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Health Financing  
and Sustainability  
Project

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**PHARMACEUTICAL AND MEDICAL SUPPLIES  
SYSTEM ASSESSMENT  
Kenya Ministry of Health**

**Trip Report and Technical Notes**

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**NOVEMBER 5 - 28, 1990**

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**PHARMACEUTICAL AND MEDICAL SUPPLIES  
SYSTEM ASSESSMENT  
Kenya Ministry of Health**

**Trip Report and Technical Notes Presented to:**

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**November 5 - 28, 1991**

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## ABBREVIATIONS

DANIDA	Danish International Development Agency
DHMT	District Health Management Team
DPC	Drug Procurement Committee
EDL	Essential Drugs List
EDP	Essential Drugs Programme
GTZ	German Agency for Technical Cooperation
KNH	Kenyatta National Hospital
Ksh	Kenyan Shilling (22.6 Ksh per U.S. dollar)
MEDS	Mission of Essential Drugs and Supplies
MOH	Ministry of Health (or Medical Officer of Health)
MSCU	Medical Supplies Coordination Unit
NDP	National Drug Policy
NGO	Non-Governmental Organization
NSD	Non-Scheduled Drug
NMS	New Management System of Drug Supplies to Rural Health Facilities
OPD	Outpatient Department
PATH	Program for Appropriate Technology and Health
PGH	Provincial General Hospital
PMO	Provincial Medical Officer
RHF	Rural Health Facility (Health Center, Dispensary)
SIDA	Swedish International Development Authority
UNICEF	United Nations Children's Fund
WHO	World Health Organization

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The team are also grateful to Mr. G.K. Githae, Mr. J.K.A. Mutai, and Mr. Stanley Kalama at Afya House; and to Mr. Andrew Rosana, Deputy Officer In-Charge of MSCU and the staff of MSCU; Ndubi and Mr. Joseph Mburu of the Essential Drugs Programme; and to the staff of the hospitals, sub-depots, health centers, and dispensaries which were visited in Coast and Nyanza Provinces. In particular, the team would like to recognize the efforts of Dr. J.E. Adungosi, Medical Officer of Health, Dr. Ogonji O. Ben, Pharmacist In-Charge, Mr. Ali Kidzuga, Pharmaceutical Technologist In-Charge, Medical Stores, Mr. Okari Ibrahim, Pharmaceutical Technologist In-Charge of RHF's. Each of these individuals exemplified ways in which staff at different points in the pharmaceutical supply system can play positive roles in rationalizing the process.

Mr. J. Winther Johannsen and Mr. Henning Frotlund from DANIDA, Mr. John McGregor from the World Bank, and representatives from UNICEF, WHO, SIDA, ODA, and JICA provided important background on essential drugs and donor activities in Kenya. Finally, the team are most appreciative of the efforts and support of Mr. David Oot, Chief, Population and Health, Mrs. Connie Johnson, Project Officer, Doreen Oport, and Rose of USAID/Nairobi, which served as the base of operations for this assessment.

# Health Financing and Sustainability

## TRIP REPORT

### PHARMACEUTICAL AND MEDICAL SUPPLIES SYSTEM ASSESSMENT Kenya Ministry of Health

5 - 28 November 1990

Dr. Jonathan D. Quick, Management Sciences for Health  
Dr. Francis Ndemo, University of Nairobi

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#### SUMMARY

At the request of the Kenyan Ministry of Health, USAID organized this assessment of the Kenyan Ministry of Health pharmaceutical and medical supply system. The Ministry was concerned that frequent shortages of essential drugs and medical supplies at government health institutions would undermine efforts to improve the effectiveness and efficiency of these institutions. The HFS team -- consisting of Dr. Jonathan Quick and a local consultant, Dr. Francis Ndemo -- interviewed Ministry of Health officials, medical supply and essential drug staff, Provincial Medical Officers, and senior staff from UNICEF, WHO, local pharmaceutical manufacturers, USAID, the World Bank, DANIDA, SIDA, ODA, and JICA. The team also visited hospitals, supply depots, health centers, and dispensaries in two provinces. A complete listing of people seen and places visited is contained in Annex A. Finally, the team reviewed and incorporated into its work the results of more than a dozen other reports prepared over the last five years.

Although the basic organization of the pharmaceutical and medical supply system is sound, a series of actions are suggested to address existing weaknesses with needs estimation, frequent costly emergency procurements, poor inventory control, leakages, and highly variable hospital drug management practices. Specific findings, actions, priorities, and timetables are described in ten areas of drug policy and management: (1) National Drug Policy, (2) National Essential Drugs List, (3) Hospital Therapeutics, (4) Hospital Drug Management, (5) Supervision of Pharmaceutical and Medical Supply Distribution, (6) Needs Estimation and Allocation, (7) Good Procurement Practices, (8) Financial Management of the Supply Process, (9) Medical Supply Coordination Unit Operations, and (10) Rational Drug Use. Detailed terms of reference were prepared for a comprehensive assessment aimed at strengthening the pharmaceutical distribution and procurement system (Annex B). It is estimated that improvements in these ten action areas could increase current supplies of pharmaceuticals by 50 percent or more. Potential roles are outlined for the MOH, the World Bank-assisted Health Sector Rehabilitation Project, the WHO Drug Action Programme, the USAID-sponsored Health Care Financing Project, and the DANIDA/SIDA-supported Essential Drugs Programme.

## OBJECTIVES

At the request of the Ministry of Health Permanent Secretary, USAID organized this assessment of the Kenyan Ministry of Health pharmaceutical and medical supply system. The Ministry was concerned that lack of regular, adequate availability of essential drugs and medical supplies at government health institutions would undermine efforts to improve the effectiveness and efficiency of these institutions. Specific problems cited by the MOH included difficulty with needs estimation, frequent costly emergency procurements, poor inventory control, chronic drug shortages, and considerable leakages.

The assessment team consisted of Dr. Jonathan Quick, a family physician with extensive drug management experience, and a local clinical pharmacist, Dr. Francis Ndemo. The team was asked to review the current pharmaceutical and medical supply system and to prepare terms of reference for a broader assessment aimed at the development of a comprehensive medical drug supply and logistics plan. The team concluded that the basic organization of the pharmaceutical and medical supply system is sound. However, a series of actions are required to address current problems and to strengthen specific aspects of the existing system. Detailed terms of reference for an action-oriented assessment aimed at strengthening the pharmaceutical distribution and procurement system are contained in Annex B.

## ACTIVITIES

To carry out its assignment, the team interviewed senior Ministry of Health officials, Medical Supplies Coordinating Unit (MSCU) staff, Essential Drug Programme staff, four of eight Provincial Medical Officers, Mission for Essential Drugs and Supplies (MEDS) staff, UNICEF and WHO officials, officers for two pharmaceutical manufacturers, and officers from Kenya's two pharmaceutical manufacturers associations. The team also held meetings with individual donors, including USAID, the World Bank, DANIDA, SIDA, ODA, and JICA.

The team visited two Provincial General Hospitals, two MSCU sub-depots, four district or subdistrict hospitals, one rural health training center, and five health centers or dispensaries during field trips to Coast, Nyanza, and Kakamega Provinces. Finally, the team reviewed and incorporated into its work the results of relevant reports prepared over the last five years by or for the MOH, local universities, WHO, USAID, DANIDA, or other organizations. A complete listing of people seen and places visited is contained in Annex A.

At the end of the assignment, on the afternoon of 26 November 1990, a one-and-one-half-hour presentation-discussion was held with the Permanent Secretary, the Director of Medical Services, the Acting Chief Pharmacist, the Chief Nursing Officer, and other MOH, MSCU, and EDP staff, as well as DANIDA, USAID, and World Bank staff. Major observations, suggested actions, and proposed sources of technical and financial support were reviewed and discussed for each of the ten major action areas described below.

## FINDINGS AND FOLLOW-UP

1. National Drug Policy (NDP) -- In April 1990 a joint MOH-WHO workshop was held with the aim of formulating a Kenya National Drug Policy. A three-page working paper resulting from this meeting summarizes key elements of the proposed Kenya policy. A Secretariat appointed by the Director of Medical Services and chaired by

the Acting Chief Pharmacist was charged with the responsibility of preparing a draft policy. Although Kenya has not had a formalized NDP, a large portion of the proposed policy elements are already being implemented through existing programs.

Suggested actions:

- \* Prepare a draft NDP (NDP Secretariat) (February 1991)
- \* Revision of NDP draft by Senior Management Committee (March 1991)
- \* Circulate draft NDP to interested parties (May, June 1991)
- \* Hold NDP revision workshop and finalize NDP (July 1991)
- \* Present NDP to Minister of Health, Cabinet, President (September 1991)

2. National Essential Drugs Lists (EDL) -- The National List of Essential Drugs published in 1981 has provided a sound basis for public sector drug supply. For procurement purposes, changes have been made in the list, but no specific process or criteria for formal revision of the EDL exist. Some outdated products and dosage forms continue to be used, while some advances in therapeutics and cost-effectiveness are not included. Nevertheless, most products being procured continue to be safe, cost-effective choices. Except for the EDP Handbook for Rural Health Workers, no formulary manual or other unbiased source of information on the EDL exists. Suggested actions:

- \* Appoint a National Essential Drugs Committee (DMS) (December 1990)
- \* Draft selection criteria, then revise list (February 1991)
- \* Circulate draft list and prepare final list (March-May 1991)
- \* Distribute new EDL to all health institutions (June 1991)
- \* Publish National Essential Drugs List & Therapeutics Manual (July-Dec. 1991)

3. Hospital Therapeutics -- At least 50 percent of MOH expenditures on drugs and medical supplies are for hospitals. Previous studies have found threefold differences in outpatient drug costs at MOH hospitals. Studies of inpatient prescribing suggest considerable potential savings through more standardized treatment. Prescribing limits based on qualifications are inconsistent among hospitals. Only one of six hospitals visited had an active Hospital Drugs Committee, and this was started only recently. Suggested actions:

- \* Establish Drugs & Therapeutics Committees at Provincial and District Hospitals (January 1991)
- \* Appoint a working group to draft, test, revise, and publish Clinical Guidelines for Diagnosis and Treatment of Common Medical Problems (April 1991, first draft)
- \* Analyze hospital drug utilization patterns (April-June 1991)

4. Hospital Drug Management (HDM) -- With the introduction of OPD kits, drug supply to hospitals has become more regular. Bulk medical stores are generally well organized with good record-keeping. Antibiotic and injection registers are consistently maintained for both inpatients and outpatients. But other pharmacy record-keeping practices vary among hospitals. Staff drug use (prescription and otherwise) consumes up to 40 percent of hospital drug supplies, but few hospitals have specific policies to control dispensing to staff. Systems for managing ward drug supply vary considerably. Suggested actions:

- \* Appoint HDM working group of doctors, nurses, pharmacists (January 1991)
- \* Develop procedures & practical manual on HDM (March 1991)
- \* Pilot test, revise, and publish the procedures & manual (April-December 1991)
- \* Implement the new procedures through provincial workshops (Jan-March 1992)

5. Supervision of Pharmaceutical and Medical Supply Distribution -- Existing procedures for drug and medical supply accountability from the central depot to hospital medical stores are quite functional and stock records are generally well organized. Periodic surprise spot audits are conducted by Treasury. The District RHF Pharmaceutical Technologist position developed by the EDP is well-conceived and highly effective when implemented as intended. Unfortunately, actual performance appears highly variable. Recycling of sub-depot and hospital overstocks is inadequate and resulting losses are considerable. Dispensing practices vary among facilities. Pharmacists and pharmaceutical technologists receive limited drug management training during their formal education. Suggested actions:

- \* Establish positions for Provincial Chief Pharmacists (January 1991)
- \* Establish a position of Deputy Chief Pharmacist for Pharmaceutical and Medical Supply Services (January 1991)
- \* Conduct training programs for RHF Pharmaceutical Technologists (mid-1991)
- \* Introduce Drug Management in training institution curricula

6. Needs Estimation and Allocation Process -- RHF and OPD kit contents have been based on reported morbidity patterns, standard treatments, and observed consumption patterns. Initial estimates for inpatient and specialty drugs were based on reported consumption patterns. Recent efforts by the DPC to quantify drug requirements have been used to increase Treasury allocations. Nevertheless, no easy-to-administer method for routinely revising RHF and OPD kit contents has been developed; the allocation process for RHF kits results in considerable imbalances between quantities of drugs delivered and number of patients treated; and the formula allocation ("push") approach for distributing OPD kits and individual hospital items according to hospital type--although administratively efficient--results in considerable imbalances between need and supply as well as lack of cost-awareness among hospital staff. Suggested actions:

- \* Conduct a comprehensive assessment and develop practical methods for routine needs estimation and distribution of RHF and OPD kits, individual inpatient and specialty drugs, and teaching hospital and communicable disease requirements (March-May 1991)
- \* Implement the new system through on-site training and workshops (June 1991)

7. Good Procurement Practices (GPP) -- Recently most drugs have been purchased in bulk by generic name through forms of international competitive bidding (ICB). A basic supplier pre-qualification system has evolved and several elements of quality assurance have been implemented. Although it is only in its second year of operation, the Drug Procurement Committee has gained considerable experience in managing complex procurement activities. But, severe shortages of drugs for rural facilities and hospitals continue to occur regularly (e.g., many facilities in Western Kenya are currently out of chloroquine); delays in processing contracts and paying suppliers are reported to be common; and various factors have led to tender cancellations or partial orders. Costly emergency procurements have often been needed. Suggested actions:

- \* Prepare an annual comprehensive procurement schedule, listing estimated value and source of funds (MOH, donor) for all requirements (December 1990)
- \* Conduct a study tour to neighboring countries with GPP (February 1991)
- \* Revise MSCU Procurement Procedures to reflect GPP (March 1991)
- \* Appoint a specialized Supplier Qualification Committee (March 1991)

8. Financial Management of the Pharmaceutical and Medical Supply Process -- Several difficulties associated with procurement operations are attributable to problems with the financial management of the pharmaceutical and medical supply process. The problem stems in part from inadequate past Treasury allocations for drugs, and in part from incompatibilities between the Treasury fiscal cycle and drug procurement cycle. Suggested actions:

- \* Conduct a financial management assessment to develop specific operational mechanisms for improved financial management (March-May 1991)
- \* Implement the new strategy through in-service training (June 1991)

9. Operation of the Medical Supply Coordination Unit (MSCU) -- The MSCU currently manages the procurement and distribution process for hundreds of pharmaceutical, non-pharmaceutical, and equipment items. The MSCU depot and sub-depots now act primarily as transshipment points, rather than as medical stores with working stock. The two MSCU sub-depots visited by the team appeared reasonably well organized. Unfortunately, delays in processing tenders, contracts, and payment vouchers are said to be routine. Distribution to sub-depots can be time-consuming. Suggested actions:

- \* Conduct an MSCU management assessment to prepare an MSCU management strengthening plan (March-May 1991)
- \* Implement the changes suggested by the management assessment (June 1991)

10. Rational Drug Use -- EDP courses on clinical diagnosis and rational drug use provide focused in-service training which appears to have a favorable impact on prescribing. EDP posters on indications, dosages, and precautions are widely distributed and used. Although concern is expressed about diagnostic accuracy and prescribing practices at RHF's, local studies reveal more rational prescribing patterns than are found in many other countries. Hospital drug use patterns have received less attention, but available data show significant differences among hospitals in overall drug use. Patient education posters and cassette tapes have been developed by the EDP. Suggested actions:

- \* Conduct an independent evaluation of the EDP course to assess its impact and identify areas for improvement (if any) (mid-1991)
- \* Conduct a controlled trial of patient education materials (1991)

#### Summary of Suggested Action Plan

Exhibit 1 summarizes proposed actions and lists the suggested responsibilities, funding, technical support, and timetable for implementing the suggestions. The table also contains a column which lists for each major action area the team's estimate of the potential impact of successful action on increasing the availability (or reducing the costs) of drugs and dressings. The MOH would oversee all suggested activities and provide the primary technical support for several of the activities. Other suggested assistance:

Health Sector Rehabilitation Project -- Technical support through local and international consultants and financial support for (4) Hospital Drug Management, (6) Needs Estimation and Allocation, (8) Financial Management of the Supply Process, and (9) MSCU Operations.

WHO -- Assistance with workshop support, advisors, and study tour funding for the following areas: (1) National Drug Policy, (2) National Essential Drug List, and (7) Good Procurement Practices.

USAID/Kenya's Health Care Financing Project -- Financial and technical support for (3) Hospital Therapeutics and modest support for specific activities within other areas.

DANIDA/SIDA -- Support through the EDP for training RHF Pharmaceutical Technologists, for RHF kit needs estimation and allocation, for implementing Good Procurement Practices, for continued strengthening of MSCU operations, and for continued promotion of rational prescribing and patient use of drugs.

EXHIBIT 1

MOPLAN FOR STRENGTHENING  
PHARMACEUTICAL & MEDICAL SUPPLY SYSTEM  
Ministry of Health, Kenya

SNC Senior Management Committee  
HSF Health Sector Financing Program/Project (USAID)  
HSRP Health Sector Rehabilitation Project (World Bank)  
CS Clinical Guidelines for Diagnosis & Treatment of Common Medical Problems

09-Jan-91

ACTION AREA TASK	POTENTIAL INCREASE IN DRUG SUPPLY	NON RESPONSIBLE	POTENTIAL FINDER	TECHNICAL ASSISTANCE/NEEDS	1990	1991 -->			1992 -->										
					DEC	JAN	FEB	MAR	APR	MAY	JUNE	JULY	AUG	SEP	OCT	NOV	DEC	JAN	FEB
<b>NATIONAL DRUG POLICY (NDP)</b>																			
1.1. NDP Working Paper	Indirect through	NDP Sec'let			April														
1.2. Draft NDP	other	NDP Sec'let																	
1.3. Review & revise NDP	actions	SNC																	
1.4. Incorporate revisions into draft		NDP Sec'let																	
1.5. Circulate draft to interested parties		Inter.Parties																	
1.6. Hold NDP revision workshop		NDP Sec'let	MHO EDP/Geneva	MHO NDP Cons.															
1.7. Final review of NDP		SNC																	
1.8. Present to Minister, Cabinet, President		SNC																	
<b>NATIONAL ESSENTIAL DRUGS LIST (EDL)</b>																			
2.1. Appoint Nat'l Essential Drugs Comm.	< 5 %	DPS																	
2.2. Hold workshop to draft criteria & list		Nat'l ED Comm.	MHO EDP/Geneva	MHO EDL Cons.															
2.3. Circulate draft to interested parties		Inter.Parties																	
2.4. Prepare final version of EDL		Nat'l ED Comm.																	
2.5. Print & distribute final list		Nat'l ED Comm.																	
2.6. Nat'l EDL & Therapeutics Manual		Nat'l ED Comm.	HFP (USAID)																
<b>HOSPITAL THERAPEUTICS</b>																			
3.1. Hospital Drug Utilization study	10 - 12 %	DPS	HFP (USAID)	Local univer.															
3.2. Establish Hosp. Drugs & Thera. Comm.		DPS																	
3.3. Appoint Clinical Guidelines work group		DPS																	
3.4. Draft Clin. Guidelines Common Problems		CS work group		HFP															
3.5. Circulate & test Guidelines		Hospitals																	
3.6. Revise Guidelines		CS work group																	
3.7. Publish Guidelines		CS work group		HFP															
<b>HOSPITAL DRUG MANAGEMENT (HDM)</b>																			
4.1. Appoint HDM working group	10 - 15 %	DPS	HSRP (World Bank)																
4.2. HDM procedures preparation workshop		HDM work group		Hosp.Pharm. Cons.															
4.3. Pilot test procedures & manual		Member hosp's																	
4.4. HDM manual revision workshop		HDM work group		Hosp.Pharm. Cons.															
4.5. Publish HDM manual		HDM work group																	
4.6. Implement manual thro prev. workshops		HDM work group																	
<b>SUPERVISION PHARM. &amp; MED. SUPPLY SYSTEM</b>																			
5.1. Establish Prov. Chief Pharm. position	5 - 10 %	PS																	
5.2. Establish Dep. Chief Pharm. Pharm. Serv.		PS																	
5.3. Supervision standards for Prov. Pharm.		Pharm. Div.		EDP advisor															
5.4. RHF Pharm. Technol. training		EDP		EDP advisor															
5.5. Introduce drug mgmt. in curricula		Training inst.																	
<b>NEED ESTIMATION &amp; ALLOCATION PROCESS</b>																			
6.1. Conduct strategy development study	10 - 15 %	DPC, MSCU	HSRP (WB)																
6.2. Implement new est. & alloc. process		DPC, MSCU		Consultant team															
<b>GOOD PROCUREMENT PRACTICES</b>																			
7.1. Prepare Annual Procurement Schedule	5 - 10 %	DPC, MSCU	MHO EDP/Geneva																
7.2. Study tour (DPC, Pharm., MSCU, Trade)		Div. Pharm.		Proc. Cons.															
7.3. Revise MSCU Procurement Procedures		DPC, MSCU		Proc. Cons.															
7.4. Review & finalize		DPC, MSCU																	
7.5. Adopt Good Proc. Pract.		DPC, MSCU																	
7.6. Appoint Supplier Qualification Comm.		DPS with DPC																	
<b>FINANCIAL MANAGEMENT OF SUPPLY PROCESS</b>																			
8.1. Fin. mgmt. strategy & procedures study	5 - 10 %	PS, MSCU	HSRP (WB)																
8.2. Implement new fin. mgmt. strategy		PS, MSCU		Consultant team															
<b>REGULATION OF MSCU</b>																			
9.1. MSCU Management Assessment	5 - 10 %	PS, MSCU	HSRP (WB)																
9.2. Implementation of MSCU changes		PS, MSCU		Consultant team															
<b>NATIONAL DRUG USE</b>																			
10.1. EDP Clin. Diag. Course evaluation	< 5 %	EDP	EDP	Indep. evaluator															
10.2. Controlled trial patient educ. mater.		EDP	EDP/Path	Path															

## TECHNICAL NOTES

### **PHARMACEUTICAL AND MEDICAL SUPPLIES SYSTEM ASSESSMENT Kenya Ministry of Health**

#### OVERVIEW OF PHARMACEUTICAL AND MEDICAL SUPPLY SYSTEM

Kenya's essential drugs activities date to at least the 1970s (Exhibit 2). In 1978, just one year after the World Health Organization published the first technical report on the selection of essential drugs, the Kenya Ministry of Health began a series of meetings to draft National Essential Drugs Lists. The Lists, which contained nearly 300 active ingredients, divided drugs into four levels of care, and were published in 1981.

In 1979, Kenya tested a new concept in Rural Health Facility (RHF) drug supply by trying the kit distribution system in a few districts. The success of this trial led in January 1981 to the launching of the Essential Drugs Programme (EDP) as the New Management System of Drug Supplies to Rural Health Facilities. The new system was based on central packing of standard drug kits to be delivered unopened to individual rural health facilities. Important aspects of the system as it was implemented included strong emphasis on training in clinical diagnosis, rational drug use, and drug management; improvements in patient attendance and drug supply record-keeping; strengthening of the distribution network of sub-depots and district medical stores; and maintaining a focused, active supervision and support system. The Kenya EDP subsequently became the subject of several international workshops and a model for essential drugs programmes in numerous other countries in the African region.

The success of the RHF kit system resulted in a 1987 pilot effort to provide basic hospital drugs through OPD (outpatient department) kits containing 40 essential drugs commonly used at district hospitals. This pilot program was initially funded by GTZ and the Dutch. As the program expanded to cover all districts and to include provincial hospitals, funding was provided through World Bank assistance. After interruption of supplies in 1989, the OPD kit system was restarted when funding for procurement was taken over by the MOH through its annual vote for drugs and dressings.

At the present time, all MOH supply of drugs and dressings is managed through the Medical Supplies Coordination Unit (MSCU) and the Drug Procurement Committee (DPC). The DPC was established by Presidential decree in late 1988. Its membership includes the eight Provincial Medical Officers (PMOs), the MSCU Officer In-Charge, the Chief Pharmacist, and the Senior Nursing Officer. The DPC is responsible for procurement decisions for all pharmaceuticals, non-pharmaceuticals, and medical equipment. The chairman is appointed by the Director of Medical Services. Specific responsibilities include product selection, quantification, supplier selection, and awarding of tenders. The DPC is supported in its work by the staff of the MSCU and by the Chief Pharmacist's office.

The MSCU -- formerly the Central Medical Stores -- is headed by an Officer In-Charge who is responsible through a deputy permanent secretary to the Permanent Secretary.

## EXHIBIT 2

### Chronology of Essential Drug Activities in Kenya

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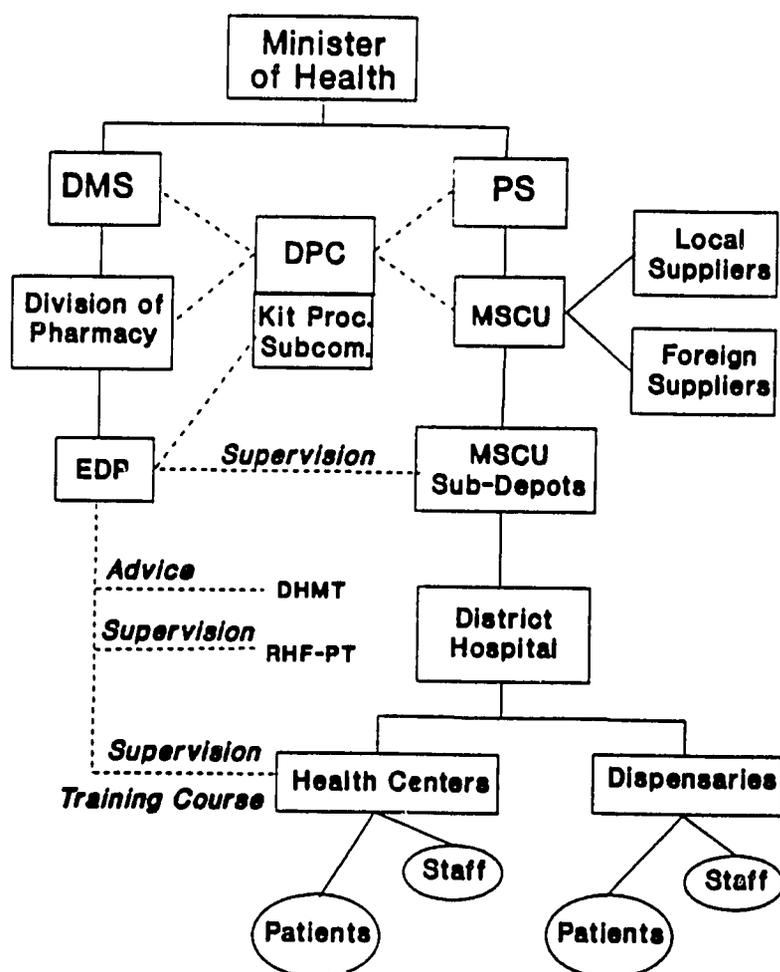
- 1963 Kenyan Independence. KANU Party commits itself to free education and free medical services.
  - 1974-1981 Local Kenyan drug manufacturing firms established.
  - 1977 WHO launches Essential Drugs concept.
  - 1978-1979 MOH convenes meetings to draft Essential Drugs List
  - 1979 RHF kit system tested in a few districts on a trial basis.
  - 1981 EDP launched as the New Management System (NMS) of Drug Supplies to Rural Health Facilities (January) with DANIDA and soon SIDA assistance.
  - 1981 Essential Drugs Lists published by Ministry of Health, listing drugs to be used at each of four levels of care.
  - 1984 Policy of decentralizing hospital drug procurement to the district level becomes partly operational (July)
  - 1985 EDP NMS reaches full coverage.
  - 1987 MSCU moves to a new site in Nairobi's commercial area (November).
  - 1987 Scheme to provide basic hospital drug requirements in "OPD Kits" started on a pilot basis with twelve district hospitals, supported by GTZ and the Dutch.
  - 1988 OPD Kit supplies provided to 12 additional district hospitals in the Pilot Phase Two.
  - 1988 Pilot scheme for hospital OPD kits stops when funding runs out (mid-year).
  - 1988 Drug procurement re-centralized under the authority of the Drug Procurement Committee, created by Presidential decree.
  - 1989 OPD kit program re-established with first shipment of 750 OPD kits purchased with World Bank assistance (June).
  - 1989 Ministry of Health institutes policy of cost-sharing involving OPD and health center consultation fees and increases in existing fees (August).
  - 1990 Cost-sharing charges for OPD and health center consultations terminated by Presidential decree.
-

The MSCU moved into its present location in Nairobi's commercial area in November 1987. MSCU operational units are responsible for procurement, quality control, stock management, warehouse, computer services, and accounts. MSCU staff handle administrative support for DPC procurement decisions, prepare contracts, track orders, receive and inspect shipments, and manage physical distribution to the sub-depots and directly to hospitals and districts in the immediate area.

Although drugs and medical supplies for hospitals and rural health facilities are all handled by the MSCU and DPC, the flow of decisions is somewhat different for the two groups of facilities. Therefore, it is useful to describe the two supply processes separately. Further details about selection, procurement, distribution, and use of pharmaceuticals and medical supplies are provided in the next section on Observations and Suggested Actions. Exhibit 3 outlines the supply process for rural health facilities.

**EXHIBIT 3**

**EDP/RHF Drug & Medical Supply Process**



The Essential Drugs Programme, under the supervision of the MOH Division of Pharmacy, is currently staffed by four experienced pharmaceutical technologists and a clinical officer responsible for training. The staff is assisted one day a week by a DANIDA training and program advisor. The EDP is responsible for planning kit requirements, for operating training courses for clinical staff at the health centers and dispensaries, and for providing supervision and support at all levels. The EDP is also responsible for periodically revising kit contents and preparing annual estimates of kit requirements for submission to the Kit Procurement Subcommittee of the DPC. Actual procurement is handled by the DPC and the MSCU procurement staff.

To expedite distribution from the Nairobi MSCU to district hospitals, the EDP -- with technical and financial support from SIDA and DANIDA -- has developed a system of six MSCU depots and sub-depots. A pharmaceutical technologist for rural health facilities is posted at each sub-depot to oversee kit distribution to the districts. From the MSCU sub-depots kits are issued to pharmaceutical staff at the district hospital for distribution to all health centers and dispensaries within the district. Each district is supposed to have a pharmaceutical technologist in-charge of RHF's to supervise distribution and use of kits at RHF's.

Staff from the EDP in Nairobi provide advice and/or supervisory support for MSCU sub-depot staff, for the District Health Management Teams (DHMTs), for the pharmaceutical technologists in charge of RHF's, and for RHF clinical staff. They also conduct a continuous series of one-week courses on clinical diagnosis, rational prescribing, essential pharmacology, and drug management for RHF staff.

Provincial general hospitals (PGHs), district hospitals, and subdistrict hospitals receive their pharmaceuticals and medical supplies through a network similar to that for RHF's (Exhibit 4). Pharmaceuticals for hospitals are procured and as individual items. OPD kits contain 40 oral, injectable, and topical pharmaceuticals valued at roughly 25,000 Kenya shillings (~US \$1,100) and intended to serve a busy district hospital for about one month. The list of individual items is based on the 1981 Essential Drugs Lists, but extends beyond those lists to include a total of several hundred finished dosage forms, intravenous fluids, diagnostic reagents, basic chemicals for compounding preparations, and disinfectants and antiseptics.

The DPC is responsible for revising the lists and, with the assistance of the MSCU computer unit, for compiling estimates of annual requirements. In addition to drugs procured centrally through MSCU, hospitals are still given a small budget for local purchase. Recently, provincial hospitals have received 200,000 KShs. (~U.S.\$8700) and district hospitals 50,000 KShs. (~U.S. \$2200) per six months. Although intended for NSD ("non-scheduled drugs") procurement, these funds often must be used for emergency procurement of supplies of essential drugs and non-pharmaceutical items.

From MSCU/Nairobi, supplies are sent by rail to the MSCU sub-depots, from which they are distributed by vehicle to bulk medical stores at provincial, district, and subdistrict hospitals. Up to this point, the distribution system follows Government of Kenya supply practices and appears relatively standardized in terms of forms and procedures. From hospital bulk medical stores, drugs and dressings are issued to the hospital pharmacy and to other units in the hospital. From this point on, responsibilities, record-keeping practices, and control systems vary among hospitals. Few hospitals appear to have drug committees to oversee drug use,

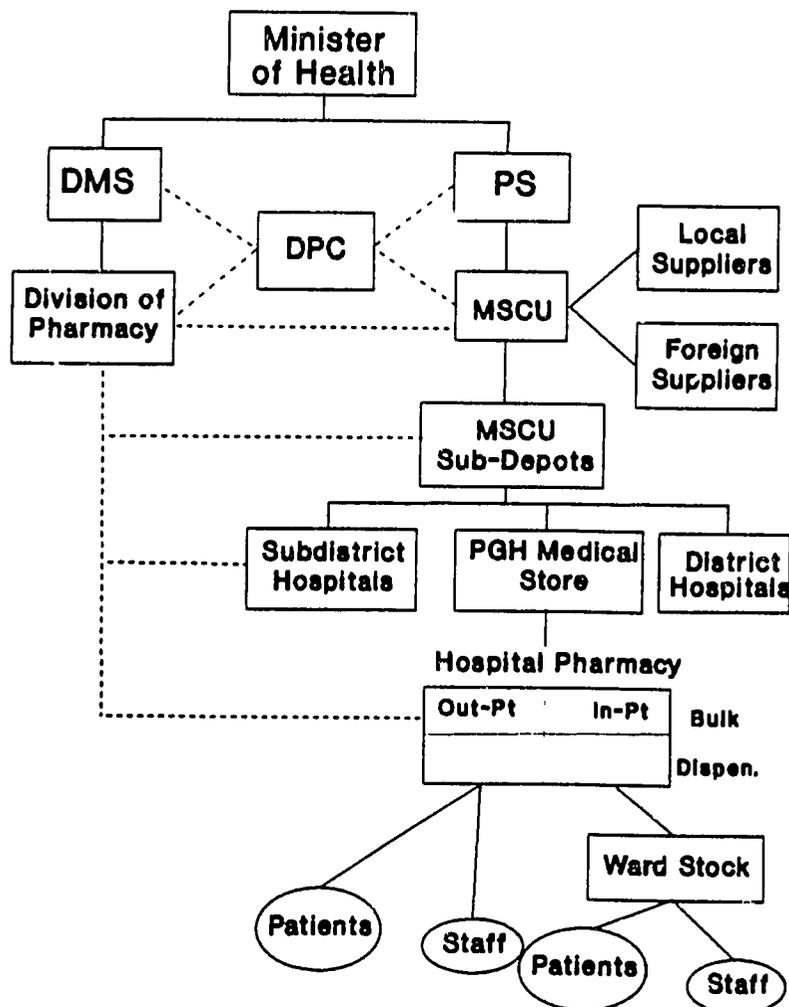
management, and control. Some hospitals separate inpatient and outpatient pharmacies; others do not. Systems for managing ward stocks also vary among hospitals.

The Ministry of Health employs about 120 pharmacists and about 600 pharmaceutical technicians. The majority of these individuals serve at provincial, district, and subdistrict hospitals. As indicated by the dashed lines in Exhibit 4, the MOH Division of Pharmacy has an advisory, rather than a direct supervisory relationship with these pharmaceutical personnel.

Other responsibilities of the Division of Pharmacy include drug registration, drug inspection, pharmacist and pharmaceutical technologist registration and quality control. These and other regulatory aspects of drug policy and management were not included in the terms of reference for this assessment.

EXHIBIT 4

**Hospital Drug & Medical Supply Process**



## OBSERVATIONS AND SUGGESTED ACTIONS

It is clear from the preceding overview that the basic organization of the pharmaceutical and medical supply system in Kenya has evolved considerably since independence and, in particular, during the last ten years. The present system is characterized by a commitment to assuring a regular and balanced supply of pharmaceuticals to both primary care rural health facilities and to hospitals; by procurement of essential drugs by their official international non-proprietary name (INN, or "generic" name); by competitive tendering among qualified local and foreign manufacturers; by an increasingly effective network of distribution sub-depots; and by a strong emphasis -- particularly at rural health facilities -- on promoting rational prescribing and patient use of pharmaceuticals.

Despite the strengths of the current system, the MOH has expressed concern over existing weaknesses with needs estimation, frequent costly emergency procurements, poor inventory control, considerable leakages, and highly variable hospital drug management practices. To address these and related problem areas, the team identified ten areas for action. Specific findings, actions, priorities, and timetables are described for each of these areas of drug policy and management. The ten areas include, (1) National Drug Policy, (2) National Essential Drugs List, (3) Hospital Therapeutics, (4) Hospital Drug Management, (5) Supervision of Pharmaceutical and Medical Supply Distribution, (6) Needs Estimation and Allocation, (7) Good Procurement Practices, (8) Financial Management of the Supply Process, (9) Medical Supply Coordination Unit Operations, and (10) Rational Drug Use.

### 1. National Drug Policy

#### Observations

In April 1990 a joint MOH-WHO workshop was held with the aim of developing a Kenya National Drug Policy. Although Kenya has not had a formalized National Drug Policy (NDP), a large portion of the proposed policy elements are already being implemented through existing programs. Current practices support the essential drug concept in the public sector and favor primary care drug supply. Nonetheless, the Ministry of Health and, in particular, the Director of Medical Services and Acting Chief Pharmacist, are committed to adopting a formal National Drug Policy during the coming year.

A three-page working paper resulting from the April 1990 meeting summarizes key elements of the proposed Kenya policy (Annex C). Exhibit 5 outlines these policy elements. A Secretariat appointed by the Director of Medical Services and chaired by the Acting Chief Pharmacist was charged with the responsibility of preparing a draft policy.

#### Suggested Actions

During the team's visit, the following schedule of activities was proposed for carrying the policy process to its conclusion:

- (1) Secretariat for National Drug Policy, Division of Pharmacy, MOH drafts National Drug Policy (December 1990 through February 1991).

EXHIBIT 5

NATIONAL DRUG POLICY

Contents of Working Paper on Kenyan National Drug Policy \*

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SELECTION OF DRUGS: revision and implementation of Essential Drugs List (EDL) and National Drug Formulary

REGISTRATION OF DRUGS: registration criteria, fees, process

DRUG INSPECTION: administration, organization, financing, inspection criteria

QUALITY CONTROL: strengthen QC lab, QC training, QC for public procurement

PRIVATE SECTOR SUPPLY OF DRUGS: availability, import tax, price control, dispensing controls

PROCUREMENT OF DRUGS FOR THE PUBLIC SECTOR: calculation of drug needs, annual budget, local supplier preference

STORAGE AND DISTRIBUTION IN THE PUBLIC SECTOR: administrative procedures, MSCU responsibilities, RHF kit distribution, hospital supply, non-scheduled drugs

TRAINING: prescriber training based on EDL, undergraduate training to cover all aspects of national drug policy and its implementation

THE USE OF GENERIC NAMES: public sector procurement and prescribing by generic name, all public and private sector labeling to include generic name

RATIONAL DRUG USE & PRESCRIPTION CONTROLS \*\*: EDL & National Drug Formulary to specify prescriber levels, expand work on rational prescribing and patient use

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\* As drafted by WHO Action Programme on Essential Drugs based on MOH-WHO workshop held April 1990. (WHO: Towards a National Drug Policy in Kenya. Report of a Mission, 17-24 April 1990. Annex 3)

\*\* This section not included in current draft of working paper.

(2) Senior Management Committee (SMC) reviews and revises NDP drafted by Secretariat (March 1991).

(3) Secretariat incorporates SMC changes into draft NDP (April 1991)

(4) Secretariat circulates revised draft NDP to interested parties (May-June 1991). Possible interested parties mentioned by MOH officials include the following:

- |                                |                                   |
|--------------------------------|-----------------------------------|
| * MOH senior officials         | * Ministry of Planning            |
| * Provincial Medical Officers  | * Ministry of Industry            |
| * Provincial Hosp. Pharmacists | * Ministry of Commerce            |
| * U. Nairobi Health Faculties  | * Provincial Drug Inspectors      |
| * Medical Training College     | * Attorney General Office         |
| * Treasury                     | * Central Bank                    |
| * M.F.D.S.                     | * K.A.P.I                         |
| * Kenyan Medical Association   | * Kenyan Pharmaceutical Assoc.    |
| * Pharmaceutical Society Kenya | * Federation of Kenya Manu.       |
| * WHO                          | * DANIDA, SIDA, USAID, World Bank |

(5) Workshop with Secretariat for NDP and WHO consultant(s) is held to review changes suggested by interested parties and to prepare a revised draft of the NDP (July 1991).

(6) SMC reviews final draft of NDP produced by workshop 1991)

Some of the elements of the new National Drug Policy will probably require legislative changes before they can be implemented (eg., import duties on non-essential drugs). But many of the elements of the new policy can be implemented under existing laws and regulations through new initiatives in Ministry of Health programs. In general, the actions suggested on the following pages represent programmatic initiatives which are entirely consistent with the NDP working paper and can be implemented without legislative changes.

#### Potential Sources of Support

The primary source of technical support for developing the National Drug Policy will be the Ministry of Health Secretariat for National Drug Policy. The interested parties listed above also represent sources of technical expertise. As part of its Report of a Mission to Kenya (Annex 4, 1990), the WHO Drug Action Programme proposed providing short-term consultation and financial assistance for a National Drug Policy Workshop. It is recommended that WHO be invited by the MOH to provide this assistance for the workshop tentatively scheduled for July 1991 to incorporate changes suggested by the interested parties and to prepare the final (or penultimate) version of the NDP.

## 2. National Essential Drugs List

### Observations

The Kenya National List of Essential Drugs was published in 1981 after extensive consultations. The introduction to the list states that:

Only drugs listed under each level of Health Services...will be procured by Central Medical Stores [MSCU] for use at their respective levels.

Special permission must be obtained from the Director of Medical Services for the acquisition, possession, or use of any drug not appearing on the list.

The list, which is included as Annex D, is divided into four levels of care, with the following number of items in each level, some of which appear in more than one dosage form or strength:

Health Centres and Dispensaries	78
District Hospitals	226
Provincial Hospitals	279
Referral Hospitals	288

Since the list was adopted in 1981, it has provided a sound basis for public sector drug supply. For procurement purposes, changes have been made in the list, but no specific process or criteria exist for formal revision of the EDL. Though most products being procured continue to be safe, cost-effective choices, some outmoded products or dosage forms continued to be used (eg. theophylline/ phenobarbital/ ephedrine combinations), while some advances in therapeutics or cost-effectiveness are not included in current supply lists (eg. amoxicillin).

Except for the EDP Handbook for Rural Health Workers, no formulary manual or other unbiased source of information exists for drugs used by the Ministry of Health.

### Suggested Actions

During a meeting with the Director of Medical Services, the DMS indicated that he considered revision of the National Essential Drugs List to be a top priority for the coming year. The interest is not only in revising the list itself, but equally important is the need to categorize the list according to level of prescriber as well as level of care. Just as level of care categories specify which types of facilities are allowed to use each drug on the list, the level of prescriber categories would specify which drugs can be prescribed by consultants, general medical officers, clinical officers, enrolled nurses, or other cadres of health workers.

The following steps and target dates are suggested for the revision of the essential drugs list and publication of a national formulary manual:

- (1) Appoint National Essential Drugs Committee -- Appointment made by the Director of Medical Services (December 1990). Because revision of the EDL will be a time-consuming task and because the Drug Procurement Committee is already heavily burdened with procurement responsibilities, it is specifically suggested that a separate committee be appointed. Another reason for appointing a separate

committee for the EDL is variety in perspectives. Experiences from other countries suggest that it is extremely useful to have a diversity of professional backgrounds and work environments reflected on the EDL committee. Members previously suggested by WHO (1990) include:

Director of Medical Services or his designee  
Chief Pharmacist, Drug Registration Pharmacist, MSCU Pharmacist  
Prescribers (doctors and paramedical staff)  
Training institutions (medical, pharmacy, paramedical)

Prescribers should include at least one Provincial Medical Officer (PMO) and at least one District Medical Officer of Health (MOH). Training institution members should include at least one clinical pharmacologist and/or clinical pharmacist.

(2) Workshop with National Essential Drugs Committee and WHO to establish selection criteria, selection process, prepare draft revision (February 1991). Selection criteria should include at least the following:

- |                               |                      |
|-------------------------------|----------------------|
| * Effectiveness               | * Safety             |
| * Cost                        | * Compliance factors |
| * Local experience & research | * Local availability |

(3) Circulate draft revision to interested parties, including Provincial Medical Officers, Provincial Hospital Pharmacists, training institutions, professional associations, mission groups, and possibly manufacturers' associations (March-April 1991).

(4) Prepare final revision -- National Essential Drugs Committee incorporates changes suggested by interested parties (May-June 1991).

(5) Distribute revised list to all health institutions and begin using this list as the basis for training, procurement, acceptance of drug donations, etc. (July 1991).

(6) Prepare a National Essential Drugs & Therapeutics Manual, drawing on members of the National Essential Drugs Committee, other MOH staff, local universities (August-September 1991). Writing and editing a formulary and therapeutics manual is a demanding and time-consuming process. While the National Essential Drugs Committee can serve as an editorial review board to assure the accuracy and appropriateness of the contents, it is recommended that a local and perhaps international consultant be hired to handle much of the basic writing, the editorial process, and publication arrangements.

### Potential Sources of Support

Although assistance for revising the EDL was not included in the April 1990 Plan of Action for Future WHO Support (Annex 4, WHO, 1990), it is recommended that WHO be asked to provide financial assistance for the proposed February 1991 workshop and a short-term consultant for this workshop with expertise in therapeutics, knowledge of the formulary process, and experience in developing and revising national essential drugs lists. Support for writing and publishing a formulary and therapeutics manual based on the EDL should be considered separately through discussion with the Kenya Health Sector Rehabilitation Project (World Bank), the Health Care Financing Project (USAID), or separate discussions with WHO.

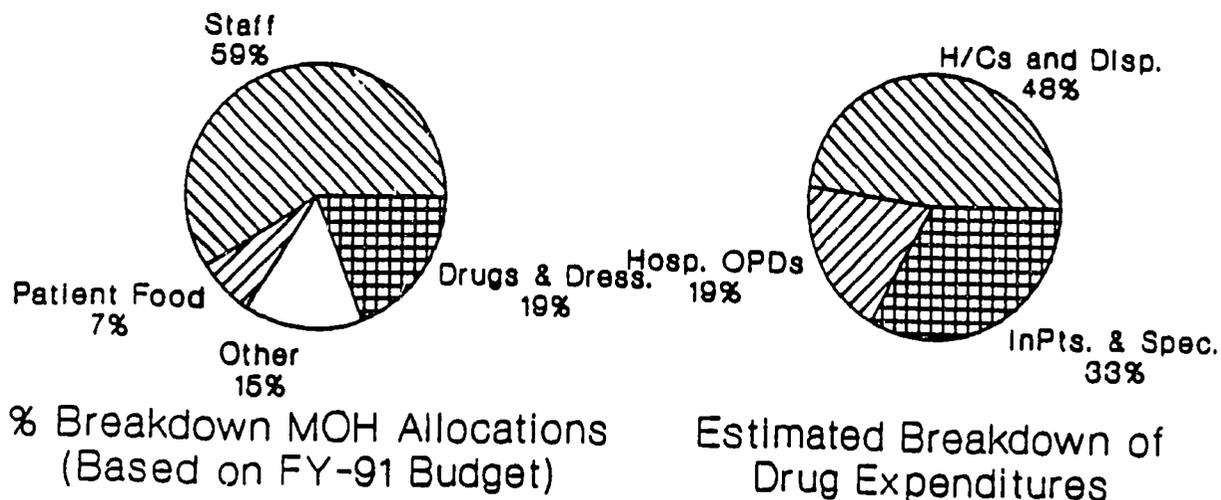
### 3. Hospital Therapeutics

#### Observations

Pharmaceuticals play an obvious central therapeutic role in the majority of hospital outpatient visits and in a large portion of inpatient admissions. At the same time, hospital consumption of pharmaceuticals and medical supplies has a substantial financial impact. In the MOH budget for the current fiscal year (FY-91), 19 percent of net allocations are for drugs and dressings (Exhibit 6, left pie) -- a total of over 450 million KShs (~ US \$20 million). Based on calculations from data in the "Gap Study" (HFS Project, 1990) nearly 48 percent of current MOH and donor pharmaceutical expenditures are for health centers and dispensaries, while 52 percent of expenditures are for hospital inpatients and outpatients (Exhibit 6, right pie). This study found that on average essential drugs were in stock 78 percent of the time at dispensaries, 85 percent of the time at health centers, but only 69 percent of the time at hospitals. These percentages suggest that hospital drug requirements are even greater than current expenditures would suggest.

#### EXHIBIT 6

## MOH Pharmaceutical Expenditures in Perspective



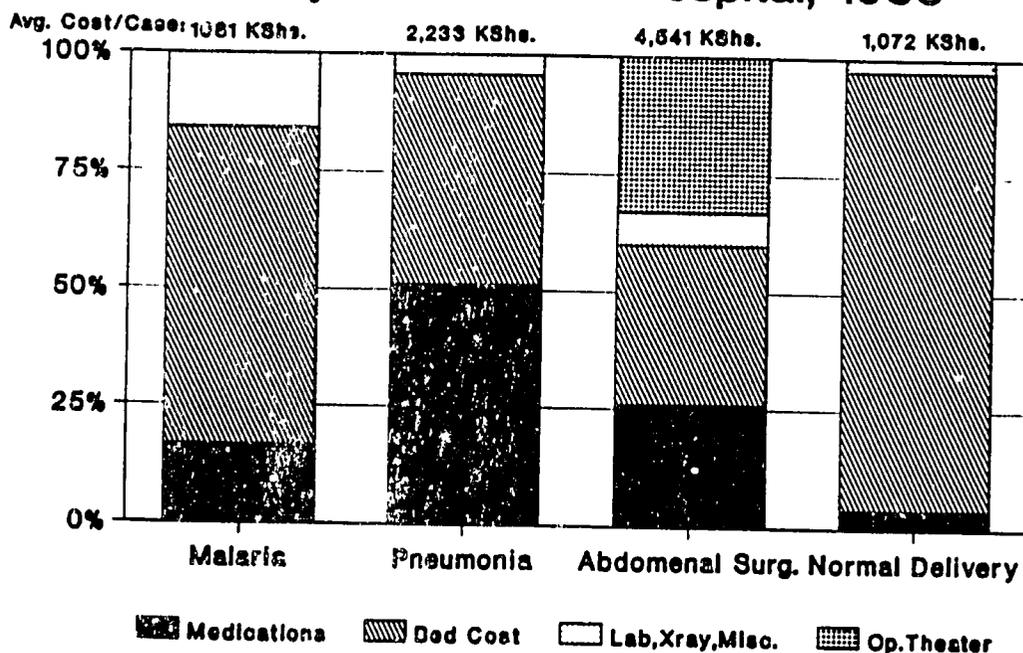
(Based on "Gap Study", HFS Project, 1990)

Exhibit 7 summarizes data from the "KNH Study" (REACH/Kenyatta National Hospital Study Team, 1988) which further illustrates the financial impact of hospital pharmaceutical consumption. For pneumonia cases, 50 percent of the average hospitalization cost -- 1135 KShs. (~ U.S. \$50) -- went for medications. The drug costs for patients undergoing abdominal surgery were actually slightly higher (1171 KShs.). In both cases over 80 percent of the drug costs were for antibiotics not on the essential drugs lists (REACH/KNH Study Team, 1988, Exhibit IIIC).

Although hospital drug costs are considerable, by local comparative standards the number of medications per patient appear modest. Exhibit 8 compares the number of medications per patient for a sample of patients with the same four diagnoses at KNH and at the non-governmental Aga Khan Hospital (AKH). For malaria and pneumonia, the number of medications per patient are quite comparable, while for abdominal surgery and normal deliveries, the average AKH patient received nearly twice as many drugs. AKH patients also underwent more laboratory and radiology examinations, despite having a generally shorter average length of stay. Although the data do not indicate whether the prescribing differences reflect more judicious drug prescribing at KNH or drug shortages which limit prescribing options, many at KNH would argue in favor of the latter explanation.

**EXHIBIT 7**

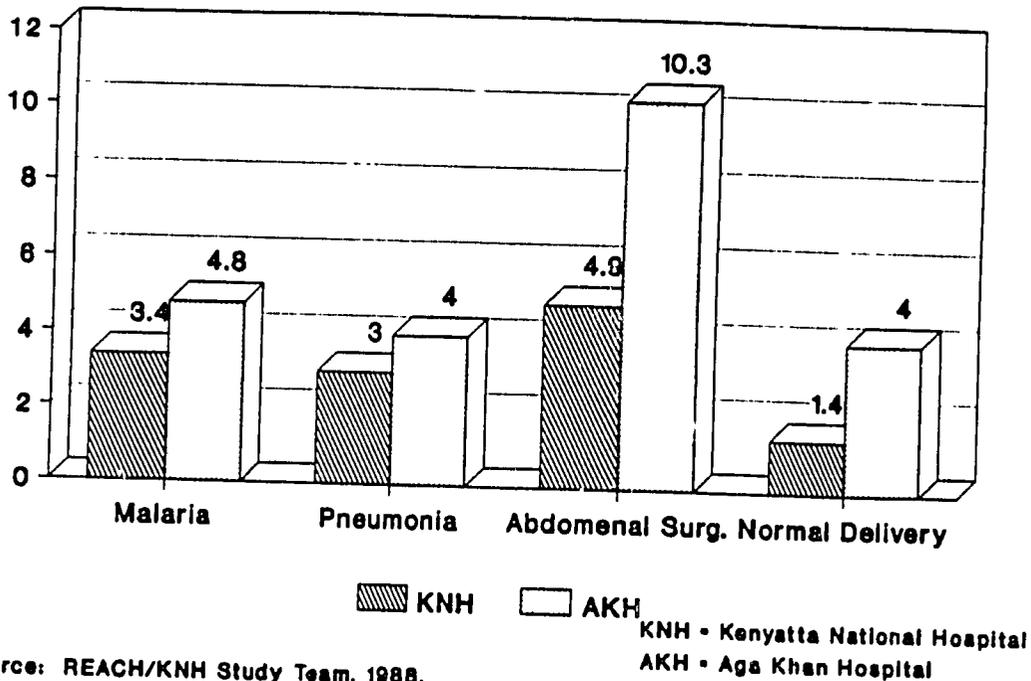
**Cost Components of Hospital Discharges  
Kenya National Hospital, 1988**



Source: REACH/KNH Study Team, 1988.

EXHIBIT 8

**Average Number Medications per Patient  
KNH vs. AKH, 1988**



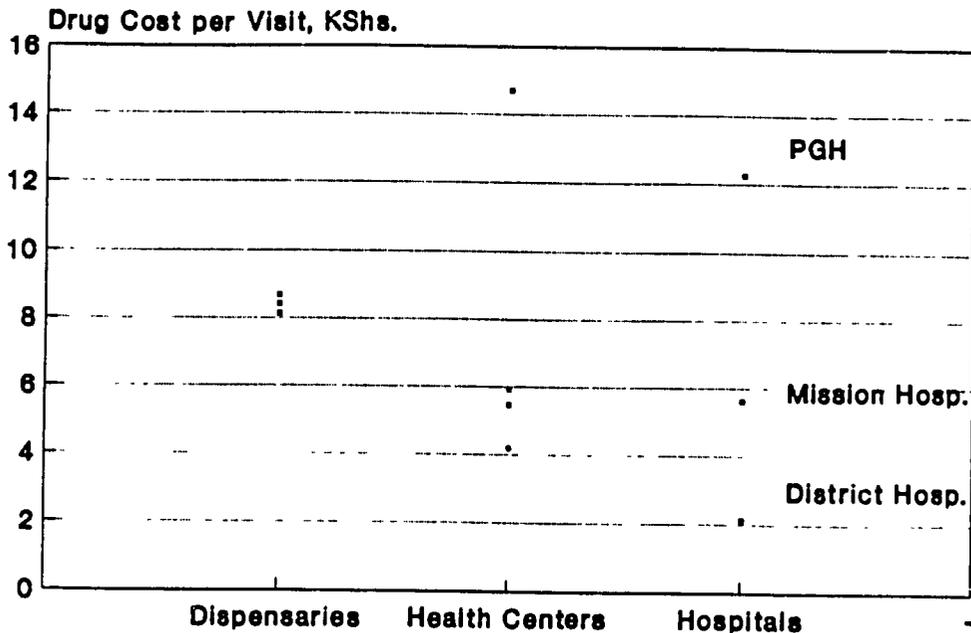
Source: REACH/KNH Study Team, 1988.

Another recent study of provincial and district health services -- the "PADS Study" -- looked at appropriateness of hospital drug prescribing (Overholt, Ikiara, et al., 1989). The authors compared prescribing at two MOH hospitals (Nakura PGH and Naivasha District Hospital) and one mission hospital (Mercy Hospital). They found that, while the type of medication prescribed was appropriate in the majority of cases, the number of medications was judged to be too high in 61 percent of cases at Nakura PGH, 48 percent of cases at Naivasha District Hospital, and only 14 percent of cases at Mercy Hospital.

The study also compared drug costs per outpatient curative visit (Exhibit 9). Three dispensaries, four health centers, and the same three hospitals were compared. Average costs for the three dispensaries all fell very close together at slightly over eight KShs. per visit. But the average drug cost per patient for health centers ranged from about 4 KShs. to over 14 KShs. For hospital outpatients, the variation was even greater, ranging from over 2 KShs. per visit for Naivasha District Hospital to more than 12 KShs. per visit for Nakura PGH.

EXHIBIT 9

## Drug Cost per Outpatient Curative Visit Nakura District, 1989



Source: PADS Report, October, 1989

The variations in hospital prescribing practices suggested by these studies should not be unexpected in light of the relatively open system of hospital drug management. Prescribing limits based on qualifications are nonexistent or inconsistent among hospitals. An attempt made several years ago to put limits on prescribing for medical officers reportedly led to a form of work slowdown by medical officers. Only one of six hospitals visited had an active Hospital Drugs Committee to oversee drug use, management, and control -- and this committee was started only in the last few months.

In contrast to rural health facilities -- for which there is a standard drug list, a reference manual, standard treatment guidelines, and ongoing training on rational drug use -- there is no generally available standard list of hospital drugs, no formulary manual for reference purposes, and no standard treatment guidelines for even the most common conditions.

Irregular supply of lab reagents and difficulty with maintenance of laboratory equipment mean that laboratory confirmation of diagnoses is often not possible. For hospitalized patients with severe infections, culture and sensitivity tests are important for cost-effective antibiotic prescribing. Unfortunately, many hospitals lack the supplies and operational equipment needed for culture and sensitivity testing. Among the hospitals visited where sensitivity testing is performed, bacterial resistance profiles are not routinely provided to prescribers to assist in presumptive selection of antibiotics.

## Suggested Actions

Taken together, these observations suggest the potential for achieving significant improvements in therapeutic effectiveness and considerable potential savings through more systematic hospital therapeutics and drug management. The following actions are suggested:

(1) An analysis of Hospital Drug Utilization Patterns should be undertaken in a representative sample of provincial, district, and subdistrict hospitals to determine the reasons for previously documented variations in overall drug use and to assess the overall quality of prescribing practices (April-June 1991). This analysis can draw on local expertise developed in previous studies of essential drug utilization (Agwanda et al, 1989; Havemann et al, 1990) and perhaps on secondary analysis of previous health resources studies which have included data on hospital prescribing patterns (REACH/KNH Study Team, 1988; Overhold, Ikiara, et al, 1989; HFS Project, 1990). The study should focus on identifying the top ten or twenty hospital drugs based on value, characterizing the utilization patterns for these leading drugs, assessing the adequacy of laboratory use in relation to prescribing decisions for several indicator conditions, and evaluating the appropriateness of prophylactic antibiotic use (especially for surgery).

(2) Hospital Drugs and Therapeutics Committees should be created at all but the smallest hospitals to promote safe, effective, economical drug use. Such committees -- also known as Formulary and Therapeutics Committees or as Pharmacy and Therapeutics ("P & T") Committees -- have become an integral part of modern hospital pharmacy practice in many countries. In the United States active "P & T" committees are a required component of quality assurance for hospital accreditation. Such committees are also an important management tool for increasingly cost-conscious private and public hospitals.

For provincial, district, and larger subdistrict hospitals, the Hospital Drugs and Therapeutics Committees would be responsible for such tasks as:

- |                                  |                                     |
|----------------------------------|-------------------------------------|
| * antibiotic prescription policy | * prophylactic antibiotic use       |
| * prescription control rules     | * NSD and specialist drug purchases |
| * drug utilization reviews       | * automatic stop orders             |
| * review annual requirements     | * dissemination of drug information |

Membership on the Hospital Drugs and Therapeutics Committees may vary among hospitals, but in general it should include the following individuals:

Hospital Superintendent or designee, Committee Chairman  
Hospital Pharmacist, Committee Secretary  
Hospital Secretary  
Consultants (1 or 2)  
Medical officers (1 or 2)  
Matron In-Charge  
Hospital Supplies Officer

At district hospitals, such committees may be defined as District Health Management Team subcommittees and their responsibilities broadened to include oversight of rural health facility drug supply and use. In such cases, membership should be expanded to include the pharmaceutical technologist in-charge of RHF's and public health staff.

Typically, much of the actual work of a Hospital Drugs and Therapeutics Committee will be done between meetings by pharmacy and nursing staff under the supervision of the Committee Chairman. Committee meetings are then used for policymaking, for reviewing reports prepared by committee staff, and for sharing new drug information.

(3) Clinical Guidelines for Diagnosis and Treatment of Common OPD and Inpatient Problems should be developed to promote consistent, cost-effective use of laboratory, x-ray, and pharmaceutical resources for the outpatient and inpatient problems most frequently seen at district and subdistrict hospitals. If they are well-conceived and well-presented, these guidelines should also be useful for treatment of common problems at provincial hospitals.

Among some physicians there is the misconception that "standard treatments" represent "cookbook medicine" and should be developed only for use by clinical officers, enrolled nurses, and other non-physician providers. In reality, guidelines for diagnosis and treatment are associated with the highest quality in medical practice. When developed by qualified local consultants and properly tested in practice, clinical guidelines represent the collective wisdom regarding the most effective, appropriate, risk-beneficial, economic methods for diagnosis and treatment. In the United States, standard treatments for medical inpatients effectively have existed for over 25 years in the form of the Manual of Medical Therapeutics, perhaps the most widely sold medical reference in the U.S.

The Clinical Guidelines should be developed initially by consultants at Kenyatta National Hospital, perhaps by focusing first on the ten major problems from each of the main specialties (pediatrics, adult medicine, general surgery, obstetrics and gynecology, and psychiatry). A draft version of the Guidelines should then be field-tested at selected Provincial General Hospitals and District Hospitals.

(4) Support for and Utilization of Laboratory Testing -- Finally, it is suggested that specific efforts be made to address the problems of laboratory supplies, maintenance of laboratory equipment, and use of laboratory tests. The feasibility and cost-effectiveness of creating a laboratory supply kit should be explored as part of work on Needs Assessment and Allocation (Section 6, below). The Hospital Drugs and Therapeutics Committees should be charged with the responsibility of reviewing the use of laboratory tests in supporting drug therapy and of assuring that hospital antibiotic resistance profiles are routinely distributed to prescribers.

#### Potential Sources of Support

Technical support for improved hospital therapeutics can come in large measure from consultants at KNH and the University. Establishment of Hospital Drugs and Therapeutics Committees can probably be initiated through the Provincial Medical Officers by the Director of Medical Services. The recently initiated Health Financing Program and Project, supported by USAID, has identified hospital therapeutics as one area for which it will provide technical and financial support. In particular, support for the development of the Clinical Guidelines is a priority for the project.

#### 4. Hospital Drug Management

##### Observations

With the introduction of OPD kits, drug supply to hospitals has become more regular. Bulk medical stores are generally well organized with good record-keeping. Antibiotic and injection registers are consistently maintained for both inpatients and outpatients, but most other pharmacy record-keeping practices vary considerably among hospitals. As Exhibit 4 indicates, some hospital pharmacies maintain separate records for their bulk stock and their daily dispensing stock, others maintain minimal records of drugs once they have reached the hospital pharmacy. Some hospitals have separate inpatient and outpatient pharmacies, others serve all units from the same area. Systems for managing ward drug supply also vary considerably and often lack adequate controls to prevent diversion and misuse.

As in other countries, drug consumption (prescription and otherwise) by hospital staff can consume a large percentage of the hospital drug budget. One district hospital estimated that, prior to recent revisions in policies for prescribing and dispensing drugs to staff, staff drug use (prescription and otherwise) consumed up to 40 percent of hospital drug supplies. Losses to staff can result from small-scale pilferage by the large numbers of supply, pharmacy, nursing, and medical staff who have direct access to drugs; from any member of the hospital workforce who feigns illness to obtain a prescription from a sympathetic doctor or clinical officer; through frank collusion between prescribers and hospital staff; or through large-scale diversion by hospital officials. News of the arrival of new shipments of popular drug items spreads quickly among hospital staff members; "feigners" know what drug to request; pilferers know what drugs are there for the taking.

##### Suggested Actions

To standardize and strengthen hospital drug management, it is suggested that uniform policies and procedures be developed and tested, that these policies and procedures be published in the form of a practical hospital drug management manual, and that provincial level training programs be held to teach the new system to district and subdistrict hospital staff. Policies, procedures, and necessary forms should be developed for all key aspects of hospital drug use, management, and control, including the following:

- \* pharmacy record-keeping
- \* written prescriptions
- \* staff drug use controls
- \* ward stock procedures
- \* cost awareness activities
- \* supervision responsibilities
- \* Hospital Drugs and Therapeutics Committees
- \* recycling of slow-moving items
- \* measures for control of pilferage
- \* policies regarding drug company representative visitations

Rather than looking for "textbook solutions" or bringing in an outside consultant to prepare a complete hospital drug management plan, it is suggested that a combination of MOH expertise, Kenyan mission and private hospital experience, and international hospital pharmacy expertise be used. The development of improved hospital drug management practices should build on the experience and innovations of those

individual Hospital Superintendents, Medical Officers of Health, matrons, and pharmacists who have already been making efforts to improve drug management at Ministry of Health hospitals. Therefore, the following steps are suggested for developing and implementing the necessary changes:

- (1) Working group of doctors, nurses, pharmacists pharmaceutical technologists appointed by DMS from PMO nominations (January 1991). PMOs should be asked to identify individual doctors, nurses, and pharmacists who have been particularly active in improving drug management at hospitals within their province. Membership should include 10 to 14 people from five to eight districts and at least one mission and one private hospital member. An effort should be made to appoint two people per hospital whenever possible, since this will help in field testing the policies and procedures.
- (2) Manual preparation workshop with an international and local hospital pharmacy management consultant (March 1991). The group would meet for seven to 10 working days to identify the major weak spots in current hospital drug management practices, to share their own experiences in trying to improve current practices, and to draft policies and procedures based on members' experience and on modern hospital drug management practices. The workshop should draw on security and theft control techniques used in other countries. Such techniques are summarized in the security chapter of Managing Drug Supply (MSH, 1981). Working group members should be asked to bring samples of all policies, procedures, forms, educational materials, and other materials which are in use at their hospitals. With good secretarial support, it should be possible to compile workshop results in the form of a draft manual for distribution to working group members at the end of the workshop or very soon thereafter.
- (3) Pilot test manual and procedures for six months at the hospitals of the working group members (April-September 1991). Before implementing proposed policies and procedures nationwide, it is important for working group members to pilot-test proposed changes. If, for example, several alternative methods are proposed for managing ward drug stocks, it would be possible to experiment with the two or three most promising approaches.
- (4) Manual revision workshop to incorporate pilot-test experiences and prepare final manual (October 1991).
- (5) Print manual (December 1991).
- (6) Implementation of manual through provincial Hospital Drug Management workshops (January-March 1992). Experience indicates that simply printing and distributing a manual -- no matter how well-conceived and well-presented -- does not change behavior. Therefore, three- to five-day provincial-level workshops should be held for two to three representatives per hospital to introduce the new hospital drug management system.

## 5. Supervision of Pharmaceutical and Medical Supply Distribution

### Observations

Existing procedures for drug and medical supply accountability from the central depot to hospital medical stores are quite functional and stock records are generally well organized. The Government of Kenya Supplies Manual (Ministry of Finance and Planning, 1978) provides a sound basis for tracking supplies through the distribution network. Periodic surprise spot audits are conducted by Treasury. The Essential Drug Programme has developed practical supply management practices for rural health facilities, including a bin card register and several prescription registers.

Unfortunately, actual performance appears highly variable. Specific problems include the following:

- \* Stock records at sub-depots and hospital medical stores, although generally quite good, are occasionally incomplete or poorly organized.
- \* Record-keeping practices at health centers and dispensaries, although also quite good in general, are lax at some facilities and thereby open the opportunity for misuse of drug supplies.
- \* Annual physical inventories (stock-takes), with independent verification, should be performed at every point in the distribution network to assure that the quantities of items on hand are in agreement with the quantities expected from receipt and issue information contained on the stock cards. Although most facilities did have evidence of annual inventories, about one in three did not.
- \* Recycling of sub-depot and hospital overstocks is inadequate due in part to limited transport, but more importantly to lack of active supervision by qualified pharmacy staff. Resulting losses are considerable. Examples from one Provincial General Hospital:
  - Sodium stibogluconate (Pentostam), 100 ML bottles, 90 bottles  
Cost = 2300 Shs./bottle = 210,000 Shs.
  - Thiopental inj. 0.5 GM, 400 vials  
Cost = 25 Shs./vial = 10,000 Shs.
  - Trifluoperazine 5 MG tabs, 60 containers of 1000 tablets each  
Cost = 200 Shs./container = 12,000 Shs.
- \* Supervision of drug supplies for rural health facilities is highly variable. Since at least 1986, each district has been expected to appoint a Pharmaceutical Technologist In-Charge of RHF's. The responsibilities of this individual are outlined in Exhibit 10. The RHF Pharmaceutical Technologist position is well-conceived and highly effective when implemented as intended. Unfortunately, actual performance is extremely variable. This variability is attributable to differences in staff qualifications and motivation; differences in training and orientation; and differences in the amount of supervision which they receive.
- \* Dispensing practices, including labeling, use of generic names, and patient counseling, vary considerably among facilities.

## EXHIBIT 10

### Responsibilities of Pharmaceutical Technologist In-Charge of RHF's \*

1. Checking of drug records -- bin card entries, posting of drugs to OP registers, correctness of entries and balances in OP antibiotics/sulfonamides registers.
2. Checking of patient attendance records -- males, females, children, ANC, FP, total cases per month.
3. Studying disease patterns from records and advising on supplementary drugs needed.
4. Ensure rational use of drugs -- identify problems related to misuse of drugs and educate the staff accordingly.
5. Justify the number of drug kits received by each rural health facility.
6. Ensure proper storage of drugs.
7. Check dormant drugs, withdrawing and redistributing them to needy stations.
8. Make a work schedule and submit regular reports on utilization of essential drugs by RHF's in the district.

Source: Letter from EDP Chief Pharmaceutical Technologist to Medical Officers of Health, 30 October 1990.

Together, these observations mean that the basic procedures for distribution of drugs and medical supplies up to the level of hospital pharmacies are generally adequate, but their implementation is incomplete and inconsistent. Improvements in hospital drug management suggested in the preceding section will be implemented only with effective supervisory support.

Incomplete and inconsistent implementation of supply management procedures is attributable to lack of supervision, inadequate staffing, and staff turnover. Among these three factors, improvement of supervision is most likely to yield significant improvements in the immediate future.

### Suggested Actions

- (1) Establish Position of PROVINCIAL CHIEF PHARMACIST to work under the administrative supervision of the Provincial Medical Officer with technical support from the Deputy Chief Pharmacist. Unlike other disciplines such as nursing, provinces do not generally have a provincial pharmacist located with the provincial health administration. Currently, the only pharmacy resource on which

the Provincial Medical Officer can call is the Pharmacist In-Charge at the Provincial General Hospital. But running the pharmacy services for a hospital of several hundred inpatient beds which may also treat well over 1,000 outpatients per day is itself a full-time job. This leaves the pharmacy services of district and subdistrict hospitals essentially unsupervised. It also means that MSCU sub-depots are rarely visited by a fully qualified pharmacist.

An effective Provincial Chief Pharmacist could play a key role in assuring adherence to good distribution practices and in eliminating the lapses noted above. The Provincial Chief Pharmacist would be responsible for:

- \* supporting and supervising Provincial General Hospital Pharmacist
- \* supporting and supervising District and Subdistrict Hospital Pharmacists
- \* organizing in-service training programs for hospital pharmaceutical staff
- \* providing technical support for the Provincial Drug Inspector
- \* providing technical oversight for the MSCU sub-depot
- \* enforcing standards of pharmacy practice at retail establishments
- \* disseminating current, unbiased drug information
- \* arranging recycling of products which are at risk for expiration
- \* arranging recycling of products which are significantly overstocked

(2) Establish MOH Position of DEPUTY CHIEF PHARMACIST FOR PHARMACEUTICAL AND MEDICAL SUPPLY SERVICES -- For the Provincial Chief Pharmacists to function optimally, they need a supervisor charged with supporting and developing their role. It is recommended that the current Deputy Chief Pharmacist position assigned to the MSCU be upgraded to a Deputy Chief Pharmacist for Pharmaceutical and Medical Supply Services. This individual would be responsible for supervising the Provincial Chief Pharmacists and the MSCU pharmaceutical staff. For this individual to function effectively he/she should be provided with a vehicle access and travel allowance.

(3) Clarify administrative relationships among pharmacy, pharmaceutical technologist, and supply officer staff. Relations between hospital pharmacists and hospital supply officers vary from mutually supportive to uncooperative co-existence. Although supply officers play a key role in managing pharmaceuticals and medical supplies at MSCU sub-depots and at hospital bulk stores, pharmacy professionals have no direct supervisory responsibility for these key individuals. The potential advantages and disadvantages of restructuring supervisory relationships must be carefully considered. Under the World Bank-assisted Kenya Health Rehabilitation Project, one sectoral reform study will focus on "The Organization and Management of the Ministry of Health." As part of this study, the administrative relationships of drug management staff should be reviewed. With up to 20 percent of the MOH budget being expended on pharmaceuticals and medical supplies, it is important that staff relationships support proper management of this resource.

(4) Develop supervision standards for the Deputy Chief Pharmacist for Pharmaceutical and Medical Supply Services and for the Provincial Chief Pharmacists. Appointing a new Deputy Chief Pharmacist and eight Provincial Chief

Pharmacists will improve drug management practices at hospitals, sub-depots, and rural health facilities only if these new supervisory pharmacists are well-oriented to their new roles. Specific expectations should be developed for the frequency of supervision visits (eg. at least once every three months) and the content of visits. A supervision checklist should be developed along the lines of the six-page monitoring form used by the Essential Drugs Programme (not to be confused with the brief two-page supervision form used by the RHF pharmaceutical technologist). Examples of items for the supervision checklist include:

- \* hospital drugs and therapeutics committee active? effective?
- \* bulk medical store stock records up-to-date and in order?
- \* first-in-first-out principle being applied at bulk store?
- \* bulk medical store arranged well and kept clean?
- \* conditions at bulk medical store appropriate for pharmaceuticals?
- \* inpatient and outpatient pharmacy records in order?
- \* regular physical inventories performed?
- \* inpatient drug distribution efficient and well-controlled?
- \* outpatient dispensing area well-organized?
- \* dispensing practices, labeling, patient instruction adequate?
- \* hospital provider staff regularly informed of drugs available?
- \* controls on dispensing to hospital staff adequate?
- \* indications of diversion or other forms of waste?

To assist supervisory pharmacists in recycling slow-moving and dormant items, specific rules should be developed for returning products to sub-depots and even to MSCU/Nairobi for redistribution. For example, require the return of all products with less than four months' remaining shelf-life and quantities in excess of 12 months' supply.

Provincial Chief Pharmacists should also prepare in-service training programs to deliver during their visits to district and subdistrict hospitals. Such programs can include lectures, demonstrations, or practical skills sessions.

Finally, the Provincial Chief Pharmacists can assist in needs estimation and, thereby, help to move hospital drug supply from the present allocation or push system to a more efficient demand-oriented requisition system.

(5) Conduct training programs for District RHF Pharmaceutical Technologists.

As noted above, the role of the District Pharmaceutical Technologist In Charge of RHF's has been well-conceived, but inconsistently implemented. This individual has a key role in assuring equitable distribution of kits for rural health facilities and in promoting proper use of these kits. Formal EDP training programs have concentrated primarily on clinical staff at the rural health facilities. A workshop for the Pharmaceutical Technologists In Charge of RHF's would highlight the importance of their role, reinforce past individual orientation efforts, and generate ideas for making their work even more effective. To achieve national coverage, these workshops could be held at each of the MSCU sub-depots which supply the RHF's. They would be conducted by EDP staff in conjunction with staff at each MSCU sub-depot.

(6) Drug Management Training in Pharmacy and Pharmaceutical Technology Curricula -- Currently pharmacists and pharmaceutical technologists receive limited drug management training during their formal education. The syllabus for Bachelor of Pharmacy at the University of Nairobi includes hospital pharmacy and pharmaceutical management in only one 180-hour course (out of a 2,702-hour curriculum) -- and in this course, it takes second place to quality control, stability testing, pharmaceutical engineering, and legal and ethical aspects of pharmacy. No specific mention is made of essential drug concepts, the hospital formulary system, inventory control and other drug management topics.

Formal drug management training for pharmaceutical technologists is similarly lacking. Pharmaceutical technologists provide the bulk of pharmacy-related services at provincial, district, and subdistrict hospitals (roughly 800 pharmaceutical technologists in government service compared to 120 pharmacists). They also staff key positions at MSCU sub-depots and in the supply system for rural health facilities. Unfortunately, only two percent (52 out of 2,964 course hours) of the pre-practice curriculum is devoted to pharmacy administration. In fact, more time is devoted to histology, which has little application in day-to-day practice, than to pharmacy administration (78 hours vs. 52 hours).

The MOH Pharmacy Division, the Pharmaceutical Society of Kenya, and the Kenyan Pharmaceutical Association should work with the training institution faculties to strengthen drug management curricula to reflect modern pharmacy practice and the actual professional demands placed on graduates of their programs.

#### Potential Sources of Support

The Ministry of Health can provide the technical and financial support needed to establish the Provincial Chief Pharmacist and new Deputy Chief Pharmacist positions. Adding new staff to an already large ministry should always be approached with caution. But an effective supervisory chain is absolutely essential for fully implementing any improvements in drug supply management. For developing supervisory standards and supervision checklists, assistance should be sought from the Essential Drug Programme and its advisor.

## 6. Needs Estimation and Allocation Process

### Observations

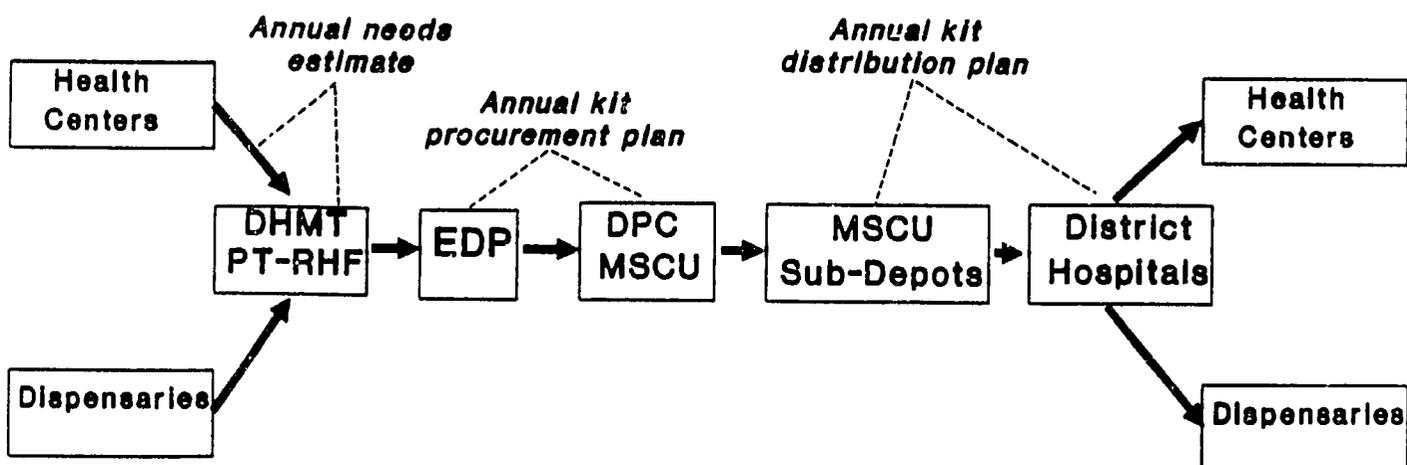
Estimation of drug and medical supply requirements and allocation of available stocks for hospitals and rural health facilities represent difficult, but extremely critical aspects of drug management. Available information suggests that current practices -- although administratively efficient -- result in considerable imbalances between need and supply of drugs at individual health facilities and in considerable waste.

In general, distribution of drugs and supplies to health facilities can be based on a supply-oriented allocation ("push") system or a demand-oriented requisition ("pull") system. Push systems usually are much easier to administer, but tend to be wasteful because they are not very efficient in balancing supply against actual need. Pull systems have the potential to more closely balance supply and need, but require much more efficient inventory control, information management, and procurement scheduling. At present, virtually all pharmaceuticals and medical supplies for MOH hospitals and RHF's are distributed according to a push/allocation system.

Exhibit 11 summarizes the needs estimation and allocation process for rural health facilities. RHF total kit requirements are based on annual "bottom-up" planning. Each year the Pharmaceutical Technologist In-Charge of RHF's in conjunction with the DHMT is expected to submit an estimate of the monthly kit requirements for each health facility in the district.

### EXHIBIT 11

## RHF Needs Estimation & Allocation Process



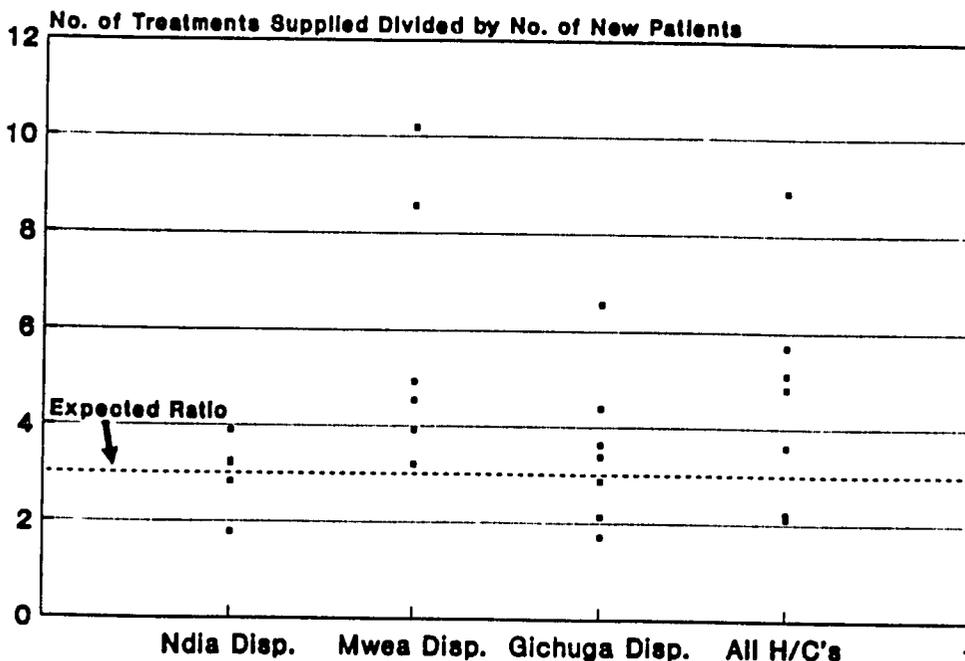
The estimates submitted by the DHMT are compiled by the EDP and forwarded to the DPC and MSCU as an annual procurement plan. These figures also serve as the basis for district-by-district and facility-by-facility kit distribution plans which are provided to the MSCU sub-depots and to the district pharmaceutical technologists. Estimates of monthly requirements are supposed to be based on numbers of patients seen. Dispensary kits are expected to provide 2,000 patient treatments, while health center kits provide 3,000 patient treatments.

In most cases, health facilities are allocated one or two kit pairs per month, based on patient attendances. Exceptionally busy facilities receive three and in rare instances four kit pairs per month. But the variation in patient attendances is much greater than the two-fold difference implied by the one-kit versus two-kit distinction implied by the kit distribution plan. The effect of this difference is illustrated in Exhibit 12, which summarizes data from a study of essential drug use in Kiringyaga District (Agwanda et al, 1988). The table presents the ratio of treatments provided in kit deliveries to new patient attendances for dispensaries in three divisions and for a sample of seven health centers in the district. Each square dot in the figure represents the ratio of treatments supplied to new patients at one health facility.

Based on current prescribing patterns and rates of return visits, the expected ratio should be roughly three treatments per new patient attendance. Although according to this ratio a few dispensaries and health centers are slightly under-supplied (ratios of less than three), most are over-supplied. Two dispensaries in Mwea division are receiving more than eight treatments per new patient seen. Four of the seven health centers received drugs at a rate of more than four treatments per new patient. (Excluded from these figures is one dispensary in Gichugu division which apparently continued to receive one kit per month despite seeing only 407 new patients in 1987.)

**EXHIBIT 12**

**Treatments Supplied vs. Patients Treated  
Kiringyaga District, 1988**



Patient attendance and kit supply information gathered during the team's field visits tended to confirm the impression from these data that variations in patient attendances are much greater than variations in kit supply, and that kit supply tends to err on the generous side. Interestingly, staff at health facilities which according to attendance and kit receipt information are "over-supplied" do not feel "over-supplied." This may reflect in part the fact that kit procurement problems have resulted in periodic shortages over the last several years, so that RHF's often have not received their full allocation. In addition, most popular drugs are somehow used, regardless of what might be expected from patient attendance data.

Once the official kit allocation plan is sent to MSCU sub-depots and DHMTs, it appears to maintain a momentum and authority of its own. For example, there are currently reported to be several dozen "forest dispensaries" which are continuing to receive their kit allocations despite the fact that policy changes in another division of the MOH have resulted in few or no patients attending these dispensaries.

The district-level Pharmaceutical Technologists In-Charge of RHF's could, in principle, play a central role in more equitable distribution of kits to RHF's. Although they are responsible to "justify the number of kits received by each rural health facility" (Exhibit 10), opinions varied as to what authority is implied by this statement. In practice, the team found only one RHF pharmaceutical technologist who took an active role in adjusting the annual kit distribution plan provided by the EDP in Nairobi to assure more rational kit distribution. Most pharmaceutical technologists seemed to lack the time, the skill, or the sense of authority to make adjustments in kit allocations.

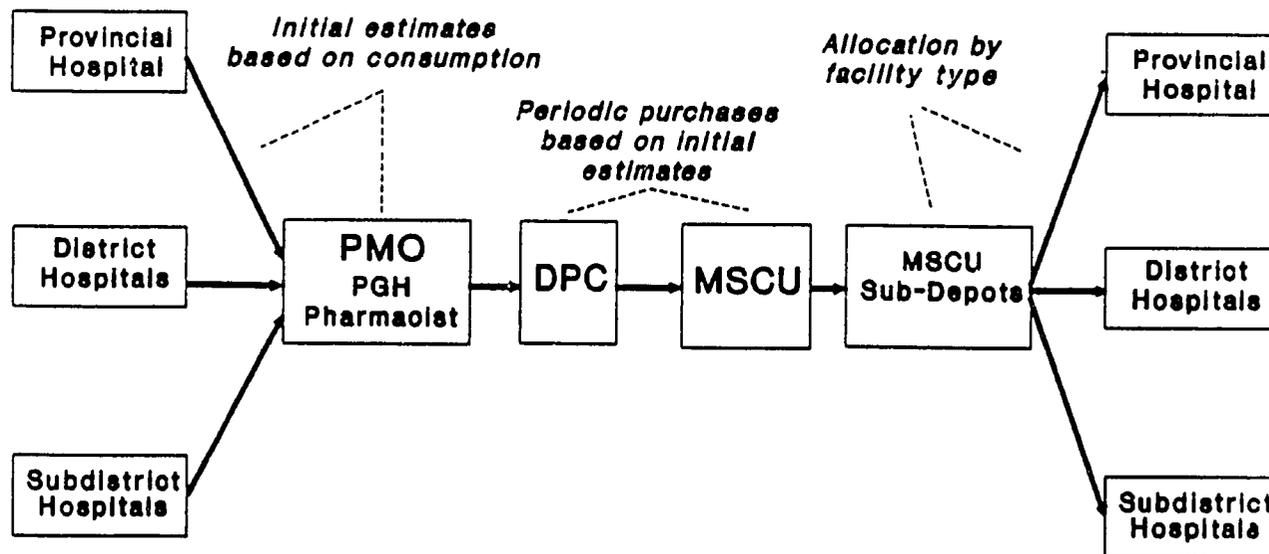
Aside from imbalances in the numbers of kits supplied, there are also imbalances in the contents of individual items. The kits' contents were revised several times in the early years of the EDP, but between 1984 and the present, EDP staff could only recall the contents (types and number of drugs) being revised once in 1988. A system of additional individual supplemental or "buffer" drugs intended to even out supplies of the more variable items was not found to be operational in the districts visited by the team. Studies of essential drug use at rural health facilities (Agwanda et al, 1989; Havemann et al, 1990) highlight the problem of over-supply and under-supply of individual kit items.

The current needs estimation and allocation process for hospitals is summarized in Exhibit 13. While kit allocations for RHF's have followed primarily a push allocation system since the EDP was started ten years ago, the hospital drug supply system has gone through a series of dramatic changes. In the early 1980s, MSCU was operated as a central medical stores, with individual hospitals requisitioning drugs based on perceived need. Hospitals complained that under this system the CMS was frequently out of items which they required and often supplied items which were not needed. With the advent of the DHMTs and district focus in the mid-1980s, hospital drug budgets and procurement authority were decentralized to the district level. Although official suppliers and prices were established through a central tendering mechanism, purchase orders were written locally. It was hoped that such decentralization would let individual hospitals better match supply with need. But without training, experience, management systems, or adequate controls, this experiment with decentralization resulted in chaos and severe shortages. When drug procurement was re-centralized through the DPC and MSCU in 1988, an allocation or push system was adopted for virtually all pharmaceuticals and supplies.

Initial estimates of requirements for OPD kits and for individual items were based on requests from individual provincial, district, and subdistrict hospitals. These were compiled by each province and brought by the PMOs to DPC meetings. These lists were then reviewed and revised by the DPC with the assistance of the MSCU computer unit. These lists have become the basis for drug procurements over approximately the last 18 months. Once drugs have been received at the central MSCU depot in Nairobi, they are allocated to individual provinces and from there to individual hospitals according to formulas worked out by the DPC. For example, the OPD kits are allocated at a ratio of one per subdistrict hospital, two per district hospital, and four or five per provincial hospital. Other formulas are used for allocating individual items. The allocation formulas are used by the MSCU computer unit to produce distribution lists which are forwarded to the MSCU sub-depots and the PMOs. For allocation purposes, hospitals are classified not simply based on their official designation, but also on the number of inpatients and outpatients. Thus, a busy district hospital may be classified as a provincial hospital for OPD kit allocation purposes.

EXHIBIT 13

## Hospital Needs Estimation & Allocation Process



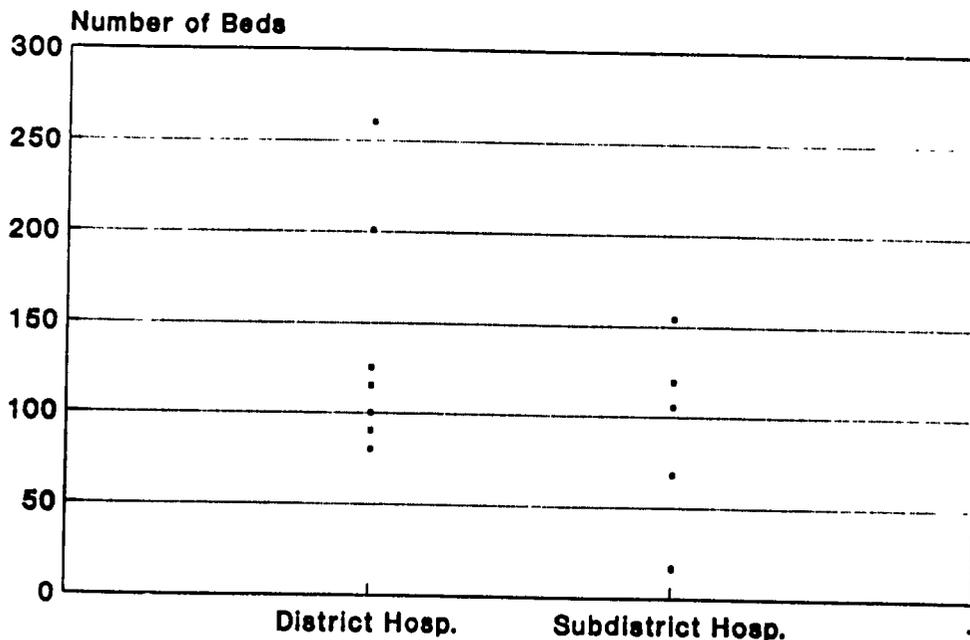
*Individualized Needs* → *Consolidated Needs* → *Bulk Procurement* → *Standardized Supply*

Some provinces have developed their own distribution formulas, while others follow the DPC formulas as given. As an illustration of the potential imbalances created by this approach, Exhibit 14 shows the distribution of inpatient beds for district and subdistrict hospitals in one province. Outpatient attendances followed a similar pattern. Despite the wide range in hospital size and the size overlap between district and subdistrict hospitals, each district hospital received the same allocation of OPD kits and individual drugs and each subdistrict hospital received exactly one-half the district hospital OPD kit allocation and a similarly reduced allocation of individual items.

The result of this approach is an administratively efficient system in which each hospital is assured of getting some predictable portion of the total MOH hospital drug supply. But formulas which allocate OPD kits (which actually provide basic hospital drug supplies for inpatients as well as outpatients) according to hospital category result in at least three-fold differences in quantities of kits delivered compared to patients served. Distribution of individual inpatient and specialty drugs ("loose items") by an allocation/push system simplifies distribution, but results in significant quantities of unwanted drugs being supplied to district and subdistrict hospitals, while needed drugs are out of stock.

**EXHIBIT 14**

**Distribution of In-Patient Beds by Hospital Type for One Province**



Imbalance between need and supply is particularly costly with respect to specialty drugs. Virtually every hospital visited complained that MSCU sub-depots supplied them with drugs they knew they did not need; they noted overstocks in items such as thyroid preparations, specific cardiac preparations, cancer agents, and specific antibiotics. Actual patterns of overstocks varied, depending on local disease patterns, the availability of specific specialist doctors at the hospital, and prescribing preferences. Although excess drugs are supposed to be recycled, in practice this proves difficult.

In summary, RHF and OPD kit contents have been based on reported morbidity patterns, standard treatments, and observed consumption patterns. Initial estimates for inpatient and specialty drugs were based on reported consumption patterns. Recent efforts by the DPC to quantify drug requirements have been used to increase Treasury allocations. But, no easy-to-administer method for routinely revising RHF and OPD kit contents has been developed. The allocation of RHF kits based on fixed monthly delivery of one, two, or in a few instances three kit pairs results in five-fold differences in the quantities of drugs delivered compared to the number of patients treated. EDP supply plans for this year total 44 million treatments, while patient attendance information suggests that only 15 million patients requiring about 30 million treatments will visit RHF's. The "allocation" or "push" system approach for distributing OPD kits and individual hospital items according to hospital type -- although administratively efficient -- results in considerable imbalances between need and supply and lack of cost-awareness among hospital staff.

### Suggested Actions

As part of a comprehensive study to Strengthen the Pharmaceutical Distribution and Procurement System (Annex B) an overall drug and medical supply needs estimation and allocation strategy needs to be developed. This strategy should include practical, systematic methods which can be routinely used for dispensary kits, health center kits, OPD kits, individual hospital drugs and medical supplies, and drugs for special programs such as the Division of Communicable Disease Control (DCDC). The strategy should aim to achieve a closer balance between supply and need, to promote cost-awareness by health service staff, and to minimize the need to recycle drugs among facilities. The following elements should be included in this strategy:

- (1) RHF Kits -- Practical method for routinely adjusting kit contents, perhaps based on morbidity data from the HIS or consumption data from sentinel facilities.

Feasibility of centrally allocating kits only to the district level based on population, reported patient attendances, numbers of facilities or some combination of factors.

Strengthening of DHMT and RHF Pharmaceutical Technologist ability to adjust kit allocations within the district based on patient loads at individual RHF's

- (2) OPD Kits -- Practical methods for routinely adjusting types and quantities of drugs and medical supplies based on actual consumption patterns.

Feasibility of alternative methods for more closely balancing individual hospital allocations against individual hospital patient loads (eg., based on individual hospital outpatient attendance, inpatient admissions, or other measures of workload).

(3) Individual Inpatient and Specialty Drugs -- Develop a practical method to move from the current straight allocation/push system to some form of "pull" system which allows more flexibility and promotes greater cost awareness.

The most promising option would be a six- or 12-month order period for which each hospital is given a specific drug budget and is asked to place an itemized order using a form which contains unit costs.

(4) Specialized Hospital Kits -- Evaluate the feasibility and potential cost-effectiveness of developing additional specialized hospital kits such as:

- \* Adult medical inpatient kit
- \* Pediatric inpatient kit
- \* Operating theater kit
- \* Laboratory reagent kit
- \* X-ray supply kit

(5) Teaching Hospital and Subspecialty Drugs -- Drug and medical supply requirements for Kenyatta National Hospital (KNH) and the expanding teaching hospital in Eldoret present special needs estimating and budgeting problems which must be addressed in the strategy.

(6) Drug Requirements for Special Programs such as epidemic control, sexually transmitted diseases (STD), tuberculosis, and leprosy control should be reviewed and quantified to avoid emergency encroachments of these programs on routine RHF and hospital supplies.

It is expected that this task will be conducted in three phases: (1) initial assessment and design of data gathering instruments, (2) gathering of data from a properly drawn sample of facilities to determine the current match between drug needs and drug supplies, and (3) analysis of data and design of future needs estimation and allocation process.

#### Potential Sources of Support

Health Sector Reform Studies are one component under the World Bank-assisted Kenya Health Sector Rehabilitation Project which is currently entering its final stages of development. One of the proposed Sector Reform Studies focuses on pharmaceutical management. It is suggested that development of a needs estimation and allocation strategy be included in this study. Proposed terms of reference for the study are included as Annex B.

## 7. Good Procurement Practices

### Observations

Recently most drugs have been purchased in bulk by generic name through variations of international competitive bidding (ICB). Government of Kenya tender procedures (Ministry of Finance and Planning, 1978) provide a sound framework for good procurement practices. A basic supplier pre-qualification system has evolved to restrict tenders to reputable local and foreign manufacturers. In addition to supplier pre-qualification, quality assurance procedures include submission of tender samples by prospective suppliers, requirement of batch certificates for all items, and selective quality control testing at the Drug Analysis and Research Unit. Although only in its second year of operation, the Drug Procurement Committee has gained considerable experience in managing complex procurement activities.

Despite these positive characteristics of current procurement practices, several serious problems remain. Problems with procurement of kits for RHF's date to at least the mid-1980s. Severe shortages of drugs for rural facilities and hospitals still occur regularly (e.g., many facilities in Western Kenya are currently out of chloroquine). Delays in processing contracts are reported to be common, sometimes resulting in drugs being supplied on only the authority of a letter acceptance, without a signed contract. Routine delays in payment of three to six months and occasionally over 18 months are reported. Although MOH officials feel the situation is improving, suppliers have yet to notice a change. Debts for past drug deliveries amounting to several tens of millions of Kenya shillings cut into the current years' vote. Tenders have been processed before sufficient funds are available, leading to cancellation of tenders or placing of partial orders. Large emergency procurements -- presumably resulting in higher prices -- have been needed as a result of incomplete planning and coordination of the procurement process.

### Suggested Actions

Although the basic organization of the procurement system is reasonable, the following actions are needed to address current performance problems:

(1) Prepare an Annual Procurement Plan and Schedule which considers:

- \* all sources of funds for drugs and dressings (government and donor) and all requirements (kits, individual items, non-drug items, special items)
- \* realistic delivery lead times (4-6 months)
- \* regularizing MSCU and sub-depots' workloads to avoid alternating periods of overload and idleness

The four main RHF kit types (Dispensary I, Dispensary II, Health Center I, Health Center II) should continue to be contracted for as individually competitive items. To promote competition and diversity of supply sources, consideration should be given to sub-dividing OPD kits into two or three separately tendered sub-kits.

(2) Institute Good Procurement Practices -- Current practices should be strengthened and standardized through the following steps:

- a. Study Tour to several countries in the region which illustrate various aspects of good procurement practices (eg., Zimbabwe, Ethiopia, and perhaps one other country) (February 1991). The team should include a DPC member, a Division of Pharmacy official, an MSCU senior officer, and -- since payment mechanisms are an important issue -- a representative from Treasury.
- b. Revision of MSCU Procurement Procedures by the study tour members and a WHO procurement consultant (March 1991). Revised procedures should address:
  - \* formalization of the pre-qualification process
  - \* standardization of supplier performance monitoring
  - \* pros and cons of alternate contract types (eg. term)
  - \* contract terms specific to pharmaceutical supply
  - \* payment procedures and foreign exchange issues
  - \* methods of streamlining the process
- c. Review and Revision by DPC and GoK Supply Services, and others (April-May 1991)
- d. Introduction of New Procurement Practices (June 1991)

(3) Specialize Procurement Functions -- Pharmaceutical and medical supply procurement involves several specialized professional functions, some of which require separate committees. The following division of responsibility is suggested:

- \* Drug Procurement Committee (DPC) -- Established by Presidential decree and consisting of Provincial Medical Officers, the Chief Pharmacist, the MSCU Officer In-Charge, and the Chief Nursing Officer (CNO) -- has the responsibility to approve all tenders before they are announced and adjudicates tender submissions.
- \* National Essential Drugs Committee -- As suggested in Section 2, above, a separate committee should be established to regularly revise and update the National Essential Drugs List. Only drugs on the EDL should be procured by the MOH.
- \* Supplier Qualification Committee -- It is strongly recommended that the PS and DMS establish an independent committee responsible for supplier pre-qualification and for monitoring supplier performance. Tender documents should be provided only to suppliers approved by the Supplier Qualification Committee. Committee membership should include representatives of the DPC, Chief Pharmacist, CNO, Technical Evaluation Committee, and Drug Registration Office. For laboratory items, x-ray items, dental items, and other specialized items, qualified staff would be co-opted on an as-needed basis.

In addition to the above actions, improved financial and MSCU management (discussed in the following two sections) should also contribute to more regular delivery of supplies and to lower procurement costs.

## Potential Sources of Support

As part of its Report of a Mission to Kenya (Annex 4, 1990), the WHO Drug Action Programme proposed providing short-term consultation on drug procurement. In addition, it is understood that the WHO country program budget for Kenya includes funds for study tours. It is recommended that a formal request be made to the WHO Country Representative and the WHO Drug Action Program in Geneva to arrange and support the proposed study tour. This study tour would be followed immediately by a short-term consultancy to help the study tour participants to incorporate their observations into revised procurement procedures for drugs and medical supplies.

## 9. Financial Management of Pharmaceutical and Medical Supply Process

### Observations

Several difficulties associated with procurement operations are attributable to problems with the financial management of the pharmaceutical and medical supply process. The problem stems in part from inadequate past Treasury allocations for drugs and in part from incompatibilities between the Treasury fiscal cycle and drug procurement cycle. The financial management problems experienced by the Kenyan Ministry of Health are quite similar to the problems which have been experienced by other countries in the region. Recently, the MOH has worked with Treasury to increase allocations for drugs and dressings and to expedite supplier payments. Yet further improvements in financial management are needed.

Despite these actions, there appears to be no current total pharmaceutical and medical supply procurement financing plan which details individual needs according to facility type (RHF, PGH, etc.) and supply type (kit, individual pharmaceuticals, dressings, etc.) and which lists expected funding sources (MOH, DANIDA, USAID, etc.). The "Gap Study" (HFS Project, 1990) estimated an annual shortfall of 79 million KSHs. (~ US \$3.5 million) for RHFs and hospital OPDs alone. During this brief assessment the team was unable to re-assess total pharmaceutical and medical supply requirements or to develop a complete picture of available funding. The team's general impression, however, is that funds presently available from all sources (MOH and donors) are close to being adequate to meet current needs -- provided that management of selection, quantification, procurement, financing, distribution, and drug use is strengthened.<sup>1</sup>

### Suggested Actions

A detailed assessment of financial management requirements and options is needed. This should lead to the development of an overall strategy and specific operational mechanisms for improved financial management of the pharmaceutical and medical supply process. The new strategy should be implemented through policy changes at the Ministerial level and through in-service training at the staff level. The strategy and procedures should address the following issues:

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<sup>1</sup> This conclusion is not inconsistent with that of the "Gap Study", which did not assess economies possible through management changes and assumed the maintenance of existing practices.

- \* analysis of total expenditures, by source of funds, for all MOH pharmaceutical and medical supplies over the last three to five years;
- \* analysis of expenditures in comparison with estimated need for all categories of pharmaceutical and non-pharmaceutical supplies, including RHF kits, OPD kits, individual hospital items, tuberculosis and leprosy drugs, drugs for epidemics, etc.;
- \* recommendations for restructuring of drug, dressing, and other line item budget categories into managerially useful lines;
- \* preparation of an annual drug expenditure plan which includes all sources of funds for drugs and dressings (government and donor) and all requirements (kits, individual items, non-drug items, special items);
- \* lead time analysis of tender processing, delivery, and payment processing for a sample of 20 to 30 items to identify preventable causes for delays in processing orders and payments;
- \* alternative mechanisms to assure prompt supplier payments; options to consider include:
  - partial payment on award (as some countries do)
  - re-activation of the revolving fund/deposit account
  - special arrangements with Treasury;
- \* standardization of payment and handling currency conversion methods for local and foreign supplies; and
- \* specific responsibility and authority for the above tasks.

The proposed strategy and procedures must be compatible with existing MOH and Government of Kenya laws and regulations, although changes in specific practices and procedures are anticipated.

#### Sources of Support

It is suggested that the development of a financial management strategy and revised procedures also be included in the terms of reference for the pharmaceutical management component of the Health Sector Reform Studies under the World Bank-assisted Kenya Health Sector Rehabilitation Project (see Annex B). Technical support could also be requested from the staff of the USAID-supported Health Care Financing Project.

## 9. Operation of Medical Supply Coordinating Unit

### Observations

The Medical Supply Coordination Unit (MSCU) currently manages the procurement and distribution process for hundreds of pharmaceutical, non-pharmaceutical, and equipment items. The MSCU depot and sub-depots now act primarily as transshipment points, rather than as medical stores with working stock. This practice reduces inventory costs and stock management demands. Using basic spreadsheet software, the computer unit is consolidating estimates of drug and supply requirements, generating tender documents, and preparing distribution lists for the MSCU sub-depots. (Due to a combination of hardware and software problems, custom-designed, menu-driven database programs for inventory management and procurement are currently not functional, although efforts to make these systems operational are now being made by the USAID-supported Information and Planning Systems Project.)

The two MSCU sub-depots visited by the team appeared reasonably well organized; they maintained good stock records and had evidence of routine annual physical inventories. Use of railways to transport drugs and supplies to regional depots, and posting of vehicles at each depot appear to be easing transport problems. A DANIDA/SIDA-supported study of MOH transport resources is to be completed by January 1991; this study should clarify needs for additional transport.

Although many aspects of MSCU operations are running smoothly, the overall impression is that the management and administration of MSCU could be much better. Delays in processing contracts and payment vouchers are said to be routine -- sometimes quite lengthy -- and reportedly interfere with regular supply of drugs and supplies to health facilities. The WHO team which visited MSCU in April 1990 noted a variety of shortcomings at MSCU, including poor organization of bulk stocks, lack of pallet shelving, absence of a fire alarm system and fire fighting equipment, and bin cards out of date.

Perhaps the most telling commentary on MSCU operations is that virtually all drugs and medical supplies are now distributed according to an allocation or "push" system. This system minimizes the stock management demands on the part of the MSCU central depot and sub-depots, but because such a system cannot match individual supply to individual needs, it results in a great deal of waste at the facility level. Dependence on a push system for even inpatient and specialty clinic items appears to stem in part from the success of the push system for RHF kits, but also in large measure from past experience with MSCU (previously CMS) inability to maintain proper working stocks and inventory control procedures necessary to support a demand-oriented requisition system.

One objective of improved MSCU management should be a gradual return to a demand-oriented requisition system, at least for hospitals. Such a system would much more efficiently balance supplies delivered against actual need and, thereby improve service and reduce waste. MSCU and hospital staff have the basic skills to operate a requisition system. But good management, proper supply procedures, and effective supervision all are required to make such a system operate efficiently.

## Suggested Actions

A management assessment of MSCU should be conducted. It is expected that this assessment will result in a management improvement plan which may include detailed revisions of current operating procedures, specific recommendations for reorganization of MSCU activities, requirements for local and overseas training, and recommendations for expanded office facilities such as communications and computer equipment. The assessment should consider the following issues:

- \* suitability of established numbers and types of staff;
- \* staff training and orientation requirements;
- \* methods of streamlining tender processing procedures;
- \* methods of streamlining and improving the reliability of processing payment vouchers;
- \* adequacy of office facilities for supporting international procurement and local distribution activities; photocopying requirements, computer support, and communications equipment should all be considered;
- \* efficient integration of computer support into MSCU office procedures;
- \* inventory control and supply management information systems, particularly as support procurement planning, needs estimation, and the allocation process;
- \* MSCU warehouse management procedures; and
- \* procedures for managing MSCU sub-depots.

The assessment should also consider the functional impact of staff assignment, reporting and supervisory relationships which involve at least two ministries and three higher authorities: the MSCU Officer In-Charge reports to the MOH Permanent Secretary, the MSCU pharmacist and pharmaceutical technologist report to the Chief Pharmacist, and supply officers are appointed by the Head of Supply Services for the Treasury. One indication of the disruption this can cause is that the Deputy Officer In-Charge and three main department heads (Procurement, Stock Control, and Warehouse) were all replaced within the last three months -- and with virtually no opportunity for effective orientation to their new posts.

The assessment should consider possible responses to organizational constraints, including options such as restructuring staff positions to bring most staff under complete MOH control or complete reorganization of MSCU as a parastatal.

Whatever management changes are proposed, it is important that further disruptions in supply be minimized. Therefore, changes in MSCU responsibilities should follow the principle of expanded responsibility based on demonstrated performance. In other words, if a demand-oriented requisition system is re-established for hospital items, it should begin with a subset of inpatient and specialty drugs and expand gradually to cover all hospital items. Similarly, kit packing by MSCU should be reconsidered again only after MSCU has established a more consistent record for timely procurement of individual items.

## Potential Sources of Support

It is proposed that the MSCU management assessment also be included in the pharmaceutical management sector study under the World Bank-assisted Kenya Health Sector Rehabilitation Project (see Annex B). As part of its Report of a Mission to Kenya (Annex 4, 1990), the WHO Drug Action Programme also proposed providing short-term consultation for the MSCU. However, it would seem more advisable to undertake the MSCU assessment as part of the more comprehensive Health Sector Rehabilitation Project, rather than as an isolated consultancy. (In practice this would mean a request to WHO to substitute the Essential Drugs List consultancy for the MSCU consultancy.)

## 10. Rational Drug Use

### Observations

Almost since its inception, the EDP has been running courses for RHF health workers. Currently, the EDP runs a one-week course entitled, "Clinical Diagnosis and Rational Use of Drugs." The course is generally run at the district level with one or two facilitators from the EDP/Nairobi and facilitators from the District Health Management Team. The EDP Handbook for Rural Health Workers, which has been regularly revised and reprinted since the beginning of the EDP, serves as the course manual. Course materials review history taking, physical examination, basic laboratory investigations, patient instructions, and rational use of drugs. Individual sessions are devoted to review of diagnosis and treatment for common conditions, including malaria, diarrheal disease, acute respiratory infections, skin disease, eye infections, sexually transmitted diseases, accidents, helminths, and anemia. Other sessions review the pharmacology of drugs contained in the RHF kits. A pre-test, post-test, and course evaluation are also included.

The aim of the EDP training program is to include at least one person from each health center and dispensary in an EDP course at least once every two years. Because of sheer numbers of health workers, generally only the clinical officer or enrolled nurse in-charge is asked to attend the course. Whoever attends the course is then expected to share his/her new knowledge with other staff at the health facility.

Thus, the EDP courses on clinical diagnosis and rational drug use provide focused in-service training which appears to have a favorable impact on prescribing. Clinical officers and enrolled nurses who had taken the course gave specific examples of changes they had made in their drug prescribing after the course. A recent study of essential drug utilization in three districts (Havenmann et al, 1990) found an average of 1.92 drugs prescribed per patient. In 70 percent of cases the drugs prescribed were appropriate for the diagnosis, and in only 21 percent were the drugs totally irrelevant to the specified diagnosis. These findings compare very favorably to studies of primary care prescribing for other countries. Less encouraging were findings on diagnostic accuracy (47 percent), correctness of dosage (53 percent), and correctness of treatment duration (44 percent). Unfortunately, the study did not attempt to compare diagnostic accuracy and prescribing practices for staff who had participated in EDP training with those who had not participated in the training.

In addition to the course and EDP Handbook, EDP posters on indications, dosages, and precautions are widely distributed and used. Although concern is expressed about diagnostic accuracy and prescribing practices at RHF's, local studies reveal more rational prescribing patterns than are found in many other countries. This impression and impressions of EDP course effectiveness should be confirmed by an independent assessment which includes pre- and post-course prescription audits (see Suggested Actions).

Working with the PATH organization, the EDP has developed and pre-tested a set of patient education posters and cassette tapes which focus on five specific messages to promote rational use of drugs by patients. The contents of these messages emphasize avoidance of quacks (not buying drugs on the street), following instructions correctly, returning to the health facility if side effects develop, taking the full course of medicines prescribed, and not thinking that only injections can cure. Initial experiences with using these materials at rural health facilities suggest that they have a favorable impact on patient behavior, although a controlled evaluation has not yet been done.

Other important aspects of rational drug use are hospital drug prescribing and outpatient drug dispensing practices. Issues related to hospital drug use are considered above under Hospital Therapeutics. Dispensing practices are considered under Hospital Drug Management and Supervision of Pharmaceutical and Medical Supply Distribution.

### Suggested Actions

(1) EDP course evaluation -- Internal EDP course evaluations should be supplemented by an independent evaluation of the impact of the EDP course on clinical diagnosis and rational use of drugs (mid-1991). The evaluation should include analysis of pre-course and post-course prescribing patterns; the evaluation should try to identify any changes in course design which would increase its impact.

Annex E contains sample survey instruments which have been used elsewhere for evaluating the diagnosis, prescribing, and dispensing process at health facilities. These forms are based on observation of prescriber-patient and dispenser-patient interaction. Patient registers can also be used to assess the impact of training on prescription behavior.

The impact of educational interventions on diagnostic and prescribing behavior, while clinically significant, is often difficult to measure. Therefore, it is important to identify specific selected indicators of diagnostic and prescribing quality which are expected to be influenced by the EDP course. Examples of such indicators might be asking about stool characteristics for diarrheal disease, measurement of respiratory rate for acute respiratory infectious (ARI), temperature taking for malaria, percent of cases receiving antibiotics, percent of cases receiving injections, percent of children under five with diarrhea who receive ORS versus antidiarrheals, and percent of patients with ARI, diarrheal disease, and malaria who are treated according to EDP standard treatment guidelines. (See INRUD News, Number 2)

(2) Controlled trial of patient education materials -- if not already planned, a controlled trial of patient education materials should be conducted to determine their actual impact on patient behavior (1991).

## Potential Sources of Support

Technical and financial support for the Essential Drugs Programme has come primarily from DANIDA and SIDA, with additional technical support from WHO. Although DANIDA and SIDA financial assistance is being phased out, it is important that assistance in the area of rational drug use continue at least until full evaluations of the health worker course and patient education materials have been completed and the results have been incorporated into programs which can be sustained by the MOH.

## POTENTIAL IMPACT OF SUGGESTED ACTIONS ON DRUG AVAILABILITY AND COSTS

To assist the MOH and donors in making decisions regarding the implementation of suggested actions, the team attempted to estimate the potential impact of successful action on increasing the availability (or reducing the cost) of pharmaceuticals and medical supplies. These estimates are based on impressions of current inefficiencies or leakages and on the expected effectiveness of proposed actions. The expected effectiveness of proposed actions is judged in part by experiences which other countries have had with efforts to improve their drug management systems. Exhibit 15 summarizes these estimates.

Adoption of a National Drug Policy will have only indirect effects through the other action areas which it supports. In terms of quantities and costs, most drugs currently being procured are considered essential drugs and are likely to be kept on a revised essential drug list. Nevertheless, some savings can be expected from more cost-effective choices (20 percent savings in course-of-therapy cost by substitution of thrice-daily oral amoxicillin for four times daily oral ampicillin). Because over 50 percent of MOH expenditures on drugs and medical supplies are for hospitals, and because most drug management efforts to date have focused on rural health facilities, the potential savings from improved hospital therapeutics and strengthened hospital drug management are considerable. Variations in the cost per patient treated give an indication of potential savings from improved oversight by hospital drug committees and from standard clinical guidelines. The losses from inadequately regulated staff drug use, inconsistent ward stock control systems, and various forms of leakage suggest that perhaps even greater savings can be expected from improved hospital drug management practices.

Reductions in waste from expiration, from failure to recycle overstocked items, and from leakages in the distribution chain can be expected from much more active, professional supervision of the distribution process. Furthermore, the estimated impact of other proposed actions such as improved hospital drug management systems and more efficient needs estimation depends on implementation of proposed changes. Inevitably, the extent to which sustained change can be implemented will depend on reinforcement and support from active supervisors. Estimated savings from a more efficient needs estimation and allocation process are based on observed waste due to current imbalances between supply and need.

Implementation of good procurement practices can be expected to reduce unit costs for drugs and medical supplies by fostering greater price competition among suppliers, by reducing costs associated with unreliable suppliers (eg., losses from poor quality and failure to supply), and by minimizing the need for emergency procurements. Improved financial management can also be expected to contribute to lower unit costs. Manufacturers incur expenses when they buy raw materials, when

they pay production workers, and when they pay for shipment of supplies. When payment is delayed for a period of several months, the supplier is effectively being asked to pay the financing costs for the expenses which have already been incurred. Inevitably the buyer (in this case the MOH) pays these financing costs in the form of higher unit prices. Similarly, improved MSCU operations should achieve savings through better needs estimation and more prompt processing of tenders, contracts, and payments.

The impact of good procurement practices and prompt payment can be dramatic: one pooled procurement program experienced average cost savings of over 40 percent in its first year of operation through the combined effects of greater supplier competition, standardization of the supply list, and prompt payment through a central bank deposit account.

Finally, some savings can be expected from continued efforts to promote rational drug use at rural health facilities. Realistically, however, current drug use patterns are such that only very modest cost savings are likely to be achieved. The greater benefit will be improved drug therapy and, hopefully, improved clinical outcomes. In some cases improved therapy will mean shorter courses of therapy or more expensive drugs, thus offsetting the effects of those therapeutic improvements which also save money.

**EXHIBIT 15**

Potential Impact of Suggested Actions on Increasing Drug Availability

-- Or Saving Money

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	Indirect effects
1. Adoption of a National Drug Policy	
2. Revised Essential Drugs List	< 5 %
3. Improved Hospital Therapeutics	10 - 12 %
4. Strengthened Hospital Drug Management	10 - 15 %
5. Closer Supervision of Pharmaceutical and Medical Supply Distribution	5 - 10 %
6. More Efficient Needs Estimation and Allocation Process	10 - 15 %
7. Institution of Good Procurement Practices	5 - 10+ %
8. Improved Financial Management of Pharmaceutical and Medical Supply Process	5 - 10 %
9. Increased Efficiency of MSCU Operation	5 - 10 %
10. Continued Efforts to Promote Rational Drug Use	< 5 %

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## NOTES ON COST-SHARING THROUGH TREATMENT FEES

Cost-sharing in the form of outpatient charges at hospitals and health centers was instituted in August 1989. Health facilities retained much of the revenue to be used by the facility for repairs, renovations, equipment purchases, or other expenditures for which funds were not otherwise available. Cost-sharing revenues were greatly welcomed by all facilities visited. While attendance rates at some facilities remained persistently depressed throughout the period of outpatient cost-sharing, most facilities experienced the expected initial drop and subsequent return to near normal rates over the following six to twelve months. In September 1990, with only one year of cost-sharing experience, outpatient fees were suspended.

Data from previous patient surveys of patient attitudes indicate that drug fees are acceptable to the majority of patients, although the percentage of patients willing to pay a drug fee drops quickly as the hypothetical price increases beyond ten shillings per treatment. Finally, most health care providers interviewed by the team who were willing to express an opinion on cost-sharing felt that drug fees would be more acceptable to their patients than consultation fees had been.

With UNICEF assistance, community-run drug funds ("Bamako Initiative" projects) have been operating successfully with 120 community health workers in four divisions of the Kisumu district for up to twelve months; additional programs were launched in November 1990 in South Nyanza and Kwale districts. In these programs community health workers receive supplemental training on symptom identification and dispensing for common conditions, including malaria, diarrheal disease, intestinal worms, eye infections, and skin diseases. They receive instruction on basic record-keeping and are given eight essential drugs (aspirin, chlorphenamine, oral rehydration salts, chloroquine, mebendazole, paracetamol, tetracycline eye ointment, and benzyl benzoate) to "sell" according to prices set by the local community. Drug fees are waived for the truly needy. Drug supplies are replenished with funds generated from the drug fees.

It is too early to assess the effectiveness and impact of these community-based drug funds. However, there is nothing in their operation or performance to date which suggests a need to either restrict such funds or to let the existence of such funds influence MOH policy with respect to treatment fees.

In summary, treatment fees or drug fees provide an administratively feasible and potentially more acceptable alternative to consultation fees if political and economic conditions favor increased cost-sharing. However, given the apparent success of recent efforts to increase Treasury allocations for pharmaceuticals, drug fees should probably be managed locally in the same manner as other cost-sharing revenue, rather than being used to establish a revolving drug fund. Using drug fees primarily for a revolving drug fund -- as is currently being done effectively by Bamako Initiative projects -- runs the risk that the Treasury would soon expect cost-sharing revenues to replace Treasury contributions for drugs. This eventuality would undermine the entire intent of cost-sharing.

Exhibit 16 compares several alternative mechanisms for drug charges. These mechanisms vary with respect to factors such as administrative feasibility and expected impact on drug utilization. To balance administrative feasibility with incentives for rational drug use, a flat per-item drug fee is suggested -- in preference to either a flat prescription fee regardless of the number of drugs

prescribed, and in preference to an individual drug fee which varies with the cost of the drug.

A flat prescription fee regardless of the number of drugs prescribed tends to create patient pressure on prescribers to prescribe more drugs. As long as drug fees are not used for salaries or other expenditures which directly benefit individual health workers, a per-item drug fee should not create a significant incentive for the prescriber to over-prescribe. For patients with limited funds, a per-item drug fee would encourage prescribers and patients to set therapeutic priorities by choosing the fewest drugs needed for the patient's condition.

Waivers for truly impoverished patients and exemptions for certain patient groups (eg., those under age five) and conditions (eg., tuberculosis), if properly implemented, should protect the truly needy.

EXHIBIT 16

**ALTERNATIVE TYPES OF PATIENT FEES**  
**Pharmaceutical Cost Recovery/Revolving Drugs Funds**

TYPE OF FEE	ADMINISTRATIVE COMPLEXITY	BALANCE DRUG COSTS & REVENUE	PRESCRIBING IMPACT	ATTENDANCE IMPACT
Card Fee	+	--	↑	↑
Attendance Fee	-	-	↑	↓
Prescription Fee	-	+	↑	+/-
Per Item Fee	++	++	↓	+/-
Variable Item Fee	++++	+++	↓	+/-

## ORGANIZATION, MANAGEMENT, AND MANPOWER FOR MOH PHARMACY SERVICES

The organization structure and human resources of the Ministry of Health provide the foundation upon which any improvements in pharmaceutical services or other aspects of the health system must be built. Management of Ministry of Health pharmacy services and health facility pharmacy staffing patterns vary greatly from country to country. The Health Sector Reform Studies under the World Bank-assisted Kenya Health Sector Rehabilitation Project provide an opportunity to consider management steps which might help to further strengthen drug management services within the Ministry. In particular, the proposed studies on Organization and Management of the Ministry of Health and Manpower Planning should deal specifically with issues related to the pharmaceutical and medical supply system. With 20 percent of the Ministry's budget being expended on drugs, dressings, and related supplies, this area should be considered a priority.

Present pharmaceutical services are governed in large measure by Chapter 244, the Pharmacy Practitioners Act. The Pharmaceutical Society of Kenya has developed detailed recommendations for modernizing the act. Among other things, the establishment of a Directorate of Pharmaceutical Services is proposed. The assessment team suggests that any review of MOH organization and management consider carefully the Pharmaceutical Society's recommendations. Experiences from other countries in Africa, from Asia, and from Latin America suggest that stronger pharmacy services usually result in better drug management.

If the recommendations made above in Section 5, Supervision of Pharmaceutical and Medical Supply Distribution, are followed and the additional supervisory pharmacists are appointed, the Health Sector Reform Studies should then evaluate the effectiveness with which these new roles are being implemented.

Finally, desirable and feasible staffing levels should be reviewed through the proposed Manpower study. For example, when a team of one registered pharmacist and three or four pharmaceutical technologists are expected to provide pharmacy services for a district hospital with a daily occupancy of 280 patients and up to 500 outpatients per day, it is not reasonable to also expect detailed record-keeping, close oversight of ward stocks, complete labeling of outpatient drugs, and proper patient instructions.

Performance targets for accountability, dispensing, and patient instructions can be based on ideal staffing levels, such as one pharmaceutical technologist per 50 daily outpatient attendances. But performance targets and staffing levels must be realistic in comparison to the number of available trained pharmacists and pharmaceutical technologists and the ability of the MOH to retain pharmacy staff. While it is estimated that three-quarters of pharmaceutical technology graduates are in government employment, less than one in eight qualified pharmacists work for the MOH. Any review of MOH manpower management must consider salary, job responsibilities, working conditions, and other factors which influence the ability of the MOH to hire and retain sufficient numbers of qualified staff.

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ANNEX A

PEOPLE SEEN AND PLACES VISITED

MINISTRY OF HEALTH, NAIROBI

Mr. D.M. Mbiti, Permanent Secretary  
Prof. J. Oliech, Director of Medical Services  
Dr. (Mrs.) Elizabeth Ominde-Ogaja, Acting Chief Pharmacist  
Dr. Wilberforce Wanyanga, Deputy Chief Pharmacist  
Mr. G.K. Githae, Deputy PS for Finance  
Mr. J.K.A. Mutai, Deputy PS for Administration  
Mr. Stanley Kalama, Deputy Chief Hospital Secretary  
Dr. A.O. Oyoo, Division of Communicable Disease Control  
Dr. Margaret Gacheva, Director of Family Health  
Mrs. T.M. Oduori, Chief Nursing Officer  
John Kweri, Information & Planning Systems  
Gregory B. Boyer, Health Information Systems Advisor,  
Information & Planning Systems

PROVINCIAL MEDICAL OFFICERS (PMOs)

Dr. D.M. Mulinge, PMO, Nairobi Province  
Dr. G.Z. Jawoor, PMO, Eastern Province  
Dr. M.O. Amolo, PMO, Nyanza Province  
Dr. M.H. Kay, PMO, Western Province

MEDICAL SUPPLIES COORDINATING UNIT (MSCU)

Mr. Andrew Rosana, Deputy Officer In-Charge  
Mr. Onyimbo, Chief Supplies Officer  
Mr. Gathara, Procurement Officer  
Mr. Ndekerere, Warehouse In-Charge  
Mr. Richard Gathiomi, Pharmaceutical Technologist  
Mr. Wanyama, Computer Operator  
Mr. Lawrence Mutua, Computer Operator

ESSENTIAL DRUGS PROGRAMME (EDP)

Mr. Erastus, Ndubi, Deputy Officer In-Charge, Pharmaceutical Technologist  
Mr. Joseph Mburu, Pharmaceutical Technologist

DONOR ORGANIZATIONS

USAID

Mr. David Oot, Chief, Population and Health  
Mrs. Connie Johnson, Project Officer, Population and Health

World Bank

Mr. John McGregor

DANIDA

Mr. Henning Frotlund, Counsellor (Development), Dep. Head DANIDA Mission  
Mr. J. Winther Johannsen, Senior Advisor, Essential Drugs Programme

SIDA

Ms. Maria Nordenfelt  
Overseas Development Administration (ODA)  
Gillian Holmes, Regional Health and Population Field Manager  
Japan International Cooperation Agency (JICA)  
Takahata Tsuneo, Deputy Resident Representative  
Yoshiyuki Takahashi, Asst. Resident Representative

COAST PROVINCE

Coast Provincial General Hospital  
Dr. David I. Mwangi, Acting Deputy Chief Administrator  
Mrs. Marande, Hospital Pharmacist In-Charge  
Mr. Ali Kidzuga, Pharmaceutical Technologist In-Charge, Medical Stores  
MSCU Sub-Depot, Mombasa  
Rubin Gonda, Supplies Officer In-Charge  
Tudor Clinic  
Sister Nancy Maina  
Robson Malingi, Pharmaceutical Technologist  
Port Reitz Hospital  
Dr. G.O. Oyoo, Medical Officer of Health  
Alfred S. Kuto, Pharmaceutical Technologist  
Paul Kireti, Storeman  
Kwale District (Cottage) Hospital  
Deche Mwangorya, Clinical Officer In-Charge  
Msambweni Subdistrict Hospital  
Dr. P.M. Njogu, Medical Officer of Health  
Nursing Officer In-Charge  
John Kerewoi, Pharmacist  
Tiwi Rural Health Training Center  
Frederick Ndomye, Clinical Officer In-Charge  
A. Oduor, Pharmaceutical Technologist  
Railway Dispensary  
Mary Atien O. Ndalo, Sister In-Charge  
Sarah Mlewa  
Ronald Kachewa

NYANZA PROVINCE

Provincial Medical Office  
Provincial General Hospital, Kisumu  
Dr. John Opar, Medical Superintendent  
Mr. Otienc, Hospital Secretary  
Mr. Festus Gilbert Inzoya, Pharmaceutical Technologist  
Mr. James Mbeyo, Storekeeper  
MSCU Sub-depot, Kisumu  
S.W. Adera, Supplies Officer In-Charge  
Mathew Adote Achieng', Pharmaceutical Technologist  
Nyahara Health Center  
Daniel Mwaura, Enrolled Clinical Nurse  
Siaya District Hospital  
Dr. J.E. Adungosi, Medical Officer of Health  
Dr. Ogonji O. Ben, Pharmacist In-Charge

Mr. Kaleb Osano Aroko, Health Education Officer  
Mr. Okari Ibrahim, Pharmaceutical Technologist In-Charge of RHF's  
Dienya Dispensary  
Mr. John Okella Kwama, Enrolled Clinical Nurse In-Charge  
Ramula Health Center  
Mrs. Peris Radiala, Enrolled Clinical Nurse

MISSION FOR ESSENTIAL DRUGS AND SUPPLIES (M.E.D.S.)

Mr. Mbugua, Acting General Manager, Pharmaceutical Technologist  
Mr. Amiani, Assistant General Manager  
Ms. Renyatta Sedoc, Field Pharmacist

UN ORGANIZATIONS

UNICEF

Mr. David Alnwick, Senior Project Officer, Health and Nutrition  
Dr. James Maneno, Advisor  
World Health Organization (WHO)  
Dr. Peter M. Tukei, Medical Officer (Acting Country Representative)

PHARMACEUTICAL INDUSTRY

Mahendra K.V. Shah, Director, Regal Pharmaceuticals Ltd.  
Prakash K. Patel, Past Chairman, Federation of Kenya Pharmaceutical Manufacturers  
and Chairman/Managing Director, Cosmos Limited  
Dr. G.S. Masafu, Chairman, Kenya Association of Pharmaceutical Industries  
and Manager, Pharmaceuticals Department, Jos. Hansen & Soehne  
(E.A.) Ltd.

OTHER INDIVIDUALS

Mrs. Margaret Odeck Oluka, Pharmacist/Lecturer, Medical Training College

## ANNEX B

### **Terms of Reference for a Proposal to: STRENGTHEN THE PHARMACEUTICAL DISTRIBUTION AND PROCUREMENT SYSTEM \***

#### **INTRODUCTION**

Next to personnel, pharmaceuticals and medical supplies are the major part of the recurrent MOH budget, consuming an average of 15 to 20 percent of the MOH budget over the last decade. Since the early 1980s, a series of measures have been introduced to improve selection, procurement, distribution, and use of pharmaceuticals and medical supplies.

Kenya does not have a formal national drug policy, but many of the proposed policy elements are already being implemented through existing programs. Although not officially revised since its publication in 1981, the National List of Essential Drugs continues to provide a sound basis for public sector drug procurement. The Essential Drugs Programme has focused on supply and proper use of drug kits for rural health facilities (RHF's -- health centers and dispensaries). This system appears to be functioning well at the facility level. With the introduction in the late 1980's of outpatient department (OPD) kits, drug supply for provincial, district, and subdistrict hospitals has become more regular. Central bulk procurement through the Medical Supplies Coordinating Unit (MSCU) provides for both RHF's and hospital drug and medical supply needs. Although only in its second year of operation, the Drug Procurement Committee (DPC) has gained considerable experience in managing complex procurement activities.

While considerable progress has been made, the current system continues to have difficulties providing a continuous, dependable supply of drugs, dressings, and other medical supplies. Specific problems cited by the MOH include the lack of standard lists, difficulty with needs estimation, frequent costly emergency procurements, regular shortages (particularly at lower-level facilities), poor storage conditions in some areas, theft, overprescribing and losses due to expiration. Drug management practices are particularly variable at hospitals, where staff drug use (prescription and otherwise) can consume up to 40 percent of drug allocations, and practices for hospital pharmacy record-keeping and management of ward drug supply differ considerably among institutions.

Shortages of drugs undermine the quality of care and public confidence in the health care system. The lack of drugs at peripheral facilities forces patients in both urban and rural areas to utilize more costly hospital outpatient services. With the introduction of cost-sharing, public scrutiny of the health care system has increased; the availability of pharmaceuticals and other essential supplies is critical to generate and sustain public support for this innovation.

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\* Drafted August 1990 by R.A. Schwarz and W.E. Bertrand (A Strategy and Terms of Reference for a Comprehensive Public Investment Programme and Health Sector Reform Studies) and revised November 1990 by J.D. Quick and F. Ndemo (Pharmaceutical and Medical Supplies System Assessment).

The MOH is currently engaged in several activities aimed at improving the pharmaceutical and medical supplies system. These activities are being supported by WHO, DANIDA, SIDA, USAID, and other donor organizations.

It is anticipated that the World Health Organization (WHO) Action Programme on Essential Drugs will provide assistance in completing the National Drug Policy, in revising the National Essential Drugs List, and in establishing Good Procurement Practices. DANIDA and SIDA have been supporting the Essential Drugs Programme for rural health facilities. Assuming that support continues for another one to two years, DANIDA and SIDA can be expected to be active in training rural health facility supervisory pharmaceutical technologists, in RHF kit needs estimation and allocation, and in continued promotion of rational prescribing and patient use of drugs. USAID/Nairobi, through its Health Care Financing Project, intends to provide financial and technical support for improved hospital therapeutics and modest support for specific activities within other areas.

This consultancy on pharmaceutical distribution and procurement will serve to focus and integrate these various activities into a comprehensive pharmaceutical and medical supply plan and to initiate operational improvements in key areas of supply management.

## PURPOSES

The purposes of the consultancy are: (1) to design a long-term strategic plan to strengthen the pharmaceutical supply and utilization system and (2) to implement specific reforms in pharmaceutical and medical supply management. This work should be coordinated with and complement ongoing MOH work in the areas of national drug policy, formulation of a national essential drugs list, hospital therapeutics, and essential drugs for rural health facilities.

## OBJECTIVES/OUTPUTS

1. Strategic Plan to Strengthen Pharmaceutical and Medical Supplies System -- Based on a review of past and current pharmaceutical and medical supply activities, interviews with MOH and other officials, and field visits, the team should develop a comprehensive plan to strengthen the pharmaceutical and medical supplies system. This plan should address the following topics:

- \* National drug policy
- \* Organization and management
- \* Financing and financial management
- \* Selection of essential drugs and medical supplies
- \* Estimation and allocation for current and future needs
- \* Drug management information system
- \* Procurement methods and procedures
- \* Storage, distribution, and transport
- \* Training and supervision
- \* Appropriate drug use

The plan should take into consideration MOH-initiated activities described above, listing additional actions needed, resources required, and a proposed implementation schedule.

2. MSCU Management Assessment and Improvement of Operating Efficiency -- A management assessment of MSCU will be conducted which should lead directly to training, reorganization, or other activities to improve the operating efficiency of the MSCU. The assessment should consider staffing, operational procedures, table of organization, supply management practices, adequacy of office facilities, and other factors which affect the efficiency of MSCU operations.

3. Needs Estimation and Allocation Process -- An overall strategy and practical, systematic methods will be developed for estimating procurement needs and for allocating drugs and medical supplies to individual facilities after they have been received by the Medical Supplies Coordinating Unit (MSCU). The strategy should cover requirements for rural health facilities, hospitals, and special programs such as control of communicable diseases.

4. Financial Management Strategy and Procedures -- An overall strategy and specific operational plans will be developed for improved financial management of the pharmaceutical and medical supply process.

5. Hospital Drug Management Improvement -- Policies and procedures for improved hospital drug management will be drafted, tested, revised, and implemented on a nationwide basis.

#### TASKS TO BE PERFORMED BY THE CONSULTANTS

The work will be conducted by two consultant teams. The Central Drug Management Team will deal with the overall drug management strategy, MSCU operations, needs estimation, and financial management. The Hospital Drug Management Team will focus on improving policies and procedures at subdistrict, district, and provincial hospitals.

##### 1. Central Drug Management Team

###### a. Strategic Plan to Strengthen Pharmaceutical and Medical Supplies System

The consultant team should begin by familiarizing themselves with the MOH-organized, donor-assisted activities described in the Introduction. The team should review progress on each activity. The November 1990, USAID-supported Pharmaceutical and Medical Supplies System Assessment should provide a comprehensive overview of these and other pharmaceutical sector activities.

Specific team tasks will include the following:

- \* Review documents, analyses, and assessments of the current system and progress reports for ongoing activities. The MOH Division of Pharmacy, the Essential Drugs Programme, and the Health Care Financing Project staff should provide the best access to available documents.
- \* Interview MOH officials, representatives of NGOs, and donor agencies. Attend the Drug Procurement Committee meeting and other relevant MOH pharmaceutical management meetings.
- \* Conduct site visits to MSCU facilities, MSCU sub-depots, hospitals, and rural health facilities.

- \* Produce a work plan to obtain additional data from a properly selected sample of sites.
- \* Conduct the field survey and analyze the data. Emphasis should be placed on collection and analysis of data which supplements currently available data and contributing to the design of specific management improvements in needs estimation, stock control, and other operational areas.
- \* Complete draft of descriptive report on policies, procedures, and operation of the system, with an analysis of options for reform in specific areas.
- \* Circulate draft report and strategic plan to key officials and Task Force members for review and comment.
- \* Present draft findings to key officials and Task Force members through group meetings/seminars to obtain feedback on draft proposals.
- \* Obtain more detailed feedback through individual follow-up meetings with selected officials and Task Force members.
- \* Produce a final report covering strategies, timetables, and action plans. This should include proposed tasks, technical inputs, schedules, and estimated costs.

Topics which should be covered in the strategic plan include the following:

- \* **National drug policy** -- Review progress and plans for implementation. Identify technical and financial resources needed for complete implementation of the national drug policy.
- \* **Organization and management** -- Division of responsibility and authority among government agencies involved with pharmaceutical and medical supply management. Staff requirements versus staff availability. Table of organization, especially with respect to MSCU and EDP lines of control. Consider the need for new or revised standard forms and procedures.
- \* **Financing and financial management** -- Current and future financial requirements, broken down by institution or program type. Time series analysis of budgeted and actual expenditures from all sources, including donors. Alternative funding sources, including drug fees and community cost recovery. Financial management will receive special emphasis as a separate task.
- \* **Selection of essential drugs and medical supplies** -- Review progress on revision of the national essential drugs list, the selection process, and criteria for selection. Review and advise on plans to prepare a national essential drugs and therapeutics manual.
- \* **Estimation and allocation for current and future needs** -- Will receive special attention as a separate task.
- \* **Drug management information system** -- Ongoing information requirements for selection, procurement, and distribution of drugs and medical supplies. Linkages with the MOH HIS system and other health management information sources.

Adequacy of current computerized systems for procurement, inventory control, and distribution planning.

- \* **Procurement methods and procedures** -- Review and advise on WHO-assisted activities aimed at implementing Good Procurement Practices.
- \* **Storage, distribution and transport** -- Evaluate the operation and impact of the new MSCU sub-depots. Assess the efficiency and economy of recent decisions to treat the MSCU central depot and sub-depots as transshipment points, rather than as storage points for working stock. Incorporate the findings of the soon-to-be-completed DANIDA-supported study of Ministry of Health transportation resources.
- \* **Training and supervision** -- Assess progress on appointment of provincial pharmacists, strengthening hospital and district-level supervision, and refresher training of district RHF pharmaceutical technologists.
- \* **Appropriate drug use** -- Review progress on analysis of hospital prescribing patterns. Review progress on EDP-initiated analyses of clinical diagnosis and rational drug use training and patient education programs. Identify additional strategies which may be needed to improve prescribing, dispensing, and patient drug use patterns.

Completion of the Strategic Plan will require the participation of the entire consultant team.

b. MSCU Management Assessment and Improvement of Operating Efficiency

A management assessment of MSCU will be conducted; this assessment should lead directly into training, reorganization, or other activities to improve the operating efficiency of the MSCU. The assessment should consider the following issues:

- \* suitability of established numbers and types of staff
- \* staff training and orientation requirements
- \* methods of streamlining tender processing procedures
- \* methods of streamlining processing of payment vouchers
- \* efficient integration of computer support into MSCU office procedures
- \* inventory control and supply management information systems
- \* MSCU warehouse management procedures
- \* procedures for managing MSCU sub-depots
- \* functional impact of staff assignment, reporting and supervisory relationships which involve at least two ministries and three higher authorities
- \* adequacy of office facilities -- photocopying requirements, computer support, and communications equipment should all be considered

It is expected that the completion of this task will result in a management improvement plan which may include detailed revisions of current operating procedures, specific recommendations for reorganization of MSCU activities, requirements for local and overseas training, and recommendations for expanded office facilities such as communications and computer equipment.

This task will involve primarily the Team Leader, the Pharmaceutical Management Specialist, and the local Pharmacy Administration Specialist.

c. Needs Estimation and Allocation Process

An overall strategy and practical, systematic methods should be developed and implemented for estimating procurement needs and for allocating drugs and medical supplies to individual facilities after they have been received by the MSCU. The strategy should aim to achieve a closer balance between supply and need, to promote cost-awareness by health service staff, and to minimize the need to recycle drugs among facilities.

The strategy should include the following elements:

RHF Kits -- Practical method for routinely adjusting kit contents, perhaps based on morbidity data from the HIS or consumption data from sentinel facilities. Feasibility of centrally allocating kits only to the district level based on population, reported patient attendances, numbers of facilities, or some combination of factors. Strengthening of DHMT and RHF Pharmaceutical Technologist ability to adjust kit allocations within the district, based on patient loads at individual RHF's.

OPD Kits -- Practical methods for routinely adjusting types and quantities of drugs and medical supplies based on actual consumption patterns. Feasibility of alternative methods for more closely balancing individual hospital allocations against individual hospital patient loads (eg., based on individual hospital outpatient attendance, inpatient admissions, or other measures of workload).

Individual Inpatient and Specialty Drugs -- Develop a practical method to move from the current straight allocation/push system to some form of "pull" system which allows more flexibility and promotes greater cost awareness. The most promising option would be a six- or 12-month order period for which each hospital is given a specific drug budget and is asked to place an itemized order using a form which contains unit costs.

Specialized Hospital Kits -- Evaluate the feasibility and potential cost-effectiveness of developing additional specialized hospital kits such as an adult medical inpatient kit, a pediatric inpatient kit, an operating theater kit, a laboratory reagent kit, and an x-ray supply kit.

Teaching Hospital and Subspecialty Drugs -- Drug and medical supply requirements for Kenyatta National Hospital (KNH) and the expanding teaching hospital in Eldoret present special needs-estimating and budgeting problems which must be addressed in the strategy.

Drug Requirements for Special Programs such as epidemic control, sexually transmitted diseases (STD), tuberculosis, and leprosy control should be reviewed and quantified

to avoid emergency encroachments of these programs on routine RHF and hospital supplies.

This task will involve the Team Leader, Pharmaceutical Management Specialist, and local Pharmacy Administration Specialist. It is expected that this task will be conducted in three phases: (1) initial assessment and design of data gathering instruments, (2) gathering of data from a properly drawn sample of facilities to determine the current match between drug needs and drug supplies, and (3) analysis of data and design of future needs estimation and allocation process. The first phase will be completed while the entire team is in the country. The second phase will be completed under the supervision of the local Pharmacy Administration Specialist. The third phase will be completed during the second visit of the Team Leader.

#### d. Financial Management Strategy and Procedures

An overall strategy and specific operational mechanisms should be developed for improved financial management of the pharmaceutical and medical supply process. The strategy and procedures should address the following issues:

- \* analysis of total expenditures, by source of funds, for all MOH pharmaceutical and medical supplies over the last three to five years
- \* analysis of expenditures in comparison with estimated need for all categories of pharmaceutical and non-pharmaceutical supplies, including RHF kits, OPD kits, individual hospital items, tuberculosis and leprosy drugs, drugs for epidemics, etc.
- \* recommendations for restructuring of drug, dressing, and other line item budget categories into managerially useful lines
- \* preparation of an annual drug expenditure plan which includes all sources of funds for drugs and dressings (government and donor) and all requirements (kits, individual items, non-drug items, special items)
- \* lead-time analysis of tender processing, delivery, and payment processing for a sample of 20 to 30 items to identify preventable causes for delays in processing orders and payments
- \* alternative mechanisms to assure prompt supplier payments; options to consider include:
  - partial payment on award (as some countries do)
  - reactivation of the revolving fund/deposit account
  - special arrangements with Treasury

The proposed strategy and procedures must be compatible with existing MOH and Government of Kenya laws and regulations, although changes in specific practices and procedures are anticipated.

This task will involve primarily the Financial Management Specialist and the Kenyan Financial Analyst.

## 2. Hospital Drug Management Team

The primary task of the Hospital Drug Management Team is to prepare, test, revise, and implement on a nationwide basis policies and procedures for improved hospital drug management. The policies and procedures developed by the team should cover the following topics:

- \* organization of hospital bulk medical stores and dispensing points
- \* pharmacy record-keeping
- \* written prescriptions
- \* staff drug use controls
- \* ward stock procedures
- \* policies for purchase of non-scheduled drugs (NSDs)
- \* cost-awareness activities
- \* supervision responsibilities
- \* Hospital Drugs and Therapeutics Committees (membership, responsibilities)
- \* recycling of slow-moving and soon-to-expire items
- \* visitations by drug company representatives

The Hospital Drug Management Team should cover additional topics which it deems relevant to improving hospital drug management.

The following steps are anticipated for carrying out the assignment:

- a. Working group of doctors, nurses, pharmacists, pharmaceutical technologists appointed by Director of Medical Services (DMS) from Provincial Medical Officer nominations. Membership to include 10-14 people from 5-8 districts and at least one mission and one private hospital member. (January 1991)
- b. First Hospital Drug Management Team consultancy and manual preparation workshop. The Working Group on Hospital Drug Management appointed by the DMS will meet for ten to twelve days to draft policies, procedures, and a manual based on members' experience. The consultant team should begin work at least one week in advance of the workshop to prepare for the workshop and to visit several hospitals. The workshop should also include site visits to government and private or mission hospitals. Using MSCU computer resources, it is anticipated that a draft policy and procedure manual should be completed during the workshop. (March 1991)
- c. Pilot-test manual and procedures for six months at the hospitals of the working group members. (April-September 1991)
- d. Second Hospital Drug Management Team consultancy and manual revision workshop to incorporate pilot-test experiences and to prepare final draft of manual. (October 1991)
- e. Print manual using computer-processed materials from the manual revision workshop. (December 1991)
- f. Implement new policies and procedures nationally through provincial-level Hospital Drug Management workshops conducted by members of the Working Group on Hospital Drug Management. (January-March 1992)

## PROPOSED SCHEDULE OF ACTIVITIES

### Central Drug Management Team

**March 1991:** Entire Central Drug Management Team works with MOH counterparts to prepare draft Strategic Plan to Strengthen Pharmaceutical and Medical Supplies System, to conduct the MSCU Management Assessment, to complete the initial assessment and design of data gathering instruments for the Needs Estimation and Allocation Process, and to prepare the Financial Management Strategy and Procedures.

**April-May 1991:** Draft Strategic Plan reviewed by MOH; data gathered from health facilities for the needs estimation and allocation analysis; new MSCU and financial management procedures implemented.

**June 1991:** Team Leader returns to work with local Pharmacy Administration Specialist to finalize the Strategic Plan (based on suggestions from the MOH and donor organizations); to analyze need and supply data and finish preparing plans for changes in the routine needs estimation and allocation process; and to assess the implementation of new MSCU and financial management procedures.

### Hospital Drug Management Team

**March 1991:** Workshop with Hospital Drug Management Working Group to develop policies, procedures, and draft manual -- with hospital pharmacy consultants.

**April-September 1991** Pilot-test procedures and manual in Working Group hospitals.

**October 1991:** Workshop to revise hospital drug management policies, procedures, and manual.

**December 1991:** Print Hospital Drug Management Manual.

**January-March 1992:** Implementation of manual through provincial workshops.

## RESOURCES REQUIRED

### 1. Central Drug Management Team

Team Leader -- Specialist in pharmaceutical policy and supply management. Advanced degree (preferably doctorate) in pharmacy, public health, or management. Degree in medicine or clinical pharmacy, in addition to advanced degree in fields mentioned, unless the Pharmaceutical Management Specialist has a degree in medicine or clinical pharmacy. At least 10 years experience in pharmaceutical and/or public health management, including at least three years professional work in developing countries, preferably Africa (and most preferably Kenya). Comparative knowledge of pharmaceutical supply systems, national drug policy, and quantification of drug requirements is highly desirable.

Pharmaceutical Management Specialist -- Degree in pharmacy, public health, or management. Must be a pharmacist unless the Team Leader is a pharmacist. At least five years experience in pharmaceutical and/or public health management in developing countries, preferably Africa (and most preferably Kenya), including at least three

years experience with pharmaceutical procurement, central medical store management and public sector pharmaceutical distribution systems.

Financial Management Specialist -- Degree in financial management, business administration, or accounting. Experience in financial management of government services, especially pharmaceutical supply systems. Minimum of five years professional work experience, including at least two years in developing countries, preferably Africa (and most preferably Kenya).

Pharmacy Administration Specialist (local) -- Degree in pharmacy or diploma in pharmaceutical technology. At least three years experience in pharmaceutical administration in Kenyan government health institutions, mission health institutions, or the private sector.

Financial Analyst (local) -- Degree in accounting, financial management, or business administration. At least three years experience with Kenyan government, mission, or private service institutions.

## 2. Hospital Drug Management Team

Hospital Pharmacist (international) -- Advanced degree in pharmacy. Minimum of five years pharmacy work experience, including at least two years of hospital pharmacy experience. At least three years professional work in developing countries, preferably Africa (and most preferably Kenya). Comparative knowledge of hospital drug management systems in developing countries is highly desirable.

Hospital Pharmacist (local) -- Degree in pharmacy. Minimum of five years pharmacy work experience, including at least two years of hospital pharmacy experience in Kenyan government, mission, or private hospitals.

Learning Materials Specialist/Editor (local) -- Degree in communications, education, or related fields. At least five years experience in writing, editing, and production management of health or management manuals, training materials, or other publications. Experience with desktop publishing software is highly desirable. (Examples of finished products should be reviewed prior to selection of candidate.)

### COST:

The attached budget provides the following cost estimates for the work of the two teams:

Central Drug Management Team	\$ 110-120,000
Hospital Drug Management Team (including implementation workshops)	\$ 105-110,000
TOTAL:	\$ 215-230,000

## REFERENCES

The MOH should provide the consultant team with the following documents prior to or immediately upon arrival in Nairobi:

- Agwanda, R; Kwamanga, D; Kiugu, SK: Report of a Study on Essential Drugs Supply and Usage: A Reflection of Outpatient Morbidity in Kirinyaga District, Kenya. MOH/IPS, Kerugoya District Hospital, Medical Research Center/KEMRI. March 1989.
- Havemann, K; Odeck-Oluka, M; Agwanda, RO; Kanani, S: A Study of the Utilization of Essential Drugs in Three Districts of Kenya. U. Nairobi, MOH, KEMRI. October 1990.
- Health Financing and Sustainability (HFS) Project: Forgy, Larry; Bennett, Joanne; Manundu, Mutsembi et al: Kenya Ministry of Health Preventive and Primary Health Care Resource Gap Study. USAID/ODA/SIDA. October 1990.
- Health Financing and Sustainability (HFS) Project. Quick, JD and Ndemo, F: Pharmaceutical and Medical Supplies System Assessment. USAID. November 1990.
- Hogerzeil, HV; Chelemu, WC; Werner, W: Towards a National Drug Policy for Kenya. Report of a WHO Mission. April 1990.
- Ministry of Health, Kenya; DANIDA; SIDA; WHO: Evaluation: Management of Drug Supplies to Rural Health Facilities in Kenya. Nairobi: November 1984.
- Ndemo, F; Tomson, G: Consumer Education in Support of Appropriate Use of Drugs in Kenya. Nairobi: SIDA, October 1988.
- Obwogi, C.: Monitoring on Utilization of Essential Drugs in the Rural Health Facilities in Kakamega District. Essential Drugs Programme, Nairobi, August 1990.
- Overholt, C; Ikiara, G; et al.: PADS (Provincial and District Study) Report: Nakura District. USAID/Nairobi, October 1989.
- WHO: Study of Hospital Drug Supply System in Kenya. Report of World Health Organization Mission, 14-30 October 1985.

CENTRAL DRUG MANAGEMENT TEAM

TOTAL COST

PERSONNEL

Team Leader	2.5 person-months	
Pharmaceutical Management Specialist	1.5 person-months	
Financial Management Specialist	1.5 person-months	
Pharmacy Administration Specialist (local)	4.0 person-months	
Financial analyst (local)	1.5 person-months	
Secretarial Support (local)		
ESTIMATED SUBTOTAL		\$85,000

TRAVEL

Airfare--International		
Team Leader	2 trips	
Pharmaceutical Management Specialist	1 trips	
Financial Management Specialist	1 trips	
Per diem--Inter'l Team		
Team Leader	56 days	
Pharmaceutical Management Specialist	28 days	
Financial Management Specialist	28 days	
Airfare--Local travel	0 trips	
Per diem -- local travel	20 days	
Car hire	10 days	
Taxis	56 days	

WORKSHOP COSTS

OTHER DIRECT COSTS

Telephone, telefax, telex  
Photocopying  
Computer software & supplies

ESTIMATED SUBTOTAL FOR CENTRAL DRUG MANAGEMENT TEAM \$110-120,000

HOSPITAL DRUG MANAGEMENT TEAM

TOTAL COST

PERSONNEL

Hospital Pharmacist (international)	2.5 person-months
Hospital Pharmacist (local)	2.5 person-months
Learning Materials Specialist/Editor (local)	1.5 person-months
Secretarial Support (local)	

TRAVEL

Airfare--International	
Hospital Pharmacist (international)	2 trips
Per diem--Inter'l Team	
Hospital Pharmacist	56 days
Airfare--Local travel	4 trips
Per diem -- local travel	12 days
Car hire	4 days
Taxis	56 days

WORKSHOP COSTS

First Workshop	12 days
Participant costs	15 participants
Books, Workshop materials	
Other Costs	

Second Workshop	12 days
Participant costs	15 participants
Other Costs	

Provincial Workshops	3 days
	8 workshops

OTHER DIRECT COSTS

Telephone, telefax, telex	
Photocopying	
Computer software & supplies	
Printing of hospital drug management manual	750 copies

SUBTOTAL FOR HOSPITAL DRUG MANAGEMENT TEAM \$105-110,000

## WORKING PAPER ON:

## Components of a national drug policy for Kenya\*

## Selection of drugs

The Kenya Essential Drugs List will be used as a guideline for the procurement of drugs for the public sector, as the basis for paramedical and medical graduate and in-service training programmes including the National Drug Formulary, and as a guideline for drug donations. It will be updated every two years by a national drug selection committee under the responsibility of the Minister of Health. WHO guidelines for the selection of drugs will be used; the list will only contain generic names.

In a later stage the list will be used as a guide for selective support for the local pharmaceutical industry and for a pricing policy, with the ultimate objective to promote the availability of essential drugs of good quality at affordable prices.

## Registration of drugs

Drugs will only be registered for sale in Kenya after a thorough evaluation of their efficacy, safety, quality and cost. The registration fees will be increased. With the extra income the departments of drug registration and drug inspection will be strengthened. As part of the license a level of outlet will be approved for every drug, which is either free sales, pharmacy technologist, pharmacy only or prescription only. In the future the price of the drug will also be included.

The administrative procedures in the department of drug registration will be streamlined, the filing system will be improved and more information will be exchanged with registration authorities in other countries. In a later stage a computerized drug registration system will be installed.

## Drug inspection

A new department of drug inspection will be established in the Ministry of Health, responsible, through the Chief Pharmacist, to the Pharmacy and Poison Board. The running costs of this department will be financed through the increased income generated from the registration fees or through a tax on imported drugs that are not on the Kenyan List of Essential Drugs.

All drug outlets will be inspected at regular intervals, with the natural exception of shops selling FSL (free sales license) drugs; such an inspection will include the licenses of the staff and the license of the drugs offered for sale (especially whether the drug has been licensed for sale at that level of outlet) as well as aspects of quality and price control.

## Quality control

The governmental quality control laboratory will be strengthened. In the first stage it will still be combined with the laboratory of the Faculty of Pharmacy at the University of Nairobi with facilities for physico-chemical and microbiological drug quality control; in a second phase a separate and independent government laboratory will be established. The Faculty of Pharmacy will be supported to establish a post-graduate training course of drug quality control.

The governmental laboratory will, at first, concentrate on the quality control of drugs used in primary health care. Drugs offered in tenders, drugs arriving in the Medical Supplies Coordination Unit and also samples of suspected drugs offered for sale on the private market will be analyzed.

#### Supply of drugs in the private sector

The availability, at reasonable cost, of essential drugs in the private sector will be promoted by a system of import tax and price control. This system is also intended to support the local pharmaceutical industries.

An import tax will be charged on any drug that is not on the Kenyan Essential Drugs List and on any active ingredient needed to produce such a drug. No import tax will be charged for any drug on the Kenyan Essential Drugs List, nor for the active ingredients needed for its manufacture.

At the time of application for registration in Kenya, a price will be proposed by the applicant which will be part of the criteria for approval. After approval this price will be valid for one year and will be corrected with an annual index depending on the development of consumer prices and fixed by the government.

The dispensing of drugs by prescribers in private clinics will be restricted by means of a system of dispensing licenses. Such licenses will only be granted to prescribers in very remote areas in which no regular pharmacies are available. In urban and semi-urban areas only drugs for use in emergencies and for direct administration to the patient may be stored and dispensed.

#### Procurement of drugs for the public sector

The process of selecting drugs for the public sector and estimating the quantities will be improved. Drug needs for the rural health drug ration kits, kits and bulk drugs for district hospitals and bulk drugs for referral hospitals will be combined in one total estimate of drug needs for the public sector.

The Ministry of Health will receive an annual budget for drugs and medical supplies that is based on a rational and reasonable estimate of the needs. This budget will be separated from other budgetary needs, eg. salaries and other expenses, and, once voted, will be available for payment of suppliers as and when needed.

In procuring drugs for the public sector, preference will be given to local suppliers provided they deliver goods of good quality for a reasonable price. In comparing their offers with those of overseas suppliers, an overcharge of 15% will be accepted as protection against devaluation. Such an overcharge will be financed through an import duty on medicines that are not on the Kenyan List of Essential Drugs.

#### Storage and distribution in the public sector

Drugs in the public sector will continue to be free of charge, although a fee for service will be charged at the health centre and hospital level.

The administrative procedures of the Medical Supplies Coordination Unit will be strengthened, including those of the zonal stores. External consultants and donor support will be attracted for this purpose. The Kenyan Essential Drugs Programme will be more integrated with the

Medical Supplies Coordination Unit; its mandate will be extended to advise on the supply of drugs to district hospitals and the training of prescribers at that level.

The distribution of drugs for the rural health facilities (dispensaries and health centres) will continue to be based on the use of drug ration kits; the system will be supported by district buffer stocks of some essential drugs and adequate mechanisms of redistribution of accumulating surpluses. The contents of the kits will be updated in line with medical needs of the population and the availability of some safer and more efficacious drugs.

The distribution of drugs to district hospitals will partly be based on ration kits. Those essential drugs that are also distributed to health centres will also be distributed in ration kits; the use of an extra kit for other common drugs will be studied. Drugs for inpatients will continue to be supplied by means of the indent system, but the range of drugs available for district hospitals will be reviewed as part of the revision of the Kenyan List of Essential Drugs and the study on drug needs for the public sector.

Drugs for referral hospitals will be distributed by the indent system, but the range of drugs will also be reviewed as part of the revision of the Kenyan List of Essential Drugs. Apart from the drugs mentioned on the list, extra drugs for specialist units will continue to be available under the existing procedures for "non-scheduled drugs".

#### Training

All prescriber training in paramedical, medical and pharmacy schools and all prescribing in teaching hospitals will be based on the use of generic names and will concentrate on the use of drugs included in the Kenyan Essential Drugs List.

The undergraduate curricula of the faculties of medicine and pharmacy will include detailed information on the national drug policy, the concept of essential drugs, the use of generic names, the drug supply system by means of ration kits, and rational prescribing.

#### The use of generic names

All procurement and prescribing of drugs in the public sector and all prescriber training in medical, paramedical and pharmacy schools will be based on the use of generic names. All drug packages, both in the public and in the private sector, will carry the generic name in letters at least of the same size as those of the brand name.



**REPUBLIC OF KENYA**

**MINISTRY OF HEALTH**

**ESSENTIAL  
DRUGS LISTS  
1981**

**OFFICIAL DRUGS LIST**

The Ministry of Health has decided to rationalise the use of drugs at the various levels of our Health Services with a view to promoting judicious use of our limited resources taking into consideration the skills available at the various levels. It has also been considered important that conditions be standardised in order to improve efficiency and the management of various diseases.

After extensive consultations the following list has been evolved. The ingredients for compounding certain extemporaneous preparations also appear in this official list. Only drugs listed under each level of Health Services, i.e. Health Centre/Dispensary, District Hospital, Provincial or Referral Hospital, will be procured by the Central Medical Stores for use at their respective levels.

Special permission must be obtained from the Director of Medical Services for the acquisition, possession or use of any drug not appearing on the list.

**W. KOINANGE**

**Director of Medical Services.**

ANNEX B

22

**I ANALGESICS, ANTIPYRETICS  
ANTI-INFLAMATORY & ANTIRHEUMATICS**

**Non-Narcotic**

	Health Centre/ Dispensary	District	Provincial	Referral
Aspirin - Tabs - 300 mg BP .. .. .	x	x	x	x
Paracetamol Tabs - 500 mg. BP .. .. .	x	x	x	x
Indomethacin Caps - 25 mg BP .. .. .		x	x	x
Phenylbutazone Tabs - Coated - 100 mg BP .. .. .		x	x	x
Phenylbutazone Tabs - Coated - 200 mg BP .. .. .		x	x	x

**Narcotic**

	Health Centre/ Dispensary	District	Provincial	Referral
Morphine Sulphate Injection BP - 15 mg/ml .. .. .		x	x	x
Pethidine Hydrochloride Inj. BP - 50 mg/ml .. .. .	x	x	x	x
Pethidine Hydrochloride Inj. BP - 100mg/2ml .. .. .	x	x	x	x
Fentanyl Citrate - Inj. 50mg/ml .. .. .		x	x	x
Dihydrocodeine Tartrate Tabs - 30 mg .. .. .		x	x	x
Pentazocine - Injection BNF - 30 mg/ml .. .. .		x	x	x
Pentazocine - Tablets BNF - 25 mg .. .. .		x	x	x
Pethidorphan Injection - 50 mg/ml .. .. .	x	x	x	x
Pethidorphan Injection - 100 mg/2ml .. .. .	x	x	x	x

**ANTI CONVULSANTS**

	Health Centre/ Dispensary	District	Provincial	Referral
Carbamazepine Tabs - 200 mg .. .. .		x	x	x
Phenytoin Sodium Tabs (Coated) 100mg .. .. .	x	x	x	x
Phenytoin Sodium Capsules - 50 mg .. .. .	x	x	x	x
Phenytoin Sodium Suspension - 30mg/5ml .. .. .	x	x	x	x
Ethosuximide Capsules BP - 250 mg .. .. .		x	x	x
Primidone - Tablets BP - 250 mg .. .. .				x
Primidone - Suspension - 250 mg/5ml .. .. .				x

**HYPNOTICS**

	Health Centre/ Dispensary	District	Provincial	Referral
Nitrazepam - Tabs BP. 5mg .. .. .		x	x	x
Chlormethiazole Edisylate Inj. 8mg/ml-100ml Bottles .. .. .				
Phenobarbitone - Injection BP - 200 mg/ml .. .. .	x	x	x	x
Phenobarbitone - Tablets BP - 15,30,60 mg .. .. .	x	x	x	x
Amylobarbitone Sod. Tabs BP - 60 & 200 mg .. .. .		x	x	x
Paraldehyde Injection BPC 5 ml .. .. .	x	x	x	x
Chloral hydrate Mixture BPC .. .. .		x	x	x

**4 SEDATIVES AND TRANQUILIZERS**

	Health Centre/ Dispensary	District	Provincial	Referral
Diazepam - Inj. 10 mg/2ml .. .. .		x	x	x
Diazepam - Tabs BP 2 & 5 mg .. .. .		x	x	x
Chlorpromazine Hydrochloride - Injection BP - 25mg/ml .. .. .	x	x	x	x
Chlorpromazine Hydrochloride - Injection BP - 50mg/2ml .. .. .	x	x	x	x
Chlorpromazine Hydrochloride - Tablets BP - 25 and 100 mg .. .. .	x	x	x	x
Prochlorperazine Maleate - Tablets BP - 5 & 25 mg .. .. .		x	x	x
Prochlorperazine Mesylate - Inj. 12.5 Mg/ml .. .. .		x	x	x
Thioridazine Hydrochloride - Tablets (coated) BP - 50mg .. .. .		x	x	x
Haloperidol - Capsules - 0.5mg .. .. .		x	x	x
Haloperidol - Tabs 1.5mg and 5mg .. .. .		x	x	x
Haloperidol - Inj. 5mg/ml .. .. .		x	x	x
Trifluoperazine Hydrochloride - Tablets BP 1 & 5mg .. .. .		x	x	x
Fluphenazine Decanoate Inj. 25mg/ml .. .. .		x	x	x

**5 ANTI-DEPRESSANTS**

	Health Centre/ Dispensary	District	Provincial	Referral
Amitriptyline Hydrochloride - Tablets BP - 25mg & 10mg .. .. .		x	x	x
Imipramine Hydrochloride - Tabs BP 10 & 25 mg .. .. .		x	x	x

**6 RIGIDITY & TREMOR CONTROLLERS**

	Health Centre/ Dispensary	District	Provincial	Referral
Benzhexol Hydrochloride - Tabs BP 2 & 5 mg .. .. .		x	x	x

**7 MUSCLE RELAXANTS**

	Health Centre/ Dispensary	District	Provincial	Referral
Gallamine Triethiodide Inj. BP 40 mg/ml .. .. .		x	x	x
Neostigmine Methylsulphate - Inj. BP 2.5 mg/ml .. .. .		x	x	x
Pancuronium Bromide Inj. BNF - 2mg/ml .. .. .		x	x	x
Pyridostigmine Bromide Inj. - 1 mg/ml .. .. .				x
Suxamethonium Chloride - Inj. BP 50 mg/ml .. .. .		x	x	x
D-Tubocurarine Chloride inj. BP 10 mg/ml .. .. .		x	x	x

**8 ANTIHISTAMINES**

	Health Centre/ Dispensary	District	Provincial	Referral
Chlorpheniramine Maleate - Injection 10 mg/ml .. .. .	x	x	x	x
Chlorpheniramine Maleate - Tablets 4 mg .. .. .	x	x	x	x
Chlorpheniramine Maleate - Syrup 2 mg/5ml .. .. .	x	x	x	x
Promethazine Hydrochloride - Injection 25 mg/ml .. .. .	x	x	x	x
Promethazine Hydrochloride - Tablets 10 & 25 mg .. .. .		x	x	x
Xylometazoline Hydrochloride Nose Drops 0.1% .. .. .	x	x	x	x

9 DERMATOLOGICAL DRUGS

Benzyl Benzoate Application BP .. .. .  
 Compound Benzoic Acid Ointment BPC.. .. .  
 Desonide Cream + Ointment - 15g tubes.. .. .  
 Betamethasone valerate - cream 0.1% 15g tube  
 Betamethasone valerate - ointment 0.1% 15g tube  
 Tar and Dithranol Preparations (as per formula)  
 Zinc undecenoate Oint BP .. .. .  
 Zinc Paste BP .. .. .

10 ANTIBIOTICS

Ampicillin Capsules 250 mg + 500 mg .. .. .  
 Ampicillin - Injection - 250 + 500 mg .. .. .  
 Ampicillin - Syrup - 125 mg/5ml 100 ml bottle  
 Ampicillin + Cloxacillin - Capsules 500 mg .. .. .  
 Ampicillin + Cloxacillin - Injection - 500 mg  
 Ampicillin + Cloxacillin - syrup - 250 mg/5ml  
 Ampicillin + Cloxacillin - Neonatal Drops .. .. .  
 Amoxycillin - Capsules - 250 mg .. .. .  
 Amoxycillin - syrup - 125 mg/5ml .. .. .  
 Benzathine Penicillin - Inj. 2.4 M.U.  
 Benethamine Penicillin 500,000 Units  
 Procaine Penicillin - 250,000 Units per vial .. .. .  
 Benzylpenicillin - 500,000 Units .. .. .  
 Benzylpenicillin BP - 1 M.U. .. .. .  
 Gentamycin Inj. - 40 mg/2ml .. .. .  
 Gentamycin Inj. - 20 mg/2ml .. .. .  
 Cloxacillin - Caps 250 + 500 mg .. .. .  
 Cloxacillin - Injection 250 + 500 mg .. .. .  
 Cloxacillin - Syrup 125 mg/5ml .. .. .  
 Erythromycin Stearate - Tabs 250 mg (coated)  
 Chloramphenicol - Capsules 250 mg .. .. .  
 Chloramphenicol - Injection BP 1 g .. .. .  
 Lincomycin Hydrochloride Inj. BP 600 mg/2ml .. .. .  
 Lincomycin Hydrochloride Caps BP 500 mg .. .. .  
 Clindamycin Hydrochloride - Capsules 150 mg .. .. .  
 Clindamycin Hydrochloride - Injection 300 mg/2 ml .. .. .

	Health Centre/ Dispensary	District	Provincial	Referral
Benzyl Benzoate Application BP	x	x	x	x
Compound Benzoic Acid Ointment BPC	x	x	x	x
Desonide Cream + Ointment - 15g tubes	x	x	x	x
Betamethasone valerate - cream 0.1% 15g tube	x	x	x	x
Betamethasone valerate - ointment 0.1% 15g tube	x	x	x	x
Tar and Dithranol Preparations (as per formula)	x	x	x	x
Zinc undecenoate Oint BP	x	x	x	x
Zinc Paste BP	x	x	x	x
Ampicillin Capsules 250 mg + 500 mg	x	x	x	x
Ampicillin - Injection - 250 + 500 mg	x	x	x	x
Ampicillin - Syrup - 125 mg/5ml 100 ml bottle	x	x	x	x
Ampicillin + Cloxacillin - Capsules 500 mg	x	x	x	x
Ampicillin + Cloxacillin - Injection - 500 mg	x	x	x	x
Ampicillin + Cloxacillin - syrup - 250 mg/5ml	x	x	x	x
Ampicillin + Cloxacillin - Neonatal Drops	x	x	x	x
Amoxycillin - Capsules - 250 mg	x	x	x	x
Amoxycillin - syrup - 125 mg/5ml	x	x	x	x
Benzathine Penicillin - Inj. 2.4 M.U.	x	x	x	x
Benethamine Penicillin 500,000 Units	x	x	x	x
Procaine Penicillin - 250,000 Units per vial	x	x	x	x
Benzylpenicillin - 500,000 Units	x	x	x	x
Benzylpenicillin BP - 1 M.U.	x	x	x	x
Gentamycin Inj. - 40 mg/2ml	x	x	x	x
Gentamycin Inj. - 20 mg/2ml	x	x	x	x
Cloxacillin - Caps 250 + 500 mg	x	x	x	x
Cloxacillin - Injection 250 + 500 mg	x	x	x	x
Cloxacillin - Syrup 125 mg/5ml	x	x	x	x
Erythromycin Stearate - Tabs 250 mg (coated)	x	x	x	x
Chloramphenicol - Capsules 250 mg	x	x	x	x
Chloramphenicol - Injection BP 1 g	x	x	x	x
Lincomycin Hydrochloride Inj. BP 600 mg/2ml	x	x	x	x
Lincomycin Hydrochloride Caps BP 500 mg	x	x	x	x
Clindamycin Hydrochloride - Capsules 150 mg	x	x	x	x
Clindamycin Hydrochloride - Injection 300 mg/2 ml	x	x	x	x

Kanamycin Sulphate - Inj. BP 500 mg/2ml .. .. .  
 Penicillin V - Tablets BP - 125 + 250 mg .. .. .  
 Procaine Penicillin Aqueous - Inj. BP 3 M.U./10 ml  
 Neomycin Sulphate - (coated) Tabs 350,000 Units  
 Streptomycin Sulphate - Inj. BP. 1 + 5g .. .. .  
 Tetracycline Hydrochloride - caps 250 mg  
 Tetracycline Hydrochloride - Inj. 250 mg  
 Tetracycline Hydrochloride - Eye Oint 1%  
 Tetracycline Hydrochloride - Skin Oint 3%  
 Rifamycin S.V. - Inj. 250 mg/3ml .. .. .

11 SULPHONAMIDES

Co-Trimoxazole - Tabs (400:80)  
 Co-Trimoxazole - Syrup (200:40) /5ml  
 Sulphadiazine - Inj. BP. 1g/4ml  
 Sulphadiazine - Tabs BP. 500 mg  
 Phthalylsulphathiazole - Tabs - 500 mg  
 Sulphacetamide Sod. Eye Drops 10,20 & 30%

12 ANTIFUNGALS

Nystatin - Oral Drops - 100,000 Units/ml 12ml bottles  
 Nystatin - Pessaries BPC - 100,000 Units .. .. .  
 Nystatin - Tablets BP - 500,000 Units .. .. .  
 Clotrimazole - Cream 1% .. .. .  
 Tinidazole - Pessaries - 150 mg.. .. .  
 Metronidazole - Tabs - 200 mg .. .. .  
 Griseofulvin - Tabs BP - 125 + 500 mg .. .. .  
 5-Fluorocytosine Tabs - 500 mg .. .. .  
 Amphotericin-B Inj. USP - 500,000 Units/20 ml .. .. .

13 OTHER ANTIBACTERIALS

Metronidazole Inj. 500 mg/100ml .. .. .

	Health Centre/ Dispensary	District	Provincial	Referral
Kanamycin Sulphate - Inj. BP 500 mg/2ml	x	x	x	x
Penicillin V - Tablets BP - 125 + 250 mg	x	x	x	x
Procaine Penicillin Aqueous - Inj. BP 3 M.U./10 ml	x	x	x	x
Neomycin Sulphate - (coated) Tabs 350,000 Units	x	x	x	x
Streptomycin Sulphate - Inj. BP. 1 + 5g	x	x	x	x
Tetracycline Hydrochloride - caps 250 mg	x	x	x	x
Tetracycline Hydrochloride - Inj. 250 mg	x	x	x	x
Tetracycline Hydrochloride - Eye Oint 1%	x	x	x	x
Tetracycline Hydrochloride - Skin Oint 3%	x	x	x	x
Rifamycin S.V. - Inj. 250 mg/3ml	x	x	x	x
Co-Trimoxazole - Tabs (400:80)	x	x	x	x
Co-Trimoxazole - Syrup (200:40) /5ml	x	x	x	x
Sulphadiazine - Inj. BP. 1g/4ml	x	x	x	x
Sulphadiazine - Tabs BP. 500 mg	x	x	x	x
Phthalylsulphathiazole - Tabs - 500 mg	x	x	x	x
Sulphacetamide Sod. Eye Drops 10,20 & 30%	x	x	x	x
Nystatin - Oral Drops - 100,000 Units/ml 12ml bottles	x	x	x	x
Nystatin - Pessaries BPC - 100,000 Units	x	x	x	x
Nystatin - Tablets BP - 500,000 Units	x	x	x	x
Clotrimazole - Cream 1%	x	x	x	x
Tinidazole - Pessaries - 150 mg	x	x	x	x
Metronidazole - Tabs - 200 mg	x	x	x	x
Griseofulvin - Tabs BP - 125 + 500 mg	x	x	x	x
5-Fluorocytosine Tabs - 500 mg	x	x	x	x
Amphotericin-B Inj. USP - 500,000 Units/20 ml	x	x	x	x
Metronidazole Inj. 500 mg/100ml	x	x	x	x

## DRUGS AFFECTING NUTRITION & METABOLISM

### INSULIN & ORAL HYPOLYCAEMIC AGENTS

	Health Centre/ Dispensary	District	Provincial	Referral
Chlorpropamide Tabs 250 mg BP .. .. .	x	x	x	x
Insulin Inj. BP 40 & 80 Units/ml - 10 ml vials.. .. .	x	x	x	x
Insulin Zinc Suspension BP 40 & 80 units/ml - 10 ml vials..	x	x	x	x

### THYROID & ANTITHYROID PREPARATIONS

	Health Centre/ Dispensary	District	Provincial	Referral
Carbimazole Tabs BP 5 mg .. .. .	x	x	x	x
L-thyroxine Sodium Tabs BP - 0.05 mg .. .. .	x	x	x	x

### VITAMIN PREPARATIONS

	Health Centre/ Dispensary	District	Provincial	Referral
Cyanocobalamin Inj. BP - 250 mcg .. .. .	x	x	x	x
Cyanocobalamin Inj. BP - 1000 mcg .. .. .	x	x	x	x
Multivitamin Tabs - as per formula .. .. .	x	x	x	x
Multivitamin Syrup .. .. .	x	x	x	x
Parenterovite Inj. IV .. .. .	x	x	x	x

### MINERAL & NUTRITIONAL ADDITIVES

	Health Centre/ Dispensary	District	Provincial	Referral
Calcium Gluconate Inj. BP - 10% .. .. .	x	x	x	x
Parenteral amino acid Preparation .. .. .				x
Parenteral Carbohydrate Preparation .. .. .				x

### IRON; ERYTHROPOETIC PREPARATIONS

	Health Centre/ Dispensary	District	Provincial	Referral
Ferrous Sulphate Compound Tabs BPC .. .. .	x	x	x	x
Folic Acid Tabs BP - 5 mg .. .. .	x	x	x	x

### ANTICOAGULANTS & PLASMA EXPANDERS

	Health Centre/ Dispensary	District	Provincial	Referral
Dextran 110 Inj BP 6% (in Saline & Dextrose) .. .. .		x	x	x
Dried Plasma .. .. .			x	x
Fibrinogen .. .. .			x	x
Fresh Frozen plasma .. .. .			x	x
Heparin Inj. BP 25,000 Unit/5ml .. .. .		xR	x	x
Iron Dextran Inj. BP .. .. .		x	x	x
Phytomenadione Inj BP 10 mg/ml .. .. .		x	x	x
Protamine Sulphate Inj. BP. 10 mg/ml .. .. .		x	x	x
Warfarin Sodium Tabs BP 3mg.. .. .		xR	x	x

## 15 GASTRO-INTESTINAL TRACT

### ANTACIDS

	Health Centre/ Dispensary	District	Provincial	Referral
Aluminium Hydroxide Mixture .. .. .	x	x	x	x
Compound Magnesium Trisilicate Tabs BPC.. .. .	x	x	x	x

### ANTISPASMODIC

	Health Centre/ Dispensary	District	Provincial	Referral
Hyoscine N - Butylbromide - Tabs 10 mg .. .. .	x	x	x	x
Hyoscine N - Butylbromide - Inj. 20 mg/ml .. .. .	x	x	x	x

### LAXATIVE

	Health Centre/ Dispensary	District	Provincial	Referral
Senna Tablets BP .. .. .	x	x	x	x

### ANTIEMETIC

	Health Centre/ Dispensary	District	Provincial	Referral
Promethazine Hydrochloride - 10 & 25 mg Tabs .. .. .		x	x	x
Diphenhydramine Hydrochloride Tablets 0.05 mg (A) .. .. .			x	x

### ANTHAEMORRHOIDAL

	Health Centre/ Dispensary	District	Provincial	Referral
Amesol with anaesthetic or similar .. .. .		x	x	x
Amesol with Hydrocortisone or similar .. .. .		x	x	x

### ANTHELMINTICS

	Health Centre/ Dispensary	District	Provincial	Referral
Bephenium Hydroxynaphthoate Granules 5g Sachets .. .. .	x	x	x	x
"Broad Spectrum" anthelmintic (levamisole, Thiambendazole etc) .. .. .	x	x	x	x
Niclosamide Tabs - 500 mg .. .. .	x	x	x	x
Piperazine Adipate Tabs - 300 mg .. .. .	x	x	x	x
Tetrachloroethylene .. .. .			x	x

## 16 RESPIRATORY SYSTEM

### EXPECTORANT & COUGH SUPPRESSANTS

	Health Centre/ Dispensary	District	Provincial	Referral
Expectorant Mixture - (As per Formula) .. .. .	x	x	x	x

### BRONCHIAL SPASM RELAXANTS

	Health Centre/ Dispensary	District	Provincial	Referral
Adrenaline Inj. - 1 mg/ml .. .. .	x	x	x	x
Aminophylline Inj. - 300 mg/2ml .. .. .	x	x	x	x
Aminophylline Inj. - 250 mg/10ml .. .. .	x	x	x	x
Franol Tabs & Syrup or similar .. .. .	x	x	x	x



Lignocaine Hydrochloride Inj. BP 2% + 4% .. .. .  
 - Dental Cartridges 2% with adrenaline 1:80,000 .. .. .  
 Thiopentone Sodium Inj. - 500 mg .. .. .  
 Thiopentone Sodium Inj. - 1000 mg .. .. .

**TOPICAL**

Ethylchloride Spray .. .. .  
 Lignocaine 4% (Topical) .. .. .  
 .. .. . caps 4 50 mg

**21 DRUGS ACTING ON UTERUS**

Ergometrine Maleate Inj. BP 500 mcg/ml .. .. .  
 Oxytocin Injection BP 5 units/ml .. .. .  
 Oxytocin and Ergometrine Inj. BNF .. .. .

**22 CYTOTOXIC DRUGS**

Actinomycin-D Inj. USP - 500 mcg/vial .. .. .  
 Adriamycin Inj. 10 mg Vials .. .. .  
 Bulsulphan Tabs. BP. - 2 mg .. .. .  
 Chlorambucil Tabs BP 2 mg + 5 mg .. .. .  
 Cyclophosphamide - Inj. 100 mg/vial .. .. .  
 Cyclophosphamide - Tabs BP 50 mg .. .. .  
 Cytosine Arabinoside (Cytarabine HCL) - Inj. 100 mg/vial  
 with diluent .. .. .  
 Daunorubicin Hydrochloride Inj. 20 mg/vial .. .. .  
 Fluorouracil - Inj. 50 mg/5ml amps .. .. .  
 Hydroxyurea Caps - 500 mg .. .. .  
 Imidazole Carboxamide Tabs 5mg .. .. .  
 L-Asparaginase (Colaspase) Inj. 10000 Units/vial .. .. .  
 Mefpazan - Inj. BP 100 mg/vial .. .. .  
 Methotrexate Inj. BP - 5 and 50 mg/vial .. .. .  
 Methotrexate - Tabs BP - 2.5 mg .. .. .

	Health Centre/ Dispensary	District	Provincial	Referral
Lignocaine Hydrochloride Inj. BP 2% + 4%	x	x	x	x
- Dental Cartridges 2% with adrenaline 1:80,000	x	x	x	x
Thiopentone Sodium Inj. - 500 mg		x	x	x
Thiopentone Sodium Inj. - 1000 mg		x	x	x
Ethylchloride Spray	x	x	x	x
Lignocaine 4% (Topical)	x	x	x	x
21 DRUGS ACTING ON UTERUS				
Ergometrine Maleate Inj. BP 500 mcg/ml	x	x	x	x
Oxytocin Injection BP 5 units/ml		x	x	x
Oxytocin and Ergometrine Inj. BNF		x	x	x
22 CYTOTOXIC DRUGS				
Actinomycin-D Inj. USP - 500 mcg/vial		x	x	x
Adriamycin Inj. 10 mg Vials		x	x	x
Bulsulphan Tabs. BP. - 2 mg		x	x	x
Chlorambucil Tabs BP 2 mg + 5 mg		x	x	x
Cyclophosphamide - Inj. 100 mg/vial		x	x	x
Cyclophosphamide - Tabs BP 50 mg		x	x	x
Cytosine Arabinoside (Cytarabine HCL) - Inj. 100 mg/vial with diluent		x	x	x
Daunorubicin Hydrochloride Inj. 20 mg/vial		x	x	x
Fluorouracil - Inj. 50 mg/5ml amps		x	x	x
Hydroxyurea Caps - 500 mg		x	x	x
Imidazole Carboxamide Tabs 5mg		x	x	x
L-Asparaginase (Colaspase) Inj. 10000 Units/vial		x	x	x
Mefpazan - Inj. BP 100 mg/vial		x	x	x
Methotrexate Inj. BP - 5 and 50 mg/vial		x	x	x
Methotrexate - Tabs BP - 2.5 mg		x	x	x

Mercaptapurine - Tabs BP 50 mg .. .. .  
 Mustine Hydrochloride Inj. BP 10 mg/vial .. .. .  
 Procarbazine Hydrochloride Caps 50 mg .. .. .  
 Thioguanine Tabs USNF 40 mg .. .. .  
 Vincristine Sulphate Inj. 1 and 5 mg/zmp .. .. .  
 Carbimazole Tabs. 5 mg .. .. .

**23 ANTIPROTOZOAL AGENTS**

**AMOEBICIDES** .. .. .  
 Metronidazole Tabs 200 mg .. .. .  
 Metronidazole - Inj. 500 mg/100 ml .. .. .

**ANTIFILARIAL & TRYPANOCIDES**

Diethylcarbamazine Citrate Tabs BP - 50 mg .. .. .  
 Sodium Stibogluconate Inj. BP - 10% .. .. .  
 Pentamidine Isethionate - BP 200 mg .. .. .  
 Meclizolol Inj. BP 3.6% .. .. .

**ANTIMALARIAL**

Chloroquine Phosphate - Tabs 150 mg Base .. .. .  
 Chloroquine Phosphate - Inj. 40 mg base per ml 2 & 5 ml amps .. .. .  
 Chloroquine Phosphate - Syrup - 50 mg base per 5ml .. .. .  
 Primaquine Phosphate Tabs - 7.5 mg base .. .. .  
 Quinine Bisulphate Tabs BP 300 mg .. .. .  
 Quinine Dihydrochloride Injection BP 300 mg/ml .. .. .  
 Proguanil Hydrochloride Tabs BP 100 mg .. .. .

**ANTITRICHOMONAL DRUGS**

Metronidazole Tabs 200 mg .. .. .  
 Tinidazole Tabs 150 + 500 mg .. .. .

**24 ANTISCHISTOSOMAL DRUGS**

Nitidazole Tabs 500 mg .. .. .  
 Mepronate Tabs 100 mg .. .. .

	Health Centre/ Dispensary	District	Provincial	Referral
Mercaptapurine - Tabs BP 50 mg			x	x
Mustine Hydrochloride Inj. BP 10 mg/vial			x	x
Procarbazine Hydrochloride Caps 50 mg			x	x
Thioguanine Tabs USNF 40 mg			x	x
Vincristine Sulphate Inj. 1 and 5 mg/zmp			x	x
Carbimazole Tabs. 5 mg			x	x
23 ANTIPROTOZOAL AGENTS				
AMOEBICIDES				
Metronidazole Tabs 200 mg	x	x	x	x
Metronidazole - Inj. 500 mg/100 ml			x	x
ANTIFILARIAL & TRYPANOCIDES				
Diethylcarbamazine Citrate Tabs BP - 50 mg	x	x	x	x
Sodium Stibogluconate Inj. BP - 10%		x	x	x
Pentamidine Isethionate - BP 200 mg		x	x	x
Meclizolol Inj. BP 3.6%		x	x	x
ANTIMALARIAL				
Chloroquine Phosphate - Tabs 150 mg Base	x	x	x	x
Chloroquine Phosphate - Inj. 40 mg base per ml 2 & 5 ml amps	x	x	x	x
Chloroquine Phosphate - Syrup - 50 mg base per 5ml	x	x	x	x
Primaquine Phosphate Tabs - 7.5 mg base		x	x	x
Quinine Bisulphate Tabs BP 300 mg		x	x	x
Quinine Dihydrochloride Injection BP 300 mg/ml		x	x	x
Proguanil Hydrochloride Tabs BP 100 mg		x	x	x
ANTITRICHOMONAL DRUGS				
Metronidazole Tabs 200 mg	x	x	x	x
Tinidazole Tabs 150 + 500 mg	x	x	x	x
24 ANTISCHISTOSOMAL DRUGS				
Nitidazole Tabs 500 mg		x	x	x
Mepronate Tabs 100 mg		x	x	x

**ANTIMYCOBACTERIALS**

**ANTILEPTOTICS**

	Health Centre/ Dispensary	District	Provincial	Referral
Dapsone Tabs BP 50 & 100 mg..	x	x	x	x
Clofazimine <sup>®</sup> 100 mg caps			x	x
<i>10 Clofazimine Caps. 150 + 300 mg caps</i>				

**ANTI-TUBERCULOSIS**

	Health Centre/ Dispensary	District	Provincial	Referral
Isoniazid/Thiacetazone (100:50 mg) Tabs	x	x	x	x
Isoniazid Tabs BP 100 mg		x	x	x
Pyrazinamide Tabs BP 500 mg			x	x
Ethambutol Tabs 250 & 500 mg Tabs			x	x
<i>100/400 mg</i>				
Rifampicin caps 150 mg			x	x
Streptomycin Inj. BP 1 & 5 g	x	x	x	x
<i>Rifampicin 150mg/100/750 100mg tabs</i>				

**ANTIDOTES**

	Health Centre/ Dispensary	District	Provincial	Referral
Atropine Eye Ointment 1% in 5g tube		x	x	x
Atropine Sulphate Inj. BP. 1mg/ml		x	x	x
Dimercaprol Inj. BP. 5% in 2ml amps		x	x	x
Desferrioxamine Inj. BP. 500 mg/vial		x	x	x
Naloxone Hydrochloride Inj. U.S.P. 40 mcg/ml		x	x	x
Pralidoxime Chloride - 1g vials		x	x	x
Sodium Nitrite Inj. BPC. 3% in 10 ml amps.		x	x	x
Sodium Thiosulphate Inj. BPC. - 50% in 50 ml vials		x	x	x

**DRUGS ACTING ON THE EYE AND ENT.**

	Health Centre/ Dispensary	District	Provincial	Referral
Atropine Eye Ointment			x	x
Pilocarpine Hydrochloride Eye Drops 1,2,4%		x	x	x
Tetracortril Eye/Ear Suspension			x	x
Tetracycline Eye Ointment 1%	x		x	x
Sulphacetamide Eye Drops 10,20,30%	x	x	x	x
Topical Lignocaine HCL Solution 4%	x	x	x	x
Acetazolamide Tabs 250 mg			x	x
Idoxuridine Oint/Drops - 1%			x	x

**DISINFECTANTS & ANTISEPTICS**

	Health Centre/ Dispensary	District	Provincial	Referral
Savlon Concentrate				
Surgical Spirit				
Chlorhexidine Gluconate Solution	x	x	x	x
Lysol B.P.				

**29 BASIC CHEMICALS FOR EXTEMPORANEOUS PREPARATIONS**

	Health Centre/ Dispensary	District	Provincial	Referral
Ammonium Bicarbonate				
Benzoic Acid				
Benzyl Benzoate				
Chloral Hydrate				
Chloroform				
Coal Tar Prepared				
Emulsifying wax				
Dithranol				
Ferrous Sulphate BP				
Iodine				
Ipecacuanha Tincture				
Hydrocortisone (Fine Powder)				
Light Magnesium Carbonate	x	x	x	x
Liquorice Liquid Extract				
Liquid Paraffin				
Magnesium Trisilicate				
Peppermint Oil				
Salicylic Acid				
Sodium Bicarbonate				
Sucrose				
Soft Paraffin, white/yellow				
Tragacanth Compound Powder				
Camphor				
Formaldehyde				

**ELECTROLYTE SOLUTIONS**

	Health Centre/ Dispensary	District	Provincial	Referral
5% Dextrose in 0.45% Saline Inj.	x	x	x	x
Water for Injection	x	x	x	x
Darrow's Solution 1/2 strength	x	x	x	x
Normal Saline Injection	x	x	x	x
Potassium Chloride Inj.		x	x	x
Sodium Bicarbonate Inj. 8.4%		x	x	x
Dextrose Inj. 5,10 and 50% W/V		x	x	x
Ringer Lactate Inj. BP		x	x	x



ANNEX E

Sample Instruments for Evaluation of EDP Course

- E-1 Observational Instruments for the Drug Use Study  
Prescriber-Patient Interaction
- E-2 Observational Instruments for the Drug Use Study  
Dispenser-Patient Interaction

Source: Ross-Degnan, D: Strategy for Evaluation of the Health Sector Finance Project, Pharmaceutical Component and Progress of the Focused Assessments. ISTI, July 1989.

**DRAFT OBSERVATIONAL INSTRUMENTS FOR THE DRUG USE STUDY  
PRESCRIBER-PATIENT INTERACTION**

**IDENTIFYING INFORMATION**

Patient Name: \_\_\_\_\_ Patient Age (years): \_\_\_\_\_  
 Date: \_\_\_\_\_ Time of Visit: Start: \_\_\_\_\_ End: \_\_\_\_\_  
 Location Number: \_\_\_\_\_ Prescriber Type: (1=MD,0=non-MD): \_\_\_\_\_

**DIAGNOSTIC COMMUNICATION**

**General**

	Prescriber Asked	Patient Volunteers	Not Discussed
Length of Illness	___	___	___
Previous Treatment for Illness	___	___	___
Fever present/how long	___	___	___

**Diarrheal Disease**

Diarrheal frequency/volume	___	___	___
Association of onset with foods eaten	___	___	___
Presence of blood in stool	___	___	___

**Acute Respiratory Disease**

Localizing symptom (earache, congestion, etc.)	___	___	___
Cough characteristics (productive, etc.)	___	___	___
Exposures (TB, others ill)	___	___	___

**THERAPEUTIC COMMUNICATION/ADVICE GIVEN**

	Prescriber Initiated	Patient Initiated	Not Discussed
Specific drugs desired by patient	___	___	___
Injection desired by patient	___	___	___
Diagnosis stated	___	___	___
Mention drugs prescribed by name or type	___	___	___
Discuss proper use of drugs prescribed	___	___	___
Eating/feeding/breast feeding advice	___	___	___
Use of traditional medicine *	___	___	___

**PHYSICAL EXAMINATION**

	Examined	No exam	Unknown
Temperature	___	___	___
Respiratory rate	___	___	___
Otoscopic exam (ear)	___	___	___
Throat exam	___	___	___
Listen to lungs (stethoscope)	___	___	___
Palpate (feel) abdomen	___	___	___

**LABORATORY EXAMINATION**

	Examined	No exam	Unknown
Gross observation of stool	___	___	___
Microscopic exam of stool	___	___	___
Stool culture sent	___	___	___
Throat (Strep) culture	___	___	___
Chest x-ray	___	___	___

**OUTCOME (From patient record)**

**Diagnoses:**

1. \_\_\_\_\_
2. \_\_\_\_\_
3. \_\_\_\_\_

**Drug Prescribed**

1. \_\_\_\_\_
2. \_\_\_\_\_
3. \_\_\_\_\_
4. \_\_\_\_\_
5. \_\_\_\_\_
6. \_\_\_\_\_
7. \_\_\_\_\_
8. \_\_\_\_\_
9. \_\_\_\_\_
10. \_\_\_\_\_

**Amount**

1. \_\_\_\_\_
2. \_\_\_\_\_
3. \_\_\_\_\_
4. \_\_\_\_\_
5. \_\_\_\_\_
6. \_\_\_\_\_
7. \_\_\_\_\_
8. \_\_\_\_\_
9. \_\_\_\_\_
10. \_\_\_\_\_

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**DRAFT OBSERVATIONAL INSTRUMENTS FOR THE DRUG USE STUDY  
DISPENSER-PATIENT INTERACTION**

**IDENTIFYING INFORMATION**

Patient Name: \_\_\_\_\_ Patient Age: \_\_\_\_\_  
 Date: \_\_\_\_\_ Dispenser Type (1=Pharm/2=Asst.Pharm./3=Other): \_\_\_\_\_

**PATIENT-DISPENSER COMMUNICATION**

	Dispenser Initiated	Patient Initiated	Not Discussed
Diagnosis discussed	___	___	___
Description of drugs dispensed (name, type of drug, purpose)	___	___	___
Proper dosage interval/frequency	___	___	___
Cautions, side effects mentioned	___	___	___
Allergies to Drugs	___	___	___
Take with food/on empty stomach	___	___	___
Advice on OTC drugs	___	___	___
Use of traditional medicine	___	___	___

**DISPENSER ACTIONS**

Injections -- sterile technique?      yes    \_\_\_    no    \_\_\_

	Drug Prescribed	Drug Code	Quant. Prescr.	In Stock (Y/N)	Quant. Dispen.	Charge For Drug (if any)	Type of Package
1.	_____	_____	_____	_____	_____	_____	_____
2.	_____	_____	_____	_____	_____	_____	_____
3.	_____	_____	_____	_____	_____	_____	_____
4.	_____	_____	_____	_____	_____	_____	_____
5.	_____	_____	_____	_____	_____	_____	_____
6.	_____	_____	_____	_____	_____	_____	_____
7.	_____	_____	_____	_____	_____	_____	_____
8.	_____	_____	_____	_____	_____	_____	_____
9.	_____	_____	_____	_____	_____	_____	_____
10.	_____	_____	_____	_____	_____	_____	_____

Package type (Check one or more):

None	___	Plastic bottle	___
Folded Paper	___	Glass bottle	___
Plastic bag	___	Other	___

Drugs Labeled (Y/N): \_\_\_\_\_      If yes, includes: Patient Name (Y/N): \_\_\_\_\_  
 Drug Name (Y/N): \_\_\_\_\_  
 Frequency of use (Y/N): \_\_\_\_\_

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## STATEMENT OF WORK

## I. BACKGROUND

In spite of attempts over the years to strengthen the drug and medical supplies purchase and distribution with the Ministry of Health, inadequate drug and medical supplies remain one of the serious constraints to both quality curative and primary/preventive health care. Chronic drug shortages have consistently plagued the MOH.

In 1980, these drug shortages prompted the MOH with assistance from WHO and DANIDA to establish a drug kit program. For health centers and dispensaries the drug kit program provides pharmaceuticals from a limited essential drug list. The prepackaged kits contain standard volume and mix of products. Two kinds of kits are provided for each facility. Local procurement is provided by GOK and overseas procurement by DANIDA/SIDA. Over the past few years, the MOH was to slowly take over the procurement of overseas purchases. However, the MOH has experienced difficulties in tendering, packaging and distribution. This has led to periodic shortages and emergency purchases of drugs at much higher costs.

The district, provincial and referral hospitals are not supplied under the Kit system. In the past Central Medical Stores was responsible for procurement of drugs. However, the MOH realized they could not handle the job because of such problems as:

1) cumbersome purchasing procedures; 2) inadequate quality control, security systems and storage; and, 3) deficient inventory control and logistic systems.

In 1989, the MOH decentralized drug procurement to the districts in line with the district focus but also to try to resolve the problems listed above. In three months the districts ran through all the money budgetted for a total year. The cost of drugs purchased at outlying areas was prohibitive. Therefore, Central Medical Stores again resumed responsibility for procurement. However, problems of management, needs estimation, selection, procurement, distribution storage and transport still plague the system.

Recent data from the Provincial and District Health Services (PADS) Study demonstrate that problems in control of drugs and medical supplies not only exist at headquarters but throughout the system to the facility level.

Drugs are the leading non-personnel expenditure in the MOH. As shown above, inefficiencies within the system lead to massive over expenditures with availability still not assured.

Leakages within the system are estimated to be up to 30-40% of the total amount budgeted for drugs.

Recognizing these problems, in December 1989, the Permanent Secretary of the MOH requested USAID to begin studying the problems of drug and medical supplies procurement, distribution, and inventory control as the highest priority of the MOH. Thus the following scope of work was developed.

## II. SCOPE OF WORK

The objective of the PIO/T is to provide an assessment of the drug and medical supplies system identifying key constraints to the system and the preparation of terms of reference for a large level of effort to prepare a comprehensive medical drug supply and logistic systematic plan. It is anticipated that this large level of effort would be funded by ODA or World Bank and reform indicated to be included in the new Bank Project.

To accomplish this task, a drug supply/logistics consultant (funded from this PIO/T) together with MOH will develop a plan to assess the MOH drug and medical supplies system, prepare terms of reference for implementing the assessment and preparation of a comprehensive medical supplies systems plan. During a 1 day workshop, the assessment plan and terms of reference will be presented to key MOH decision makers and donors for review and concurrence. Given the MOH/Donor input, these will be finalized: 1) the assessment plan, 2) terms of reference, and 3) plan for implementing the assessment, reviewing the results and determining the necessary corrective action.

## REPORTS

The following reports would be produced by the end of the contract period:

- A. The assessment plan which would include:
  1. Policy, organization; management;
  2. Drug/medical supplies detection criteria for level of use;
  3. Needs estimation;
  4. Procurement;
  5. Distribution;
  6. Storage;
  7. Logistics - transport
  8. Management information systems;
  9. Financial management;
  10. Training and supervision
  11. Appropriate drug use.
- B. The terms of reference for implementing the assessment plan and preparing a comprehensive medical supplies system.
- C. The action plan for implementing the assessment, reviewing the results and determining the necessary corrective steps.