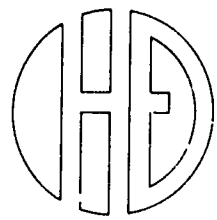


OFFICE OF INTERNATIONAL HEALTH AND ECONOMIC DEVELOPMENT

MARTIN LUTHER KING, JR. HOSPITAL/
CHARLES R. DREW MEDICAL CENTER

PROVIDING BASIC MEDICINES IN
RURAL PRIMARY HEALTH CARE FACILITIES IN AFRICA:

TECHNICAL GUIDELINES

Submitted by: Dr. Rosalyn C. King

Submitted to: Dr. James Shepperd
AFR/DR/HN
Washington, D.C.

[illegible] 3, 1981

TABLE OF CONTENTS

I. INTRODUCTION

According to the Agency for International Development (AID) policy, the provision of basic medicines is a component of its primary health care (PHC) activity thrust in developing countries. However, the provision of basic medicines is but a part of the requisite organizational and management component necessary to ensure the appropriate selection, procurement distribution, and use of pharmaceuticals within the domain of primary health care. Inadequate attention to this delineation has oftimes caused difficulty for project and AID staff when implementing AID policy and programs in developing countries.

To address this need, these technical guidelines have been developed. The purpose is twofold:

1. To provide general guidance for project staff in the implementation and evaluation of PHC projects which include a pharmaceutical supply sector; and

2. To provide a perspective on the conceptual framework of the sector.

This document presents general strategies and techniques which have worked, and which have contributed to successful PHC projects. These general strategies and techniques must be molded to specific project needs if maximum effectiveness is to be assured.

The inherent focus of these guidelines is on basic medicines and their provision within AID-supported projects. Due to their particular characteristics and the limitations of the topic area, contraceptive and vaccine pharmaceuticals are not discussed herein, but some information may apply to the systems used to provide them as well.

In this document the terms "drug", "medicines", and "pharmaceuticals" are used interchangeably.

II. THE PHARMACEUTICAL SUPPLY SECTOR

A. Pharmaceuticals in Aid-Supported Primary Health Care Projects

To date, pharmaceuticals used in primary health care* programming, within AID-supported projects, have enjoyed the status of "Commodities". As such, they are treated as simply supply items and procured through appropriate procurement agencies in a manner similar to that of other supply items. Except for vaccines and contraceptives, many issues specific to pharmaceuticals have been given no special attention.

As AID "commodities", pharmaceuticals are seen as part of the logistics system. Logistics, however, is a military term implying a movement of items to usage points based on predictable needs and demands. While contingency plans may be included, fluctuations are not as likely. Within the health care system, management elasticity is often required. At times, there are increased and uneven demand for pharmaceuticals. This may be due to such variables as epidemics and/or a government change in policy to permit free health care for all. The net result is greater patient need and/or demand which require a system that has great flexibility and is well managed.

In essence, pharmaceuticals are much more than just commodities. With respect to PHC projects and some governments, pharmaceuticals are used as therapeutic and administrative tools, as well as agents of economic and political change.

---

* Primary health care differs from ambulatory care. Ambulatory care is defined as all out-of-hospital care, while primary health care refers to first level care which is a part of out-of-hospital care.

1. Therapeutic Tools

The most important function of a pharmaceutical is to serve as a therapeutic tool to prevent, mitigate, or cure disease. As a therapeutic tool, the drug must be safe and effective. If the drug is safe, it is more helpful than harmful -- its positive effects outweigh any negative side effects. If it is effective, the ingredients of the drug will achieve the desired therapeutic effect and the drug will do what it is designed to do.

Drugs may be considered both safe and effective, but these qualities can be altered by factors such as improper formulation, inadequate storage and inappropriate utilization. Paracetamol is considered safe and effective for the temporary relief of pain. If formulated in an ointment, it may have little effect on a sprained knee because little active ingredient is absorbed through the skin. This is an improper product form. If the drug is stored for long periods of time at high temperature, decomposition may occur, which can produce a loss of potency.

An example of inappropriate utilization is the administration of penicillin only until symptoms disappear. A cure usually requires treatment for a specified period of time. If the drug is not taken for that time period, symptoms may reappear after therapy is stopped.

Inappropriate utilization can also occur because of a lack of recognition of an interaction between a drug and food or alcohol, which can reduce a drug's effectiveness. Under and overdosing also contributes to inappropriate utilization.

Each of the above factors constrain the usefulness of drugs as therapeutic tools. Each must be considered when devising a PHC system and steps taken to assure appropriate drug therapy.

2. Administrative Tools

Within the context of primary health care, the provision of pharmaceuticals can create a complex management situation. They are not only therapeutic tools, but are often indicators of managerial or administrative effectiveness. To ensure their therapeutic effect, the supply of pharmaceuticals must be augmented by a management plan administered on a continuous basis. Inappropriate management of an adequate supply will quickly reveal itself through drug stock shortages, outages, or overages.

3. Agents of Change - Economic

Pharmaceuticals have been used as economic tools to achieve project and program self-financing. As such, they have become agents of change. The entire "Pro-Pharmacy" concept hinges on the profit derived from drug sales to generate funds (see Appendix A). These funds can then be used to defray expenses associated with salary and drug supply replacement costs.

Countries in Africa have used the pro-pharmacy concept, as well as the parastatal organization to generate monies and boost the economy. As with any program, they have experienced varying degrees of success.

4. Agents of Change - Political

In some countries, governmental policy may call for free health care for all. Ostensibly, this policy demonstrates concern for the health needs of the populace. One of the most tangible parts of the health care process is the pharmaceutical given to the patient. As a free gift to a sick person, the provision of pharmaceuticals reflects a caring posture on the part of the government. When, for any reason, drugs are unavailable to patients, governmental concern and credibility can be called into question.

Given this perspective on the role of pharmaceuticals in health care systems in developing countries, it is now possible to discuss the characteristics of a pharmaceutical supply system as a part of a public program for primary health care.

B. The Pharmaceutical Supply Sector: Guidelines

Two sets of "realities" underscore the drug flow component and the supporting systems within the pharmaceutical supply sector. These realities encompass "hard" and "soft" variables which are necessary and supportive for the supply sector. Figure 1 depicts a schematic overview of a model pharmaceutical supply sector in the public domain.

"Hard" realities are essential to effective operation of the sector and include:

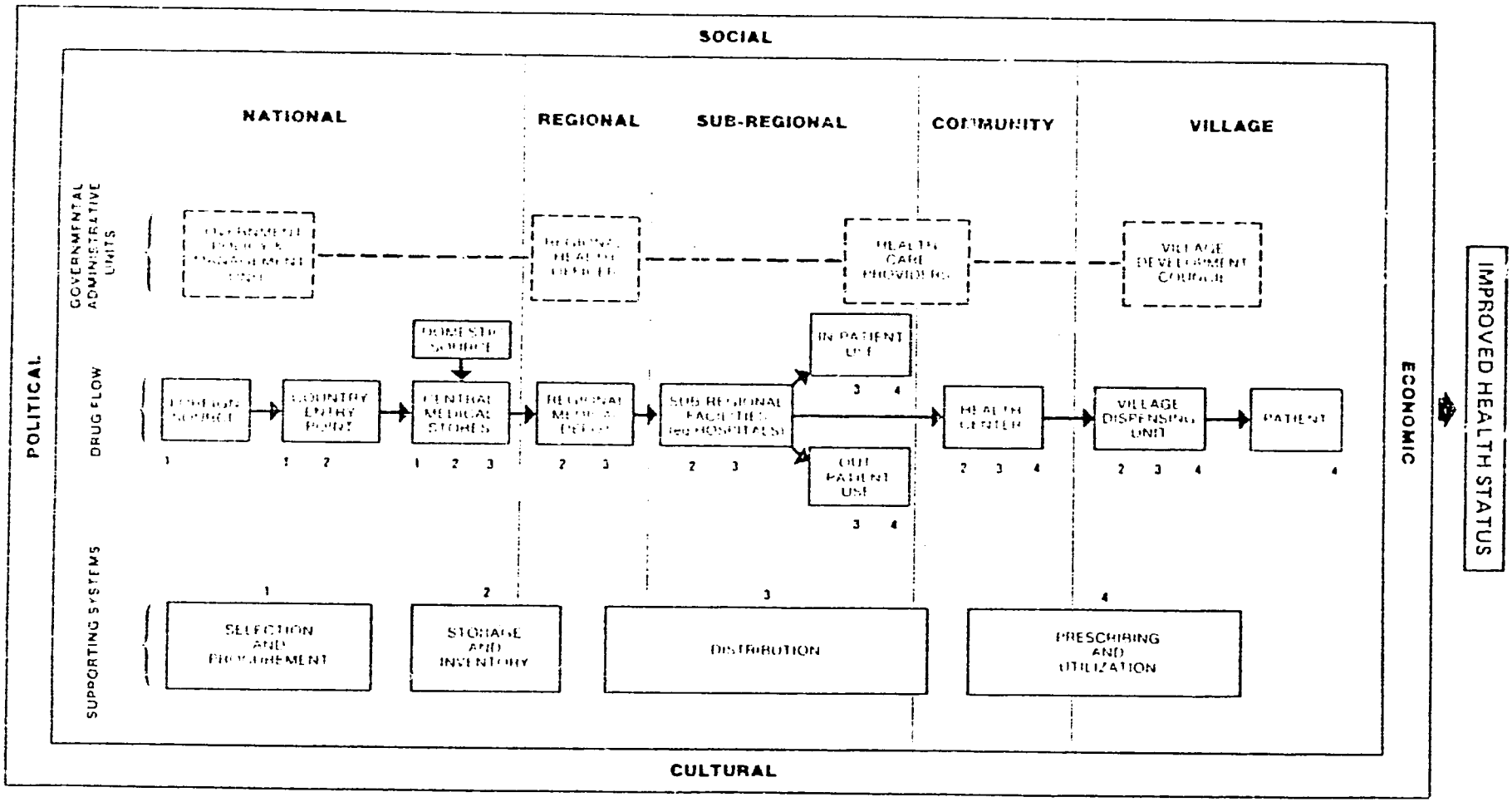
- Facilities
- Personnel
- Financing
- Pharmaceutical Source

"Soft" realities contribute to successful operation and include:

- Drug Product Selection
- Procurement
- Storage and Inventory
- Distribution

FIGURE 1

THE PUBLIC PHARMACEUTICAL SUPPLY SECTOR FOR RURAL PRIMARY HEALTH CARE IN A DEVELOPING COUNTRY: A SCHEMATIC OVERVIEW



- Prescribing
- Drug Utilization and Information
- Training for Appropriate Tasks
- Sector Management

These realities are further defined and discussed.

1. Hard Realities

   a. Facilities. Pharmaceuticals must be stored or warehoused and dispensed from facilities such as depots, pharmacies, hospitals, health centers and health huts.

      Certain attributes of these facilities must be considered. These include: size, layout, structural material, maintenance, distance to/from dispensing/prescribing points, and capability for permitting adequate drug storage and system management.

   b. Personnel. Staff which must function in facilities at all levels include nurses, pharmacists, dispensers, and aides. The number, kind of training, and experience of personnel present in the country provide relevant information for developing the sector.

   c. Financing. The sector cannot operate without an adequate budget and funding source. The derived budget should be based on estimated needs per period of time, cash flow projections tied to anticipated expenditure levels, and appropriate bank credit arrangements.

   d. Pharmaceutical Source. Preparations used may be supplied by either a foreign, local/domestic, or in-system source. Major pharmaceutical manufacturers of the world are often multinational

corporations and may offer their entire production line or formulations tailored to specific markets. Many African countries have little or no domestic pharmaceutical production, but may have local wholesalers or importers. A few countries have central medical stores which import ingredients for limited in-system manufacturing or which procure drugs in bulk. Bulk purchases are re-packed for internal distribution. Suppliers should be considered who will provide requisite language labeling and packaging. Suppliers should be preferred on the basis of those which provide educational models, films, brochures, etc., in language useable for project needs as part of the complimentary professional service package.

2. Soft Realities

a. Drug Product Selection Systems. The selection of categories of drugs to be used is a primary and a key action. It is usually based on treatment needed to address current health problems or specific health problems which are to be the subject of the project. A mechanism must be derived and used to identify the source and content of drugs to be used in the health care system. Drugs selected for use in the system should be those generally deemed safe and effective according to host country or USAID policy (if AID funds are used to purchase drugs). When AID funds are used to support the purchase of drugs in a project, drugs which appear on the list in Appendix B are deemed ineffective and AID funds may not be used to purchase them.

A comparison of cost to safety and efficacy should be made. Attempts should be made to secure low-cost, safe and effective drugs.

Selection is best if accomplished by a consensus of involved host country, AID health staff, and other health care providers. In AID project design, the selection of categories and actual drugs

may occur prior to project implementation. However, the selection system may still be required to evaluate new sources of drugs or to add new drugs to the list of those already in use.

The consensus process should result in the formation of a project formulary. A formulary differs from a Basic or Essential Drug List (BDL or EDL). Whereas a BDL contains the name (generic and/or brand) of drugs to be used and their pharmacological category, a formulary contains the following information:

- Name (generic and/or brand)
- Indications for use
- Drug forms to be used
- Dosing (levels and intervals according to age, sex, weight, and drug form)
- Drug action
- Expected side effects or adverse effects
- Drug interactions, if any

A formulary serves as a source document for training , as a continuing reference text, and as a mechanism for minimizing duplications of drugs stored.

WHO/AFRO has developed a BDL which can be used as a basis for development of a project formulary (see Appendix C). Once a formulary is developed, it must be updated periodically.

Once drug category and content are identified, the procurer identifies an appropriate source using current quality control information, price and other pertinent factors listed in the section of these guidelines on procurement.

b. Procurement System. This system should include mechanisms for:

- Estimating drug needs (see Table 1)
- Defining order specifications (product form, date requirements needed, Good Manufacturing Practice compliance) and numbers of items needed
- Communicating with sources
- Negotiating bids and/or contracts
- Purchasing items
- Arranging for receipt of items
- Receiving items (includes country entry clearance and security, entry inspections, transportation to central depot)
- Re-packaging, if necessary, into smaller quantities
- Pre-packaging, if necessary, into units-of-use for easy dispensing
- In-system manufacturing, where possible. Pharmacists around the world are taught to prepare capsules, cough mixtures, etc. With simple equipment, they should be encouraged to do so.

TABLE 1

ESTIMATED ANNUAL DRUG COSTS FOR TREATMENT OF WHOOPING COUGH (POPULATION 0-5 YRS)

Population at Risk	Rate of Infection & Severity	Estimated Annual No. Cases	Treatment Regimen	Cost Per Treatment Regimen		Estimated Annual Drug Costs
765,254	50% Moderate	47,063	ASA 500mg.#20	20 tabs. x .945	.19	$ 32,473.47
			Cough Syrup 100 ml.	100 ml	.50	
	50% Severe	47,063			.69	$964,791.50*
			Antibiotic #20	20 caps x 1.00	20.00	
			Cough Syrup 100 ml.	100 ml	.50	
					$20.50	

*Therefore, must find cheaper, as effective antibiotic!

Estimating Drug Needs & Costs (Epidemiological Basis)

1. Define Population at Risk per Disease.
2. Estimate infection rate of the population at risk for the disease.
3. Calculate annual number (estimated) of cases. (#1 x #2 = 3)
4. Define treatment regimen. May need further definition for mild, moderate and/or severe cases.
5. *Calculate drug costs per treatment regimen.
6. Multiply #5 by estimated annual number of cases or estimated number of treatments needed. THIS GIVES ANNUAL DRUG COST FOR ESTIMATED ANNUAL NUMBER OF CASES. (see chart)

* After this step, can calculate quantities of a drug needed by multiplying treatment regimen by estimated annual # of cases.

c. Storage and Inventory System. The output of this system should be a delineation of stock levels, adequate stock maintenance, and information on stock movement. To accomplish this, techniques for assuring adequate storage and maintenance conditions (e.g., temperature, ventilation, cleanliness, orderliness, appropriate containers, security, and appropriate product identification) must be developed.

Inventory control procedures (e.g., minimum stock or order/reorder levels, stock control cards, stock rotation, stock disbursement mechanisms, etc.) are necessary. Information from this system provides management with data on when and how often to procure, quantities for procurement, and general drug usage rates from dispensing points. Appendices D and E provide samples of a stock control card and medical supply requisition forms.

d. Distribution Systems. Components of this system include:

- An early management decision on whether the system is to be a "push" (drugs sent periodically without requests from end points), or a "pull" (drugs sent only upon request and in a timely fashion), or a combination of both systems.
- Establishment of supply points for dispensing facilities.
- Transportation and delivery schedules (a decision should be made as to the use of system-owned vehicles or the use of private transport systems).
- A depot packaging system, if needed.
- A depot checking and routing system.

- Verification that end-points received drugs.
- Periodic checks of stock at dispensing points.
- A system to return or dispose of unused or outdated drugs.

e. Prescribing System. This system should be formulary-based and aim to provide rational therapy at the lowest possible cost. It includes providing drug education at the time of prescribing or dispensing (name of drug, the condition it is for, how it is to be taken, and expected side effects). It should also include, where feasible and appropriate, general preventive information, such as:

- Keeping medicines, especially chloroquine, out of children's reach.
- The advantage of oral medications over injectable ones.
- The importance of taking medicines, especially antibiotics, for a full regimen.
- How medicines act; what they can and cannot do.

Non-formulary prescribing should be discouraged as much as possible. Prescribing should be commensurate with the level of training of the prescriber.

f. Drug Utilization and Information System. This is the mechanism by which the sector tracks the amount and kind of drugs prescribed and/or used per dispensing point. Data is generated in village health worker notebooks and in central dispensing points. These provide a baseline for procurement, clinical and administrative review. This is derived through end-of-month reports in which the following information is included:

- Name of item
- Amount remaining from previous month
- Amount received during month
- Amount used
- Amount requested for next month
- Cost of drugs used

The sale price, name and amount of drug sold should also be tracked if drugs are a part of a self-financing mechanism in the health care system.

Reports should come from all health dispensing points (health center, village dispensing unit) and be incorporated in inventory control systems as well.

Care should be taken to collect data which will permit a comparison of drug used to health problem treated. Appendix F contains a sample patient record card.

g. Training. Training for the pharmaceutical supply sector of a primary health care system requires both a clinical and an administrative perspective. Training for prescribers, pharmacists, dispensing aides and administers focuses largely on the clinical use of drugs. Training for health system administrators and managers focuses on the primary role of each in administering and managing the entire sector (with respect to the hard and soft realities). Persons should be trained from both perspectives when roles overlap.

Clinical:

Drugs are generally prescribed/ordered/dispensed on various levels of care:

- Village - by Village Health Workers, Traditional Birth Attendants
- Health Center - by Physician Assistants, Nurses
- Hospital - by Physicians, Dispensers, Physician Assistants, Nurses

Drugs used on each level should be those for which the prescriber/orderer has had sufficient training in the components outlined below. This basic knowledge will be as simplified or detailed as needed or as required. Whether simplified or detailed, each should know the following for each drug:

1) Name of drug (generic and/or common brand names)

2) Dosage form(s) in general use or as listed in the formulary and the relationship of form to desired clinical effect.

3) Drug action

4) Dosing (levels - how much; intervals - how often)

5) Common interactions (e.g., iron and tetracycline; milk and tetracycline)

6) Common side effects (e.g., drowsiness, itching)

7) Basic patient information needed for prescribing (e.g., age, sex, weight, basic symptoms, previous response to drug)

8) Concomitant medications or traditional medicines

9) Accompanying "preventive" health message (e.g., use all of penicillin, keep medications out of reach of children; keep all medication bottles or containers closed when not in use)

10) Appropriate storage in home and/or clinic/health center/hut

Accordingly, the basic tasks clinicians and/or dispensers need to be able to perform are how to:

1) (If a prescriber) prescribe medications based on specified rationale as agreed upon in the formulary

2) Provide related drug information to patients

3) Utilize or request sources of drug information to acquire new and update drug knowledge

4) Receive and analyze feedback from patients regarding experience with specified treatment regimens

5) Receive and analyze information from patients regarding concomitant therapy - traditional medicines and others

6) Dispense medication to patients

7) Provide drug information as part of a referral

8) Document clinical actions when necessary

9) Prepare simple packaging for medicines

Administrative:

The system/sector must be administered on all levels and managed at a central point. Clinicians and other staff may be required to perofrm select administrative tasks.

The following presents a list of personnel and suggested related administrative tasks they may need to be able to perform.

1) Village Health Worker and Traditional Birth Attendant

- Store medicines and supplies in an alphabetical or other organized and appropriate manner
- Order/reorder supplies and medicines
- Maintain designated records (e.g., drug usage, stock control/order sheets)

2) Dispensers (at health posts, health centers/clinics)

- Store medicines and supplies in an alphabetical or other organized and appropriate manner
- Order/reorder supplies and medicines
- Respond to requests for supplies, etc., from lower and upper levels of the system
- Maintain and control inventory
- Observe dispensing limits with regard to drugs (kind and amount)

3) County or Regional Health Officer

- Prepare a budget for drug needs using epidemiological and past drug utilization data
- Manage the allocated drug budget
- Assist in providing consensus for formulary development

4) Administrative Assistant to a County or Regional Health Officer

Procures medicines and supplies from depot for centers, posts, etc. Therefore, needs to be able to:

- Establish minimum stock levels for each item for each depot, center, post, etc. (or this may be done centrally at the depot)
- Maintain smooth paperflow for requisition and distribution of items
- Assure/supervise stock control (no hoarding)
- Assures appropriate storage of medicines and supplies (e.g., daily log of refrigerator temperature, provide adequate ventilation, etc.)
- In collaboration with clinicians and depot, manage information for inventory control system and distribution system

5) Area/Program Supervisor

- Review and evaluate supply requests according to established minimal stock levels

- Assist in data/information collection

- Maintain smooth paperflow

- Estimate drug needs based on program objectives and available epidemiological data

6) Maintenance Manager

- Evaluate requests for prompt/urgent repair (or maintenance) of equipment (in order to appropriately evaluate and, therefore, respond, this person should have a clear understanding of the importance of such items)

7) Health Center Director (HCO)

- Training VHW in ordering/dispensing of medicines and first aid supplies

- Supervise/monitor clinical and administrative tasks of VHW over time (specific set of evaluative questions should be devised which HCO uses routinely in supervision)

- Assure collection of drug consumption data (patient age, sex, symptom(s), drug dispensed, amount, directions for use)

- Serve as source or conduct for drug information update for VHW, TBAs, etc.

- Participate in formulary consensus

8) Hospital Administrator

- Formulate budget for drugs (based on past utilization and disease patterns) for hospital with medical director and central depot
- Procure medicines and supplies from central depot
- Participate in formulary consensus
- Establish minimum stock levels for each item for each department of hospital
- Maintain smooth paperflow for requisition and receipt of items
- Assure/supervise stock control
- Assure appropriate storage of medicines and supplies
- Manage information for inventory control, etc.

*If Dispenser present, he may assume responsibility for some or all tasks.

9) Chief Medical Officer

- Develop clinical standards of treatment (e.g., formulary treatment schedules for each drug; may be in formulary already)
- Use treatment schedules in peer review

- Assure currency of drug and prescribing information for clinicals

- Provide leadership in formulary development and maintenance

10) Manager of Central Depot

- Develop formulary with Chief Medical Officer and other providers, and assist in updating it at least yearly

- Estimate drug needs and costs for new and expanded projects using epidemiological data

- Develop and implement procurement process based on anticipated reorganization (i.e., new personnel) with improved post-clearing and security techniques

- Develop and implement information systems for inventory, distribution, utilization, etc., systems at all levels and with appropriate personnel

- Assist with or train all levels of personnel in use of systems developed

- Manage selection, procurement, distribution, and use of drugs at all levels

- Provide information to CHOs, CMOs, etc., on new drugs, on new prescribing information for old drugs, and other drug-realted information as needed

(THIS SHOULD BE THE SYSTEMS PRIMARY SOURCE OF DRUG INFORMATION. MANUFACTURER REPRESENTATIVES SHOULD BE ASKED TO COORDINATE WITH THE DEPOT MANAGER)

- Establish mechanism of two-way communication with all levels of the sector around needs for miscellaneous drug information, common ordering difficulties, etc. (Newsletter)

h. Sector Management. Many of the management and administrative tasks which must be performed are detailed in the previous section on Training. Traditional management functions of planning*, organizing*, directing, controlling, and evaluating apply to sector management and are detailed as follows:

- Planning - for new components or expansion of existing activities
- Organizing - the entire sector; procedures for distribution, inventory control etc., of all "soft" systems
- Directing - supervising staff; policies; guidelines
- Controlling - through supervision, reports, management information, etc.
- Evaluating
  - Clinical - cooperating with review of quality of services, etc.
  - Administrative - monitor performance of all subsystems for timeliness, competency, and adequacy.

*Specific planning and organizing techniques are addressed in the sections on Project Design and Project Implementation.

C. Project Design

1. The Project Identification Document

For AID, the project design process includes the construction of two basic documents: The Project Identification Document (PID) and the Project Paper (PP). In the preparation of the PID, the primary questions which must be answered with regard to the pharmaceutical supply sector (PSS) are:

- How does the project conceptualize PSS; what approach is to be used in its development or restructuring or integration into project activities?
- What is required of the PSS by the project?
- How does that requirement assist in achieving project goals?

Answers to these questions determine the features of the PSS crucial to project success and identify which aspects must be developed and/or strengthened. Where possible, particular care should be taken to express additional economic or political goals which the sector may be required to achieve. Answers to the above issues will also aid in structuring the project preparation strategy.

2. The Project Paper

In order to derive sufficient information for development of a PP, it is first necessary to have a thorough appreciation of the requirements of the proposed PSS and, therefore, the crucial features. It is then necessary to give early consideration to a delineation of the following:

a) Country Resources

- Policy Related to Pharmaceuticals
- Government Organization and Management Related to Pharmaceuticals
- Local Production Capability for Pharmaceuticals
- Qualified Personnel Available for Clinical and Administrative Tasks
- Drug Consumption Patterns
- Training Resources
- Presence of Traditional Pharmacy
- Current National Effort for PSS
- Current Budget and Expenditures for Drugs
- Public and Private Drug Distribution Systems

b) Pharmaceuticals

- Current Source
- Current Costs to Villagers/Patients
- Basis for Selections
- Procurement Methods

- Distribution Systems
- Utilization Modes
- Prescribing Schedules and Patterns
  - Identification of those in current use
  - Identification of those to be used in the project
  - Identification of who will prescribe/dispense what drugs to whom and under what circumstances

c) AID Implementation and Evaluation Requirements

- Technical Information and Resource
- Systems Management
- Record and Information System
- Evaluation and Monitoring Methods
- Waivers Required

The resultant PP should contain, in its annex, a description of the PSS components. Section II-B of these guidelines may be helpful in producing this description. The body of the PP should present a summary description of the role the sector is to play in achieving success for the project. This summary should include a description of the interaction and interrelationship between the PSS and the PHC project. (A functional chart may be an aid to encapsulating these relationships.) If the PSS of the host country is not satisfactory, the PP should delineate ways it will be strengthened -- especially if the goal of the

project is to assist in developing health infrastructure, build institutional capability or transfer technology.

Expected achievements of each PSS component should be delineated. These anticipated results serve as the basis for program monitoring and evaluation.

D. Project Implementation

This phase consists of structuring the organization and initiating organizational relationships. During this phase, it is important to be clear and specific regarding communications that must occur between inter- and intra-organizational levels. It is from these communications links that information is derived for project management. During this phase, it is also important to assure that the PSS of the host country is appropriately interwoven into project activity. The following systems are to be initiated during this phase:

- Drug product selection
- Procurement
- Storage and inventory
- Prescribing
- Information and utilization
- Training
- Management

If the construction of depots or the supply of equipment is a part of project activity, it too begins in this phase.

E. Project Evaluation

Evaluation of the "hard" and "soft" realities of the sector is most beneficial when it is based on results achieved. Periodic monitoring, for example, on a monthly basis of each system, as well as an annual internal evaluation, should be done. Indicators of success used in program monitoring are those determined in the PP or in the early stages of project implementation.

Periodic monitoring should include a feedback and comparison mechanism for continual project improvement. Lessons learned can be incorporated into ongoing project activity and the results of the next monitoring compared to prior results. Areas which should be the subject of monitoring and evaluation are discussed below.

Periodic monitoring should use data produced from monthly reports and supervision visits. There should be periodic and regular monitoring of the clinical and administrative aspects of the sector. Specific focus should be on appropriate dispensing and prescribing of drugs. On the administrative side, the monitoring of the storage and inventory system is crucial. At all times, the primary managers should know the level and movement of stock. This information can be derived and analyzed from monthly data sheets.

Yearly internal evaluation should be more comprehensive than monitoring and should seek to determine if the objectives of the sector are being achieved and if the achievement (or lack of it) contributes to (or detracts from) project success. All "soft" reality systems outputs should be the subject of evaluation, especially as the outputs relate to project objectives. Where possible, a separate evaluation document should be produced and shared with other PHC projects and with AID/W. Lessons learned from each project can contribute to success of similar projects in other countries and to the overall PHC success.

APPENDIX A

1. THE COST OF TREATMENT FROM AND THE PROBLEMS IN RUNNING OF A PROPHARMACY

2. DRUG DISTRIBUTION IN THE RURAL AREAS OF THE CAMEROON

APPENDIX A

SEMINAR WORKSHOP ON THE PRACTICAL ORGANIZATION OF PRIMARY HEALTH CARE FOR TROPICAL AFRICAN POPULATIONS
YAOUNDE 13-18 MARCH 1978

THE COST OF TREATMENT FROM AND THE PROBLEMS IN THE RUNNING OF A PROPHARMACY

Dr. T. C. Nchinda, CUSS, Yaounde

INTRODUCTION

The propharmacy has been in operation in some rural areas of Cameroon for about eight years. Its purposes and method of operation have been adequately stated elsewhere. Its advantages in making available to the inhabitants of the rural areas essential drugs at low cost has been adequately stressed. However, no figures have been produced to indicate these costs. A simple study was carried out by the author for this purpose.

COST OF TREATMENT OBTAINED FROM THE PROPHARMACY

This study was carried out simultaneously among people attending three different health centres for treatment over a two week period. All the three health centres were located in the Demonstration Zone (DASP Zone) No. 4 of Cameroon. All the people attending these health centres were interviewed just as they were leaving the health centre premises after obtaining their treatment. They were asked to indicate how much they paid at the propharmacy for the drugs prescribed for the treatment of their illness. This was easy since receipts are always issued for drugs bought. Other information was also requested (cost of transport and food, recall of drug dosages, etc.) which is not relevant here.

The cost of drugs bought averaged 154 fr CFA per person (N = 480). This amount is certainly very modest, even though it was sometimes beyond the means of some very poor villagers. The propharmacy can thus be considered as having fulfilled its purpose of providing drugs for use in the treatment of the rural population at costs that are moderate.

PROBLEMS IN RUNNING A PROPHARMACY

Little has been said about the problems so far encountered in running a propharmacy and how these problems have been remedied. The problems that have been encountered in operating a propharmacy have generally been management problems. Their solution would, therefore, appear to lie in good administrative management.

Drug Availability

The first prerequisite for success in running a good propharmacy is to ensure that drugs are readily available in the propharmacy all the time. This has been the most difficult problem that has led to failure in some cases where drugs were allowed to run out completely before fresh orders were made. Success here depends on rapid collection of money from sales of drugs and placing orders for new stock of drugs well on time before stocks run low. The problem is complicated by attempts to run a single propharmacy with limited capital (perhaps 300.000 to 400.000 fr). The amount of cash available for new orders may be small, thus making it too costly to dispatch someone all the way to Douala where the wholesale dealers reside only to buy a relatively small quantity of drugs. The tendency may then be to sell all the drugs before making orders. This would only lead to absence of drugs in the propharmacy, thus increasing the problem. The first principle for running a successful propharmacy lies in ENSURING A CONSTANT DRUG SUPPLY.

Types of Drugs Stocked

A standard list of drugs to be stocked in a propharmacy is generally drawn up for each area. Such a list of drugs must take account of the prevalent diseases of the area. Where this is not done for any reasons, the propharmacy may end up with a large stock of drugs infrequently prescribed (thus tying down the limited capital) and frequent shortage or absence of more vital drugs. This factor has often been encountered in some propharmacies, especially where a new supervising doctor with insufficient experience of local pathology imposes his particular drug preferences on the propharmacy with little regard for common diseases found in an area. The

second principle then is ENSURING AVAILABILITY OF APPROPRIATE DRUGS TO TREAT COMMON DISEASES FOUND IN THE AREA.

Honesty of the Staff

This is perhaps the most important single factor on which success of a propharmacy depends. Dishonesty on the part of staff who handle the cash of the propharmacy and who misappropriate the money has been responsible for failure of many propharmacies. Little else other than vigilance on the part of the supervisors and the ability for early detection of fraud and misappropriation of funds can save this situation. However, as an incentive to people who successfully run propharmacies -- reference here is to the nurse or pharmacy assistant who is actually in charge of the propharmacy -- a quarterly bonus is paid. This has often proved worthwhile and continues to be used as a method of encouraging honesty. The third principle then is to ENSURE THE HONESTY OF THE STAFF.

Supervision and the "Drug Chain"

Another important factor that makes for the successful operation of a propharmacy is regular supervision, especially coupled with maintenance of what can be referred to here as "the drug chain". This means the establishment of an adequate system for regular collection of money from drug sales and, at the same time, supplying the missing drugs. The supervisory component entails checking the records carefully to ensure that the receipt books, cash books and drugs sold are all in agreement.

This combination of activities will not only spare the staff responsible for the propharmacy the temptations that come when they have to keep large sums of money, but will enable early detection of misappropriation for early remedial action. The fourth principle is to MAINTAIN GOOD SUPERVISION OF THE ENTIRE PROPHARMACY OPERATION.

In the DASP Zone No. 4 of Cameroon, this supervision has been greatly intensified. First, the accounts of all the propharmacies have been centralized and a drug depot built in the zonal headquarters in Bamenda. Bulk orders for drugs are thus made for all the propharmacies and stocked in the drug depot with a pharmacy assistant in charge of this store. Separate registers are kept for drugs issued to each propharmacy. Drugs are delivered to each propharmacy by one designated staff of the zonal headquarters who also collects the money for the drugs sales and checks the cash book. This money is then paid to the accounts clerk at the zonal headquarters who keeps separate account books for each propharmacy. The money is put into a joint bank account and withdrawals by cheque are made by joint signatures of the supervising doctor and the accounts clerk.

One useful result of this centralization is that the operating capital has greatly increased (it runs to over 40 million francs). This means that there is always enough cash available to order for more drugs to keep the depot in Bamenda always well stocked, thus making it impossible for shortages to occur at the propharmacies as long as the "drug chain" remains unbroken. The accounts clerk, the person in charge of the depot in Bamenda, the staff in charge of the propharmacy at the health centre, and the person in charge of the "drug chain" all receive quarterly bonuses for satisfactory service.

More recently the 10% surcharge on the cost of the drugs accumulated to the extent that a four-wheel drive vehicle was purchased to help in the supervision of the propharmacy and maintenance of the "drug chain". This has not only been of benefit to the propharmacy, but has also helped the supervision of the health centres, since the nurse supervising the health centres of the area arranges to travel with this vehicle on its rounds.

Thus successful operation of a propharmacy depends on a careful combinatino of GOOD ORGANIZATION, GOOD SUPERVISION and HONESTY.

second principle then is ENSURING AVAILABILITY OF APPROPRIATE DRUGS TO TREAT COMMON DISEASES FOUND IN THE AREA.

Honesty of the Staff

This is perhaps the most important single factor on which success of a propharmacy depends. Dishonesty on the part of staff who handle the cash of the propharmacy and who misappropriate the money has been responsible for failure of many propharmacies. Little else other than vigilance on the part of the supervisors and the ability for early detection of fraud and misappropriation of funds can save this situation. However, as an incentive to people who successfully run propharmacies -- reference here is to the nurse or pharmacy assistant who is actually in charge of the propharmacy -- a quarterly bonus is paid. This has often proved worthwhile and continues to be used as a method of encouraging honesty. The third principle then is to ENSURE THE HONESTY OF THE STAFF.

Supervision and the "Drug Chain"

Another important factor that makes for the successful operation of a propharmacy is regular supervision, especially coupled with maintenance of what can be referred to here as "the drug chain". This means the establishment of an adequate system for regular collection of money from drug sales and, at the same time, supplying the missing drugs. The supervisory component entails checking the records carefully to ensure that the receipt books, cash books and drugs sold are all in agreement.

This combination of activities will not only spare the staff responsible for the propharmacy the temptations that come when they have to keep large sums of money, but will enable early detection of misappropriation for early remedial action. The fourth principle is to MAINTAIN GOOD SUPERVISION OF THE ENTIRE PROPHARMACY OPERATION.

DRUG DISTRIBUTION IN THE RURAL AREAS OF THE CAMEROON

Lawrence K. Njikam
CUSS, Yaounde

It is necessary to examine briefly the system of drug distribution in Cameroon in general before considering the particular aspect of the rural areas. There are two well distinguished circuits of drug distribution - the public and the private sectors.

• DISTRIBUTION OF DRUGS IN THE PUBLIC SECTOR

There is a central body, the Central Pharmacy in Yaounde, responsible for purchasing pharmaceutical products and technique equipment and distributing them to government hospitals, dispensaries and administrative services. Tax is not paid on the imported drugs.

In many cases, pharmaceutical products are purchased by tender and ordered from the supplier who appears to offer the best quality at the lowest price. Sometimes prices are negotiated with suppliers of branded products. Expenditure on drugs in the Public Sector represents about 15% of the total health expenditure (see table below).

Table Showing Evaluation of Health Expenditure Budget During 5 Years

Year	1973/1974	1974/1975	1975/1976	1976/1977	1977/1978
Drug Budget	544 000 000	703 113 000	780 000 000	790 000 000	850 000 000
Total Health Expenditure Budget	3 951 560 000	4 504 391 000	4 880 643 000	5 219 492 000	5 848 420 000
% Drug Expenditure	14%	16%	16%	15%	14.5%

There has been a steady increase in the drugs and total health expenditure budgets with time except in the years 1975-1977, where the drugs budget remained static.

- DISTRIBUTION OF DRUGS IN THE PRIVATE SECTOR

The private sector supplies drugs to private pharmacies, clinics, patent medicine stores, propharmacies and missionary hospitals, frequently through pharmaceutical wholesale dealers. These wholesale dealers pay tax on the imported drugs and, consequently, their drugs are more expensive than those of the public sector. Unofficial sources indicate that drug expenditure in the private sector is about 3 000 000 francs CFA yearly.

- DRUG DISTRIBUTION IN THE URAN AND RURAL ZONES

In all developing countries. two well-marked socio-economic zones can be distinguished - the urban and the rural. The systems of drug distribution in these two zones are not quite identical. We shall try to explain the causes of these differences, especially in relation to drug distribution to the rural areas of the Cameroon.

- ACCESSIBILITY OF DRUG SUPPLIES

In the urban areas, the pharmacists and doctors have ready and quick access to the pharmaceutical wholesale dealers and pharmacies for their drug supply. This is not the case for the pharmacists and doctors in the rural areas.

There are three distinct drug supply services in the rural areas.

a. Pharmacies

The local pharmacists buy their drugs from pharmaceutical wholesale dealers in Douala. The supply of drugs is sometimes irregular because of transport difficulties to and from the rural areas. The drugs are transported either by rail or by road.

b. Patent Medicine Stores

The proprietor of the patent medicine store buys his drugs from pharmacies. The proprietor of these patent stores are not authorized by law to order drugs from pharmaceutical wholesale dealers.

c. Propharmacies

They are State-run medicine stores operating only in the rural areas under the technical responsibility of the Divisional Medical Officer. The manager of the propharmacy responsible for the sale of drugs is a government nurse appointed by the Divisional Medical Officer. Drug orders for propharmacies are made to the pharmaceutical wholesale dealers.

- ACCESSIBILITY OF THE RURAL AREAS

This depends on the season. Access to the rural areas is very difficult during the rainy season because of the poor condition of the roads. This is a very important factor which further serves to aggravate drug shortage in the rural areas because of the difficulty of transporting drugs and other technical material. Transport by air is prohibitive.

The drug supply situation can be improved to some extent by an increase in the number of pharmaceutical wholesale dealers, pharmacies, propharmacies, and pharmacies run by religious organizations. There are at the moment in the Cameroon:

- 4 pharmaceutical wholesale dealers (G.P.C., SPECIA, LABOREX, AD-LUCEM);
- 50 pharmacies;
- 200 patent medicine stores; and
- 150 propharmacies.

- Patent Medicine Stores

Because of the insufficient numbers of pharmacies, some traders had before 1968 been given the authorization to open patent medicine stores. There have been many abuses to this concession and a recent ministerial order prohibits the installation of any patent medicine store at within 20 kilometres radius from any pharmacy. Drugs of doubtful quality are sometimes sold in patent medicine stores. With the rapid increase in the number of pharmacies, it is hoped that the number of patent medicine stores in existence will decline. The policy of the government is to encourage the creation of propharmacies in rural areas.

- The Creation and Functioning of Propharmacies

A Ministry of Health Order of the 2nd March 1970 stipulates the conditions of establishing and the functioning of propharmacies.

The aim is to create pharmacy depots in rural areas where drug supply in inadequate and the inhabitants poor.

The application to create a propharmacy is made jointly by the chairman of the local council and the chief medical officer of the Health Unit in the Division. The local council provides the premises and an initial fund of at least 100 000 francs for the purchase of drugs.

The Divisional Chief Medical Officer is technically responsible for the running of the propharmacy and the staff is made up of a qualified government nurse who runs the propharmacy and a daily paid worker responsible for the cleaning of the premises.

Propharmacies are authorized to have only a limited range of drugs which are considered to be essential to the health services in their task of preventing and treating the most prevalent diseases and of providing primary health care to the population. The selection of the most suitable products in this priority area is based on disease prevalence, on the type of health

service, and on evaluation of the quality, efficacy and cost of the products under consideration.

Some of these basic essential drugs are: chloroquine, aspirin, sulphaguanidine, piperazine, mercurochrome, iodine, alcohol, tetracycline, magnesium sulphate, some cough preparations, penicillin, etc.

- Sale of Drugs

Drugs are sold strictly on presentation of a prescription. The percentage increase on the cost price does not exceed 10% unless in special cases authorized by the Ministry of Health. It is a basic principle that propharmacies do not make profits. The selling prices of drugs are therefore as low as possible and they are calculated to defray the running costs and to replenish the stock of drugs.

There are layed down texts concerning the accounting procedures, the inventory of stocks, and the liquidation of propharmacies.

It is important to emphasize that propharmacies are supervised administratively and technically by the Ministry of Health.

There has been a significant increase in the number of propharmacies in recent years. There were 56 propharmacies in the country in 1974, but there are now about 150.

- Importance of Propharmacies

A propharmacy is a typical example of the participation of the government, the local council and the rural population for a common cause -- to protect the health of the citizens.

- Government Participation

The State participates by supplying the personnel for the technical and administrative services -- doctors and nurses. Propharmacies are non-profit

making, so the prices of drugs are less than in pharmacies and patent medicine stores. Propharmacies do not pay taxes on their annual turnover. These are laudable contributions by the State to the relatively low prices of drugs in propharmacies.

Local Council Participation

The local population learns to participate in the improvement of the medical facilities. The Cameroonian or the African, in general, is prepared to spend when his health is in danger. One has not got to look far to see that our hospitals and dispensaries are always full of patients and the healing houses of traditional doctors are also always crowded.

The propharmacy is different from the dispensaries of health centres where drugs are given out free. By making a patient pay a little bit for his drugs, he learns to participate in financing the cost of his treatment.

Advantages of Propharmacies

- Propharmacies make drugs accessible to the rural population where pharmacies cannot be created because they cannot be economically viable.

- The cost of drugs is cheaper in propharmacies than in pharmacies and patent medicine stores.

- Propharmacies run hand in hand with health centres, and drugs prescribed in the health centres can always be bought in the propharmacies.

- Propharmacies provide the largest possible number of people among the poorest segment of the population with the most needed drugs at the lowest possible price.

Pharmaceutical products are often sold in general stores and sometimes in village markets by persons without professional training. The establishment of propharmacies (rural medical depots) carrying a range of basic

medicines, directly attached to the dispensaries and health centers and run by the health personnel responsible for the area, seems to offer the best solution to the problem of drug distribution in rural areas.

- Differences Between Propharmacies and Patent Medicine Stores

  •• Patent medicine stores are run by traders with hardly any pharmaceutical or medical qualifications, while propharmacies are run by medically qualified personnel.

  •• Drugs in the patent medicine stores are bought from pharmacies, while those in propharmacies are bought from pharmaceutical wholesale dealers.

  •• The selling price of drugs is lower in propharmacies than in pharmacies and patent medicine stores.

  •• Some patent medicine stores sell drugs of doubtful quality.

- Propharmacies Run by Medical Practioners

It may be impracticable to set up pharmacies in rural areas because of their small population, their remoteness from large centres, and their very low purchasing power.

Doctors in private practice, established in populated rural areas where there are no pharmacies open to the public, may be authorized by the Minister of Health after consultation with the National Pharmaceutical Association to open a propharmacy. They are sometimes called dispensing physicians. They hold a stock of drugs which they prescribe to their patients. The authorization given to dispensing doctors states precisely the place where such practice is to be carried on. Such an authorization may be withdrawn as soon as a pharmacy is opened in that area.

CONCLUSION

There is an urgent need to ensure that an adequate quantity of the most essential drugs are available at reasonable cost.

The introduction of propharmacies meets the need of b ining drugs within the reach of the population in the rural areas at reasonable prices. The essential condition to the success of such a system is to ensure proper management (technical and administrative) so as to achieve maximum effectiveness.

The slogan "Prevention is Better than Cure" can hardly be overemphasized. Health education must be re-enforced at all levels to avoid diseases. Full use should be made of the training, expertise and availability of trained medical personnel, and of the display facilities in propharmacies, health centres, dispensaries and hospitals in its campaign to improve the health of the public. A list of basic essential drugs must be made up and brought up to date frequently. With our limited resources, it is better to handle large quantities of a small number of basic essential drugs than to handle smaller quantities of a wide variety of products.

Drugs could also be bought in bulk and repacked in smaller containers for sale in propharmacies. It is here that the pharmacy technicians have a great role to play. The repacked drugs in smaller containers are much cheaper than the prepacked drugs, which are imported because the local labor involved in repacking is much cheaper than that in the developed countries which manufacture the drugs.

The distribution of pharmacies should be judiciously planned so as to ensure that drugs are brought nearer to the people. At the moment, 26 of th 50 private pharmacies are concentrated in Yaounde (10) and Douala (16), the two principal towns. The rest of the pharmacies are unevenly distributed in the other centres and there are some large towns with no pharmacies. However, there is a definite government policy to remedy this imbalance by encouraging the creation of pharmacies and propharmacies.

The creation of propharmacies shows the efforts made by the government to protect the health of the public.

The creation of propharmacies in the Cameroon was decided after studying the various systems of drug distribution in other African countries. It is generally considered that propharmacies serve a useful purpose by providing drugs to the rural population at reduced cost and also aiding the dispensaries and health centres where the supply of drugs is often insufficient. There is a great future for the rational distribution and development of propharmacies in the rural areas where pharmacies do not exist.

The cost of providing health services, including drugs, is increasing. A possible solution to this problem is the formulation of a list of drugs considered essential to meet the health needs of the country and the purchase of those drugs in required quantity. There is a great need to optimize expenditure on drugs and the already meager financial resources should not be wasted in the purchase of expensive drugs that are only marginally useful or even totally irrelevant to the solution of the main health problems, whereas large segments of the population are in urgent need of essential drugs for disease control and primary health care.

APPENDIX B

LIST OF INEFFECTIVE/POSSIBLY EFFECTIVE DRUGS

BY

FOOD AND DRUG ADMINISTRATION
DEPARTMENT OF HEALTH AND HUMAN SERVICES

AUGUST 1, 1982

DEPARTMENT OF HEALTH AND HUMAN SERVICES
PUBLIC HEALTH SERVICE

DRUGS CLASSIFIED

AS

INEFFECTIVE AND POSSIBLY EFFECTIVE

BY THE

FOOD AND DRUG ADMINISTRATION

AUGUST 1, 1980

PREVIOUS LISTS SHOULD BE DESTROYED

It is the policy of the U.S. Public Health Service that Federal funds will not be used to purchase drugs that have been classified by the Food and Drug Administration as ineffective and/or possibly effective for all indications. This policy applies to direct purchases, grants and contracts. The exceptions to this policy are for approved research projects and when the prescriber certifies there is no other suitable product.

This list contains drugs classified by the Food and Drug Administration as ineffective and/or possibly effective for all indications, and those drugs notwithstanding their effectiveness classification considered to lack proof of safety. The list of drugs that have been filed by the Food and Drug Administration with the United States District Court for exemption as being necessary in health care are not included on this list. The classification applies to identical, related or similar products.

Drugs that have had a final order published in the Federal Register prior to August 1, 1977, classifying them as ineffective or possibly effective have not been included in the list because all stocks of such drugs should have been depleted.

Since a particular dosage form of a drug may be classified as effective, and another dosage form as ineffective and/or possibly effective, this policy applies only to the dosage form listed. The appendix contains abbreviations and names of dosage forms and routes of administration as used in the listing.

Definition of column heading abbreviations.

1. DOSAGE/RTE ADMIN - This is the dosage form and route of administration to further identify the drug product. The dosage forms and routes of administration are in the appendix.

2. FIN - If there is an "F" under this column for the drug, a final order has been published in the Federal Register announcing the withdrawal of the approval of New Drug Application (NDA) and approval to manufacture the drug for distribution in interstate commerce.

Additional copies may be obtained from:

Allen J. Brands, D.Sc.
Assistant Surgeon General
Chief Pharmacist Officer
U.S. Public Health Service
5600 Fishers Lane
Rockville, Maryland 20857

PRODUCT NAME	DOSAGE /RTE ADMIN	F I N	CURRENT, HIGH CLASS
ACHROSTASIN V	PWR/ORAL		INEFFECTIVE
	CAP/ORAL		
ADRENOSEM SALICYLATE	TAB/ORAL		INEFFECTIVE
	SYP/ORAL		
	SOL/INJ		
AEROLONE COMPOUND	SOL/INH	F	INEFFECTIVE
AEROSPORIN	SOL/OTIC		INEFFECTIVE
ALEVAIRE	SOL/INH		INEFFECTIVE
ALGOSON	TAB/ORAL	F	INEFFECTIVE
AMIGEN 5 PCT.	SOL/IV	F	SAFETY
AMINOPHYLLIN/PHENOBARB	TAB/ORAL	F	INEFFECTIVE
AMINOSOL 5PCT	SOL/IV	F	SAFETY
ANADOL	TAB/ORAL	F	INEFFECTIVE
ANADOL W/CODEINE 1/4GR	TAB/ORAL	F	INEFFECTIVE
ANANASE	ECT/ORAL		INEFFECTIVE
ANTRENYL PHENOBARBITAL	TAB/ORAL	F	INEFFECTIVE
ARLIDIN	TAB/ORAL		INEFFECTIVE
	SOL/OOO3	F	
ARTEMINYL	TAB/SL	F	INEFFECTIVE
ASMINYL	LIQ/ORAL	F	INEFFECTIVE
ASMINYL SLOSOL PINK	ECT/ORAL	F	INEFFECTIVE
ATARAXOID 2.5 MG	TAB/ORAL		INEFFECTIVE
ATARAXOID 5 MG	TAB/ORAL		INEFFECTIVE
AURACORT	SOL/OTIC	F	INEFFECTIVE
AUREOMYCIN TRIPLE SULF	TAB/ORAL	F	INEFFECTIVE
AVAZYME	ECT/ORAL		INEFFECTIVE
AZO GANTANOL	TAB/ORAL		INEFFECTIVE
AZOTREX	CAP/ORAL		INEFFECTIVE
	SYR/ORAL		
BALCORT	SUP/VAG	F	INEFFECTIVE
	SOL/VAG	F	
BANTHINE/PHENOBARBITAL	TAB/ORAL	F	INEFFECTIVE
BENTYL/PHENOBARBITAL	SRT/ORAL	F	INEFFECTIVE

PRODUCT NAME	DOSAGE /RTE ADMIN	F I N	CURRENT, HIGH CLASS
BENYLIN EXPECTORANT	LIQ/ORAL		INEFFECTIVE
BETADINE	GEL/VAG		INEFFECTIVE
BIOZYME OINTMENT	ONT/TOP	F	INEFFECTIVE
BRO PARIN	SUS/OTIC	F	INEFFECTIVE
BRYREL WITH SUPLEPINONE	SYR/ORAL	F	INEFFECTIVE
BUTAZOLIDIN ALKA 100MG	CAP/ORAL		INEFFECTIVE
BUTISERPAZIDE-25	SRT/ORAL	F	INEFFECTIVE
BUTISERPAZIDE-50	SRT/ORAL	F	INEFFECTIVE
BUTIZIDE-25	SRT/ORAL	F	INEFFECTIVE
BUTIZIDE-50	SRT/ORAL	F	INEFFECTIVE
CARBRITAL	CAP/ORAL		INEFFECTIVE
	ELX/ORAL		
CARBRITAL 1/2 STRENGTH	CAP/ORAL		INEFFECTIVE
CARTRAX 10	TAB/ORAL		INEFFECTIVE
CARTRAX 20	TAB/ORAL		INEFFECTIVE
CENTRINE/PHENOBARBITAL	ELX/ORAL	F	INEFFECTIVE
	TAB/ORAL	F	
CHOLARACE	TAB/ORAL	F	INEFFECTIVE

PRODUCT NAME	DOSAGE /RTE ADMIN	F I N	CURRENT, HIGH CLASS
CHYMAR 10000 UNITS	TAB/BUCC	F	INEFFECTIVE
CHYMOLASE	ECT/ORAL		INEFFECTIVE
CHYMORAL	ECT/ORAL		INEFFECTIVE
CO-ELORINE 100	CAP/ORAL	F	INEFFECTIVE
CO-ELORINE 25	CAP/ORAL	F	INEFFECTIVE
COMBID	SRC/ORAL		INEFFECTIVE
COMYCIN	CAP/ORAL		INEFFECTIVE
CPH-5	SOL/0092	F	SAFETY
CREMOTHALIDINE	SUS/ORAL		INEFFECTIVE
CYCLOSPASMOL	CAP/ORAL		INEFFECTIVE
	TAB/ORAL		
CYTOLOV 7000 UNITS	CAP/ORAL	F	INEFFECTIVE
D B I	TAB/ORAL	F	SAFETY
D B I- T D	SRC/ORAL	F	SAFETY
DARITRIN	TAB/ORAL	F	INEFFECTIVE

PRODUCT NAME	DOSAGE /RTE ADMIN	F I N	CURRENT. HIGH CLASS
DEANER 100MG	TAB/ORAL		INEFFECTIVE
DEANER 25MG	TAB/ORAL		INEFFECTIVE
DECAGESIC	TAB/ORAL	F	INEFFECTIVE
DECLOSTATIN	PWR/ORAL		INEFFECTIVE
	CAP/ORAL		
DELADUMONE INJECTION	SOL/IM	F	SAFETY
DELADUMONE OB INJ	SOL/IM	F	SAFETY
DEPROL	TAB/ORAL		INEFFECTIVE
DI-ADEMIL-K	TAB/ORAL		SAFETY
DORMAVAC 10000 UNITS	PWR/0113	F	INEFFECTIVE

PRODUCT NAME	DOSAGE /RTE ADMIN	F I N	CURRENT. HIGH CLASS
DUOTRATE 45W/PHENOBARB	SRC/ORAL	F	INEFFECTIVE
EQUAGESIC	TAB/ORAL		INEFFECTIVE
EQUANITRATE 10	TAB/ORAL		INEFFECTIVE
EQUANITRATE 20	TAB/ORAL		INEFFECTIVE
ESMATROL SPANSULES	SRC/ORAL		INEFFECTIVE
ESTOMUL	SUS/ORAL	F	INEFFECTIVE
	TAB/ORAL	F	
FLOROTIC	SUS/OTIC	F	INEFFECTIVE
FLUCYCINE	SUS/ORAL	F	INEFFECTIVE
HALOASE	ECT/ORAL	F	INEFFECTIVE
HYDROTON(100 MG only)	TAB/ORAL		SAFETY
HYPROTIGEN-C 5PCT	SOL/0092	F	SAFETY
ILIDAR	TAB/ORAL	F	INEFFECTIVE
ILOSONE ADULT125MG/PUL	CAP/ORAL		SAFETY
ILOSONE ADULT250MG/PUL	CAP/ORAL		SAFETY
ISORDIL W/PHENOBARB	TAB/ORAL		INEFFECTIVE
LIDOSPORIN	SOL/OTIC		INEFFECTIVE
MARAX	TAB/ORAL		INEFFECTIVE

PRODUCT NAME	DOSAGE /RTE ADMIN	F I N	CURRENT, HIGH CLASS
MAXITATE W/PHENOBARB	TAB/ORAL	F	INEFFECTIVE
METAMINE W/BUTABARB	TAB/ORAL	F	INEFFECTIVE
	SRT/ORAL	F	
METROPINE/PHENOBARB	TAB/ORAL	F	INEFFECTIVE
MIGRAL	TAB/ORAL		INEFFECTIVE
MILTRATE	TAB/ORAL		INEFFECTIVE
MONOMEB TABLETS	TAB/ORAL	F	INEFFECTIVE
MYCITRADIN 0.5 GM	PWR/IM	F	SAFETY
MYSTECLIN F	CAP/ORAL		INEFFECTIVE
	DPS/ORAL		
	STR/ORAL		
MYSTECLIN F-125	CAP/ORAL		INEFFECTIVE
MYSTECLIN V	CAP/ORAL		INEFFECTIVE
NACTISOL	TAB/ORAL	F	INEFFECTIVE
NATURETIN W/ K 2.5 MG	TAB/ORAL		SAFETY
NATURETIN W/ K 5 MG	TAB/ORAL		SAFETY
NEBU-PREL/PHENYLEPHRIN	SOL/INH	F	INEFFECTIVE
NEO POLYCIN HC	SUS/OTIC	F	INEFFECTIVE
NEO-POLY-HC-DIPER .1MG	LIQ/OTIC	F	INEFFECTIVE
NEO-POLY-HC-DIPER2.5MG	LIQ/OTIC	F	INEFFECTIVE
NEO-POLYCIN	SUS/OTIC	F	INEFFECTIVE
NEOMYCIN SULF 0.5 GM	PWR/IM	F	SAFETY
NEOMYCIN SULFATE 0.5GM	PWR/0105	F	SAFETY
NETHAMYL REG.STRENGTH	CAP/ORAL	F	INEFFECTIVE
NETHAMYL 1/2 STRENGTH	CAP/ORAL	F	INEFFECTIVE
NITRANITOL W/PHENOBARB	TAB/ORAL	F	INEFFECTIVE
NYLMERATE	JEL/VAG	F	INEFFECTIVE
OBETROL-10	TAB/ORAL	F	INEFFECTIVE
OBETROL-20	TAB/ORAL	F	INEFFECTIVE
OCTIN	SOL/IM		INEFFECTIVE

PRODUCT NAME	DOSAGE /RTE ADMIN	F I N	CURRENT, HIGH CLASS
OCTIN	TAB/ORAL		INEFFECTIVE
ORTCHO-PHYTEX	SOL/TOP		INEFFECTIVE
OP ISOPHRIN A-B ORENZYME	SOL/OPH ECT/ORAL	F 	INEFFECTIVE INEFFECTIVE
ORTHOXINE	TAB/ORAL STR/ORAL		INEFFECTIVE
OTOBIOTIC	SOL/OTIC		INEFFECTIVE
OXAINE M 10MG/5CC OXSORALEN PAMINAL PAMINE PB	SUS/ORAL CAP/ORAL ELX/ORAL TAB/ORAL	 F F	INEFFECTIVE INEFFECTIVE INEFFECTIVE INEFFECTIVE
PAMINE PB 1/2 STRENGTH PANTHO-F 0.2 PCT	DPS/ORAL ELX/ORAL TAB/ORAL CRM/TOP	F F F F	 INEFFECTIVE INEFFECTIVE
PANTHO-F 1 PCT	CRM/TOP	F	INEFFECTIVE
PAPASE	TAB/BUCC		INEFFECTIVE
PAREDRINE TAB PATHILON	TAB/ORAL SRC/ORAL	F 	INEFFECTIVE INEFFECTIVE
PATHILON/PHENOBARBITAL PAVERIL PHOSPHATE	SRC/ORAL PWR/ORAL	 F	INEFFECTIVE INEFFECTIVE
PAVERIL PHOSPHATE	TAB/ORAL	F	INEFFECTIVE
PENCARD NO.2 W/PHENOBA	TAB/ORAL	F	INEFFECTIVE
PENCARD WITH PHENOBARB	TAB/ORAL	F	INEFFECTIVE
PENCARD-A	CAP/ORAL	F	INEFFECTIVE
PENTRALINE	TAB/ORAL	F	INEFFECTIVE
PERITRATE W/PHENOBARBI	SRT/ORAL		INEFFECTIVE
PHYTEX PIPTAL-PHB	LIQ/TOP TAB/ORAL	F F	INEFFECTIVE INEFFECTIVE
POLYCLINE W/TRIPLE SUL POLYVINYLPYRROLIDONE	SUS/ORAL SOL/IV	 F	INEFFECTIVE SAFETY
POTABA 0.5 GM	TAB/ORAL		INEFFECTIVE
	CAP/ORAL		
POTABA 100 GM/BULK	PWR/ORAL		INEFFECTIVE
POTABA 2.0 GM/PACKET	PWR/ORAL		INEFFECTIVE
PRANTAL	SRT/ORAL	F	INEFFECTIVE
PRANTAL WITH PHENOBARB	TAB/ORAL	I	INEFFECTIVE
PRISCOLINE	SOL/0090		INEFFECTIVE

PRODUCT NAME	DOSAGE /RTE ADMIN	F I N	CURRENT, HIGH CLASS
PRISCOLINE	TAB/ORAL		INEFFECTIVE
PRISCOLINE LONTABS	SRT/ORAL		INEFFECTIVE
PRO BANTHINE W/DARTAL	TAB/ORAL		INEFFECTIVE
PROFENIL	TAB/ORAL	F	INEFFECTIVE
PROFENIL PHENOBARBITAL	TAB/ORAL	F	INEFFECTIVE
PROPION GEL	JEL/VAG		INEFFECTIVE
PROZINE	CAP/ORAL	F	INEFFECTIVE
RAUTRAX	TAB/ORAL		SAFETY
RAUTRAX IMPROVED	TAB/ORAL		SAFETY
RAUTRAX-N	TAB/ORAL		SAFETY
RAUTRAX-N MODIFIED	TAB/ORAL		SAFETY
RONIACOL	TAB/ORAL		INEFFECTIVE
	ELX/ORAL		
RONIACOL TIMESPAN TABS	SRT/ORAL		INEFFECTIVE
SINGOSERP-ESIDRIX	TAB/ORAL	F	INEFFECTIVE
SOLUSPONGE CONE	DRE/LOC		INEFFECTIVE
SOLUSPONGE STRIP	DRE/LOC		INEFFECTIVE
SPECIAL GELATINE	SOL/IV	F	SAFETY
SPOROSTACIN	CRM/VAG	F	INEFFECTIVE
STAIROL	SOL/OPH	F	INEFFECTIVE
STERAZOLIDIN 50 MG	CAP/ORAL		INEFFECTIVE
SULFASOXIDINE 0.5GM	TAB/ORAL	F	INEFFECTIVE
SULFATHALIDINE	TAB/ORAL		INEFFECTIVE
SYNALGOS (REFORM)	CAP/ORAL	M	INEFFECTIVE
SYNALGOS DC (REFORM)	CAP/ORAL	M	INEFFECTIVE
SYNOPHYLATE/PHENOBARB	TAB/ORAL	F	INEFFECTIVE
TELES 2.5%	SUS/TOP	F	INEFFECTIVE

PRODUCT NAME	DOSAGE /RTE ADMIN	F I N	CURRENT, HIGH CLASS
TERRASTATIN	CAP/ORAL		INEFFECTIVE
	PWR/ORAL		
	PWR/ORAL		
TETREX TRIPLE SULFA	SYR/ORAL		INEFFECTIVE
THALAMID	TAB/ORAL	F	INEFFECTIVE
THEOGLYCINATE COMPOUND	TAB/ORAL	F	INEFFECTIVE
THEOGLYCINATE/PHENOB.	TAB/ORAL	F	INEFFECTIVE
TICACOL	CAP/ORAL	F	INEFFECTIVE
TIGAN SUPP	SUP/RTL	F	INEFFECTIVE
TOBRAMINE	SOL/IM	F	SAFETY
TRAL GRADUMENT	SRT/ORAL		INEFFECTIVE
TRAL GRADUMENT W/PHENO	SRT/ORAL	F	INEFFECTIVE
TRAL/PHENOBARBITAL	TAB/ORAL	F	INEFFECTIVE
TRASENTINE-PHENOBARB	TAB/ORAL	F	INEFFECTIVE
TRAVAMIN 5 PCT.	SOL/IV	F	SAFETY
TRAVAMIN/DEXTROSE 5 %	SOL/IV		SAFETY
TREPIDONE	TAB/ORAL	F	INEFFECTIVE
TRICOFURON	PWR/VAG	F	INEFFECTIVE
	SUP/VAG	F	
TRICOLOID/PHENOBARB	TAB/ORAL	F	INEFFECTIVE
TROCINATE	TAB/ORAL		INEFFECTIVE
TROCINATE/PHENOBARB	TAB/ORAL	F	INEFFECTIVE
VALPIN-PB	TAB/ORAL	F	INEFFECTIVE
	ELX/ORAL	F	
VASODILAN	TAB/ORAL		INEFFECTIVE
	SOL/IM		
WILZYME	ECT/ORAL		INEFFECTIVE
WYANOIDS HC	SUP/RTL		INEFFECTIVE
ZACTANE	TAB/ORAL		INEFFECTIVE
ZACTIRIN	TAB/ORAL		INEFFECTIVE
ZANCHOL 250 MG/TABLET	TAB/ORAL	F	INEFFECTIVE

ABBREVIATIONS OF DOSAGE FORMS AND ROUTES OF ADMINISTRATION

Abbreviations of dosage forms and routes of administration were used because of space limitations. Numeric codes indicate multiple routes of administration. The abbreviations and codes are listed below:

Abbreviation	Dosage Form	Abbreviation	Dosage Form
AER	Aerosol	DPS	Drops
AFO	Aerosol Foam	ELX	Elixir
APW	Aerosol Powder	EML	Emulsion
ASP	Aerosol Spray	ENM	Enema
BUL	Bulk	ECC	Enteric Coated Capsule
CAP	Capsule	ECT	Enteric Coated Tablet
CTB	Chewable Tablet	GAS	Gas
CGT	Chewing Gum Tablet	GEL	Gel
CRM	Cream	GRN	Granule
DCO	Dental Cone	HYT	Hypodermic Tablet
DEP	Deposit	IRC	Immediate Release Capsule
DIS	Disc	IRT	Immediate Release Tablet
DCH	Douche	INH	Inhaler
DRE	Dressing	INJ	Injection
JEL	Jelly	SPY	Spray
LIQ	Liquid	SUP	Suppository
LOT	Lotion	SUS	Suspension
LOZ	Lozenge	SRC	Sustained Release Capsu
MIS	Miscellaneous	SRI	Sustained Release Inj.
MWH	Mouthwash	SRS	Sustained Release Syrup
ONT	Ointment	SRT	Sustained Release Tablet
PAS	Paste	STK	Stick
PWR	Powder	SUT	Suture
SLV	Salve	SYR	Syrup
SHP	Shampoo	TAB	Tablet
SOP	Soap	TPT	Toothpaste
SL	Sol	TPR	Toothpowder
SOT	Soluble Tablet	TCT	Tincture
SOL	Solution	TRH	Troche
		WAF	Wafer

ROUTES OF ADMINISTRATION

ABBREVIATION	CODE	ROUTE OF ADMINISTRATION
BUCC		Buccal
CAUD		Caudal Block
DENT		Dental
DIAG		Diagnostic
ED		Epidural
INH		Inhalation
IART		Intra-Arterial
IA		Intra-Articular
IC		Intracardiac
ICAV		Intracavity
ID		Intradermal
IM		Intramuscular
IO		Intraocular
IP		Intraperitoneal
IS		Intrasinal
ISP		Intraspinal
ISY		Intrasynovial
INTH		Intrathecal
IT		Intrathoracic
ITRC		Intratracheal
IU		Intrauterine
IV		Intravenous
IRRG		Irrigation
MISC		Miscellaneous
NASY		Nasal
OPH		Ophthalmic
ORAL		Oral
OTIC		Otic
RTL		Rectal
RBUL		Retrobulbar
REFL		See Dosage Form
SC		Subcutaneous
SL		Sublingual
TOP		Topical
URH		Urethral
VAG		Vaginal

ROUTES OF ADMINISTRATION

ABBREVIATION	CODE	ROUTE OF ADMINISTRATION
IM-IV-SC	0090	Intramuscular-Intravenous-Subcutaneous
IM-IV	0091	Intramuscular-Intravenous
IV-SC	0092	Intravenous-Subcutaneous
IM-SC	0093	Intramuscular-Subcutaneous
Oral-RTL	0094	Oral-Rectal
IM-IV-ICAV	0095	Intramuscular-Intravenous-Intracavity
IM-IV-ICAV-LOC	0096	Intramuscular-Intravenous-Intracavity-Loca
IV-IART-IA	0097	Intravenous-Intra-Arterial-Intra-Articular
Oral-IV	0098	Oral-Intravenous
	0099	Unassigned
OPH-OTIC	0100	Ophthalmic-Otic
IM-IP-TOP	0101	Intramuscular-Intraperitoneal-Topical
IP-TOP	0102	Intraperitoneal-Topical
IM-SC-ORAL	0103	Intramuscular-Subcutaneous-Oral
	0104	Unassigned
IM-LOC	0105	Intramuscular-Local
IM-IV-IART-ICAV-LOC	0106	Intramuscular-Intravenous-Intra-Arterial-Intracavity-Local
IM-ISP-SC-LOC	0107	Intramuscular-Intraspinal-Subcutaneous-Local
IM-IV-INTH	0108	Intramuscular-Intravenous-Intrathecal
IV-RTL	0109	Intravenous-Rectal
IA-LOC	0110	Intra-Articular-Local
NAS-OPH	0111	Nasal-Ophthalmic
IM-IA	0112	Intramuscular-Intra-Articular
IRRG-INH	0113	Irrigation-Inhalation
IM-IA-LOC	0114	Intramuscular-Intra-Articular-Local
IM-IV-SC-IC	0115	Intramuscular-Intravenous-Subcutaneous-Intracardiac
IM-IV-IA-LOC	0116	Intramuscular-Intravenous-Intra-Articular-Local
RTL-VAG	0117	Rectal-Vaginal
RTL-TOP	0118	Rectal-Topical
OPH-OTIC-NAS	0119	Ophthalmic-Otic-Nasal
IV-ISP-LOC	0120	Intravenous-Intraspinal-Local
IM-IV-INTH-LOC	0121	Intramuscular-Intravenous-Intrathecal-Local
IM-INTH-LOC	0122	Intramuscular-Intrathecal-Local
SC-IM-ICAV	0123	Subcutaneous-Intramuscular-Intracavity

APPENDIX C

WHO/AFRO LIST OF ESSENTIAL DRUGS

Drug Group	Generic Name of International Non Proprietary Name
1. ANTIBIOTICS	Long acting Penicillin e.g. Procaine Penicillin, Benzathine Penicilline, etc. Penicillin G. (Benzylpenicillin) Ampicillin Streptomycin Chloramphenicol Tetracycline Gentamicin.
2. SULPHONAMIDES	Sulphamethoxasole - Trimethoprim. Sulphaguanidine Long acting Sulphonamides e.g. Sulphamethoxypyridazine.
3. ANTIMALARIALS	Chloroquine Quinine (various salts).
4. ANAESTHETICS	Lidocaine Thiopentone.
5. MISCELLANEOUS	
(a) Analgesics Antipyretics Anti-inflammatory Drugs Neuroleptics	Acetylsalicylic Acid. Paracetamol Phenobarbitone Chlorpromazine Promethazine Phenylbutazone Prednisolone Diazepam
(b) Anthelmintics	Piperazine Levamisole and or Thiabendazole
(c) Antiparasitics	Metronidazole Suramin Diethylcarbamazine Citrate
(d) Antituberculosis	Isoniazid (+ Thiacetazone)
(e) Antileprous Drugs	Dapsone (Diaphonylsulphone)

Drug Group	Generic Name of International Non Proprietary Name
(f) Various	Codeine (and preparations) Multivitamins or various vitamins Iron salts 0.9% Sodium Chloride solution Ergometrine or Methylergometrine Insulin (various forms) 5% Dextrose solution. Oral Rehydration salts Digoxin (a Lanatoside) Laxatives and Purgatives - Castor Oil - Magnesium Sulphate - Sodium Sulphate
(g Galenicals which can be prepared locally - (Un-Limited List	1. Cough mixtures: expectorant and sedative e.g. with following as base: sodium benzoate compound Ipecacuanha Extract (Dessessartz extract) Extract of Tolu. (with or without) Codeine Syrup. 2. Dakin's solution with calcium hydrochloride 3. Benzyl-benzoate lotion. 4. Iodine 1% in alcohol. Mercurochrome solution 2% Skin disinfectants (generic or branded) Gentian violet solution 5. Zinc oxide cream. 6. Analgesic liniment (e.g. methyl salicylate)
8. VACCINES AND SERA	1. Tetanus Vaccine 2. Poliomyelitis Vaccine 3. Yellow Fever Vaccine 4. Measles Vaccine 5. Anti-Tetanus Serum 6. BCG 7. Rabies Vaccine 8. Anti-Snakebite Serum 9. Diphtheria, Pertussis and Tetanus Vaccine (DPT Vaccine)

APPENDIX D

STOCK CONTROL CARD
(example from Central Medical Stores, Zimbabwe)

DATE	VOUCHERS	ISSUES/RECEIPTS	BALANCE	C
	TOTALS			
	TOTALS			
TOTALS				
TOTALS				

DATE	VOUCHERS	ISSUES/RECEIPTS	BALANCE	C
	TOTALS			
	TOTALS			
TOTALS				
TOTALS				

UNIT

DESCRIPTION

Reorder Le

Minimum Level

CODE NUMBER

APPENDIX E

MEDICAL SUPPLY REQUISITION FORMS
(examples from Liberia and Zimbabwe - Central Depot)

F. & S. 80324

REQUISITION: MEDICAL SUPPLIES

No 337263

Medical Store,

Box

For Medical Store use only

Account No.

Issue Voucher No.

Consignee

Postal address

Forwarding instructions: Rail, RMS, Post, Road, Air

(Delete inapplicable)

Original

Requisitionist's date-stamp

CHARGEABLE TO:

ITEM (N.B.—One size only per line. One item only per line.)	Quantity required	Code number	Amended code number	UNIT	Quantity supplied

FOR MEDICAL STORE USE ONLY

Requisitionist's signature and office held

ertified goods as detailed received in good order and ondition.

Recipient's signature and office stamp

Approved by

NOTE
On receipt of the consignment please certify the third copy and return without delay.

Date received at Medical Store

Medical Store reference

Date order completed:

Checked by:

Bin cards posted by:

Assembled by:

MINISTRY OF HEALTH AND SOCIAL WELFARE, R.L.
NATIONAL MEDICAL SUPPLY DEPOT
REQUISITION - DRUGS

REQ. NO._____

_____HOSPITAL _____COUNTY DATE_____

CAT NO.	U/I	ITEMS DESCRIPTION	ON HAND	NEED	MEAS.	ISS'D	U/I	EXT.
001	BT	Acetaminophen Syrup, 120mg/5ml., Gal.						
002	BT	Acetaminophen Tab., 324mg., 1000's						
003	BX	Aldomet, Injection, 50mg, 10 Gal.						
005	BT	Aluminum Hydroxide Susp., 2L						
023	BC	Ampicillin Cap., 250mg., 500's						
024	BX	Ampicillin Injection, 500mg., 100's						
025	BT	Ampicillin Susp., 125mg/5ml., 100ml.						
021	BT	Amodiaquine Tab., 200mg., 1000's						
031	BN	Ascorbic Acid Tab., 200mg., 1000's						
[illegible]								
041	BT	Belladonna Elixir, 2L						
[illegible]								
[illegible]								
057	BT	Calomine Lotion, 2L						
059	BT	Calcium Lactate Tab., 300mg., 1000's						
061	UT	Capsicum Ointment, 5000m.						
062	BT	Cascara Sagrada Tab., 1000's						
064	BT	Castor Oil, Gal.						
065	BI	Cetrimide Sol., Conc., 5L						
067	BN	Chloramphenicol Cap., 250mg., 1000's						
071	BX	Chloramphenicol Ointment, Oph., 12's						
070	BA	Chloramphenicol Sol., Oph., 10ml.						
072	BA	Chloramphenicol Sol., Otic, 10ml.						
073	BI	Chlordiazepoxide Tab., 5mg., 1000's						
075	BX	Chloroquin Injection, 320mg./5ml., 100's						
079	BT	Chloroquin Syrup, 2L						
076	BN	Chloroquin Tab., 250mg., 1000's						
081	BT	Chlorpromazine Tbs., 25mg., 1000's						
092	BT	Cod Liver Oil, 2L						
054	BI	Cough Mixture (Bronchial), 2L						

Requested by_____ Date_____

Approved by_____
MEDICAL DIRECTOR

Prepared by_____ Date_____

Approved by_____
MINISTRY OF HEALTH & SOCIAL WELFARE

Filled by_____ Date_____
NATIONAL MEDICAL SUPPLY DEPOT

Delivered by_____

Received by_____ Date_____

APPENDIX F

GENERAL PATIENT RECORD CARD
(example from Liberia)

Date	Wt.	V/S	Complaint	Lab.	Results, Findings, Dx.	Treatment

GENERAL PATIENT RECORD

Name _____ Age _____ S[illegible] Father _____ Town _____ Quarter _____ CLINIC NO _____

Date	Wt.	B/S	Complaint & Exam	Rx	Results, Findings, Dx	Treatment