer to the chest clinic for investigating pulmonary TB in ambulatory patients. The chest clinic in turn refers to the Infection Disease Hospital.

4) Both NCC and private facilities refer maternity cases to Pumwani. A smaller percentage of the PMO facilities did so, reflecting the absence of ante-natal care at these facilities.

5) The MCH/FP clinics, at the lowest level in the referral hierarchy, are sent referral clients from 60 percent of the In-Charges surveyed. This is for child care (immunisation), post-natal care and family planning. Patients are referred from both public and private providers to the MCH/FP Clinic nearest their home.

6) In-Charges also said patients are referred to the dispensary health centre or maternity unit nearest the client's place of residence.

7) As expected, private facilities refer to private hospitals. It was noteworthy that patients are referred from public sector facilities to private hospitals on request of the patient. Referrals from the public sector to mission hospitals were also made at patient's request.

8) The two institutions treating mental patients ranked lowest in the frequency of In-Charge's responses. This reflects the requirement that mental patients be committed to court or examined by doctors. Such cases are usually referred to Kenyatta National Hospital from where they are referred to Mathare, which in turn may refer them to Kariobangi Psychiatric Outpatient Clinic for follow-up.

TABLE 5.8

REFERRAL POINTS

Institutions to Which Patients are Referred	Referring Institution NCC	PMO	Private
Kenyatta National Hospital	100%	100%	100%
NCC Sexually Transmitted Disease Clinic	100%	100%	36%
NCC Chest Clinic	90%	100%	45%
Pumwani Maternity Hospital	90%	100%*	55%
MCH/FP Clinic	82%	33%	45%
Private Hospital	36%	67%	73%
Dispensaries	64%	33%	45%
Health Centers (Not Maternity)	64%	33%	27%
Mission Hospital	18%	67%	27%
Maternity Units	55%	33%	27%
Infectious Disease Hospital	18%	67%	18%
Mathare Mental Hospital	0%	67%	18%
Kariobangi Psych Outpatient	9%	0%	0%

*Baseline survey showed that one third of PMO facilities referred to Pumwani Maternity Hospital.

b) Reasons for Referral

The Baseline Survey asked In-Charges what health problems they normally referred. Table 5.9 shows that the most frequent answer was sexually transmitted diseases, with suspected cases of TB ranking second. These are followed by surgical cases and mental cases, both referred to Kenyatta National Hospital in the first instance. Normal and complicated maternity cases were referred by two-thirds of the sample.

These findings reflect and support the data in Table 5.8, indicating the essential connection between the type of medical problem and the place to which it should be referred for treatment.

Overall, the Baseline Survey sample gave the following reasons for referring patients as:

- Lack of Equipment - 88%
- Lack of Laboratory Services - 83%
- Lack of Inpatient facilities - 82%
- Lack of Specialised care management - 77%

The government facilities reported the lack of inpatient facilities as equally important with lack of equipment as the most frequently mentioned reasons for referral (94% of In-Charges). Lack of ability to provide specialised management was mentioned least often (76%). This problem may reflect the presence of skilled and sophisticated manpower and in some facilities. These problems are felt more severely in the NCC facilities. Shortage of the skilled manpower able to manage without sophisticated equipment or diagnostic tests was the most frequently mentioned constraint at NCC.

c) Receiving Referral

Four-fifths of the Baseline sample said that they received patients referred from elsewhere. The criteria for accepting referred patients are shown for the three categories of providers in Table 5.10.

Referral letters were important for all groups of providers. For NCC In-Charges, residence within the facility's catchment area was the most important criterion. By contrast, missions and parastatals said that they accept patients referred from anywhere. Cash payment was also important for private providers to accept a referred patient.

The reasons why patients were referred to the surveyed facilities fell into two broad categories: curative follow-up and preventive/promotive follow-up. (Table 5.11).

Out of the four preventive/promotive services listed above, the NCC In-Charges mentioned receiving patients referred for these services six times more often than the government In-Charges, and twice as often as the private sector In-Charges. This indicates that NCC facilities are the principal referral point for these services. No such difference was found between the three provider groups for curative services.

TABLE 5.9

TYPES OF HEALTH PROBLEMS REFERRED ELSEWHERE

Type of Problem	% of Facilities Which Refer This Problem
Sexually transmitted diseases	82
Suspected pulmonary tuberculosis	79
Surgical cases	78
Mental cases	72
All Maternity cases	68
Complicated pregnancies	67

TABLE 5.10

CRITERIA FOR ACCEPTING REFERRED PATIENTS (%)

	NCC	Govt.	Private	Total
Referral letter	61	47	37	49
Residence in the area	81	35	22	47
Open to all	58	18	52	46
Referred from NCC	55	6	26	33
Cash payment	10	0	33	16

TABLE 5.11

REASONS FOR REFERRAL

Curative	Frequency (%)
Removal of stitches	58
Injections	58
Daily dressing	54
Follow-up (unspecified)	50

Preventive/promotive	Frequency (%)
Family planning	43
Immunisation	38
Ante-natal/post-natal	37
Child growth monitoring	33

d) Source for Referral

Table 5.12 indicates the institutions from which the surveyed facilities said they received referred patients. (These data are from the Baseline Survey, which did not include the Chest Clinic, the Special Treatment Clinic or Mathare Mental Hospital as sources which refer patients to the surveyed facilities).

Kenyatta National Hospital and/or the Infectious Disease Hospital were mentioned most often, indicating that these facilities refer patients back to facilities at the primary level for follow-up.

Dispensaries ranked second as a source for referring patients to other facilities. This may indicate an inability to manage their curative cases, possibly due to a lack of drugs, personnel, or diagnostic facilities. The high frequency of dispensaries as a source for patient referral may also reflect the absence of MCH/FP services at dispensaries. Similarly, MCH/FP clinics may be referring patients due to a lack of basic curative services. Pumwani Maternity Hospital, mission, and private hospitals refer maternity patients who have delivered to facilities offering preventive and promotive services. A certain amount of referral between primary level facilities takes place, possibly to encourage patients to use the facility nearest their place of residence.

TABLE 5.12

FACILITIES FROM WHICH REFERRED PATIENTS ARE RECEIVED

	NCC	Govt.	Private
KNH/IDH	77%	65%	44%
Dispensaries	71%	35%	22%
MCH/FP Clinics	55%	24%	44%
Pumwani Maternity Hospital	71%	18%	26%
Health Centres	58%	12%	37%
Private Hospitals	32%	12%	33%
Mission Hospitals	32%	6%	37%
Maternity Units	48%	12%	4%
Average Number of Referring Sources Mentioned by Each In-Charge	4.5	1.8	2.6

The average number of sources of referred patients for the whole sample was three per In-Charge. On the average the government In-Charges received patients from only two sources, whereas the NCC In-Charges mentioned five sources of referred patients. This indicates a far more active referral network for the NCC facilities, which are expected to follow-up patients from a wider range of institutions. Further investigation is required to establish the efficiency of this system.

5.6.3 Referrals to Pumwani Maternity Hospital

Although Pumwani Maternity Hospital is supposed to function as a referral hospital for NCC facilities, it is very congested. During some months, the patient census exceeds the number of maternity beds. The Nairobi Area Study looked into patterns of referral to PMH to identify whether inappropriate referrals or accepting unbooked patients were contributing to the congestion.

A sample of 224 women were interviewed at Pumwani Maternity Hospital. This section presents their responses, combined with those of 17 women who were delivered at Pumwani but had been transferred to maternity units after delivery.

a) Transfers and Post-Partum Admissions

The data show that seven percent of women who delivered at PMH were transferred out and three percent of the surveyed PMH inpatients arrived at PMH after delivery. Half of these were transferred from NCC Maternity Units.

The majority of the surveyed women (86%) said that they were referred: 85 percent were referred by NCC facilities; one percent by PMH Ante-natal clinic; less than one percent were referred by private providers.

b) Compliance with PMH Referral Guidelines

According to the guidelines (see Appendix L), all first deliveries should be referred to PMH. In the sample, 42 percent were first deliveries, 86 percent of these were referred, and two percent were referred from NCC facilities. The 14 percent of first deliveries who had not been referred are thus missed by the ante-natal referral network.

The PMH guidelines state that multigravida women should be referred to the PMH if they had a history of obstetric complications or if they are gravida five or above. Of the 132 multigravida women surveyed (58%), 115 (87%) had been referred. Data on parity were not collected, so the only aspect of compliance with referral guidelines that can be investigated is the obstetric history of the multigravida women who delivery at PMH. This was studied by asking if this delivery or any of their previous deliveries had been complicated; 35 percent said that they had complications.

c) Other Factors Affecting the Decision to Deliver at PMH

The women who delivered at PMH who were not referred there (11% of the sample), were asked why they came to the hospital for delivery. The main reasons were that the hospital was near their house (65%). A small proportion (13%) said that they went there because of good care. Two respondents said it was inexpensive, and one gave her reason as having delivered her previous child there. Only one unreferred woman said she came to PMH because doctors were available there.

The NAS Team investigated the hypothesis that multigravida women were more likely to deliver at PMH if their previous baby had been born there. Of the multigravida sample (125 women), almost half (47%) had their previous delivery at PMH. Of these 47 percent, more than two-thirds (68%), had never had any complications with this or any other delivery. This implies that two-thirds of the multigravidas were referred solely on the basis of their gravida. Further investigation is needed to establish the extent to which women with low-risk pregnancies of gravida two through four are being booked for delivery at PMH, contrary to the referral guidelines.

d) Referrals From Outside Nairobi

The NAS Team investigated whether PMH is used as a referral hospital for maternity cases from outside Nairobi. Ten of the women interviewed (4%) said that they moved to Nairobi within the last month, or lived outside the city. Of these, three said that they had not been referred, so it would appear that only about one percent of Pumwani patients were from outside Nairobi. Six of the ten women had been referred to PMH (five by NCC facilities and one by PMH Ante-natal clinic). However, half of the women who currently lived outside the city or had moved within the month delivered their previous baby at PMH. Thus, it seems that these women know that they must be referred by an NCC facility in order to be admitted to PMH. Apart from these few cases, representing only four percent of our sample, the NAS Team concluded that PMH is providing services for Nairobi population but not for the surrounding provinces.

e) In-Migration and Temporary Migration

An indication of the amount of migration by pregnant women is given by the finding that 29 percent of the multigravida sample who delivered this baby at PMH delivered their previous baby outside Nairobi.

The women who currently live outside Nairobi or moved within the last 12 months, came from five provinces: Eastern; Central; Nyanza; Western; and Rift Valley.

5.6.4 Findings from Data from PMH Inpatients

The findings suggest that two-fifths of PMH deliveries are for primaegravida, who are automatically booked for admission in accordance with the referral guidelines. However, the data suggest that a substantial proportion of multigravida women delivering at the hospital are there not because of their risk factors. For multigravida women, with no history of complications, their presence in the hospital seems to be best explained by

whether their previous baby was delivered there since all first births are supposed to be delivered in hospital. This apparent trend may be contributing to congestion at PMH.

5.6.5 Policy Guidelines on Referral

The In-Charges of the surveyed facilities were asked whether they had ever been given policy guidelines on what kinds of cases they should refer. The findings were as follows:

1) All of the NCC facilities knew of policy guidelines for referral of maternity cases to Pumwani Maternity Hospital (see Appendix L).

2) The PMO facilities had guidelines on procedures, for referring acute and "cold " cases.

3) Only one of the private facilities said they had policy guidelines for referral of maternity cases to Pumwani.

The general reaction to the question of written referral guidelines on where cases should be sent was that the clinical staff knew where to refer patients with specific problems. When asked about guidelines on the kinds of referred cases that the facility was expected to treat, the In-Charge said that they attended to whatever patients were referred to them to the extent possible, but no written guidelines were produced. When asked what factors were important when deciding where a patient should be referred, half of the surveyed In-Charges said that established referral guidelines were not at all important, while one-quarter said they were very important. The most important factor in deciding where to send a patient was the kind of institution to which the patient was being referred. This reinforces the In-Charges' belief that clinical staff know what to do.

Ability to pay was important for both public and private facilities. The NCC facilities would refer patients to facilities where they would not have to pay, whereas the private facilities would refer patients for secondary and tertiary care where they could afford to pay. The exception was for MCH/FP services for which a private patient might be referred to the nearest NCC (free) facility.

a) Policies for Kenyatta National Hospital (KNH)

The findings from interviews with the In-Charges showed that there are no policy guidelines on what kind of cases should be referred to KNH. Referrals are largely based on the clinical judgement of medical staff that a patient requires secondary or tertiary care.

b) For Pumwani Maternity Hospital

All NCC Health Centres, Maternity Units, and MCH clinics know of policy guidelines on which ante-natal women should be referred for delivery at PMH and which should be referred for delivery at NCC Health Centers with beds. The guidelines were issued by Pumwani Hospital 10-15 years ago. Some private nursing homes surveyed expressed uncertainty over whether PMH would accept complicated maternity cases referred from private facilities.

When asked about such cases, Pumwani Maternity Hospital staff said that direct cases of women in labour who have not attended an NCC ante-natal clinic are not turned away but are admitted.

c) Specialised Institutions

None of the In-Charges had ever seen written policy guidelines on referrals to the specialised institutions such as Chest Clinic or Special Treatment Clinic. The surveyed staff explained that it is understood that a patient requiring specialised care should be referred to the appropriate specialised institution.

d) Development of Policy Guidelines on Referrals

The In-Charges were asked who should develop referral guidelines. The most frequent response was: they did not know (20%); followed by the view that no guidelines were necessary (16%).

The In-Charges were then asked whether they would follow referral guidelines developed by specific bodies or organisations named by the interviewing team. The Ministry of Health ranked highest, with almost two-thirds (64%) of In-Charges willing to follow any referral guidelines it might produce followed by PHD/NCC (605) and the PMO (405). Guidelines from referral facilities were acceptable to 28 percent of In-Charges.

e) Feedback on Referrals

The In-Charges who referred patients to other facilities were asked whether they received any feedback on their patients. All facilities referred patients to Kenyatta National Hospital, but only one-third ever received any feedback. The feedback often consisted of finding out from the patient what had happened. One-third of the facilities referring cases to Pumwani also received feedback. The other specialised referral centres were less diligent about giving the referring facility any feedback (see Table 5.13). Feedback from the primary level facilities (e.g., MCH/FP Clinics) was not necessarily expected, and was even less frequent.

TABLE 5.13

FEEDBACK ON REFERRALS

Facility	Percent of Referring In-Charges Who Received Feedback
Special Treatment Clinic	25
Chest Clinic	25
Mathari Mental Hospital	24
Private hospital	20
Infection Disease Hospital	6

5.6.6 Areas for Further Analysis

The data file on Pumwani Maternity Hospital deliveries should be used to run multivariate analysis to test the hypothesis that the most powerful explanatory factor, apart from having been referred is whether a woman delivered her previous child at the same institution. Further research is also needed to investigate whether low-risk maternity cases of gravida two through four are being referred to Pumwani Maternity Hospital, and whether high-risk cases referred to PMH by the Ante-natal Clinics are failing to deliver at the hospital.

The finding that low income mothers are proportionately underrepresented in the sample of inpatient mothers interviewed during this study suggests that any research into reasons for referred ante-natal cases failing to present themselves for delivery at PMH should take into consideration the economic status of the family, since the delivery fee of Kshs. 200 may represent a barrier to the poorer high-risk maternity cases.

5.6.8 Options

To improve access to appropriate care at the right time and reduce inefficiencies, the following options should be considered:

1) Develop and implement standard criteria and mechanisms for horizontal and vertical referral of patients across public and private providers; reinforce through incentives/disincentives for patients and staff.

2) Develop and implement an information feedback system on referrals.

3) Decentralise public sector referrals for maternity primary and secondary cases.

5.7 THE ENVIRONMENT

This section summarises the NAS Team's findings on the prevailing attitudes and management styles, and asses their effect upon the quality of health care in Nairobi.

5.7.1 Centralisation and Delegation

The public sector tends to operate in an organisational hierarchy with very few senior managers and supervisors compared with the number of subordinate staff (see Section 5.5 on supervision). The Public health Department demonstrates this most clearly both in the large number of staff supervised by facility In-Charges, and in the lack of delegation in City Hall. The authority to make even relatively minor decisions, which have a greater effect locally than upon the senior managers, is concentrated in the MOH and hences causes a bottleneck.

5.7.2 Communication and Coördination

A remarkable feature of management practices in the public sector is that it was repeatedly asserted that "everyone knows what to do" even without copies of guidelines, procurement documents, job descriptions or organisation charts. The reality is that there is considerable variation in what everyone does, for example, the most straight forward procedures for stock management are implemented in a wide variety of ways. Another example of the extent to which individuality is permitted by the system is that the monthly returns from the two divisions are submitted in different formats.

Verbal communication, meetings (without minutes) and visits are the means of communication most often used; more than half of the In-Charges first heard about the PMO in these ways. Meetings were also the most preferred method of communication for any city-wide coordinating body to use. There is as yet no structure for coordinating health activities in the city. The major procedures need to be represented in meetings along side the PMO. The current perception is that the Provincial Medical Office has embraced the role of supervision rather than that of colleague. Mombasa's experience of using a Management Committee provides an example which could profitably be studied.

5.7.3 Supervision and Discipline

The nursing cadre have a well-established hierarchy which seems to serve the supervisory needs in the public sector. The main problem in this area lies with the doctors and to a lesser extent the clinical officers, who are supposed to be supervised by medical officers. The problem of how to supervise clinical officers when medical officers are in such short supply needs to be tackled, especially regarding diagnostic skills and prescribing practices. Adherence to the recommendations on record-keeping for drugs dispensed would make it possible to conduct passive supervision of prescribing practices.

The problem of doctors discipline will involve a thorough reorientation of the profession, from training onwards. Interns at KNH cannot fail to notice that the specialists turn up hours late for their clinics. Doctors who are notorious amongst their colleagues for clinical incompetence continue in practice; their private licenses are not rescinded, and they do not always attend the clinical meetings to discuss the cases which ended in the patients death. Section 5.3 presents options on how the procedures for licensing doctors and responding to complaints can be improved and linked to the monitoring of quality.

5.7.4 Quality Control and Quality Assurance

In order to assure quality, the responsible bodies have to have the basic information with which to monitor essential indicators (i.e. maternal mortality); they must also be authorised to take decisive action, and willing to use their authority. The preparation and enforcement of professional protocols would make clear to all providers what standards are expected. Options and Recommendations are discussed in Section 5.3.

5.7.5 Options

To establish city wide planning, coordination, and regulation for an urban health delivery system, the following options should be considered:

1) Create a new entity with responsibility, accountability and authority to:

   - Interpret GOK/MOH policy guidelines for Nairobi.
   - Collect and disseminate information necessary for planning.
   - Promulgate regulations that establish criteria for assessing standards of performance, and that assure control of quality.

2) Establish a body which includes representation of all health providers in the City to coordinate provision of services and to cooperate on issues related to health.

3) Change or amend the legislation so as to clarify roles and functions of existing bodies.

4) Remove curative and preventive health services from the municipal authority and establish under the Ministry of Health.

5) Institute an annual process of preparing operational work plans for routine health services using information from the monitoring system. Establish the necessary posts for staff who will have responsibility for planning.

CHAPTER 6: CONCEPTUAL FRAMEWORK

6.1 INTEGRATED OPTIONS

The Nairobi Area Study Team has identified a number of factors and problems that limit the effectiveness of available resources in delivering health care services to Nairobi residents. In order to provide a conceptual framework for relating identified problems to potential options for action, we have developed a conceptual framework which is represented in Figure 6.1. It relates the problem areas associated with cost and utilisation, efficiency, and policy, planning, and management issues to the essential dimensions of the care delivery system:

- Demand
- Supply
- Organisation Structure
- External Environmental Factors

In the Team's view, actions in each of first three dimensions are necessary to create an efficient health delivery system that effectively balances the supply of and demand for health services.

The portion of the figure labeled current summarizes major problems identified by the Team. In the representation of the current environment, we suggest that demand exceeds supply as a result of:

1) Absence of an institutional or organisational entity with well-defined responsibilities and authority for centralised policy guidance, planning, and coordination of existing resources for the Nairobi area.

2) Low resource mobilisation

3) Low productivity in resource use and increasing costs

4) Absence of management practices to encourage efficiency and effective capacity utilisation from daily operations of provider organisations

5) Absence of policies to limit excessive demand and encourage appropriate utilisation of services

6) Free care and rationing of service delivery through non-price mechanisms

These conditions lead to limited access to health care services for the Nairobi population and escalating costs of service delivery.

This representation of the current environment is contrasted by a proposed model for a Nairobi Health Care Delivery System whose central features include:

6.2 DEMAND

The areas for action identified within the demand dimension of the health service delivery system focus on altering the utilisation and consumption patterns of the Nairobi population. Chapter 3 identified problems of inappropriate utilisation in five service and programmatic areas:

- General Outpaient
- Curative Services
- Drugs
- MCP/FP Clinics
- Maternity Services
- Mental Health Services

Inappropriate consumer utilisation results in excessive demand in some facilities and service areas, and underuse of others. This situation represents a major cost burden for the public sector.

The options suggested in each of the five action areas provide policy tools that decision makers can use to limit excessive demand, encourage appropriate utilisation, curb system costs, and generate revenues. The strengths and weakness of each option and an illustrative list of steps for their implementation are delineated so as to provide decision makers with further information for setting priorities and selecting courses of action. In each action area, usually one or more option can be selected. Options are not necessarily designed to be mutually exclusive. In some instances the implementation of two or more options may be more effective in providing the desired result than would any one option alone.

The options presented in each of the action areas for drugs, curative, maternity, and mental health services are complementary to each other. No option impedes or negates the effects of the others but offer separate potential benefits. Any or all of the options for each of these action areas can be implemented together.

Some of the options for the action area in MCH/FP clinics are mutually exclusive. The option to integrate MCH/FP clinics into full service health centers would not be implemented if the options to provide outreach services at MCH/FP clinics or to provide these services through private doctors offices were chosen. The other options, however, can all be considered complementary. Table 6.1 summarises the impact and implementation requirements of the options for affecting demand.

ACTION AREA 1: APPROPRIATE CONSUMER UTILIZATION OF CURATIVE SERVICES

OPTIONS	STRENGTHS/WEAKNESSES	IMPLEMENTATION STEPS
1. Implement Charges for Selected Services to Reduce Trivial or Excessive Demand and Encourage Appropriate Utilisation	Strengths - Provides disincentive to consumers of services without real medical need - Places burden for paying for misuse on the consumer - Generates revenue Weaknesses - May discriminate against the poor - Requires fee collection mechanisms, with associated costs - Requires accounting and control system with associated costs	- Analyse utilisation patterns of specific services - Determine services and level of fees to reduce excessive demand - Test effects on demand through operations research - Establish procedures for exempting payment or applying sliding scale for medically indigent
2. Establish and Enforcing Appropriate Referral Mechanisms	Strengths - Provides mechanisms for managing utilisation of services, which leads to more cost-effective resource use - Reduce congestion Weaknesses - Requires a functioning information system for facilities to receive and send appropriate referrals - Requires strong enforcement mechanisms	- Establish criteria for referral - Develop referral guidelines based on criteria - Establish mechanisms for enforcement
3. Develop and Implement a Public Education Programme Regarding What Services are Offered at Each Facility and Appropriate Self Care Measures	Strengths - Encourages utilisation at facilities which are currently underutilised - Reduces inappropriate demands on the delivery system, and thereby reduces costs Weaknesses - Involves additional costs - Difficult to assess or measure impact or benefits	- Identify facilities currently underutilised - Study current self-treatment practises - Develop self-care protocols/recommended practises - Develop public information messages on what facilities are available and when to utilise - Collaborate with pharmaceutical providers to ensure consistency in public messages and advertisements

ACTION AREA 2: APPROPRIATE CONSUMER UTILIZATION OF DRUGS

OPTIONS	STRENGTHS/WEAKNESSES	IMPLEMENTATION STEPS
1. Develop and Implement Education Programs Directed to Consumers and Providers on the need to Reduce Over-Prescribing Practices for Pharmaceuticals	Strengths - Contributes to improved quality of care - Reduces Expenditures on Pharmaceuticals Weaknesses - Provides no mechanism for enforcement - Difficult to asses impact - Involves additional costs	- Identify provider-consumer drug utilisation practises - Identify appropriate education forums and develo them for consumer/providers - Implement the education programmes - Develop programmes to inform pharmaceutical providers on appropriate drug therapy and application.
2. Introduce Charges for all Pharmaceuticals	Strengths - Raises revenue - Places burden for cost on those who are consuming the most - Creates accountability - Supplies of pharmaceuticals can be maintained and shortages reduced or eliminated Weaknesses - Requires accounting, control systems and when associated with administrative costs may discourage utilization at times when it would be appropriate to utilise, especially among the poor	- Conduct a thorough review of drug inventories - Establish drug procurement costs - Establish fee schedules, based on recovery targets or percentage of replacement costs - Set up an accounting and fee collection system - Identify those drugs or diagnoses for which drug would be provided free (i.e., those in the interest of the public health, such as STD, TB, etc.) and/or patients to be exempted from paymen - Test effects through operations research
3. Apply Strict Guidelines for Confirming Diagnoses Before Prescribing	Strengths - Supports general control processes, and improves medical practises - Allows objective processes for evaluation and/or enforcement - Addresses drug utilisation at the point of prescription Weaknesses - Involves audit and enforcement costs - Providers could resist and/or undermine imposition of outside review and process	- Establish standard prescribing practises based o medical protocols - Review and revise legal restrictions concerning provision of drugs (prescribing) by pharmacies - Disseminate guidelines and criteria - Identify organisational body to enforce guidelines - Establish peer review mechanisms - Develop and implement audits and enforcement mechanisms

ACTION AREA 3: IMPROVE LEVELS OF UTILISATION AT MCH/FP CLINICS

OPTIONS	STRENGTHS/WEAKNESSES	IMPLEMENTATION STEPS
1. Develop and Implement Public Education Programs to Promote Preventive Services	Strengths - Approaches problem of under-utilisation from the demand side and improves levels of MCH/FP - Encourages utilisation at facilities which are currently underutilised - Contribute to a reduction of preventable diseases and to reduced costs for curative services - Contributes to increasing family planning acceptors Weaknesses - Difficult to determine cost-effectiveness of education programmes - Additional costs associated with media and education programmes	- Identify those facilities and services which are underutilised - Develop public information messages on what facilities are available and when to utilise - Implement programme and test effects
2. Establish Fee Discounts for Curative Services (or Other Incentives) for Those Who Use Preventive Services	Strengths - Encourages use of preventive and promotive services - Would become more cost-effective in the long run Weaknesses - Discriminates among service users and could cause confusion - Depends on the success of other actions	- Estimate the volume of services requiring discounts - Estimate the number of users who will be entitled to discounts - Decide upon levels of discounts - Experiment using operations research
3. Integrate MCH/FP Services Into Full Service Facilities/Close Low Volume MCH/FP Clinics	Strengths - Increases volume of services and at productivity at currently underutilised clinics - Perception of quality may be enhanced by clients - Reduces average cost of preventive/promotive visit Weaknesses - Integration of services may imply increased cost	- Develop criteria for determining low volume facilities to close - Identify MCH/FP facilities to be integrated - Determine resource needs - Establish time frame for beginning new services - Educate the public - Experiment using operations research

ACTION AREA 3: IMPROVE LEVELS OF UTILISATION AT MCH/FP CLINICS
(Continued)

OPTIONS	STRENGTHS/WEAKNESSES	IMPLEMENTATION STEPS
4. Establish Systems to Provide Some MCH/FP Services (e.g. Immunizations) Through Private Offices (e.g. Paying Doctors for Immunizations of Particular Groups	Strengths - Would expand the network of private physicians' offices - Establishes a pattern of increased utilisation of private physicians which may reduce burden on public providers Weaknesses - Requires private doctors to follow reporting mechanisms to evaluate population coverage - Lack of confidance in government reimbursement may discourage private providers	- Determine costs for delivering MCH/FP services through private doctor's clinics - Determine basis or reimbursement - Enlist private providers - Educate the public - Test through operations research
5. Provide Preventive Services on an Outreach Basis	Strengths - Provides services to population groups which would not be usually reached - Increases output or productivity of staff which is currently underutilised - Increases utilisation of prevertive services and contributes to a reduction of curative care costs - Contributes to increasing family planning acceptors Weaknesses - Requires transportation for outreach staff, mobile cold storage, and other inputs - Requires additional training for staff - Depends on staff motivation - Difficult to supervise and monitor - May be more costly	- Identify clinics in needy areas with low utilisation levels - Identify and ensure that adequate transportation can be made available for outreach workers in accord with planned schedule of service - Define specific services to be provided through outreach programmes - Train staff in outreach health services - Acquire necessary inputs - Implement in phases and test through operations research
6. Develop Appointment System for Ante-Natal Care and Child Health Services	Strengths - Reduces waiting time for clients - Allows more time with each client Weaknesses - Difficult to enforce appointments - Requires more organisation and planning in the part of the staff - Discourages attendance for those clients unable to keep designated appointments	- Review present allocation of staff time for carrying out preventive services - Review current patterns of demand for preventive services - Develop an appointment system - Identify incentives for keeping appointments/dis incentives for missing appointments - Evaluate effect on demand and on quality of services provided

ACTION AREA 4: APPROPRIATE CONSUMER UTILISATION OF MATERNITY SERVICES

OPTIONS	STRENGTHS/WEAKNESSES	IMPLEMENTATION STEPS
1. Establish and Enforce Appropriate Referral and Transport Procedures and Mechanisms at Pumwani Hospital	Strengths - Reduces nonreferred deliveries and congestion - Encourage appropriate utilisation at health centers Weaknesses - Referral guidelines are difficult to develop and enforce	- Conduct preliminary system analysis of referral system - Develop referral guidelines - Notify all facilities in Nairobi of new guidelines
2. Charge higher fees for hospital deliveries	Strengths - Brings fees more in line with actual cost of delivery - Generates additional revenues - Encourages appropriate utilisation of health centres (redistributes demand) - Reduces overload at Pumwani Maternity, allowing better quality of care Weaknesses - Sections of the population could be left out of the specialised services available at Pumwani Hospital - Higher fees at Pumwani would increase financial burden of women with high-risk/ complicated pregnancy - Increases burden for medically indigent - Investment costs may be incurred to improve services at health centres	- Determine what improvements need to be made at health centres - Make improvements at health centres - Develop fee structure based on detailed cost analysis - Determine exemptions or sliding scale for poor patients - Develop scheme for allowing access to specialise services for indigents
3. Charge higher fees for nonreferred hospital deliveries	Strengths - Generates revenue - Does not discriminate against high risk cases - Shifts normal deliveries to lower level facilities - Provides an incentive to seek ante-natal care in order to obtain a referral Weaknesses - May induce some portion of high risk women to avoid hospital care if not referred - Encourages abuse in referral process - Complicates administration and accountability regarding fees	- Establish costs for referred and nonreferred patients - Improve transport back-up at health centres prior to implementation of new fee schedule - Publicize fee schedule at all health facilities

ACTION AREA 5: IMPROVE UTILISATION OF MENTAL HEALTH SERVICES

OPTIONS	STRENGTHS/WEAKNESSES	IMPLEMENTATION STEPS
1. Release patients with minor mental illnesses which do not require inpatient treatment to outpatient programmes	Strengths - Cost savings will be realized by reducing admissions to Mathari Mental Hospital Weaknesses - Social costs, as a certain number inevitably "fall through the cracks"	- Develop criteria for admission and discharge
2. Introduce mental health service in all the health centres	Strengths - Early identification of mental cases at the healthy centre and dispensary level is likely to reduce the overall cost (which could have been used in long-treatment of advanced mental cases - Provides staff in the field for short psychiatric courses Weaknesses - May be an expensive venture since drugs, equipment for diagnosis, and psychiatric manpower would be required	- Post psychiatric nurses to various dispensaries and Health Centre - Provide all of the facilities with mental illnes drugs
3. Develop and implement a public education programme to improve understanding of mental illness	Strengths - Would provide more awareness on the part of the population to recognize symptoms of mental illness and needs of the mentally ill - May reduce inappropriate utilisation of health facilities by the mentally ill Weaknesses - Costs associated with public education campaigns - Insufficient data to predict impact of campaigns - Lack of existing facilities/trained staff to treat meet increased demand	

TABLE 6.1

SUMMARY OF IMPLEMENTATION REQUIREMENTS AND IMPACT FOR DEMAND OPTIONS

OPTIONS	TIME FRAME	REVENUE IMPACT	FISCAL/COST IMPACT	EASE OF IMPLEMENTATION	RESEARCH NEEDED
CURATIVE SERVICES (Action Area #1)					
Fees	med	+	-	med	med
Referral	short	0	+	high	lo
Public Ed.	med	0	-/+	high	med
DRUGS (Action Area #2)					
Ed. Program	med	0	-/+	high	lo
Fees	short	++	-	med	lo
Change Prescribing Practice	med	0	+	med	med
MCF/FP CLINICS (Action Area #3)					
Public Ed.	med	0	+/-	high	lo
Fee Discounts	short	-	+	med	med
Integrate/close	med	-	+	med	lo
Use Private MDs	med	0	-	med	lo
Prev. Outreach	med	0	-	med	lo
Appt. System	short	0	+	high	lo
MATERNITY SERVICES (Action Area #4)					
Referraal	short	0	+	high	lo
Higher Fees for Hospital Del.	short	+	0	high	lo
Higher Fees for Unref. Del.	short	+	0	high	lo
MENTAL HEALTH SERVICES (Action Area #5)					
Release Patients	med	0	+	med	med
Mental Health in HC	med	0	-	lo	med
Public Ed.	med	0	-	med	lo

6.3 SUPPLY

The areas for action identified within the supply dimension of the health service delivery system focus on altering both the resource base and the use of resources in delivering health services. Chapter 4 identified the problem of low productivity and inefficiency in resource use. For ease of presentation and discussion, the action areas which address the causes of these problems are organised into two separate domains: strategic issues and programmatic areas. Strategic issues encompass four action areas related to resource mobilisation and use:

- o revenues
- o facilities and services
- o personnel
- o supplies

Programmatic areas include:

- o drug management
- o maternity services
- o MCH/FP services
- o mental health services
- o central administration

The options suggested in each of the action areas of the two domains provide tools to decision makers to improve efficiency, reduce costs, and generate revenues.

The strengths and weaknesses of each option and an illustrative list of steps for implementation are delineated so as to provide decision makers with further information for setting priorities and selecting courses of action. In each action area, usually one or more options can be selected. These options are not necessarily designed to be mutually exclusive. In some instances, the implementation of two or more options may be more effective in providing the desired result than would any one option alone. Each domain includes summary tables and implementation requirements and impact for each action area.

6.3.1 Strategic Issues

a) Revenues (Action Area #1)

Increasing the financial resources for health care delivery is a priority. The effectiveness of cost containment programmes and the effects of improved managerial operations can slow the rate of cost increases. Nevertheless, costs will continue to rise as the population grows, and as the transition to chronic disease patterns, which are more costly, take place. The options discussed are complementary. All could be implemented without negating the effects of others. Implementation of more than one option will provide a broader and more stable financial resource base for the health sector.

b) Facilities and Services (Action Area #2,3)

Adjustments in current facilities and services can extend the current capacity of the health delivery system. The strategic issues which must be addressed include which services to offer in what facilities during what hours of operation, and what facilities to close or upgrade. The options discussed in these action areas are not mutually exclusive. All could be implemented without negating the benefits of others.

c) Personnel (Action Area #4,5,6)

Staffing a facility is a critical factor in determining the efficiency of its operations and the quality of care it delivers. Personnel represents the single most costly resource in the health facility's budget. The strategic issues which must be considered include what work norms to use, how to allocate, evaluate, and reward staff, what sort of training is needed, and how should private providers be utilised. The options in this action area are all, to some degree, complementary. They can be implemented so that they complement each other.

d) Supplies (Action Area #7,8,9)

The Strategic issues with respect to transport services and maintenance of physical resources issues are who should provide them and how can they be obtained most efficiently. Options for transport and maintenance of physical facilities include mutually exclusive options. The clinics are to contract with private establishments to wholly undertake work or to develop the improved mechanisms within the public sector to handle these activities.

ACTION AREA 1: INCREASE FINANCIAL RESOURCES

OPTIONS	STRENGTHS/WEAKNESSES	IMPLEMENTATION STEPS
1. Introduce/ Increase Fees to Generate Revenues (with Priority on areas Such as Curative Visits, X-rays, & Lab Tests, & Drugs	Strengths - Requires consumers to bear part of cost of services - Encourages utilisation only when necessary (e.g., reduces excessive utilisation) - Fees can be adjusted to generate whatever proportion of expenditures decision makers determine is necessary - Fees can be applied differentially to encourage consumption of certain services (e.g. preventive services, confirming diagnoses) and to discourage others (e.g. over-prescribing) - Fees can be applied differentially to encourage utilisation of some facilities and to discourage utilisation of others (i.e. to redulce congestion or under-utilisation) Weaknesses - Politically sensitive - Requires a system of financial account-ability and management at the facility level - Burdens the medically indigent - May discourage utilisation in cases where access to care should not be delayed, as in STD or in diseases which become more severe with time (e.g. malaria)	- Determine criteria for setting fees - Set up fee schedules - Establish criteria and mechanism for sliding scales for medically indigent (not necessarily the burden of Ministry of Health - requires a national policy) - Establish accounting and fee collection systems - Evaluate impact on utilisation
2. Create Incentives for Private Sector Providers to Expand Services (e.g. Provide Staff, Subsidies and Land)	Strengths - Increases service access - No direct administrative burden - Relieves public sector burden - Evens distribution of services in underserved areas Weaknesses - Costs could be high - Some providers could misuse the subsidies	- In-charge of private facilities should meet with PMO, NCC & MOH personal to determine the willingness to provide services - Experiment with operations research programme

ACTION AREA 1: INCREASE FINANCIAL RESOURCES
(continued)

OPTIONS	STRENGTHS/WEAKNESSES	IMPLEMENTATION STEPS
3. Expand Third Party Payments (e.g. Employer Payments for Health Services, Insurance Coverage)	Strenghts - Expand Financial Resources - Third party payment mechanisms would create greater incentive for financial management and accountability - Encourages the development of new channels of providing services, such as group pre-payment - Assists in the development of health insurance industry Weaknesses - Health insurance is not well developed in Nairobi - Existing mistrust betwen providers and third party carriers - Third party coverage is currently tied to other kinds of insurance - Requires discussion with political authorities opposed to private profit from public health - Low level of consumer education	- Open dialogue with insurance companies and employers to identify common goals and potential benefits - Determine relative cost/benefit of private third party mechanisms versus other mechanisms - Support operations research
4. Implement Mechanisms/ Incentives/ Legislation For Employers to Share in the Burden of Providing Health Care Services for Employees	Strengths - Increases financial resources for health - Reduces cost and utilisation in public sector - Reduces time away from work - Creates incentives for employers to promote safe work places Weaknesses - Increases the cost of labour - May increase financial burden for marginally productive enterprises - May create incentives for employers to reduce number of employees - Difficult to standardise or regulate	- Review present employment-based health schemes - Identify incentives for employment based coverag - Review existing legislation & regulations and amend to provide more coverage

ACTION AREA 1: INCREASE FINANCIAL RESOURCES
(continued)

OPTIONS	STRENGTHS/WEAKNESSES	IMPLEMENTATION STEPS
5. Increase The Taxation Authority of Local Government to Collect More Tax Money For Health	Strengths - Administrative system is already in place - Places heavier burden on the employed sector, does not tax the poor - Retains responsibility for provision of health services in the hands of the local government Weaknesses - Politically sensitive - Tax burden may not be easily sustained - Existing inefficiencies of the system would be perpetuated	- Determine needed level of tax increases - Submit to parliament for review - Implement adjusted levels

ACTION AREA 2: EXTEND CAPACITY OF CURRENT FACILITIES/SERVICES

OPTIONS	STRENGTHS/WEAKNESSES	IMPLEMENTATION STEPS
1. Use Planning Capability to Determine Future Expansion of Present Facilities & Locations of Future Facilities, and Schedules and Services	Strengths - Avoids growth of congested facilities without room for expansion - Ensures that no essential function/service (e.g. keeping medical records, or running laboratory or x-ray services) is not undertaken, due to lack of physical space - Reduces duplication of facilities/services Weaknesses - Cannot be done for some existing facilities - Land/space may not be available to meet the requirements - It may be difficult to accurately forecast future expansion needs of the facilities - In the short-run, facilities may keep a lot of underutilised space	- Establish adequately equipped and staffed planning departments or have the capacity to hire planners to undertake the planning function - Provide broad guidelines on location and space requirements for health facilities at different levels (e.g. dispensaries, health centres, hospitals, etc.) - Determine criterion for establishing new facilit location
2. Adjust Operations of Facilities (e.g. open Residential Facilities in Evenings; Avail all Services When Facility is Open; establish convenient locations and schedules for promotive services; share/rotate staff	Strengths - Improves efficiency in the provision of health services without requiring additional resources - Reduces congestion in some facilities and idle capacity in others - Increases productivity/reduces cost Weaknesses - May be difficult to restructure functions of some of the facilities, especially where there is one or few facilities in an area - Requires additional financial/personnel resources	- Analyse volume of service data by type and category of facility - Develop criteria for identifying low volume services/facilities - Establish capability to monitor and adjust services - Use operations research to test alternatives

ACTION AREA 2: EXTEND CAPACITY OF CURRENT FACILITIES/SERVICES
(continued)

OPTIONS	STRENGTHS/WEAKNESSES	IMPLEMENTATION STEPS
3. Use Appointment System & Hours Of Service To Relieve Congestion and Underutilisation	Strengths - Reduces waiting time for clients - Allows more time with each client Weaknesses - Difficult to enforce appointments - Requires more organisation and planning on the part of the staff - Discourages attendance for those clients unable to keep designated appointments	- Review present allocation of staff time for carrying out preventive services - Review current patterns of demand for preventive services - Develop an appointment system - Identify incentives for keeping appointments/dis incentives for missing appointments - Evaluate effect on demand and on quality of services provided
4. Provide Integrated Services (preventive, promotive, curative) In All Facilities	Strengths - Increases cost-effectiveness of preventive/promotive clinics (i.e. increases utilisation relative to staff - Increases access (through increased availability and convenience) to all outpatient services - Level of utilisation of preventive services may be associated with utilisation of general outpatient services - Perception of quality may be enhanced by clients Weaknesses - Involves additional costs - Contributes to unnecessary demand	- Identify additional costs which will be incurred - Identify any excess capacity in the current system - Conduct sensitivity/operational analyses to identify priority locations - Idendify staff within system which can be reallocated - Implement in phases with evaluation at each stag - Publicise changes
5. Reduce Operations In Underutilised Services/ Facilities and Reallocate Work Assignments of Staff	Strengths - Staff will be reassigned to other facilities - More utilisation of available staff - Improve quality of services because funds will be allocated to open facilities - Reduces congestion and costs Weaknesses - Will put pressure on staffing requirements due to the off-duty given to staff who work at night - Requires transport for staff to facilities	- Establish a committee to review the volume of service at facilities - Establish criteria for underutilisation - Determine which facilities should be closed or turned into 24-hour facilities

ACTION AREA 3: ACHIEVE SCALE ECONOMIES FOR FACILITIES/SERVICES

OPTIONS	STRENGTHS/WEAKNESSES	IMPLEMENTATION STEPS
1. Close Low Volume MCH/FP Clinics and Transfer Services to Higher Volume Centres	Strengths - Avoids growth of congested facilities without room for expansion - Ensures that no essential function/service (e.g. keeping medical records, or running laboratory or x-ray services) is not undertaken, due to lack of physical space - Increases productivity/reduces costs Weaknesses - Cannot be done for some existing facilities - Land/space may not be available to meet the requirements - It may be difficult to accurately forecast future expansion needs of the facilities - In the short-run, facilities may keep a lot of underutilised land/space	- Establish adequately equipped and staffed planning departments or have the capacity to hire planners to undertake the planning function - Provide broad guidelines on location and space requirements for health facilities at different levels (e.g. dispensaries, health centres, hospitals, etc.)
2. Institute Curative Services in MCH/FP Clinics	Strengths - Improves the utilisation of the existing capacity - Convenient for clients who also need curative services Weaknesses - May be difficult to structure functions of some of the facilities - Some of the clinics have limited space/room - Could reduce MCH/FP utilisation due to long waiting time and curative patients	- Initiate detailed and accurate data collection on volume of services - Form a committee to develop guidelines on how to implement the option
3. Give Private Doctors Free Space in MCH/FP Clinics to Operate Curative Outpatient Services; Coördinate Hours of Services for MCH/FP to Coincide With Doctors Hours	Strengths - Increases volume of services at low cost - Improves utilisation of available space - Transfers burden of curative Weaknesses - Private doctors may not be interested - Could be politically difficult	- Establish committee to study the matter and determine feasibility

ACTION AREA 4: APPROPRIATE STAFF NORMS

OPTIONS	STRENGTHS/WEAKNESSES	IMPLEMENTATION STEPS
1. Develop and Implement Staffing Norms Based On Volume of Services Criteria	Strengths - Reduces overstaffing and understaffing of facilities - Improves the quality of services offered - Reduces unnecessary personnel expenses - Facilities hire the right type and mix of staff - Raises worker productivity Weaknesses - Review may take time - Staff resistance	- Establish work load and staffing norms for all areas (consider existing studies on nursing) - Use the norms to adjust staffing (upward or downward) in all facilities. (Increases or decreases in established posts should be based on the application of the norms to projected demand for services.) - Review norms annually and revise when necessary
2. Develop and Implement Staffing Norms to Reflect Productivity By Type of Activity	Strengths - Reduces overstaffing and understaffing of facilities - Improves the quality of services offered - Reduces unnecessary personnel expenses - Facilitates the hiring of the right type and mix of staff - Does not have to wait for review to begin to take action to improve efficiency Weaknesses - Staff resistance	- Develop productivity norms - Use the modified norms and projected demand to justify proposed adjustments in established post - Review the norms annually and revise as necessar

ACTION AREA 5: STAFF ALLOCATIONS

Part-time Appointments for Doctors at NCC Facilities	- Reduces the shortages of doctors at NCC facilities - Improves patients' perception of quality of services - Improves discipline of the doctors under part-time contracts - Strengthens the link between private and public health services - Would strengthen the link between private and public health services Weaknesses - Private doctors may not be interested - Requires financial resources	for the facilities - Establish contractual guidelines - Advertise for interested doctors to apply for consideration by the committee
2. Strengthen or Introduce Mechanisms for Sharing Available Personnel Across and Among NCC & PMO Facilities	Strengths - Reduces the existing acute shortage of some staff cadres - Improves efficiency in utilisation of available staff - Does not require a lot of additional resources - Increases cooperation between NCC and PMO Weaknesses - May be hindered by poor transport systems - May be difficult to get the required level of cooperation between NCC and PMO - Staff resistance	- Establish joint committee comprising NCC and PMO officials - Develop criteria for releasing/posting personnel to another facility - Improve transport system - Test through operations research
3. Introduce Risk-Sharing Revenue Programme in NCC and PMO Facilities to Provide Resources for Improving Salaries & Other Terms of Service to Enable Public Providers to Hire and Retain Qualified Health Personnel	Strengths - Reduces the burden on public finances - Helps to improve the quality of service - Improves morale of the staff - Reduces demand for health services Weaknesses - Reduces access of medical care to the low income groups - May be politically difficult	- Analyse utilisation patterns of specific services - Identify services and level of fees to reduce excessive demand - Experiment on the effects on demand through operations research

ACTION AREA 5: STAFF ALLOCATIONS
(continued)

OPTIONS	STRENGTHS/WEAKNESSES	IMPLEMENTATION STEPS
4. Promote Staff Based on Regular Appraisal of Staff Performance	Strengths - Encourages higher work productivity - Raises staff moral - Improves quality of health services - Does not require additional resources Weaknesses - May take some time to develop effective appraisal mechanism	- Develop and implement staff work load standards, staffing norms - Design comprehensive staff performance appraisal mechanism which incorporates all essential aspects of the workplace and relies on objective rather than subjective judgement

ACTION AREA 6: MANAGEMENT OF HUMAN RESOURCES IN NCC AND PMO

OPTIONS	STRENGTHS/WEAKNESSES	IMPLEMENTATION STEPS
1. Develop and Implement Job Description for Executive, Supervisory and In-charge Personnel	Strengths - Identifies job responsibility in management & performance of facilities - Identifies job reporting relationships - Provides managers with an understanding of job skills and qualifications - Reduces employee job confusion - Provides criteria for developing a career path for managers - Increases employee morale, efficiency, and productivity Weaknesses - May be expensive to develop - May be subjective to input of person writing the description - Requires coördination and development of detailed & comprehensive job descriptions	- Appoint committee to develop job descriptions for senior management positions and in-charge personnel - Guidelines for job description should include: Minimum qualifications Minimum skill requirements Experience and training Duties of position Responsibilities of position Reporting relationship Promotion schedule performance Evaluation criteria - Establish time frame for implementation of job description criteria
2. Develop and Implement Promotion Criteria Based on Performance	Strengths - Rewards employees who are productive, efficient, and loyal - Increases facility efficiency and productivity - Provides a career development path for outstanding employees - Increases employee morale, efficiency, effectiveness, and productivity Weaknesses - Promotions may continue to be subjective to the input of person writing the appraisal and recommendation for promotion	- Appoint a personnel committee to develop performance criteria - Identify all cadres of staff - Determine if performance and/or promotion criteria exist - Develop performance evaluation criteria - Design staff Appraisal Report & guidelines for evaluation - Forward Staff Appraisal Rreport guidelines to NCC and PMO for comment and approval - Conduct workshops to train managers, supervisors, in-charges in the performance evaluation guidelines - Implement performance evaluation guidelines

ACTION AREA 6: MANAGEMENT OF HUMAN RESOURCES IN MCC AND PMO
(continued)

OPTIONS	STRENGTHS/WEAKNESSES	IMPLEMENTATION STEPS
3. Reward Outstanding Performance With Bonuses, Public Recognition, Awards, etc.	Strengths - Rewards employees who are productive and efficient - Increases facility efficiency and productivity - Increases employee morale, efficiency, effectiveness and productivity Weaknesses - Rewards may be subjective to the input of person writing the appraisal and recommendation for reward - Requires additional financial resources	- Appoint a personnel committee to develop performance criteria - Identify all cadres of staff - Determine if performance and/or promotion criteria exists - Develop performance evaluation criteria - Design staff Appraisal Report and guidelines for for evaluation - Forward Staff Appraisal Report guidelines to MCC and PMO for commnet and approval - Conduct workshops to train managers, supervisors in-charges in thel performance evaluation guidelines - Implement Performance evaluation guidelines
4. Deploy Personnel Only In Area of Training	Strengths - Increases productivity - Increases morale - Increases ability to retain staff Weaknesses - Requires financial resources - May not be fesible given acute personnel shortages	- Develop and implement schemes of service
5. Assign Personnel Who Have Relevant Managerial Training to Plan, Manage, and Administer Facilities	Strengths - Improves supervision at facility level and productivity - Releases technical staff from administrative duties to offer medical services Weaknesses - Creates dissatisfaction among those who currently hold administrative posts - Inadequate number of trained administrators	- Identify personnel who have relevant management training - Identify priority posts that require management expertise - Develop timeframe for reassignment

ACTION AREA 6: MANAGEMENT OF HUMAN RESOURCES IN MCC AND PMO
(continued)

OPTIONS	STRENGTHS/WEAKNESSES	IMPLEMENTATION STEPS
6. Train Staff Who Are Currently Assigned Administrative Duties in Relevant Managerial and Planning Skills	Strengths - Improves management, staff relations, & the working environment - Enables in-charges to carry out their administrative duties confidently - Increases production Weaknesses - Leaves the technical personnel tied up in administrative duties - May not be feasible because in-charges have to leave their facilities for long to undertake training - Costs will be incurred	- Health care in-charge should meet with heads of training facilities to identify training needs - Develop criteria to train personnel - Cost should be shared by participants
7. Increase the Powers of In-charges to Discipline and Reward All Personnel	Strengths - Gives the in-charge an upperhand to instill discipline among their subordinate and technical staff - Enables the in-charges to motivate their staff through positive forms of reinforcement - Increases staff productivity Weaknesses - Concentrating a lot of power with in-charge - May lead to victimisation of the staff	- Decentralise the disciplinary powers of Disciplinary Committee. The Committee should deal with the cases recommended for interdiction - Give in-charges some powers to reward staff with exemplary performance

ACTION AREA 7: TRANSPORT

OPTIONS	STRENGTHS/WEAKNESSES	IMPLEMENTATION STEPS
1. Improve Mechanisms For the Maintenance and Repair of Available Public Vehicles	Strengths - Less expensive way of reducing the transport contraints in the city - Requires relatively less foreign exchange to implement - Enables health providers to increase transport facilities gradually given generally limited resources Weaknesses - Unavailability of spare parts in the country could be a major constraint	- Strengthen existing workshops/contract maintenance and repair services to private sector firms. - Streamline the maintenance and repair procedures to minimise delays in authorising and payment for work done. - Streamline procurement of spare parts - Properly equip and staff with trained personnel the workshops. - Reduce delays in repair of vehicles, procurement of vehicles must be accompanied by assurance of availability of spare parts.
2. Allocate More Financial Resources to Improve/Expand Transport Facilities	Strengths - Enables health providers to expand transport facilities with newer vehicles - Helps improve maintenance & repairs Weaknesses - Shortage of financial resources - Availability of financial resources could reduce efficient management of available resources - Allocation of more financial resources could reduce resources for other services	- Assess more comprehensively the needs of the transport sector - Undertake careful budgetary analysis and planning to ensure that inappropriate trade offs are not taken - Improve budgetary forecasts with respect to both revenue sources and expenditure
3. Centralise All Transport Services for Public Sector Providers	Strengths - Reduces underutilisation of tranport services - Improv s coördination of dispatch, maintenance, and repair of vehicles Weaknesses - Operations could easily be hampered by bureaucracy if the central office is not efficiently managed - Requires inter-institutional coöperation	- Establish a central transport department to dispatch ambulances for public providers - Establish adequate telephone anad communicating links

ACTION AREA 7: TRANSPORT
(continued)

OPTIONS	STRENGTHS/WEAKNESSES	IMPLEMENTATION STEPS
4. Contract All Transport Needs for NCC and PMO From Private Providers	Strengths - Ensures availability of transport services when needed - Eliminiates the need to pay for drivers and maintenance staff who are often underutilised when cars are inadequate or when there are no spare parts, or other inputs in the workshop Weaknesses - Could be expensive - Would make NCC and PMO highly dependent on the private contracters	- Study in detail costs and benefits of the measure and compare the overall budgetary implications - Devise an effective way of choosing the appropriate private contracters

ACTION AREA 8: EMERGENCY TRANSPORT

OPTIONS	STRENGTHS/WEAKNESSES	IMPLEMENTATION STEPS
1. Establish a Central Dispatch to Coördinate City-Wide Ambulance Service	Strengths - Reduces duplication of services and reduces costs - Saves more lives because travel time and admission time will be minimised, and patients receive treatment faster - Increases confidence of the general public in reliable emergency transport Weaknesses - Requires resources to design, implement, and manage	- Determine lead organisation/create agency - Review emergency medical transport system for other large cities - Design system - Determine required resources
2. Establish a Coördinated Ambulance System for PMO and NCC	Strengths - Reduces duplication of services and reduces costs and increases efficiency - Reduces costs - Facilitates effective planning and coverage of ambulance services Weaknesses - Coordination between proveders could be difficult	- Determine lead organisation/create agency - Review emergency medical transport system for other large cities - Design system - Determine required resources
3. Provide Incentives for NGOs to Establish Ambulance Services in Nairobi	Strengths - NCC and PMO would not need to invest in ensuring adequate suplying of ambulance services - Increases the role of the private sector in the provision of ambulance services - Improves quality of services in the city due to increased competition Weaknesses - Private sector providers could raise the price of ambulance services	- Establish a dialogue between DMS and NGOs - Formulate mutual areas of interest/incentives - Jointly develop government policy

ACTION AREA 9: MAINTENANCE OF PHYSICAL RESOURCES

1. Contract With Private Firm for Equipment and Facility Maintenance	Strengths
	- Working equipment and facilities will increase staff morale
	- Availability of spares will be assured
	- Provides specially trained personnel that can promptly respond to maintenance requests
	- Has potential to reduce overall maintenance costs
	
	Weaknesses
	- Cost may be high
	- Implementation of contract and standardisation process may be slow or difficult
		- Prepare procurement guidelines and issue them to suppliers
		- Procure equipment that fit the standards set by committee
		- Survey of equipment:
		  - Equipment type - and its functions
		  - Life span of the equipment
		  - Spares required for a given period
		  - Personnel skills for maintenance
		  - Costs for a similar equipment at end of life span of present equipment
		- Devise effective way of choosing approriate contractor

2. Coordinate Equipment Purchases and Maintenance Among Providers	Strengths
	- Likelihood of availbility of spares will increase
	- Improves staff motivation because repaired facilities and functioning equipment will increase morale
	
	Weaknesses
	- Coördination may be slow and difficult
		- Establish joint committee to determine coördination goals and procedures
		- Prepare joint procurement guidelines and issue them to suppliers
		- Procure equipment that fit the standards set by committee
		- Survey of equipment should include:
		  - Equipment type - and its functions
		  - Life span of the equipment
		  - Spares required for a given period
		  - Personnel skills for maintenance
		  - Costs for a similar equipment at end of life span of present equipment

3. Implement Policies of Preventive Maintenance	Strengths
	- Saves money in the long run
	- Prevents disruption of work/operations that are caused by sudden breakdowns, and improves hospital efficiency
	- Increases the lifespan of equipment
	- Reduces the time that the equipment is out of order (down time of equipment)
	- Improves staff morale
		- Form a maintenance committee
		- Identify inventory and include:
		  type of equipment
		  serial number
		  manufacturer
		  functioning or not functioning
		  age and remaining lifespan of equipment
		  history of repairs
		  dealer: local or not local
		
		- Identify spare parts needed on a regular basis, service frequency, whether equipment can be serviced in-house or through a dealer
		- Identify cost and manpower requirements for preventive maintenance programme

TABLE 6.2

SUMMARY OF IMPLEMENTATION REQUIREMENTS AND IMPACT FOR STRATEGIC SUPPLY OPTIONS

OPTIONS	TIME FRAME	REVENUE IMPACT	FISCAL/COST IMPACT	EASE OF IMPLEMENTATION	RESEARCH NEEDED
REVENUES					
(Action Area #1)					
Fees	med	+	-	med	med
Use private MDs	med	0	-	med	lo
Expand 3rd party payment	long	+	+/-	lo	high
Employer legislation	med	+	0	med	lo
Increase tax	med	+	0	med	lo
FACILCITIES AND SERVICES					
(Action Area #2,3)					
Plan facil expansion	med	0	-	med	med
Adjust facil. operations	short	0	0	high	lo
Appt. System	short	0	+	high	lo
Close HCF/FP facil	med	-	+	med	lo
PERSONNEL					
(Action Area #4,5,6)					
Staff norms/vol. of servicess	med	0	0	med	med
Staff norms/ productivity	med	0	+	med	med
Part time appts	short	0	-	high	lo
Share personnel	short	0	0	med	lo
Fees for salaries	med	+	0	med	lo
Promotion on perf	med	0	-	med	lo
Job descr.	med	0	0	med	lo
Bonus	short	0	-	high	lo
Deploy in area training	med	0	-	med	lo
Train mangrs	long	0	-	lo	lo
Increase discipl. authority	short	0	0	med	lo
SUPPLIES					
(Action Area #7,8,9)					
Improve, main. & repair mechanisms	med	0	-	med	lo
Export transpt.	med	0	-	lo	lo
Central trans. service	med	0	-/+	med	med
Private transit service	med	0	-/+	med	med
Central dispatch for emergencies	med	0/+	-/+	med	med
Coordinated emerg. transport	short	0	-/+	lo	lo
NGO emerg. transport	short	0	+	high	lo
Private Contract	short	0	+	med	lo
Coordinate purch.	med	0	-/+	lo	med
Prev. mainten.	med	0	+	lo	lo

6.3.2 Programmatic Areas

Several options are considered for the programmatic areas of drug management, maternity services, and central administration. The options presented in these action areas tend to be mutually exclusive.

a) Drug Management (Action Area #1)

The first three options represent mutually exclusive alternatives. The first two options would move public providers out of providing drugs as part of health service delivery activities. If the third option were chosen, to charge for drugs, the fourth option, to revise the procurement system, would probably be required. The options presented here are interdependent with those in the demand dimension.

b) Maternity Services (Action Area #2,3)

The options presented inside the first action area are complementary here and to the options presented under the demand dimension. The two options presented for changes in the management of Pumwani Maternity Hospital are mutually exclusive alternatives which would complement those options presented in the demand dimension.

c) Mental Health Services (Action Area #4)

The options presented here for the action area of mental health services are complementary to each other and to the options presented in the demand dimension.

d) Central Administration (Action Area #5,6)

Two areas for action are presented here: information and reporting; and the referral system. They both are critical functions for the public health system. The options presented under each represent mutually exclusive alternatives. The selection of one would preclude selection of the other alternative.

ACTION AREA 1: DRUG MANAGEMENT

OPTIONS	STRENGTHS/WEAKNESSES	IMPLEMENTATION STEPS
1. Discontinue All Provision of Drugs for Curative Outpatient Visits at Public Facilities	Strengths - Reduces costs - Eliminates need for control system - Provides opportunity for increasing staff in critical shortage areas Weaknesses - May discriminate against medically indigent and patients with chronic illness requiring costly medications - Could be politically sensitive	- Establish a committee to look at implementation of this option - Develop timeframe for phasing out drugs - Develop public education program to inform general public - Orient clinical providers with respect to cost-effective prescribing practises
2. Discontinue Provision of Drugs by Public Providers; Allow Private Pharmacies to Operate On Public Premises	Strengths - Similar to above - Greater convenience for general public Weaknesses - Difficult to select private pharmacy operators - May require regulation/monitoring	- Similar to above - Develop effective selection criteria for private pharmacy
3. Charge For Each Item Prescribed	Strengths - Raises revenue - Places burdan for cost on those who are consuming the most - Creates accountability - Supplies of pharmaceuticals can be maintained and shortages reduces or eliminated Weaknesses - Requires accounting and control systems associated with administrative costs - May discourage utilisation of drugs at times when it would be appropriate to utilise, especially among the poor	- Conduct a thorough review of drug inventories - Establish drug procurement costs - Establish fee schedules, based on recovery targets or percentage of replacement costs - Set up an accounting system - Identify those drugs or diagnoses for which drug would be provided free (i.e., those in the interest of the public health, such as STD, TB, etc.) and/or patients to be exempted from paymen - Appoint fee collection officers - Test effects through operations research

ACTION AREA 1: DRUG MANAGEMENT
(continued)

OPTIONS	STRENGTHS/WEAKNESSES	IMPLEMENTATION STEPS
4. Revise Procurement and Tender System	Strengths - Reduce the problem of unrealistic prices quoted by the tenders - Enables the facility to have legal backing to enforce prices and other items quoted by the tenderers - Suppliers have time to plan importation of raw materials and production of goods - Reduces need to have many unplanned, piecemeal purchases of suppliers which are Weaknesses - May introduce a rigid system - May be difficult to purchase "emergency" items - May increase inefficiency due to increased bureaucracy - Resistance to change may be great	- The tender committee should spell out the minimum conditions which should be fulfilled in procurement through quotations. This should include a design of open, broader & effective communication machinery between health providers and suppliers. One of the ways should be that tender & quotation information be displayed in a lockable glass notice board accessible to all interested suppliers - Processing of tenders should be made much faster Notification & signing contractual documents between the facility & tender winners should be carried out within 2 weeks after the opening of the tenders - The opening of tenders & the announcement of tender winners & prices quoted should be done in public & in the presence of interested tenderers. - Following the signing of contracts with tender winners, orders should be planned in large enough quantities to avoid inconveniencing suppliers and to help suppliers quote relatively lower prices - To minimise misuse of emergency buying through quotations, a more comprehensive procedure shoul be developed to ensure that the procurement system is not manipulated to force the facility to purchase unnecessarily - Tenders for large sums of money should undergo a prequalifications process to eliminate irresponsible bids. - Major suppliers of goods/services should receive information so as to avoid the common complaint that only a few favoured suppliers are informed

ACTION AREA 2: MATERNITY SERVICES

OPTIONS	STRENGTHS/WEAKNESSES	IMPLEMENTATION STEPS
1. Improve Efficiency in Facility Utilisation by Closing Some or all of NCC Maternity Units; and/or Upgrade Some Units; and/ or Subsidize Private Facilities to Deliver Maternity Services	Strengths - Improves performance of public and private maternity facilities due to competition - Subsidizing private facilities would increase the supply of maternity services in Nairobi Weaknesses - Politically difficult - Upgrading health centres would require additional resources - Off-loading NCC overflow to private maternity homes is difficult due to different pricing methods used by the public and private sectors	- Establish committee to review the maternity units - Make recommendations to PHD - PHD makes recommendations to the City Commission - Discuss possibility of cooperation between NCC maternity units and private maternity homes and develop guidelines for such cooperation
2. Re-institute System of Domiciliary Midwives Who are Resident in the Estates	Strengths - Improves access of poor women to qualified staff - Improves access to qualified staff to those living in estates not close to maternity units - May reduce costs and congestion Weaknesses - Difficult to regulate and supervise nonfacility based providers - Encourages more home deliveries where environmental sanitation is poor - Communication and transportation for complicated cases may be inadequate in some areas	- Study incidence of home deliveries in Nairobi - Assess the relative merits of midwives being salaried in public sector, reimbursed by client fees, or other financing arrangements - Assess available supply of midwives and adequacy of training for home deliveries - Modify midwifery syllabus, if necessary - Establish licensing system - Establish guidelines on eligibility for home deliveries and referrals - Develop monitoring and reporting system which includes supervision by parent organisation and community - Implement public education campaign
3. Develop Capacity of Traditional Birth Attendants in Nairobi	Strengths - Improves access of poor women to qualified staff - Improves access of qualified staff to those living in estates not close to maternity units - May reduce cost of maternity care Weaknesses - More difficult to regulate and supervise nonfacility based providers - May encourage more home deliveries where environmental sanitation is poor - Communication and transportation for complicated cases may be inadequate in some areas	- Study current practises and supply of TBAs in Nairobi - Design training programme appropriate to current and future role - Develop standardized equipment kits - Develop system of registration - Develop monitoring and reporting system - Educate community on correct practises of TBAs - Develop linkage of TBAs with local health centre or clinic for supervision and reporting - Develop guideline on who should see a TBA and wh should be referred

ACTION AREA 3: MANAGEMENT OF PUMWANI MATERNITY HOSPITAL

OPTIONS	STRENGTHS/WEAKNESSES	IMPLEMENTATION STEPS
1. Centralise Management of Daily Operations at the Hospital so that the Hospital Director/ Superintendent has Complete Accountability & Responsibility for Operational Decision Making	Strengths - Provides for control of personnel and recurrent budget at PMH - Strengthens hospitals management practises and decision making - Provides organisation and management structure - Improves quality of care Weaknesses - Requires reorganisation through NCC - May be resisted by sections of NCC	- Develop criteria and identify management personnel required to administer PMH - Clearly define responsibilities for decision making authority - Develop and implement annual operating plan - Establish performance review and disciplinary procedures and mechanisms
2. Revise PMH's Status to that of a Parastatal	Strengths - Brings direct control and responsibility to hospital management staff and Board - Provides autonomy in decision making - Improves quality of care Weaknesses - Requires radical change - May raise cost of delivery at the hospital	- NCC, PMO, and DMS to establish a working party/committee to implement the option - Follow the established legal process - Identify and appoint appropriate Board of Directors - Similar to above

ACTION AREA 4: MENTAL HEALTH SERVICES

OPTIONS	STRENGTHS/WEAKNESSES	IMPLEMENTATION STEPS
1. Train Providers Regarding Appropriate Diagnosis, Treatment, and Referral for Mental Illness	Strengths - Improves quality of care of the mentally ill patient - Increases quantity of mental health services Weaknesses - Lack of existing facilities/trained staff to treat meet increased demand - Training providers involves cost - Diagnosis of mental illnesses may be time consuming and difficult	- Assess current level of knowledge on the part of providers - Design training programmes and referral and treatment protocols - Implement referral and treatment protocols
2. Establish Mathari Mental Hospital as a National Referral Centre	Strengths - Reduces the case load for Mathari Hospital - Enables the facility to improve quality of service Weaknesses - Case load in provincial and district psychiatric centres may increase drastically - The latter may not be able to cope with the increase	- Notify the public that the hospital will not be admitting unreferred cases as from a specific data - Establish referral criteria - Advise providers of time frame for implementing referral criteria
3. Increase the Intake of Psychiatric Nurses in the College of Health Professions, and Introduce Psychiatric Courses in all of the Medical Training Centres	Strengths - Increases the number of psychiatric personnel - Reduces the work load Weaknesses - May be costly - Takes time for personnel to qualify - May lead to oversupply of psychiatric personnel	- Heads of training facilities and appropriate professionals determine need - Criteria for acceptance and curriculum should be developed - Determine timeframe and cost for implementation
4. Revise and amend the Mental Treatment Act Cap. 248	Strengths - Ensures that the law reflects recent realities and changes - Would make flexible admission of mental patients Weaknesses - Amending laws could take long - Requires approval by Parliament, which increases complexity and time needed	- Identify all of the amendments needed in the existing laws - Coordinate with office of the director of Mental Health Services, Attorney General and Law Reform Commission

ACTION AREA 5: INFORMATION/REPORTING

OPTIONS	STRENGTHS/WEAKNESSES	IMPLEMENTATION STEPS
1. Create an Entity with Responsibility, Accountability, and Authority to Collect, Compile and Disseminate Information Necessary for Planning for Nairobi Health Services in a Timely Manner	Strengths - Focuses attention to Nairobi for planning - Provides data for monitoring and inspection - Encourages planning for their services because of the readily available data - Resolves ambiguity of authority and responsibility Weaknesses - Requires that new trained resources is added in terms of personnel and supplies to collect and disseminate information - Requires full data processing capabilities	- Specify functions and authority - Identify resource requirements - Establish technical and material support - Standardize and clarify reporting documents - Extend necessary support to providers
2. Establish an Information System for Nairobi within Some Existing Office	Strengths - Requires no designation of new authority Weaknesses - Does not emphasize need for information system for Nairobi - Existing office still requires new resources to attend to new responsibilities	- Identify appropriate office - Steps similar to above

ACTION AREA 6: REFERRAL SYSTEM

OPTIONS	STRENGTHS/WEAKNESSES	IMPLEMENTATION STEPS
1. Develop and Implement Standard Criteria and Mechanisms for Horizontal and Vertical Referral of Patients Across Public and Private Providers Reinforce Through Incentives/Disincentives for Patients and Staff	Strengths - Clarifies the referral network so that public and private providers would know what types of cases can be referred and where - Reduces inappropriate primary referrals - Improves efficient and prompt treatment of referred cases, and reduces congestion - Provides better continuity of case through feedback and follow-up at the patient's local facility Weaknesses - Insufficient resources to handle the diagnosis caseload, and insufficient drugs at primary level to follow-up patients at the facility nearest their home or place of work - Requires significant financial and managerial inputs - Requires discipline among staff at referral centres to set up and run a proper appointment system	- Review the type of cases being referred, by category of referring facility - Develop a standard list of conditions for for referral - Produce and distribute a referral guideline for curative cases which incorporates the list of medical and surgical conditions - Identify the facilities which will act as referr centres for each condition on the list/facility catchment areas - Develop a standard referral form - Provide orientation on the Referral guideline to staff at the referral centres - Provide orientation for <u>all</u> providers, regarding the referral system - Print and distribute referral forms to all facilities - Assure transport for emergency cases - Monitor referrals through the information system and follow-up individual staff who are referring inappropriately - Provide refresher training for staff on current medical practices and diagnostic skills
2. Develop and Implement an Information Feedback System on Referrals	Strengths - Reminds staff to use the information feedback system - Improves quality of patient care Weaknesses - Referral system without formal guidelines - Problems of inappropriate referral and congestion would not be addressed	- Develop a standard referral form (in conjunction with the Ministry's HIS) for use in public and private facilities - Give orientation on use of the form to staff at primary level and at the referral centres - Print and distribute referral forms to all facilities

TABLE 6.3

SUMMARY OF IMPLEMENTATION REQUIREMENTS FOR PROGRAMMATIC SUPPLY OPTIONS

OPTIONS	TIME FRAME	REVENUE IMPACT	FISCAL/COST IMPACT	EASE OF IMPLEMENTATION	RESEARCH NEEDED
DRUG MANAGEMENT					
(Action Area #1)					
Discontinue drug provision	short	0	+	med	lo
Private pharm. for public facil.	med	0	+	med	med
Drug charges	med	+	-	med	med
Revise procure. system	long	0	-/+	lo	med
MATERNITY SERVICES					
(Action Area #2,3)					
Close/upgrade maternity	med	0	-/+	med	med
Urban midwives	med	0	-/+	med	lo
Birth attendants	med	0	-/+	med	lo
Central Pumwani hospital mgmt	med	0	+	lo	med
Chg Pumwani status to paras	med	+	+	lo	med
MENTAL HEALTH SERVICES					
(Action Area #4)					
Train providers for referral	med	0	-	high	med
Mathari as referral	short	0	+	high	lo
Train psych	long	0	-	lo	lo
Revise Mental Health Act	med	0	0	med	high
CENTRAL ADMINISTRATION					
(Action Area #5,6)					
New office for Nairobi info/ reporting	med	0	-	lo	lo
Existing Nairobi office for info/ reporting	short	0	-	med	lo
Std criteria for referral	med	0	-/+	med	med
Referral feedback system	med	0	-/+	med	med
Public Ed	med	0	-	med	lo

ACTION AREA 1: CITY WIDE PLANNING, COORDINATION AND REGULATION OF HEALTH SERVICES

OPTIONS	STRENGTHS/WEAKNESSES	IMPLEMENTATION STEPS
1. Create New Entity with Responsibility, Accountability, and Authority to: Interpret GOK/MOH Guide-Lines for Nairobi; Collect & Disseminate Information Necessary for Planning; Promulgate regulations that Establish Criteria for Assessing Standards of Performance, & Assure Control of Quality	Strengths - Lines of authority and communication will be clear - Planning and regulation for Nairobi health services would be channeled centrally - Criteria for planning would be uniform - Duplication of efforts would be reduced - Disagreement between PMO and NCC would be eliminated Weaknesses - Increase resource requirements to establish a well functioning new authority - Existing providers may not accept the authority of the entity	- Establish a review and assessment committee to consider and select urban health system model(s) - Determine need for new legislation - Delineate responsibility and functions of entity and staff - Communicate and inform provider groups
2. Establish a Body Which Includes Representatives of All Health Providers in the City to Coordinate Provision of Services and to Cooperate on Issues Related to Health	Strengths - Providers may feel they can play a greater role in the city's health system - Provides a forum through which the private sector can discuss on equal terms with the public sector Weaknesses - Representatives with widely divergent objectives may reduce the effectiveness of the body - Body needs the strong support of the Ministry of Health and the Ministry of Local Government - Funds required to support the body's administrative functions	- Call for a forum for discussion among all providers to develop criteria for and functions of a representative body

6.4 ORGANISATIONAL STRUCTURE

The areas for action within the organisational structure dimension of the health services delivery system address the need for an institutional or organisational entity with well-defined responsibilities and authority for policy, planning and coordination of an urban health service delivery system.

Nairobi Province is an urban environment with a higher population density than other provinces and a large and diverse number of public and private providers of health services. All levels of health care, from single function clinics to the national referral hospitals services are available within the city. This environment requires an organisation structure that is expressly suited to the situation, and can adequately delineate authority, responsibility, and accountability. Chapter 5 identified problems with the clear definitions of the roles, functions and relationships between the MOH and NCC and PMO. The absence of definition has created confusion, duplication, omissions, and inconsistencies.

The options suggested encompass the Action Areas of: city-wide planning, coordination and regulation of health services; and quality assurance and control and changes to reduce foreign exchange requirements. The strengths and weaknesses of each option and an illustrated list of steps for implementation are delineated so as to provide decision-makers with further information for setting priorities and selecting courses of action. In each of the first two action areas, the options are mutually exclusive that is, the selection of one precludes selection of any of the others. The options suggested for the foreign exchange action are complementary.

ACTION AREA 1: CITY WIDE PLANNING, COORDINATION, AND REGULATION OF HEALTH SERVICES
(continued)

OPTIONS	STRENGTHS/WEAKNESSES	IMPLEMENTATION STEPS
3. Assign Specific Responsibilities to the PMO & NCC in Accordance with Public Health Act	Strengths - Does not require a new organisation - Clarifies ambiguity Weaknesses - Duplication of authority in the legislation may continue unresolved - Coordination and communications of City health services will not necessarily be improved	- Review designated responsibilities - Determine role of PMO and NCC - Designate specific responsibilities
4. Change or Amend Legislation so as to Clarify Roles and Functions of Existing Bodies	Strengths - Reduces conflict - Improves working relationship & strengthens cooperation between various providers - Minimizes duplication in roles & functions Weaknesses - Depends much on Parliament - May take time to achieve	- Identify the required changes - Coordinate with DMS, NCC,PMO, and the office of the Attorney General - Present amendment to Parliament

ACTION AREA 2: QUALITY ASSURANCE AND QUALITY CONTROL

OPTIONS	STRENGTHS/WEAKNESSES	IMPLEMENTATION STEPS
1. Develop and Implement Quality Assurance Programme with Required Reporting by All Facilities for: - Mortality Statistics - Professional Staff Licensing - Medical Protocols, Procedures, Schedules - Patient Education Protocols - Staff Training - Pharmacy Guidelines	Strengths - Establishes higher standard patient care - Links standards and reporting - Establishes basis for monitoring - Increases public confidence - Reduces gross negligence Weaknesses - Increases resource requirements - May be resisted by some providers	- Identify lead agency/organisation - Develop protocols for each reporting and monitoring area - Begin communication with providers on required reporting and monitoring - Establish information system with appropriate feedback mechanisms - Establish a time frame for implementation of programme
2. Establish Quality Control Programme Which Regularly Reviews Service of All Providers	Strengths - Establishes clear expectations for standards - Clarifies functions and responsibilities for monitoring service performance Weaknesses - Increases resource requirements	Similar to (1) above

ACTION AREA 2: QUALITY ASSURANCE AND QUALITY CONTROL
(continued)

OPTIONS	STRENGTHS/WEAKNESSES	IMPLEMENTATION STEPS
3. Strengthen the Linkages Between Existing Licensing, Monitoring, and Inspection Bodies	Strengths - Reduces confusion & possible duplication - Links standards of care to inspections - Enables routine monitoring of activities by bodies with responsibilities for licensing - Encourages higher standards of patient care Weaknesses - Current bodies lack resources & commitment - Reduces quality assurance & control to only licensing and inspection	- Establish reporting/communication system betwen Ministry of Health, PMO, and Public Health Department - Delegate responsibilities for inspection, registration and monitoring - Develop protocols for conduct and content of inspection
4. Develop Peer Review Mechanisms	Strengths - No higher authority required - Encourages professionalism - Review by peers more acceptable Weaknesses - Requires professional bodies to develop and enforce internal monitoring and review functions - Does not address overall quality control at facilities	- Develop guidelines for professional bodies regarding establishing review weaknesses - Establish a time frame for development and implementation of peer review

ACTION AREA 3: FOREIGN EXCHANGE REQUIREMENTS

OPTIONS	STRENGTHS/WEAKNESSES	IMPLEMENTATION STEPS
1. Reduce the Use of Finished Products which Use Foreign Exchange Allocation	Strengths - Consistent with overall objectives of reducing unnecessary consumption of drugs - Encourages substitutionof locally available remedies - Encourages local production of pharmaceuticsls Weaknesses - Necessary drugs may become unavailable - May encourage black market in drugs	- Prioritise harmaceutical inputs - Restrict import licenses for those of low priority
2. Strengthen Local Production of Products Where Feasibility Studies Indicate Cost Effectiveness	Strengths - Reduces dependence on foreign exchange - Contributes to increasing local employment - Improves reliability of supply Weaknesses - Economies of scale may not be ossible for all products	- Identify products which can be produced locally cost-effectively
3. Improve Coordination Between Ministry of Finance & the Central Bank for Importing Inputs (Finished & Raw) Which are High Priority for the Ministry of Health	Strengths - Reduces waiting time for imported inputs - Determines the real priority items - Brings about a more rational import regime Weaknesses - In the past, such coordination has not worked as well as was expected - Other ministries may want the same treatment given to the Ministry of Health	- Establish a standing committee comprising the - Chief Executives of the three institutions

ACTION AREA 3: FOREIGN EXCHANGE REQUIREMENTS

OPTIONS	STRENGTHS/WEAKNESSES	IMPLEMENTATION STEPS
4. Ministry of Health to Determine Priority for Foreign Exchange Allocations For Imported Inputs (e.g. Low Priority for Locally Available Products, High Priority for Products which Contribute to Meeting Health Goals)	Strengths - May make decisions faster - Real priorities of th Ministry are identified - Reduces unnecessary importation of medical supplies and drugs - May stimulate local production of some medical products Weaknesses - May be resisted by the Central Bank - Fear that other ministries would ask for the same treatment - May weaken the role of the Central Bank in allocation of foreign exchange - Requires Ministry of Health to have more broad based information about all sector involved directly or indirectly in the production and consumption of pharmaceutical products and foreign producers of various inputs	- Establish a committee of senior personnel from Ministry of Health and Central Bank to formulate guidelines for and functions of the body to undertake the responsibility

TABLE 6.4

SUMMARY OF IMPLEMENTATION REQUIREMENTS AND IMPACT FOR ORGANISATIONAL STRUCTURE OPTI

OPTIONS	TIME FRAME	REVENUE IMPACT	FISCAL/COST IMPACT	EASE OF IMPLEMENTATION	RESEARCH NEEDED
CITY-WIDE PLANNING COORDINATION AND REGULATION OF HEALTH SERVICES (Action Area #1)					
Create new entity	med	0	-/+	med	med
Establ. representation body	med	0	0	lo	med
Assign specif. responsibilities	short	0	0	med	lo
Change legislation	med	0	0	med	med
QUALITY CONTROL AND QUALITY ASSURANCE (Action Area #2)					
Develop quality assurance programs	med	0	-/+	med	med
Develop quality control programme	med	0	-/+	med	med
FOREIGN EXCHANGE (Action Area #3)					
Reduce prod use	med	0	+	med	med
Strengthen local prod	long	+	-/+	lo	high
Improve MOH/MDF coordinaiton	med	0	+	med	med
MOH determine import priorities	med	0	+	med	high

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NAIROBI AREA STUDY

VOLUME III

APPENDIX

USAID/Nairobi

November, 1988

Resources for Child Health Project

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NAIROBI AREA STUDY

VOLUME III

APPENDIX

November, 1988

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APPENDIX A

SCOPE OF WORK - NAIROBI AREA STUDY

I. Background

The growing demand of services coupled with declining real resources has placed a high priority on strengthening the health services delivery system in Kenya. Fundamental to this effort has been the development of a process to explore the possibilities for:

1) more efficient and effective use of existing resources; and
2) attraction of additional resources into the health sector.

It is recognised that pursuing these goals will likely require some changes in the organisation and structure of the health care delivery system and in the linkages that exist among the components of the system as reflected in resources flows, referral patterns, and distribution of resources. The Government of Kenya and, more specifically, the Steering Committee recognises that the development of policies to effect needed changes needs to be informed by analyses which can help to identify problems in the existing system and options for improvement. REACH, an AID funded technical assistance program in health care financing, has been asked to undertake studies which can support this process.

While the health care financing issues need to be explored for all components of the system, the critical importance of KNH and the recent revision of its legal status which created an immediate opportunity for change gave the hospital study an initial priority for REACH technical assistance. The study explored efficiency aspects of the hospital and the potential for improving cost-sharing, thereby increasing resources available to the institution.

The results of this study will lead to improvements in efficiency and service patterns which need to be balanced by efficiency and service improving changes elsewhere in the Nairobi area health care delivery system. The identification of such changes is the focus of the present study.

II. Study Questions

The overall goal of the study is to develop strategies for responding to the growing demand for health services by drawing on government, private, and consumer resources more effectively. Emphasis will be on identifying ways of improving the efficiency of operations and the access to resources of the health service delivery system in the Nairobi area.

The analytic effort will focus on three lines of inquiry:

1. What are the current patterns of service provision and utilisation in the area and could they be improved in ways that would increase access to care and improve the efficiency of the system?

2. What are the current patterns of resources used to produce services, what differences exist among facilities in these costs, and could efficiency of public providers be improved?

3. What is the potential for increasing the economic and financial strength of health services in the Nairobi area through improvements in use of public and private resources and more effective cost-sharing in the public sector?

The study team will explore these issues by examining current experience for a selected set of public and private facilities drawn from those currently providing services in the Nairobi area and exploring existing constraints to more efficient use of resources in both the private and the public sector. Factors to be studied include geographic distribution of population and facilities, laws and regulations, staffing and work rules, hours-of-service patterns, and the overall structure of the system in terms of levels of care (primary, secondary, etc.) and speciality services.

The potential demand for service in Nairobi will be projected from population characteristics, patterns of migration, and existing epidemiological data. These projections will form the basis for estimating the costs and coverage potential of alternative strategies for improving the health care delivery systems performance identified as a result of the specific studies noted below.

The goal of the effort will be to identify government actions that could respond to the projected levels of demand by reducing the costs of producing the existing volume of services and expand the capacity of the entire health care delivery system (both public and private) to provide needed services using resources more effectively. Additional, existing experience with cost-recovery in terms of revenue generation and access limitation will be evaluated and the implications of the experiences for expansion of health care resources in the public sector will be examined.

III. Specific Activities

The project will focus on four sets of analysis directed at the goals noted above. The areas of study are as follows:

1. Overview of the health care delivery system.
2. Service provision and utilisation.
3. Resources utilisation and costs.
4. Economic characteristics and financial resources.

In each of these areas a number of specific analyses will be undertaken based on the experience of a selected number of service delivery settings. The specific lines of analysis are described more extensively below:

A) Overview of the Health Care Delivery System

The initial phase of the study will be directed at describing the characteristics of the facilities currently providing services in the Nairobi area. At the present time, no comprehensive list is available. However, the 1987 Economic Survey indicates that in 1986 the Nairobi area had 30 hospitals with 5690 beds/cots, 15 health centers, and 136 health subcentres and dispensaries. The planned inventory will include all facilities (not individual physicians offices) which provide primary, secondary, or speciality services. Characteristics of interest include:

1. Type of facility (hospital, health center, etc.)
2. Size (No. of beds, no. of MDs, etc.)
3. Sponsorship (NCC, MOH, PVO, Private, etc.)
4. Location and service area
5. Mix of services available
6. Volume of services produced

This activity will draw primarily on available information although some data may be obtained directly by observation and interviews. The results of this first stage will be a general mapping of the market for health care services in Nairobi and the relatives shares of the major providers. The mapping exercises will also provide the basis for identifying settings for carrying out the more detailed analyses described below.

B) Service Provision and Utilisation

The study team will carry out a series of analyses directed at exploring the patterns of utilisation of services. In particular, the issue of entry points for care and patterns of referral have been identified by the Steering Committee as of specific interest. The study team will address this interest by carrying out a series of analyses based on patient interviews, facility records and direct observation in a selected group of facilities at all levels of care. These analyses will be directed at:

1) Identifying the points in the system where care was initiated for a given episode;
2) Determining the frequency and directions of referral; and
3) Estimating the number of visits (or days of care) for each episode of illness.

The above analyses will be undertaken for the total patient mix of the sample facilities and in greater detail, for a specific set of diagnoses which will be identified in the early stages of the study. In addition, the study will attempt to assess the factors that influence these decisions.

These analyses will provide the basis for exploring user preferences with respect to preferred source of care and patterns of use assessing the potential for and constraints on improving the use of resources by modifying the existing pattern of utilisation.

C) Resources Utilisation and Costs

The study team will undertake an analysis of the availability and use of resources within facilities and their impact on productivity in a selected sample of facilities. Both public and private facilities will be included in this analysis and attempts to relate differences in the efficiency of resources use to institutional characteristics will be made. For ambulatory facilities, all services will be explored while for inpatient and speciality facilities, the analyses will be focused on a more limited group of services.

Data on resource use will be obtained from records, interviews, and by direct observation. For each facility, data on staffing, supplies, physical space, and medicines will be diagnoses or services will also be utilised to focus the analysis and to facilitate comparisons among settings.

D) Economic Characteristics and Financial Resources

A series of analysis will also be undertaken directed at examining the degree to which patients utilise a mixture of public and private services. In particular, the factors which influence user's choice of system, within a given episode of illness as well as for different episode, need to be better understood. To the extent to which such choices reflect economic considerations they have important implications for system planning and for strategies to increase resources for public facilities.

An analysis will also be made of the existing experience with user-based financing in the Nairobi area. The potential of cost-recovery as a revenue source will be explored in the light of the above analyses.

IV. Products of the Study

The major product of the study will be a report to the Steering Committee identifying a set of options for improving the capacity of the Nairobi health care delivery system to respond to the growing demand for services. This report will discuss the economic, fiscal, and managerial implications of these options and provide the Committee with a basis for making more effective decisions, particularly in terms of public policies.

NAIROBI AREA STUDY

STUDY DESIGN

The Nairobi area study will be composed of three studies:

1) cost and utilisation of health service delivery in the Nairobi area;
2) improvement options for service delivery; and
3) management, planning, and policy options.

The following is the desi , outline for these studies.

1) Costs and Utilisation of Health Services Delivery

This study will examine the patterns of utilisation by the Nairobi population for health services offered by both public and private providers, and costs of providing these services. The service to be considered include preventive and promotive services, curative outpatient health services, maternity services, and mental health services. the objectives of this study are to: 1) determine the extent to which patients use a mixture of public and private services, 2) identify the factors which influence user's choice of provider, and 3) investigate the resource costs of providing these sets of services by type and category of provider.

The information will be used to provide the Health Financing Steering Committee with options for responding to the growing demand for health services. The options will include:

1) an examination of the cost and utilisation implications of modifying the existing patterns of utilisation;

2) estimates of demand over the next five years using epidemiological, migration and income-growth data; and

3) alternative revenue scenarios based on a mix of public and private services and consumer cost sharing.

Data will be obtained from record reviews, interviews and/or surveys of clients and providers, and direct observation. Data collection and analysis will include the following:

1. estimates of marginal and average costs of selected services (to include preventive/promotive, curative outpatient, maternity/delivery, and mental health);

2. estimates of number of visits per episode of illness for selected diagnoses (to include but not limited to upper respiratory infections, diarrhoea, and malaria) and average cost of treatment for these diagnoses;

3. estimates of entry points of care, number and types of providers used by patients for episodes of illness;

4. socioeconomic characteristics of patients by type and category of provider and estimated willingness to pay for services; and

5. comparison of the above across public and private facilities.

A report will be prepared containing objectives, methods, findings, conclusions, and recommendations.

2) Efficiency-Improvement Study

This study will evaluate the actual efficiency of the delivery of services of a representative selection of MOH, NCC, NGO, and private facilities. The objectives of the study are to:

1) assess the availability and use of resources and their effect on productivity;

2) assess the effects of referral on the effectiveness and efficiency of service delivery; and

3) evaluate the efficiency of resource use with respect to institutional characteristics, and to investigate efficiency improvements (cost reduction) expected from a restructuring and/or reorganisation of the service delivery system.

Data will be obtained from record reviews, interviews and surveys, and direct observation. Data collection and analysis will include the following:

1. estimates and assessments of staffing, equipment, physical space, and pharmaceutical supplies in relation to volume of services;

2. assessment of the distribution of services on overall system efficiency;

3. estimates of the frequency and direction of referral;

4. evaluation of resource use by tracer diagnoses (i.e. malaria, upper respiratory infections, normal deliveries); and

5. comparison of above across public and private facilities.

A report will be prepared containing objectives, methods, findings, conclusions, and recommendations.

3) Planning, Management, and Policy Study

The objective of the study is to identify the policy, planning, and managerial constraints to effective service delivery. The study will examine:

1) policies, planning/management procedures, and organisation structures (or their absence) which hinder/promote effective, efficient delivery of services; and

2. relationships between providers, which hinder/promote effective, efficient delivery of services.

The information will be used to provide options to the Health Financing Steering Committee regarding policy choices and/or actions for improving health services delivery. The options will include:

1) alternatives for improved coordination of service delivery across provider types;

2) potential for shared resources between facilities and institutions;

3) increasing or decreasing the services offered by public and private facilities/providers; and

4) standardisation of equipment and personnel by type and category of provider and services offered.

Data collection and analysis will rely on record and document reviews, review of government laws and regulations, and interviews.

A report will be prepared containing objectives, methods, findings, conclusions, and recommendations.

APPENDIX B

FACILITIES SELECTED FOR NAIROBI AREA STUDY

Cluster 1:	Bahati Centre Mary Immaculate Catholic Dispensary BAT Shauri Moyo Dispensary Kenya Bus Service Dispensary Jamaa Maternity Service Jericho sub Health Centre Kaloleni Sub Health Centre Makongeni MCH/FP Maringo MCH/FP
Cluster 2:	Ngara Centre Park Road Nursing Home City Nursing Home Alpha Maternity Home Central Bank staff Clinic Crescent Medical Aid/Pumwani Pumwani sub Health Centre Pangani Clinic MCH/FP
Cluster 3:	Langata Centre Kibera Catholic Dispensary Jamia Mosque Dispensary Kibera Crescent
PMO Facility:	Loco Dispensary Mbagathi Dispensary Postal Training School Kamiti Prison
NCC Dispensaries:	Rhodes Avenue Dispensary Ngong Road Dispensary
Others:	Alpha Maternity Hospital Dandora II Kenya Breweries
Specialized Facilities:	Pumwani Maternity Hospital Mathari Mental Hospital Kariobangi Pilot Mental Health Project

APPENDIX C

LIST OF ADMINISTRATIVE AND EXECUTIVE OFFICERS INTERVIEWED BY THE NAS TEAM

All In-Charges of the Health Facilities in the Sample

Ministry of Health - Afya House

Prof. Thomas Ogada - Director of Medical Services
Dr. James Maneno - Deputy Director of Medical Services
Dr. Claudio Shuftan - Information and Planning System (IPS)
Dr. Lynne Gaffikin - IPS
Mr. Mwema - Health Information System (HIS)
Mr. Kimani - Health Information System (HIS).
Mr. Wetungu - Acting Head, Inspectorate Department

Public Health Department - Nairobi City Commission (NCC)

Dr. Pius S. Achola - MOH
Dr. P.K. Gachara - Deputy MOH
Dr. Lwanga - Assistant Section MOH
Mr. Wanjira - Administration Section
Mr. Gathuita - Epidemiology and Diseases Control Section (EDC)
Sister Agnes Kuguru - Epidemiology and Diseases Control Section (EDC)
Mrs. M. Kamau - Ambulance Services
Mr. Alago - Acting Chief Accountant.
Mrs. Kamore - Accountant
Mr. Karanja - Acting Chief Accountant (Medical Insurance)

Division I

Dr. Mrs. Mohammed Ali - Senior Medical Officer
Mr. Gateri - Supervisor
Mr. Mburu
Mrs. Thuku - Chest Clinic

Division II

Dr (Mrs) Njoroge - Assitant MOH
Helen Muhia - Public Health Nurse (KEPI Data)

Pumwani Maternity Hospital - NCC

Dr. K'Oduol - Superintendent
Mrs. B. Omondi - Matron
Mrs. Luther - Hospital Secretary

Mathari Mental Hospital

Dr. W. Muya - Director of Mental Health Services
Dr. Mwanza - Superitendent, Mathari Mental Hospital
Dr. Okonji - Psychiatrist
Dr. Oraka - Deputy Principal, Mathari Hospital School of Nursing
Mr. Njoka - Accounts Section
Mr. Mathenge - Accounts Section

Division of Family Health

Mrs. M. Mwangi - Operations Officer, Training KEPI
Mr. Kamau - Operation Officer, Logistics KEPI
Dr. Peter Bjerregaard, Senior Advisor, KEPI.

Law Reform Commission

Justice Okubasu

Provincial Medical Office - Nairobi

Dr. Kihindas - Provincial Medical Officer (PMO)
Dr. Hagembe - Deputy PMO
Mrs. Kiragu - Provincial Matron
Mr. Kariuki - Provincial Hospital Secretary
Mr. Kiwinga - Provincial Medical Records Officer
Mr. J. Mathenge - Provincial Public Health Officer

UNICEF (by Phone)

Monica Mutuku
Dr. J.E.O. Odada - Department of Economics - University of Nairobi.

St. John Ambulance Services

Mr. Roy H. Parker - Executive Officer

Church Hospital Association of Kenya (CHAK)

Dr. G. Irvine - Medical Co-ordinator

Kenya Catholic Secretariat

Sister Urmbeta - Medical Secretary

National Christian Council of Kenya

Mrs. K. Kamau - Deputy Director General

Nursing Council of Kenya

Mrs. Sirengo - Ag. Registrar

Medical Training College

Mr. J.B. Khachina - Deputy Principal

Nairobi Hospital - School of Nursing

Matron Biffen

Aga Khan Hospital

Prof. H. Holmberg - Executive Director

Division of Family Health

Mrs. Chege - Co-ordinator of Continuing Education

Matermiserecordiae Hospital

Sister Magdalene - Hospital Administrator

African Medical Research and Foundations (AMREF)

Dr. M. Migwi - Director, Training Department

Parklands School of Public Health (NCC)

Principal

Karen College of Nutrition and Home Economics

Mrs. Kinyua - Principal

African Medical Research and Foundations

Dr. S. Bhachu - Co-ordinator of Training Programs

Heritage Insurance Company Ltd.

The Company Secretary
Mr. Muturi - Medical Insurance Underwriting Manager

Jubilee Insurance Co. Ltd.

Supervisor, Medical Insurance

British American Insurance Co.

Medical Claims Supervisor
Marketing Sales Manager

Pan African Insurance Co. Ltd.

Assistant Supervisor

American Life Insurance Company (K) Ltd. (ALICO)

Group Underwriter Manager
Mr. Gordon T. Watson - Senior Officer, Employee Benefits Group Management Division, ALICO

Association of African Traditional Medical Practitioners (AATMP)

Dr. Ouma Makadudi - Chairman
Dr. Warui - Secretary

Parkroad Nursing Home

Administrator

Edelvale Homes

Administrator

Kenya Breweries Clinic

Mrs. Nalik - Manager

British American Tobacco

Mr. Wanyoike - Personnel Division

Crescent Medical Aid

Director

APPENDIX D

ESTIMATING DEMAND FUNCTION

It is hypothesised that the number of visits an individual makes to a health facility (in the quantity demanded of health care services) over a specified time period depends on the following factors:

1) educational attainment of the individual;
2) age of the individual;
3) the price of the services, or the fees charged;
4) whether the facility is a free or paying one;
5) whether or not the individual has medical cover by his/her employer and/or other parties; and
6) whether or not the operating hours of the facility are considered convenient by the users.

In symbols:

DV = quantity demanded of health care services in visits made per period
ED = educational attainment of the individual (in years)
AG = individual's age (in years)
PR = price of health care services (i.e., fees charged per visit)
TF = type of facility - a dummy variable which takes a value of 1 if the facility charges fees and 0 if it does not
HC = health cover - a dummy variable which assumes a value of 1 if the individual has medical cover from employer or other parties and 0 if not
CN = convenience of facility's operating hours - a dummy variable which takes a value of 1 if operating hours are convenient to the client and 1 if not

NCC and PMO facilities do not charge fees. For this reason, money costs (MC) were used as proxies for price. Money costs were defined as the sum of travel cost (TC) and fees charged (FC):

$$MC = TC + FC$$

Behavioural Assumptions:

$$\frac{dDV}{dED} < 0$$

That is, as an individual's educational attainment increases, the number of visits made will decline. This is because education promotes life styles that reduce infection and disease incidence in general and that it raises an individual's social status thereby inducing the individual to seek health care in facilities that bestow better status than the ones in the sample.

$$\frac{dDV}{dAG} < 0$$

The demand for health care services increases with age.

$$\frac{dDV}{dMC} < 0$$

As money costs increase the quantity demanded of health care services decreases.

$$\frac{dDV}{dTF} < 0$$

A move from nonpaying to paying facilities reduces the demand for health care services.

$$\frac{dDV}{dHC} < 0$$

A move from an individual without health cover to one who has reads to an increase in demand.

$$\frac{dDV}{dCN} < 0$$

A shift from a facility whose operating hours are not convenient to the client to one whose operating hours are leads to an increase in demand for health care services.

An addivie model was estimated using Ordinary Least Squares (OLS) technique. The model was:

$$DV = Bo + B1\ ED + B2AG + B3MC + B4TF + \text{---} + B5HC + B6CN + E \qquad (h)$$

where E is the normally distributed error term with mean 0 and variance 02.

The empirical results are shown in the table below:

EMPIRICAL RESULTS OF DEMAND ESTIMATES

Variable	Regression	T - ratio
ED	-0.4779	1.9
AG	0.0277	1.7
MC	-0.00006	0.8
TF	-0.9320	0.8
HC	0.4769	0.7
CN	0.2871	0.6
Constant	2.4593	--

$R^{-2} = 0.540$

D F. = 77

Thus, if money costs are raised by one unit, the quantity of health care services demanded decreases by 0.00006 units. Facility utilisation can be increased by increasing the medical cover for users and changing the operating hours of facilities to those times which are convenient to the users.

APPENDIX E

METHODOLOGY FOR ESTIMATING COSTS OF FACILITIES

Costs of operating facilities are presented in this section. Total facility costs included staff, drug, and administration costs. non-government facilities such as B.A.T. Shauri Moyo, Central Bank Staff Clinic, Crescent Pumwani, Kenya Breweries and Kenya Bus Services, provided data on the total expenditure on drugs, staff and other items for 1987. Cost data for all other facilities were compiled for 1987. Jamia Mosque, Kibera Catholic, Jamaa, City Nursing and Park Road could not provide the required cost data. It was not possible to estimate the costs of drugs for PMO facilities such as Loco, Mbagathi and Kamiti due to data and time limitations. The available records for these facilities indicated the drugs used by these facilities and their volumes but not their prices, time and financial resources needed.

Information was obtained on the staff and salary scales at all PMO facilities in the sample according to the Ramtu Salaries Review Commission. The mid-point on each salary scale was used to estimate staff salary costs in that category. The appropriate house allowance and Kshs. 4,000.00 per staff member for medical cover were added. Thus, total staff costs are the sum of estimated salary and wages costs, housing allowance and medical cost allowances.

It was not possible to obtain the other costs of running PMO facilities, (e.g. charges for electricity, water, rent, etc.). These accounts were intermingled with other accounts of the organisations served by the facilities. For example, Loco Dispensary data were mixed-up with those of Kenya Railways, Mbagathi data with the Kenya Posts and Telecommunications Corporation, and Kamiti Prison Hospital accounts with the Kamiti Prison authorities. Thus, cost data for these three facilities were incomplete and are not presented here.

Mathare Mental Hospital provided detailed costs of running the facility in April and May 1987, excluding direct staff costs. These were added together and divided by two to obtain monthly cost estimates and multiplied by twelve to get estimates of 1987 facility costs. The staff costs were estimated separately.

NCC salary cost data were obtained from the headquarters of each division for staff in each of their facilities. NCC salary scales were used to cost staff at NCC facilities. The divisional centres also provided data on other costs, excluding drugs, rent and rates. Data on rent and rates were obtained from City Hall while the NCC Medical Stores provided information on the quantities of drugs used and their prices by facility. The prices used were according to tender documents. Where drugs were not of current market prices introduced insignificant upward bias on the drug costs of NCC facilities. It was not possible to obtain prices for a few of the drugs, and these were omitted from the cost estimates. This introduced a downward bias on the cost estimates, which somehow counter-balanced the slight upward bias resulting from use of current (1988) market prices of some drugs. Drug costs for NCC facilities were estimated for March and

September 1987, and the resulting monthly average was used to derive estimates of drug expenditures for 1987. The Dandora II, Makongeni and Maringo Clinics had no drug costs since they did not offer curative or maternity services. In the case of all other NCC facilities, the cost data were checked several times to ensure they were accurate.

City Hall provided detailed cost data for Pumwani Maternity Hospital. These data were cross-checked with data at the hospital and found to be reasonably accurate. Total facility costs at Langata, Bahati and Ngara Health Centres were multiplied by 0.6 to obtain costs of providing outpatient services, since it was observed that these facilities devoted 60 percent of their resources to outpatient services and the rest to maternity cases.

APPENDIX F

TRADITIONAL HEALERS AND THEIR CLIENTS

The traditional sector was studied in two parts: the providers, and their clients. Healers were selected for interview in four divisions in Nairobi which are known to have large numbers of traditional healers: Pumwani, Kibera, Kasarani, and Makadara. Since our main objective was to interview both the patient-clients and the healer, we selected and interviewed healers who had patients waiting at the time we reached the healer facility. The sample for the client survey covered 127 patients: 36 in Pumwani, 61 in Kibera, 26 in Kassarani and 4 in Makadara. More Patients were interviewed in Kibera than other divisions because a larger number of traditional healers reside there.

Traditional healers are of two types: herbal medicine healers, and spiritualist/ritualists that treat using spells and rituals. While the practises of traditional healers has not been the subject of much study, they are a factor to be considered in the provision of health care services in Nairobi. Most of the number of traditional healers interviewed are formally registered and licenced to conduct their business. However, there were six unregistered healers, all in Kassarani (Mathare Valley) division. They ranged in age from 40 to over 50 years of age. Males comprise more than half of the traditional healers interviewed in the sample. More than 53 percent of the healers were Kambas from Kitui District. Some of the tribes like Kambas and Luos are renowned for their skill in traditional medicine. Over 53 percent of the healers were Christian and 30 percent were Moslem. On average, traditional healers in Nairobi have received about seven years of schooling.

The traditional healers claimed that they have special skills and powers to cure diseases. Their levels of specialisation vary widely among healers. Many healers specialise, treating infertility, impotence, stomach problems, mental disorders, and witchcraft.

About 88 percent of the healers interviewed refer patients to other facilities: 77 percent refer patients to a modern facility; 36 percent to another traditional healer; and only 3.3 percent to a modern pharmacy. Over 76 percent of the referred cases were for diseases which could not be treated by the traditional healer. Moreover, about 70 percent of the healers receive about two referred patients per week. Patients received by traditional healers from other facilities are referred mainly for further treatment (80 percent). Traditional healers do not have inpatient facilities.

Traditional healers in Nairobi charge an average of Kshs. 116.00 per visit. They treat on average 20 patients per day, implying a daily revenue of about Kshs. 2,310. If a healer works a 20-day month, income is likely to be over Kshs. 46,000. The study found that about 98 percent of the healers supply herbs and concoctions to patients. They do prescribe to buy from other sources. Fees include consultation and treatment costs. Patients are charged for additional herbs and concoctions obtained from subsequent visits to the healers. It is rare for traditional healers to purchase drugs for dispensing to patients. Only about 16 percent buy drugs to dispense to patients at an average cost Kshs. 377 per month.

Africans constitute the largest proportion of clients of traditional healers. Only four percent of the patients interviewed were Asian and European. Christians in Nairobi constituted the largest number of users of traditional medical services in Nairobi. About 50 percent of the clients reported they were household heads. Occupations of the clients were as follows: wage employment (29 percent); housewives (23.7 percent); unemployed (23.9 percent); casual workers (70 percent); farmers (2 percent); and students (1 percent). Sixty-five percent of the clients were married and 29 percent single. The remainder were widowed or divorced. Over 53 percent of the patients were female. Average household income for patients was Kshs. 2,709; but for 24 percent of the clients, incomes were below Kshs. 700 per month.

The most common reasons given by clients seeking care from traditional healers were stomach pains and joint pains. Approximately 11.5 percent of patients who thought they had serious illnesses visited the healer first. Fifty percent had first gone to government hospitals, 9.4 percent to a private doctor, and 5.2 percent to a private hospital. Among those who thought their illness was not serious, 27 percent had visited the traditional healer first, 32 percent went to government hospitals, and 11 percent to a private doctor. These results suggest that if a patient assesses his/her illness as not serious, he/she will most probably seek treatment at free government facilities rather than paying for private facilities or providers.

Most patients visited traditional healers because they had been advised by a friend or relative to do so. This may indicate that clients select healers based on knowledge of their curing health capabilities. Seventy percent of clients reported they had passed a modern facility to go to the healers Friends or relatives referred them to the healer after finding that the modern facility did not specialise in their problem or had failed to cure them.

Herbal medicine is not cheap. The table below indicates that the ritualist/spiritualist healer supplying drugs is more expensive than the other two categories. Thirty-two percent of the patients were charged over Kshs. 200.

SERVICE CHARGE BY TYPE OF HEALER
(Charge in Kshs.)

Type of Healer	0-49	50-199	200 and Over
Herbalist	33.3%	30.8%	35.9%
Ritualist/Spiritualist	50.0%	17.9&	32.1%
Both (1+2)	26.9%	28.4%	44.8%

The team found that 82 percent of the clients seeking treatment from traditional healers in Nairobi rate the charges as fair, six percent as high, and one percent as low. Traditional healer charges, however, may be considered reasonable compared to modern private care providers in Nairobi

(see Section 3.5). In addition, traditional healers are flexible and willing to be paid in installments by those patients who cannot afford to pay cash.

Patients spent about 35 minutes waiting for treatment in the facility used by the traditional healers. Patients were asked the time of the day they would prefer to visit a traditional healer. Over 41 percent of the patients had no time preference, 31 percent preferred the early morning, and 7 percent preferred after working hours, especially at night. The Team observed that patients frequent traditional care facilities between 5:30 pm and 8:00 pm and on weekends and public holidays.

Consumer ratings of services were high. Ninety percent of the patients claimed to be treated continuously by traditional healer staff, and 87 percent rated the Nairobi traditional healers as qualified to deal with their problems. Ninety-six percent of the patients were referred elsewhere for further treatment. Fifty percent of the referrals were to a modern health facility.

Transportation and travel time costs related to obtaining medical care were analysed. Most patients used a bus or matau. On average, patients paid Kshs. 24 per trip as bus fare and 33 minutes were spent travelling. The average distance was seven kilometers. These figures imply that two to three changes of buses is required to reach the healers. Traditional care providers in Nairobi tend to practice in specific areas, mainly from the slum areas of Kibera, Majengo, and Mathare, and these areas tend to be less accessible by public transport. The reason for these concentrations advanced by the Associate for Traditional healers is that the healers have followed the migration of their usual clients to the urban areas.

Traditional healers provide an important source of health care service to low-income, less-educated Nairobi residents. For this reason, there is need to study them in greater detail to see what policy changes are needed to enable them to contribute positively to health care delivery in the city.

APPENDIX G

PRIVATE MEDICAL INSURANCE

Issues concerning medical insurance in Nairobi were briefly addressed by the study. Information was obtained from five insurance companies regarding current coverage, eligibility, premiums and benefits of the schemes, and difficulties companies have experienced since launching medical insurance.

The table below indicates four of the five insurance companies that were interviewed which provide Group Medical Insurance. They cover groups of private company employees who have other insurance policies with them. Furthermore, the Table also indicates that the total coverage varies from 40 to 127 groups. Insurance companies consider several factors before insuring new policy holders but the most important criterion for enrolling new policy holders is other insurance coverage with the company.

For companies providing Group Medical Insurance, their major clients are private, profit-making organizations of all sizes spread all over in the country. None of the five insurance companies interviewed have clients from government or state corporations. Two companies which provided information on number of policy holders indicated that the total number of people insured last year was 12,308.

Premiums charged for medical coverage depend on two factors: type of policy purchased and the loss ratio. If medical prices rise, companies raise premium prices. A schedule of benefits and costs of typical medical insurance is included at the end of this appendix. Loss ratio also is a very important factor to take into account when fixing or determining premiums.

Time spent paying for a claim ranges from two days to four months. There are two main ways of paying for the medical expenses of people with medical insurance policies: 1) the insurance company reimburses the policy holder upon receipt of satisfactory claim form, or 2) the insurance company pays the provider upon receipt of an invoice of medical expenses incurred by the policy holder.

Major difficulties experienced by insurance companies in Nairobi were dishonest and false claims. Companies report that providers and patients collude and submit fraudulent claims thereby making insurance companies pay for expenses not incurred by their clients. This has made it difficult to operate medical insurance schemes.

Private medical insurance can play an important role in financing access to and coverage of health services. There is a need for future investigations in tis area to determine what role, if any, government should play to foster the development of health insurance mechanisms.

Name of Insurance Company	Type of Coverage	Reported Minimum Group Size	Total Coverage	Eligibility
Jubilee	Group	5	40 groups	Health Status other insu. business
The Heritage	Group	5	60 groups	Any group above five
British American	Individals	-	6,179	Anybody
Pan African	Group	10	-	Must have other insur. business
Alico	Group	10	127 groups	Must have group life Ins

A TYPICAL MEDICAL INSURANCE SCHEDULE OF BENEFITS AND COSTS

Medical Assistance Insurance Per Head

Name of Benefit	Cost
Daily Hospital Room and Board (Benefit)(7)	Kshs. 250.00
Number of Days in Hospital	
Total Benefit per Hospitalisation	Kshs. 17,500.00
Hospital Services Benefits (2)	Kshs. 2,000.00
Surgical Expenses Benefits (3)	Kshs. 4,500.00
Anesthesia Benefit	Kshs. 1,125.00
In-Hospital Doctor's Visits (4)	
Maximum per visit	Kshs. 100.00
Total Benefit per Hospitalisation	Kshs. 7,000.00
Maternity Benefits (5)	
Normal Delivery/Miscarriage/legal Abortion	Kshs. 1,200.00
Caeserean Operation	Kshs. 1,800.00
Ectopic	Kshs. 600.00

Supplementary Major Medical Insurance per Insured

Maximum Benefit	Kshs. 75,000.00
Deductible per Calendar Year -Hospital Confined	Kshs. 200.00
-Not Hosp. Confined	Kshs. 400.00
Daily Hospital Room and Board Benefit	Kshs. 250.00
Aggregated Out-patient Benefit per Calendar Year	Unlimited
Doctor's Visit Maximum per Visit	Kshs. 100.00
Co-insurance (7)	
Annual Cost per insured	
Medical Assistance	Kshs. 950.00
Supplementary Major Medical	Kshs. 608.00
TOTAL	Kshs. 1,558.00

Source: American Life Insurance Company Ltd.

NOTES

(1) This benefit pays for daily hospital charge for the inpatient's hospital bed and meals up to a maximum selected.
(2) This benefits pays for all miscellaneous hospital expenses for the in-patient, except surgeon's and doctor's fees.
(3) Pays for surgeon and anesthetists.
(4) Pays for attending doctor's visit to an in-patient in hospital.
(5) Pays for maternity expenses of married female employees and wives of male employees.
(6) Pays for extra expenses incurred after medical assistance limits are exhausted.
(7) Co-insurance means the insured and the insurer share for losses incurred under a policy.

APPENDIX H

Basic Courses Offered at the College of Health Professions Nairobi

TYPE OF COURSES OFFERED	BASIC ENTRY REQUIREMENTS	NO. ADMITTED	NO. GRADUATING/ YEAR - 1987	NO. DROP OUTS	DURATION OF COURSE	LEVEL ATTAINED	COST PER TRAINEE
Environ-mental Health	EACE/KCE in Division I or II or its equivalent with six (6) credits to include English Language/ Literature in English, Biology, Mathematics and any of following subjects: Physics with Chemistry, or General Science or Physics or Chemistry or Technical Drawing.		26		3 years	diploma	
Faculty of Phar-maceuti-cal Technol-ogy	EACE/KCE Division I or II or its equivalent with six (6) credits to include English Language/ Literature in English, Biology, and any two of the following groups of subjects: Mathematics/ Physics and Chemistry, Physics with Chemistry.		33		3 years	diploma	
Faculty of Phsyio-Therapy	KCE in Division I or II with six (6) credits to include English Language/ Literature in English, Biology and any one of the following subjects: Physics with Chemistry or General Science or Physics.		39		3 years	diploma	
Faculty of Nursing	EACE/KCE in Division I or II or its equivalent with six (6) credits to include English Language/ Literature in English, Biology or General Science and any one of the following subjects: Chemistry or Physics with Chemistry or Mathematics or Physics or Health Science or Food Nutrition or Domestic Science.		206		3.5 years	diploma	

Basic Courses Offered at the College of Health Professions Nairobi
(continued)

TYPE OF COURSES OFFERED	BASIC ENTRY REQUIREMENTS	NO. ADMITTED	NO. GRADUATING/ YEAR - 1987	NO. DROP OUTS	DURATION OF COURSE	LEVEL ATTAINED	COST PER TRAINEE
Faculty of Dental Technology	EACE/KCE Division I or II or its equivalent with six (6) credits to include English Language, Literature in English, Biology, General Science and any of the following subjects: Physics with Chemistry or Physics or Chemistry or Mathematics.		7		3 years	diploma	
Faculty of Occupational Therapy	EACE/KCE in Division I or II or its equivalent with six (6) credits to include English Language/ Literature in English, Biology, General Science and any of the following subjects: Physics with Chemistry or Physics or Chemistry or Mathematics.		37		3 years	diploma	
Faculty of Radiotherapy	EACE/KCE in Division I or II or its equivalent to include English Language/Mathematics and any two of the following subjects: Biology or Physics with Chemistry or Physics or Physics with no more than 20 points calculated from the mandatory subjects. A credit in Physics may be accepted in view of a credit in Mathematics in which instance two Science subjects other than Physics must be offered.						

Basic Courses Offered at the College of Health Professions Nairobi
(continued)

TYPE OF COURSES OFFERED	BASIC ENTRY REQUIREMENTS	NO. ADMITTED	NO. GRADUATING/ YEAR - 1987	NO. DROP OUTS	DURATION OF COURSE	LEVEL ATTAINED	COST PER TRAINEE
Faculty of Ortho-paedic Technol-ogy	EACE/KCE in Division I or II or its equivalent with six (6) credits to include English Language/Literature in English, Mathematics, Physics and any one of the following subjects: Biology or Physics with Chemistry or Chemistry or General Science.		9		3 years	diploma	
Faculty of Medical Labora-tory Technol-ogy	EACE/KCE in Division I or II or its equivalent with six (6) credits to include English Language, Literature in English, Biology, Mathematics and any of the following subjects: Physics with Chemistry or General Science or Chemistry.		34		3 years	diploma	
Entomol-ogy Field Labora-tory Technol-ogy Course	EACE/KCE Division I or II or its equivalent with six (6) credits to include English Language/Literature in English, Biology, Mathematics, and any of the following subjects: Physics with Chemistry or General Science or Chemistry.		NIL		NIL		
Faculty of Medical Records	EACE/KCE in Division III or its equivalent with two credits one of which must be in English Language/ Literature in English or Mathematics. If a credit in English there must be a pass in Mathematics vice-versa, plus 3 passes in other subjects.		37		2 years	certificate	

Basic Courses Offered at the College of Health Professions Nairobi
(continued)

TYPE OF COURSES OFFERED	BASIC ENTRY REQUIREMENTS	NO. ADMITTED	NO. GRADUATING/ YEAR - 1987	NO. DROP OUTS	DURATION OF COURSE	LEVEL ATTAINED	COST PER TRAINEE
Registered Mid-Wifery	-diploma in Registered Nursing and be on the register of the Nursing Council of Kenya. -Applicants must have passed the Hospital Examination. -Applicants must have worked for a minimum of 2 years after qualifying as a Registered Nurse. -Applicants must have a completed confidential report on our MTC/PB1 Forms Part II.		38		1 year		
Intensive Care Nurse	-Must be holders of a Diploma in Registered Nursing and be on the register of the Nursing Council of Kenya. -Must have passed Hospital examination. -Must have had at least a minimum of one year after last successful. -Must have a completed confidential report on MTC/PB1 Forms Part II.		7		1 year		

Basic Courses Offered at the College of Health Professions Nairobi
(continued)

TYPE OF COURSES OFFERED	BASIC ENTRY REQUIREMENTS	NO. ADMITTED	NO. GRADUATING/ YEAR - 1987	NO. DROP OUTS	DURATION OF COURSE	LEVEL ATTAINED	COST PER TRAINEE
Theatre Nurse	-Applicants must be holders of a certificate in nursing and be on the register of the Nursing Council of Kenya. -Applicants must have worked for a minimum of two years after last successful course. -Applicants must have a satisfactory confidential report on MTC/PB1 Forms Part II.		7		1 year		
Kenya Registered Community Nursing	-Applicants must be Enrolled Nurses or Enrolled Community Health Visitors or Registered Midwives or Enrolled Psychiatric nurses and are on the Register/Roll of the Nurses, Midwives and Health Visitors Council of Kenya. -Applicants must possess minimum Div IV in EACE/ KCE or its equivalent with passes in relevant subjects to include English Language/Literature in English/Kiswahili and a science subject. -Applicants must have at least 3 years experience after successful course. -Applicants must have a completed confidential report on MTC/PB1 Forms Part II duly filled by the nurse supervisors.		23				

Basic Courses Offered at the College of Health Professions Nairobi
(continued)

TYPE OF COURSES OFFERED	BASIC ENTRY REQUIREMENTS	NO. ADMITTED	NO. GRADUATING/ YEAR - 1987	NO. DROP OUTS	DURATION OF COURSE	LEVEL ATTAINED	COST PER TRAINEE
Registered Psychiatry Nurse	-Applicants must hold a diploma in Registered Nursing and be on the register of Nursing Council of Kenya. -Applicants must have worked for a minimum of 2 years after qualifying as Registered Nurses. -Applicants must have a completed confidential report on our MTC/PB1 Forms Part II.						
Ear, Nose, & Throat	-Applicants must have a diploma in Clinical Medicine.		10		1 year		
Opthalmic Course	-Applicants must have worked for a minimum of 3 years of service since qualifying as clinical officers.		6		1 year		
Paeditric Course	-Applicants must have a completed confidential report on MTC/PB1 Forms Part II.		23		1 year		

Basic Courses Offered at the College of Health Professions Nairobi
(continued)

TYPE OF COURSES OFFERED	BASIC ENTRY REQUIREMENTS	NO. ADMITTED	NO. GRADUATING/ YEAR - 1987	NO. DROP OUTS	DURATION OF COURSE	LEVEL ATTAINED	COST PER TRAINEE
TB & Leprosy Course	-Applicants must hold a diploma in Registered Nursing and be on the register of Nursing Council of Kenya. -Applicants must have worked for a minimum of 2 years after qualifying as Registered Nurses. -Applicants must have a completed confidential report on our MTC/PB1 Forms Part II. -Applicants must have a diploma in Clinical Medicine. -Applicants must have worked for a minimum of 3 years of service since qualifying as a clinical-- officer. -Applicants must have a completed confidential report on MTC/PB1 Forms Part II.				1 year		
Anaest-hetic Course	-Applicants must have a diploma in Clinical Medicine. -Applicants must have worked for a minimum of 1 year since qualifying as Clinical Officers. -Applicants must have a completed confidential report on MTC/PB1 forms Part II.				1 year		

Basic Courses Offered at the College of Health Professions Nairobi
(continued)

TYPE OF COURSES OFFERED	BASIC ENTRY REQUIREMENTS	NO. ADMITTED	NO. GRADUATING/ YEAR - 1987	NO. DROP OUTS	DURATION OF COURSE	LEVEL ATTAINED	COST PER TRAINEE
Higher Medical Laboratory	-Applicants must have a diploma in Medical Laboratory Technology. -Applicants must have worked for a minimum of 3 years since qualifying as Medical Laboratory Technologists. -Applicants must have a completed confidential report on MTC/PB1 Forms Part II.		37		1 year		
Food Science & Inspection	-Applicants must be qualified Public Health Officers. -Applicants must have had at least 3 years field experience after qualifying as Public Health Officers.		17		1 year		
Higher Diploma in Pharmacy	-Applicants must be holders of a Pharmaceutical Assistant/Technician Certificate, Diploma in Pharmaceutical Technician/ Technology, Diploma in Pharmacy or its equivalent. -Applicants must have worked for a minimum of 3 years since qualifying.		NEW		1 year		

Basic Courses Offered at the College of Health Professions Nairobi
(continued)

TYPE OF COURSES OFFERED	BASIC ENTRY REQUIREMENTS	NO. ADMITTED	NO. GRADUATING/ YEAR - 1987	NO. DROP OUTS	DURATION OF COURSE	LEVEL ATTAINED	COST PER TRAINEE
Health Education	-Applicants must be one of the following: 1. Kenya Registered Nurse 2. Public Health Officer 3. Registered Clinical Officer -Applicants must have worked for a minimum of 3 years since qualifying in one of the 3 disciplines mentioned above.		13		1 year		
Medical Education	-Applicants must hold a diploma/degree or its equivalent in one of the health disciplines from the College or recognised institution. -Applicants must have worked for a minimum of 3 years since qualifying at diploma level. -Applicants must show interest in teaching.		20		1 year		
Commu-noity Health Nursing Course	-Applicants must hold diplomas in nursing and midwifery and must be in respective registers with the Nursing Council of Kenya. -Applicants must have had at least a minimum of 2 years since qualifying as Registered Midwives. -Applicants must have a completed confidential report on CHP/PB1 Forms Part II.						

APPENDIX I

PROCUREMENT PROCEDURES FOR EQUIPMENT AND DRUGS IN THE PUBLIC SECTOR

All functions of supply within the Public Service are governed by the Government of Kenya Supplies Manual published by the Ministry of Finance and Planning in 1978. The Forward to this manual states that:

- Management are to supplement this Manual with such other instructions as they consider necessary to meet... varying conditions within their own Ministry or Department.

- The Manual will be amended from time to time as new procedures, systems and operating methods are introduced by the Permanent Secretary to Treasury.

Important documents affecting procurement procedures are District Focus for Rural Development (Revised June, 1984) Treasury Circular No. 3 (23rd September, 1983), and Treasury Circular No. 5 (13th March, 1987).

The current financial ceilings (levels of purchase) are shown in the table below:

PURCHASE CEILINGS

Amount	Period	Requirement
Goods and Services Worth:		
Kshs. 2,000/= or less	in any case, in one financial year	No written quotation or agreement
Over Kshs. 2,000/= but below Kshs. 5,000/=	(but orders not to exceed Kshs. 5,000/= in one financial year)	Three competitive quotations (Form S.10) adjudicated by at least three responsible officers
Between Kshs. 5,000/= and Kshs. 50,000/=	in any one financial year	Quotations adjudicated by the District Tender Board or the Ministerial Tender Board

PURCHASE CEILINGS
(continued)

Amount	Period	Requirement
Over Kshs. 50,000/= and - Under Kshs. 250,000/=	per single item, in any one financial year	Through open tender, adjudicated by: District Tender Board
Up to Kshs. 1,000,000		Ministerial Tender Board upon recommendation of District Tender Boards
Above Kshs. 1,000,000		Central Tender Board upon recommendation of Ministerial Tender Boards and District Tender Boards.
Spares, repairs to vehicle, plant or technical equipment: Up to Kshs. 5,000/= (total charge)		No competitive quotations need be invited*

*Provided that the spares are obtained from, and the repairs are carried out by, the manufacturer of the item or manufacturer's principal local agent.

Transactions which do not exceed Kshs. 1,000/ can be paid for in cash. Local purchase order for supplies (any one item in one financial year) up to Kshs. 2,000/ can be placed without competitive bidding (Form S.20). Local Manufacturers receive a 10 percent bias, and a five percent

Public Health Department, NCC

Drugs and equipment for the Public Health Department (within the NCC) are procured through a tendering system if the amount exceeds Kshs. 10,000. The procedure is as follows:-

1) The Administration Section (PHD) asks the Section Users (e.g., Pumwani Maternity Hospital, Division I, Division II) to specify the requirements for their section, giving the specifications and quantities of each item required.

2) The requests of the Sections are compiled in the PHD's Administration Section, grouping together the total requirement for items with the same specification.

3) The Administration Section prepares the Tender Document, which contains the general conditions of the contract and the specifications of the items required. Tenderers purchase the document, for example the drugs Tender Document costs Kshs. 500, and others costs approximately Kshs. 200-500.

(Steps 1 - 3 takes at least one month.)

4) Tenders are invited through advertisements in the daily newspapers.

5) The Tender Opening is done in public, usually on one day. Three NCC departments are involved: Public Health (Administration Section), the City Treasurer and Town Clerk. As each tender is opened, it is assigned an identifying serial number. The total value of the tender is announced or, if the tenderer has not given this figure the number of items tendered for is read out. It is also noted whether a tender bond has been provided. Cash deposits are verified by a copy of the receipt.

6) The Audit Section of the City Treasurer's Department takes the documents and computes (checks) the figures, which are incorrect about 25 percent of the time (errors in the arithmetic). The documents are then returned to the Administration Section (PHD), which uses the Audit Section's figures.

7) For items which do not need Section Users' technical advice, the Administration Section chooses the lowest bidder. If technical advice is needed, it is obtained from the Section users; a Technical Evaluation Meeting can be held, to which Section Users are invited (usually in September/October). However, if Section Users cannot attend, staff from the Administration Section can deputise.

   i) the Administration Section is the one to decide whether "technical advice" is needed;

   ii) "technical advice" is only sought for drugs;

   iii) if experts are called in to advise about equipment or suppliers' past performance, this seems to be ad hoc; and

   iv) Technical Evaluation Meetings are not routinely attended by the Section Users.

The Technical Report contains the following:

a) item number (referring to the Tender Document's code;
b) tenderer;
c) serial number of tenderer;
d) unit price offered by tenderer;
e) total price; and
f) remarks.

Note: Although the "Remarks" column could provide information, in practice it contains notes such as "Recommended" or "No bond," and for drugs "No sample submitted," not substantive comments about the quality of equipment or past performance of the supplier.)

8) The Administration Section then prepares the Schedule, which shows a brief description of each item in the Tender Document, with the following information about each tenderer:

   a) name of tenderer and quantity tendered for;
   b) serial Number (see 5) above);
   c) unit price;
   d) total price;
   e) delivery period; and
   f) remarks

9) The Tender Documents, and the Schedule, Recommendations, and Technical Report (if one was deemed necessary) are taken to the Audit Section. Reasons for disqualifying tenderers must be given. Recommendations only cover the tenderers offering the lowest bids; for example, if the lowest and second lowest are disqualified for failing to meet the terms of the tender, and the third lowest was not so disqualified, the Recommendations would only mention these three tenderers, even if there were other qualified tenderers. Note that there is no state at which a tenderer can be disqualified for poor performance in the past unless this information is offered at the Technical Evaluation Meeting (but this meeting is usually held only for considering drug tenders).

10) The Audit Section goes through the tender documents to confirm that the original figures have not been altered. They review the Schedule and check the computations (unit price x quantity = total), and look at the recommendations.

11) The Audit Section refers one copy of the documents (Schedule, Recommendations and Technical Report) to the Town Clerk's Department, where the Chief Counsel reviews the provision of the tender bond, checks if there was an oversight during the tender opening. If only one or two people submitted tenders, and a lower bidder than the recommended tenderer did not provide a tender bond, the Chief Counsel may waive the tender bond and recommend that the lower bidder be awarded the contract. Although this contravenes the regulations this procedure began when financial pressures became stronger in an effort to save the NCC money. [The Administration Section showed the NAS Team an example - the tender for a Parkinson Steam Boiler: the price from the tenderer who did provide a bond was three times higher than the two tenderers who did not provide the bond.] However, the NAS Team found that the requirement of a bond for the drugs tender is never waived, because the tender is large (high value) and there are usually many tenderers for each item.

12) The Chief Counsel sends the recommendation to the Administration Section (PHD), which includes it on the agenda for the following meetings:

a) Heads of Departments meeting, (followed by);
b) Public Health Committee;
c) Finance Committee, (followed by); and
d) Full Commission Meeting.

After the Finance Committee has endorsed the resolution of the Public Health Committee and the Finance Committee, the Chief Counsel is asked to write letters of Award of Contract to the successful tenderers. From advertising the tender to awarding the contract (steps 4 - 12) takes three months. Step 12 of the procedures will take a minimum of one month, because it is dependent upon the Committee's established schedule of meetings.

13) The Administration Section forwards copies of the letters of Awards of Contract to the Section Users, so that they can make their orders. The Chief Counsel requests from the successful tenderer a Performance Bond, which is 10% of the total amount. Orders for drugs can be placed before the performance bond is received, but orders for all other items cannot be placed until this bond has been received.

14) The Section Users then prepare a requisition for each item ordered, using the appropriate budget code (line-item) for that type of item. They must keep within the amount allocated for that budget code. The requisition is taken to the Accounts Section (City Treasurer's Department) for the Accountant to check whether there is enough money in the allocation to cover the amount of the requisition. The Requisition is then passed to the Purchasing Office (City Treasurer's Department), where a Local Purchase Order is written.

15) The Section Users are responsible for checking that the quality of the items supplied corresponds to the specifications in the Tender Document. They are required to do this at the time the items are delivered.

16) If the successful tenderer fails to supply an item, a surcharge (for nonperformance of contract) is made, and paid out of the Performance Bond, and the contract for that item is cancelled. The Administration Section asks the Section Users to give recommendations on the next lowest priced tenderers, and the contract is awarded to the next valid tenderer. The NAS Team discovered that a problem arises if the Treasurer or Chief Counsel is not informed that the original tenderer has defaulted on the contract; the Section Users are supposed to inform the Administration Section (PHD), which informs the City Treasurer and the Chief Counsel, but this is not always done.

The tender procedures are only waived by the Standing Committee of the Commission, taking into consideration the reason (e.g. to purchase spare parts for the standby generator at Pumwani Maternity Hospital). These

procedures are described in a document entitled Financial Regulations. The Administration Section did not have a copy, nor did any of the Section Users interviewed.

PMO Nairobi, Ministry of Health

The procedure is that used throughout the country for procuring the Ministry's requirements for drugs and equipment. The procedure was decentralised in 1985, but in July of this year, it was centralised again. The process is described in Government of Kenya Supplies Manual, Chapter 6. The major difference between the procedures described in the preceding section and those for the PMO are described here.

A Technical Evaluation Committee is appointed (by letter) by the Permanent Secretary, on advice from the DMS. The choice of members depend upon the items to be procured (for example, dental equipment would be considered by a committee composed mainly of dental officers), and who will be the users (e.g. nurses should be involved when BP equipment is selected). There should always be other members such as Hospital Secretaries and representatives from the Treasury.

The nurses and pharmacist at the Medical Supplies Coordination Unit provide the DMS with input on whom to appoint. The DMS can include private providers and NCC staff (this is done for very large or controversial tenders). Medical Officers from provinces outside Nairobi may be called to serve on the Committee.

During the Technical Evaluation Committee's meetings, the members will review the technical literature supplied with the tender, and may interview the tenderers. For example, the Committee may ask a potential supplier to identify which item from the literature is being tendered for; it has been known that the supplier will not be able to do so. This process makes it easier to identify suppliers who will be able to provide technical backup for their products when maintenance or repair is needed.

When procurement was decentralised in 1985, the districts became responsible for tendering for their own requirements; the DC was the chairman. It was anticipated by some that decentralisation of this function would be accompanied by:

1) Increased costs due to:
   a) lack of competition between tenderers (some vendors do not wish to tender for small amounts); and
   b) loss of bulk purchase on
2) Lack of expertise in the Districts;
3) Problems of checking quality of drugs for all 42 District tenders for the same list of items (the agencies responsible for checking quality of drugs could not handle that volume of samples); and
4) Suppliers unwilling to deliver relatively small quantities to outlying Districts.

The Technical Evaluation Committee is appointed for one year. The time between starting the process and receiving the items is about nine months. A committee member is charged with the responsibility of checking the quality of items supplied. If there are questions, this person can call the chairman with regulations.

For very expensive items of equipment, one piece will be cleared from the port, and checked that it conforms to the specifications. This procedure arises from the experience that suppliers are unwilling to ship back to port a full consignment of rejected equipment.

APPENDIX J

THE LEGAL PROVISION OF HEALTH SERVICES IN NAIROBI

The legal provisions with regard to the provision of health services with the City of Nairobi are provided for under the Local Government Act (cap 265) and the Public Health Act (cap 242). The Nairobi City Commission (NCC) like other local government authorities is a health authority within the meaning of the Public Health Act. It has to be borne in mind that the Local Government Act applies to all local authorities in the country and the Public Health Act applies to the whole country. None of the said Acts, therefore, make specific reference to Nairobi being the only local authority in the country with the status of Nairobi not withstanding. It is also important to note that prior to 1970, the responsibility for the development and management for basic health services in the nation was in the hands of local authorities which were responsible for health care for about 90 percent of the population. In 1970, however, all responsibility for the provision of the government of health services was shifted to the Ministry of Health. This shift however, did not affect the provision of health services within Nairobi. The then Nairobi City Council (NCC) continued to offer health services as before.

The NCC provides health services to the residents of the city pursuant to Section 145(i) of the Local Government Act which empowers it to establish and maintain, either by itself or jointly with any other authority or any association, hospitals, maternity services, health centres and dispensaries inside or outside its area of jurisdiction. Section 32(1) of the Public Health Act also empowers the NCC to establish a hospital subject to approval by the board. The "Board" is defined as the Central Board of Health consisting of, among others, the Director of Medical Services (DMS) who is also its Chairman.

The provision of health services within Nairobi fall under the Public Health Department which is headed by the Medical Officer of Health. The post of the Medical Officer of Health is provided for in the Local Government Act under Section 9(1A). The Local Government Act provides that the qualifications of such an officer would be those prescribed by the Public Health Act. However, Section 9(1B) of the Public Health Act provides that the qualifications of the said officer are the subject of consultation between the Minister of Health and the Minister of Local Government. However, Section 9(2) of Public Health Act provides that the Medical Officer of Health must be a medical practitioner.

The Medical Officer of Health is by virtue of Section 131(1) of the Local Government Act the Chief Medical Adviser to the NCC and for all matters relating to health for which the NCC is responsible. His duties include those conferred impose on or assigned to him by the NCC and the DMS under the Public Health Act. By necessary implication, when the Medical Officer of Health is performing the duties conferred or imposed on him by the NCC, he is answerable to the Town Clerk and the Chief Executive. When he is performing the duties assigned to him by the DMS, the Medical Officer of Health is directly answerable to the DMS although as a matter of procedure he must let the NCC know about such as assignment, what the NCC's

involvement will be and possibly the financial implications. The fact of making the NCC aware of assignments from the DMS is not provided for in any of the Acts but is a matter of practice and procedure so that if there is any financial implications, the NCC must approve the expenditure involved. This he does through the Public Health Committee which is the standing Committee dealing with health matters inter alia.

Pursuant to 145(i) of the Local Government Act 432 of the Public Health Act mentioned above, the NCC has established and is running 13 health centres, 14 dispensaries 32 clinics, one maternity hospital at Pumwani and nine maternity units satellites (of Pumanwi Maternity Hospital) which operate as part the the health centres. There is also one dental clinic, one Special Treatment Diseases Clinic and one Chest Clinic. Although Section 33 of the Public Health Act implies that local authorities may provide in-patient services in Nairobi, none of the dispensaries, health centres or clinics offer such services except the maternity services which are offered at Pumwani Hospital and its satellite units. The dispensaries, health centres, and clinics only offer out-patient services free of charge while the in-patient maternity services are offered at a fee. Section 33 of the Public Health Act however, implies that all health services provided should be at a fee except for paupers. The Minister of Health (MOH), as a matter of practice, reports to the NCC all cases of paupers who are unable to meet the fees for maintaining them at Pumwani or the maternity units and asks for authority for the waiver of the said fees.

The provision of the free health services in the dispensaries, health centres and clinics may be in keeping with the declared aim of the government to provide medical and hospital services, old age and disability benefits free as contained in the Sessional Paper of 1965.

As already stated, the NCC only offers in-patient services with respect to maternity services, which services seem to have landed on the shoulders of the NCC by accident rather than intention. The Pumwani Maternity Hospital, being the first institution at which the NCC offered in-patient services, was opened in 1926 by Lady Grigg, the wife of the Governor of Kenya Colony, under the name of African Maternity Hospital. On 1 March, 1944, the then Municipal Council for Nairobi took over the running of the same pursuant to Minute 4 of the Public Health Committee Meeting held on 6 December 1943. Currently the hospital is reputed to be the largest and busiest maternity hospital in Africa, South Sahara with the highest daily turnover of babies averaging 80-100 daily.

To ease the congestion at Pumwani the Council (now NCC) has, over the years, established more maternity units within its health centres. These units also offer ante-natal checkups. Those cases suspected of complications during deliveries are referred to Pumwani Hospital. They handle cases of expectant mothers who live in the immediate surrounding vicinity. Some expectant mothers prefer to go to Pumwani at the time of delivery even though they may have been going to other units for their ante-natal checkups. If they go to Pumwani Hospital they will be admitted there for delivery but sent to the units they were attending for recuperation. Complicated cases at Pumwani are also referred to Kenyatta National Hospital which serves as a referral hospital for the whole country. These cases would be medical or surgical cases where the services of a specialist are required or where there is need for intensive care.

Other services offered at Pumwani are Family Planning and School of Midwifery. The dispensaries offer out-patient curative services while the Health Centres offer both curative and preventive health services. The Chest Clinic specialises in the treatment of tuberculosis and other chest ailments. The Special Treatment and Skin Clinic specialises in treatment of sexually transmitted diseases as well as skin diseases. It is currently also serving as a referral and operations centre for the coordination and compilation of information on AIDS cases in Nairobi. There is also one Inoculation Centre in City Hall which gives vaccination services and Medical travel documents in accordance with the requirements laid down by the World Health Organisation.

The maternity services are offered on 24 hours basis while those in the health centres (excluding maternity) dispensaries and clinics as a matter of practice are only offered during the day excluding weekends and public holidays. However, sometimes in the early 1980's, the President directed the NCC to operate some dispensaries for 24 hours to assist residents who may need medical attention at night and find it too inconvenient to travel to Kenyatta National Hospital (KNH). As a result of these directives two dispensaries, one at Jericho and another in Nairobi, started operating on a 24 hour basis and recently some two other dispensaries have also started operating during weekends.

The operational details of Pumwani Maternity Hospital, as well as those of the dispensaries, health centres, and clinics, under the NCC are not provided for in either the two Acts under review nor in any By-law. The Public Health Act appears to be silent with respect to the provision of health services by private and missionary hospitals. However, the NCC has a By-law know as The Nairobi Municipality (Nursing Homes and Maternity Homes) By-laws 1950 (GN 21/1951) which was enacted under the Section 77 of the Municipalities Ordinance. It should be noted that the Municipalities Ordinance was replaced by the Local Government Regulations which in turn have been replaced by the Local Government Act. Section 77 corresponds to Section 210(1) which is the enabling Section with respect to the making of By-laws. The Minister for Local Government before approving any By-laws made by a Local Authority of health matters, must obtain the agreement of the MOH to the same.

In the above quoted By-laws, a "maternity home" is defined as:-

> "any premises used or intended to be used for the reception of pregnant women or of women immediately after childbirth and for their medical care and nursing but does not include any premises maintained or controlled by a government department or municipality"

A nursing home is defined as:

> "any premises used or intended to be used for the reception of and the provision of medical care and nursing for persons suffering from any sickness injury or infirmity and includes a maternity home but does not include premises maintained or controlled by a government department or municipalities"

KNH, with all its satellite units and the hospital and all the dispensaries, health centres and clinics, run by the NCC are not covered under these By-laws.

The By-laws provide that all the maternity and nursing homes operating within Nairobi must be licensed by the NCC annually. Before granting a licence on application to establish a nursing or maternity home, various factors have to be considered (e.g., situation, site, accommodation staffing, etc.) The Medical Officer of Health has power under the By-laws to enter and inspect such licensed premises or any other premises suspected to be used for the purpose of carrying on a nursing or maternity home. The By-laws also provide for cancellation of a licence where one has been issued and also what every licensed premises must provide and some of the records they must keep.

In conclusion, it should be pointed out that both the Local Government Act and the Public Health Act, being Acts of Parliament, cannot state that one is superior to the other although the Local Government Act became an Act much later than the Public Health Act. With respect to the duties of the Medical Officer of Health, it will be observed that his duties are mainly administrative as he has to coordinate all of the health service delivery systems, both by the NCC and other institutions in Nairobi. One recent development, however, appears to be causing a bit of confusion with respect to the status of the Medical Officer of Health. This post was created sometime in 1987 and it would appear that his terms of reference vis-a-vis the Medical Officer of Health have not been clearly defined. It has not been possible to obtain much information either verbally or otherwise on matters relating to this particular post. However, some verbal information gathered from the Ministry of Health indicate that his duties are to supervise the hospitals, health centres and clinics within the Province of the Nairobi Area and that the Medical Officer of Health is answerable to him. The matter seems to be a sensitive one and due to the confusion it is causing presently it is imperative that the legal framework with respect to that particular office be worked out in order to avoid a possible clash or duplication of some personnel duties with the office of MOH. It is being said that already some personnel seconded to the NCC are arguing that the NCC cannot discipline them because they are not employees of the same. That argument equally applies to employees of the NCC the MOH included who would refuse to be disciplined by the PMO they are not employees of the Ministry of Health. The establishment of this post may have been intended to take care of the 35 or so units which are being run by KNH before it became a parastatal and solely a referral. However, these powers now appear to be extended to cover all areas of public health with the argument that all the provinces have a PMO in charge of health services within the province and as Nairobi is a province, it should not be an exception.

From all that is contained in this report, it is clear that there is dire need to streamline some operational areas relating to the provision of health services and the need to clearly define how the duties of the MOH and PMO are related to each other.

APPENDIX K

BROKEN-DOWN EQUIPMENT
NAIROBI CITY COMMISSION - PUBLIC HEALTH DEPARTMENT

DIVISION 1

EQUIPMENT	NO.	ESTIMATED TOTAL COST (Kshs.)
Blood pressure machine	2	3,000
Sterilizer - Medium	2	17,000
Chest stethoscope	2	1,200
Filling cabinets	4	20,000
Cooking stove Gas with cylinder	1	4,000
Fridge	1	12,000
		57,200

DANDORA 1

Blood pressure machine	5	7,500
Sterilizer	3	23,500
Chest stethoscope	-	600
Heater	1	750
Fridge	1	12,000
		44,350

BAHATI MAT. UNIT

Blood pressure machine	1	1,500
Sterilizer	2	17,000
Chest stethoscope	1	600
Oxygen flourmeter	1	5,000
		24,100

MAKADARA HEALTH CENTRE

Blood pressure machine	2	3,000
Sterilizer	3	25,500
Chest stethoscope	1	600
		29,100

EASTLEIGH H/Q

Blood pressure machine	3	4,500
Chest stethoscope	1	600
Heater	1	750
Gas cooker	1	4,000
Electric kettle	1	4,000
		13,850

EQUIPMENT	NO.	ESTIMATED TOTAL COST (Kshs.)
KARIOBANGI HEALTH CENTRE		
Blood pressure machine	3	4,500
Chest stethoscope	1	600
Heater	1	750
Gas cooker Gas w/cylinder	1	4,000
Electric kettle	1	4,000
Dressing scissors	6	840
		14,690
MAKONGENI CLINIC		
Blood pressure machine	2	3,000
Sterilizer	1	8,500
		11,500
MBOTELA CLINIC		
Infant weighing scale	1	4,000
Blood pressure machine	2	3,000
Sterilizer	1	8,500
		15,500
JERICHO SUB HEALTH CENTRE		
Weighing scale (infant)	1	4,000
Blood pressure machine	4	6,000
Sterilizer	8	25,500
Stethoscope	3	1,800
		37,300
KASARANI DISPENSARY		
Adult weighing scale	1	14,000
Sterilizer	1	8,500
		22,500
LUNGA LUNGA DISPENSARY		
Blood pressure machine	1	1,500
Sterilizer	1	8,500
Chest stethoscope	1	600
		10,600

EQUIPMENT	NO.	ESTIMATED TOTAL COST (Kshs.)
KALOLENI SUB HEALTH CENTRE		
Blood pressure machine	4	6,000
Sterilizer	1	8,500
Chest stethoscope	2	1,200
Auroscope	2	1,600
		17,300
PUMWANI SUB HEALTH CENTRE		
Blood pressure machine	1	1,500
Sterilizer	2	17,000
		18,500
SOUTH "B" CLINIC		
Blood pressure machine	1	1,500
Stethoscope	1	600
		2,100
EMBAKASI HEALTH CENTRE		
Blood pressure machine	5	7,500
Filling cabinet	3	15,000
Ear syringe	1	800
		23,300
RUARAKA CLINIC		
Infant baby scale	1	4,000
Blood pressure machine	2	3,000
Filling cabinet	1	5,000
		12,000
EASTLEIGH LIONS CLINIC		
Adult scale	1	14,000
Infant scale	1	4,000
Blood pressure machine	2	3,000
Sterilizer	1	8,500
Chest stethoscope	1	600
Cooking stove Gas w/cylinder	2	8,000
Heater	1	750
		38,850

EQUIPMENT	NO.	ESTIMATED TOTAL COST (Kshs.)
PANGANI CLINIC		
Baby scale	1	4,000
Blood pressure machine	1	1,500
		5,500
MARINGO CLINIC		
Blood pressure machine	3	4,500
Chest stethoscope	1	600
Heater	1	750
Stove Gas w/cylinder	1	4,000
		9,850
OFAFA 1 CLINIC		
Blood pressure machine	3	4,500
Sterilizer	1	8,500
Heater	1	750
		13,750
MATHARE NORTH HEALTH CENTRE		
Blood pressure machine	1	1,500
Sterilizer	2	17,000
		18,500
HONO CRESCENT CLINIC		
Weighing scale	2	28,000
Blood pressure machine	2	3,000
Sterilizer	1	8,500
		39,500
POST & TELECOMMUNICATION CLINIC		
Weighing scale (infant)	1	4,000
Blood pressure machine	3	4,500
Sterilizer	1	8,500
Filling cabinet	1	5,000
Scissor	1	240
Electric cooker	1	4,000
		26,240

EQUIPMENT	NO.	ESTIMATED TOTAL COST (Kshs.)
BAHATI CLINIC		
Blood pressure machine	2	3,000
Sterilizer	2	17,000
Speculum	2	500
		20,500
KARIORKOR CLINIC		
Weighing scale	1	14,000
Blood pressure machine		1,500
Sterilizer	1	8,500
		24,000
BAHATI MATERNITY UNITS		
Blood pressure machine	2	3,000
Cooking stove Gas w/cylinder	1	4,000
Patients beds	24	480,000
Boiler electric	3	12,000
Vaginal speculum	3	2,400
Sterilizer	1	8,500
		509,900
BAHATI MATERNITY UNIT CONTINUED		
Sterilizer drums	4	4,800
Torch	1	200
Sponge holder	1	200
Portable oxygen	1	6,500
Urine testing glasses	3	630
Disecting forceps	3	360
Diagnostic sets	2	8,000
		20,690

EQUIPMENT	NO.	ESTIMATED TOTAL COST (Kshs.)
EASTLEIGH MATERNITY UNIT		
Food trolleys	2	8,000
Medicine trolleys	4	8,000
Patient beds	3	60,000
Pans	2	1,300
Screen stand	1	800
Suction pump	1	10,000
Sterilizer	1	8,500
Sterile drums	3	6,600
Blood pressure machines	6	9,000
Chest stethoscope	2	1,200
Portable light	1	2,000
Heater	1	750
Diagnostic set (for dispensary)	1	4,000
		120,150
Estimate Division I		**1,201,500**

NAIROBI CITY COMMISSION - PUBLIC HEALTH DEPARTMENT

DIVISION II

RIRUTA HEALTH CENTRE

Sterilisers	1	8,500
BP Machines (Syphignomanometer)	4	6,000
Ear Syringes	2	1,600
Angle Lamp	1	2,000
Diagnostic Set	1	4,000
Sponge Holding Forceps	2	200
Needle Holder	1	400
Long Altery Forceps	2	800
Filing cabinets	10	50,000
		73,500

LOWER KABETE DISPENSARY:

Sterilisers	1	8,500
BP Machines	1	1,500
Diagnostic Set	1	4,000
Oxygen Regulator	1	5,000
Needle Holder	1	400
Dressing Forceps	2	400
Filing cabinets	5	25,000
		44,800

HIGHRIDGE HEALTH CENTRE

BP Machines	2	3,000
Sterilizer	2	3,000
Filing Cabinets	2	10,000
		30,000

KANGEMI HEALTH CENTRE:

Sterilisers	2	25,500
BP Machines	5	7,500
Baby weighing scales (20kg)	1	4,000
Adult weighing scale	1	14,000
Oxygen Regulator	1	5,000
Filing cabinets	5	25,000
		81,000

NGONG ROAD DISPENSARY:

Sterilisers	3	25,500
Stethoscope (Bell & Diaphram)	2	1,200
BP Machines	2	3,000
Diagnostic sets	1	4,000
Filling cabinets	4	20,000
		53,700

WESTLANDS HEALTH CENTRE:

Sterilisers	5	42,500
BP Machines	8	12,000
Filing Cabinets	8	40,000
		94,500

KAREN HEALTH CENTRE

Sterilisers	2	17,000
BP Machines	4	6,000
Diagnostic sets	1	4,000
Stethoscope	2	1,200
Infant Weighing scales (20 kg)	1	4,000
Filing cabinets	13	65,000
		97,200

KAHAWA HEALTH CENTRE:

Sterilisers	3	25,500
Hot water heater	2	8,000
BP Machines	3	4,500
Baby weigh scale (20 kg)	1	4,000
Diagnostic set	1	4,000
Filing cabinets	13	65,000
		111,000

LAGOS ROAD CLINIC:

Sterilisers	1	8,500
BP Machine	1	1,500
Baby weighing scales (20 kg)	1	4,000
Adult weighing scale	1	14,000
Filing cabinet	1	5,000
		33,000

EQUIPMENT	NO.	ESTIMATED TOTAL COST (Kshs.)
JINNAH AVENUE CLINICS:		
Steriliser	1	8,500
BP Machines	2	3,000
Adult weighing scales	1	14,000
Stethoscopes	1	600
Filing cabinets	1	5,000
		31,100
NGARA AVENUE DISPENSARY		
Sterilisers	5	42,500
BP Machines	2	3,000
Refrigerator	1	12,000
Primus Stove Gas w/cylinder	1	4,000
Filing cabinets	12	60,000
		121,500
Estimate Division II		771,300
Estimate Division I		1,201,120
Total Estimate		1,972,420

APPENDIX L

GUIDELINES FOR PATIENTS REQUIRING DELIVERY AT PUMWANI MATERNITY HOSPITAL

1. Gravia five and above
2. All primigravida
3. Women with height less than 150 cms
4. Cases of malpresentations, e.g., face, brow, breech, shoulder compound
5. Cases of cephalopelvic disproportion
6. Multiple pregnancy
7. Previous caeserian sections or major operations on the uterus
8. Cases of toximiae of pregnancy
9. Cases of Antepartum hemorrhage
10. Bad obstetrical history, e.g., repeated abortions, still births and neo-natal deaths
11. Premature labour - less than 37 weeks
12. Cases who are overdue by more than 10 days
13. RH negative women
14. Previous third stage abnormality, e.g., P.P.H., retained placenta
15. Patients with major medical, surgical or gynecological conditions complicating pregnancy: e.g. heart disease, Diabetes, renal disease, Tuberculosis, gross anemia, previous abdominal operations. Fibroids, overian cysts, genito uninary fistula (repaired or not), carcinoma of cervic, tuboplasty operations
16. Congenital malformations such as hydrocephalus or anocephaly
17. Cases of Intra-Uterine death of the foetus 18. Cases of relative infertility.

If the cases are correctly booked by the various ante-natal clinics, very few cases need to be transferred from the hospital to the maternity units for delivery. However, if a case is wrongly booked for the hospital and is to be transferred to the maternity unit, she will be examined by the doctor on duty in the labour ward and certified fit for transfer. He is well advised to examine such cases thoroughly and to be certain that the condition of the mother and fetusnis satisfactory. He is also advised to do an internal examination to ensure that the patient is not in an advanced stage of labour.

APPENDIX M

AREAS FOR FURTHER RESEARCH

1. Unnecessary Utilisations: determine the level of referrals which are due to stockouts at the referring facility or other factors which can be remedied by management. Determine unnecessary patient-initiated utilisation (e.g., bandages, aspirin, etc.) and estimate the cost-effectiveness of different deterrents (e.g., fees, appointments, differential waiting times based on triaging, etc.).

2. Referral Systems: Operations research analysing distance, hours, frequency of referrals. Use to establish guidelines for referrals; provides background for the cost of inefficient referrals, such as referrals for drugs or services which should be available at referring facility. Cost implications of reorganising the referral system.

3. Fees and Payments: Development of pricing models; cost implications and income of various alternatives.

4. Alternative Financing: Costs and coverage of third party carriers. Possibilities of public purchase of policies for groups; HMO type arrangements.

5. Drug Supply System: Costs and benefits of central drug credit system, for purchase and distribution. Parastatal structure could provide services to both public and private sectors. Savings to consumers, public facilities, if stockouts could be eliminated.

6. Equipment and Supply: Through review of equipment purchase and maintenance/replacement, and efficiencies expected from changes. Supply logistics review and alteration. Costs versus savings from standardisation.

7. Investigation of private clinic practice to ascertain affects of expansion on competition and costs; increase understanding of CP vs. specialists clinic function regarding volume of services, profitability, constraints.

8. Refine/respecify demand function specifications to: improve elasticity estimate; integrate utilisation of private clinic practices; and traditional healers.

9. Estimation of cost functions (requires data collection activities from some facilities).

10. Estimate system wide costs from further analysis of cost of service and cost of facility.

11. Analyze consumer choice based on clusters of facilities in sample to provide additional insight on choice of facility and type provider.

12. Further analysis of patterns of utilisation between free services and facilities that charge.

13. Analyze patterns of utilisation according to characteristics of household head (e.g., gender may be an important factor).

14. Detailed study of the impact of shortage of medical equipment on the efficiency in the provision of health services.

15. A study leading to an objective and comprehensive criteria for levels and types of medical equipment for different types of health facilities.

16. Need for and possibilities of standardisation of equipment in both public and private health facilities.

17. Analysis of comparative costs and benefits of equipment maintenance though contractual arrangements with private firms and maintenance workshops run by various health providers.

18. A broad based study to facilitate development of comprehensive staffing norms which reflect actual work loads of various health facilities.

19. A study on the implications of increased development of ungraded staff for nursing and other duties in health facilities.

20. Appropriate measures to enable public health providers to recruit and retain adequate numbers of trained staff.

21. A detailed study of the effect of the short time taken for consultation on health care delivery and the relationships with drug utilisation, number of visits to health facilities for the same episode of illness, etc.

22. Referral patterns for mental patients.

23. Monitoring of stillbirths, neonatal and maternal deaths in health facilities offering maternity services, and development of data to facilitate routine comparison with similar facilities within and outside the country.

24. Prescribing practices and their implication on drug costs.

25. Possibilities of collaboration between modern health providers and traditional healers in areas such as mental health.

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NAIROBI AREA STUDY

VOLUME IV

EXECUTIVE SUMMARY

USAID/Nairobi

January 1989

Resources for Child Health Project

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NAIROBI AREA STUDY

VOLUME IV

EXECUTIVE SUMMARY

January, 1989

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ACRONYMS

ALOS	Average Length of Stay
AMOH	Assistant Minister of Health
BP	Blood Pressure
CYP	Couple Year Protection
DMO	District Medical Officers
DMS	Director of Medical Services
FIFO	First-In-First-Out
FP	Family Planning
GOK	Government of Kenya
GP	General Practitioner
GSU	General Services Unit
HCF	Health Care Financing
HIS	Health Information Section
JKIA	Jomo Kenyatta International Airport
KEN	Kenya Enrolled Nurse
KICC	Kenya International Conference Centre
KNH	Kenyatta National Hospital
KRN	Kenya Registered Nurse
MCH	Maternal and Child Health
MTC	Medical Training Centre
MOH	Ministry of Health
NAS	Nairobi Area Study
NCC	Nairobi City Commission
NGO	Non-government Organisation
PHC	Primary Health Care
PHD	Public Health Department
PMH	Pumwani Maternity Hospital
PMO	Provincial Medical Officer
PS	Permanent Secretary
STD	Sexually Transmitted Disease
USAID	United States Agency for International Development

1. INTRODUCTION AND STUDY BACKGROUND

The growing demand for health services, combined with declining real resources, places a high priority on strengthening the delivery of health services in Kenya. The Government of Kenya (GOK) recognises that more efficient and effective use of existing resources is required. For the Nairobi area, the revision in the legal status of Kenyatta National Hospital (KNH) and the changes it is undergoing to bring about improvements in efficiency and services must be balanced by efficiency improvements and changes of service patterns within the network of Nairobi Area health care providers.

Study Objectives and Outputs

The Health Financing Steering Committee of the Government of Kenya requested USAID assistance to identify problems in the existing health care delivery system of the Nairobi Area and to suggest options for government actions to improve the system. This request came about as a result of previous studies of Kenya's health delivery system. The KNH study, completed in February, 1988, investigated issues of efficiency, management, and health finance and identified constraints that need to be overcome in order to improve the quality of health services at KNH. The policy measures to be introduced as part of a restructuring of services at KNH raise issues of how the health needs of the Nairobi population will be satisfied and also generate interest in addressing problems of efficiency and health finance in other health service delivery facilities in Nairobi. USAID/Kenya called upon REACH (Resources for Child Health), a centrally funded project of USAID, to meet the Steering Committee's request. The goal of the assignment was to provide the Steering Committee with a set of practical and implementable options for government actions which would:

1) reduce the cost of producing the existing volume of services;
2) use resources more effectively; and
3) expand the capacity of both public and private health care delivery systems to respond to future levels of demand.

The present document is the Team's final report to the Steering Committee. It follows a baseline survey report (NAS Report Volume I) completed in May, a progress report submitted on 30 July 1988, and an interim report with potential options for actions based on preliminary findings and conclusions which was discussed with the Steering Committee report during a workshop on 6 August 1988. The discussions clarified the relative importance of the problems noted and tested the practicality and acceptability of many of the options. This final report identifies and substantiates prominent problems that reduce the effectiveness of delivery of health services to Nairobi residents. The report identifies areas for government action, suggests a set of options for each action area, provides an analysis of the strengths and weaknesses of the options, and illustrates steps that would be necessary for their implementation. Thus, this report can be used as a tool for decision making and as a guide to plan for implementation.

REACH and the Steering Committee developed the scope of work to guide the NAS Team's efforts. The scope of work had four parts:

1) overview of the Nairobi health care delivery system;
2) cost and utilisation of health service delivery;
3) efficiency improvement; and
4) policy, planning, and management of health services.

Study results in each of these areas were to provide the Steering Committee and the GOK with information for decision making. A general description of the scope of work is provided in Section 1.2 of Chapter 1 and the scope of work is included in Appendix A (NAS Report Volume II).

REACH began its work on 6 April 1988 under the guidance and direction of the Steering Committee. The first phase of the work focused on developing the overview of the Nairobi health facilities. This information, included in the Baseline Survey, was to provide the necessary basis for the full study team to design the investigation. To carry out the main assignment and develop options for GOK action with respect to the system of health service facilities, REACH assembled a multidisciplinary team of 22 professionals from Kenya, the United States, [Bd Great Britain (the REACH NAS Team). The Team began work on 27 June and completed the assignment on 30 September 1988.

The NAS Team designed and implemented the main study using a process which identified, classified, and prioritised problems. The Team sorted and assigned problem areas to one of the three task forces of the study:

1) cost and utilisation;
2) efficiency improvement; and
3) policy, planning, and management.

The identification of problems and causes, the prioritisation of problem areas, and the identification of data collection needs provided specificity to the broad terms of the scope of work and a blueprint for the study. The Team followed a systematic approach to develop further the blueprint and each task force used a multi-step process to produce its final output. This process is summarized in Chapter 1.

To select the outpatient and maternity facilities for study, the Team relied on a cluster sampling approach which is described in Chapter 1. The advantage of this approach is that by examining all facilities close to one another where a patient could, in principle, choose any one of the facilities in the cluster, the Team is able to learn information about consumer preferences for health facilities. The procedure resulted in three clusters:

1) nine facilities (five NCC and four private);
2) eight facilities (three NCC and five private); and
3) four facilities (one NCC and three private).

In addition, three facilities under the direction of the Provincial Medical Office (PMO) were randomly selected; one residential and one urban NCC dispensary and three facilities in Kassorani Division were also included. Pumwani Maternity Hospital, Mathare Mental Hospital, and

Kariobangi Pilot Mental Health Project are specialised facilities included at the request of the Steering Committee. Thus, the study included 20 percent of Nairobi's current health facilities. The outpatient facilities provided approximately one-third of the areas' services. The Team conducted over 3,300 interviews with clients, reviewed over 1,900 patient records, and interviewed over 200 facility personnel (administrative and executive officers). Appendix B provides the complete list of the 32 facilities that comprised the sample for this study.

The process of developing options for action to address the Nairobi Area health service delivery problems began during the fourth week of the study and helped focus the Team on the ultimate outputs of the study. A subgroup of the Team, which included the leaders of the Task Forces, met several times to identify preliminary options. The leaders worked with their group to modify and revise the options as data were analysed and conclusions were developed.

To provide a conceptual framework for relating problems to options, the Team grouped the three study areas (cost and utilisation, efficiency improvement, policy planning and management) and the problem areas into what it considered to be the essential dimensions of a health care delivery system:

1) demand;
2) supply;
3) organisation and structure; and
4) environmental context.

Options were organized under action areas within each of these four dimensions. This representation is based on the Team's view that modifications to all dimensions will be necessary to create an efficient and effective delivery system. Graphic representation and a full explanation of this conceptual framework is provided in Chapter 6.

2. OVERVIEW OF NAIROBI AREA HEALTH SERVICES

Nairobi is served by a total of 154 health facilities which are registered with the Ministry of Health. These facilities comprise hospitals, health centres, maternity units, nursing homes, dispensaries and clinics. They are operated by the Government of Kenya (GOK)/Ministry of Health (MOH), the Nairobi City Commission (NCC), by government parastatal organisations, and a variety of nongovernment providers. Fourteen of these facilities are hospitals with all but four offering a full range of inpatient and outpatient services. Pumwani Maternity Hospital provides maternity services only; Gertrude's Garden provides only pediatric services; the Spinal Injury Hospital and Mathari Mental Hospital offer specialised services as their names indicate. Of the remaining 140 facilities, 11 are nursing homes offering curative outpatient and limited inpatient services or maternity units offering only delivery services; 23 are health centres providing a full range of curative and preventive outpatient services; 77 are dispensaries providing only curative outpatient services; and 29 are clinics providing maternal, and child health care and/or family planning services.

The largest provider, in terms of number of facilities, is the NCC, followed by the GOK/MOH, whose facilities are managed by the Provincial Medical Office (PMO). The private sector provides one-fifth of the city's facilities. Religious organisations and missions account for 12 percent, followed by parastatals (6%) and non-government organisations (2%). This breakdown into six categories gives an impression of the number of service delivery points administered by the major providers.

Inpatient Services

There were over 4,915 hospital beds and over 144,467 inpatient admissions in 1987. These figures imply a 0.12 hospital admissions per Nairobi resident per year. The GOK and local government (NCC) institutions together operate over 80 percent of the beds and receive approximately 70 percent of the admissions.

KNH is the largest provider both in terms of number of beds and volume of admissions. Seven private hospitals together are the second largest provider of inpatient services. Four of the five GOK/MOH hospitals serve special groups or provide specialised services. Private nursing homes and maternity units provide nonspecialised inpatient and maternity services. The NCC operates only one hospital, Pumwani Maternity.

Outpatient Services

Outpatient services delivered by Nairobi health facilities are the main subject of this report. Seventy-one percent of facility based outpatient visits occur at NCC health centres, dispensaries, and clinics. Other providers, in order of volume of services, include KNH, private hospitals, government dispensaries, non-government and parastatal facilities, and other government hospitals. The volume of visits imply 3.5 outpatient visits per capita pre year for the Nairobi population. Evidence and findings related to delivery and utilisation of facility-based outpatient services are described in the main report.

3. COST AND UTILISATION: INTRODUCTION AND OVERVIEW

Wide gaps exist in the knowledge of health service costs and utilisation in Nairobi and have impeded sound analysis and understanding of this urban health system. While there is a body of literature on the Kenyan health sector, data on costs and utilisation of health services within the Nairobi area are limited. Factors which affect utilisation of health services in the city are not well documented. Relative costs in the public and private sectors, and factors affecting these differences have not been systematically analysed. Chapter 3 provides a point of departure for understanding the relationship between costs and demand for health services in Nairobi.

Patterns of utilisation of health services in Nairobi were studied to understand better what services are being utilised at what type of facilities, by what type of clients, and for what reasons. By understanding client characteristics, knowledge, attitudes, and behaviour, planners may make more informed policy decisions, and estimate the impact that changes in the health system will have on client behaviour. The analysis of utilisation patterns was based on data gathered from facilities on volume of services for 1987 and on a survey of facility clients. The client profile provides evidence that the sample was representative of the Nairobi population.

Fourteen percent of the households of clients at health facilities were identified as low income, according to the definitions provided by the Central Bureau of Statistics. Fifty-three percent were middle income and 32 percent were classified as upper income. More clients of NCC and PMO than non-government facilities fell into the low income group. A smaller percentage of the clients who pay for services was in the low income bracket, although the sample size of paying clients is small. There appears to be a higher proportion of high income clients and a lower proportion of middle income clients using preventive services compared with users of curative services. The equal proportion of low income clients using preventive services is encouraging since that group is often harder to reach with such services.

The reasons given by clients for visiting outpatient facilities where fees are charged differed from those reported by the entire sample. In six of the eight facilities, quality of care was the primary reason for choosing the facility. The most common reasons given for choice of facility were: proximity to house, quality of service, and referrals.

Different reasons for choosing a facility were also given by clients according to the type of service they were seeking. For preventive services, proximity to the house was even more important than for curative services. It was the main reason for facility choice for approximately 75 percent of the clients of preventive services. Quality of care was a more important reason in facility choice for curative clients than for clients of preventive services. Clients of curative services bypassed the nearest facility more often than clients of preventive services. The reasons given were: fees charged by the facilities, going to the facility from work instead of home, and poor drug supplies at the closer facility.

A considerable number of the clients surveyed initially sought assistance from a shopkeeper or pharmacy. Thirty-six percent of the malaria and fever clients first visited the pharmacy, while 27 percent of the clients with upper respiratory infections (URTI) and 13 percent of the joint pain clients did so. If those who applied other forms of self-treatment (including using drugs available in the home) were added to this group, it is discovered that over 40 percent of the malaria and fever clients initiated some form of self-treatment without a medical diagnosis. For the case of diarrhoea, where we might expect more self-treatment, the figure was only 20 percent. The principal ailments reported by the clients were: respiratory infection, joint pain/bodyache, malaria, and fever. For 40-50 percent of the clients, the first course of action of those who fall ill is visiting the health facility.

The Team examined the major problems and priority areas for improvement from the clients' perspective to identify areas of operations that might be improved in conjunction with the introduction of fees. For curative services, the three most important problems were waiting time, lack of courtesy among the staff, and poor drug supply.

Utilisation of maternity services is unevenly distributed both across public and private facilities, and within the public system. High occupancy rates are seen at the public referral hospitals, KNH and Pumwani. Kamiti Hospital has virtually no deliveries. Private hospitals had moderate to high occupancy rates. In general, the maternity and nursing homes had relatively low occupancy rates. The one exception was Alpha Maternity home. There is some evidence that these occupancy rates are related to the clients' perception of quality of care at the facility. At Alpha Maternity, which has a high occupancy rate, 80 percent of the clients rated the service "good". Park Road, with a low occupancy rate, had 33 percent of clients rate the service "good". Improvements in quality of care at private maternity and nursing homes could help raise occupancy rates. Occupancy rates at the NCC maternity units were consistently low and indicate substantial underutilisation of a critical resource. Quality was more important for the choice of maternity facility than for any other service. Efforts to shift utilisation from the referral facilities would have to focus on the referral process and on the perceived quality of care.

Volume of services data on preventive services were collected primarily at NCC facilities. Private facilities provide very few promotive services, and NCC provides the bulk of preventive care for Nairobi residents. In general, low rates of utilisation of preventive services were evident at the NCC facilities in the sample. Overall, the clinics experience the lowest volume of services. Volume of services is most evenly distributed across the three types of facilities for child health visits. Given how often the clients of preventive services mentioned the improvement of the drug supply at their facilities, there is some suggestion that the provision of integrated services at the clinics might help redistribute demand. Clients lack awareness of the services available at the facilities that they are currently using, which could also contribute to low utilisation.

Demand and Willingness to Pay

Several questions were included in the client survey to assess consumers' willingness to pay for health services. Among the curative clients seeking services at NCC or PMO facilities, 66 percent reported they had visited a facility that charges fees for service at some time. The reasons for visits to facilities which charge fees included: consultation for illness, drugs, maternity services, and laboratory or x-ray exams. Direct questions about client willingness to pay for a visit indicate that sixty-two percent were willing to pay to ensure better services at the facility where they were interviewed. Willingness to pay a fee for drugs and supplies showed a slight negative relationship with income.

Estimates of demand functions were attempted but the results are very tentative and would require further investigation. Equity issues need to be considered in conjunction with introducing user charges at facilities. While such consideration was beyond the scope of this study, the government must take them into account. Policies on cost sharing, however, apply to services other than health. It cannot be the task of the public health authorities to address the equity issues on their own. National policies are required regarding the mechanisms to be used to determine economic indigency and the type and amount of services these individuals will be entitled to without charge.

Private Doctor Sector

Private doctor's practice in Kenya consists of private medical doctors, operating alone or with one or more partners, on a full or part time basis. They provide curative outpatient services and ambulatory surgery in moderate clinics, and admission and treatment of patients in private hospitals. Although most of the doctors in private practice have worked for the MOH in the past, 78% work exclusively in private practice. Clinics are small, typically employing one to two persons and serving, on average, 360 patients per month. However, if these data reflect the entire population of 400 private clinics, the private sector may be serving up to 144,000 patients per month, an important source of care for Nairobi city residents.

Data on private doctors' practice in Nairobi were obtained from a questionnaire mailed to all of the 400 private doctors practicing in the area. While the response rate was low (16%) the experience of the 65 private doctors that returned completed information provides evidence of the importance of this sector as a source of health care services. Private clinic activities were quite small from 1942 through 1963. After independence, the sector expanded rapidly, an annual rate of 24% in the first decade (1964 - 1975) and 8% in the next.

Volume and Costs of Services

Of the 29 facilities in the main sample, data were collected from 20 which provide outpatient services. The remaining nine facilities either do not provide outpatient services or did not have service records available. These 20 facilities provided almost one and a half million patient visits

during 1987, inclusive of general curative outpatient and preventive/ promotive (ante-natal, child health and family planning) care. Of these outpatient visits 84.5 percent were for general curative care, and 15.5 percent were for preventive and promotive care. Public facilities generally provided a much higher volume of services, the mean volume per facility being four times higher for the public health centres, dispensaries, and clinics than for their counterparts in the private sector.

The NAS Team estimated a total of 4,614,358 outpatient visits in 1987 (excluding private physician's offices) or an average of 3.6 visits per capita per year (using the 1987 population estimate for Nairobi at 1,288,442). The sample of outpatient facilities for this study included 1,471,434 visits in 1987, representing perhaps 32 percent of the annual outpatient visits for the city.

Public facilities see five times more patients on the average than private facilities. Assuming that each staff person worked 249 days during the year eight hours per day, and 60 minutes per hour, the amount of time each clinical staff person would have per patient is approximately two minutes in the public facilities versus approximately seven minutes in the private facilities.

Sixty percent of patients had only one visit per illness. However, NCC facilities have a significantly higher utilisation for follow-up visits. Only one percent of patients at PMO and non-government facilities had more than two visits per illness episode, while 13.6 percent of all patients seen at NCC facilities returned more than two times. While drugs were prescribed or given out an average of 1.7 times per visit, it is evident that patients received very few laboratory examinations for confirming diagnoses.

URTI was the major reason for patient visits. These patients tended to be young. Of the 498 patients visiting for URTI, half were under five years of age and 65 percent were under 15. Malaria was the second major reason for patient visits overall, representing about 20 percent of the patients seen for the four main reasons. Only one in eleven (9%) patients with a diagnosis of malaria received a confirming diagnostic exam with their drugs. About 33 percent of all malaria patients received antibiotics in addition to malaria treatment, and two out of three received analgesics. Patients with diarrheal diseases show a similar pattern of few diagnostic exams and frequent drug intervention. One-half received antibiotics. There is no supportive laboratory evidence indicating that this treatment protocol was necessary. Many patient records indicate that multiple prescriptions are issued or administered which are not indicated by the diagnosis. Accidents represented 17.1 percent of patient visits for the four major diagnostic groups at outpatient facilities. Public facilities had higher percentages than the private facilities.

Chapter 3, Section 3.7 describes the methodology used to determine costs of services and facilities. The average cost of an outpatient visit (all costs excluding drugs) was estimated to be Kshs. 18, but per visit costs ranged between Kshs. 6 and Kshs. 70. Private facilities accounted for both the most costly and the least expensive visits. The average cost of an outpatient visit in a private facility was Kshs. 27 versus Kshs. 17 in a public facility. Of the public facilities, two of the PMO facilities which

provide outpatient care were the most expensive. Three of the four NCC facilities that are the most expensive to operate on a per visit basis offer only preventive/promotive services.

There is much unevenness in the prescription and consumption of drugs. Outpatient records indicate that facilities write an average of 1.7 prescriptions per outpatient visit (including visits which do not result in a prescription). Public facilities have less clinician and laboratory input per visit. Antihistamines and analgesics are the most commonly prescribed drugs, but there is also a strong tendency to provide multiple prescriptions without confirming diagnoses.

The various cost categories were expressed as percentages of total costs. On average, 69 percent of expenditures in NCC facilities are on drugs and 29 percent on staff. For non-government facilities, drugs account for 58 percent of total expenditures and staff absorb 32 percent. When all facilities are taken together, drugs account for 63 percent and staff 33 percent.

Average total costs per outpatient visit range from Kshs. 30 in NCC facilities to Kshs. 91 in non-government (or private) facilities. The average cost for all facilities taken together is Kshs. 39. The higher per visit costs of private facilities are a result of the higher staff wages and salaries paid by private facilities and the higher per visit drug costs resulting from the procurement of expensive drugs.

Costs of a preventive/promotive visit were calculated using the total cost of resources consumed or used during a visit. A child health visit reflects all medications consumed, rather than just vaccines consumed, during that visit. This cost analysis reveals a difference in cost between a general outpatient visit and a preventive/promotive outpatient visit. Facilities offering only MCH/FP services are more expensive per visit than are the integrated facilities. For three NCC facilities that offered both preventive/promotive and general outpatient services the costs of preventive services versus general outpatient services were estimated based upon allocation of staff and other fixed costs. The estimated cost of a general outpatient visit was about Kshs. 8.40 at these three facilities, compared to an estimated preventive visit averaging Kshs. 20.40.

The cost per normal delivery is closely related to the length of stay of the patient. From the available data, these costs ranged from Kshs. 436.20 at Ngara Health Center to Kshs. 689.53 at Bahati Health Center, with a normal delivery at Pumwani costing an average of Kshs. 629.29. The resource requirements implied by these cost estimates are projected in Section 3.8 of Chapter 3.

4. EFFICIENCY IMPROVEMENT

Operational efficiency in a system or an organisation implies achieving a specific objective without wasting resources. The degree to which the programme or system objectives are achieved can therefore be regarded as a measure of efficiency. To be efficient, the health delivery system must use available resources to obtain the most favourable or best outcome that can be achieved given various known constraints. Resources include fiscal, personnel, supply, equipment, and facilities used in the process of health delivery. The focus of this aspect of the study was to review and analyse the operational efficiency of health services delivery in Nairobi facilities and identify factors which contribute to inefficient resource use.

Training Health Management

According to senior administrators of the College of Health Professionals (the College), the time allocated for practicals is not adequate. The trainees require more exposure to the contemporary health problems they will be required to diagnose in the field. Medical Training Centre (MTC) administrators are also not satisfied with the current curriculum. The MTCs are not adequately equiped to handle the curriculum offered due to inadequacies of equipment, laboratory facilities, personnel, boarding facilities, library space and capital. Inadequacy of laboratory facilities is the major constraint. Underlying all these problems is the lack of funds allocated to the College for recurrent and development purposes. The shortage of funds has caused the discontinuance of some major courses such as Medical Engineering Technology, Electro Cardiography, Electro Encephalography and Community Oral Health. The College does not offer opportunities for post-basic training in pharmacy, dental technology, medical records technology, physiotherapy, orthopaedic technology, occupational therapy, diagnostic radiotherapy and community nutrition. This creates a problem for the health professional interested in continuing education and maintaining skill levels. Suitable post-graduate training opportunities for nurses are lacking in Kenya. The two year course offered in the School of Advanced Nursing in Nairobi University is too general.

The cost of health manpower production for Nairobi and the country as a whole varies among institutions. The public training institutions are financed mainly by the GOK and the NCC. Non-governmental training institutions are funded by agencies and specific institutions. The annual cost varied from Kshs. 12,400 per trainee in Pumwani Maternity Hospital School of Midwifery to Kshs. 260,000 in AMREF Training Centre. The cost of training per trainee was substantially higher in private sector training institutions than in the public training institutions.

Health Manpower Management

Evidence from the study shows that available personnel are often not utilised efficiently due to inadequate health manpower management. Factors that influence the ease or difficulty of obtaining and retaining personnel with desired skills and abilities include: inadequate monetary

remunerations, staff performing tasks they did not train for, performance of multiple roles, lack of continuing education programmes, intellectual stimulation and job satisfaction, benefits from training, appropriateness of the procedures and practices for selecting staff for training, performance evaluation, supervision, working environment, and medical coverage. About 55 percent of the staff surveyed had no post or in-service training. Between 14 and 31 percent of the respondents were performing various duties, besides their primary one, for which they were not trained.

Factors which lower staff morale and efficiency include: inappropriate training selection practices and procedures, lack of consistent techniques and criteria used for appraising personnel, lack of clear criteria for selecting and promoting personnel, lack of delegation of duties, and inexplicit policies and procedures regarding the lay-off and dismissal of personnel.

Forty-nine percent of the respondents felt that the existing procedures and practices in selection of staff for training were not appropriate. The problems in the mechanisms of recruiting staff for training were identified as favouritism, lack of information, low priority procedure for training, inadequate training facilities, and supervisors not recommending staff. Only 16 and 19 percent of the surveyed staff were evaluated monthly and 19 percent annually. About 29 percent of the staff had never been evaluated and 17 percent did not know whether they were ever evaluated. Only 37 percent of the respondents rated the staff performance appraisal system in their facility excellent or good and 36 percent rated it as fair, poor, or very poor.

Work pressure, shortage of staff, and lack of drugs play a major role in the determination of the quality of health care provided by Nairobi Area facilities. According to the measures used, private facilities tended to have a higher rating, followed by PMO and lastly by NCC.

The level of staffing in a facility is a crucial factor in the efficiency of its operations. Although attempts have been made in the past to formulate staffing norms, our investigation showed that there are still major weaknesses in establishing effective and objective staffing norms:

1) Existing staffing guidelines were mainly based on facility type and number of beds in a facility. Our findings show that the facility type and the number of beds in a facility were poor indicators of volume of service provided by a facility. There were many cases where dispensaries handled higher numbers of patients than a health centre. Similarly, there are cases where health centres handled higher numbers than hospitals. The numbers of patients treated by the same type of health facility varied greatly from one facility to the other depending on the location of the facility, services provided, and other factors.

2) The existing staffing guidelines are not properly understood. A large number of staff interviewed at Ministry of Health and at various health facilities were not aware of staffing guidelines. In order to implement the existing staffing guidelines, it is

essential to familiarise In-Charges of health facilities with the guidelines and the rationale or bases on which they are developed.

3) In-Charges who are aware of the existing staffing guidelines often do not observe them, especially in the public sector health facilities. This was largely due to shortages of trained health manpower or lack of resources to acquire the required staffing levels.

Seventy percent of NCC facilities experience serious problems in shortages of drugs and supplies. This situation appears to be a problem of Central Medical Stores since 60 percent of the facilities stated that they ordered drugs and supplies on a regular basis and 100 percent of the facilities stated they did not receive all the supplies and drugs they had ordered.

The Rural Health Drug Kit system being used by PMO facilities is a pre-packaged drug system that has either a Health Centre Kit with 39 items, or a Dispensary Kit with 31 items. To determine what drugs to include in each Kit, a study of rural morbidity patterns was conducted. Quantities are based on daily utilisation patterns of the facilities which were studied. The system was designed for rural health facilities and has not been redefined to address the demand of disease patterns in urban areas and sophistication in urban health facilities. This system has yet to be worked out to meet adequately drug requirements of Nairobi PMO facilities.

The Team found that many of the facilities ordered drugs and supplies in excess in order to offset this anticipated shortage. Over-ordering creates two problems: 1) it provides inaccurate information for central planning; and 2) it creates surpluses of underutilised drugs and supplies that consume storage space, are misplaced, and expire before they are used. Other problems associated with never receiving the items ordered relate to emergency purchases, procurement process, and budget planning. When items are required on an emergency basis, the justification for purchase normally supports the need to acquire the item immediately without proper negotiation to purchase the best quality at the lowest price. Most emergency purchases are acquired at prices higher than normal.

Another problem is that budgetary allocations are based on the cost of previous consumption. This planning does not account for the actual utilisation of drugs and supply but considers what was received during the previous fiscal year. NCC and PMO facilities stated they did not receive all the drugs and supplies requested. Thus drug and supply budgets may be understated. The overall budget process for NCC and PMO facilities is unclear. Most facilities stated they did not have budgets for supplies and drugs and ordered "as and when required" without knowing their financial limits or constraints.

Private facilities stated that they established supply needs based on inventory, minimum stock, and patient demand.

Physical Space and Service Allocation

About 42 percent of the facilities studied reported that they were constrained by inadequate physical space. This has negatively affected the quality and quantity of services provided. Those reporting inadequate space were evenly distributed among private, NCC, and PMO facilities. There is also evidence that a number of them had space which was either unused or was not used in the best way possible. Of the facilities studied, 27 percent reported that there were rooms which were not used at all. The number of unused rooms ranged from one to six. NCC had the majority of facilities with unused rooms. One of the areas of underutilisation of the existing physical facilities is demonstrated by the low bed occupancy rates of some inpatient facilities with maternity beds.

Equipment Maintenance and Utilisation

The inefficiencies related to the shortage of this equipment are numerous. In some instances patients have to be referred to another facility because they cannot be treated; in others, the doctor is unable to complete a diagnosis or treatment because equipment is not available or instruments are not sterilised. The Team could not accurately estimate the cost of personnel and facility inefficiencies given the limited time of this study, but the team estimated the cost of replacement equipment for the NCC to be Kshs. 1,972,420.

Areas identified as serious maintenance problems relate to obtaining spares, funds, and regular service. The areas identified as functioning well were: maintenance staff support, regular service, obtaining spares, and funds. These apparent inconsistencies are due to differences between public and private facilities. The 53 percent responding that adequate service was functioning well were all from private facilities in the survey. The 40 percent responding that adequate service was a problem were all from NCC and PMO facilities.

Many facilities use equipment without servicing until it breaks down. Of the surveyed facilities, 86 percent have never had a preventive maintenance plan or had checks done on the equipment in their facility and 61 percent did not have preventive maintenance guidelines and procedures. This lack of preventive maintenance was noted at all the NCC and PMO facilities surveyed.

Mental Health Services

Mental illness is currently a major problem not only in Nairobi, but in the whole country. It is estimated that 30 percent of people attending health facilities in the country suffer from some form of mental illness, with many of them going largely unrecognized and receiving inappropriate treatment. There are 2,500 to 3,000 mental inpatients in mental health facilities on any given day. Primary health care programmes have not yet integrated mental health effectively.

From the survey data and interviews with senior staff the following were identified as constraints to efficient operations:

1) The decision making authority was too limited. The In-Charge of the hospital made staff decisions mainly with respect to subordinate staff.

2) Decisions affecting senior Medical Personnel were normally handled by the Ministry of Health. This weakens the disciplinary mechanism, with some staff at the hospital bypassing the In-Charge and dealing with the Ministry of Health head office directly.

3) The hospital is constrained by inadequate maintenance of equipment and buildings. The hospital has no maintenance workshop, although the Ministry of Works has a shed in the compound for repair of water taps, electricity system, doors, etc. Poor maintenance of equipment was largely attributed to unavailability of spare parts and shortage of funds.

4) The hospital's allocation of funds for development expenditure was inadequate.

5) Shortage of diagnostic equipment, drugs, supplies, laboratory supplies and transport also constrained the operations of the hospital.

The Mental Pilot Project, located at Kariobanga Health Centre, has been experiencing problems including shortages of: manpower, drugs, means of transport, accommodation facilities, and day care facilities. There is also lack of psychiatric knowledge in the general health workers of NCC, and general public ignorance about the needs of mentally ill people. According to the staff involved in the Pilot Project, its main achievements to date are:

1) Improving the attitude of the public toward the mental patients in the catchment area.
2) Establishing a mechanism to diagnose mental cases in the early stages.
3) Providing a model for delivering an integrated package of health services.

Pumwani Maternity Hospital

Pumwani Hospital is heavily congested due to the underutilisation of the NCC maternity units and the relative high cost of maternity services in the private health facilities. However, congestion is only one of the factors that has contributed to the low standard of services offered at Pumwani hospital. From reviews of the Annual Reports of the hospital and through interviews with the In-Charge of the hospital the following problems were identified: overcrowding of patients, shortage of doctors, shortage of nursing staff, shortage of supplies and equipment, lack of spare parts, delay in repair of equipment, inadequate transport, leaking roofs, damaged furniture and fittings, and breakdowns in telephone services. The overcrowding is illustrated by the fact that the hospital

had an average bed occupancy rate of 107 percent for the period January through March 1988. Activity observations at the hospital showed that patients often shared beds.

Transport

Lack of or inadequate transport (both ambulances and cars) is generally regarded by In-Charges of facilities as the most serious constraint in the provision of health care in the city. The transport problem can be attributed to an inadequate supply of transport facilities, poor maintenance of the existing vehicles, and inefficient management and utilisation of vehicles available.

5. POLICY, PLANNING, AND MANAGEMENT

Organisational and Legal Structure for Nairobi Area Health Services

Chapter 5, Section 5.1 describes the organisational structure for the major providers of health services in Nairobi according to the administrative lines of authority by which they are controlled and the laws which govern the provision of health services.

Nairobi Area health providers at the facility level are not well aware of the overall administrative structure and the duties which guide supervision. The In-Charges of facilities interviewed were unanimous in their view that there should be a "body which takes a coordinating role for all health providers in Nairobi, public and private."

Based on the evidence and findings from interviews with the In-Charges and executive officers, it appears that a suitable structure and mechanisms for the coordination of the health systems in Nairobi have not yet been established. The rural Provincial model cannot work without establishing districts within Nairobi. To date, there have been no clear guidelines from the Ministry of Health to public and private providers clarifying the role and functions of the PMO. In the short term, the Provincial Medical Office needs to consolidate and develop a workplan for its own operations before taking on the supervision of the whole city. The Public Health Department should reorganise some of its own operational structures so that the functions requiring coordination are identified and focused.

Inspections, Licensing, and Monitoring

From activity observations at facilities and interactive interviews with the facility In-Charges, the NAS team found that there is lack of discipline amongst the professionals. Doctors are known to report to work late, be intoxicated, and fail to report when on call. At Pumwani Maternity Hospital, patients were observed to be left alone while in labour, and sometimes to deliver without the help of the medical or nursing staff. The process of disciplining or deregistering the indisciplined doctors is long, and mechanisms for monitoring the activities of doctors at work are not clearly laid down. In spite of the very lengthy and detailed procedure for taking disciplinary action against a doctor, there are no clear guidelines on reporting procedures. Cases of indisciplined doctors have been reported within organisations through informal channels, without any disciplinary action being taken.

The Team observed instances in public and private health centres and dispensaries where septic techniques for dressing wounds were carried out either by patient attendants or by nurses. No forceps were used and the dressings were not sterile. In laboratories, the staff did not use gloves when drawing blood from the patients. Given the large numbers of health institutions and private clinics in Nairobi, there is a need to intensify inspections and monitoring of nursing. The Team also was informed of nurses who had been trained informally on the job and given the white

uniforms and duties of trained nurses. However, one constraint is that only the Provincial Matron is authorised by the Council to carry out the inspections and give reports to the Council.

None of the private facilities visited by the NAS Team were reporting any diseases to the MOH/NCC, the Provincial Medical Office, or to Ministry of Health headquarters.

The NAS Team observed that in all of the NCC facilities surveyed, drugs were dispensed by enrolled nurses, whereas in five out of 11 private facilities, drugs were dispensed by unqualified staff such as ungraded nurses or a secretary. In government facilities, pharmaceutical technologists and technicians were in post. In a number of instances, the drugs were dispensed in unlabeled bottles and the patients were not given clear verbal instructions on how to take the drug. The observers heard instructions such as "take these tablets at night but you can also take them in the day time".

The major constraints associated with inspections for licensing are include the following:

1) Acute shortage of staff in the Inspectorate Department. The Department has posted two members to the PMO in Nairobi, but considering the number of pharmacies in Nairobi, there is not enough staff to cover the workload.

2) Inspections are being carried out by several teams. The PMO team and the Drug Inspectorate team from Afya House are both carrying out inspections. Currently these teams are not coordinated and are responding to DMS and Nursing Council directives to carry out inspections. It is the prerogative of the DMS in his capacity, as an ex-officio member of all the Boards and as the professional head in the Ministry of Health, to assign the duties of carrying out inspections to any team that he believes will perform such duties in the best way. The DMS is currently delegating to the PMO team, although the responsibility for inspections have not been removed from the Public Health Department of NCC officially.

   The officials of the Nursing Council cannot carry out all the inspections in Nairobi because they also inspect institutions which conduct nursing training and the syllabuses used for such training. The staff are few in number and very busy. If the Provincial Matron were to devote full time to inspecting registration details and nursing procedures, it would take over four months for her to cover the 141 non-hospital facilities in Nairobi. To inspect the hospital staff would take another three and a half months, making a total of almost eight months full-time work. At the present rate of inspection (two or three facilities, one morning per week), the Provincial Medical Office would require several years to cover the city. The time allowed by their schedule is only sufficient to spend seven to eight minutes inspecting the registration and procedures of all nursing staff and does not constitute an adequate inspection.

3) There is no coordination of activities between the Public Health Department inspectors, the PMO inspectors, and the Drug Inspectorate Department. The inspections are mainly based on requests by people who wish to be registered or who wish to make complaints.

Management Practices

The planning process in the PMO did not produce a document describing expected activities and their costs or operational workplan. Due to the absence of District Health Management Teams trained in planning and management practices, the PMO is currently limited in its ability and orientation, and inadequately prepared to manage and coordinate city-wide planning for health services. The Public Health Department of the NCC has no specific planning unit. The task of planning appears to be interpreted as applying to development budgets which are prepared in another department. At NCC, specific plans for primary health care seem to depend substantially upon donor initiative. The concept of making plans to increase the efficiency of existing resources for routine services was absent.

The absence of data on catchment populations for facilities makes it difficult for staff or their supervisors to monitor and evaluate vital aspects of performance such as coverage for preventive services, congestion, and workload for curative services.

Workload was perceived as the principle criterion for setting staff norms. However, output of patients per staff in NCC and PMO facilities is not calculated, monitored, or evaluated. When asked how often the norms were reviewed, 60 percent of In-Charges did not know; another 20 percent said that the norms had never been revised. In private facilities, two In-Charges said norms were revised annually, and three said they were updated as needed. The findings on staffing norms indicate that although one-quarter of facility In-Charges provided information on personnel for the budgetary process, they were not aware how this information was used. Many In-Charges did not know who was responsible for altering staff norms when the norms were revised, or what criteria were used. These factors imply that the staff responsible for day-to-day management of the facilities have no "target" workloads which they can use to assess their actual staff workload (patients per staff). Thus, they lack a standard which they could use in presenting a case for altering the number of staff.

Only one-third of the sampled facilities received regular supervisory visits. The most frequent answer was that the supervisor "dropped in", or was "passing by". More frequent supervision was suggested as the best way to improve supervision. However, the In-Charges seem to extend their superintendents' informal style to their own supervisory approach. The majority meet staff when the need arises, and two-thirds talk to their staff informally. Only one-third of the In-Charges hold regular meetings with their staff.

Procedural problems with the current procurement process include the following:

1) In spite of the lengthy process designed to prevent funds being spent on expensive choices, the NCC procurement process fails to take quality into account when procuring equipment. The NAS Team found a room full of 20 brand new sterilisers that had blown up the first time they were plugged in and blood pressure machines which did not work.

2) In NCC, administrative staff decided whether to seek technical advice on items of equipment and those who will use equipment are not automatically included in the procurement discussions.

3) In NCC, the ability of suppliers to provide technical backup, even of the most basic spare parts (such as a light bulb for a microscope), is not taken into consideration. The result has been that when a piece of equipment breaks, the "middle-man" type of supplier is unable to do anything to solve the problem. These problems result because the organisation which has many diverse functions and does not understand the special quality requirements of medical equipment. The PHD's problems arising from the procurement of substandard equipment could be avoided if the procurement process included a Technical Evaluation Committee, as established in the Ministry of Health.

4) In NCC it is the responsibility of the Section User who requested the equipment to check on its quality before accepting it. This task is delegated to a member of the Technical Evaluation Committee in the Ministry of Health. Thus the people checking for quality before accepting the delivery are the same people as were involved in the evaluation of the tenders.

5) Neither of the public procurement procedures give enough attention to service contracts or the supply of standard spare parts. By contrast, private providers typically have service contracts to cover the maintenance of their equipment. This is only done for a very limited number of items (e.g., oxygen cylinders) in the public sectors.

6) The public sector tendering processes do not take into consideration the economic cost of tardy or incomplete deliveries. The record of the supplies on this matter should be taken into consideration.

Information System

One of the main features of Nairobi Health Information System is that the quality of output, in terms of accuracy, timeliness, and completeness, reduces its usefulness to those who would use the data to improve health service delivery. The data collection systems do not provide a mechanism for accuracy checks. Data are handled by staff who may not be adequately trained to detect users. At all NCC facilities surveyed, staff with no

formal training in data processing are responsible for data collection. The results of this situation are reports containing different figures for the same phenomenon.

The usefulness of data is further reduced by the absence of specific details (i.e., NCC returns do not have outpatient disease patterns). Private facilities do not provide reports as a routine (important areas are left out). Thus, it is a difficult task to obtain an overall understanding of the health situation in the city due to incompleteness of data. The delay between collection of data and making data available for use poses many problems. The Ministry of Health is most affected with time lags of up to one year.

Referrals

The In-Charges of the surveyed facilities were asked whether they had ever been given policy guidelines on what kinds of cases they should refer. The findings were include the following:

1) All of the NCC facilities knew of policy guidelines for referral of maternity cases to Pumwani Maternity Hospital.

2) The PMO facilities had guidelines on procedures, for referring acute and "cold " cases.

3) Only one of the private facilities said they had policy guidelines for referral of maternity cases to Pumwani.

The general reaction to the question of written referral guidelines on where cases should be sent was that the clinical staff knew where to refer patients with specific problems. When asked about guidelines on the kinds of referred cases that the facility was expected to treat, the In-Charge said that they attended to whatever patients were referred to them to the extent possible, but no written guidelines were produced. When asked what factors were important when deciding where a patient should be referred, half of the surveyed In-Charges said that established referral guidelines were not at all important, while one-quarter said they were very important. The most important factor in deciding where to send a patient was the kind of institution to which the patient was being referred. This reinforces the In-Charges' belief that clinical staff know what to do.

6. INTEGRATED OPTIONS

The NAS Team has identified a number of factors and problems that limit the effectiveness of available resources in delivering health care services to Nairobi residents. Our conceptual framework for relating identified problems to potential options for action is represented in Figure 1 on the next page. It relates the problem areas associated with cost and utilisation, efficiency, and policy, planning, and management issues to the essential dimensions of the care delivery system:

- Demand
- Supply
- Organisation Structure
- External Environmental Factors

Actions in each of first three dimensions are necessary to create an efficient health delivery system that effectively balances the supply of and demand for health services.

The portion of the figure labeled current summarizes major problems identified by the Team. In the representation of the current environment, we suggest that the balance between demand exceeds supply is a result of:

1) absence of an institutional entity or mechanism with well-defined responsibilities and authority for centralised policy guidance, planning, and coordination of existing resources for the Nairobi Area;

2) low resource mobilisation;

3) low productivity in resource use and increasing costs;

4) management practices to encourage efficiency and effective capacity utilisation no being part of daily operations of provider organisations;

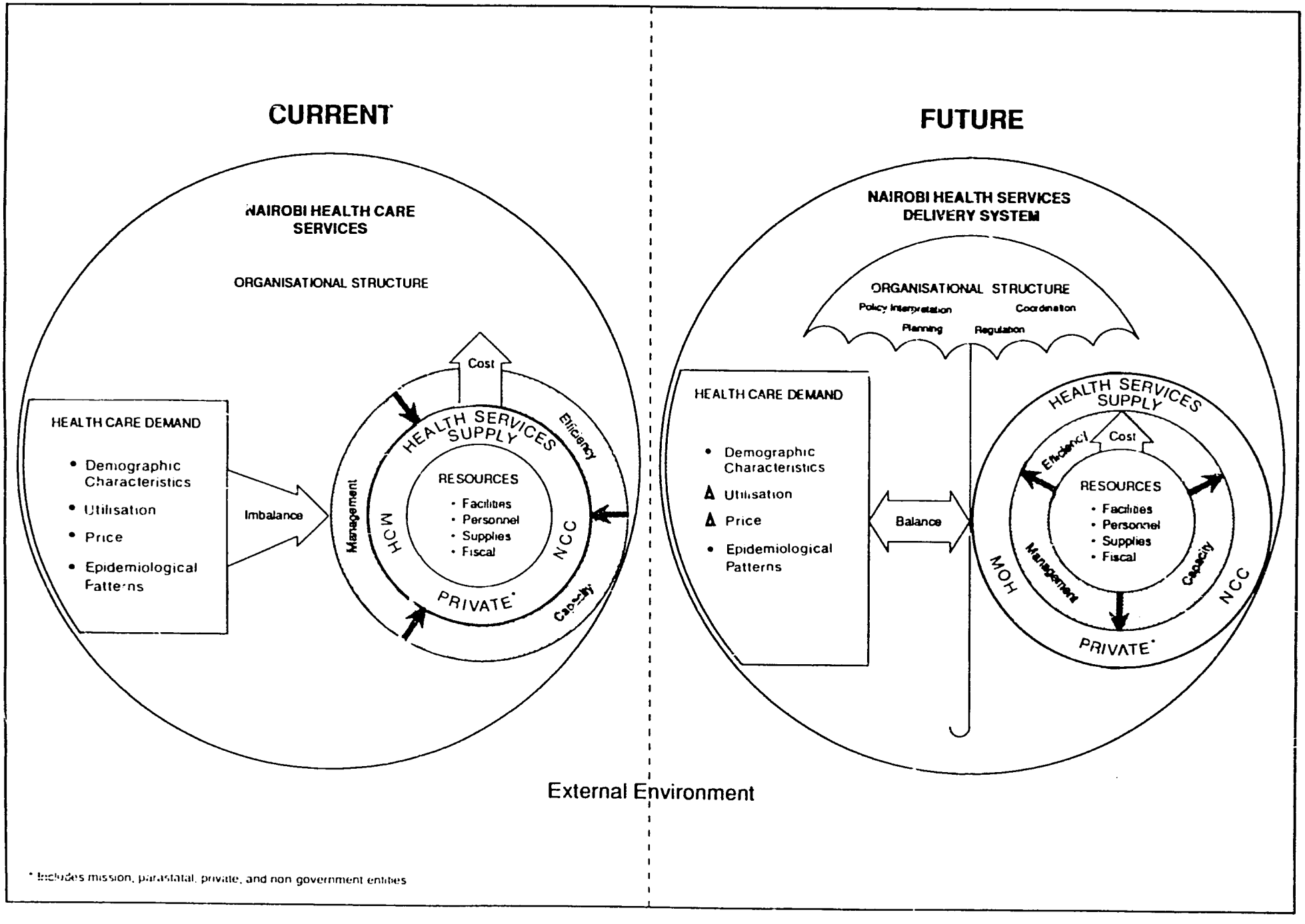
5) absence of policies to limit excessive demand and encourage appropriate utilisation of services; and

6) free care and rationing of service delivery through non-price mechanisms.

These conditions lead to limited access to health care services for the Nairobi population and escalating costs of service delivery.

Nairobi Area Study

FRAMEWORK FOR DEVELOPING OPTIONS FOR IMPROVING HEALTH CARE DELIVERY IN THE NAIROBI AREA



* Includes mission, parastatal, private, and non government entities

This representation of the current environment is contrasted by a proposed model for a Nairobi Health Care Delivery System whose central features include:

- an organisational entity that has responsibility, accountability, and authority for policy interpretation, planning, coordination, and regulatory functions;
- cost containment and productivity increases;
- appropriate management practices, efficiency guidelines, improved capacity utilisation, and policy guidance;
- use of resource mobilisation strategies which include non-zero prices (user fees) for services; and
- incentive/disincentive policies which encourage appropriate consumer utilisation of services.

Options from the foregoing chapters are organized under action areas within each of the four dimensions of the health care delivery system. For each action area, one or more options may be selected. The options are not necessarily designed to be mutually exclusive, but we indicate the instances where selection of one option precludes selection of another.

Implementation of two or more options may be more effective in providing the desired result than any one option alone would be.

6.1 DEMAND

The areas for action identified within the demand dimension of the health service delivery system focus on altering the utilisation and consumption patterns of the Nairobi population. Chapter 3 identified problems of inappropriate utilisation in five service and programmatic areas:

- General Outpatient
- Curative Services
- Drugs
- MCP/FP Clinics
- Maternity Services
- Mental Health Services

Inappropriate consumer utilisation results in excessive demand in some facilities and service areas and underuse of others. This situation represents a major cost burden for the public sector.

The options suggested in each of the five action areas provide policy tools that decision makers can use to limit excessive demand, encourage appropriate utilisation, curb system costs, and generate revenues. The strengths and weakness of each option and an illustrative list of steps for their implementation are delineated so as to provide decision makers with further information for setting priorities and selecting courses of action.

The options presented in each of the action areas for drugs, curative, maternity, and mental health services are complementary to each other. No option impedes or negates the effects of the others but rather offers separate potential benefits. Any or all of the options for each of these action areas can be implemented together.

Some of the options for the action area in MCH/FP clinics are mutually exclusive. The option to integrate MCH/FP clinics into full service health centers would not be implemented if the options to provide outreach services at MCH/FP clinics or to provide these services through private doctors offices were chosen. The other options, however, can all be considered complementary. Table 6.1 summarises the impact and implementation requirements of the options for affecting demand.

TABLE 6.1

SUMMARY OF IMPLEMENTATION REQUIREMENTS AND IMPACT FOR DEMAND OPTIONS

OPTIONS	TIME FRAME	REVENUE IMPACT	FISCAL/COST IMPACT	EASE OF IMPLEMENTATION	RESEARCH NEEDED
1. CURATIVE SERVICES (Action Area #1)					
1.1 Fees	med	+	-	med	med
1.2 Referral	short	0	+	high	lo
1.3 Public Education	med	0	-/+	high	med
2. DRUGS (Action Area #2)					
2.1 Educational Programs	med	0	-/+	high	lo
2.2 Fees	short	++	-	med	lo
2.3 Change Prescribing Practice	med	0	+	med	med
3. MCH/FP CLINICS (Action Area #3)					
3.1 Public Education	med	0	+/-	high	lo
3.2 Fee Discounts	short	-	+	med	med
3.3 Integrate/close	med	-	+	med	lo
3.4 Use Private MDs	med	0	-	med	lo
3.5 Preventative Outreach	med	0	-	med	lo
3.6 Appointment System	short	0	+	high	lo
4. MATERNITY SERVICES (Action Area #4)					
4.1 Referraal	short	0	+	high	lo
4.2 Higher Fees for Hospital Delivery	short	+	0	high	lo
4.3 Higher Fees for Unreferred Delivery	short	+	0	high	lo
5. MENTAL HEALTH SERVICES (Action Area #5)					
5.1 Release Patients	med	0	+	med	med
5.2 Mental Health in Health Centres	med	0	-	lo	med
5.3 Public Education	med	0	-	med	lo

Key: + = Increases
- = Decreases
0 = Neutral

ACTION AREA 1: APPROPRIATE CONSUMER UTILIZATION OF CURATIVE SERVICES

OPTIONS	STRENGTHS/WEAKNESSES	IMPLEMENTATION STEPS
1. Implement Charges for Selected Services to Reduce Trivial or Excessive Demand and to Encourage Appropriate Utilisation	Strengths - Provides disincentive to consumers of services who have no real medical need - Places burden for paying for misuse on the consumer - Generates revenue Weaknesses - May discriminate against the poor - Requires fee collection mechanisms, with associated administrative costs - Requires accounting and control system with associated costs	- Analyse utilisation patterns of specific services - Determine services and level of fees to reduce excessive demand - Test effects on demand through operations research - Establish procedures for exempting payment or applying sliding scale for medically indigent
2. Establish and Enforce Appropriate Referral Mechanisms	Strengths - Provides mechanisms for managing utilisation of services, which leads to more cost-effective resource use - Reduces congestion Weaknesses - Requires a functioning information system for facilities to receive and send appropriate referrals - Requires strong enforcement mechanisms	- Establish criteria for referral - Develop referral guidelines based on criteria - Establish mechanisms for enforcement
3. Develop and Implement a Public Education Programme Informing Consumers About What Services are Offered at Each Facility and Appropriate Self Care Measures	Strengths - Encourages utilisation at facilities which are currently underutilised - Reduces inappropriate demands on the delivery system and thereby reduces costs Weaknesses - Involves additional costs - Difficult to assess or measure impact or benefits	- Identify facilities currently underutilised - Study current self-treatment practises - Develop self-care protocols/recommended practises - Develop public information messages on what facilities are available and when to utilise - Collaborate with pharmaceutical providers to ensure consistency in public messages and advertisements

ACTION AREA 2: APPROPRIATE CONSUMER UTILIZATION OF DRUGS

OPTIONS	STRENGTHS/WEAKNESSES	IMPLEMENTATION STEPS
1. Develop and Implement Education Programs Directed to Consumers and Providers on the need to Reduce Over-Prescribing Practices for Pharmaceuticals	Strengths - Contributes to improved quality of care - Reduces expenditures on pharmaceuticals Weaknesses - Provides no mechanism for enforcement - Difficult to asses impact - Involves additicnal costs	- Identify provider-consumer drug utilisation practises - Identify appropriate education forums and develop them for consumer/providers - Implement the education programmes - Develop programmes to inform pharmaceutical providers on appropriate drug therapy and application.
2. Introduce Charges for all Pharmaceuticals	Strengths - Raises revenue - Places burden for cost on those who are consuming the most - Creates accountability - Supplies of pharmaceuticals can be maintained and shortages reduced or eliminated Weaknesses - Requires accounting, control systems associated with administrative costs; may discourage utilisation at times when drug therapy would be appropriate, especially among the poor	- Conduct a thorough review of drug inventories - Establish drug procurement costs - Establish fee schedules, based on recovery targets or percentage of replacement costs - Set up an accounting and fee collection system - Identify those drugs or diagnoses for which drugs would be provided free (i.e., those in the interest of the public health, such as STD, TB, etc.) and/or patients to be exempted from payment - Test effects through operations research
3. Apply Strict Guidelines for Confirming Diagnoses Before Prescribing	Strengths - Supports general control processes, and improves medical practises - Provides objective processes for evaluation and/or enforcement - Addresses drug utilisation at the point of prescription Weaknesses - Involves audit and enforcement costs - Providers could resist and/or undermine imposition of outside review process	- Establish standard prescribing practises based on medical protocols - Review and revise legal restrictions concerning prescribing and provision of drugs by pharmacies - Disseminate guidelines and criteria - Identify organisational body to enforce guidelines - Establish peer review mechanisms - Develop and implement audits and enforcement mechanisms

ACTION AREA 3: IMPROVE LEVELS OF UTILISATION AT MCH/FP CLINICS

OPTIONS	STRENGTHS/WEAKNESSES	IMPLEMENTATION STEPS
1. Develop and Implement Public Education Programs to Promote Preventive Services	Strengths - Approaches problem of under-utilisation from the demand side and improves levels of MCH/FP - Encourages utilisation at facilities which are currently underutilised - Contributes to a reduction of preventable diseases and to reduced costs for curative services - Contributes to increasing family planning acceptors Weaknesses - Difficult to determine cost-effectiveness of education programmes - Additional costs associated with media and education programmes	- Identify those facilities and services which are underutilised - Develop public information messages on what facilities are available and when to utilise - Implement programme and test effects
2. Establish Fee Discounts (or Other Incentives for Curative Services Among Those Who Use Preventive Services	Strengths - Encourages use of preventive and promotive services - Would become more cost-effective in the long run Weaknesses - Discriminates among service users and could cause confusion - Depends on the success of other actions	- Estimate the volume of services requiring discounts - Estimate the number of users who will be entitled to discounts - Decide upon levels of discounts - Experiment using operations research
3. Integrate MCH/FP Services Into Full Service Facilities; Close Low Volume MCH/FP Clinics	Strengths - Increases volume of services and productivity at currently underutilised clinics - Perception of quality of services may be enhanced - Reduces average cost of preventive/promotive visit Weaknesses - Integration of services may imply increased cost	- Develop criteria for determining low volume facilities to close - Identify MCH/FP facilities to be integrated - Determine resource needs - Establish time frame for beginning new services - Educate the public - Experiment using operations research

ACTION AREA 3: IMPROVE LEVELS OF UTILISATION AT MCH/FP CLINICS
(Continued)

OPTIONS	STRENGTHS/WEAKNESSES	IMPLEMENTATION STEPS
4. Establish Systems to Provide Some MCH/FP Services (e.g. Immunisations) Through Private Offices (e.g. Pay Doctors to Immunise Particular Groups, Provide Free Commodities)	Strengths - Would expand the network of private physicians' offices - Establishes a pattern of increased utilisation of private physicians which may reduce burden on public providers Weaknesses - Requires private doctors to follow reporting mechanisms to evaluate population coverage - Lack of confidence in government reimbursement may discourage private providers	- Determine costs for delivering MCH/FP services through private doctor's clinics - Determine basis for reimbursement - Enlist private providers - Educate the public - Test through operations research
5. Provide Preventive Services on an Outreach Basis	Strengths - Provides services to population groups which would not be reached - Increases output or productivity of staff which is currently underutilized - Increases utilisation of preventive services and contributes to a reduction of curative care costs - Contributes to increasing family planning acceptors Weaknesses - Requires transportation for outreach staff, mobile cold storage, and other inputs - Requires additional training for staff - Depends on staff motivation - Difficult to supervise and monitor - May be more costly	- Identify clinics in needy areas with low utilisation levels - Identify and ensure that adequate transportation can be made available for outreach workers in accord with planned schedule of service - Define specific services to be provided through outreach programmes - Train staff in outreach health services - Acquire necessary inputs - Implement in phases and test through operations research
6. Develop Appointment System for Antenatal Care and Child Health Services	Strengths - Reduces waiting time for clients - Allows more time with each client Weaknesses - Difficult to enforce appointments - Requires more organisation and planning by the staff - Discourages attendance for those clients unable to keep designated appointments	- Review present allocation of staff time for carrying out preventive services - Review current patterns of demand for preventive services - Develop an appointment system - Implement incentives for keeping appointments/disincentives for missing missing appointments - Evaluate effect on demand and on quality of services provided

ACTION AREA 4: APPROPRIATE CONSUMER UTILISATION OF MATERNITY SERVICES

OPTIONS	STRENGTHS/WEAKNESSES	IMPLEMENTATION STEPS
1. Establish and Enforce Appropriate Referral and Transport Procedures and Mechanisms at Pumwani Hospital	Strengths - Reduces unreferred deliveries and congestion - Encourages appropriate utilisation at health centres Weaknesses - Referral guidelines are difficult to develop and enforce	- Conduct preliminary analysis of referral system - Develop referral guidelines - Notify all facilities in Nairobi of new guidelines - Implement enforcement mechanisms
2. Charge Higher Fees for Hospital Deliveries	Strengths - Brings fees more in line with actual cost of delivery - Generates additional revenues - Encourages appropriate utilisation of health centres (redistributes demand) - Reduces overload at Pumwani Maternity, allowing better quality of care Weaknesses - Sections of the population could be left out of the specialised services available at Pumwani Hospital - Higher fees at Pumwani would increase financial burden of women with high-risk/ complicated pregnancy - Increases burden for medically indigent - Investment costs may be necessary to improve services at health centres	- Determine what improvements need to be made at health centres - Make improvements at health centres - Develop fee structure based on detailed cost analysis - Determine exemptions or sliding scale for poor patients - Develop scheme for allowing access to specialised services for poor patients
3. Charge Higher Fees for Unreferred Hospital Deliveries	Strengths - Generates revenue - Does not discriminate against high risk cases - Shifts normal deliveries to lower level facilities - Provides an incentive to seek ante-natal care in order to obtain a referral Weaknesses - May induce some portion of high risk women to avoid hospital care if not referred - Encourages abuse in referral process - Complicates administration and accountability regarding fees	- Establish costs for referred and non-referred patients - Improve transport back-up at health centres prior to implementation of new fee schedule - Publicize fee schedule at all health facilities

ACTION AREA 5: IMPROVE UTILISATION OF MENTAL HEALTH SERVICES

OPTIONS	STRENGTHS/WEAKNESSES	IMPLEMENTATION STEPS
1. Introduce Mental Health Service in All the Health Centres; Revise Criteria for Inpatient Treatment; Release Appropriate Patients to Outpatient Care	Strengths - Early identification of mental cases at the healthy centre and dispensary level is likely to reduce the overall cost (which could have been used in long-treatment of advanced mental cases - Provides staff in the field for short psychiatric courses - Cost savings will be realised by reducing admissions to Mathari Mental Hospital Weaknesses - May be an expensive venture since drugs, equipment for diagnosis, and psychiatric manpower would be required - Social costs, as a certain number inevitability "fall through the cracks"	- Post psychiatric nurses or other technical health personnel to various dispensaries and health centres - Provide all of the facilities with mental illness drugs - Revise criteria for admission and discharge
2. Develop and Implement a Public Education Programme to Improve Understanding of Mental Illness	Strengths - Would provide more awareness on the part of the population to recognize symptoms of mental illness and needs of the mentally ill - May reduce inappropriate utilisation of health facilities by the mentally ill Weaknesses - Costs associated with public education campaigns - Insufficient data to predict impact of campaigns - Lack of existing facilities/trained staff to treat meet increased demand	- Identify appropriate public information messages on mental illness - Develop and disseminate messages in Nairobi and nation-wide

6.3 SUPPLY

The areas for action identified within the supply dimension of the health service delivery system focus on altering both the resource base and the use of resources for delivering health services. Chapter 4 identified the problem of low productivity and inefficiency in resource use. For ease of presentation and discussion, the action areas addressing the causes of these problems are organised into strategic issues and programmatic areas.

Strategic issues encompass four action areas related to resource mobilisation and use:

- Revenues
- Facilities and Services
- Personnel
- Supplies

Programmatic areas include:

- Drug Management
- Maternity Services
- MCH/FP Services
- Mental Health Services
- Central Administration

The options suggested in each of the action areas of the two domains provide tools to decision makers to improve efficiency, reduce costs, and generate revenues.

The strengths and weaknesses of each option and an illustrative list of steps for implementation are delineated so as to provide decision makers with further information for setting priorities and selecting courses of action. The implementation requirements and impact of the strategic issues are summarised in Table 6.2 and the programmatic issues are summarised in Table 6.3.

Strategic Issues

a) Revenues (Action Area #1)

Increasing the financial resources for health care delivery is a priority. The effectiveness of cost containment programmes and the effects of improved managerial operations can slow the rate of cost increases. Nevertheless, costs will continue to rise as the population grows, and as the transition to chronic disease patterns, which are more costly, take place. The options discussed are complementary. All could be implemented without negating the effects of others. Implementation of more than one option will provide a broader and more stable financial resource base for the health sector.

b) Facilities and Services (Action Area #2, 3)

Adjustments in existing facilities and services can extend the current capacity of the health delivery system. The strategic issues which must be addressed include which services to offer in what facilities during what hours of operation, and what facilities to close or upgrade. The options discussed in these action areas are not mutually exclusive. All could be implemented without negating the benefits of others.

c) Personnel (Action Area #4, 5, 6)

Staffing a facility is a critical factor in determining the efficiency of its operations and the quality of care it delivers. Personnel expenditures represent the single most costly resource in the health facility's budget. The strategic issues which must be considered include what work norms to use, how to allocate, evaluate, and reward staff, what sort of training is needed, and how private providers should be utilised. The options in this action area can be implemented so that they complement each other.

d) Supplies (Action Area #7, 8, 9)

The strategic issues with respect to transport services and maintenance of physical resources are who should provide them and how can they be obtained most efficiently. Options for transport and maintenance of physical facilities include mutually exclusive options. The clinics are to contract with private establishments to wholly undertake work or to develop the improved mechanisms within the public sector to handle these activities.

TABLE 6.2

SUMMARY OF IMPLEMENTATION REQUIREMENTS AND IMPACT FOR STRATEGIC SUPPLY OPTIONS

OPTIONS	TIME FRAME	REVENUE IMPACT	FISCAL/COST IMPACT	EASE OF IMPLEMENTATION	RESEARCH NEEDED
1. REVENUES (Action Area #1)					
1.1 Fees	med	+	-	med	med
1.2 Use Private Doctors	med	0	-	med	lo
1.3 Expand Third Party Payment	lo	+	+/-	lo	high
1.4 Employer Legislation	med	+	0	med	lo
1.5 Increase Tax	med	+	0	med	lo
2. FACILITIES AND SERVICES (Action Area #2,3)					
2.1 Plan Facility Expansion	med	0	-	med	med
2.2 Adjust Facility Operations	short	0	0	high	lo
2.3 Appointment System	short	0	+	high	lo
2.4 Close HCF/FP Facilities	med	-	+	med	lo
3. PERSONNEL (Action Area #4,5,6)					
3.1 Staff Norms/Volume of Services	med	0	0	med	med
3.2 Staff Norms/ Productivity	med	0	+	med	med
3.3 Part Time Appointments	short	0	-	high	lo
3.4 Share Personnel	short	0	0	med	lo
3.5 Fees for Salaries	med	+	0	med	lo
3.6 Promotion on Performance	med	0	-	med	lo
3.7 Job description	med	0	0	med	lo
3.8 Bonus	short	0	-	high	lo
3.9 Deploy in Area of Training	med	0	-	med	lo
3.10 Train Managers	lo	0	-	lo	lo
3.11 Increase Discipline/authority	short	0	0	med	lo

Key: + = Increases
- = Decreases
0 = Neutral

TABLE 6.2

SUMMARY OF IMPLEMENTATION REQUIREMENTS AND IMPACT FOR STRATEGIC SUPPLY OPTIONS
(continued)

4. SUPPLIES (Action Area #7,8,9)					
4.1 Improve, maintain and repair mechanisms	med	0	-	med	lo
4.2 Export transportation	med	0	-	lo	lo
4.3 Central transportation ervice	med	0	-/+	med	med
4.4 Private transit service	med	0	-/+	med	med
4.5 Central dispatch for emergencies	med	0/+	-/+	med	med
4.6 Coordinated emergency transport	short	0	-/+	lo	lo
4.7 NGO emergency transport	short	0	+	high	lo
4.8 Private Contract	short	0	+	med	lo
4.9 Coordinate Purchases	med	0	-/+	lo	med
4.10 Preventive maintenance	med	0	+	lo	lo

Key: + = Increases
- = Decreases
0 = Neutral

ACTION AREA 1: INCREASE FINANCIAL RESOURCES

OPTIONS	STRENGTHS/WEAKNESSES	IMPLEMENTATION STEPS
1. Introduce/ Increase Fees to Generate Revenues (With Priority on Areas Such as Curative Visits, X-rays, Lab Tests, & Drugs)	Strengths - Requires consumers to bear part of cost of services - Encourages utilisation only when necessary (e.g., reduces excessive utilisation) - Fees can be adjusted to generate whatever proportion of expenditures decision makers determine is necessary - Fees can be applied differentially to encourage consumption of certain services (e.g. preventive services, confirming diagnoses) and to discourage others (e.g. over-prescribing) - Fees can be applied differentially to encourage utilisation of some facilities and to discourage utilisation of others (i.e. to reduce congestion or under-utilisation) Weaknesses - Politically sensitive - Requires a system of financial account-accountability and money management at the facility level - May burdens the medically indigent - May discourage utilisation in cases where access to care should not be delayed, as in STD or in diseases which become more severe with time (e.g. malaria)	- Determine criteria for setting fees - Set up fee schedules - Establish criteria and mechanisms for sliding scales for medically indigent (not necessarily the burden of Ministry of Health - requires a national policy) - Establish accounting and fee collection systems - Evaluate impact on utilisation
2. Increase Incentives for Not-For-Profit Providers to Expand Services (e.g. Provide Staff, Subsidies and Land); Consider Incentives to Other Private Providers to Expand Services	Strengths - Increases access to services - No direct administrative burden - Relieves public sector burden - Evens distribution of services in underserved areas Weaknesses - Costs could be high - Some providers could misuse the subsidies	- In-charges of private facilities should meet with PMO, NCC & MOH personal to determine the willingness to provide services - Experiment with operations research programme

ACTION AREA 1: INCREASE FINANCIAL RESOURCES
(continued)

OPTIONS	STRENGTHS/WEAKNESSES	IMPLEMENTATION STEPS
3. Expand Third Party Payments (e.g. Employer Payments for Health Services, Insurance Coverage)	Strengths - Expands financial resources - Third party payment mechanisms would create greater incentive for financial management and accountability - Encourages the development of new channels of providing services, such as group pre-payment - Assists in the development of health insurance industry Weaknesses - Health insurance is not well developed in Nairobi - Mistrust exists between providers and third party carriers - Third party coverage is currently tied to other kinds of insurance - Requires discussion with political authorities opposed to private profit from public health - Low level of consumer education	- Open dialogue with insurance companies and employers to identify common goals and potential benefits - Determine relative cost/benefit of private third party mechanisms versus other mechanisms - Support operations research
4. Implement Mechanisms/ Incentives/ Legislation For Employers to Share in the Burden of Providing Health Care Services for Employees	Strengths - Increases financial resources for health - Reduces cost and utilisation in public sector - Reduces time away from work - Creates incentives for employers to promote safe work places Weaknesses - Increases the cost of labour - May increase financial burden for marginally productive enterprises - May create incentives for employers to reduce number of employees - Difficult to standardise or regulate	- Review present employment-based health schemes - Identify incentives for employment based coverage - Review existing legislation and regulations; amend to provide more coverage

ACTION AREA 1: INCREASE FINANCIAL RESOURCES
(continued)

OPTIONS	STRENGTHS/WEAKNESSES	IMPLEMENTATION STEPS
5. Increase The Taxation Authority of Local Government to Collect More Tax Money	Strengths - Administrative system is already in place - Places heavier burden on the employed sector, does not tax the poor - Retains responsibility for provision of health services in the hands of the local government Weaknesses - Politically sensitive - Tax burden may not be easily sustained - Existing inefficiencies of the system would be perpetuated	- Determine needed level of tax increases - Submit to parliament for review - Implement adjusted levels

ACTION AREA 2: EXTEND CAPACITY OF CURRENT FACILITIES/SERVICES

OPTIONS	STRENGTHS/WEAKNESSES	IMPLEMENTATION STEPS
1. Use Planning Capability to Determine Future Expansion of Present Facilities & Locations of Future Facilities, Schedules, and Services	Strengths - Avoids growth of congested facilities without room for expansion - Ensures essential function/service (e.g. keeping medical records, running laboratory or X-ray services) undertaken when appropriate with adjusted physical space - Reduces duplication of facilities/services Weaknesses - Cannot be done for some existing facilities - Land/space may not be available to meet the requirements - May be difficult to accurately forecast future expansion needs of the facilities - In the short-run, facilities may keep a lot of underutilised space	- Establish adequately equipped and staffed planning departments or have the capacity to hire planners to undertake the planning function - Provide broad guidelines on location and space requirements for health facilities at different levels (e.g. dispensaries, health centres, hospitals, etc.) - Determine criterion for establishing new facility location
2. Adjust Operations of Facilities: Open Residential Facilities in Evenings; Avail All Services When Facility is Open: Establish Convenient Locations and Schedules for Promotive Services; Share/Rotate Staff	Strengths - Improves efficiency in the provision of health services without requiring additional facilities - Reduces congestion in some facilities and idle capacity in others - Increases productivity/reduces cost Weaknesses - May be difficult to restructure functions of some of the facilities, especially where there is one or few facilities in an area - Requires additional financial/personnel resources	- Analyse volume of service data by type and category of facility - Develop criteria for identifying low volume services/facilities - Establish capability to monitor and adjust services - Use operations research to test alternatives

ACTION AREA 2: EXTEND CAPACITY OF CURRENT FACILITIES/SERVICES
(continued)

OPTIONS	STRENGTHS/WEAKNESSES	IMPLEMENTATION STEPS
3. **Use Appointment System & Hours Of Service To Relieve Congestion and Underutilisation**	Strengths - Reduces waiting time for clients - Allows more time with each client Weaknesses - Difficult to enforce appointments - Requires more organisation and planning on the part of the staff - Discourages attendance for those clients unable to keep designated appointments	- Review present allocation of staff time for carrying out preventive services - Review current patterns of demand for preventive services - Develop an appointment system - Identify incentives for keeping appointments/dis incentives for missing appointments - Evaluate effect on demand and on quality of services provided
4. **Provide Integrated Services (Preventive, Promotive, Curative) In All Facilities**	Strengths - Increases cost-effectiveness of preventive/promotive clinics (i e. increases utilisation relative to staff - Increases access through increased avail-availability and convenience to all outpatient services - Increased utilisation of preventive services may be associated with utilisatio.. of general outpatient services - Perception of quality may be enhanced Weaknesses - Involves additional costs - May contribute to unnecessary demand	- Identify additional costs which will be incurred - Identify any excess capacity in the current system - Conduct sensitivity/operational analyses to identify priority locations - Idendify staff within system which can be reallocated - Implement in phases with evaluation at each stage - Publicise changes
5. **Reduce Operations In Underutilised Services/ Facilities and Reallocate Work Assignments of Staff**	Strengths - Staff will be reassigned to other facilities which are congested - More utilisation of available staff - Improve quality of services because funds will be allocated to open facilities - Reduces congestion and costs Weaknesses - Will put pressure on staffing requirements due to the off-duty given to staff who work at night - Requires transport for staff to facilities	- Establish a committee to review the volume of service at facilities and staffing needs - Establish criteria for underutilisation - Determine which facilities should be closed or turned into 24-hour facilities - Reallocate/reassign staff

ACTION AREA 3: ACHIEVE SCALE ECONOMIES FOR FACILITIES/SERVICES

OPTIONS	STRENGTHS/WEAKNESSES	IMPLEMENTATION STEPS
1. Close Low Volume MCH/FP Clinics and Transfer Services to Higher Volume Clinics	Strengths - Increases productivity/reduces costs Weaknesses - May reduce promotive/preventive services and utilisation	- Provide broad guidelines on location space, staffing requirements for health facilities at different levels in relation to volume of services provided - Develop criteria for determining low volume facilities to close - Establish time for closing - Educate the public
2. Institute Curative Services in MCH/FP Clinics	Strengths - Improves the utilisation of the existing capacity - Convenient for clients who also need curative services Weaknesses - May be difficult to structure functions of some of the facilities - Some of the clinics have limited space/room - Could reduce MCH/FP utilisation due to long waiting time and curative patients	- Initiate detailed and accurate data collection on volume of services - Form a committee to develop guidelines on how to implement the option
3. Provide Free Space to Private Doctors in MCH/FP Clinics to Deliver Curative Outpatient Services to MCH/FP Clients for a Fee; Coordinate Hours of Services for MCH/FP to Coincide With Doctors Hours for Curative Outpatient Services	Strengths - Increases volume of services at low cost - Improves utilisation of available space - Transfers some burden of curative services to private practitioners Weaknesses - Could be politically difficult - Private doctors may not be interested	- Establish committee to study the matter and determine feasibility - Experiment through operations research

ACTION AREA 4: APPROPRIATE STAFF NORMS

OPTIONS	STRENGTHS/WEAKNESSES	IMPLEMENTATION STEPS
1. Develop and Implement Staffing Norms Based On Volume of Services Criteria	Strengths - Reduces overstaffing and under-staffing of facilities - Improves the quality of services offered - Reduces unnecessary personnel expenses - Facilities hire the right type and mix of staff - Raises worker productivity Weaknesses - Review may take time - Staff resistance	- Establish work load and staffing norms for all areas (consider existing studies on nursing) - Use the norms to adjust staffing (upward or downward, in all facilities. (Increases or decreases in established posts should be based on the application of the norms to projected demand for services.) - Review norms annually and revise when necessary
2. Develop and Implement Staffing Norms to Reflect Productivity By Type of Activity	Strengths - Reduces overstaffing and under-staffing of facilities - Improves the quality of services offered - Reduces unnecessary personnel expenses - Facilitates the hiring of the right type and mix of staff - Improves efficiency Weaknesses - Staff resistance	- Develop productivity norms - Use the modified norms and projected demand to justify proposed adjustments in established post posts - Review the norms annually and revise as necessary

ACTION AREA 5: STAFF ALLOCATIONS

1. Part-time Appointments for Doctors at NCC Facilities	Strengths - Reduces the shortages of doctors at NCC facilities - Improves patients' perception of quality of services - Improves discipline of the doctors under part-time contracts - Strengthens the link between private and public health services - Strengthens the link between private and public health services Weaknesses - Private doctors may not be interested - Requires financial resources	- Establish the number of doctor hours required for the facilities - Establish contractual guidelines - Advertise for interested doctors to apply for consideration by the committee
2. Strengthen or Introduce Mechanisms for Sharing Available Personnel Across and Among NCC & PMO Facilities	Strengths - Reduces the existing acute shortage of some staff cadres - Improves efficiency in utilisation of available staff - Does not require a lot of additional resources - Increases cooperation between NCC and PMO Weaknesses - May be hindered by poor transport systems - May be difficult to get the required level of cooperation between NCC and PMO - Staff resistance	- Establish joint committee comprising NCC and PMO officials - Develop criteria for releasing/posting personnel to another facility - Improve transport system - Test through operations research
3. Introduce Risk-Sharing Revenue Programme in NCC and PMO Facilities to Provide Resources for Improving Salaries & Other Terms of Service to Enable Public Providers to Hire and Retain Qualified Health Personnel	Strengths - Reduces the burden on public finances - Helps to improve the quality of service - Improves morale of the staff - Reduces demand for health services Weaknesses - Reduces access of medical care for low income groups - May be politically difficult	- Analyse utilisation patterns of specific services - Identify services and level of fees to reduce excessive demand - Experiment on the effects on demand through operations research

ACTION AREA 5: STAFF ALLOCATIONS
(continued)

OPTIONS	STRENGTHS/WEAKNESSES	IMPLEMENTATION STEPS
4. Promote Staff Based on Regular Appraisal of Performance	Strengths - Encourages higher work productivity - Raises staff morale - Improves quality of health services - Does not require additional resources Weaknesses - May take some time to develop effective appraisal mechanism	- Develop and implement staff work load standards, staffing norms - Design comprehensive staff performance appraisal mechanism which incorporates all essential aspects of the workplace and relies on objective rather than subjective judgement

ACTION AREA 6: MANAGEMENT OF HUMAN RESOURCES IN NCC AND PMO

OPTIONS	STRENGTHS/WEAKNESSES	IMPLEMENTATION STEPS
1. Develop and Implement Job Description for Executive, Supervisory and In-charge Personnel	Strengths - Identifies job responsibility in management & performance of facilities - Identifies job reporting relationships - Provides managers with an understanding of job skills and qualifications - Reduces employee job confusion - Provides criteria for developing a career path for managers - Increases employee morale, efficiency, and productivity Weaknesses - May be expensive to develop - May be subjective to input of person writing the description - Requires coordination and development of detailed & comprehensive job descriptions	- Appoint committee to develop job descriptions for senior management positions and In-charge personnel - Guidelines for job description should include: minimum qualifications minimum skill requirements experience and training duties of position responsibilities of position reporting relationship promotion schedule performance evaluation criteria - Establish time frame for implementation of job description criteria
2. Develop and Implement Promotion Criteria Based on Performance	Strengths - Rewards employees who are productive, efficient, and loyal - Increases facility efficiency and productivity - Provides a career development path for outstanding employees - Increases employee morale, efficiency, effectiveness, and productivity Weaknesses - Promotions may continue to be subjective to the input of person writing the appraisal and recommendation for promotion	- Appoint a personnel committee to develop performance criteria - Identify all cadres of staff - Determine if performance and/or promotion criteria exist - Develop performance evaluation criteria - Design staff appraisal report & guidelines for evaluation - Forward staff appraisal report guidelines to NCC and PMO for comment and approval - Conduct workshops to train managers, supervisors, In-charges in the performance evaluation guidelines - Implement performance evaluation guidelines

ACTION AREA 6: MANAGEMENT OF HUMAN RESOURCES IN NCC AND PMO
(continued)

OPTIONS	STRENGTHS/WEAKNESSES	IMPLEMENTATION STEPS
3. **Reward Outstanding Performance With Bonuses, Public Recognition, Awards, etc.**	Strengths - Rewards employees who are productive and efficient - Increases facility efficiency and productivity - Increases employee morale, efficiency, effectiveness and productivity Weaknesses - Rewards may be subjective to the input of person writing the appraisal and recommendation for reward - Requires additional financial resources	- Appoint a personnel committee to develop performance criteria - Identify all cadres of staff - Determine if performance and/or promotion criteria exist - Develop performance evaluation criteria - Design staff appraisal report and guidelines for for evaluation - Forward staff appraisal report guidelines to NCC and PMO for comment and approval - Conduct workshops to train managers, supervisors In-charges in the performance evaluation guidelines - Implement performance evaluation guidelines
4. **Deploy Personnel Only In Area of Training**	Strengths - Increases productivity - Increases morale - Increases ability to retain staff Weaknesses - Requires financial resources - May not be feasible given acute personnel shortages	- Develop and implement schemes of service
5. **Assign Personnel Who Have Relevant Managerial Training to Plan, Manage, and Administer Facilities**	Strengths - Improves supervision at facility level and productivity - Releases technical staff from administrative duties to offer medical services Weaknesses - Creates dissatisfaction among those who currently hold administrative posts - Inadequate number of trained administrators	- Identify personnel who have relevant management training - Identify priority posts that require management expertise - Develop timeframe for reassignment

ACTION AREA 6: MANAGEMENT OF HUMAN RESOURCES IN ECC AND PMO
(continued)

OPTIONS	STRENGTHS/WEAKNESSES	IMPLEMENTATION STEPS
6. Train Staff Who Are Currently Assigned Administrative Duties in Relevant Managerial and Planning Skills	Strengths - Improves management, staff relations, & the working environment - Enables In-charges to carry out their administrative duties confidently - Increases production Weaknesses - Leaves the technical personnel tied up in administrative duties - May not be feasible because In-charges have to leave their facilities too long to undertake training - Costs will be incurred	- Health care In-charge should meet with heads of training facilities to identify training needs - Develop criteria to train personnel - Cost should be shared by participants
7. Increase the Powers of In-charges to Discipline and Reward All Personnel	Strengths - Gives the In-charge an upper hand to instill discipline among their subordinate and technical staff - Enables the In-charges to motivate their staff through positive reinforcement - Increases staff productivity Weaknesses - Concentrates power with In-charges - May lead to victimisation of the staff	- Decentralise the disciplinary powers of Disciplinary Committee - Deal with recommended cases expeditiously - Give In-charges some powers to reward staff with exemplary performance

ACTION AREA 7: TRANSPORT

OPTIONS	STRENGTHS/WEAKNESSES	IMPLEMENTATION STEPS
1. Improve Mechanisms For the Maintenance and Repair of Available Public Vehicles	Strengths - Less expensive way of reducing the transport constraints in the city - Requires relatively less foreign exchange to implement - Enables health providers to increase transport facilities gradually given generally limited resources Weaknesses - Unavailability of spare parts in the country could be a major constraint	- Strengthen existing workshops/contract maintenance and repair services to private sector firms - Streamline the maintenance and repair procedures to minimise delays in authorising and payment for work done - Streamline procurement of spare parts - Properly equip the workshops and staff with trained personnel - Reduce delays in repair of vehicles; procurement of vehicles must be accompanied by assurance of availability of spare parts
2. Allocate More Financial Resources to Improve/Expand Transport Facilities	Strengths - Enables health providers to expand transport facilities with newer vehicles - Helps improve maintenance & repairs Weaknesses - Shortage of financial resources - Availability of financial resources could reduce efficient management of available resources - Allocation of more financial resources could reduce resources available for other services	- Assess more comprehensively the needs of the transport sector - Undertake careful budgetary analysis and planning to ensure that inappropriate trade-offs are not taken - Improve budgetary forecasts with respect to both revenue sources and expenditure
3. Centralise All Transport Services for Public Sector Providers	Strengths - Reduces underutilisation of transport services - Improves coordination of dispatch, maintenance, and repair of vehicles Weaknesses - Operations could easily be hampered by bureaucracy if the central office is not efficiently managed - Requires inter-institutional cooperation	- Establish a central transport department to dispatch ambulances for public providers - Establish adequate telephone and communication links

ACTION AREA 7: TRANSPORT
(continued)

OPTIONS	STRENGTHS/WEAKNESSES	IMPLEMENTATION STEPS
4. Contract All Transport Needs for NCC and PMO From Private Enterprises	Strengths - Ensures availability of transport services when needed - Eliminates the need to pay for drivers and maintenance staff who are often underutilised when cars are inadequate or when there are no spare parts, or other inputs in the workshop Weaknesses - Could be expensive - Would make NCC and PMO highly dependent on the private contractors	- Study in detail costs and benefits of the measure and compare the overall budgetary implications - Devise an effective way of choosing the appropriate private contractors - Identify those transport needs for which private contractors would be appropriate

ACTION AREA 8: EMERGENCY TRANSPORT

OPTIONS	STRENGTHS/WEAKNESSES	IMPLEMENTATION STEPS
1. Establish a Central Dispatch to Coordinate City-Wide Ambulance Service	Strengths - Reduces duplication of services and reduces costs - Saves more lives because travel time and admission time will be minimised, and patients receive treatment faster - Increases confidence of the general public in reliable emergency transport Weaknesses - Requires resources to design, implement, and manage	- Determine lead organisation/create agency - Review emergency medical transport system for other large cities - Design system - Determine required resources
2. Establish a Coordinated Ambulance System for PMO and NCC	Strengths - Reduces duplication of services, reduces costs and increases efficiency - Facilitates effective planning and - coverage of ambulance services Weaknesses - Coordination between providers could be difficult	- Determine lead organisation/create agency - Review emergency medical transport system for other large cities - Design system - Determine required resources
3. Provide Incentives for NGOs and/or Private Enterprises to Establish Ambulance Services in Nairobi	Strengths - NCC and PMO would not need to invest in ensuring adequate supplying of ambulance services - Increases the role of the private sector in the provision of ambulance services - Improves quality of services in the city due to increased competition Weaknesses - Private sector providers could raise the price of ambulance services	- Establish a dialogue between DMS, NGOs, and private enterprises - Formulate mutual areas of interest/incentives - Jointly develop government policy

ACTION AREA 9: MAINTENANCE OF PHYSICAL RESOURCES

1. Contract With Private Firm for Equipment and Facility Maintenance	Strengths
	- Working equipment and facilities will increase staff morale
	- Availability of spares will be assured
	- Provides specially trained personnel that can promptly respond to maintenance requests
	- Has potential to reduce overall maintenance costs
	
	Weaknesses
	- Cost may be high
	- Implementation of contract and standardisation process may be slow or difficult
		- Prepare procurement guidelines and issue them to suppliers
		- Procure equipment that fit the standards set by committee
		- Survey of equipment:
		  - Equipment type and its functions
		  - Life span of the equipment
		  - Spares required for a given period
		  - Personnel skills for maintenance
		  - Costs for a similar equipment at end of life span of present equipment
		- Devise effective way of choosing appropriate contractor

2. Coordinate Equipment Purchases and Maintenance Among Providers	Strengths
	- Likelihood of availability of spares will increase
	- Improves staff motivation because repaired facilities and functioning equipment will increase morale
	
	Weaknesses
	- Coordination may be slow and difficult
		- Establish joint committee to determine coordination goals and procedures
		- Prepare joint procurement guidelines and issue them to suppliers
		- Procure equipment that fit the standards set by committee
		- Survey of equipment should include:
		  - Equipment type and its functions
		  - Life span of the equipment
		  - Spares required for a given period
		  - Personnel skills for maintenance
		  - Costs for a similar equipment at end of life span of present equipment

3. Implement Policies of Preventive Maintenance	Strengths
	- Saves money in the long run
	- Prevents disruption of work/operations that are caused by sudden breakdowns, and improves facility efficiency
	- Increases the lifespan of equipment
	- Reduces the time that the equipment is out of order (down time of equipment)
	- Improves staff morale
		- Form a maintenance committee
		- Identify inventory and include:
		  - type of equipment
		  - serial number
		  - manufacturer
		  - functioning or not functioning
		  - age and remaining lifespan of equipment
		  - history of repairs
		  - dealer: local/not local
		
		- Identify spare parts needed on a regular basis, service frequency, whether equipment can be serviced in-house or through a dealer
		- Identify cost and manpower requirements for preventive maintenance programme

Programmatic Areas

Several options are considered for the programmatic areas of drug management, maternity services, and central administration. The options presented in these action areas tend to be mutually exclusive.

a) Drug Management (Action Area #1)

The first three options represent mutually exclusive alternatives. The first two options would move public providers out of providing drugs as part of health service delivery activities. If the third option were chosen, to charge for drugs, the fourth option, to revise the procurement system, would probably be required. The options presented here are interdependent with those in the demand dimension.

b) Maternity Services (Action Area #2, 3)

The options presented here are complementary here and to the options presented under the foregoing demand options. options presented for changes in the management of Pumwani Maternity Hospital are mutually exclusive alternatives which would complement those options presented in the demand dimension.

c) Mental Health Services (Action Area #4)

The options presented here for the action area of mental health services are complementary to each other and to the options presented in the demand dimension.

d) Central Administration (Action Area #5, 6)

Information and reporting deal with central administration and the referral system. They both are critical functions for the public health system. The options presented under each represent mutually exclusive alternatives. The selection of one would preclude selection of the other alternative.

TABLE 6.3

SUMMARY OF IMPLEMENTATION REQUIREMENTS FOR PROGRAMMATIC SUPPLY OPTIONS

OPTIONS	TIME FRAME	REVENUE IMPACT	FISCAL/COST IMPACT	EASE OF IMPLEMENTATION	RESEARCH NEEDED
1. DRUG MANAGEMENT (Action Area #1)					
1.1 Discontinue Drug Provision	short	0	+	med	lo
1.2 Private Pharmacy for Public Facilities	med	0	+	med	med
1.3 Drug Charges	med	+	-	med	med
1.4 Revise Procurement System	long	0	-/+	lo	med
2. MATERNITY SERVICES (Action Area #2,3)					
2.1 Close/Upgrade Maternity	med	0	-/+	med	med
2.2 Urban Midwives	med	0	-/+	med	lo
2.3 Birth Attendants	med	0	-/+	med	lo
2.4 Central Pumwani Hospital Management	med	0	+	lo	med
2.5 Change Pumwani Status to Parastatal	med	+	+	lo	med
3. MENTAL HEALTH SERVICES (Action Area #4)					
3.1 Train Providers for Referral	med	0	-	high	med
3.2 Mathari as Referral	short	0	+	high	lo
3.3 Train Psychologist	long	0	-	lo	lo
3.4 Revise Mental Health Act	med	0	0	med	high
4. CENTRAL ADMINISTRATION (Action Area #5,6)					
4.1 New Office for Nairobi Info/Reporting	med	0	-	lo	lo
4.2 Existing Nairobi Office for Info/Reporting	short	0	-	med	lo
4.3 Standard Criteria for Referral	med	0	-/+	med	med
4.4 Referral Feedback System	med	0	-/+	med	med
4.5 Public Education	med	0	-	med	lo

Key: + = Increases
- = Decreases
0 = Neutral

ACTION AREA 1: DRUG MANAGEMENT

OPTIONS	STRENGTHS/WEAKNESSES	IMPLEMENTATION STEPS
1. Discontinue All Provision of Drugs for Curative Outpatient Visits at Public Facilities	Strengths - Reduces costs - Eliminates need for control system - Provides opportunity for increasing staff in critical shortage areas Weaknesses - May discriminate against medically indigent and patients with chronic illness requiring costly medications - Could be politically sensitive	- Establish a committee to look at implementation of this option - Develop timeframe for phasing out drugs - Develop public education program to inform general public - Orient clinical providers with respect to cost-effective prescribing practises
2. Discontinue Provision of Drugs by Public Providers; Allow Private Pharmacies to Operate On Public Premises	Strengths - Similar to above - Greater convenience for general public Weaknesses - Difficult to select private pharmacy operators - May require regulation/monitoring	- Similar to above - Develop effective selection criteria for private pharmacy
3. Charge for Each Item Prescribed	Strengths - Raises revenue - Places burden for cost on those who are consuming the most - Creates accountability - Supplies of pharmaceuticals can be maintained and shortages reduced or eliminated Weaknesses - Requires accounting and control systems with associated administrative costs - May discourage utilisation of drugs at times when it would be appropriate to utilise, especially among the poor	- Conduct a thorough review of drug inventories - Establish drug procurement costs - Establish fee schedules, based on recovery targets or percentage of replacement costs - Set up an accounting system - Identify those drugs or diagnoses for which drugs would be provided free (i.e., those in interest of the public health, such as STD, TB, etc.) and/or patients to be exempted from paymen payment - Appoint fee collection officers - Test effects through operations research

ACTION AREA 1: DRUG MANAGEMENT
(continued)

OPTIONS	STRENGTHS/WEAKNESSES	IMPLEMENTATION STEPS
4. Revise Procurement and Tender System and Drug Distribution System	Strengths - Reduce the problem of unrealistic prices quoted by the tenders - Enables the facility to have legal backing to enforce prices and other items quoted by the tenderers - Suppliers have time to plan importation of raw materials and production of goods - Reduces need to have many unplanned, piecemeal purchases Weaknesses - May introduce a rigid system - May be difficult to purchase "emergency" items - May increase inefficiency due to increased bureaucracy - Resistance to change may be great - Revised distribution system with effective controls may be very costly	- The tender committee should spell out the minimum conditions which should be fulfilled in procurement through quotations; should include a design of open, broader & effective communication machinery between health providers and suppliers. One of the ways should be that tender & quotation information be displayed in a lockable glass notice board accessible to all interested suppliers - Processing of tenders should be made much faster notification & signing contractual documents between the facility & tender winners should be carried out within 2 weeks after the opening of the tenders - The opening of tenders & the announcement of tender winners & prices quoted should be done in public & in the presence of interested tenderers. - Following the signing of contracts with tender winners, orders should be planned in large enough quantities to avoid inconveniencing suppliers and to help suppliers quote relatively lower prices - To minimise misuse of emergency buying through quotations, a more comprehensive procedure shoul be developed to ensure that the procurement system is not manipulated to force the facility to purchase unnecessarily - Tenders for large sums of money should undergo a prequalifications process to eliminate irresponsible bids. - Major suppliers of goods/services should receive information so as to avoid the common complaint that only a few favoured suppliers are informed - Overhaul the distribution system to include effective administrative and control mechanisms

ACTION AREA 2: MATERNITY SERVICES

OPTIONS	STRENGTHS/WEAKNESSES	IMPLEMENTATION STEPS
1. Improve Efficiency in Facility Utilisation by Closing Some or all of NCC Maternity Units; and/or Upgrade Some Units; and/or Subsidising Private Facilities to Deliver Maternity Services	Strengths - Improves performance of public and private maternity facilities due to competition - Subsidizing private facilities would increase the supply of maternity services in Nairobi Weaknesses - Politically difficult - Upgrading health centres would require additional resources - Off-loading NCC overflow to private maternity homes is difficult due to different pricing methods used by the public and private sectors	- Establish committee to review the maternity units - Make recommendations to PHD - PHD makes recommendations to the City Commission - Discuss possibility of cooperation between NCC maternity units and private maternity homes and develop guidelines for such cooperation
2. Re-institute System of Domiciliary Midwives Who are Residents in the Estates	Strengths - Improves access of poor women to qualified staff - Improves access to qualified staff to those living in estates not close to maternity units - May reduce costs and congestion Weaknesses - Difficult to regulate and supervise non-facility based providers - Encourages more home deliveries where environmental sanitation is poor - Communication and transportation for complicated cases may be inadequate in some areas	- Study incidence of home deliveries in Nairobi - Assess the relative merits of midwives being salaried in public sector, reimbursed by client fees, or other financing arrangements - Assess available supply of midwives and adequacy of training for home deliveries - Modify midwifery syllabus, if necessary - Establish licensing system - Establish guidelines on eligibility for home deliveries and referrals - Develop monitoring and reporting system which includes supervision by parent organisation and community - Implement public education campaign
3. Develop Capacity of Traditional Birth Attendants in Nairobi	Strengths - Improves access of poor women to qualified staff - Improves access to qualified staff by those living in estates not close to maternity units - May reduce cost of maternity care Weaknesses - More difficult to regulate and supervise non-facility based providers - May encourage more home deliveries where environmental sanitation is poor - Communication and transportation for complicated cases may be inadequate in some areas	- Study current practises and supply of TBAs in Nairobi - Design training programme appropriate to current and future role - Develop standardized equipment kits - Develop system of registration - Develop monitoring and reporting system - Educate community on correct practises of TBAs - Develop linkage of TBAs with local health centre or clinic for supervision and reporting - Develop guidelines on who should see a TBA and who should be referred

ACTION AREA 3: MANAGEMENT OF PUMWANI MATERNITY HOSPITAL

OPTIONS	STRENGTHS/WEAKNESSES	IMPLEMENTATION STEPS
1. Centralise Management of Daily Operations at the Hospital so That the Hospital Director/ Superintendent Has Complete Accountability & Responsibility for Operational Decision Making	Strengths - Provides for control of personnel and recurrent budget at PMH - Strengthens hospital management practises and decision making - Provides strong organisation and management structure - Improves quality of care Weaknesses - Requires reorganisation through NCC - May be resisted by sections of NCC	- Develop criteria and identify management personnel required to administer PMH - Clearly define responsibilities for decision making authority - Develop and implement annual operating plan - Establish performance review and disciplinary procedures and mechanisms
2. Revise PMH's Status to That oB a Parastatal	Strengths - Brings direct control and responsibility to hospital management staff and Board - Provides autonomy in decision making - Improves quality of care Weaknesses - Requires radical change - May raise cost of delivery at the hospital	- NCC, PMO, and DMS to establish a working party/committee to implement the option - Follow the established legal process - Identify and appoint appropriate Board of Directors - Similar to above

ACTION AREA 4: MENTAL HEALTH SERVICES

OPTIONS	STRENGTHS/WEAKNESSES	IMPLEMENTATION STEPS
1. Train Providers Regarding Appropriate Diagnosis, Treatment, and Referral for Mental Illness	Strengths - Improves quality of care of the mentally ill patient - Increases quantity of mental health services Weaknesses - Lack of existing facilities/trained staff to treat meet increased demand - Training providers involves cost - Diagnosis of mental illnesses may be time consuming and difficult	- Assess current level of knowledge on the part of providers - Design training programmes and referral and treatment protocols - Implement referral and treatment protocols
2. Establish Mathari Mental Hospital as a National Referral Centre	Strengths - Reduces the case load for Mathari Hospital - Enables the facility to improve quality of service Weaknesses - Case load in provincial and district psychiatric centres may increase drastically - The latter may not be able to cope with the increase	- Notify the public that the hospital will not be admitting unreferred cases as from a specific date - Establish referral criteria - Advise providers of time frame for implementing referral criteria
3. Increase the Intake of Psychiatric Nurses in the College of Health Professions, and Introduce Psychiatric Courses in all of the Training of Health Professionals	Strengths - Increases the number of psychiatric personnel - Reduces the work load Weaknesses - May be costly - Takes time for personnel to qualify - May lead to oversupply of psychiatric personnel	- Heads of training facilities and appropriate professionals determine need - Criteria for acceptance and curriculum should be developed - Determine timeframe and cost for implementation
4. Revise and Amend the Mental Treatment Act Cap. 248	Strengths - Ensures that the law reflects recent realities and changes - Would make flexible admission of mental patients Weaknesses - Amending laws could take long - Requires approval by Parliament, which increases complexity and time	- Identify all of the amendments needed in the existing laws - Coordinate with office of the director of Mental Health Services, Attorney General and Law Reform Commission

ACTION AREA 5: INFORMATION/REPORTING

OPTIONS	STRENGTHS/WEAKNESSES	IMPLEMENTATION STEPS
1. Create an Entity with Responsibility, Accountability, and Authority to Collect, Compile and Disseminate Information Necessary for Planning for Nairobi Health Services in a Timely Manner	Strengths - Focuses attention to Nairobi for planning - Provides data for monitoring and inspection - Encourages planning for their services because of the readily available data - Resolves ambiguity regarding authority and responsibility Weaknesses - Requires additional trained personnel and supplies to collect and disseminate information - Requires full data processing capabilities - Legal constraints	- Specify functions and authority - Identify resource requirements - Establish technical and material support - Standardize and clarify reporting documents - Extend necessary support to providers
2. Establish an Information System for Nairobi within Some Existing Office	Strengths - Requires no designation of new authority Weaknesses - Does not emphasize need for information system for Nairobi - Existing office still requires new resources to attend to new responsibilities	- Identify appropriate office - Steps similar to above

ACTION AREA 6: REFERRAL SYSTEM

OPTIONS	STRENGTHS/WEAKNESSES	IMPLEMENTATION STEPS
1. Develop and Implement Standard Criteria and Mechanisms for Horizontal and Vertical Referral of Patients Across Public and Private Providers; Reinforce Through Incentives/Disincentives for Patients and Staff	Strengths - Clarifies the referral network so that public and private providers would know what types of cases can be referred and where - Reduces inappropriate primary referrals - Improves efficient and prompt treatment of referred cases, and reduces congestion - Provides better continuity of case through feedback and follow-up at the patient's local facility Weaknesses - Insufficient resources to handle the diagnosis caseload, and insufficient drugs at primary level to follow-up patients at the facility nearest their home or place of work - Requires significant financial and managerial inputs - Requires discipline among staff at referral centres to set up and run a proper appointment system	- Review the type of cases being referred, by category of referring facility - Develop a standard list of conditions for for referral - Produce and distribute a referral guideline for curative cases which incorporates the list of medical and surgical conditions - Identify the facilities which will act as referr centres for each condition on the list/facility catchment areas - Develop a standard referral form - Provide orientation on the Referral guideline to staff at the referral centres - Provide orientation for all providers, regarding the referral system - Print and distribute referral forms to all facilities - Assure transport for emergency cases - Monitor referrals through the information system and follow-up individual staff who are referring inappropriately - Provide refresher training for staff on current medical practices and diagnostic skills
2. Develop and Implement an Information Feedback System on Referrals	Strengths - Reminds staff to use the information feedback system - Improves quality of patient care Weaknesses - Referral system without formal guidelines - Problems of inappropriate referral and congestion would not be addressed	- Develop a standard referral form (in conjunction with the Ministry's HIS) for use in public and private facilities - Give orientation on use of the form to staff at primary level and at the referral centres - Print and distribute referral forms to all facilities

6.4 ORGANISATIONAL STRUCTURE

The areas for action within the organisational structure dimension of the health services delivery system address the need for an institutional or organisational entity with well-defined responsibilities and authority for policy, planning, and coordination of an urban health service delivery system.

Nairobi Province is an urban environment with a higher population density than other provinces and a large and diverse number of public and private providers of health services. All levels of health care, from single function clinics to the national referral hospitals services are available within the city. This environment requires an organisation structure that is expressly suited to the situation, and can adequately delineate authority, responsibility, and accountability. Chapter 5 identified problems with the clear definitions of the roles, functions and relationships between the MOH and NCC and PMO. The absence of definition has created confusion, duplication, omissions, and inconsistencies.

The options suggested encompass the Action Areas of: city-wide planning, coordination and regulation of health services; and quality assurance and control and changes to reduce foreign exchange requirements. The strengths and weaknesses of each option and an illustrated list of steps for implementation are delineated so as to provide decision-makers with further information for setting priorities and selecting courses of action. In each of the first two action areas, the options are mutually exclusive that is, the selection of one precludes selection of any of the others. The options suggested for the foreign exchange action are complementary.

TABLE 6.4

SUMMARY OF IMPLEMENTATION REQUIREMENTS AND IMPACT FOR ORGANISATIONAL STRUCTURE OPTIONS

OPTIONS	TIME FRAME	REVENUE IMPACT	FISCAL/COST IMPACT	EASE OF IMPLEMENTATION	RESEARCH NEEDED
1. CITY-WIDE PLANNING COORDINATION AND REGULATION OF HEALTH SERVICES (Action Area #1)					
1.1 Create New Entity	med	0	-/+	med	med
1.2 Establish Representation Body	med	0	0	lo	med
1.3 Assign Specific Responsibilities	short	0	0	med	lo
1.4 Change Legislation	med	0	0	med	med
2. QUALITY CONTROL AND QUALITY ASSURANCE (Action Area #2)					
2.1 Develop Quality Assurance Programs	med	0	-/+	med	med
2.2 Develop Quality Control Programme	med	0	-/+	med	med
3. FOREIGN EXCHANGE (Action Area #3)					
3.1 Reduce Product Use	med	0	+	med	med
3.2 Strengthen Local Product	long	+	-/+	lo	high
3.3 Improve MOH/MDF Coordinaiton	med	0	+	med	med
3.4 MOH Determine Import Priorities	med	0	+	med	high

Key: + = Increases
- = Decreases
0 = Neutral

ACTION AREA 1: CITY WIDE PLANNING, COORDINATION AND REGULATION OF HEALTH SERVICES

OPTIONS	STRENGTHS/WEAKNESSES	IMPLEMENTATION STEPS
1. Create New Entity with Responsibility, Accountability, and Authority to: Interpret - Interpret GOK/MOH Guidelines for Nairobi - Collect and Disseminate Information Necessary for Planning - Promulgate Regulations that Establish Criteria for Assessing Standards of Performance - Assure Control of Quality	Strengths - Lines of authority and communication will be clear - Planning and regulation for Nairobi health services would be channeled centrally - Criteria for planning would be uniform - Duplication of efforts would be reduced - Disagreement between PMO and NCC would be eliminated Weaknesses - An increase requires resources to establish a well functioning new authority - Existing providers may not accept the authority of the entity	- Establish a review and assessment committee to consider and select urban health system model(s) - Determine need for new legislation - Delineate responsibility and functions of entity and staff - Communicate and inform provider groups
2. Establish a Body Which Includes Representatives of All Health Providers in the City to Coordinate Provision of Services and to Cooperate on Issues Related to Health	Strengths - Providers may feel they can play a greater role in the city's health system - Provides a forum through which the private sector can discuss on equal terms with the public sector Weaknesses - Representatives with widely divergent objectives may reduce the effectiveness of the body - Body needs the strong support of the Ministry of Health and the Ministry of Local Government - Funds required to support the body's administrative functions	- Call for a forum for discussion among all providers to develop criteria for and functions of a representative body

ACTION AREA 1: CITY WIDE PLANNING, COORDINATION, AND REGULATION OF HEALTH SERVICES
(continued)

OPTIONS	STRENGTHS/WEAKNESSES	IMPLEMENTATION STEPS
3. Assign Specific Responsibilities to the PMO & NCC in Accordance with Public Health Act	Strengths - Does not require a new organisation - Clarifies ambiguity Weaknesses - Duplication of authority in the legislation may continue unresolved - Coordination and communications of City health services will not necessarily be improved	- Review designated responsibilities - Determine role of PMO and NCC - Designate specific responsibilities
4. Change or Amend Legislation so as to Clarify Roles and Functions of Existing Bodies	Strengths - Reduces conflict - Improves working relationship & strengthens cooperation between various providers - Minimizes duplication in roles & functions Weaknesses - Depends much on Parliament - May take time to achieve	- Identify the required changes - Coordinate with DMS, NCC, PMO, and the office of the Attorney General - Present amendment to Parliament

ACTION AREA 2: QUALITY ASSURANCE AND QUALITY CONTROL

OPTIONS	STRENGTHS/WEAKNESSES	IMPLEMENTATION STEPS
1. Develop and Implement Quality Assurance Programme With Required Reporting by All Facilities for: - Mortality Statistics - Professional Staff Licensing - Medical Protocols, Procedures, Schedules - Patient Education Protocols - Staff Training - Pharmacy Guidelines	Strengths - Establishes higher standard patient care - Links standards and reporting - Establishes basis for monitoring - Increases public confidence - Reduces gross negligence Weaknesses - Increases resource requirements - May be resisted by some providers	- Identify lead agency/organisation - Develop protocols for each reporting and monitoring area - Begin communication with providers on required reporting and monitoring - Establish information system with appropriate feedback mechanisms - Establish a time frame for implementation of programme
2. Establish Quality Control Programme Which Regularly Reviews Service of All Providers	Strengths - Establishes clear expectations for standards - Clarifies functions and responsibilities for monitoring service performance Weaknesses - Increases resource requirements	Similar to (1) above

ACTION AREA 2: QUALITY ASSURANCE AND QUALITY CONTROL
(continued)

OPTIONS	STRENGTHS/WEAKNESSES	IMPLEMENTATION STEPS
3. Strengthen the Linkages Between Existing Licensing, Monitoring, and Inspection Bodies	Strengths - Reduces confusion & possible duplication - Links standards of care to inspections - Enables routine monitoring of activities by bodies with responsibilities for licensing - Encourages higher standards of patient care Weaknesses - Current bodies lack resources & commitment - Reduces quality assurance & control to only licensing and inspection	- Establish reporting/communication system between Ministry of Health, PMO, and Public Health Department - Delegate responsibilities for inspection, registration and monitoring - Develop protocols for conduct and content of inspection
4. Develop Peer Review Mechanisms	Strengths - No higher authority required - Encourages professionalism - Review by peers more acceptable Weaknesses - Requires professional bodies to develop and enforce internal monitoring and review functions - Does not address overall quality control at facilities	- Develop guidelines for professional bodies regarding establishing review weaknesses - Establish a time frame for development and implementation of peer review

ACTION AREA 3: FOREIGN EXCHANGE REQUIREMENTS

OPTIONS	STRENGTHS/WEAKNESSES	IMPLEMENTATION STEPS
1. Reduce the Use of Finished Products which Use Foreign Exchange Allocation	Strengths - Consistent with overall objectives of reducing unnecessary consumption of drugs - Encourages substitution of locally available remedies - Encourages local production of pharmaceuticals Weaknesses - Necessary drugs may become unavailable - May encourage black market in drugs	- Prioritise pharmaceutical inputs - Restrict import licenses for those of low priority
2. Strengthen Local Production of Products Where Feasibility Studies Indicate Cost Effectiveness	Strengths - Reduces dependence on foreign exchange - Contributes to increasing local employment - Improves reliability of supply Weaknesses - Economies of scale may not be possible for all products	- Identify products which can be produced locally cost-effectively
3. Improve Coordination Between Ministry of Finance & the Central Bank for Importing Inputs (Finished & Raw) Which are High Priority for the Ministry of Health	Strengths - Reduces waiting time for imported inputs - Determines the real priority items - Brings about a more rational import regime Weaknesses - In the past, such coordination has not worked as well as was expected - Other ministries may want the same treatment given to the Ministry of Health	- Establish a standing committee comprising the - Chief Executives of the three institutions

ACTION AREA 3: FOREIGN EXCHANGE REQUIREMENTS

OPTIONS	STRENGTHS/WEAKNESSES	IMPLEMENTATION STEPS
4. Ministry of Health to Determine Priority for Foreign Exchange Allocations for Imported-Inputs (e.g. Low Pricrity for Locally Available Products, High Priority for Products Which Contribute to Meeting Health Goals)	Strengths - May make decisions faster - Real priorities of the Ministry are identified - Reduces unnecessary importation of medical supplies and drugs - May stimulate local production of some medical products Weaknesses - May be resisted by the Central Bank - Fear that other ministries would ask for the same treatment - May weaken the role of the Central Bank in allocation of foreign exchange - Requires Ministry of Health to have more broad based information about all sector involved directly or indirectly in the production and consumption of pharmaceutical products and foreign producers of various inputs	- Establish a committee of senior personnel from Ministry of Health and Central Bank to formulate guidelines for and functions of the body to undertake the responsibility