PN-ABA-637

Best available copy -- pages 373 - 378 missing

MANAGEMENT SYSTEMS STUDIES FOR THE ESTABLISHMENT AND OPERATION OF INTEGRATED RURAL HEALTH COMPLEXES: Primary Health Care Delivery System, Islamic Republic of Pakistan

Conducted By: The National Basic Health Services Cell

and

Management Advisory Staff
Medex Team
University of Hawaii

ecember 15, 1980

CONTENTS

I.	MANAGEMENT ABSTRACT	1
II.	INTRODUCTION AND PURPOSE	3
III.	ACKNOWLEDGEMENTS	4
IV.	THE STUDY TEAM	5
V.	THE PRIMARY HEALTH CARE PROJECT	6
VI.	METHODOLOGY	9
VII.	ORGANIZATION, SUPERVISION AND PERSONNEL	11
	1.0. OBSERVATIONS AND FINDINGS	13
	1.1. Organization at the Provincial and Division Levels	13
	1.2. Organization at the District and Rural Health Centre Levels	20
	1.3. Organization at the Rural Health Centre	24
	1.4. Supervision	26
	1.5. Personnel	29
	2.0. RECOMMENDATIONS	37
	2.1. Organization at the Provincial Level	37
	2.2. Organization at the Division and District Levels	39
	2.3. Organization at the District and Rural Health Centre Levels	42
	2.4. Supervision	44
	2.5. Personnel	65
VIII.	OPERATIONAL PLANNING	73
	1.0. OBSERVATIONS AND FINDINGS	75
	1.1. The Five Year Plan	75

1.2. Planning at the Division, District, Rural Health Centre and Basic Health Unit Level 76

1.3. Definition of Planning 78

1.4. Why Plannng 78

1.5. Long Range and Operational Planning 79

2.0. RECOMMENDATIONS 79

2.1. Steps in Operational Planning 80

2.2. Identifying and Setting HealthnPriorities 82

2.3. Setting Goals and Targets 84

2.4. Reviewing Obstacles and Limitations 87

2.5. Planning Activities 89

2.6. Writing the Operational Plan 92

2.7. Monthly Planning for Health Officials 94

IX. HEALTH INFORMATION 103

1.0. OBSERVATIONS AND FINDINGS 105

1.1. The Present System 105

1.2. Registers Used in the Present System 10'

1.3. Abstract Register (4-L) 10(

1.4. Annual Return (Statement E and H) 10(

1.5. Annual Summary (Statement D) 10(

1.6. Statement "C" 10(

1.7. Lady Health Visitor Reports 11(

1.8. Quality of Data 11(

2.0. RECOMMENDATIONS 113

2.1. Overview 113

2.2. The Catchment Area as the Basis for Data Collection 115

2.3. Centralized Registration Point 117

2.4. Recommended Procedure for Community Health Workers 121

2.5. Recommended Alternative Procedures for Out-door Patients 123

2.6. In-door Patients: Rural Health Centres 127

2.7. The Annual Return 129

2.8. Immunization Data 134

2.9. Patient Retained Health Record 134

X. DRUGS AND MEDICAL SUPPLY SYSTEM 141

1.0. OBSERVATIONS AND FINDINGS 143

1.1. The Indent System 143

1.2. Local Purchases 166

1.3. Procurement Process (MSD) 172

1.4. The Government Medical Stores Depot 190

1.5. UNICEF Drugs and Medical Supplies 192

1.6. Drugs and Supplies Distribution, and Accountability 199

1.7. Storage of Drugs and Medical Supplies 213

1.8. Audit and Accountability 216

1.9. Dispensing Procedures 225

1.10. World Food Program 234

1.11. Equipment and Instruments at Rural Health Centres 238

1.12. Existing Drugs and Medical Supplies 241

2.0. RECOMMENDATIONS 241

2.1. The Indent System 242

2.2. Local Purchases 247

2.3. The Procurement Process 249

2.4. The Government Medical Stores Depot.

2.5. UNICEF Assistance

2.6. Distribution System

2.7. Storage of Drugs and Medical Supplies

2.8. Audit, Accountability and Record Keeping

2.9. Dispensing and Disbursement Procedures

2.10. World Food Program

2.11. Recommended Standard Equipment List

2.12. Drugs and Medical Supplies

XI. TRANSPORTATION EQUIPMENT AND FACILITIES AND COMMUNICATIONS INFRASTRUCTURE

1.0. OBSERVATIONS AND FINDINGS

1.1. Road conditions and Distances

1.2. Usual Mode of Transportation

1.3. Budget Provisions

1.4. Maintenance Facilities

1.5. UNICEF Vehicle Policy

1.6. Need for Communications

1.7. Existing Communications Facilities

1.8. Two-way Radio System

1.9. Telephone Facilities

2.0. RECOMMENDATIONS

2.1. Transportation Requirements

2.2. Provision of Roads

2.3. Selection and Use of Vehicles

2.4. Provision of Funds for the Purchase of Vehicles

2.5. Funds for Recurring Expenditures

2.6. Improvement of Maintenance Facilities

2.7. Improving the Communication Infrastructure

LIST OF FIGURES

PRIMARY HEALTH CARE PROJECT

1. Typical Integrated Rural Health Complex 7

ORGANIZATION, SUPERVISION AND PERSONNEL

2. Organization Chart - Provincial and Divisional Level. 16
3. Organization Chart - Division Health Directorate 21
4. Organization Chart - District Health Offices 25
5. Organization Chart - Rural Health Centres and Other Health Facilities Within Their Catchment Area 27
6. Recommended Organization Chart - Division/District Levels. 43
7. Recommended Organization Chart - Integrated Rural Health Complex 45
8. Recommended Proforma - Provincial Division Supervision Visits to District Health Offices. 48
9. Recommended Proforma - District Health Officer Supervision Visits to Integrated Rural Health Complexes. 53
10. Recommended Proforma - Medical Officer Supervision Visits to Basic Health Units. 59
11. Recommended Proforma - Administrative Supervision of Community Health Programs. 63
12. Summary of Recommended Scheme for Supervision 66

OPERATIONAL PLANNING

13. Recommended Proforma - Problem Analysis

14. Recommended Proforma - Analysis of Obstacles

15. Analysis of Alternatives

16. Recommended Proforma - Annual Plan of Work

17. Sample Gantt Chart

18. Monthly Things to Do List

HEALTH INFORMATION

19. Collection and Flow of Data

20. Recommended Flow of Data

21. Central Registration

22. Recommended Proforma - Community Health Worker Utilization Data

23. Recommended Proforma - Alternative No. 1 Out-door Patient Register

24. Recommended Proforma - Out-door Patient Abstract Register

25. Recommended Proforma - Alternative No. 2 Out-door Patient Register

26. Recommended Proforma - In-door Patient Register

27. Recommended Proforma - In-door Patient Summary

28. Recommended Proforma - Annual Return

29. Patient Retained Record - Male

30. Patient Retained Record - Women and Children

31. Envelope for Patient Retained Record

DRUGS AND MEDICAL SUPPLY SYSTEM

32. Frequency Distribution - Supply By Value

33. Frequency Distribution - Supply By Number of Items

DRUGS AND MEDICAL SUPPLY SYSTEM (Continued)

34.	Common Drugs Used By Health Facilities	162
35.	Sources of Drugs and Medical Supplies and Users at RHCs' and BHUs'	201
36.	Vaccine Distribution System	211
37.	Audit Trail	220
38.	Accountability of Drugs and Supplies at RHCs' and BHUs'	221
39.	Dispensing Procedure at RHCs'	228
40.	Dispensing Procedure at BHUs'	230
41.	Direct Shipment From Suppliers to Users	253
42.	Running Rate Contract With Indirect Shipment	255
43.	Recommended Expense Book Format	265
44.	Quarterly Drugs and Supplies Utilization	268
45.	Stock Position Register	270
46.	Recommended Dispensing/Disbursement System - Rural Health Centres	273
47.	Recommended Dispensing/Disbursement System - Basic Health Units	275
48.	Community Health Worker Expense Book	285

TRANSPORTATION AND COMMUNICATIONS

49.	Tool and Equipment Required - Combined Provincial Workshop	331
50.	Recommended Staff - Combined Provincial Workshop	332

LIST OF TABLES

ORGANIZATION, SUPERVISION AND PERSONNEL

1. Existing and Approved Staff - RHCs' and BHUs' 30
2. National Pay Scales - Medical and Para Medical Personnel 35
3. Current and Recommended Salary 69
4. Sanctioned/Available Posts as of January 1, 1980 72

DRUGS AND MEDICAL SUPPLY SYSTEM

5. Indent Price Vs MSD Price 148
6. Supply Situation by Number of Items 150
7. Supply Situation by Rupee Value 151
8. Frequency Distribution - Supply Situation 153
9. Variation in Quantities Demanded and Sanctioned 155
10. MSD Vs Local Purchase Prices 157
11. Common Items By Number of Facilities 161
12. Drug Items and Quantities Indented 164
13. Budgeted and Actual Expenditures for Six IRHCs' - 1978/79 171
14. Budget Left-Overs at Six RHCs' - 1978/79 173
15. Time Factor Analysis for Major Procurement Activities 182
16. Market Prices Vs. MSD Procurement Prices 188
17. UNICEF Assistance to the Health Sector, 1976/79 193
18. UNICEF Recurring and Non-Recurring Expenditures, 1976/79 196
19. Percentage Distribution by Type of Health Program 198
20. Percentage Distribution, Total UNICEF Expenditure, 1976/79 200
21. Utilization of Equipment and Instruments 240
22. Recommended Drugs and Supplies - Community Health Workers 284

TRANSPORTATION AND COMMUNICATIONS

23. Distances - From BHU to RHC and RHC to District Hospital.

24. Vehicle Available - Six Districts in Punjab

25. Staff - Divisional Workshops Except Multan

26. Staff - Multan Division Workshop

27. Staff - HEMO Workshop

28. Staff - CDC Workshop

29. Use of Vehicles - Alternative No. 1

30. Use of Vehicles - Alternative No. 2

31. Use of Vehicles - Alternative No. 3

32. Comparison of Three Alternatives

33. District Mechanic Vs. Local Market Repairs

APPENDICES

I. List of Persons Contacted

II. Recommended Standard Diagnosis List for Out-door Patients

III. Recommended Standard Diagnosis List for In-door Patients

IV. Recommended List of Equipment and Instruments - Rural Health Centres and Basic Health Units

V. Recommended Standard Drug List - Rural Health Centres and Basic Health Units

VI. Application and Forms A and B for Two-Way Radio License

VII. Bibliography

I. MANAGEMENT ABSTRACT

This report is the result of three man years of work studying, analysing and documenting the sub-systems of the management infrastructure of the Pakistan primary health care delivery system. The results of this work was originally presented in separate draft reports for "Review and Comment". These draft reports were the working documents used by the participants in the National Workshop on "Management for Primary Health Care" that was held in Islamabad, Pakistan, 13 through 18 September 1980.

This consolidated report includes the original observations and findings that were described the draft reports and presented during the workshop. The original recommendations have been modified to include suggestions and alternate recommendations that were made by the workshop participants.

Implementation of important recommendations that the workshop participants felt would enhance the delivery of primary health services to the rural population of Pakistan includes :

1. Delegation of additional power to District Health Officers and Medical Officers for the operation of Integrated Rural Health Complexes.
2. Reclassification of District Health Officer to NPS 19 and provision of rural allowances and incentive pay for staff posted in rural areas.
3. Decentralization of Operational Planning in order to involve staff at Rural Health Centres and District Health Offices in annual planning.
4. Designation of the Integrated Rural Health Complex catchment area as the basis for health data collection.

5. Designation of a central registration station in rural health facilities and utilizing Medical Technicians to screen patient at this station. Where considered necessary separate stations for men and for women could be established.

6. Update the existing out-door patient register and statistical reporting system or adopt a revised system. Combine the in-dc patient and surgery registers.

7. Adoption of a patient retained health record system on a poine basis in several districts.

8. Adoption of a "Kit System" of drop shipping of drugs and medic supplies to rural health facilities.

9. Adoption of a standard drug and equipment list for rural healt facilities.

10. Centralization of purchasing and purchasing drugs and medical supplies on a "running rate contract" with indirect shipment (via the Provincial Stores Depots) to rural health facilities.

11. The Medical Stores Depot budget should be equal to the combine drug and supply budget for the government health facilities in each province. As an alternative the stores depot budget coul be on a revolving basis.

12. Provision of an ambulance for each Rural Health Centre, a moto cycle and hired tongas on a pre-arranged basis at each Basic Health Unit.

13. Combining of provincial level auto workshops so as to provide facility for complete maintenance and repair of Health Departm vehicles.

14. Posting of a mechanic at each District Health Office for minor repairs and preventive maintenance.

15. Installation of a two-way radio system in selected, remote In rated Rural Health Complexes on a pioneer basis. Expand to o complexes as funds become available.

II. INTRODUCTION AND PURPOSE

The purpose of this report is to present the observations and findings and recommendations that were developed during management systems studies and to include additional or alternate recommendations that were made by the participants at the National Workshop on "Management for Primary Health Care" that was conducted September 13 through 18, 1980 in Islamabad, Pakistan.

The management systems studies were conducted during the period September 1979 through August 1980. At the time these studies were conducted changes in the management infrastructure were taking place and important decision being made that were essential to the start up and operation of Integrated Rural Health Complexes. For this reason, it is possible that conditions as described in this report may have changed.

The purpose of the original management studies was to document in detail the organization and management of the existing rural health care delivery system and to formulate recommendations for changes that would facilitate gradual change from the present delivery system to a system of Integrated Rural Health Complexes.

The management systems studies and information and suggestions from the participations at the workshop on "Management for Primary Health Care" provided the basis for the development of a prototype "Operations Manual for Integrated Rural Health Complexes". This manual is "Pakistan Specific" and formated so that it can be adapted to any special circumstances on a province by province basis.

III. ACKNOWLEDGEMENTS

The study staff would like to acknowledge the assistance and cooperation received from the many dedicated officers and staff of the Federal Ministry of Health and the Provincial Health Departments. The names of these persons are too numerous to mention individually but include the Director of Health and their staff, Deputy Directors at the Division level (Punjab only), District Health Officer and Medic Officers at Rural Health Centres.

This report is based on extensive investigations into the present management systems of the health care delivery as it affects the management of Integrated Rural Health Complexes. These investigatio required that the study team make numerous trips to Rural Health Ce res, District Health Offices, Division Health Offices and to the Provincial Health Directorates. We especially want to thank those officers who gave of their time during these visits and who assiste us with making travel and accommodation arrangements and who served as most gracious hosts during our visits.

We would like to express our appreciation for the promotive and coo ative attitude of Dr. Mushtaq Ahmad Chaudhary, Deputy Director Gene Health, National Basic Health Services Cell, who made many helpful suggestions and was kind enough to review our work during the condu of studies on each area covered by this report

Financial support for this work was provided under a loan and gran agreement between the Government of Pakistan and the United States Agency for International Development.

IV. THE STUDY TEAM

This report is based on management systems studies on important sub-systems of the management infrastructure of the Pakistan primary health care delivery system. These studies were conducted by the Management Advisory Staff, University of Hawaii Medex Team and the WHO Systems Analyst assigned to Pakistan. Members of the University of Hawaii Medex Team who participated in these studies were Mr. John H. Eaton, Management Advisor; Miss Sabiha Hussain, Management Research Associate; and Mr. Amjad Hussain, Management Research Associate. The WHO System Analyst was Mr. Hannu Haarma.

The principal analyst for each study was as follows :

- Organization, Supervision and Personnel	Mr. Eaton and Miss Hussain
- Operational Planning	Mr. Haarma
- Health Information System	Mr. Eaton
- Transportation and Communication	Miss Hussain
- Drugs and Medical Supplies	Mr. Hussain

This report was edited by Mr. Eaton. Clerical support for typing the manuscript was provided by Asghar Ali, National Basic Health Services Cell.

V. THE PRIMARY HEALTH CARE PROJECT

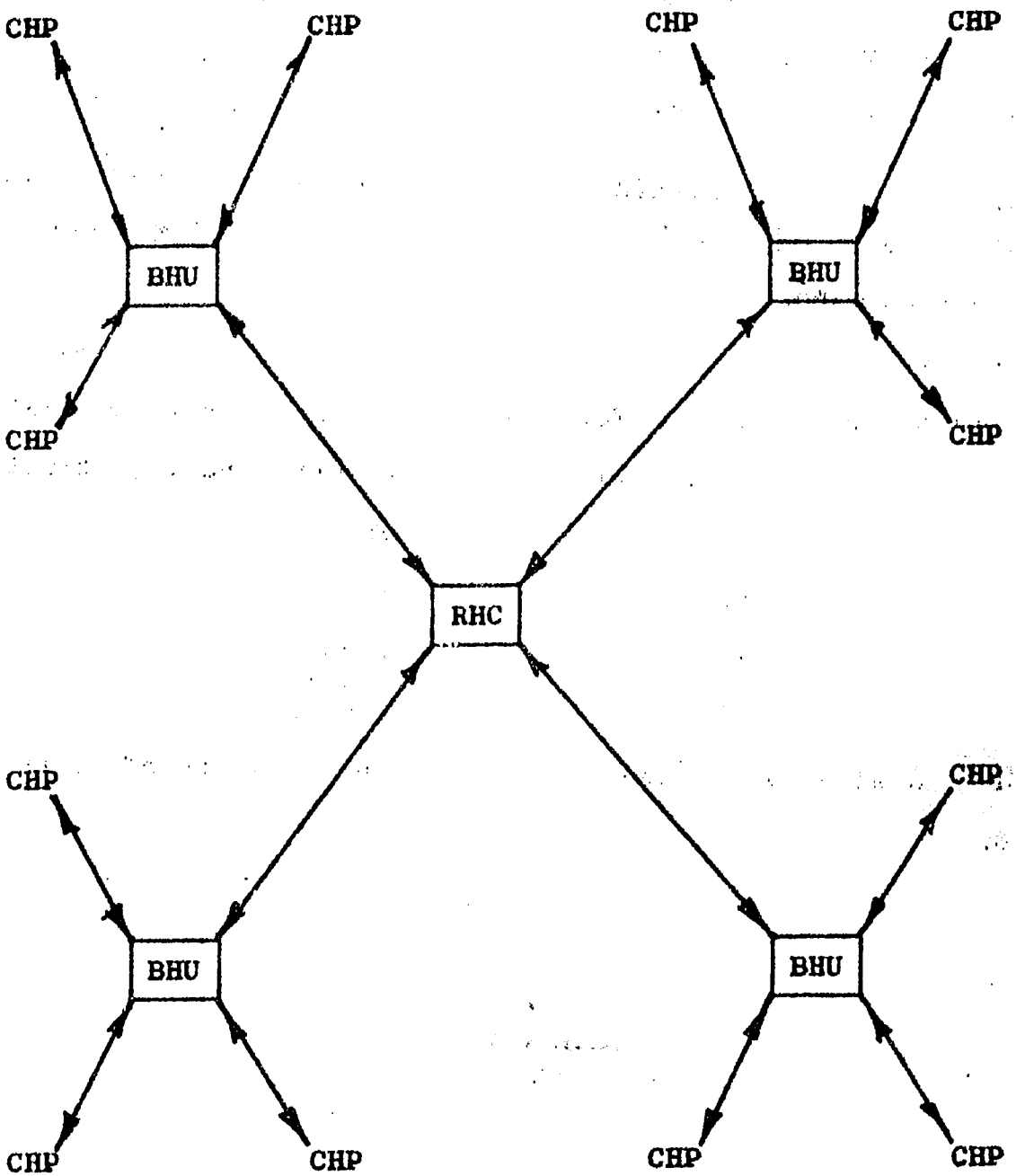
The management systems studies that were the basis of this report we conducted as a part of the analysis of the management infrastructure of the rural health care delivery system in the Islamic Republic of Pakistan. The existing system of health care delivery is organized with Rural Health Centres, Sub-Centres, Dispensaries and Maternal ar Child Health Centres. It is expected that during the next several years the delivery system will undergo gradual change into a system Integrated Rural Health Complexes.

The Integrated Rural Health Complex is an organizational concept th was developed to enhance the delivery of primary health services to rural population of developing countries. An Integrated Rural Heal Complex consists of a Rural Health Centre, four or more Basic Healt Units and Community Health Programmes. A typical complex along wit it's referral and operational linkages is shown in Figure 1. The th tiers in the complex are linked for supply and logistical support, supervision and management and for patient referral. The concept i commonly referred to as "The Medex Design Approach". In the Pakista Primary Health Care Project this particular design is modified to supplement the present system during a period of transition over th next several years. Implementation of the design approach in Pakist requires the construction of Basic Health Units within the catchmer area of existing Rural Health Centres and could require the constru tion of new Rural Health Centres or the upgrading of other facilit to Rural Health Centres in some areas.

The design approach includes training of Medical Technicians. Thi training consists of three phases of six months each. The phases

FIGURE 1

TYPICAL INTEGRATED RURAL HEALTH COMPLEX



RHC - Rural Health Centre
BHU - Basic Health Unit
CHP - Community Health Program

are : (1) Classroom; (2) Hospital Rotation between services; and (3) Field Training in a Rural Health Centre and a Basic Health Unit. The training for the Community Health Worker is conducted in the villages under the supervision of an experienced Medical Technician. The train ing for both of these para medical personnel is competency based.

The medical personnel posted to an Integrated Rural Health Complex consists of male and female doctors, male and female Medical Technicians, Community Health Workers and other auxiliary personnel that ar necessary to support the operation of the complex. The complex is organized so that linkages for medical care (referral and quality assurance), day-to-day operation and management and logistical suppo are established and maintained on an on-going basis. The key to mai taining these linkages rest with the officers at the Division, Distr and Rural Health Centre level. The importance of their role and fun cannot be over emphasized since the success of the delivery system w depend to a major degree on the effectiveness of the officers at the levels.

VI. METHODOLOGY

The methodology for the manggement systems studies consisted of a variety of management science techniques and includes where appropriate, statistical methods, the collection and analysis of data and interviews of key personnel at all levels. Since, in many areas studied recent data was not readily available it was necessary for the analysis to construct a data base from individual records and reports.

Because of the subjective nature of many of the areas studied it was necessary for the study team to rely heavily on interviews. These interviews followed an orderly pattern and the same set of questions were used when interviewing people at different Divisions or Districts, This resulted in a concensus of how a particular system or sub-system was intended to function.

The management systems studies were conducted in Rural Health Centres, Basic Health Units and other existing health facilities in the catchment area of six designated Integrated Rural Health Complexes in Punjab province. The six designated complexes were located in districts Sialkot; D.G. Khan; Bahawalpur; Jhang; Sheikhupura; and Gujrat. When the studies were completed the study team visited health facilities, the Basic Health Cell and the Health Directorate in North West Frontier, Baluchistan and Sind provinces to determine if there were significant differences in their existing management systems and the systems in Punjab.

The concensus of the study team is that any differences are minor and that nationwide management systems could be adopted. In order to facilitate health planning and the allocation of resources the provinces are encouraged to adopt uniform management system.

VII. ORGANIZATION, SUPERVISION AND PERSONNEL

1.0. OBSERVATIONS AND FINDINGS

1.1. Organization at the Provincial and Division Levels

1.1.1. Health services at the provincial level is a line and staff organization. The Chief Administrator is the Minister of Health who is appointed by the Provincial Parliament. At the time this study was conducted Pakistan was under a Military Government and the positions of Provincial Minister of Health were vacant.

Below the level of Minister the top position is the Secretary of Health. The Secretary is responsible for the development of health policy and the administration of special institutions. Operation of the Health Department is the responsibility of the Director of Health who reports to the Secretary. The Secretary and Directo and positions reporting to these levels are career civil servants.

The Directors of Health have the authority for day-to-day operations of the Provincial Health Care Delivery System and the implementation of health policy. The Director of Health's support staff includes three key deputies who have responsibility for:(1) planning and development; (2) communicable diseases; and (3) basic health services.

Since the analysis of the organization is limited to the operation of Integrated Rural Health Complexes, the two areas of interest at the provincial level are the

Basic Health Services Cell and the line relationship between the Director of Health Services and the Deputy Directors of the Health Divisions (Punjab only). It should be noted that the Provinces of Sind, North West Frontier and Baluchistan d not have health administration at the Division level.

1.1.2. The Basic Health Services Cells are staffed by a Project Director, a Statistical Officer and clerical support personn The Project Directors have a staff relationship to the Direc tors of Health Services. The role of this position is to ad the Directors of Health on matters affecting the development Integrated Rural Health Complexes. Since this position does have line authority and can only advise, the role that the Project Director plays is limited. Unfortunately, in some p inces this position has not been clearly defined or a job de ption developed.

The functions of this position are carried out through cons tations with the Director, Deputy Directors of the Health I sions (Punjab only) and District Health Officers. The posi requires extensive travel since Integrated Rural Health Cor lexes are being established throughout the provinces. This position and the travel requirements are essential since i necessary to provide a continuing effort of assistance with development of Integrated Rural Health Complexes.

During this study the following observations and their poss implications were made

a) In Punjab the person filling the position of Project Director, Basic Health Services Cell has turned over several times during the past

three years. This has resulted in a lack of continuity in program planning and implementation.

b) Restrictions on freedom of movement of the person occupying the position have from time to time prevented travel to the districts where the designated Integrated Rural Health Complexes are located. It is recognized that limitations are necessary due to lmited funding. However, if the establishment of operational complexes is to be successful a higher priority must be given to freedom of movement, transportation and travel allowances for the person in this position.

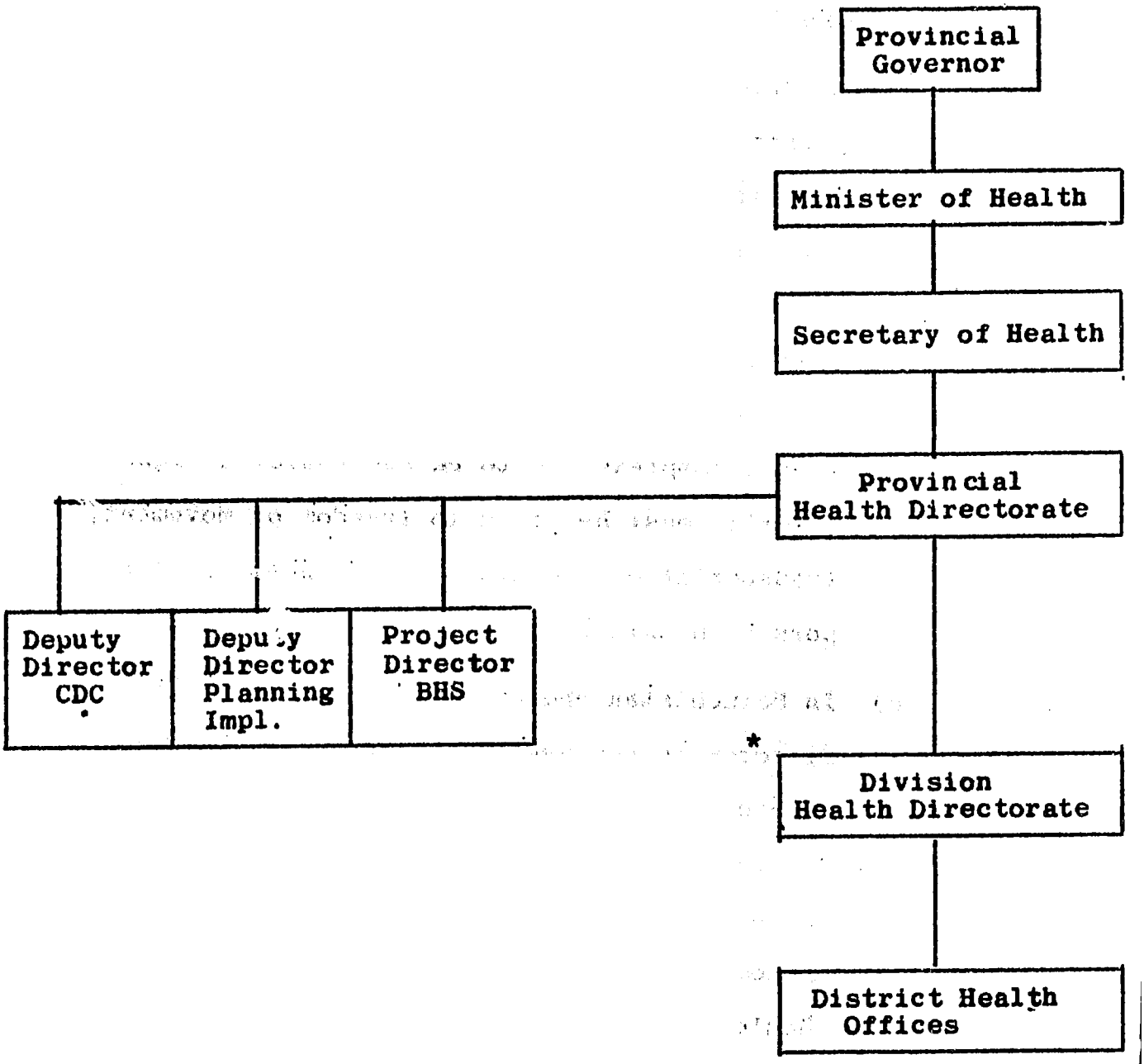
c) In Baluchistan and Sind provinces the Deputy Director is assigned additional duties, not related to the establishment of Integrated Rural Health Complexes. It is recognised that because of understaffing at the provincial level this is sometimes necessary. However, every effort should be made to have the Project Director devote full time to the Basic Health Cell.

The organization at the provincial level and it's relationship to the divisional (Punjab only) level is shown in Figure 2.

1.1.3. In Punjab province the administration of health services is organized into five divisions. In the other three provinces

FIGURE 2

ORGANIZATION CHART
PROVINCIAL AND DIVISIONAL



*Punjab province only.

the District Health Officers report to the Director of Health. These five divisions cover 21 districts in Punjab. In Punjab the divisions are staffed with a Deputy Director, Assistant Director and support staff for ten functional areas. The functional areas are :

a) Communicable Disease Control
b) Drug Inspection
c) Health Statistics
d) Maternity and Child Health Services
e) General Services
f) Accounts abd Budget
g) Establishment and Administration
h) Planning and Development
i) Transport
j) T.B. Control

In the other three provinces these functions are the responsibility of the Provincial Directorate and/or District Health Offices. This is possible because of a somewhat better staffing position of District Health Offices and the delegation of additional powers to District Health Officers.

The administration of health services requires that health facilities be visited on a regular basis. In Punjab this responsibility is shared by Deputy Directors and District Health Officers. In the other provinces touring is primarily the responsibility of District Health Officers.

Tour schedules are planned for the coming month one week to 10 days prior to the beginning of the month. The schedule is submitted to the next higher authority for approval. The schedule includes

three or four day for "Surprise Visits". Dates surprise visit are reserved but the facilities to be visited are not identified. Surprise visits enable the responsible person to visit health facilities that they suspect need attention. These visits are supposed to keep the Medical Officer and other staff alert to the possibility of a surprise visit and keeps them "on their toes".

An inspection proforma is available for field visits, however, it is rarely used. It was reported that the proforma has not been used on a regular basis since 1971. The proforma covers 25 items that assess the quantitative and qalitative aspect of facility operation. The proforma has not been revised since 1963 and it was not designed specifically for Rural Health Centres and Basic Health Units. It appears to be more suited for inspection of Tehsil and District Hospitals.

On a monthly basis written reports on visits are submitted to the next higher authority. The reports include the number and the type of facilities visited and administrative problems encountered during visits.

The following factors are important considerations that effect the relationship between the Provincial Directorate, Division Directorate District Health Office and those health facilities under the jurisdiction of the District Health Office :

a) Based on number of staff, operating budget and scope of responsibility, administration of health care delivery is concentrated at the Provincial and in the Punjab/Division level. This is evident by the number of positions authorised at these levels and the fact that most of the posts are filled. On the other hand

the District Health Offices, especially in Punjab are understaffed to provide "first line supervision" over Integrated Rural Health Complexes.

b) Because of the scope of administrative resposibility and the travel time and distances close supervision over health facilities by the Provincial or Division Directorate staff is counter productive. Closer supervision could be provided at the district level if they had adequate staff and budget for travel.

c) Direct supervision over rural health facilities by the Division Health Directorate in Punjab appears to be inappropriate and inconsistant with the established formal organization.

d) Staff in NPS 6 through 15 is recruited and hired at a level above the district level. The DHOs have the authority to take punitive action, stop pay or to transfer within the District but cannot dismiss these people. Medical Officers are appointed by the Provincial Health Secretary. The District Health Officer may not reprimand or bring other punitive action against Medical Officers.

e) The District Health Officer is appointed by the Provincial Health Secretary and only he may transfer or bring punitive action against them.

The pattern of administration and management described above has built in checks and balances for protecting the job of people posted at various levels. However, this pattern is counter productive in a developing

system of health care delivery because it limits individual initiative and results in responsibility without appropriate authority. Said another way the Primary Health Care System is developing with limited national resources that can only be offset with emphasis on individual initiative. The organization at the Division level is shown in Figure 3. As previously mentioned the division level applies only to Punjab. In the other provinces the District Health Officers report directly to the Director of Health.

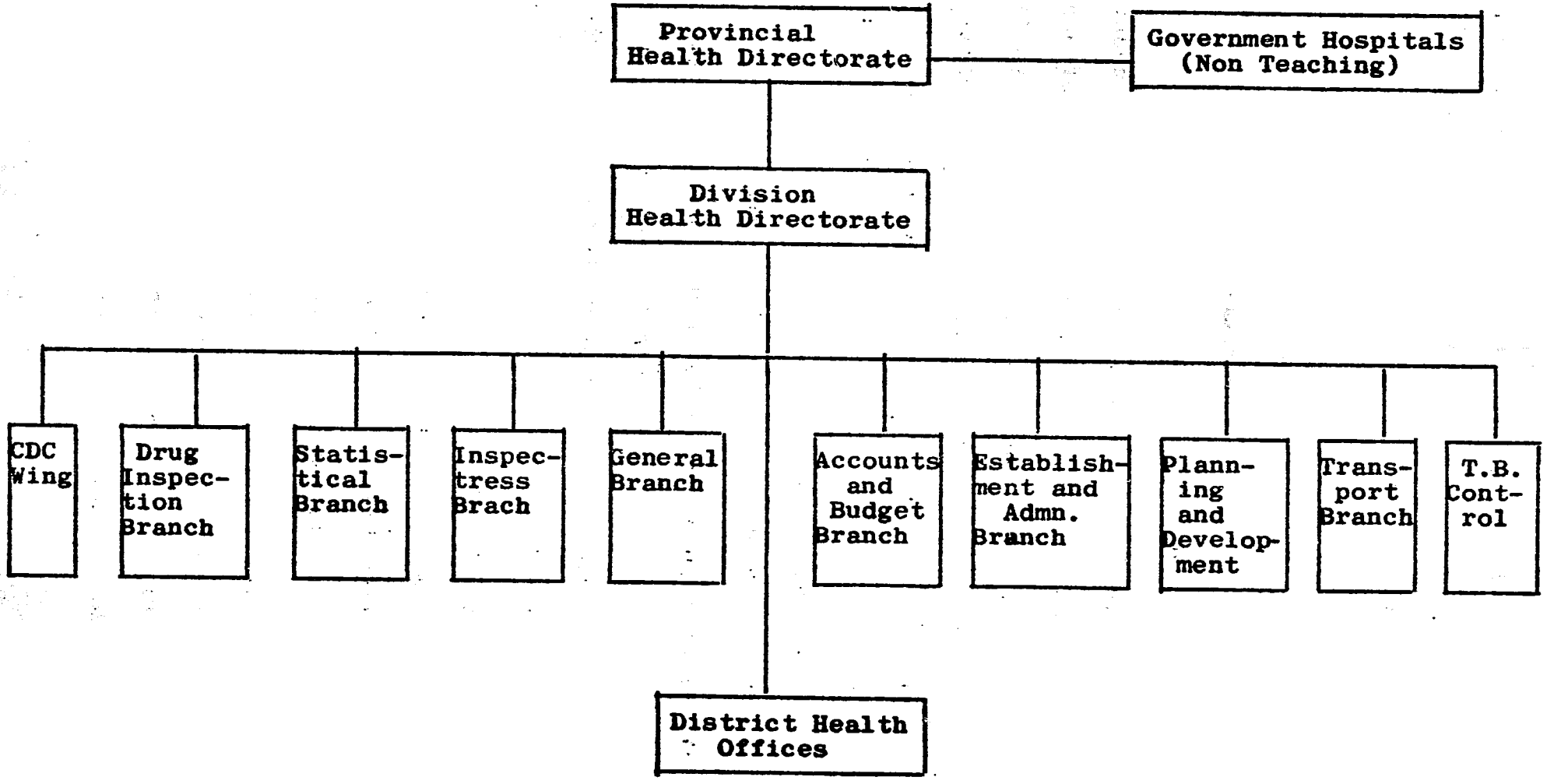
1.2. Organization at the District and Rural Health Centre Levels.

1.2.1. Organization at the district level consist of District Health Offices that are staffed with a District Health Officer and support staff.

The District Health Officer has line responsibility to the division level (provincial level in all provinces except Punjab) and has the authority for the day-to-day operation of Integrated Rural Health Complexes as well as other health facilities within the District except the District Headquarters Hospital. A possible exception to this authority is the relationship between the District Health Officers and the Medical Officers posted to Rural Health Centres.

In addition to the rural health facilities the District Health Officer is responsible for the Communicable Disease Control Program. This responsibility is the result of a reorganization of the Malaria Eradication Program.

ORGANIZATION CHART
DIVISION HEALTH DIRECTORATE



* Division Directorate Staff Applies Only to Punjab

FIGURE 3

The support staff at the District Health Office process supply indents, compile the annual statistical return for the district, process correspondence and perform routine clerical duties. The District Health Officer is responsible for administration of health services in his district.

During this study the following observations and their possible implications were made :

a) The District Health Offices appear to be understaffed to be able to provide supervision of rural health facilities at an adequate level. With three to five Rural Health Centres and upto 20 Basic Health Units in each District the District Health Officer cannot provide the necessary supervision with the existing staff and financial resources. In addition he is responsible for Tehsil Hospitals and other health programs in the district.

b) Allocation of funds for procurement and maintenance of vehicles and travel is not sufficient to permit the travel necessary to provide adequate supervision of rural health facilities.

c) It was reported that the support staff was adequate in number but that the staff was not properly trained for effective functioning of the office. For example, the districts do not have a person trained in statistics.

d) The delegation of power is not sufficient for the level of responsibility of this position. District Health Officers face problems, that they are expected to solve but do not have the authority to do so.

There are two important exceptions to the concept of lines and staff organization at this level. The first is the relationship between the District Health Office and the District Council. The District Councils provide financial support and operate some rural dispensaries and Maternity and Child Health Centres. In these facilities the District Health Officer is responsible for providing staff (paid by the councils) and for technical supervision. The District Health Officer has an advisory relationship with the council on matters affecting the operation of these facilities. The second exception is the relationship of Matemity and Child Health Centres and Lady Health Visitors to the District Health Officer. The responsibility for technical supervision of these centres and the Matemity and Child Health Programs at Rural Health Centres rest with the Assistant Inspectress at a higher level. The District Health Officer can transfer Lady Health Visitors within the District but otherwise has limited authority.

The impact of these exceptions and their effect on the operation of Integrated Rural Health Complexes is as follows :

a) The operation of District Council financed facilities result in the District Health Officer having responsibility without the appropriate level of authority to carry out this responsibility.

b) In some situations decisions regarding the operation of council facilities could present a conflict in allocating time and other resources of the District Health Office. The question arises as to which facilities are given priority when demands are made by a district council.

c) In the case of Lady Health Visitors who are posted to Rural Health Centres the District Health Officer exercises authority over this position when in fact Medical Officer is responsible for the operation of the centre.

The organization chart for District Health Offices is shown in Figure 4.

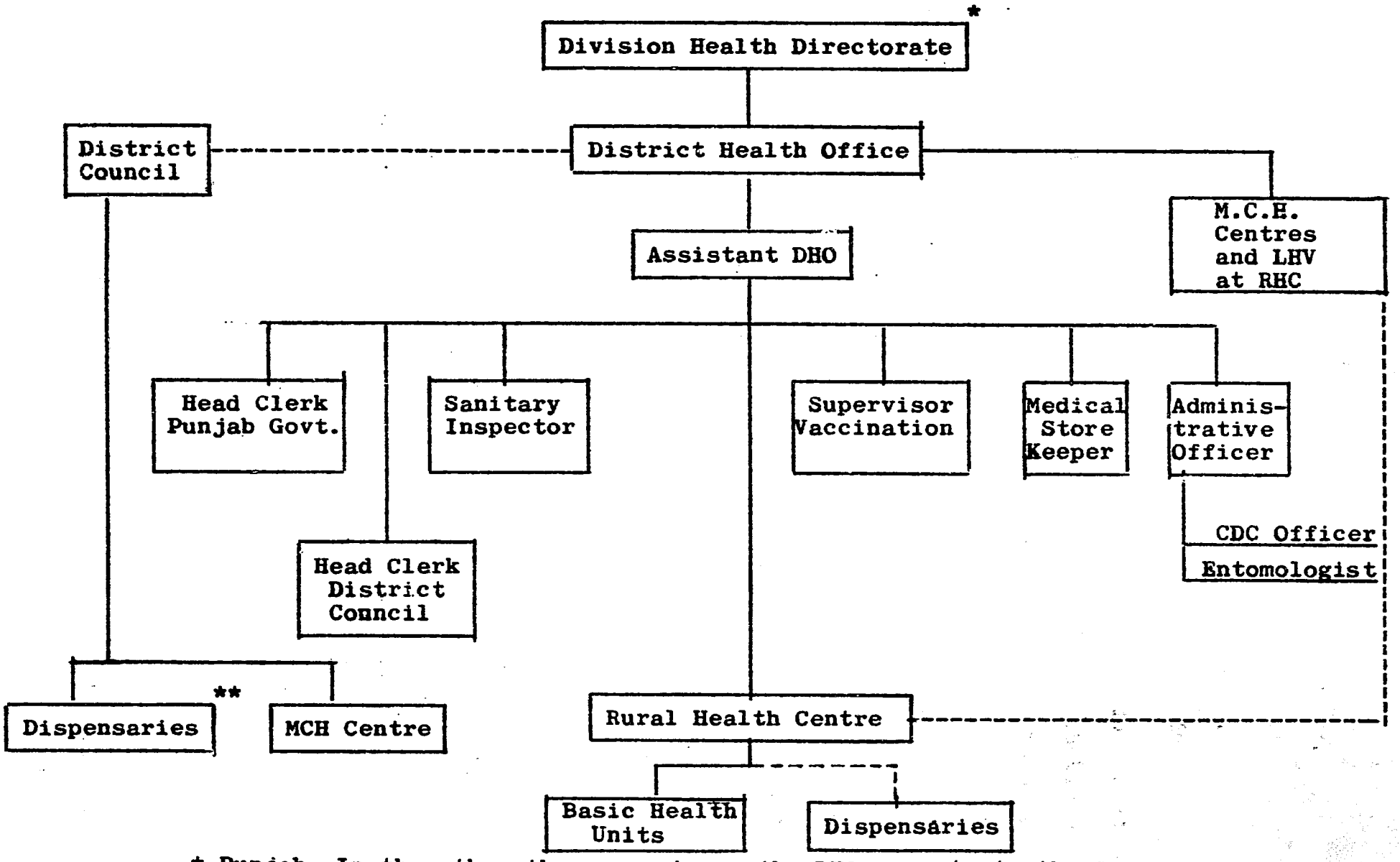
1.3. Organization at the Rural Health Centre Level.

Organization at this level is line and staff with the exception of the organizational relationship between the Medical Officer and the Lady Health Visitor. Lady Health Visitors are appointed by the Deputy Director of the Health Division.

The Medical Officer cannot transfer or discharge a Lady Health Visitor. However, he can recommend punitive action to a higher level. Rural Health Centres have the following approved staff:

a) Medical Officer
b) Woman Medical Officer
c) Lady Health Visitor
d) Dispenser (2)
e) Medical Technician
f) Laboratory Assistant
g) Clerk
h) Rural Health Inspector or Sanitary Patrol
i) Driver (if a vehicle is provided)
j) Midwife
k) Ward Servant
l) Storekeeper

DISTRICT HEALTH OFFICES



* Punjab. In the other three provinces the DHO reports to the Director of Health.
** Facilities operated by District Councils.

FIGURE 4

m) Peon

n) Chowkidar

o) Mali

p) Cook

It was observed that Rural Health Centres were seriously understaffed. The most acute shortage is for women Medical Officers. None of the centres covered by this study had this position filled.

The Medical Officer is appointed by the Secretary of Health and reports to the District Health Officer. However, the District Health Officer cannot discharge, transfer or take punitive action against persons in this position. Most of the District Health Officers were promoted from the position of Medical Officer. The effect of this arrangement is one of responsibility without authority. The organization of a typical Rural Health Centre is shown in Figure 5.

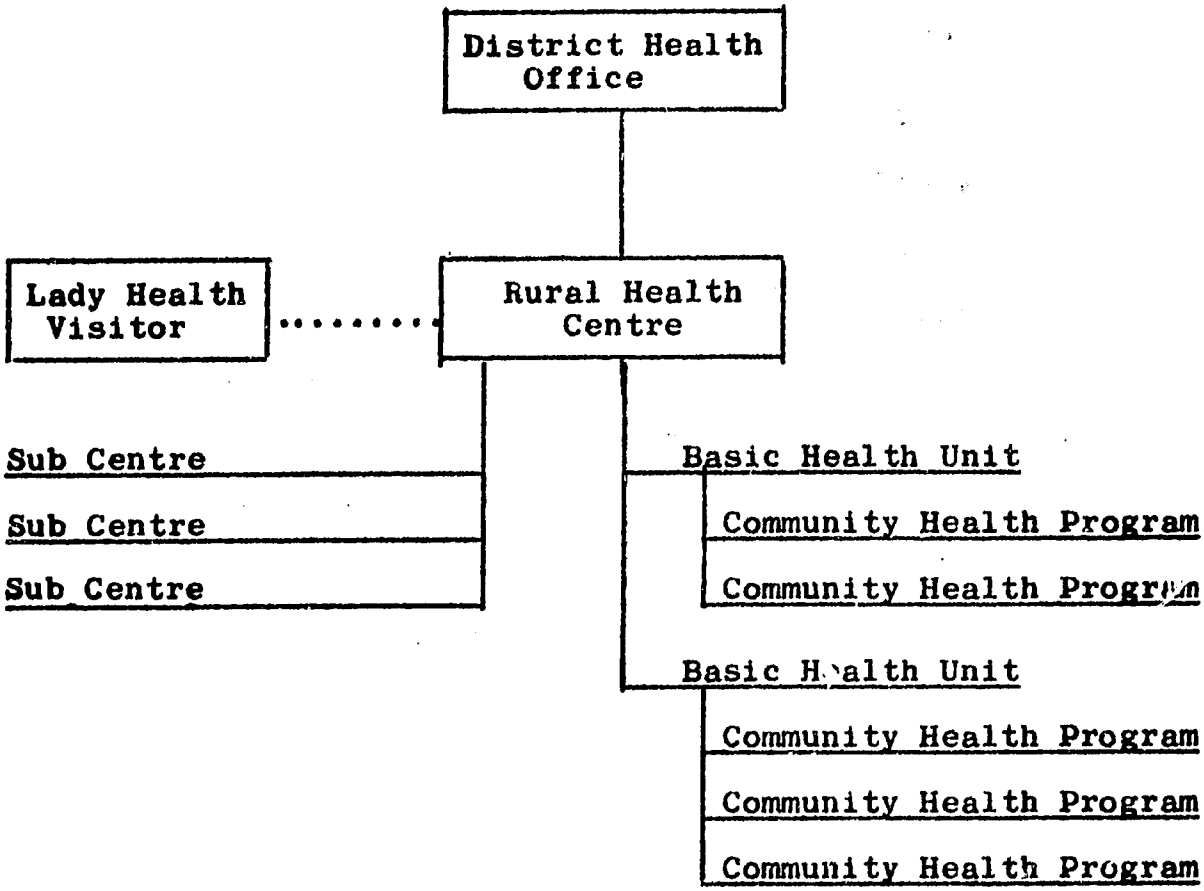
1.4. Supervision

1.4.1. The organization of health services is structured, however, in practice the formal organization is not always followed. Decisions and actions are often carried out through an informal network of personal contacts. Informal organization for the accomplishment of objectives is necessary and to a degree desirable. Unfortunately, the pendulum may have swung too far in favour of the informal way of accomplishing objectives.

1.4.2. The District Health Offices are not adequately staffed to provide close supervision over the facilities under

FIGURE 5

Organization Chart
Rural Health Centres and Other Health
Facilities Within Their Catchment Area



their jurisdiction. Also, vehicles and budget for POL is not adequate.

The tour policy includes provision for three or four surprise visits from the District Health Office and in Punjab by the Division Directorate. In practice this potentially has the following results :

a) The staff usually drop what they are doing when the officer arrives. Visits often occur during the peak hours and patients are required to wait until the officer leaves.

b) Minimum contact with patients or community leaders by the visiting officer, resulting in the loss of an opportunity to build public confidence in the delivery system.

c) The visits are often conducted with a lot of emphasis on social aspects.

d) Verification of the visit is attested by the visiting officer's signature in the outdoor register. This makes it difficult to follow-up on deficiencies that were identified during prior visits because deficiencies are not recorded on a proforma.

1.4.3. In the past Medical Officers were required to visit Subhealth Centres on a regular basis. This practice has fallen by the wayside and there is no formal pattern for supervision of the Basic Health Units and other facilities within the catchment area of Rural Health Centres by Medical Officers. This is due in part to the fact that the Basic Health Units are newly commissioned and the organizational linkage between facilities in an Integrated Rural Health Complex have not been defined.

Also, the Rural Health Centres are not adequately staffed for this purpose. Most of the centres only have one doctor who cannot handle the patient load and take the time necessary to tour.

Even if staff were adequate, transporation is not available. In the study on "Transportation System for Integrated Rural Health Complexes" it was found that only two out of the six Rural Health Centres covered by that study had a vehicle. In both cases the vehicles were over 15 years old and in poor condition.

1.5. Personnel

1.5.1. The Provincial Health Secretaries at a meeting on 17 August 1978 approved a total strength of 21 persons for each Rural Health Centre and five persons for each Basic Health Unit. The existing and approved staff is shown in Table 1.

At many Rural Health Centres the post of Medical Officer is vacant. When this position is vacant coverage is provided by a Medical Officer from a near-by facility. Obviously this is not practical in those areas of Pakistan where the distance between centres is more than 10 to 20 kilometer. When coverage is provided in this fashion the Medical Officers travel to these centres only day per week and spend 3 to 4 hours providing patient services.

The most accute shortage observed was for Women Medical Officers. None of the Rural Health Centres visited by the study team had a Woman Medical Officer. It was

TABLE 1

Existing and Approved Staff RHC's and BHU's

Rural Health Centres

Title	Approved	Existing
Medical Officer	1	1
Woman Medical Officer	1	P/V
Lady Health Visitor	N/A	1
Medical Technicians	4	P/V
Dispenser	1	1
Laboratory Assistant	1	1
Sanitary Patrol	1	1
Midwife	1	1
Ward Servant	2	1
Storekeeper	1	1
Clerk	1	P/V
Peon	1	1
Chowkidar	1	1
Mali	1	1
Cook	1	P/V
Driver	1	1 (at some centre
Domestic Servant(for doctors)	2	2
Total:	21	13

Basic Health Units

Medical Technician	2	P/V
Medical Assistants	N/A	1
Lady Health Visitors	N/A	1
Sanitary Patrol or Dispenser	1	1
Dai/Midwife	1	1
Peon/Chowkidar	1	1
Total:	5	5

N/A. = Not Approved P/V = Post Vacant

learnt that some of the centres had a Woman Medical Officer some 5 to 10 years ago but since then the post have become vacant.

The other posts of support staff i.e. Nurse Dai/Midwife, Rural Health Inspector or Sanitary Patrol, Storekeeper were found to be filled. The clerical post remain vacant in a number of centres.

Almost all the posts of Medical Assistants are filled. According to the decision taken at the Provincial Health Secretaries' meeting, trained Medical Technicians are to be posted at the Rural Health Centres and Basic Health Units. These Medical Technicians would replace the Lady Health Visitors, Medical Assistants and Rural Health Inspectors. Two male and two female Medical Technicians have been approved at each of the Rural Health Centre. While the Basic Health Units are to be manned by one male and one female Medical Technician. Due to the non-availability of trained Medical Technicians the proposed rearrangement has not been finalised. The first batch of the Medical Technicians now undergoing training is expected to be available by the end of 1980. It is expected that they would be posted at the Rural Health Centres and Basic Health Units as soon as they have completed their training.

5.2. Under existing recruitment policy, the staff in NPS 1 through 5 except Midwives are recruited by the District Health Officer. Nurse Dais and staff in NPS 6 through 15 are recruited and appointed by the next level above District Health Officer. NPS 16 is appointed by Director Health Services. Appointments in NPS 17 and above are made by the Secretary of Health.

The requirement of staff in NPS 1 through 5 is communicated to the Employment Exchange of the District by the District Health Officer with a fixed date for interview. A Selection Committee composed of the District Health Officer and two senior members of the staff interview the candidates sent by the Employment Exchange and select the most suitable ones for the posts available.

The procedure for posts of NPS 6 through 15 is identical except that the Regional or Provincial Employment Exchange is used.

The posts of Medical Officers are advertised in local newspapers. The responding doctors are interviewed and selected on an adhoc basis by a Board that includes the Provincial Health Secretary. They are selected for a period of six months with the possibility of further extension till an incumbent is made available by the Public Service Commission. The adhoc appointees are also eligible to appear before the Commission and if found suitable can be appointed on a permanent basis.

Lady Health Visitors, Medical Assistants, Midwives, Sanitary Patrol and Rural Health Inspectors have to pass a diploma or certificate course before they are eligible for these posts. The minimum qualifications for the Lady Health Visitors is matriculation and completion of a two year course at a Public Health Nursing School. Candidates for training are selected on a district basis with each district being allocated the same number of seats in a class. Students are paid a stipend of Rs.300/- per month during their training and are required to serve the Health Department for a period of three years after successful completion of training.

Midwives are also required to be matriculates. They are recruited for 12 months training in organized schools located at District Headquarters Hospitals. They are paid a monthly stipend between Rs.150 - 200

during their training and are required to serve the Health Department for three years after completion of training.

Rural Health Inspectors have been trained at Para-Medical School. They were recruited for training after passing their matriculation (with science) and trained for a period of 18 months. The Rural Health Inspector course was discontinued in 1976. Only previously trained Insepctors are working at the Rural Health Centres.

In Punjab Medical Assistants now working at the Basic Health Units have been trained at the District Headquarters Hospitals in Sahiwal, Sialkot, Sargodha, Bahawalpur, D.G. Khan and Gujrat. They were trained for two years after passing F.Sc. and were required to serve the Health Department for 3 years. It was learnt that only one batch of Medical Assistants was trained in 1975. Thereafter this training scheme was discontinued.

In view of the fact that doctors are not attracted to the rural areas, it was necessary to select and train a paramedical auxiliary force which would be able to supplement the efforts of doctors. In 1974-75 Federal Ministry of Health in collaboration with international agencies conducted a series of meeting called "Country Health Programme Exercice . As a result of these meeting it was recommended that a Primary Health Services Project be initiated for improving medical care to the rural areas. To overcome the shortage of doctors it was recommended that a force of paramedicals be trained.

In 1977 the Primary Health Services Project was set up. Training for Medical Technicians was started throughout the country in 1978-79. Minimum qualification for a Medical Technician trainee is Matric. The training program was designed for fresh entrants. However, almost all the seats in the first classes were awarded to inservice people.

The training is for a duration of 18 months. The training consists of three phases of six months each. The phases are (1) Class room (2) Hospital Rotation(between Services) (3) Field training in a Rural Health Centre and Basic Health Units. These Medical Technicians after completion of their training are to replace paramedical staff like Lady Health Visitors, Medical Assistants and Rural Health Inspectors. When posted they will also be responsible for the training of Community Health Workers who will be selected from the local rural population. The training for both of these paramedical personnel is competency based.

1.5.3. Remuneration

The existing National Pay Scales for various categories of the medical and paramedical staff is shown in Table 2.

1.5.4. Career Structure

In the existing career structure there is no incentive or chain of promotion for the paramedical staff from NPS 1 through 16. They continue to receive their normal annual increment till they reach the limit of the scale they are employed in. Provided that ther Annual Confidential Reports are not adverse, they automatically move to the next highest grade after 16 years service. For example, posting in NPS 3 (Rs.270-7-326/8-390) requires 16 years for promotion to NPS By the time a person in this grade could be promoted to NPS he would be near retirement age.

The promotion of Medical Officers in NPS 17 and above depend on seniority, vacancy, Annual Confidential Reports and depar

TABLE 2

National Pay Scales
Medical and Paramedical Personnel

Title	NPS	Pay (Rs)
Medical Officer	17	1490
Woman Medical Officer	17	1490
Medical Assistant	12	500
Medical Technician	8	455
Rural Health Insepctor	7	460
Lady Health Visitor	6	400
Dispenser	5	330
Laboratory Assistant	5	330
Storekeeper	5	330
Clerk	5	330
Driver	4	320
Dai/Midwife	3	310
Sanitary Patrol	1	315
Ward Servant	1	290
Mali	1	290
Chowkida	1	290
Cook	1	290
Peon	1	290
Sweeper	1	290

Total salary includes :-

Dearness Allowance (DA) - Rs.40 per month upto Rs.1500 per month.

Field Traveling Allowance (FTA) - Lady Health Visitors = Rs.45
Sanitary Patrol = Rs.25
Rural Health Inspector = Rs.85

Non-practicing Allowance(NPA) = Rs.300 (for doctors only)

Five Increments = Rs.250 (for doctors only)

mental recommendations. A Selection Board interviews the candidates for promotion whenever there is a vacancy.

For promotion to District Health Officer, a post graduation course such as DPH (Diploma in Public Health) has been required since 1969. No Medical Officer without a post graduation course is entitled for promotion to District Health Officer.

Medical Technicians are entitled to time-scale promotion depending on good Annual Confidential Reports and recommendation by the Medical Officer or the District Health Officer. As was recommended in Provincial Health Secretaries meeting they will be appointed in NPS 8 after completion of training and can be upgraded to NPS 12 after 5 years of service.

1.5.5. Transfers

Transfers of medical as well as paramedical staff is made by the same authority which appoints them. When transferring paramedical staff consideration is given to where a person belongs. However, staff may be assigned anywhere in their own district. Medical Officers may be transferred any where within the province.

2.0. RECOMMENDATIONS

2.1. Organization at the Provincial Level

Since the scope of this study was limited to the establishment and the day-to-day operation of Integrated Rural Health Complexes, recommendations at the provincial level are limited to the Basic Health Services Cell.

2.1.1. The Basic Health Services Cell is an important link between the Complexes and the Health Directorate. However, this Cell needs to be strengthened and it's role clearly defined. The Cell is organized as a staff function to the Director of Health. This relationship is appropriate but should be expanded to include a working relationship with Deputy Directors at the Division level in Punjab and with District Health Officers and Medical Officers at Integrated Rural Health Complexes in the other provinces.

The relationship of "advise and consult" should be emphasised in the selection of key staff for this cell. The staff should be trained in the technical aspects of the organization and operation of Integrated Rural Health Complexes and have the administrative skills to provide direct assistance to District Health Officers and Medical Officers with the start up of new complexes. The staff should be increased by adding a person with a management analysis background at an appropriate grade. The skills of this person and Project Director of the Cell should

include the following :

a) An indepth understanding of the organization and operation of Integrated Rural Health Complexes.

b) Knowledge of the operating policies and procedure for operating a complex including :

- Health Information System
- Staffing requirements and procedures for filling vacancies.
- Budgeting
- Procurement and control of drugs and supplies
- Transportation policies, vehicle procurement and procedure for getting vehicle maintenance.
- Supervision techniques and the supervision requirements for the three tiers in a complex.
- Organization of Community Health Programmes.

c) First hand knowledge of provincial health policy as it affects the provision of health services to the rural population.

d) Ability to work with officers at all levels and the ability to maintain an "Advise and Consult" role.

e) Skills in training Medical Technicians and a working knowledge of program training schools including the ability to organize new schools.

The professional staff should be supplemented with support staff consisting of two clerical people and a driver. The staff should b free of special assignment or other on-going duties that are not directly related to the organization and operation of Integrated Ru Health Complexes.

The Project Director should be free to organize and plan the activities and tour requirement for himself and other staff of the cell. It is also essential that the cell be provided a vehicle and an adequate allowance for POL and maintenance for touring 60% to 70% of the time.

2. Organization at the Division and District Levels

2.2.1. From the analysis of the organization at the Division level in Punjab and a comparison of the functional responsibility of this office with that of the District Health Office, it is apparent that the administration of Health Services in Punjab is concentrated at the Division level. This is evident by the fact that the division offices are well staffed and have vehicles and an adequate POL budget for performing their field responsibilities.

On the other hand, the District Health Officers are understaffed. The Assistant District Health Officer positions are vacant and the administrative/technical staff is not adequate to provide front line supervision over rural health services in an area the size of a district. The lack of an authorized position for a Statistical Officer seriously hampers the collection of quality health data and the preparation of annual returns.

In addition there is an authority responsibility dilemma at the District level in that Medical Officers can if they wish act independently of the District Health Officer. This is because of the fact that the Dist ict

Health Officer does not have the authority to take punitive action, transfer or discharge people at this level.

2.2.2. The following organizational changes at the Division and District levels are recommended :

a) Give the District Health Officer the authority to transfer within the District or to take punitive action (for cause) against Medical Officers who do not perform in accordance with established policy. Transfers out of the District could be recommended by the District Health Officer or requested by a Medical Officer who wishes to be assigned to another district.

This recommendation will give the District Health Officer control over the assignment of Medical Officers to the Rural Health Centres in his district and will enable him to post them to facilities as a function of patient load. This will also, enable him to control abuses of policy such as unauthorised absences from post, not attending to official duties during established hours, etc.

b) Recognize the importance of the District Health Officer position in relationship to other position in the Health Department. It is recommended that this position be reclassified to NPS 19. Also, the position of Assistant District Health Officer should be reclassified to NPS 18 These changes will make both positions more attractive and will be more consistant with the classification of Medical Officers (NPS 17)

c) Fill the post of Assistant District Health Officer. In addition, senior Medical Technicians or senior Lady Health Visitors should be added to the District Health Office staff. The most senior technicians are competent to assist the District Health Officer with his public health duties and could provide District Health Office liaison with the Medical Technicians at Rural Health Centres and Basic Health Units. Senior Lady Health Visitors in this post could be responsible for supervising Maternal and Child Health Centres. Possible conflict in titles and authority could be avoided by designating these persons as "Assistant to District Health Officer ". This arrangement on a permanent basis would free the District Health Officer and his assistant to concentrate on supervision of the Integrated Rural Health Complexes.

d) Sanction and fill the post of Statistical Officer at the District Health Office. Require that this person visit every health facility in the district at least twice a year to provide instruction and assistance with the collection of health information.

e) Provide at least one reliable vehicle to the DHO and an adequate POL and maintenance allowance for 15 days touring per month.

f) Provide for administrative training for District and Assistant District Health Officers. Training should consist of seminars and short courses on organization, planning, budgeting, supervision, communication, statistics and community relations.

g) Shift the responsibilities for front line management over health facilities entirely to the District Health Offices. This would eliminate touring of health facilities on a regular basis by

officers from the Division Health Directorate. These officers would continue to visit the District Health Offices and would on occasions visit health facilities on a "surprise" basis.

h) Transfer the authority and responsibility for the operation of Maternity and Child Health Centres that are not attached to another health facilities to the District Health Officer.

i) Transfer full authority and responsibility for Maternity and Child Health Programs that are attached to another health facilities to the officer incharge of the facility.

The recommended organization is shown in Figure 6.

2.3. Organization at the District and Rural Health Centre Levels.

2.3.1. The organization relationship between the District Health Office and the health facilities within the district follows several different patterns. Examples include the organizational relationship between the District Health Officer and the officer incharge of facilities financed by District Councils and the organizational relationship between the District Health Officer and Maternal and Child Health Centres that are not attached to another health facility. Also, at the Rural Health Centres the Medical Officer does not have full authority over the Maternal and Child Health Progra operating at the facility.

RECOMMENDED ORGANIZATION
DIVISION/DISTRICT LEVELS

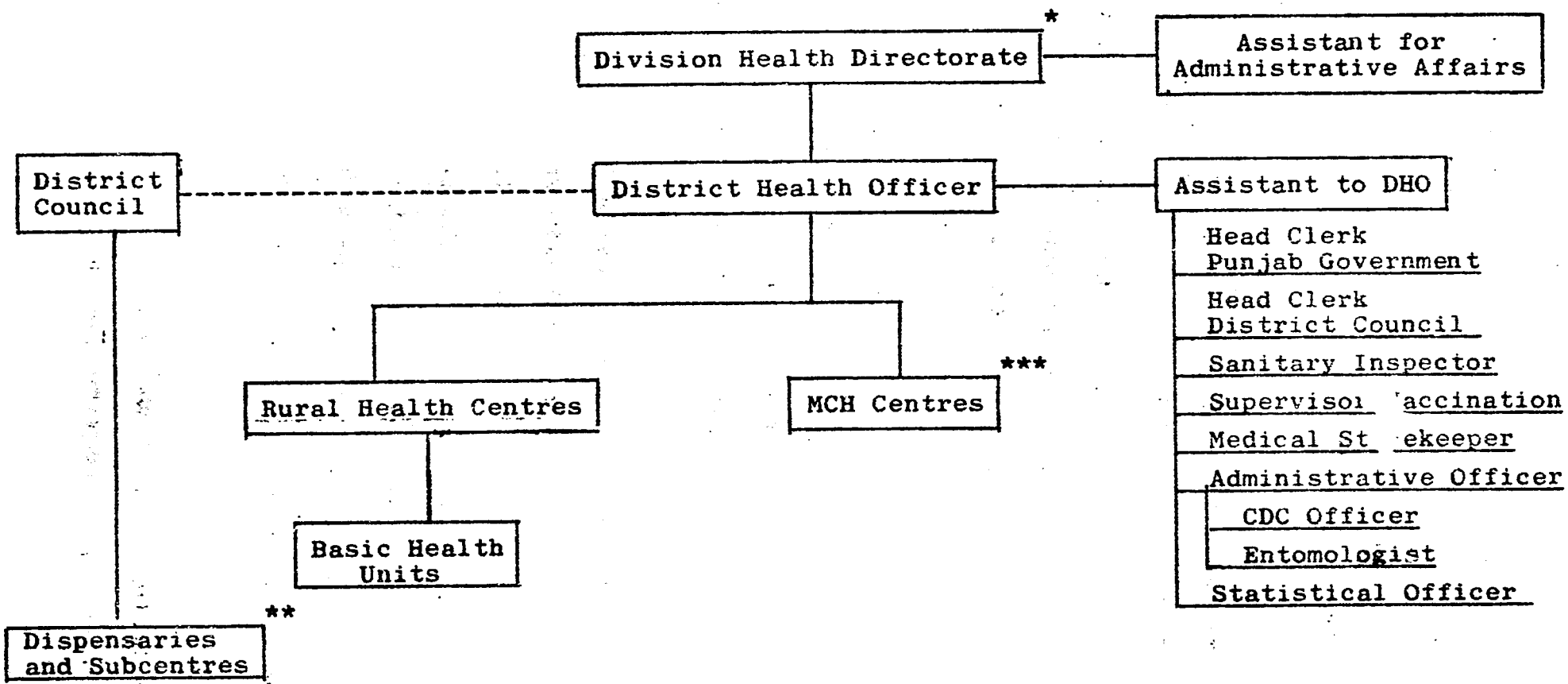


FIGURE 6

In the previous section suggested operational changes were presented that would give the District Health Officer the appropriate authority to meet his responsibility in the administrative of health services in the rural areas of his district.

The following organization changes at the Rural Health Centre level are recommended :

a) Give the Medical Officer full authority over the operation of the centre and all other health facilities that are a part of the Integrated Rural Health Complex.

   Authority should include transfer of staff within the Integrated Rural Health Complex, punitive action against employees who do not abide by policy and to discharge employees (for cause).

b) Give the Medical Officer authority over the Maternal and Child Health Program at the Rural Health Centre and fully integrate this service into the operation of the centre by maintaining a single health information register and dispensing drugs and supplies at a central point.

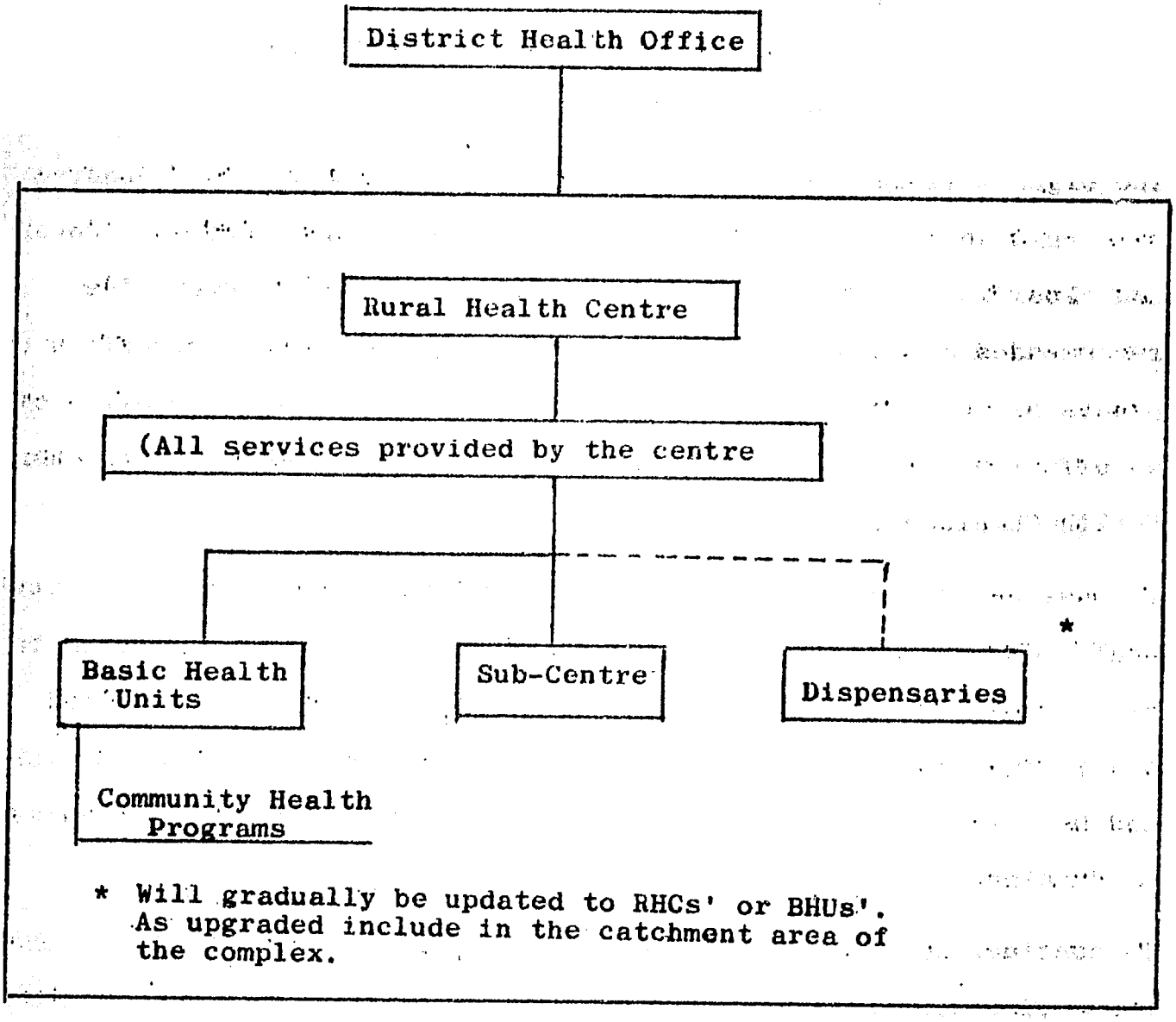
The recommended organization is shown in Figure 7.

2.4. Supervision

Successful implementation and operation of Integrated Rural Health Complexes will require good supervision. The close

FIGURE 7

RECOMMENDED ORGANIZATION
INTEGRATED RURAL HEALTH COMPLEXES



watch over the operation of health facilities will include the accon plishment of organizational objectives which, in turn, will improve the functioning of the units and centres. Good supervision will als strengthen the patient referral and logistical linkages between the Rural Health Centres and Basic Health Units and between Basic Healt Units and Community Health Programs.

The organizational changes recommended in Section 2.3 will require redelegation of powers so as to maintain consistancy between "Powers and "Position" within the formal organizational structure. The recommended organizational changes and corresponding redelegation of powers are considered essential to the successful implementation of an effective scheme for supervising the operation of Integrated Rura Health Complexes.

It must be recognised that at the present time supervision of Distri Health Officers and Rural Health Facilities is limited by the distan ces, travel time, budget for travel, lack of adequate vehicle and staff time for general administration and supervision of the Divisio and District Health Office staff. These limitations were recognised in developing the recommendations.

In considering these recommendations it must be recognised that the scope of responsibility of District Health Offices is much broader than Rural Health Complexes. Because of the broader responsibility at this level the scheme that is finally adopted must be structured so that resources allocated to supervision of the Primary Health Car Delivery System do not interfere with other administrative and super visory responsibility.

2.4.1. In Punjab supervision over District Health Offices should continue to be the responsibility of the Deputy Directors of the Health Divisions. In the other provinces this responsibility rest with the Director of Health. However, the role in supervising health facilities and programs (from these levels) under the jurisdiction of the District Health Officer should be minimized. This role should be limited to occasional surprise visit to facilities. Visits should be limited to facilities that have particular administrative or community relations problems.

Supervisory visits to District Health Offices should be documented on a proforma so that the operation of the district health programs can be compared to establish criterion and for followup on previously identified deficiencies. The proforma shown in Figure 8 is recommended for this purpose. Visits to District Health Offices can be made as frequently as considered necessary. However, a minimum of quarterly visit to each district is recommended. Visits should be sufficient in length to thoroughly review the operation of the office and the health programs in the district. Also, the officer conducting the visit should call on District Council members and attend their meeting when scheduling permits.

2.4.2. Adequate supervision over the Integrated Rural Health Complexes and rural health facilities and programs by the District Health Officer will require that the post of Assistant District Health Officer be filled. Also, a serviceable vehicle will have to be available and the budget for POL increased.

FIGURE 8

RECOMMENDED PROFORMA
PROVINCIAL/DIVISION SUPERVISION VISITS TO DISTRICT HEALTH OFFICE

Date of last visit _____ Date of this visit _____

Division _____ District _____

Visiting Officer _____ Title _____ DHO _____

1. Is District Office fully staffed ☐ YES ☐ NO

2. If No, List Vaccines _____

_____

_____

_____

3. What action has been taken to fill these post _____

_____

4. Condition of building and offices

a) Building in good repair ☐ YES ☐ NO

If no, what improvements are needed

_____

_____

b) Office space adequate ☐ YES ☐ NO

If no, what is needed? _____

_____

c) Offices and working areas neat and orderly

☐ YES ☐ NO

If no, suggestions for improvements.

_____

_____

5. Vehicles available (A) _____ (B) _____

(C) _____ (D) _____ (E) _____

a. Condition

(A) _____

(B) _____

(C) _____

(D) _____

b. For vehicles off the road, if repairable what is needed to get them on the road

(A) _____

(B) _____

(C) _____

(D) _____

6. Budget Review

a) Review budget line items and compare expenditures year to date with budget.

b) Is budget allocations by line item sufficient for the balance of the year ☐ YES ☐ NO

If No, what reappropriations are required?

_____

_____

7. List the important administrative problems and suggest solutions to each problem. _____

_____

_____

_____

8. Attended District Council meeting on (date) _____
If a meeting was not attended list council members visited by name and title _____

_____; _____; _____

9. Health facilities visited by Deputy Director and District Health Officer during DD's visit, name, type and location.

_____; _____;

_____; _____

10. Number of supervisory visits by the DHO to IRHC's since the last visit by the Deputy Director to this district _____

a) List the facilities visited and length of each visit:

_____ _____

_____ _____

_____ _____

_____ _____

_____ _____

_____ _____

b) Discussed with the DHO the visit proforma for each visit

☐ YES ☐ NO

If No, explain _____

_____

11. Rate the overall operation of the District Health Office by placing a check (✓) in the appropriate column :

	Below Average	Average	Above Average
Number of staff	_____	_____	_____
Skills of staff	_____	_____	_____
Vehicles available	_____	_____	_____
Condition of vehicles	_____	_____	_____
Budget utilization	_____	_____	_____
Condition of building	_____	_____	_____
Condition of offices and work space	_____	_____	_____
Visits by DHO to IRHC's and other facilities in District	_____	_____	_____

In addition adding a senior Medical Technician to the staff could relieve the District Health Officer and his assistant of some of the administrative workload. A Lady Health Visitor filling this post could be responsible for liaison with Maternity and Child Health Centres throughout the District. The District Health Officer and his assistant could then provide more direct supervision over the Integrated Rural Health Complexes.

This pattern of supervisison is similar to the pattern of supervision of District Health Offices by the Director of Health or Division Deputy Directors that was recommended in Section 2.4.1. The District Health Officer should concentrate on supervising the complex through the Medical Officer in charge at the Rural Health Centre and occational surprise visits to Basic Health Units.

The Chairman of the Village Health Committee should be invited to be present at the Rural Health Centre on the days that the District Health Office visits. This will enable the District Health Officer to discuss the administration of the delivery system with community representatives and will help build public confidence in the system.

Supervision visits should be sufficient in length to conduct a thorough inspection of the facility, discuss programs individually with key staff members and to discuss the role of the centre with members of the public. Results of these visits should be documented on a proforma so that they can be reviewed by the Director of Health or the Division Deputy Director. The proforma designed for this purpose is shown in Figure 9.

Each Integrated Rural Health Complex should be visited at least monthly. Regular visits should be scheduled in advance and the

FIGURE 9

RECOMMENDED PROFORMA
DISTRICT HEALTH OFFICER SUPERVISION VISIT TO IRHCS'

Date of last visit _____ Date of this visit _____

District _____ IRHC _____

DHO _____ Medical Officer _____

1. Number of facilities and programs in IRHC (other than RHC)

   _____ BHU MCH Centres _____

   _____ Dispensaries Subhealth Centres _____

   _____ Community Health Programs

2. Are facilities and programs properly staffed ☐ YES ☐ NO

3. If No, list vacancies for each facility or program

				Facility/Program	
Position	RHC	BHU-1	BHU-2	(ECT)	(ECT)
Medical Officer	____	____	____	____	____
Lady Doctor	____	____	____	____	____
Medical Tech.	____	____	____	____	____
(ECT)	____	____	____	____	____
(ECT)	____	____	____	____	____

4. Is staff available in the IRHC assigned to the facility where they are needed the most based on patient utilization

   ☐ YES ☐ NO

5. If No, will transferring of some people within the IRHC balance out the workload and improve services to the public

   ☐ YES ☐ NO

6. Are outdoor and indoor registers neat and orderly and upto date. ☐ YES ☐ NO

7. Are summary and abstract registers upto date. ☐ YES ☐ NO

8. Stock of drugs and medical supplies is adequate for :

☐ One week ☐ One month

☐ Three months ☐ Six months

9. Drugs purchased in local market since last visit.

☐ YES Valve Rs. _____ ☐ NO

10. Is stock neatly arranged in godown:

☐ YES ☐ NO

11. Has the useful (shelf) life of any of the drugs expired:

☐ YES ☐ NO

12. If Yes, why have they not been disposed of :

13. Does the RHC have a vehile:

☐ YES ☐ NO

14. If Yes, what type a) _____

b) Is it in good repair _____

c) Is it used for transporting patients _____

d) Is sufficient funds for POL available _____

15. Indoor patient facilities

a) Are furnishing adequate _____

b) Is there a stock of cleanliness and blankets _____

c) In the operating theatre properly equipped for :

- ☐ Major abdominal surgery
- ☐ Only minor surgery
- ☐ Not adequately equipped for surgery

d) What additional equipment is needed _____

_____

_____

_____

16. Clinical Laboratory

a) Properly staff _____

b) Properly equipped_____

c) In equipment in good working order _____

_____

_____

17. Maternity and Child Health Program (LHV):

a) Are registers on medical consultations maintained separately from the RHC Registers _____ If Yes, Why? _____

_____

b) Does the LHV maintain a separate stock of drugs and medical supplies _____

_____

c) Number of visits to villages by LHV since the last inspection _____

18. Supervisory visits to BHUs:

a) Total number of supervisory visits to Basic Health Units since the last inspection _____. By Medical Officer _____. By Lady Doctor _____. By Supervisory Medical Technician _____.

b) Have all BHUs been visited at least once by the Medical Officer and Lady Doctor since the last inspection _____
If No, why not _____

_____

c) Have other staff made supervisory visits to BHUs since the last inspection. If yes, list name of BHU and the title o person making the visit.

Name of BHU	Title of person making visi
_____	_____
_____	_____
_____	_____
_____	_____

19. Other public contacts by the DHO during this visit.

a) If meetings of the Union Council, Village or Local Health Committees attended by DHO during visit to RHC specify _____

20. Was the Chairman of the Community Health Committees present during this visit: ☐ YES ☐ NO

21. If Yes, what topics were discussed and what was the Chairman's attitude towards the Health Delivery System:

Officer-in-Charge notified of the visit. Visits will probably require four to five hours at the facility. Adding travel time, visits to most complexes can be completed in one day. A few of the complexes, in more remote areas will require at least one overnight stay.

2.4.3. Supervision over the Basic Health Units by the Medical Officer, Woman Medical Officer and the Supervisory Medical Technicians should be frequent enough to ensure that the units are operated in accordance with established policy and to provide continuing education for the Medical Technicians. Visits by the Medical Officer should be monthly on an established schedule.

The recommended schedule provides for a visit by a professional staff member of the Rural Health Centre once per week. Also, a female Medical Technician or Lady Doctor will visit each unit at least every other week. Visits should include patient consu tations (especially those visits conducted by the Medical Offic or Lady Doctor). The Chairman of the Village Haalth Committee should be invited to be present at the Basic Health Unit on the days that the Medical Officer visits. This will enable the Medical Officer to discuss the administration of the delivery with people from the "Grass Roots" level and will help build public confidence in the system.

The monthly visit by the Medical Officer should be documented on a proforma. Use of a proforma will make it possible to compare operation of the facility to established criterion and provide documentation for followup on previous identified defic: encies. The proforma shown in Figure 10 is recommended for this purpose.

FIGURE

RECOMMENDED PROFORMA
MEDICAL OFFICER SUPERVISION VISIT TO
BASIC HEALTH UNITS

Date of last visit _____ Date of this visit _____

Medical Officer _____ Supervisory Medical Tech. _____

1. Location of active community health programs _____; _____; _____; _____;

2. Visits by BHU staff to Community Health Programs during the past 4 weeks :

Psition	Location of Program	Location of Program	Location of Program
Male M.T.	_____	_____	_____
Female M.T.	_____	_____	_____
LHV/Dai	_____	_____	_____
Other	_____	_____	_____

3. Is the Basic Health Unit properly staffed _____

4. If No, what post are vacant: _____; _____; _____; _____;

5. Out-door register neat and orderly and upto date

☐ YES ☐ NO

6. Are summary and abstract register upto date ☐ YES ☐ NO

7. Stock of drugs and medical supplies is adequate for:

☐ one week ☐ one month ☐ 3 months ☐ 6 months

8. Is stock neatly arranged in godown ☐ YES ☐ NO

9. Has the useful (shelf) life of any of the drugs e .red:

☐ YES ☐ NO

10. If Yes, why have they not been disposed of? _____

_____

11. What mode of transport does the staff use to travel to "Community Health Programs".

☐ Bicycle ☐ Motorcycle ☐ Hired Tonga ☐ Public Transport

☐ Vehicles :

- Private
- From the RHC
- Belongs to the BHU

12. Is the Unit properly equipped and is the equipment in good working order : ☐ YES ☐ NO

13. If No, equipment

Needed _____

Needs repair _____

Needs replacement _____

14. Maternity and Child Health Program (LHV)

a) Are registers on medical consultations maintained separately from BHU registers _____ if Yes, Why _____

_____

b) Does LHV maintain a separate stock of drugs and medical supplies: _____

c) Number of visits to villages (other that to orgnized Community Health Programs) during the past four week _____

15. Were the Chairman of Community Health Programs available at the BHU during this visit:

☐ YES How many ____ ☐ NO

16. If Yes, what topics were discussed and what was the Chairmans' attitude towards the health delivery system _____

_____

_____

_____

_____

17. Medical Consultants by the Medical Officer during this visit.

a) Total number of consultants _____

b) Out-door _____ c) In-door _____

d) Casualty _____

2.4.4. Regular administrative supervision over the operation of Community Health Programs is to be provided by the Medical Technician from the Basic Health Unit. This supervision is in addition to the evaluation of the technical performance of the Community Health Worker.

Evaluation of technical performance is a key part of the training of the Community Health Workers during the first six months and on an on-going basis. However, administrative supervision is essential to evaluate the operation of the program, identify operational problems and to strengthe community involvement and commitment to the program.

Visits for administrative supervision should be a monthly basis and the Medical Technician from the Basic Health Unit should be accompanied by the Supervisory Medical Technician from the Rural Health Centre periodically. This could be accomplished by scheduling every third or fourth visits on day when the Supervisory Medical Technician is schedule to come to the Basic Health Unit.

Purpose of these visits is to evaluate the organization and management of the program, ensure the availability of a suf cient quantity and quality of drugs and medical supplies, identify and solve logistical problems and to strengthen co unity relations. Results of these visits should be recorde on a proforma for comparison to establish criterion and for followup on previously identified deficiencies. The proform shown in Figure 11 is recommended for this purpose.

FIGURE 11

RECOMMENDED PROFORMA
ADMINISTRATIVE SUPERVISION OF COMMUNITY
HEALTH PROGRAMS

Date of last visit _____ Date of this visit _____

Village _____ BHU Location _____

CHW Incharge _____ MT Name _____

1. CHP staffing :

   —— Male CHW

   —— Female CHW

   —— Other (Specify) _____; _____;

2. Supply of drugs and medical supplies adequate for

   ☐ One week

   ☐ One month

   ☐ Three months

   ☐ Over three months

3. Number of meeting CHW had with Village Health Committee during previous months _____

4. Important items discussed and conclusion _____

   _____

   _____

5. Does the CHW consult patients regularly :

   ☐ In his home

   ☐ In a community building or other office type post.

   ☐ In the patients home

6. Number of patient consultation during the previous month _____

7. Number of preventive/public health activities during the previous month:

   ——— Clean water supply

   ——— Sanitation

   ——— Refuse disposal

   ——— Nutrition

   ——— Other (specify) _____

   _____

8. Does the CHW record activities :

   ——— On a proforma

   ——— In a note book

9. Is utilization data reported to the BHU on a regular basis by month: Yes _____ No _____, If No, Why not.

_____

_____

2.4.5. Summary of the recommended supervision scheme is shown in Figure 12. The figure shows the level supervised, who supervised by, the frequency and the scope of the supervision visit.

2.5. Personnel

It is obvious that working conditions for medical as well as paramedical staff in rural areas are totally different than conditions in urban localities. To begin with their accommodation, social and cultural life is neither pleasant nor attractive. Often they have to deal with an uneducated population who at times are difficult to convince that they should adopt methods to prevent disease. Most of the population still practice outdated and outmoded methods of treatment and cannot be easily induced to change their traditional habits. It is therefore necessary that the staff at various centres and units have to be executive, persuasive, and perservering, in addition to being efficient at their profession. Naturally the expectation of the staff for their extra effort by way of remuneration and facilities cannot be ignored.

2.5.1. Filling Vacancies

The sanction posts for Medical Officers, Woman Medical Officers together with the paramedical staff at each Rural Health Centre as well as Basic Health Unit should be filled. It will improve and streamline the supervision work and strengthen logistics and the referral

- Presence of the required number of personnel at each level will create a feeling of security among the

SUMMARY OF RECOMMENDED SCHEME FOR SUPERVISION

Level being Supervised	Supervision Provided By	Frequency	Scope
1. DHO/District Health Office	Director of Health or Deputy Director Health Division	Quarterly*	- Performance of DHO; operation of District Health Office; contact with the community at district level.
2. Medical Officer Incharge at RHC	District Health Officer	Monthly*	- Performance of MO, operation of RHC; contact at "Grass Root" level.
3. Medical Technician at BHU	Medical Officer Incharge from RHC	Monthly*	- Performance of M.T.; operation of BHU; continuing education for MT, patient consultation; contact with Chairman of village health committee
4. Lady Medical Technician at BHU	Lady Doctor from RHC	Monthly	- Performance of Lady M.T.; patient consultation; evaluation of MCH Program.
5. Medical Technician at BHU	Supervisory M.T. from RHC	Weekly **	- Patient consultation; operation of BHU; continuing education.
6. Community Health Worker at CHP	Male and/or Female M.T. from BHU	Monthly	- Administrative Supervision of Community Health Program.

* Proforma required

** Except those weeks when the Medical Officer or Lady Doctor visited the BHU. Proforma not required.

FIGURE 12

rural population and help build public confidence among the staff. The workload of individual staff members will be reduced. The Medical Officers will feel a sense of satisfaction by having the required staff and they will not be handicaped for lack of assistance. The presence of a full staff would enable them to devote more time to patients which in turn contribute to the more efficient working of the Integrated Rural Health Complex.

The appointment of a Lady Doctor is essential to the provision of medical services to women. Also, it will make possible the supervision of health services provided to women at the Basic Health Units. With a Lady Doctor on the staff the Medical Officer will be able to make the required visits to Basic Health Units while the Lady Doctor covers the Rural Health Centre.

The increase in the number of staff would also provide a better social environment and the existing feeling of isolation by the staff would be overcome to a great extent.

2.5.2. Additional Remunerations

The main reasons for lack of interest in serving in rural areas is the shortfall in earnings when compared to opportunities in urban areas, lack of education facilities for children and recreational activities. Also, the working and living conditions often result in individual personal hardship.

It is therefore recommended that the Non-Practicing Allowance for doctors posted in rural areas be raised from Rs.300 to 500. A private servant as was proposed in the 17th August 1978 review meeting of Provincial Health Secretaries should be

provided for doctors. All the categories of staff including doctors should be given a "Rural Allowance" at a rate of 40% to 50% of base pay. In addition salaries of doctors serving in the rural areas should be higher than their counterparts in the urban areas. This can be accomplished by allowing a minimum of two additional increments in the same scale.

Because the students now undergoing training are drawn mostly from inservice people working in NPS 6 or 8 they find this training does not provide an opportunity for promotion to a higher grade. Therefore Medical Technicians with prior healt experience should be appointed in Grade 11. The fresh candidates who have completed the Medical Technician training should be appointed in Grade 10.

The following facilities for all categories of the staff according to their respective authorization are recommended :

a) Free accommodation

b) Education allowance for the children studying in the city schools and colleges at the rate of Rs.50 per month per child in school and Rs.100 per month per child for college.

c) Provide hostel reservation and subsidy for children attending college.

The current and recommended salary (in rupees) for staff serving in rural areas is shown in Table 3.

2.5.3. Career Structure

The opportunities for promotion are virtually non-existing under the present system. It is not practical for an incumbent in NPS 1 to be promoted to NPS 7 or 8, but it is quite

CURRENT AND RECOMMENDED SALARY

Title	Present				Recommended			
	NPS	Base	Allowances	Total	NPS	Base	Allowances	Total
Medical Officer	17	900	590	1490	17	900	1250*	2150
Woman Medical Officer	17	900	590	1490	17	900	1250*	2150
Medical Technician	8	370	85	455	10	410	249	659
Dispenser	5	290	40	330	5	290	156	446
Laboratory Assistant	5	290	40	330	5	290	156	446
Storekeeper	5	290	40	330	5	290	156	446
Clerk	5	290	40	330	5	290	156	446
Driver	4	280	40	320	4	280	40	320
Nurse/Dai/Midwife	3	270	40	310	3	270	148	418
Sanitary Patrol	1	250	65	315	1	250	165	415
Ward Servant	1	250	40	290	1	250	140	390
Mali	1	250	40	290	1	250	140	390
Chowkidar	1	250	40	290	1	250	140	390
Peon	1	250	40	290	1	250	140	390
Cook	1	250	40	290	1	250	140	390

* Includes two additicnal increments total of 7; 40% (of base) Rural Allowance; Rs.500 Non-Practice Allowance; and Rs.40 Dearness Allowance.

possible to have his remuneration raised on a time scale basis. It is therefore recommended that each person upto grade 16 be allowed a time-scale upgradation on the basis of good Annual Confidential Reports per the following scheme

a) Staff in grades 1-5 be considered for the next grade after three years in a particular grade.

b) Staff in grades 6-8 be considered for the next grade after five years in a particular grade.

c) Staff in grades 9-16 be considered for the next grade after seven years in a particular grade.

If a person is not promoted after the recommended time in grade he should be reconsidered each year. This will create a sense of competition among the staff to work harder and they would find satisfaction in getting their efforts properl compensated.

The Medical Officer should be involved in the selection, pron tion, transfer and dismissals of personnel for the Integratec Rural Health Complex. This is important as he is better acqu ainted with operational problems and is directly responsible for the working of Rural Health Centres and Basic Health Unit This authority over staff assigned to the District Health Office should be vested in the District Health Officer who should also have the authority to transfer Medical Officers wi in the district.

2.5.4. Medical Technician Trainees

The purpose of education and training of Medical Technicians is to provide additional paramedical staff to meet the increa sed demand created by the establishment of new Rural Health

Centres and Basic Health Units. Therefore, as a matter of policy, in the future, only fresh candidates should be recruited and trained instead of inservice people. This is important because it will be easier and more practicable to develop and implement a new or modified system through new trainees. Also, training inservice people aggravates the already short personnel situation in rural areas. The shortage of para medical staff by skill level in each of the districts covered by this study is given in Table 4. If it is necessary for inservice people to receive further training, refresher courses and specialized courses should be conducted separately for them. A qualifying pretest of their professional skill and field training should be used to determine the duration of such training. The number of inservice trainees should however be based on future requirement. The inservice and fresh candidates should not be mixed to avoid problems, such as :

a) The feeling among the inservice people that the Medical Technician course does little to increase their skill or knowledge. This would obviously result in the lack of interest in their training and in turn, would reflect an unhealthy influence on the fresh candidates.

b) Methods of teaching and training should also differ for the fresh and inservice candidates. Greater attention and more material should be provided for the fresh candidates because they have had no previous experience in the health field.

c) Mixing of inservice personnel and fresh candidates in the same class created not only misunder-

TABLE 4

SANCTIONED/AVAILABLE POSTS
AS OF JANUARY 1, 1980.

District	LHV S/A	MA S/A	S.I S/A	RHI S/A	Disp. S/A	Dress S/A
Gujrat	36/31	17/17	17/5	23/19	39/33	10/9
Ghang	35/25	18/16	19/19	34/34	43/49	16/16
D.G. Khan	23/7	12/12	12/1	31/10	42/42	14/14
Bahawalpur	32/23	15/15	15/7	22/17	37/37	10/10
Sheikhupura	19/16	10/10	10/5	28/28	23/23	12/12
Sialkot	31/20	17/13	17/9	23/22	46/42	10/9

c) (Continued)

standing among the trainees but also affects their behaviour and attitude towards the program.

VIII OPERATIONAL PLANNING

1.0. OBSERVATIONS AND FINDINGS

1.1. The Five Year Plan

The Islamic Republic of Pakistan is currently (1980) in the third year of their fifth, five year plan. This plan for the health sector sets the following objectives and targets:

a) To make available modern health coverage within 3-6 Kms distance of the entire population compared to the present 50%.

b) Reduce the crude death rate from 14.0 per thousand to about 10.2 per thousand.

c) Reduce the infant mortality rate from 105 per thousand live births to 79 per thousand.

d) Increase life expectancy from 54 to 60 years for men and from 53 to 59 for women.

e) Construct an additional 5,000 Basic Health Units and Rural Health Centres, reducing the population per health unit from 13,500 to 7,660 by 1982-1983.

f) Construct new Hospitals and improve existing facilities in order to provide 15,000 new hospital beds.

g) Reduce the incidence of malaria and other communicable diseases through special programs for vulnerable groups, especially pre-school children.

The principal elements of the Strategy of the Five Year Plan are as follows:

a) There will be a substantial shift from the present

doctor oriented system for primary health services to a three-tier system consisting of Doctors, Medical Technicians and other auxiliary staff.

b) Better balance is to be achieved between facilities in urban areas and facilities in rural areas.

c) There will be a shift in emphasis from curative to preventive health.

d) While there will be an increase in the output of paramedical and auxiliary staff, the expansion undertaken in higher medical education would be consolidated.

The current Five Year Plan gives a good indication as to wh the health care emphasis is being placed. However, many of th targets are not in line with Pakistan's national resources. Th together with a plicy of "Free Health Care" will require more emphasis on the efficient utilization of available resources.

1.2. Planning at the Division, District, Rural Health Centre and Basic Health Unit Level.

The Five Year Plan is the primary document used to provide gui ance to health officials in the year to year provision of heal services. Unfortunately, the plan is not revised and updated a regular basis. Updating is considered essential at least an ally to reflect accomplishments during the previous year a make possible the reallocation of resources so as to achieve t most important elements of the plan.

Through interviews information and data was collected and analyzed on the spot. It became apparent through this "on the spot" analysis that planning at the division level is done on an adhoc basis. Planning is done through regular meetings of the Deputy Directors of the Divisions with the Provincial Directors of Health. These meetings are generally limited to discussion on existing problems and how to solve them, within the context of the Health Department and Division administrations.

The Five Year Plan or the planning process is not usually discussed at these meetings. Meetings and informal contacts also take place with the Planning and Development Deparment, when required for the approval of special projects.

At all levels below Division, planning is either very informal or lacking altogether, being substituted by the conclusions of discussions taking place at various "Committee Meetings" or by "on the spot" decisions. Deputy Directors are members of a Divisional Coordinating Committee, District Health Officers are members of the District Council and Medical Officers are members of the Markaz Council. These committees and councils normally meet once a month to discuss various problems and activities regarding health in their respective areas. Specific plans are usually discussed when a supervisor is visiting offices or facilities under his jurisdiction. It was observed that all health officials as welll as Local Government officials and perhaps even community leaders should be involved in the planning process. If there were a degree of Local Government and community participation the planning and implementation of the health program would be much easier.

1.3. Definition of Planning.

Planning is the development and setting of goals and objectiv
based on established standards. This requires the following s

a) Objective of the delivery system

- Health cover (population vs. services)
- Preventive vs. curative
- Reduction in morbidity and mortality
- Facilities and personnel

b) Detail plan to achieve the overall objecti

- Training of personnel
- Construction of facilities
- Logistical support
- Organization and management of the delivery system

c) Financial requirements

- Capital investment
- Recurring expenses
- Sources of funds

d) Time table

- Step by step plan coordinated with funding

1.4. Why Planning

Without planning there is an inherent risk of costly, incorre
decisions that will result in not attaining predtermined goal
and objectives. To reduce this risk management needs to coll
organize and analyze important elements of information than c

be used in the decision making process. This is essential in improving the existing health care delivery system. However, it must be kept in mind that irrespective of how well the plan is constructed, planning is only as good as its implementation. Planning set the future course for the health care delivery system.

1.5. Long Range Planning and Operational Planning.

Long rang planning normally covers a period of 5 years or more or in some cases there could be a specific benchmark year like "Health for All By Year 2000".

Operational planning normally covers the planned day to day activities for a shorter period, usually one year. The operational planning normally coincides with the financial year. The operational plan is usually formulated within the parameters of the Five Year Plan and supports the broader objectives of the Five Year Plan.

2.0. RECOMMENDATIONS

Many health workers are familiar with the procedures and steps used in planning. At one time or another every health professional has used these methods in their work. However, the sequence of these "steps" in formalised planning may be unfamiliar. The result of each step is a well defined output and forms a basis of the next step.

As seen from the observations and findings formalised planning is taking place at the Federal and Provincial level and the lower levels (Division level and below) is mainly implementing the planning steps emanating from above.

2.1. Steps in Operational Planning

It is recommended that the following steps be included for all levels of the health organization in order to have a comprehensive national health planning :

a) Analyze the existing situation using available data and information.

b) Identify and set health priorities.

c) Set specific goals and targets.

d) Review obstacles and limitations.

e) Plan activities and approaches.

f) Write a yearly plan.

2.1.1. Collection and Analysis of Information and Data - Before planning a programme District Health Officers already have ideas about the situation and problems they want to tackle. The problems should be expressed in a meaningful, clear way. This can be done after the collection of data and information.

Information which should be already available, but may need analysis is :

a) General information on the District and its communities including

1. Physical characteristics
2. Demographic characteristics
3. Economic structure
4. Housing
5. Cultural characteristics
6. Education and welfare

b) Information about health, disease and illnesses.

c) Information about resources. A resource is anything that can be used to carry out activities to achieve a goal. When choosing a course of action and plan, all types of resources must be reviewed systematically, one by one.

The main types of resources are

1. People trained and skilled in health care on a community basis or within the Local Government infrastructure.
2. Facilities such as Basic Health Unit; Dispensaries; Sub-Health Centres; Rural Health Centres; Tehsil Hospitals.
3. Equipment, materials and transport.
4. Books and manuals, records and reports, community studies and surveys.
5. Climate, public opinion, technical resources (like electricity).
6. Availability of funds both government and private.

d) Information about health behaviour like what do people do and to whom do they resort when they need help; how often and with how much benefit do people resort to the services of traditional health practitioners.

e) Information related to health obtained from other sectors such as eduction or agriculture.

Much of this information is available from regular reports and records which should be available at the district level. Other types of information can be obtained from the community. This type of information is most useful for planning at the District, Markaz and Village level and is especially important when planning health programmes. Much can be learned from different groups such as community leaders, teachers, traditional healers and women groups. These are resource people who often know a community's needs and can identify problems that may not be apparent to health officials.

2.2. Identifying and Setting Health Prioirities.

From the information collected, a general picture of the health situation in the district will emerge. The problems should be categorized into the following groups:

a) Diseases or health problems such as :

1. Gastro-intestinal diseases
2. Chest diseases (T.B. inclusive)
3. Malaria
4. Malnutrition
5. Complication of pregnancy and delivery etc.

b) Health service problems such as:

1. Insufficient drugs
2. Insufficient staff
3. Lack of transport, etc.

c) Other problems affecting health such as:

1. Lack of education
2. Lack of sanitation
3. Permanent drought conditions
4. Inadequate water supply, etc.

After the list has been developed the District Health Officer, Assistant District Health Officer and Medical Officer must then define each problem carefully. While defining the problem they must look for the cause, taking care not to confuse cause and effect. They must diagnose not treat symptoms.

The District Health Officer is always faced with more than one problem at a time. He cannot possibly solve all problems at once. So problems have to be studied and the most important problem given priority.

To set and select health priorities one has to establish criteria which become a pre-established standard by which District Health Officer can measure progress. The following list gives a set of criteria for the district level :

a) Is the health problem national or only regional (Malaria etc.)

b) Is the disease seasonal

c) Does the disease affect only children or all age groups

d) Does the disease cause worrying in the community

e) Impact of the disease on morbidity and mortality

f) Is it a problem of the health sector or it is a problem of another sector (Agriculture etc)

g) Is there a standard national policy for diagnosis and treatment (e.g. tuberculosis)

After the priority problems have been selected the following steps should be taken:

a) Review all the facts

b) Make a list of the most important problems

c) Define the problems and their factors clearly

d) List available resources

d) Write down the main ideas to deal with each problem

2.3. Setting Goals and Targets.

The District Health Officer, in consultation with Medical Officers in the District and with the District Council selects the top priority problems bearing in mind the resources available(money, people, equipment drugs and other materials). The next step is to develop a specific plan to decide how to solve each problem

In order to do this goals have to be set. Without goals it is difficult or impossible to reduce or control problems. The goals have to be relevant, feasible and measurable. Goals are normally time limited, ie. a specified number of weeks, months, years, ect. Goals are important for two reasons :

a) A clear goal is essential to a definite plan.

b) When there is no goal for action the result cannot be evaluated.

In order to achieve a goal there is often need for operational targets. Many targets must be met to achieve a reduction in mortality rates. For example, a goal to reduce under fives mortality by 2% in the next five years would require the following operational targets:

a) Immunize all children from 0-3 years with diphtheria, pertussis and tetanus (DPT).

b) Reduce number of cases of malnutrition in children under three years by 50%.

c) 75% of women in child birth to be attended by trained personnel (Lady Health Visitor).

There are four important things to be remembered when setting goals :

a) Is it relevant - A goal is relevant if it either fits the general policy or helps to solve a specific problem.

b) Is it feasible - A goal is feasible when it is possible to achieve it. That means the resources are available and obstacles can be overcome.

c) Is it observable - A goal is observable when the result can be clearly seen or known.

d) Is it measurable - A goal is measurable when the result can be stated in quantitative terms.

Operational targets are stated in quantitative terms but this alone cannot solve problems. One thing to be concerned with is the quality of the goal or target. For example, observing Medical Technicians performing specific tasks following a period of training to assess quality and quantity. Quantity could be the number of Medical Technicians trained within the period of time or how many times they have given an injection. Quality concerns the way task are performed. For example, in giving an injection different aspects such as attitude to the patient, sterilization procedure, skin care and the technique of injection would be assessed.

At the middle level of the health system the goals will be expressed normally as operational targets based on the goals set by the Ministry of Health at the National and Provincial level. It is recommended

that it be a responsibility of the District Health Officer to write down the main problems in consultation with Medical Officers and Medical Technicians and other paramedical staff. Also, it is important to consult the community about problems. The community will often point out things which the health workers are not aware of.

After the main problems have been written down the next step is to consider the underlying causes of problems. After that the goals and the targets should be developed. The problem analysis proforma shown in Figure 13 can be used for this purpose.

FIGURE 13

PROBLEM ANALYSIS PROFORMA

Problem	Underlying Problems	Goals, Targets
Mortality due to measles in a given area	- Lack of vaccine - Malnutrition - Lack of Medical care. - Delay in seeking help.	1. Immunize 50% of children under 3 years in area at risk during years prior to epidemics, or during the year. 2. Develop a programme of nutritional education based on local needs. 3. Hold weekly demonstrations in villages with groups of 20 women in each village.

After writing the goals, apply the previously mentioned criteria to determine if the goals and targets are relevant, feasible, observable and

measurable. The most important of these criterias is feasibility. A lot of time can be wasted in setting goals and targets that are not feasible. For example, if the goal is to "extend health care to the total population of a district" this might not seem feasible if the District Health Officer is designing activities based on the existing pattern of the health care. But if the resources are reviewed and the system is modified or changed, the goal could become a feasible one.

At the district level the health workers might begin by teaching families to provide care to its members, then increase and improve the care with planned expansion until coverage is complete.

2.4. Reviewing Obstacles and Limitations

After the goals and targets have been set, the following questions have to be answered:

a) Are there any reasons why these goals cannot be obtained.

b) Are there any obstacles that will prevent the achievement of goals and targets.

The simplest method is to list the goals and obstacles, the limitations for each one and group them under the following three headings:

a) Obstacles where a solution has been found

b) Obstacles that can be modified or reduced

c) Obstacles that cannot be removed

The analysis of obstacles proforma shown in Figure 14 can be used for this purpose.

FIGURE 14

ANALYSIS OF OBSTACLES
PROFORMA

Goal	Obstacle	Analysis		Cannot be
		Removed	Modified	
1. To provide trained, personnel for all child birth by 1983	Shortage of Lady Health Visitors	Train and supervise traditional birth attendants.		
2. Build 100 Rural Health Centres	Insufficient money and material		Build 50 Rural Health Centres which are most needed	
3. To improve quality of care during child birth	No Lady Health Visitors Available			Revise the goal.

There are two types of obstacles :

a) Absence of resources

1. People - People are not interest or are not trained or skilled.
2. Equipment - It is not available or cannot be bought.
3. Money - It is in short supply.
4. Information - Is hard to find, there are no books or records.
5. Time - No one has time to start the plan.

b) Environmental Obstacles

1. Geographical obstacles - Mountains, seas, lakes may present obstacles to delivering adequate health service in some areas.

2. Climate - Weather will influence which types of buildings to build, types of transport etc.

3. Technical - For example do not provide any electrical device to a Rural Health Centre which does not have electricity.

4. Social and Cultural - These are often the most serious obstacles. There may be customs and taboos that operate against the plan.

2.5. Planning Activities

This part of planning deals with alternative approaches which can achieve the desired results. After the targets and goals have been set the District Health Officer in cooperation with others must now plan how to achieve the predetermined goals and targets.

On the basis of these goals and targets alternative approaches should be developed. For each problem/programme at least three solutions and approaches should be developed. To assist in deciding on a strategy, Figure 15 shows examples of different alternatives including what resources are needed and what resources are available.

While choosing strategies "what is to be done" must be balanced against "what is available to do it", because available resources should be used to maximum potential. Reviewing resources

ANALYSIS OF ALTERNATIVES

Type of Resources	Resources Needed			Resources Available		
	Alternative 1	Alternative 2	Alternative 3	Alternative 1	Alternative 2	Alternative 3
1. People	Training	-	-	Yes	-	-
2. Equipment/ Facilities	-	Clinic building	Heavy-duty vehicle	Yes	No	No
3. Educational situation	Modles and books	-	-	Yes	-	-
4. Environment	-	-	-	Positive	-	-
5. Money	Rs.10000.00 + training cost	Rs.10000.00 + building may be donated	Rs.10000.00 + cost of vehicle + POL	No	May be donated	No
6. Time	3 days/ month + training	1 day/ month	1 day/ month	Limited training	Yes	Yes
7. Community	People	Transport Time	-	Yes	No transport limited time	-

FIGURE 15

include the community's own resources like people, houses where health activities could be carried out, materials, transport, etc. Also, included are environmental resources such as climate and land, time and community organizations.

The District Council, the Markaz Council and the Union Council should take part in this planning. The plan must be drawn up within the limits of available resources even if some activities must be modified. Priorities must be set to determine how resources can be used to get the maximum benefits for the whole population of the area.

At the district level the District Health Officer and Medical Officers will have relatively little control over the amount of resources that are available, but they will have considerable influence in deciding how to use these resources. This is the key to operational planning. The District Health Officer will have to set programme priorities so that the activities undertaken will provide the greatest benefit to the health status of the population for the available resources.

After the decision has been made as to which strategy to follow the next question is "how will this strategy be planned". In order to do this the following questions should be answered:

a) Why are we doing this
b) What shall we do
c) How will it be done (Procedures & Methods)
d) Who will do it
e) What things are needed (equipment, material)
f) Where shall we do it (place)
g) When shall we do it (time)

For example, if an operational target is to examine every woman at least once between the fifth and sixth month of pregnancy:

Why - because complications in pregnancy are a priority problem.

What shall we do - Find ways to contact women. Identify women at risk, train village women, organize referral.

How shall we do it - Lady Health Visitor to train Community Health Workers to recognize the symptoms. Encourage village women to help contact others.

Who will carry out these activities - Lady Health Visitors, Community Health Workers, village women, trained dais, Medical Officers and District Health Officers.

Which things do we need - Equipment for Lady Health Visitor, transport and teaching aids, records.

Where shall we work - Referred patients examined at Basic Health Units or Rural Health Centres.

When - Timetable to be prepared for training sessions and supervisory visits.

2.6. Writing the Operational Plan

As seen in the observations and findings the plans were informal (not written down) at the district level and below. It is very important to prepare a written plan. It helps to make them clear it reveals omissions and it communicate the ideas to other people

It is recommended that the following outline be used at the district level for each problem or programme:

a) Brief background giving reasons for making a plan. What changes are suggested and why?

b) Goals and operational targets.

c) Strategy with detailed activities.

d) Resources detailed under the following headings:

People	-	How many are needed. What skills or training do they need. How will they be used and allocated.
Equipment	-	List equipment available, any new or reallocation equipment and equipment to be ordered.
Money	-	How much money is available and how will it be used. How much of the plan can be implemented with present financial resources.
Informattion	-	System proposed to collect information including how will it be used.

e) Persons reaponsible for implementation and achievement of the plan, and people responsible for specific targets.

f) There must be definite targets and a time schedule must be drawn up. Use of a gantt chart will explain graphically in which order the activities will take place, when

the activities will begin and when they are expected to be completed.

The proforma shown in Figure 16 is recommended for this purpose. A sample gantt chart is shown in Figure 17.

2.7. Monthly Planning for Health Officials

After the annual plan has been approved the monthly plan by individuals should be developed based on the annual plan of work.

2.7.1. Monthly "things to do list" - A list should be developed by each District Health Officer, Medical Officer, Medical Technician, Lady Health Visitor and other paramedical staff. The "things to do list" illustrated in Figure 18 will help each individual in directing the work in the most effective way to reach the programme objectives and targets month-by-month. It will help keep on target and will be valuable in arranging work in the order of priori

The "things to do list" should always be kept close at hand and should be referred to as often as possible. It should be used as a guide for planning daily activities. In the beginning of each month the "things to do list" should be completed and reviewed with the Officer-in-Charge and compared with the list of fellow workers who are working on the same programme. At the end of the month the list should be reviewed again and the end of the month status column completed. The things to do list should be reviewed at weekly or biweekly staff meetings and added to or revised.

FIGURE 16

ANNUAL PLAN OF WORK

Year _____ District _____

Programme _____ _____

Background Information

Goal	Status	
	Beginning of the year	End of the year

ANNUAL PLAN OF WORK
(Back of Proforma)

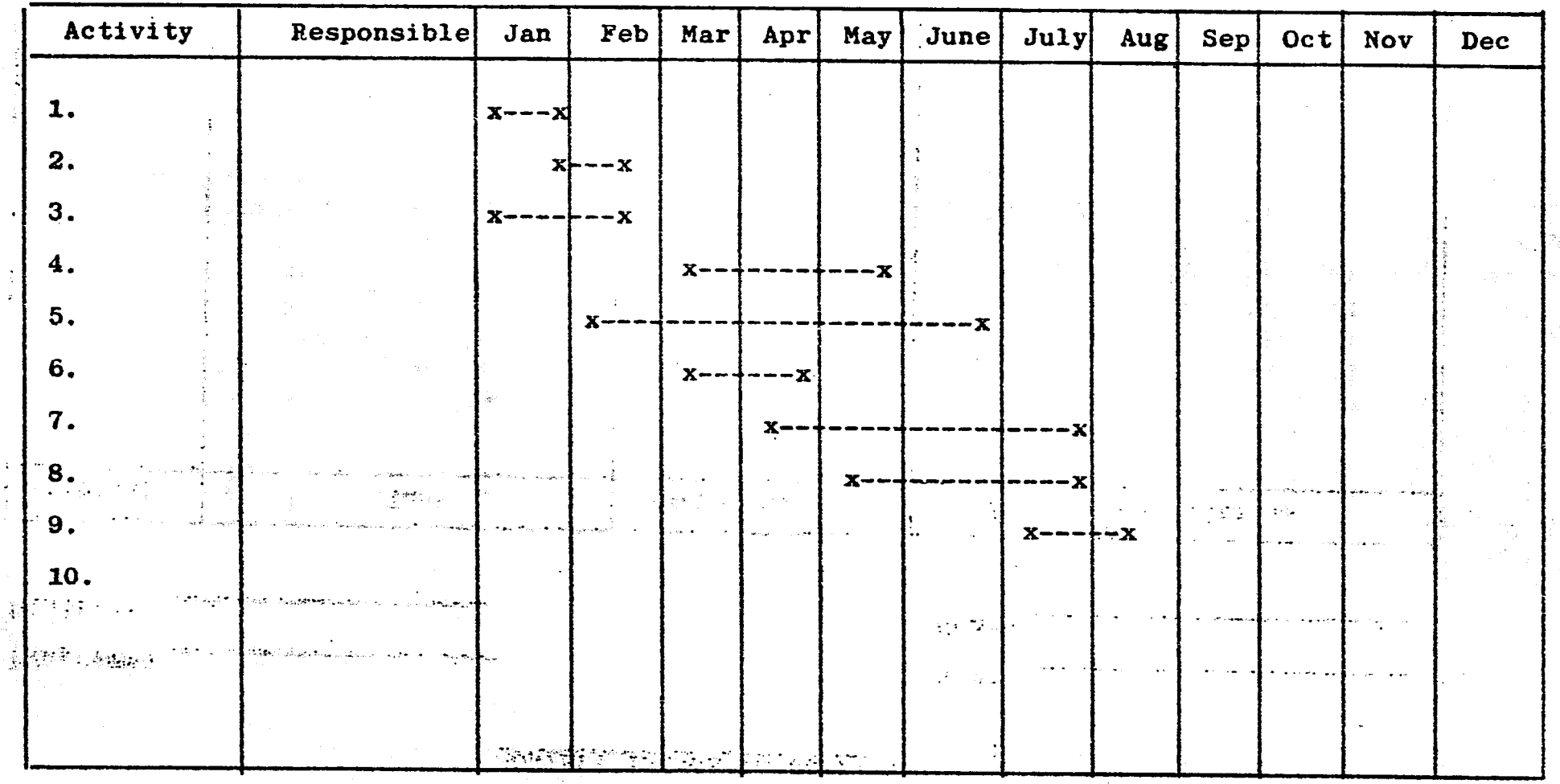
Objective/Target	Strategy/Activity	Resources	Responsibility

FIGURE 16 (Continued)

SAMPLE GANTT CHART

Program _____

District _____



Activity	Responsible	Jan	Feb	Mar	Apr	May	June	July	Aug	Sep	Oct	Nov	Dec
1.		x---x											
2.			x---x										
3.		x-------x											
4.				x---------x									
5.			x-------------------x										
6.				x------x									
7.					x---------x								
8.						x---------x							
9.								x-----x					
10.													

FIGURE 17

MONTHLY THINGS TO DO LIST

Programme _____ **Name** _____

District _____ **Month** _____

Priority	Task	Target date	End-of-Month Status

FIGURE 18

The following is a guide for filling out the "things to do list":

a) **Priority** - After writing down the tasks for the month based on the annual plan of work each individual should review the task and rank them in order of priority.

b) **Tasks** - List the tasks for the month that will contribute the most toward completing objectives.

- Make specific, short statements. The tasks should support the plan of work, be practical and attainable, be specific and measureable in terms of end results at the end of the month, and be controllable by the person responsible.

c) **Target Date** - Specify the target date for completion of each task. Don't schedule all dates up toward the end of the month.

d) **End of Month Status** - At the end of each month short statements should be written indicating what happened. State if the task was completed on schedule, suspended or cancelled. Give reasons for items not completed.

2.7.2. The Plan of Work - The plan of work expresses the results in terms of objectives. The measure of results achieved is done with indicators which measure change from one point in time to another (usually during the financial year). The concept of the

plan of work can be illustrated as follows :

Where are we going?

Here	Plan of Work	There

What do we want to achieve?

Things as they are	Plan of Work	Things as we want them to be

How do we get there?

Resources	Plan of Work	Results

Did we achieve plans?

Beginning status	Plan of Work	Ending status

The annual plan of work and monthly "things to do list" when properly prepared and reviewed on a regular basis throughout the year, will serve the following purposes:

a) Link plans with action

b) Communicating with others both within and outside the Ministry of Health

c) Provide an understanding of plans and obtain approval from higher levels in the organization.

d) Coordinate work with colleagues

e) Allocate time and effort

f) Staffing and assigning work

g) Setting priorities

h) Scheduling, directing, supervising and controlling work

i) Measuring progress and performance

j) Creating a constructive work environment (working together towards common goal that was set together).

k) Creating a common ground of understanding among all concerned as to where the organization is going, how and when it is going to get there, and who is going to do what.

IX HEALTH INFORMATION

1.0. OBSERVATIONS AND FINDINGS

1.1. The Present System

Historically the data collection system used at Rural Health Centres predates independence (1947). It was observed that most of the pre-printed proformas and registers had an issue date in the 1950's.

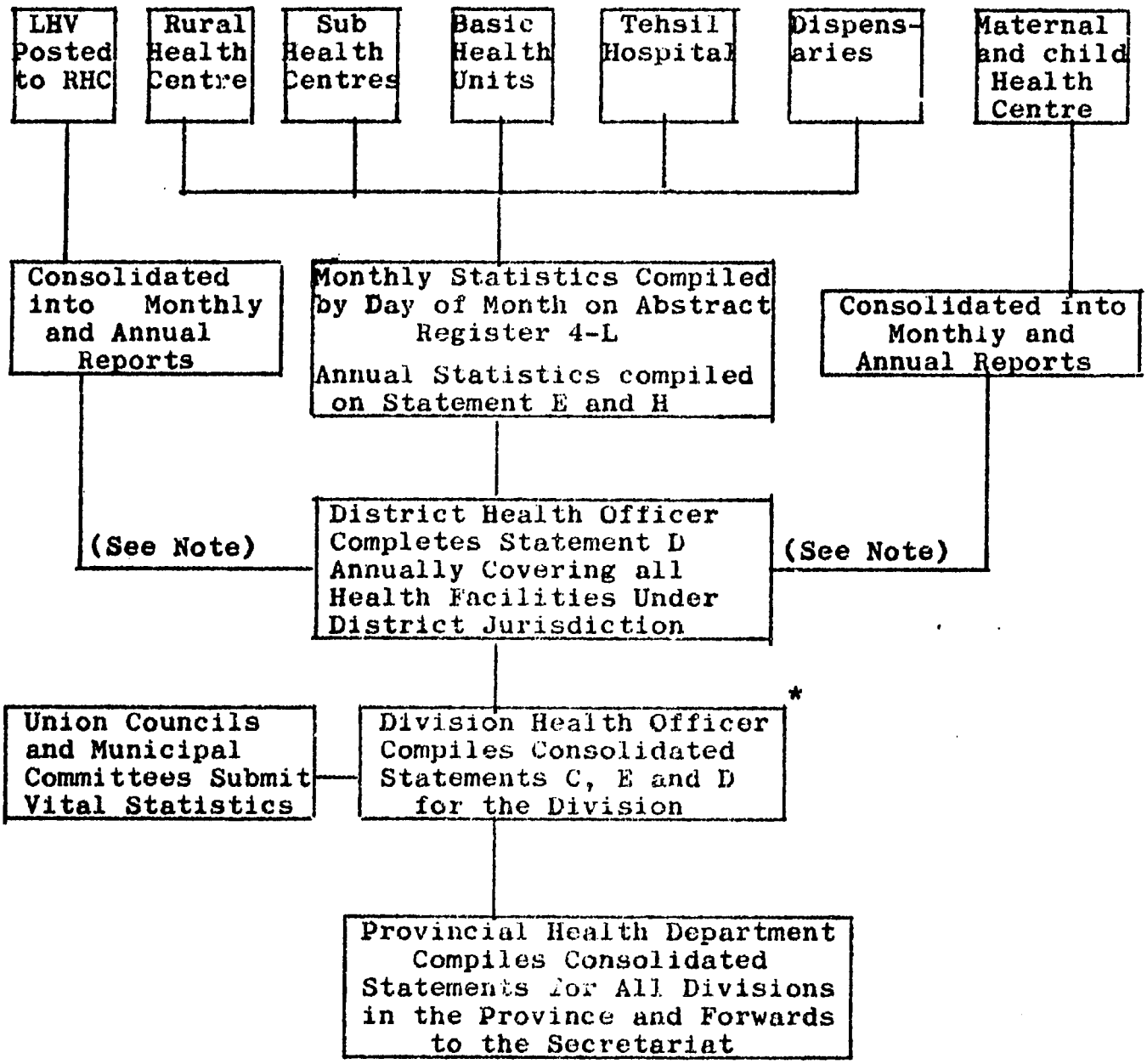
In this analysis it was found that data on out-door patients recorded by the Basic Health Units, Sub-Centres and Dispensaries was the same as data recorded on these patients by the Rural Health Centres, and that data recorded by the Maternity and Child Health Centres was the same as that which is maintained by the Lady Health Visitor that is posted at a Rural Health Centres.

In reviewing the data collection system it was learned that the Lady Health Visitor that is posted to a Rural Health Centre maintains registers on the services provided, independent of the registers that are maintained by the facility. In other words, statistics compiled by the Lady Health Visitor are not included in the statistics for the facility. An exception to this is patients that see the Lady Health Visitor and are referred to the Medical Officer. In these cases, records are maintained by the Lady Health Visitors on her services and by the centre for services provided by the Medical Officer. The collection and flow of data is illustrated in Figure 19.

It was observed during this study and confirmed by many participants in the workshop on "Management for Primary Health Care" that a data collection procedure utilizing disease categories

FIGURE 19

COLLECTION AND FLOW OF DATA



NOTE: Statistics for LHV Reports not included in Statement D.

* Punjab only.

from the International Classification of Diseases was too complex for use in Primary Health Care. It was felt that such a system would result in a high error rate in completing proformas and that the resulting data, even if accurate was of little use in determining health status or for managing the system.

It was suggested that a simple system to collect "utilization" data be adopted. This is one of the alternatives discussed in the recommendations.

1.2. Registers Used in the Present System

1.2.1. Persons who maintain registers and the registers that they maintain are shown below :

a) Medical Officer/Dispenser

In-door Patient Register
Surgery Register
Out-door Patient Register

b) Rural Health Inspector

Register for Preventive Inoculation and Information on Public Health Works
Register of Vaccination
School Health Services Register

c) Lady Health Visitor

Daily Attendance Register
Toddler and Infant Register
Antenatal, Milk and Butter Oil Register
Infant Card Register
Antenatal Card Register
Infant Weight Chart Record
Cases Referred to Hospital Register
Confinement Register (Home Confinement)
Home Visit Register
Childrens Clinic Register
Antenatal Clinic Register
Health Talk Register
Birth Register
Sewing Class Register
Death Register

Total Home Visits Register
Movement Register (staff within the catchment area)
Survey Register (of catchment area)
Monthly Report (DHO/DD)
Annual Report (DHO/DD)

1.3. Abstract Register (4-L)

The data on number of patterns by disease, sex and age group (under 10/over 10) is tallied (TNL) daily by in-door or out-door patient. These totals are posted on Abstract Register 4-L b day of the month. At the end of each month the statistics for the month are totalled and the register is retained at the facili ty for inspection during the year and for use at the end of the year to compile the annual return (Statement E and H).

The Abstract Register (4-L) is a 4-page, 20 by 14 inch form. The format covers 109 specific diseases and a miscellaneous category for diseases of local importance. The abstract also has data on the number of in-door and out-door patients by religion or natior al origin.

At the end of each year the Abstract Register (4-L) for each faci lity under the jurisdiction of the Rural Health Centre is collec-ted and summarized on an Annual Return for the centre.

1.4. Annual Return (Statement E and H)

The Annual Return (Statement E and H) is an 8-page, 20 by 14 incl form that is prepared by the health facility. In addition to the number of patients by disease, the return includes the number of patients who underwent surgery by type of surgery and statistics on the number of inspection visits to the facilities that were made by health officials, the services available at the facilitie

the number of medic-legal (police) cases and the number of post mortem examinations performed. The sources for this data are the Abstract Register (4-L), the Surgery Register and entries that are made in these registers when health officials visit the facilities.

1.5. Annual Summary (Statement D)

The Annual Summary (Statement D) is compiled at the District Health Office and includes the data from the Annual Returns that are submitted by the Rural Health Centres, Basic Health Units, Sub-Centres, Dispensaries and Tehsil Hospitals. The Annual Summary (Statement D) is prepared in duplicate and submitted to the Deputy Director of the Health Division or the Provincial Directorate. The Annual Return (Statement E and H) is retained at the District Health Office for reference and as a source of data for preparing special reports.

1.6. Statement "C"

Statement "C" is used to compile health statistics for all health services within the division or province. The statistics are compiled by class of facility. Class I are those facilities operated by the government for the general public. It is with this class that this study is concerned. The other classes are :

II. Facilities operated by other government departments for their own employees.

III. Facilities operated by local bodies.

IV. Private, government aided facilities

V. Missionary and private facilities, not government aided.

1.7. Lady Health Visitor Reports

The Lady Health Visitor posted to a Rural Health Centre or Mate nity and Child Health Centre compiles a monthly and an annual report. The data for these reports is abstracted from the regis ters that are maintained by the Lady Health Visitor. These repor ts are routed through the District Health Office and forwarded t the Deputy Directorate of the Health Division or to the Provinci Directorate. The data is not incorporated into the Annual Retu (Statement E and H) that is compiled by the Rural Health Centre or into the Annual Summary (Statement D) that is compiled by the District Health Office.

Lady Health Visitors posted at Rural Health Centres, or Maternit and Child Health Centres maintain 15 to 26 registers and compile monthly and annual reports. The variance in the number of regis ters maintained by this person is due to an error in some distri or to reduce the number of registers through elimination/consolidat

In summary, Rural Health Centres maintain from two to six regis- ters; Basic Health Units from one to four; Sub-Centres from one to four; and Dispensaries one or two. This does not include th registers that are maintained by Lady Health Visitor at these posts. This variance is due to the fact that some of the facil ties have posts that are vacant, and not all the Rural Health Centres perform surgery.

1.8. Quality of data

Regarding quality of data, several practices were reported that make the data suspect in so far as accuracy and completeness is concerned. The practices and the probable results are :

a) Out-door patients who do not receive medicine are somet:

not recorded in the out-door patient register. This results in under-reporting of the number of out-door patient visits.

b) Out-door patients who return for followup on a prior medical complaint are recorded by prior case number at the top of the page for the day of the return visit. This results in incomplete data on the followup visit and data on additional new complaints.

c) The out-door register is arranged so that the diagnosis (chief complaint) of a particular patient is entered on the same line as the patient's name under the diagnosis heading. Since there are over 100 specific diagnosis to choose from the diagnosis is written in the space provided. This makes it difficult to accuately summarise the total number of patient visits by diagnosis on Abstract Register (4-L). It is necessary to tally on a separate piece of paper or to count each diagnosis and enter the total on the abstract.

d) It was observed that the data recorded in the out-door patient registers under disease categories is often the patient's chief complaint instead of a specific provisional diagnosis. Entries in this register of fever, pain, etc. are frequently listed under diagnosis. The probable result of this discrepancy is a significant degree of inaccuracy in the statistics recorded on Abstract Register (4-L) and on consolidated reports and summaries that are compiled from this register.

e) During this study it was observed that the staff at Rural Health Centres and District Health Office are not properly trained to process data that is collected by the rural health

facilities. The Annual Returns and Statement D are usually prepared by whoever is available on a "crash basis". This results in a high degree of error and greatly reduces the reliability of the data.

f) Due to the non-availability of printed forms, many Rural Health Centres and Basic Health Units dr w up their own forms. In many cases the format varies from one facility to another. This results in some variance in the data that is recorded and makes it difficult to prepare abstract and annual returns that are consistent from one facility to another.

g) The format of the registers now being used is too complicated. This leads to clerical errors and results in incomplete and unreliable data.

h) Too many different registers are being maintained for the system to be effective. In some cases it was reported that 20 to 30 percent of the health worker's time is devoted to record keeping. This reduces the amount of time available for delivery of health care.

i) The list of 109 standard disease categories that is being used was adopted prior to 1900. Use of this obsolete list makes it impossible to compare morbidity data for Pakistan with data from other developing countries. Updating of this list was recommended by the workshop on "Development of National Health Statistics Information System of Health Services" conducted in July, 1979.

j) The present system of data collection does not facilitate cross tallying of morbidity statistics by disease, sex and age. This results in the statistics being of little value in determining

health status by various segment (sex and age) of the population.

Statement "C" shows out-patients and in-patients by disease categories and as a separate summary, out-patient by religon and by age category, i.e., under 10, over 10. Also included is an appendix that shows male or female by the same age categories.

The raw data to summarize health status by disease, by sex and age is in the system. However,it would have to be extracted by tallying from the out-door register on a daily basis. Since this would require more clerical work and would be subject to error this practice is not recommended. An alternative for securing this data is described in Section 2.9.

k) Statement "E" is a detail listing of surgical operations performed. This data is abstracted from the surgical register at Rural Health Centres. Since the number of different surgical procedure is considered to be too numerous for use by a Rural Health Centre the recommendations includes an alternative for combining the in-door patient and the surgical registers.

2.0. RECOMMENDATIONS

2.1. Overview

It has been pointed out under observations and findings that the present data collection procedures are obsolete. The list of standard diagnosis that is being used is in need of revision and

due to the number of registers being used the procedures are cumbersome and time consuming. Alternatives include updating the diagnosis list and age group categories and retain the present system and adopting an alternative system.

In any event it is recommended that standard data collection procedures be adopted for use by all rural health facilities and services throughout Pakistan. These procedure would require that Medical Technicians either collect statistics on utilization of the services of Community Health Programmes during visits to villages or have the Community Health Workers maintain statistics on a proforma as services are provided.

The Basic Health Units would incorporate this data into their out-door patient Abstract Register. The Rural Health Centre would then be responsible for the Annual Return covering the services provided by all facilities in the catchment area of the Integrated Rural Health Complex. Adoption of this scheme will provide a valuable source of data for establishing health policy, long range health planning and operational planning for year to year operation of the rural health care delivery system.

In formulating health policy, long range plans and year to year operational plans the recommendations will provide statistics for specific health service areas, i.e., the Integrated Rural Health Complex, District, Division and Province. This data base could effectively be used to allocate scare professional staff, drugs and supplies and to compare the utilization of the facilities by the public, with the consumption of drugs and supplies for each facility, an Integrated Rural Health Complex or for a District. The data base could also be used to determine the percent of the population in a particular service area that utilize the health services. This would facilitate the planning of an effective Health Education Programme. In addition, this scheme will

solve many of the procedural deficiencies at the local and district level that were identified in the Plan of Action for "The Development of National Health Statistics Information System for Management of Health Services".

It should be noted that the procedure(s) recommended in this report are designed so that data is collected on patients who utilize the health services of the Integrated Rural Health Complex. Vital statistics on births, mortality, and the demographic characteristics of the population are collected by town committee and union councils and reported to the Division Deputy Director, Health Services.

2.2. The Catchment Area as the Basis for Data Collection

As described under observations and findings there are several types of health facilities within the catchment area of the Rural Health Centres. These different types of facilities are Basic Health Units, Maternity and Child Health Centres, Sub-Centres and Dispensaries.

An important purpose of this study was to analyze and, where appropriate, recommend improvements to the health data collection procedures for an Integrated Rural Health Complex. The reader will recall that an Integrated Rural Health Complex consists of a Rural Health Centre as the focal point of a three-tier system that includes four or more Basic Health Units and Community Health Programmes. As the study progressed, it became obvious that the data collected at other types of facilities that are located within the catchment area of an Integrated Rural Health Complex should be included in the data base.

For this reason, the procedures recommended in this report were designed for all types of facilities within the catchment area of a Rural Health Centre that is designated as the focal point of an Integrated Rural Health Complex. Data on services by individual facilities is to be collected according to a standard procedure and integrated into the data collected by the Rural Health Centre to form a data base for the Integrated Rural Health Complex. Implementation of this scheme in Dispensaries could be postponed until these facilities are upgraded to Basic Health Unit or Rural Health Centre status.

Adoption of this recommendation will result in the catchment area for the complex becoming a sub area for health statistics within each district and will provide the basis for measuring the utilization and effectiveness of the Primary Health Care Delivery System on an ongoing basis.

What might appear to be a discrepancy in this scheme is that in some cases the catchment areas of two or more Integrated Rural Health Complexes may overlap. This is not considered to be a problem, because data will be recorded at the point of service and the pattern of where people go for their health care will evolve, i.e. people go to a particular facility and continue to go to that facility as long as they are satisfied with the care received.

An additional benefit of this recommended scheme is that it will strengthen the linkages between the Rural Health Centre and the other facilities in its catchment area and will facilitate the medical referral network, drug and supply distribution system, and management and supervision of an Integrated Rural Health Complex.

The recommended flow of data and information is shown in Figure 20.

2.3. Centralized Registration Point

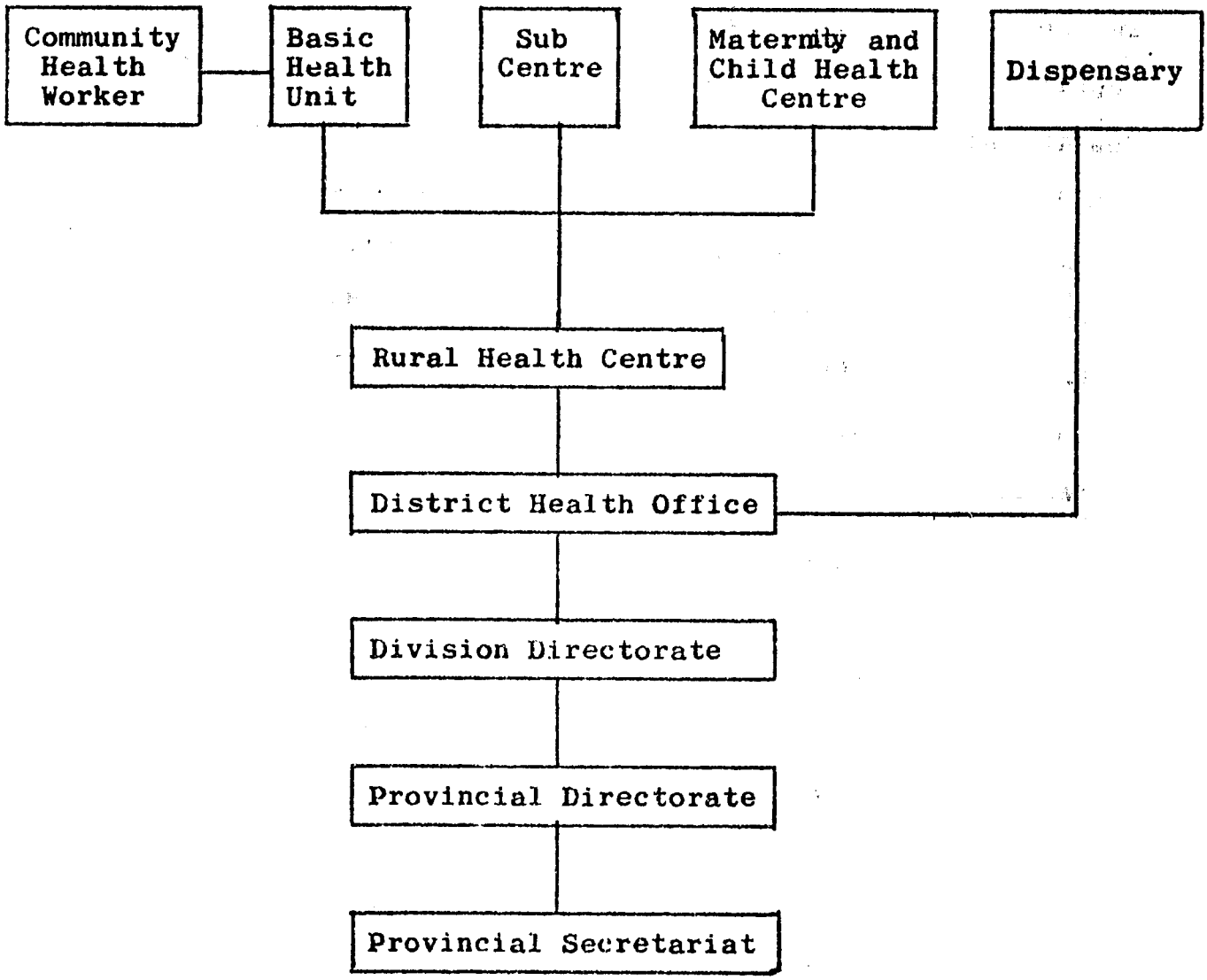
In the existing system registers are maintained and drugs and supplies dispensed at several stations in most of the Basic Health Units and the Rural Health Centres. This results in duplicate record keeping and requires that a working supply of drugs be maintained at several stations. This practice could also be the root cause for many of the procedural deficiencies that were identified in the Plan of Action for "Development of National Statistics Information System for Management of Health Services".

A possible solution to this is to centralize record keeping and the dispensing of drugs and supplies within each health facility. Centralization would result in more accurate record keeping and would provide for better accountability of drugs and supplies. More important, it would free the health workers from these clerical taks and provide them with more time to treat patients. A suggested routing of patient and the activity that take place at each station is shown in Figure 21.

The central registration and dispensing could be at the dispensary window or at a desk in the lobby. When a patient registers the person at this station completes the appropriate columns on the register and issues a chit that verifys that the patient has registered. The patient's name, chief complaint and the health worker which he is to see is written on the chit. The Health Worker consults with the patient and writes the diagnosis (from the adopted list of 10 to 15 most prevalent) and the drugs prescribed

FIGURE 20

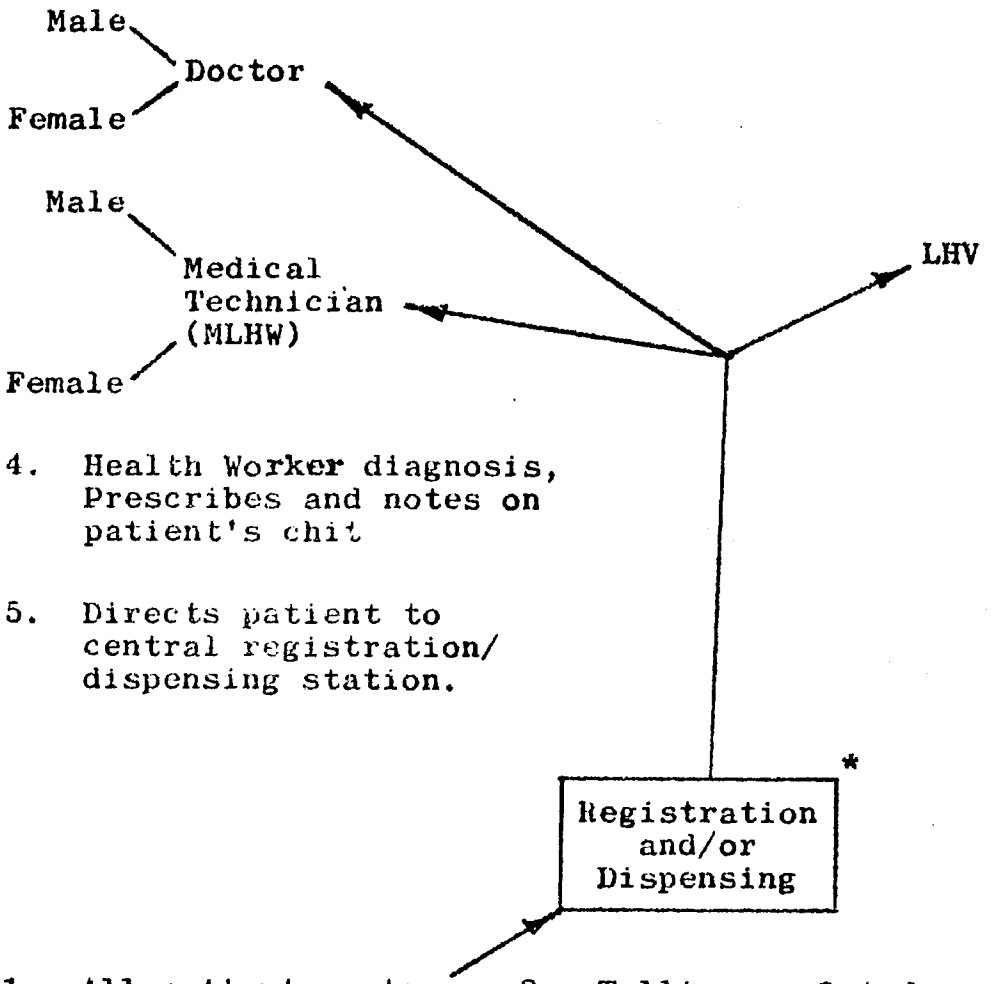
RECOMMENDED FLOW OF DATA



* As Dispensaries are upgraded to Basic Health Units data should be reported to the Rural Health Centre

FIGURE 21

Central Registration
Patient Routing
Basic Health Units and Rural Health Centres



Note: The chit would not be necessary with a Patient Retained Record.

* Could be the Medical Technicians office. Also, separate stations for male and female could be established.

on the chit. The patient is directed to the registration station to complete the registration process and to receive the drugs prescribed. The person at the registration station enters diagnosis, collects charges due, records the revenue and issues the prescribed drugs or directs the patient to the dispensing window.

The central registration station could be manned by the Medical Technician who could screen patients, treat minor ailments and refer the more complicated cases to the Medical Officer or Lady doctor. This alternative is an appropriate role for the Medical Technician. In this case the registration station could be in the Technicians office. This arrangement would still free the Medical Officer and Lady Doctor from the clerical work. Also, if required two stations could be established, one for male and one for female patients.

The flow of patients must be controlled so that a patient cannot consult a health worker without a proper chit. This control is necessary to ensure accurate complete records and to account for drugs issued. Control will have to be established that includes those patients that do not receive drugs. This can be accomplished because the Health Worker will not have a stock of drugs and will not have first hand knowledge of what items are in stock. The untimate solution to this situation is to improve drug procurement to the point that most patient receive drugs.

The registers maintained by the Lady Health Visitor should be reduce in number or eliminate altogether since they serve no purpose for measuring health status or for management and planning. These registers only contain data on activity and utilization. Data on consultation by the Lady Health Visitor, can and should be compiled on the out-door register for the facility.

The centralized system could be improved by adopting the Patient Retained Record recommended in Section 2.9. The use of the Patient Retained Record would eliminate the requirement of issuing a chit at the registration station. However, to account for drugs and supplies, the health worker may have to issue a chit that would be retained at the dispensing station for drug and supply accountability.

Recommended Procedure for Community Health Workers

The printed proforma shown in Figure 22 is recommended for recording utilization data on services provided by Community Health Workers. This proforma could be completed during periodic visits to the Community Health Programme by the Medical Technician or is some cases could be completed by the Community Health Worker as services are provided.

If the proforma is to be completed by the Medical Technician the Community Health Worker should record treatments, services, home visits, etc. in a small notebook so that the Medical Technician can complete the form.

If the Community Health Worker is to record services as they are provided they should make a tally mark (~~𝍸~~) in the appropriate columns. The columns are to be totalled at the end of each month and the form submitted to the supervisory Medical Technician at the Basic Health Unit. Use of this tallying procedure will keep the clerical work simple while at the same time provide sufficient data on utilization.

This procedure does not provide for access of historical health information on a particular patient. A system that

COMMUNITY HEALTH WORKER
UTILIZATION DATA

Village Name			Community Health Worker Name				Month	
Day of Month	Preprint Activity or Treatment	Preprint Activity or Treatment	Preprint Activity or Treatment	Preorint Activity or Treatment	Preprint Activity or Treatment	Preprint Activity or Treatment	Preprint Activity or Treatmnet	Preprint Activity or Treatment
1								
2								
3								
4								
5								
6								
29								
30								
31								
Total								

NOTE: This proforma should be printed in Urdu

FIGURE 21

would provide this would be too complicated at this level and would be difficult or impossible to implement and maintain.

In order to provide historical health information on a specific patient, a Patient Retained Health Record is recommended. This recommendation is described in Section 2.9. This record is to be issued at the point that the patient enters the health care delivery system. Therefore, the Community Health Worker could play an important role in issuing Patient Retain Health Records.

2.4.1. Utilization data from Community Health Workers is posted to the Basic Health Units abstract register monthly. The source of this data is the Community Health Worker utilization data proforma shown in Figure 22.

5. Recommended Alternative Procedures for Out-door Patient: Basic Health Units and Rural Health Centres.

2.5.1. One alternative would be to adopt a simpler Out-door Register that provides a revised descriptive set of age groups and updated the list of diagnosis.

The age groups that are recommended are: 0-1; 1-4; 5-14; 15-44; and 65 and up. The list of diagnosis should be the 10 to 15 most prevalent diagnosis from the list shown in Appendix II. This list was compiled from the 7th edition of the International Classification of Diseases and is recommended since it is already being used by federal facilities in Islamabad.

The recommended Out-door Register is simplified so that data can be recorded by placing a tally (~~𝍸~~) mark in the appropriate column. For this alternative the register shown in Figure 23 is recommended.

Alternative No. 1
Out-Door Patient Register
Basic Health Unit/Rural Health Centre

☐ BHU ☐ RHC ☐ Other _____
Specify

Name of facility				Location					Officer-in-Charge	
Date	Age Group						Sex		Provide a column for each of the 10-15 most prevalent diagnosis from Appendix II	Charges
	0-1	1-4	4-15	15-44	45-64	65-Up	M	F		

FIGURE 23

To maintain this register the person maintaining the register enters a tally mark (𝍸) in the columns that apply to each patient as they register or receive drugs or supplies. A separate line or group of lines (several lines may be required at those facilities with a high volume of patients) is used for each day. At the end of each day the tally marks are counted in each column and the total entered on the last line used for that day. At the end of each day a heavy line is drawn accross the form to separate the statistics for each day. In this way it is possible to continue from day to day on the same proforma. At the end of each month it is advisable to add up the total of each column for the month and start a new proforma for next month.

In this alternative the register can be maintained at a central registration point. If more than one registration point is established or the patient load is heavy, registers can be maintained at each registration point. This would require that the daily totals from each register be added and recorded by day of the month on another copy of the proforma.

The monthly totals from the Out-door Patient Register are entered on the Out-door Abstract Register shown in Figure 24. This abstract is maintained monthly and totaled at the end of the year. The abstract register is retained during the year at the facility for inspection. In the case of Basic Health Units and other facilities in the catchment area the abstract register is forwarded to the Rural Health Centre at the end of the year for preparation of the annual return for the entire Integrated Rural Health Complex.

OUT-DOOR PATIENT ABSTRACT REGISTER
BASIC HEALTH UNITS AND RURAL HEALTH CENTRES

Month	Age Group					Sex		Provide a column for each of the 10 to 15 most prevalent diagnosis from Appendix II
	0-1	1-4	5-14	15-44	45-Up	M	F	
Jan								
Feb								
(ECT.)								

(Continued below)

(Continued from above)

Revenue	Community Health Workers Activities			
	No Villages	CHWs		Treatment (Provide a column for each treatment from Figure 23)
		M	F	

FIGURE 24

2.5.2. A second alternative would be to discontinue collecting morbidity date at primary health care facilities and to collect only utilization statistics. Since data collected in the existing system is incomplete and of limited value to determine health status or to objectively allocate resources this approach is recommended especially at the Basic Health Unit and Community Health Program level.

If this approach is adopted morbidity data could be collected at Rural Health Centres and primary in-door facilities such as Tehsil Hospitals and facilities above this level. Health status of the rural population could then be determined through statistical sampling.

Collection of utilization statistics under this alternative could be accomplished using a simple proforma. The proforma shown in Figure 25 is recommended for this purpose. Data could be recorded by tallying (~~THH~~) at the time the patient registers.

The same proforma could be used as an abstract register. Monthly totals could be entered on a single line and totaled at the end of the year. The Rural Health Centres could use the abstract registers from the facilities in their catchment area to complete the annual return for the complex.

.6. In-door Patients: Rural Health Centres

A change is recommended in the way data on in-door patients is recorded. This recommended change would make it possible to replace the existing in-door patient and the surgery registers

Alternative No. 2
Out-Door Patient Register
Basic Health Unit/Rural Health Centre

☐ BHU ☐ RHC ☐ Other _____

Name of facility							Location				Officer in Charge				
Date	Age Group						Sex		Number of Consultants						Number of Patients Given Drugs
	0-1	1-4	5-14	15-44	45-64	65-Up	M	F	MO	LD	MMT	FMT	LHV	Other	

FIGURE 25

with a single register for both medical and surgical cases. The recommended register is shown in Figure 26.

The diagnosis column is to be completed using the appropriate in-door patient diagnosis from Appendix III. This list is from the 8th edition of the International Classification of Diseases and is recommended because it is already being used by federal facilities in Islamabad. The surgical procedures performed on surgical patients are to be written in the column provided for this information. At the end of each month the statistics on in-door patients are tallied (IIII) and posted on the in-door patient summary shown in Figure 27.

The surgery data on this register is for statistical purpose and does not replace the surgery report that is prepared on each case.

2.7. The annual Return

The annual return for Integrated Rural Health Complexs is an annual summary which covers the statistics on health activity at the Rural Health Centre and all health facilities within its catchment area. In addition to health statistics the return includes data that describes the availability of health services, staff, and other important information about health services for the complex.

The form recommended for this return is also recommended for use at the District and Division levels. The recommended data elements for this form is shown in Figure 28.

2.7.1. The same form that is used for Integrated Rural Health Complexes is to be used at the District and Division levels. It should be noted that vital statistics from Union Councils and Municipal Committees, as well as statistics from private hospitals and other government

IN-DOOR PATIENT REGISTER

Rural Health Centre

Yearly No.	Monthly No.	Date of Admission	Name	Age Group						Sex	
				0-1	1-4	5-14	15-44	45-64	65-Up	M	F

(Continued below)

(Continued from above)

Location Month

Diagnosis (from Appx. III)	Results of Medical Treatment	Surgical cases		Discharge Date	Days of Treatment	Charges if any
		Procedure	Results			

IN-DOOR PATIENT SUMMARY

Rural Health Centre Location Year

Month	By Age Group						By Sex		Diagnosis
	0-1	1-4	5-14	15-44	45-64	65-Up	M	F	(Provide a column for the most prevalent diagnosis from Appendix III)
January									
February									

(Continued below)

(preprint most prevalent surgical procedure)	Days of Treatment	In-door Deaths (Preprint common causes	Revenue

(Continued from above)

FIGURE 27

FIGURE 28

Annual Return
Integrated Rural Health Complexes
District and Division

Recort for: IRHC ☐ District ☐ Division ☐

Facility Class ☐ I ☐ II ☐ III ☐ IV ☐ V

I.R.H.C./District/Division _____

Period Covered: From _____ to _____

1.0. Number of facilities by type

District Hospitals _____ Beds: Male _____ Female _____

Tehsil Hospitals _____ Beds: Male _____ Female _____

Rural Health Centre _____ Beds: Male _____ Female _____

Basic Health Units _____

Sub-Centres _____

Dispensaries _____

MCH Centres _____

Community Health Programs _____

2.0. Number of Health Personnel by Skill Level

Doctors		Medical Technicians	
Male	_____	Male	_____
Female	_____	Female	_____

Lady Health Visitors _____ Rural Health Inspectors _____

Dispensers _____ Lab. Technicians _____

Nurses		Community Health Workers	
Male	_____	Male	_____
Female	_____	Female	_____

3.0. Community Health Worker Services

3.1. Treatment by type
(From Figure 22)

4.0. Out-door Statistics

4.1. Patients by Age Group

4.2. Patients by Sex

4.3. Patients by Diagnosis

4.4. Revenue

5.0. In-door Statistics

5.1. Patients by Age Group

5.2. Patients by Sex

5.3. Patients by Diagnosis

5.4. Surgical Patients

5.4.1. Major Procedures

5.4.2. Minor Procedures

5.5. Total Days of Care

5.6. Deaths by Cause

5.7. Revenue

6.0. Births and Deaths (Division Level Only)

6.1. From Union Councils and Municipal Committees

hospitals, are included at the Division level. Also, the data is separated by class of facility. This can be accomplished by using a separate form for each class.

2.8. Immunization Data

Data on immunization is recorded by the Expanded Program of immunization. As of the time this report was prepared this program was being developed in urban areas. One of the primary reasons it has not been extended to Rural Health Centres and Basic Health Units is the lack of cold chain arrangements.

As these arrangements become available it is expected that this service will be extended to rural areas. The program includes a system for recording data on immunization that is introduced along with the implementation of the program.

For this reason it is not necessary that Integrated Rural Health Complexes be concerned with recording data on immunization at this time. Those complexes that have the proper facilities and participate in the program should report data utilizing the system that has been developed by the EPI program.

2.9. Patient Retained Health Record

In the present system, health information on individual patients is recorded in the out-door register, in-door register or surgery register, depending on the type of service. Retrieval of this information is difficult, if not impossible. Basically, Health Workers are relying on "word of mouth" from the patient or on a chit that was issued during a prior visit for information on Medical history and prior treatment.

Since it is not practical for the health facility to maintain an individual patient record, a ptient retained record is

recommended. The record should be issued when the patient enters the delivery system for the first time, i.e., Community Health Programs, Basic Health Units or Rural Health Centres will issue the record and replacement records in cases of lost records.

2.9.4. The advantage of a patient retained record include :

a) It will provide the health worker with social data about the patient and about the children in cases of married women.

b) It provides the health worker with information on prior medical treatment. Having this information is especially important to a health worker when receiving a referred patient.

c) It provides Medical Officers and supervisory Medical Technicians with documentation on prior consultation when providing supervision and training to Community Health Workers and Medical Technicians.

d) It provides a source of data for measuring health status and changes in health status on a statistical sampling basis. This is especially important since the present system or the recommended alternative systems do not readily permit the sorting of morbidity by age category or sex.

e) It will encourage people to take an interest in their own health care and make them feel that the health worker is interested in their well being

f) It makes possible the design of an Out-door Patient Register utilizing tally marks (𝍸), since information on individual patients will be on the Patient Retained Record.

g) It will provide a source of information and verification for police cases.

2.9.2. Separate records are recommended for men (married or single) and boys who have been emancipated from their mothers; and for women and children who are under the jurisdiction of thei mothers.

The Male Treatment Record is illustrated in Figure 29. This record is for males, married or single. This record is of a different format than the record for women, since it does not include the record for children.

The women and children treatment record shown in Figure 30 is for unmarried women who have been emancipated from their moth- ers and married women with or without children. This record includes the treatment of the children, both male and female, who are under the direct supervision of their mother. When female children are emancipated from their mothers, they will receive their own women and children treatment record. In those cases where a husband has more than one wife, each wife retains the record for herself and her children. An envelop should be provided to protect the records. A sample envelop is shown in Figure 31.

2.9.3. It is recognized that use of a Patient Retained Record has some disadvantages. Maintenance of the record by health work

PATIENT RETAINED
MALE TREATMENT RECORD

Front

Out-door

Name		Address		Age	Wife's Name				No. Children		
Date	Complaint	Diagnosis	Treatment	Immunization Dates							Charges
				BCG	DPT	Polio	Mesi	TAB	Chol		

Back

In-door

Dates of Admission	Complaint	Diagnosis	Treatment	Result	Disc. Date	Days of Care	Charges

Note: Printing should be in Urdu or local language.

FIGURE 29

PATIENTS RETAINED
WOMEN AND CHILDREN TREATMENT RECORD

Front

Out-door

Name		Address		Age		Husband		No. Children	Boy					Girl
Patients	Name	Age	Rela-tion	Date	Complaint	Diagnosis	Treatment	Results	Immunization Date					
									BCG	DPT	Polio	Mes	TAB	Cho

Back

In-door

Patients	Name	Age	Rela-tion	Date of Admiss-tion	Complaint	Diagnosis	Treatment	Results	Disc Date	Days Care	Charges

Note: Printing should be in Urdu or local language

FIGURE 30

ENVELOP FOR PATIENT RETAINED RECORD

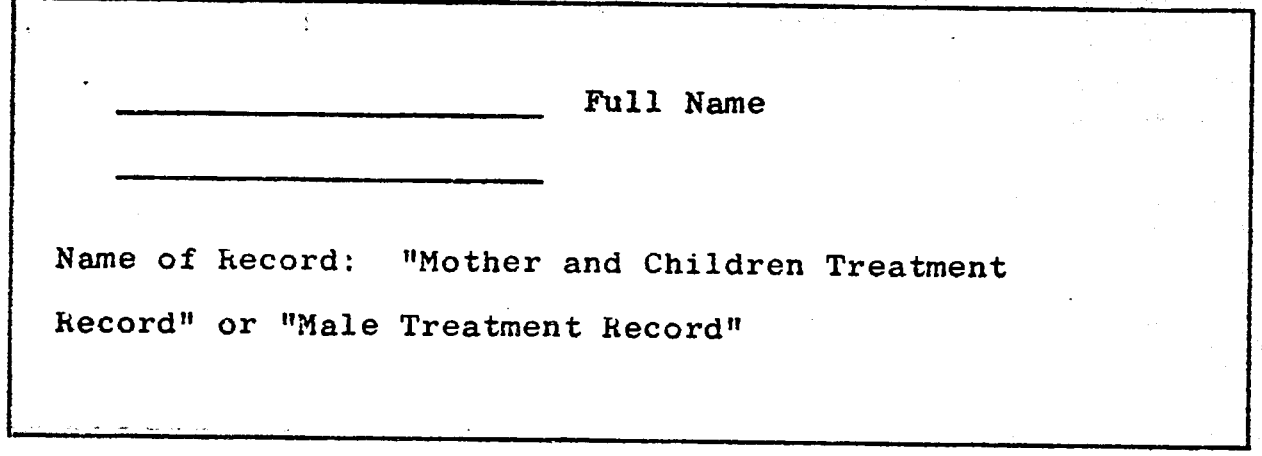


FIGURE 31

ers can become relaxed, resulting in incomplete records. Also, records can be misplaced or lost by the patient.

Accurate, up-to-date maintenance of records can be achieved through training of health workers and through supervision. Regarding misplaced or lost records, the experience in other primary health programs has been that patients take an interest in their health care and the loss rate is very low. It is possible to reduce the frequency of lost records through education of the patients on the importance of these records. When records are lost, the only workable procedure is simply to start a new record and instruct the patient to retain the prior record, if found and keep it with the replacement record.

An additional disadvantage is the cost associated with printing and distribution the proformas. It is recommended that a charge be assessed at the time a new or replacement record is issued. This charge should be sufficient to cover the cost of printing and distributing the forms. The cost is estimated to be between Rs.1.00 and Rs. 1.50 for each record and envelop. The initial cost of implementing this recommendation could be sought from a donor agency, eliminating the need for a charge at time of issue.

X DRUGS AND MEDICAL SUPPLY SYSTEM

1.0. OBSERVATIONS AND FINDINGS

1.1. The Indent System

An analysis of the procurement of supplies by the six Integrated Rural Health Complexes covered by this study was conducted with the primary focus on the indent system and the documents and procedure involved in the indenting process. The indent procedure was traced from the point of origin to the point that the drugs and supplies are delivered to the indentor and the priced copies of the indent are forwarded to the Accountant General's Office for budget adjustments.

1.1.1. The Existing System - The Sub-health Centres forward their demands to the Rural Health Centres which combines these demands with their own requirements. These combined requirements provide a base for the preparation of the indent documents. In actual practice the participation of Sub-health Centres or even of Rural Health Centre (if there is no Medical Officer) may not be sought and the indent documents may be prepared at the District Health Office.

Since the Basic Health Units are still under the direct supervision of the District Health Officer, they prepare their won indents and file them separately.

For filing an indent with the Medical Stores Depot, approval of the District Health Officer is required. The District Health Officer may make changes in the indent or request the indentor to reindent. It is at

the discretion of the District Health Officer to file the indents for the whole district together or let the Health Units file their own indents.

Indents are received by the Assistant Manager, Government Medical Stores Depot and their receipt is recorded . The procedures for recording the receipt of indents works well and no case was observed where the indent forms were lost or misplaced. From the administration section the indent is routed to the indent section where it is allotted the Medical Stores Depot indent number. At the Indent Section the indent is marked for the sections where the indented items will be available. The process is called indent allocation.

Four copies (intact) of the indent are routed in sequence to the Drug Section, to the Instrument Section, to the Sundry Section and to the Laboratory Section. Each section posts the indented amounts related to their section to their respective stock ledger registers and forwards the four copies to the next section.

When tne indent is posted and forwarded to the next section, the concerned ledger clerk prepares an Intradepot Transaction Voucher (MSD 74) in triplicate. The ledger clerk records the items not available on the "Not-availability Register" and assigns a P.V. Number (Price Vocabular Number) to the available items. The P.V. Number is used for accounting purposes and the drugs are identified by that number. The quantity supplied column of the indent is also filled in on the basis of the balance in the Stock Ledger Register and the indented requirement. Similarly in the Stock Ledger Register the indent number and the quantity issued against the indent is recorded.

The ledger clerk retains one copy of the MSD 74 and two copies are sent to the Issue Clerk. The Issue Clerk gives his remarks and describes the type of item issued on MSD 74. Then he sends these two copies to the Assembly Section along with the items issued.

The Assembly Section returns one initialled copy to the Issue Clerk to verify the receipt of stores. This section prepares a packing note and packs the items issued from the different sections. It should be noted that one copy of the indent is packed along with the items so that the indentor can compare the amounts indented with the amounts received. The packages and the packing note are sent to the despatch section and three copies of the indent are sent to the Accounts Section for pricing. After pricing, one copy is sent to the Accountant General's Office, one copy to the Indentor and the third copy is retained by the Accounts Section.

When an indent is filed the indentor is required to indicate the mode of delivery. If the supplies are to be collected in person, the packages are moved to the "Local Section". If the supplies are to be shipped, the packing unit is responsible. Most shipments are arranged through the Railway Booking Office. Indentors are informed about the shipment and are required to make their own arrangements for collection of supplies at the railway station when the shipment arrives. If the supplies are to be picked up at the "Local Section" the transportation is the responsibility of the indentor and the consignee's representative collects the shipment.

When the supplies reach the Rural Health Centre they are divided proportionately for the Sub-health Centres. Some Sub-health Centres collects monthly shipment from the Rural Health Centre and some

biannual shipments. Generally the distribution pattern is at the discretion of Medical Officer Incharge or is by mutual agreement between the Rural Health Centre and the Sub-health Centres.

1.1.2. Types of Indents - Annual and supplementary Indents are used. Annual indent, as the name implies, is filed only once during the year by each health facility. Supplementary Indents are filed after the supplies against the Annual Indents have been received and a need for additional drugs is apparent. The Annual Indent varies from 100 to 130 pages. Due to short supply against annual indents, supplementary indents are sometimes 100 pages.

Supplementary indents may be filed for the items not-available on the annual indent or for items which were not indented on the annual indent. At the time a supplementary indent is filed the indentor also gives a declaration statement of its budget. This statement is attached to the indent papers in quadruplicate. This statement shows the budget sanctioned, value of the previous indent or indents and the approximate cost of the present indent. This statement provides a budgetary check and prevents over-indenting or over-issues.

1.1.3. Schedule for Indents - The Programme Register is prepared showing names of the health facilities in each district whose indents are to be processed during the coming fiscal year. When the Programme Register is completed a schedule for filing indents is prepared for each district and is forwarded to the Deputy Director who in turn informs the District Health Officers. The

District Health Officers make arrangements for filing the indents for the health facilities in his district.

A month before the scheduled time for filing the indents the Medical Stores Depot issues reminders to the District Health Officers. Scheduling indents spreads the supply process over a 10 months period. Supplies are received in different distticts at different times making it difficult to determine the shortages and surpluses position for all provincial health institutions at any point in time.

1.1.4. Over-indenting Through Intentional Under-estimation of Price - A tendency to over-indent through the under-estimation of the unit price of the indented items was observed. This is because the health facilities from past expereince know that only 20% to 40% of the indented demand (both in terms of type and quantity) will be met by the Medical Stores Depot. The indentors indent at the deflated price per item in order to inflate the demand. Eventhough there is a budget check at the time indents are processed it serves no purpose because the small percentage of the drugs that the facilities usually receive is within budget when priced (at current prices) by the Medical Stores Depot.

An enquiry was conducted to determine the extent of over-indenting through under pricing. For this purpose the prices of 25 items were collected to determine the extent of under pricing. The "Indentors Price" was compared to the Medical Stores Depot price. This comparison is shown in Table 5.

The table shows that depot prices compared to indentor prices varied from a low of 123% to a high of 1610%.

TABLE 5

Indent Prices Vs. MSD Price

No.		Indentors Price	MSD Price	% Price MSD/Indentor
1.	Injection Chloroquine (1000 Units)	200.00	624.00	312
2.	Potassium Citra	50.00	236.00	472
3.	Injection Pencillin (500 vials)	700.00	1950.00	279
4.	Tab. Almunium (Hydrochloride 100 unit)	1000.00	2000.00	200
5.	Tab. Dulolex	50.00	517.00	1034.
6.	Tab. M.V.	100.00	298.00	298
7.	Inj. Porcaine Pencillin 4 lac	1000.00	1500.00	150
8.	Tab. Angapyrine	150.00	348.00	232
9.	Tab. Emphedrine	60.00	404.00	673
10.	Tab. Calcium Lactate	451.00	881.27	195
11.	Tr. Card Co.	60.00	184.00	307
12.	Tr. Hyosine Comp.	10.00	161.00	1610**
13.	Mercro Crome	10.00	109.50	1095
14.	Inj. Calcium	150.00	185.00	123*
15.	Sulpha-Acetamide	80.00	127.00	159
16.	Inj. Nitramide	25.00	40.00	160
17.	Lomotil Neomycine Tab.	100.00	447.00	447
18.	Diabenese Tab.	50.00	100.00	200
19.	Injec. Insulin	50.00	372.00	744
20.	Senoside Tab.	50.00	395.00	790
21.	Polyoral Tab.	10.00	48.87	489
22.	Tr. Card Co.	40.00	184.50	461
23.	Glycerine Pure	50.00	114.50	229
24.	Tab. Furocin	50.00	173.50	347
25.	Tab. Cotton	1000.00	1725.00	173

* Low

** High

Through under estimating prices it is possible to exceed the current budget. In one case a facility indented 172 items valued by the indentor as Rs.20,000. The Medical Stores Depot provided only 50 items priced at Rs. 24,760. Since the supplies were shipped to the indentor prior to pricing this excess was deducted from the next year's budget resulting in a lower supply budget for the next year.

It was observed that some facilities do not give the estimated price of indented items. Thus without writing the estimated prices they try to indent as many items as possible.

1.1.5. Intentional Indenting for Items Not-Available - It was observed that some health facilities intentionally indent items which are not available. Indentors from these health facilities become knowledgeable about the items not-available. Therefore, when they file their annual or supplementry indents, they intentionally indent items that are not currently available. This practice results in budget surpluses that are used to make local purchases. The extent of this practice is nominal.

1.1.6. The Short Supply Problem - Data from six Rural Health Centres and twelve Basic Health Units (two from each designated Rural Health Complex in Punjab) was analysed to determine the short supply by items and by rupee value for each facility. The comparison by number of items is shown in Table 6 and by rupee value in Table 7. The percentage of indented items that were received varied from a minimum of 13.11% to a maximum of 55.88%. Similarly supply by the rupee value varied from a minimum of 4.2% to a maximum of 123.80%.

TABLE 6

Supply Situation by Number of Items at Six Designated IRHCs Year 1979-80

Health Facility			Number of Items Indented	Number of Items provided by MSD	% Provided by MSD/ Indented
Rural Health Centres	1	Chawinda	96	34	35.42
	2	Lalamusa	114	35	30.70
	3	Warburton	43	15	34.88
	4	Shah Jewana	56	10	17.86
	5	Uch Sharif	120	18	15.00
	6	Choti	172	50	29.07
Basic Health Units	1	Kotli Sayyadan	175	28	16.00
	2	Badiana	96	73	76.04
	3	Punjan Kasana	40	12	30.00
	4	Kiranwala	95	17	17.89
	5	Bahuman	102	26	25.49
	6	Laggar	34	19	55.88
	7	Iqbal Naggar	98	13	13.11
	8	Inayatpur	125	35	28.00
	9	Haiderpur	114	23	20.18
	10	Buddhuwali	95	13	13.68
	11	Mana Ahmedani	36	8	22.22
	12	Choti Bala	N/A	N/A	N/A

TABLE 7

Supply Situation by Rupee Value at Six Designated IRHCs Year 1979-80

Health Facility			Value of the Indented Items	Value of the Items Provided	% Provided by MSD/ Indented
Rural Health Centres	1	Chawinda	Rs.23,230	Rs.8,548	36.80
	2	Lalamusa	30,660	18,540	60.46
	3	Warburton	17,005	15,788	92.84
	4	Shah Jewana	22,859	6,913	30.24
	5	Uch Sharif	60,000	6,262	10.44
	6	Choti	20,000	24,759	123.80
Basic Health Units	1	Kotli Sayyadan	37,000	8,158	22.05
	2	Badiana	37,000	32,962	89.09
	3	Punjab Kasana	11,635	2,192	19.00
	4	Kiranwala	14,533	3,563	24.52
	5	Bahuman	7,580	3,030	39.97
	6	Laggar	11,670	12,016	102.66
	7	Iqbal Naggar	19,927	836	4.2
	8	Inayatpur	19,880	12,213	61.43
	9	Haiderpur	20,026	4,387	21.90
	10	Buddhuwali	14,026	2,556	18.22
	11	Mana Ahmedani	8,000	1,530	19.13
	12	Choti Bala	N/A	N/A	N/A

The data on number of items supplied and on rupee value was arranged into a frequency distribution (table 8) and is shown graphically in Figures 32 and 33.. The majority of the health facilities fall in the range group of 20% to 40%. In other words supply to the majority of the health facilities both by number of items and by rupee value is from 20% to 40% against against the indented items.

It was observed that in cases of facilities where the supply situation is relatively better, it is because :

a) Either the facilities indented more items through intentional under estimation of price or without pricing the indent.

b) The facilities had their indents filled at the Medical Stores Depot by a personal visit. In such cases their tendency was to take whatever is available and in big quantities so that their budget is consumed.

The short supply problem is so acute that in certain cases, the costs of the indent documents, the cost of time by District Health Officer, Medical Officer, Dispensers, staff at Medical Stores Depot and the fetching costs of the supplies equal or exceeded the value of items provided against the indent.

1.1.7. Assessment of the Drug Requirements by the Indentors - It was observed that the assessment by the indentors of drugs and supply requirements is based on guess. These requirements are not related to the actual or projected case load by disease category. Some indentors demanded large

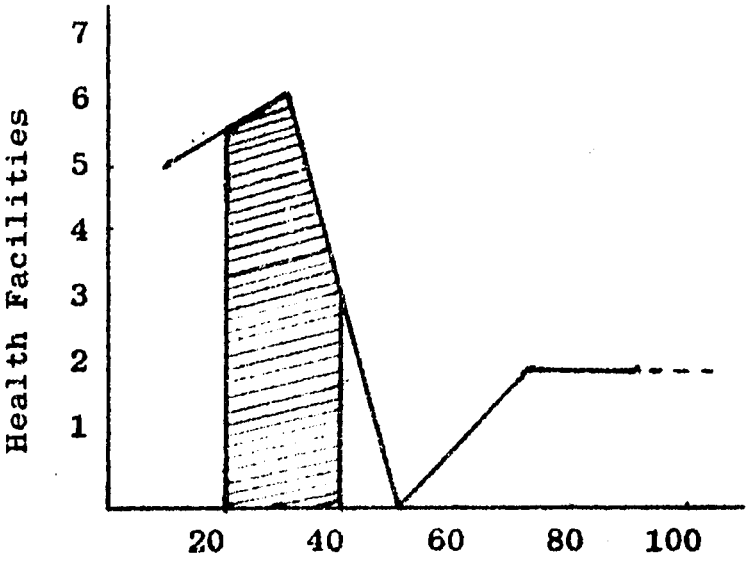
TABLE 8

Frequency Distribution
Supply Situation

Class Interval	Number of Health Facilities(by value)	Number of Health Facilities (by item)
Above 100%	2	0
80 - 100	2	0
60 - 80	2	1
40 - 80	0	1
20 - 40 (Modal and Median Class)	6	9
20 and less	5	6

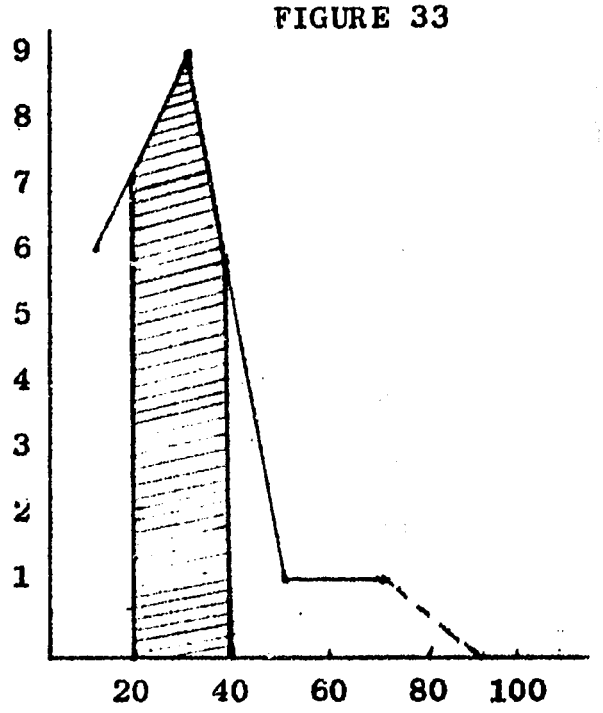
FIGURE 32

Frequency Curves



Percentage supply by value

FIGURE 33



Percentage supply by items

quantities of some drugs and very small quantities of others. A sample of 25 items was taken to study the variation in the quantities demanded by the indentors and quantities sanctioned by the District Health Officer. This comparison is shown in Table 9. Excluding five items for which more were sanctioned than were demanded, the sanctioned quantity varied from a low of 3% to a high of 67% of the demanded quantity. This points out the need for approprate criteria for the quantitiative assessment of the drug requirements for a given budget.

During the review and approval of indents very few District Health Officers actually scrutinize the indents. This is because of the length of each indent (over 100 pages), and the number of indents. Most District Health Officers have more important work, so they avoid the scrutiny of indents. In those cases where the District Health Officers do scrutinize the indents, the quantities sanctioned by them reflected their own estimates, which may not reflect the actual requirements.

1.1.8. Reductions in the Indented Items and Quanties Due to Infation Reductions in the indented items and quantities of each item due to inflation has complicated the supply problem even more. Since the budget is expressed in terms of rupees and has remained fairly constant, the volume of the supplies shrink each year. The drug budget is fixed over a period of time and no escalation clause is built in. Therefore, from year to year a particular health facility receive less and less as the costs of drugs go up.

1.1.9. Pricing of Indents - The Medical Stores Depot maintains a Rate Register for all the items available. The Rate Register includes

TABLE 9

Variation in Quant ties
Demanded and Sanctioned

No.	Name of the Item		Quantity Demanded	Quantity Sanctioned	Percentage Sanctioned/ Demanded
1.	Erethromycin	Tab.	1,000	500	50
2.	Fasogyn	"	500	50	10
3.	Maxolon	"	2,000	100	5
4.	SGD	"	5,000	200	4
5.	Phenobarbtion	"	5,000	200	4
6.	B. Complex	"	10,000	500	5
7.	Lomotil	"	5,000	500	10
8.	Oxytetracycline	Cap.	10,000	1,000	10
9.	Vit. R&D	"	20,000	500	3**
10.	Chlorophenicol	"	5,000	200	4
11.	Intestopan	"	2,000	500	25
12.	M. Vit.	Syp.	100 btl.	200	200*
13.	Intestopan	"	50 "	100	200*
14.	Oxytetracycline	Cap.	10,000	1,000	10
15.	Septran	Syp.	100 btl.	200	200*
16.	Coryban	"	100 "	200	200*
17.	Maxolon	"	50 "	200	400*
18.	Inj. Coramine	Amp.	400	200	50
19.	Septran	Syp.	300 btl.	200	67***
20.	Histamol	Tab.	10,000	5,000	50
21.	B. Complex	Inj.	1,000 vials	100	10
22.	B. Complex	Syp.	150 btl.	50	33
23.	Oxytetracycline	Drops	50 "	25	50
24.	Paracetamol	Tab.	10,000	2,000	20
25.	Acriflavin	Tube	130	50	38

* Sanctioned exceeds demand
** Low
*** High

the average price for each P.V. number. Average are developed according to the following formula :

Average price per unit =

$$\frac{(\text{New price x quantity}) \ 1.15 + (\text{Old price x Quantity})}{\text{Total Quantity (New + Old)}}$$

The 15% mark up is to cover the Medical Stores Depots administrative charges. When the indent is priced, a summary of charges is prepared in triplicate which includes the charges for the items, other charges including packing, shipping and loading charges. Pricing is done after the shipment is made resulting in some cases of supplies exceeding the budget limits.

It was observed that pricing cannot be done before the shipment because it creates problems regarding reshuffling of the items if the value of the supplies exceeds the budget limits.

1.1.10. Comparative Analysis of the Medical Stores Depot and Local Purchase Prices - It was reported that Medical Stores Depot prices were higher than the local purchase prices. An enquiry was conducted into this situation. For this purpose of analysis a comparison of the prices for selected items was conducted and it was found that this was true for only a few items. This comparison is shown in Table 10.

During the analysis it was observed that the local prices for same items were different because of the different manufacturing sources. Moreover some of the drugs supplied to the Medical Stores Depot were custom packaged and were not in

TABLE 10

MSD Vs. Local Purchase Prices

	Item	MSD Price Rs.	Market Price Rs.	Market Price Cheaper or More Expensive in %
1.	Cotton wool absorbent	17.25	14.95	-13
2.	Aspirin (per 1000 tabs)	19.25	17.00	-12
3.	Ammonimum Chloride Syp (450 ml)	10.50	10.00	- 5
4.	Sulphagonadine (1000 tabs)	6.40	35.00	+447
5.	Sulphadiazine (1000 tabs)	78.90	76.00	- 4
6.	Phenobarbitone (1000 tabs)	2.40	40.00	+1567
7.	Zinc Oxide Ointment (kg)	16.00	90.00	+423
8.	Iodine Ointment (kg)	19.80	95.00	+380
9.	Tincture Iodine (Ltr)	16.80	26.80	+60
10.	Paracetamol (1000 tabs)	51.40	100.00	+95
11.	Drops Chloroamphenicol (vial)	1.90	3.80	+100
12.	Streptomycine 1gm (vial)	1.55	1.50	-3
13.	Procain Pencillin 4 lac	1.55	1.10	-29
14.	Tetracycline btl. 60 ml	3.20	4.50	-41
15.	Calcium Lactate Powder (kg)	27.00	40.00	-48
16.	Gentamicin 2x2 ml	32.00	32.00	0
17.	Atropine 1% eye drops 10 ml	3.80	4.00	-5
18.	Glucose Inj. per bag 1000 ml.	10.60	15.00	+42
19.	B-Complex Syp. 456 ml	7.20	19.00	+164
20.	B-Complex Lycin 456 ml	9.50	8.00	-16
21.	Septran Inj. (Box of 20)	176.90	181.00	+2
22.	Hyoscine tab. (btl 100)	20.10	32.50	+62
23.	Chloroform (per ltr)	109.75	100.00	-9
24.	Ampicilin Syp. (btl 60 ml)	8.00	13.85	-73
25.	Erythromicine tabs 250 mg (10x10)	70.00	90.00	+29
26.	Ammonia Bicarb. pkt. 500 gm	4.90	7.25	+48
27.	Fefol Caps, (20 cap. pkt)	9.00	10.20	+13
28.	Chloroquine (1000 tab.)	400.00	126.00	-69
29.	Ext. Glycerezza Liquid	10.25	16.70	+63
30.	Distilled water (100 amp)	26.00	29.00	+12

standard market quantities. For comparison purpose prices were adjusted so that the prices were for the same quantities.

It was found that the prices for nine items which were procured by or manufactured at the Medical Stores Depot were higher than the local prices. Higher costs for these items were in part due the lack of economy of scale in production. The unit cost of production naturally goes up if the production is below a certain level. Another reason for the higher price was that the Medical Stores Depot's products were standared products that met higher quality criteria.

In case of the products that are not manufactured at the Medical Stores Depot, prices were higher for a few items. These higher prices are because they include a 15% administrative charge. This administrative charge represent the cost of ensuring the availability of a variety of different drugs from different sources in one place. The Medical Stores Depot also charges 30 paisas per maund for loading and off-loading and the charges for packing materials. It should be noted that the Medical Stores Depot charges are lower for more costly items and imported items. In comparing Medical Stores Depot prices with local market prices it is important to consider administrative and fetching cost that is associated with local purchases.

Based on this analysis it is evident that purchasing the Medical Stores Depot is an economical way of procurement.

1.1.11. Personal Contacts, Blank Indents and Urban Bias - One of the practices observed in connection with filing indents was that

Medical Officers or some other person from the health facility often take a blank copy of the indent, signed by the District Health Officer and files it in during a visit to the depot. Being aware of what items are available makes it possible to maximize the use of the supply budget.

It was observed that the short supply situation was also aggravated by the easy access to the depot by the urban health facilities. When urban health facilities learn of the availability of certain drugs at the Medical Stores Depot, they immediately send a person with a supplementary indent to fetch it. From a careful analysis it can be easy determined that the indent system is heavily biased towards the demand from the cities.

1.1.12. Comparative Analysis of Rural Drug Requirements - During the analysis it was observed that some of the indents were based on the previous years utilization. The question arose as to whether the previous years stock utilization can be taken as an accurate base that reflects the drug needs for the current year. It appears that the answer is no since drugs supplied to the facility during the previous years were consumed prior to year end with a short fall of 60% to 80%.

In those facilities that do not experience shortages it is usually because most patients do not get drugs from the facility or do not get a sufficient quantity. This is common because the health facilities tend to spread the use of limited resources over the entire year. It was also observed that many patients do not utilize the health facilities because they know that they will not get drugs because of non-availability.

A comparative analysis of the annual indents filed by 13 health facilities was conducted. The analysis focussed on the type of the items and the quantities demanded. The hypothesis behind the analysis was :

a) Almost all the rural health facilities indent similar items for a given budget.

b) Variation in the quntities of similar items indented is insignificant and is a function of the variation in the budgets for rural health facilities.

The analysis revealed that there was considerable unformity in the annual indent. However, supplementary indents were to some extent individualized. For the purpose of analysis a sample of 150 drugs was taken from the annual indents and the number of the items from the sample which were commonly indented by health facilities were identified. It was observed that there were only 11 items which were idented by only one facility. There were 16 items which were idented by two health facilities. No common item was found in the indents of all 13 health facilities, but there were two items which were common in the indents of 12 health facilities. The number of common items by number of health facilities is shown in Table 11.

Data from Table 11 was plotted on the graph shown in Figure 34. Considering only annual indents it was found that common items indented is not a normal curve. The reasons for this is :

a) Sample size was very small

b) Annual Indent do not give the demand for the whole year.

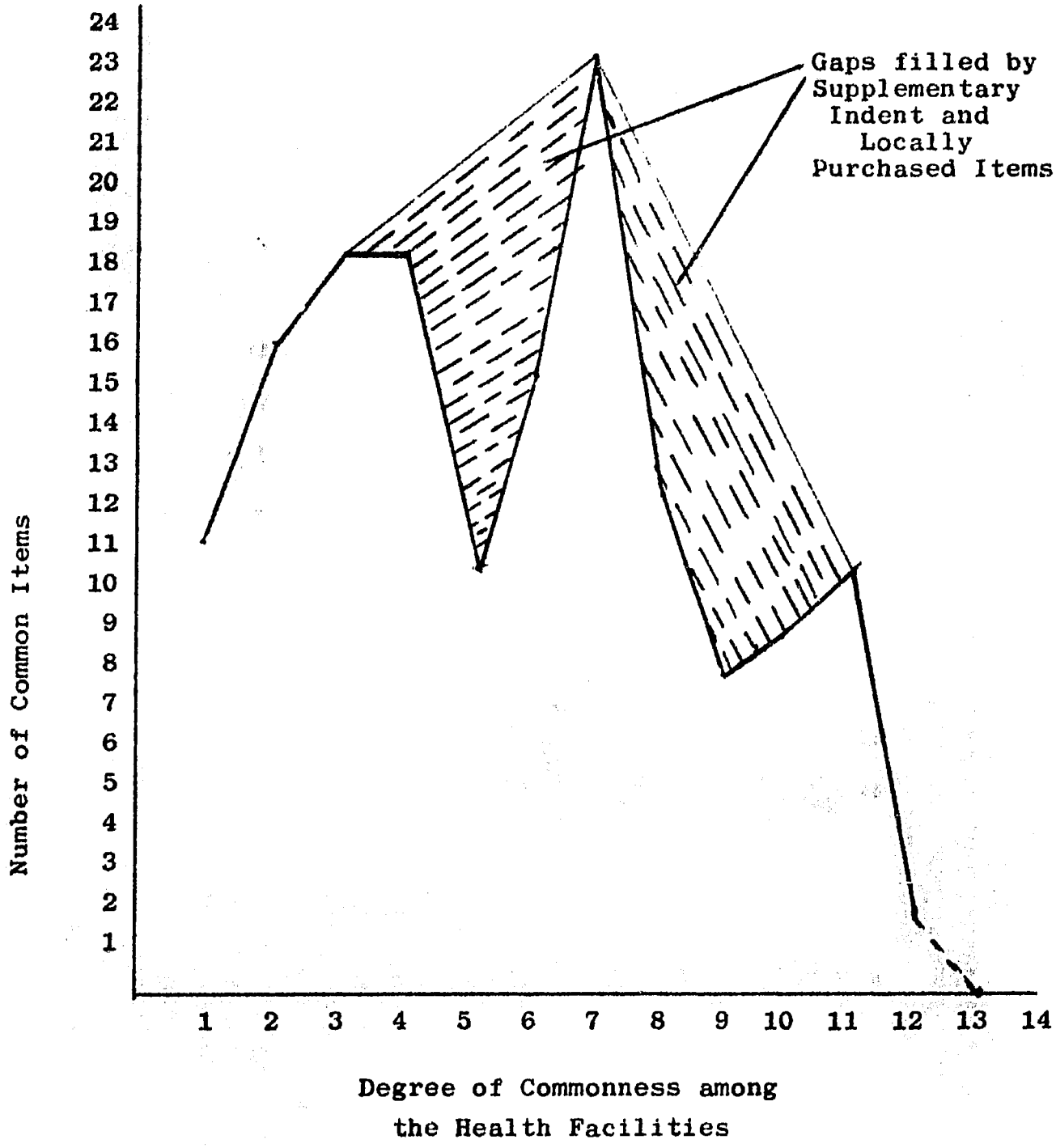
TAL 1

Common Items By Number of Facilities

Number of Health Facilities	Number of Common Items in the Annual Indent
1	11
2	16
3	18
4	18
5	10
6	15
7	23
8	12
9	7
10	8
11	10
12	2
13	0

FIGURE 34

Graph for Indents Commonalities



c) Filling of the indents is a hit or miss proposition and does not reflect the real needs for the year.

When the supplementary indents and items which were locally purchased at the three health facilities, were included in the analysis it was observed that the gaps between the peaks are filled and the curve behave like a normal curve. As a result it was concluded that the annual indents do not reflect the drug requirements for the whole year, but when the supplementary indents and local purchases are included a high degree of similarity among the drug requirements of the rural health facilities is observed.

The quantitative variations among the similar items were insignificant because the need for items by health facilities is almost alike and any variation in quantities of similar items is a function of the health facilities' budget.

From Table 12 it is clear that no standard criteria is used to arrive at the quantities indented. Some facilities indented very high quantities of drugs. For example one Rural Health Centre indented 150% more aspirine than demanded by the other Rural Health Centres. Excessive demand varied from 100% to 150% for aspirine while at the same time there were facilities which did not indent this item at all. In case of vitamin A&D capsules no significant differences in the quntities indented were observed. For vitamin B complex 300% more was indented by one Rural Health Centre. In case of calcium lactate tablets one Rural Health Centre indented 5 times more than the other Rural Health Centres. Whereas in cases of Basic Health Units quantities indented by one unit were 4 to 20 times the quantities demanded by the other units. Here it should be noted that a Basic Health Unit

TABLE 12

Drug Items and Quanties Indented By RHCs and BHUs

S.No.	Name of the Item	Unit	Rural Health Centres					
			Chawinda	Lalamusa	Warburton	Shah Jewana	Uch Sharif	Choti
			1	2	3	4	5	6
1	Aspirine	Tab	20000	20000	-	20000	-	50000
2	A & D Capsul	Cap	-	-	20000	-	20000	20000
3	B-Complex	Tab	2000	50000	20000	-	60000	10000
4	Benzyl Pencillin	Vial	-	2000	-	7000	5000	2000
5	Coramine	Amp	100	500	400	1000	300	1000
6	Calcium Lactate	Tab	10000	2000	-	-	-	50000
7	Dulcolex	"	500	-	4000	1000	5000	5000
8	Digexion	"	20000	1000	1000	-	-	-
9	Entroviaform	"	3000	10000	-	10000	10000	-
10	Faroxin	"	1000	-	2000	-	3000	-
11	Indocid	Cap	-	-	-	1000	1000	2000
12	Intestopan	"	-	1000	-	500	-	2000
13	Lomotil	Tab	500	-	-	-	-	5000
14	Multivitamin	"	30000	50000	-	-	30000	50000
15	SDZ	"	20000	20000	-	10000	50000	50000

(Continued next page)

(Continued from previous page)

S. No.	Name of the Item	Unit	Basic Health Units											
			Kotli Sayyadan	Badiana	Punjan Kasana	Kiran wala	Bahuman	Laggar	Iqbal Naggar	Inayatpur	Budhuwali	Haiderpur	Muna Ahmedani	Choti Bala
			1	2	3	4	5	6	7	8	9	10	11	12
1	Aspirine	Tab	-	20000	20000	5000	10000	25000	20000	10000	-	20000	15000	-
2	A & D Capsul	Cap	5000	-	-	5000	5000	2000	10000	5000	-	-	-	-
3	B-Complex	Tab	10000	-	4000	10000	5000	1000	10000	-	-	5000	-	-
4	Benzyl pencillin	Vial	100	5000	1000	-	1500	2000	10000	1000	-	-	500	-
5	Coramine	Amp	500	200	-	-	100	100	500	-	-	100	-	-
6	Calcium Lactate	Tab	1000	-	2000	-	5000	20000	5000	-	-	5000	-	-
7	Duicolex	"	200	-	-	1000	500	5000	1500	-	-	2000	-	-
8	Digexion	"	100	200	-	-	500	-	500	1000	-	-	-	-
9	Entroviaform	"	1000	-	-	1000	3000	5000	1000	1000	-	2000	-	-
10	Faroxin	"	10000	-	-	1000	-	-	1000	500	-	2000	-	-
11	Indocid	Cap	500	-	500	5000	-	1000	100	-	-	200	-	-
12	Intestopan	"	100	-	500	-	-	-	500	-	-	200	-	-
13	Lomotil	Tab	1000	3000	-	500	1500	-	1000	-	-	200	-	-
14	Multivitamin	"	5000	10000	3000	10000	5000	2000	5000	5000	-	5000	10000	-
15	SDZ	Cap	10000	20000	5000	8000	10000	2000	10000	5000	-	1500	5000	-

TABLE 12 (Continued)

which is a smaller health facility than a Rural Health Centre, demanded twice the quantities of calcium lactate than that demanded by the Rural Health Centre. Similar observations were made for many other drugs.

From the table it is clear that the lack of standard criteria for the assessment of drug requirements creates acute shortages of some badly needed drugs while at the same time excess quantities of other drugs are indented and procured by the health facilities.

1.2. Local Purchases

The local purchases system was analysed to identify the problems and bottlenecks in the system.

1.2.1. The Existing System - There is a budget provision for local purchases. In addition local purchases are made with funds budgeted for MSD purchases as a result of items not available from the stores depot.

Budget provision for the local purchases of drugs and medical supplies is intended for minor purchases and the officer-in-charge at the Rural Health Centres and Basic Health Units cannot make major purchases out of these fund. Major purchases out of this fund are done through a purchase committee with the District Health Officer as chairman. District Health Officers purchasing power as expressed in "Delegation of Powers" is Rs.20,000 per purchase per major budget line item for the year.

It was noted that the budget for local purvhase as expressed by the budget, exceeds the purchase powers of the District Health Officer as expressed by the "Delegation of Powers". If there are six Rural Health Centres in a district, the budgeted provision for the local purchases would total Rs.60,000/- whereas District Health Officers purchasing limits for local purchase is Rs.20,000/-. In practice, if purchases are to be made for an amount in excess of Rs.20,000/-, it is split into several smaller purchases each not exceeding Rs.20,000/-. Splitting purchases into smaller values facilitates the procurement process because it helps avoid the bureaucratic control and red tape. Since the purchase is split into several smaller purchases the benefits of bulk purchasing are lost.

The other provision for local purchases is the result of items not available at the Medical Stores Depot. If not-availables items from the Medical Stores Depot are urgently required and cost less than Rs.100, no bidding is required and the Medical Officer at the Rural Health Centre makes the purchases with approval from the District Health Officer. If not-availables cost more than Rs.100 formal bidding is required. If not-availables are not urgently required, another supplementary indent may be filed with the Government Medical Stores Depot and local purchase is postponed or avoided.

If the local purchase items cost less than Rs.20,000, the Rural Health Centre usually prepares a demand list of not-availables. The demand list is sent to the District Health Officer for his approval. After approval the Rural Health Centre usually calls for bids from several local chemist shops.

The Medical Officer prepares a comparative statement of the rates offered by at least three bidders. The comparative statement is sent

to the District Health Officer for approval, After approval, a person is sent to the successful bidder to collect the drugs. Receipts agains the local purchases are recorded on the local purchase register.

If the local purchase items are worth more than Rs.20,000 the demand list of not-availables and other items required is prepared. The District Health Officers' approval is required and he calls for bids with the approval of the Deputy Director of the Division. Bids are not required for purchases direct from manufacturers.

If the purchase was for only one facility, the shipment to or direct collection from the supplier is made. In case where the purchase is combined for more than one Rural Health Centre, the supplies are shipped to the District Health Office where they are split according to the demands and collections are made by each facility.

In Punjab the Deputy Director does the purchasing when the amounts exceeds the District Health Officers purchase limits. Purchases by the Deputy Directors are very rare because in such cases either the Deputy Director delegates authority to the District Health Officers or the District Health Officers avoid such situations by splitting the purchases into several small purchases.

Near the end of fiscal year, budget reappropriations are common. This occurs when funds for a particular budget line item are left over near the end of the year. These funds are reappropriated to line items where the funds are needed. It is a common occurance that budgeted funds for drugs and supplies from the Medical Stores Depot are left over. These funds are often reappropriated to other line items and very often to local purchases.

1.2.2. The Petty Cash System - In the absence of an imprest account or petty cash system payment for local purchases requires a lengthy procedure. Payment for these purchases is made from a contingency voucher. This voucher is issued by the District Accounts Officer utilising the information from the comparative statement. A copy of the comparative statement is also sent to the District Account Office, where it is scrutinised, recorded and sent back to the Rural Health Centre with the contingency voucher. The Rural Health Centre arranges to pay the chemist with money drawn from the local bank against the contingency voucher. This procedure requires a minimum of ten days.

Medical Officers are authorised in emergencies to make purchases from their own private funds not exceeding Rs.50 per purchase. Most of the Medical Officers at the health facilities do not avail themselves of this authorization because of the lengthy procedure for getting reimbursed for such expenditure.

1.2.3. Unnecessary Costs for Local Purchases - A significant amount of travel time and transportation cost is involved in making local purchases and making payment for them. The bidders incur some travel costs for getting payment for supplies. The bid rates naturally include these costs.

In addition to these bidder's costs which are in the bid rates, other costs are incurred by the Rural Health Centre. For example, a man is sent from the Rural Health Centre to the District Health Office to get approval from the District Health Officer. He is then sent to various chemist shops to get bids.

The comparative statement is prepared at the Rural Health Centre and again a man from the Rural Health Centre is sent to the District Health Office to seek the District Health Officers' approval. If the District Health Officer is not available, another visit is required. Another visit to the bidder is required to fetch the supplies for the Rural Health Centre.

1.2.4. Lack of Drug Testing - The system of local purchases does not assure quality control of any kind for drugs because of the lack of drug testing at this level. The only quality asurance below the Directorate level is the drug inspection program at the Division level. The Division Drug Inspector inspects chemist shops in the division but this effort cannot be traced to "quality" in local purchases since the inspection does not include testing of specific drugs.

1.2.5. Purchasing Authority - Formalism is a situation where actual behaviour is different from a prescribed behaviour. A high degree of formalistic behaviour was observed in the utilisation of the drug budget. In theory the authority to make purchases is centralized and purchases are to be made from a central supply depot. But in practice authority to make purchases is decentralised through the bureaucratic process.

This is illustrated in Table 13 which compares the Medical Stores Depot budget and local purchase budget to actual expenditures for these categories for the fiscal year 1978-79. In the case of some facilities a high percentage of the drug budget was spent on local purchases.

Budgeted and Actual Expenditures at Six IPHCs - 1978/79

S. No.	Name of the Rural Health Centre	Budget for MSD Drugs and Medical Supplies	Actual Budget Spent on MSD Drugs and Medical	Percentage of Left-Over MSD Budget	Budget for Local Purchases of Drugs	Actual Amount of Local Purchases	Percentage Excess of Local Purchases
1	Chawinda	37,000	36,900	0.27	5,000	5,000	00
2	Lalamusa	20,000	16,414	17.93	5,000	2,920	-42
3	Warburton	23,000	33,000	-43	2,000	4,000	100
4	Shah Jewana	21,680	20,237	7	5,000	5,350	7
5	Uch Sharif	37,400	8,517	77	6,500	35,384	344
6	Choti	40,000	16,118	60	10,000	6,780	-32

TABLE 13

1.2.6. Drugs and Medical Supply Budget Surplus - It was observed that a high portion of the budget for drugs and medical supplies is not spent during the fiscal year and near the end of the year the surplus is reallocated to other budget line items or is surrendered. This situation exist even though there is a severe shortage of drugs.. Table 14 gives the percent budget surplus for the six Rural Health Centres covered by this study. The Basic Health Units were not included in this analysis because they were only recently commissioned.

1.3. Procurement Process (MSD)

An enquiry was conducted into the procurement procedures at the Medical Stores Depot, Lahore. This enquiry was conducted because the procurement procedures by this facility were reported to be the main cause of short supplies at the haalth facilties.

This enquiry included :

a) Evaluation of the procedures for the determination of drug needs by the Medical Stores Depot.

b) Time factor analysis from the point of the determination of drug demands to the point where the drugs are entered in the receipt column of stock ledger registers, ready for issue.

1.3.1. The Existing System - The procurement process begins with the preparation of the Annual Provisioning Statement. The total demand for the coming year is computed using the average annual consumption for the last three years or the last years consumption whichever is

TABLE 14

Budget Left-overs at Six
Rural Health Centres
1978-79

No.	Rural Health Centre	Total Drug Budget	Spent on MSD	Percentage	Spent on Local Purchases	Percentage	Budget Left-over	Percentage of Left-over
1	Chawinda	42,000	36,900	87.86	5,000	11.90	100	0.24
2	Lalamusa	25,000	16,414	65.66	2,920	11.68	5,555	22.66
3	Warburton	25,000	33,000	-	4,000	-	-	-
4	Shah Jewana	26,680	20,237	75.85	5,350	20.10	1,093	4.10
5	Uch Sharif	43,900	8,517	19.40	35,384	80.60	1	.002
6	Choti	50,000	16,118	32.24	6,780	13.56	27,102	54.20

greater plus the quantities not available from the Not-Availability Register

The "net requirement" for the procurement indent is arrived at by substracing from the total demand the stock-in-hand plus the total dues-in (the drugs already indented). The total cost of the "net demand" is calculated on the basis of the rate per unit of the previous bid and all of these entries are made on the Annual Provisioning Statement. If the budget is less than the aggregate total cost, demand is cut to fit the budget .

The Annual Provisioning Statement is sent to the Directorate of Health Services for approval where it may be altered or sent back to the depot for reassessment of the demands. After approval from the Directorate the Statistical Section of the Government Medical Stores Depot prepares nine copies of the indent on the basis of the approved Annual Provisioning Statement.

The indents are forwarded through the Directorate of Health Services to the Directorate of Industries. It should be noted that the Directorate of Industries is the primary procurement body for the Government Medical Stores Depot. The Directorate of Industries has two section (MSD 1 and MSD II) which are responsible for floating the tender enquiries, calling for bids and subsequent procurement. There is adequate involvement of the Health Directorate in terms of its agreement being sought on the comparative statement and contractual amendment are not made without their consensus.

After the issuance of the Acceptance Tender Letter to the successful bidder, the system is adequate for checking the malpractices on the part of the successful bidders. The Acceptance Tender Letter speci-

fies a delivery period and a penalty of 2% is charged to the supplier if he fails to provide the bid items within the scheduled delivery period.

When the drugs and supplies reach the Medical Stores Depot, they are not immediately entered on the stock-ledger register for issue to health institutions, because drugs testing is required. Samples are drawn from the supplies and sent to the drug testing laboratory for testing. When the drug testing laboratory report is received and the samples are declared acceptable, then the Inspection Board checks the quality, quantity and specification of the stock and issues an inspection certificate. The supplies are then sent to the main store, entered on the stock ledger registers and are ready for issue.

Before the delivery at the receipt section, gate-in and delivery challans are prepared. There is fortnightly inspection of the stock received at the Receipt Section by a six-member Insepction Board which checks the condition and specification of the stores received before it is moved to the main store. Effective control is insured since the Inspection Board records the receipts on the Stock Ledger form.

1.3.2. Assessment of the Drug Requirements - The Provisioning Statement was analysed to determine the extent to which it reflects the actual demand for the drugs and medical supplies. Assessment of the drugs requirements is done according to the following arithmatical operations :

$$ND = \lceil \bar{I}_3 \text{ or } I_{12} \rfloor + \lceil NA - S - DI \rfloor$$

whichever is greater

Where :

ND = Net Demand

$\bar{I}_3$ = Average annual issues, last 3 years

I_{12} = Issues, last 12 months

NA = Number of this item not available

S = Stock in hand

DI = Due in

If the demand is negative, it means that the stock in hand plus stock due in is more than the net demand and no indenting is required for that item.

The Annual Provisioning Statement also gives the total cost of each item. This cost is arrived at on the basis of the cost of the last bid. The total cost is used to make budgetary adjustment decisions.

The following deficiencies in the procedure were observed :

a) Incorrect figures are included in the total demand (column-6) from the stock ledger register and from the Non-availability Register. Incorrect figures in this column result in an inaccurate picture of the actual requirement for drugs and supplies. This may be understood by tracing the system from the indenting practices and the assessment of drugs and medical supplies required by the health facilities.

Since the health facilities from their past experience know that only a small percentage of the indented demand

will be met by the Medical Stores Depot there is a natural tendency on their part to inflate demands. Although there is a budget check on the demands, this check is circumvented by using "deflated prices" when indents are priced by the indentor This results in purchasing the wrong mix of items. The situation is even more complicated when the adjustments to correct the inflated demand are made on the basis of subjective judgement. Such discretionary adjustments result in surpluses and shortages at the Medical Stores Depot.

b) The practice of intentionally indenting items not-available leaves the health facilities with more budget to make purchases in the local market at their own discretion. This tendency may result in inflated and incorrect demand for certain drugs and medical supplies in the Annual Provisioning Statement and consequently may result in surplus purchasing for certain items. Since the budget for drugs and supplies is fixed, surplus purchasing for some items creates shortages of other needed drugs.

c) The system of assessing the provincial drug requirements through the Medical Stores Depots Annual Provisioning Statement is inadequate because it does not consider requirements for the newly commissioned facilities. Also, it does not take into account the increases in the budget allocations of the existing health facilities.

d) In many cases, the total drug budget is indented by some health facilities. Many of these facilities file their annual indent and one or two supplements and then rely on local purchases for items not available When a new Medical Officer comes to these facilities the demand on Medical Stores Depot often increase,

where the depot has been recording a low demand for several years.

e) Staff at the Rural Health Centres do not have the knowhow for optimum use of the supply budget. The trend is to indent more expensive drugs. When reflected through the Annual Provisioning Statement this causes suboptimum purchasing of an inappropriate mix by the Medical Stores Depot.

f) The aggregate cost of the items in the Annual Provisioning Statement almost always exceeds the supply depot budget limits. When the budget is less than the aggregate costs, the demands are cut to fit the budget. Reducing the demands to fit a given budget distorts the quantitative process for determining drug requirements.

g) Even if drug requirements for the newly commissioned health facilities and increases in budget allocations were considered the demands would not be accurate, because the system is not linked with the assessment of drugs needs at the facilities.

For example, at the Rural Health Centres and Basic Haalth Units many patients do not receive drugs because they are not available.

h) It was observed that when the drug requirements are recorded in the Annual Provisioning Statement, items not commonly used are kept as low as possible. There are no definite guidelines on how low to keep these quantities to avoid overprovisioning. Excessive use of this criteria results in under-procurement for certain items which may be commonly used.

1.3.3. The Role of the Indenting Officer at the Health Directorate - The role of the Health Directorate's Indenting Officer was analysed. His role is of an intermediary processor who channels the indents and necessary documents between the Directorate of Industries and the Government Medical Stores Depot. In purchase decisions for Medical Stores Depot, he represents the Directorate's point of view.

The important thing to note here is that the involvement of the Medical Stores Depot in procurement decisions is indirect. It is the Directorate of Health Services which fills this role while on the other hand the Medical Stores Depot receives most of the criticism for short supply and procurement delays. Similarly, the Department of Industries, although primarily responsible for procurements receives very little criticism because of the organizational distance and difference from the Health Department.

The Medical Stores Depot is responsible for maintaining adequate stocks of supplies and to insure a continuous stock of supplies to the health institutions. But the depot does not have the authority to accomplish this. The Medical Stores Depot has to look to the Directorate of Health but the Directorate of Health Services, although responsible cannot make purchases. The Directorate of Health is dependent on the Directorate of Industries which neither feels responsibility for supplies to the health facilities or to the Medical Stores Depot.

The paradox is that the responsibility for ensuring supplies to the health institutions is with the Medical Stores Depot

and the authority to discharge this responsibility is with the Department of Industries. Unless the gap between authority and responsibility is eliminated the short supply problem will continue to exist. Also, a direct or close liaison between the procurement body and storage and distribution is missing. In this regard the indenting officer does not have adequate authority to be effective.

The storage system at the Medical Stores Depot operates on an annual basis which requires a more sensitive Economic Order Quantities level (EOQ). A more sensitive EOQ would improve the supply situation. This situation may be traced back to the "authority-responsibility dilemma". Authority delegated to the Medical Stores Depot is not commensurate with the responsibility assigned to it. The Medical Stores Depot is held resonsible to meet the indented requirements and does not have the authority to match this responsibility. For example, the Medical Stores Depot does not have the necessary buffer stock to cover the demand during the whole procurement cycle. This could be solved by reducing the time required for procurement. The Medical Stores Depot however, does not have the authority to do this. The depot cannot reduce the time required because two other organizations beyond their jurisdiction are involved. The indentors not knowing the organizational relationship hold the depot responsible.

1.3.4. Time Factor Analysis - Time factor involved in the procurement process were analysed to determine delays, if any in the system. The time required from the point of preparation of the Annual

Provisioning Statement to the point when the supplies are received and entered on the stock registers ready for issue was determined. It was found to vary from 10 to 14 months. Similarly the time for the preparation of the provisioning statement to the issuance of the Acceptance Tender Letter varied from five to seven months. It was observed that one to two months for delivery was allowed but it usually required three to four months. The analysis is shown in Table 15. This analysis showed that the time for certain processing activities can be reduced. Major activities for which the time can be reduced are :

a) Processing of indents and floating of tender enquires.

b) The time period for receiving bids.

c) Scrutiny and approval by the Directorate of Health Services.

d) Delivery period.

e) Drug Testing Laboratory Report.

Processing of indents and floating of tender enquiries requires 30 to 40 days. Processing of indents is unnecessarily slow. It was observed that many of the indents filed with the Industries Department for the last two or three years have neither been met nor cancelled.

The time period for receiving bids varies from 30 to 40 days. Based on interviews with bidders it is concluded that this period can easily be reduced to 15 days. The major activities which the bidders have to do during this time is to evaluate their resources and price

TABLE 15

Time Factor Analysis for Major Procurement Activities

Step	Activity	Time factor
1.	Preparation of the Anuual Provisioning Statement	0
2.	Scrutinization and Approval from DHS	10 to 15 days
3.	Preparation of the Indents by MSD	10 to 15 days
4.	Scrutinization of Indents and approval	10 to 15 days
5.	Placing of Indents on Directorate of Industries	10 to 15 days
6.	Processing Indents and Floating of tender enquiries	30 to 40 days
7.	Bidding called (Time period for bids)	30 to 40 days
8.	Preparation of the comparative Statement	15 to 20 days
9.	Scrutiny and approval from the DHS	25 to 30 days
10.	Issuance of Acceptance Tender Letters to the Successful Bidders	15 to 20 days
11.	Delivery period	30 to 60 days (may stretch to 90 days)
12.	Drug Testing Laboratory Report	30 to 90 days
13.	Issuance of Inspection Certificate	10 to 15 days
14	Entry on the Stock Ledger Registers	5 to 10 days

trend in the market and they feel that they can do this during a fifteen days period.

Scrutiny and approval of the comparative statement by the Directorate of Health Services take at least 25 days. The comparative statement is prepared by the Industries Department and is sent back to the Health Directorate for its scrutiny and approval. Bidders complained that after approval orders are not placed for one or two months. When the order is finally placed, the prices of the items increase to the point that the bidder have difficulty supplying the items at the bid price.

After the issuance of the Acceptance Tender Letter to the successful bidder, the delivery period varied from 30 to 90 days. Officially the delivery period is in no case more than two months, but in actual practice, a high frequency of deviations from the scheduled periods were observed. An inquiry into the problem revealed that the suppliers had an economic incentive in not complying with the delivery period. After the Acceptance Tender Letter is issued, the successful bidder has an order in hand from the government and feels that he has an extendable delivery period. So there is little incentive for him to fill that order within the required period. This is because the supplier knows that even if he fills the order during the scheduled period, he will not get paid from the national exchequer immediately. He knows that delivery will tie up his capital for a long period of time. To avoid this situation the Medical Stores Depot charges late delivery penalty of 2% of the bid amount. The cost-benefit analysis from the supplier's point of view revealed that the penalty charges are not high enough to off-set his incentive profit in the private market. It was determined that the delivery period can be reduced

if the quantities required are communicated to the bidders at the proper time and if payment is made on a more timely basis.

1.3.5. Drug Testing Laboratory - The drug testing laboratory was found to be a major bottleneck in the procurement and distribution system. Once the drugs from the suppliers have been received at the Medical Stores Depot, samples are drawn and sent to the drug testing laboratory. The laboratory is supposed to sent a report on the samples received within two weeks. In practice the drug testing report usually takes more than six months. Such delays usually result in the delay of payment to the suppliers. The shelf life of the products is also reduced since the supplies are held untill the report is received.

Complaints of lower efficacy of certain drugs were registered during this enquiry. The problem of lower efficacy of drugs was traced to poor drug testing facilities at the laboratory. Some substandard drugs are approved because of the lack of modern drug testing apparatus, lack of up-to-date literature on drug analysis, lack of commitment among the employees and lack of skilled personnel. Also, there is an opportunity on the part of suppliers to influence the testing process and have substandard drugs approved.

1.3.6. Suppliers to the Medical Stores Depot - It was observed that some manufacturers avoided bidding on Government Medical Stores Depot indents. Particularly the research based internationnal drug companies were reluctant to bid on government

indents because the cost based competitive process prices their product/ out of the market. It was observed that generally the bidding is done by intermediary firms. It is apparent that if middlemen were eliminated and direct purchases made, big saving would accrue. In other words, purchase volume for a given budget could be enhanced by direct purchases from manufacturers.

1.3.7. System of Payment for Medical Stores Depot Supplies - The Medical Stores Depot provides drugs and medical supplies to the health institutions run by the provincial Health Department on a book debit basis. Supplies are provided to private institutions on a pre-payment basis. Under the book debit basis, no financial transactions takes place. Only the book adjustments are made at the Accountant General's Office. Under the book debit system sometimes the supplies exceed the budget limits of a health facility. This excess is recovered from the next year's budget of the health facility. Usually the book debit is within the budget allocations of the health facility.

1.3.8. Items with Expired Shelf Life - Procurement and storage of expired items was observed. This was because of the lengthy procurement procedures, delays in receiving the drug testing report and the delays in delivery to the health facilities.

1.3.9. Purchase Powers of the Officer-in-Charge - The Officer-in-of the Medical Stores Depot does not have the authority to make purchases to meet the immediate requirements for items out of stock. Since 1962 the Officer-in-Charge has had authority to make purchases for Rs.5,000/- per item. It should b

noted that due to inflation Rs.5,000/- in 1962 would amount more than Rs.20,000/- today. It appears that it would be economical to allow purchasing of non-available items at this level since it would avoid the necessity of making uneconomic purchases at the district level against not-availables. In addition purchasing by the depot is easier to supervise and control than it is at the district levels.

1.3.10. Bidding Procedure Analysis - The bidding procedure was analysed to determine :

a) Why certain companies are not successful bidders.

b) Why certain manufacturers bid through market channels and not directly.

c) Why competitive bidding results in the procurement of low quality products.

d) Whether the "so called" low quality products are really low quality products.

It was observed that when inviting bids competitive behaviour of firms and the quality of their products is not given due consideration. A problem occurs when indentors requires a particular drug from a particular company and the Medical Stores Depot is not able to provide that particular brand. This situation creates problems because physicians at government haalth facilities feel that their practice is being confined to the prescription of low quality drugs. If the patient is not cured by the "so called" low quality products the patient's feelings are directed against the physician not against the prescribed drug. This situation is even more aggravated when the patient is told that the drug is from the

Government Medical Stores Depot and is of inferior quality.

1.3.11. Medical Stores Depot Budget Vs. Provincial Drug Budget - One of the major causes of short supplies by the Medical Stores Depot is the fact that the combined drugs budget for the provincial health facilities is three times the Medical Stores Depot budget. The Medical Stores Depot cannot meet the indented demands because :

a) The depot's budget allocations does not match the combined provincial drug budgets.

b) The budget is not on a revolving basis.

c) Payment system is book debit instead of pre-payment.

Correcting this situation would help solve the short supply problem and reduce administrative cost. If budgetary arrangements are made so that the depot meets 90% of the indented demands, the depot service charge for supplies could be reduced from 15% to 7%. This will enable the depot to allocate its overhead over a large volume.

1.3.12. A Comparative Analysis of the Market Prices and Medical Stores Depot Procurement Prices - A sample of 10 items was selected to determine the differences between the Medical Stores Depot's procurement rates and the market rates at both trade and retail outlets. The comparison is shown in Table 16. In all cases the Medical Stores Depot's procurement rates are lower than the price of the same items at retail outlets. Two cases were observed where the Medical Stores Depot's procurement rates were higher than the prices

TABLE 16

Market Prices Vs. MSD Procurement Prices

S.No.	Item	Rate at Which Provided to the MSD	Retail Price	Trade Price
		Rs.	Rs.	Rs.
1.	Gentamicin (3x1ml)	25.50	30.00	25.50
2.	Vit. C. Compound (3x3 ml)	4.00	8.00	6.80
3.	Syp. Oxtetracycline (60 ml)	3.93	4.50	3.83
4.	Ultranum Ointment	4.42	12.00	10.20
5.	Suspension Kaoline Steptomicine (120 ml)	3.90	5.00	4.25
6.	Hyoscine B.B. Tab (100)	17.45	25.00	21.25
7.	Cap. Oxytetracline (100)	24.45	36.00	30.00
8.	Erythromicin (100 per pack)	66.75	90.00	76.50
9.	Hyscine B.B. Inj. (30 x 1 amp)	18.00	24.00	20.40
10	Frusscimide Tab.	28.00	30.00	25.00

of similar items at trade outlets. In one case the trade outlet price was equal to the price at which the Medical Stores Depot procured that item. In some case the Medical Stores Depot procured items at a price 5% to 20% less than the price at the trade outlets. A further enquiry revealed that where the purchases were made direct from the manufacturers, the prices was less than at the trade outlets.

1.3.13. Purchase Committees: A Recent Development - The provincial Health Department has recently managed to take the purchasing powers away from the Department of Industries and assigned this responsibility to three purchasing committees. There is a separate committee for purchasing for the Medical Stores Depot; for hospitals (including district and tehsil facilities); and for rural health facilities. This arrangement is on a trial basis. The committees have been delegated the powers to make purchases according to the following procedure:

a) Indents are received by the Medical Stores Depot and processed according to existing procedures. The depot supplies those items that are available and send a list of "not-availables" to the appropriate committee.

b) The committee combines the list of "not-availables" from the indents and purchases those items.

c) The items purchased are shipped to the Medical Stores Depot, stored and then shipped to the indentors.

The purchase committees system was analysed to determine its effectiveness. It was found that even though the new system is an improvement it does not solve some of the major problems because :

a) Does not ensure the availability of supplies at the time the original indent is filed.

b) The purchase procedure for more than two hundred items is repeated by each of three committees. First purchasing is done for the Medical Stores Depot, then the items not-available are purchased by one of the committees.

c) Purchasing responsibility is delegated according to the type of indentors i.e., teaching hospitals, District Hospitals, Rural Health Centres, etc. All three committees purchase all items separately in varying quantities, losing the economy of bulk purchasing.

d) Each committee floats tender enquiries and calls for bids separately. This could result in each committee procuring the same item at different prices.

e) The procurement and distribution cost is increased because three committees duplicate each others work.

f) The new system does not provide for accurate assessment of the drug requirements of the health facilities.

g) The members of the committees are busy persons and it appears difficult to convene meetings for frequent purchases.

1.4. The Government Medical Stores Depot

Because the commissioning of Integrated Rural Health Complexes

will result in increased demands on the Medical Stores Depot, an enquiry was conducted into the operation of this facility.

The Government Medical Stores Depot is located in five godowns that have been on loan since 1971 from the Food Department. The covered area of these godowns is 4,650 square meters. At the former location in the Military Engineering Services building, the covered area was 9,300 square meters.

1.4.1. Pharmaceutical Factory - The Supply Depot Pharmaceutical Factory is not being utilised to its full capacity due to lack of space. If more space is provided the depot would be able to install additional machinery. The machines are available at the depot. Due to lack of space the Pharmaceutical Factory has never run strictly in accordance with the requirements of the Drug Act of 1975. Provisions have not been made for proper sterilization and for separate sections for installing machines for manufacture of tablets, capsules, ampoules, liquids, liniments and ointments etc. The ampoule filling machine which was purchased in 1976 has never been installed because of non availability of space. A new section for coating tablets should be opened. Coating pans will have to be purchased and installed. Since the start of the Pharmaceutical Factory the post of Factory Manager has been vacant. This has effected the efficiency of the factory adversely.

1.4.2. Manpower - Some posts in the Government Medical Stores Depot have been lying vacant for quite some time. These include posts already sanctioned by the Finance Department but not filled by the Health Department. Vacant posts include Depot Manager, Factory Manager, Purchase Officer, Workshop Supervisor. An officer should be trained and then posted as Depot

Manager. In order to improve the working of the depot the other vacant post should be filled without further delay. Filling these post will improve the efficiency of the depot.

1.4.3. Workshop - The workshop at the depot is understaffed and not fully equipped. The post of Workshop Supervisor is lying vacant and no steps have been taken to fill this position. The workshop needs tools and equipment for the repair and overhaul of surgical instruments, hospital and laboratory equipment.

1.5. UNICEF Drug and Medical Supplies

UNICEF assistance to the Rural Health Centres and Maternity and Child Health Centres was analysed to determine the direction UNICEF assistance should take with regard to the Integrated Rural Health Complexes.

UNICEF assistance to Pakistan was analysed from the year 1976 to 1979. The trend in the growth of assistance for various categories was observed. During the period 1976-79 total UNICEF assistance to Pakistan amounted to 27.3 million dollars from which 19.9 million was expended on the health sector. Maternity and Child Health Programs received 10.3 million dollars or 52% of the amount spent on the health sector. Rural Health Centres and Basic Health Units received 1.3 million (7%) and the balance of 8.3 million (41%) was spent for other health programs. The breakdown is shown in Table 17.

1.5.1. UNICEF Assistance for Maternity and Child Health Services and Primary Health Care - UNICEF strategy for improving health care focusses on child care and prenatal and post-

UNICEF ASSISTANCE TO THE HEALTH SECTOR, 1976-79

Year		Total Assistance	Expended on Health			
			Total on Health Preventive and Curative	MCH Services	RHCs and BHUs (excluding LHV component	Other Health Program
1976	Amount	$ 3,700,000	2,359,00	1,168,600	142,700	1,047,700
	% of Total	13.65	11.82	11.33	11.00	12.56
1977	Amount	$ 6,900,000	5,160,000	1,723,000	308,000	3,129,000
	% of Total	25.27	25.87	16.70	23.75	37.53
1978	Amount	$ 8,200,000	5,900,000	2, 22,300	258,700	2,919,00
	% of Total	30.00	29.58	26.40	19.94	35.00
1979	Amount	$ 8,500,000	6,526,000	4,698,400	587,700	1,239,900
	% of Total	31.13	32.71	45.56	45.30	14.87
1976-79	Total	$27,300,000 100%	19,945,000 100%	10,312,300 100%	1,297,100	8,335,600 100%

TABLE 17

natal care for mothers. The protection of the mother during and after pregnancy is regarded as the first step in protecting the child's health and physical development. To achieve this object UNICEF assistance has been provided for Maternity and Child Health Services for the last 25 years.

UNICEF is the largest single donor for Maternity and Child Health Services. UNICEF has been providing drug and diet supplement in the form of a kit to Maternity and Child Health Centres and for the Lady Health Visitors posted at the Rural Health Centres and Basic Health Units. The kit is usually provided once a year but more kits may be provided on the basis of consumption patterns. The average cost per kit is Rs.2,850.

1.5.2. UNICEF Procurement System - When a program is accepted in principle by UNICEF, the Program Officer determines the type and amount of UNICEF assistance. The Program Officer then lists the supply and equipment items that may be obtained from UNIPAC in Copenhagen. The items that cannot be obtained from UNIPAC are purchased by one of the overseas buying offices or purchased locally. The UNICEF Supply Division in New York, controls UNICEF Buying world-wide.

It was observed that almost all the items provided to the primary health care institutions are UNIPAC items, whereas most of the items (especially some of the instruments) provided are available in the local market at a cheaper rate.

1.5.3. Under utilization of Equipment - During the study it was observed that most of the instruments and equipment received from UNICEF were not being utilised or were underutilised.

This was becuase the instruments were provided or requested by the recipient without conducting a need analysis. Underutilization resulted becuase the supplies did not match the needs.

In some cases it was observed that UNICEF equipment was donated to UNICEF from different countries. Instructions for operating the instruments were not provided or if provided, these were in foreign languages which people at the health facilities do not understand. This lack of understanding of the equipment resulted in underutilisation. Underutilisation also resulted because of lack of replacements for worn out parts.

In case of Dai kit, it was observed that the underutilization resulted because the kits were not distributed to them immediately after the completion of the training and the Dai's did not develop the habit of using the kits.

1.5.4. Lack of Preventive Maintenance - In some cases underutilization is the result of lack of preventive maintenance. It was observed that many instruments and equipment have not been used for more than three years just for want of minor repair. A lack of technical knowhow for repair and maintenance of the equipment, and in some cases lack of operative skill was observed.

1.5.5. Analysis of the UNICEF Assistance - UNICEF has been providing drugs and diet supplement kits for the last 25 years. Table 18 shows recurring and non-recurring expenditures for the years 1976 through 1979. The table shows that of the total recurring

TABLE 18

UNICEF RECURRING AND NON-RECURRING EXPENDITURES, 1976-79

Category / Year		Expended on Health (Preventive and Curative)	Recurring Expenditures on Health	Non-Recurring Expenditures on Health
1976	Amount % of Total	$ 2,359,000 11.82	594,300 14.52	1,764,700 11.13
1977	Amount % of Total	$ 5,160,000 25.87	570,100 13.93	4,589,900 28.95
1978	Amount % of Total	$ 5,900,000 29.58	1,579,000 38.59	4,321,000 27.25
1979	Amount % of Total	$ 6,526,000 32.71	1,348,200 32.95	5,177,300 32.66
1976-79	Total	$19,945,000 100%	4,092,100 100%	15,852,980 100%

assistance expended during 1976-79, the major portion was expended during the last two years (71% of total recurring expenditures). Although the percentage of the recurring assistance compared to the total UNICEF assistance has not increased, but in absolute terms assistance has increased 2.3 times. If this type of trend continues it will have the following consequences:

a) Assistance of a recurring nature causes a dependency on the part of the government because reliance on assistance of a consumable nature is increasing every year. Continuation of this trend will require that assistance for Maternity and Child Health be increased at the expense of other programs or the standard for these services will deteriorate.

b) In areas where UNICEF assistance is available, an attitude of neglect is observed on the part of the recipient. This is especially true with regard to the supply of drugs and diet supplement kit for Maternity and Child Health Services.

c) Non-capital assistance has little impact on the expansion of health care programs. If the UNICEF contribution to programs of a capital nature is sought, the impact and control over the direction of the development of programmes would be much greater.

Table 19 shows the percentage distribution of UNICEF assistance by type of health program out of the total assistance to the health sector. Fron

PERCENTAGE DISTRIBUTION BY TYPE OF HEALTH PROGRAM (1976-79)

Year	Expended on Health Sector	Expended on Basic MCH Services	On RHCs and BHUs Excluding LHV	On Other Health Sector Programs	Recurring Expenditure on Health	Non-Recurring Expenditure on Health
1976	100	50	6	44	25	75
1977	100	34	6	60	11	89
1978	100	46	4	50	27	73
1979	100	72	9	19	21	79
1976-79	100	52	7	41	21	79

TABLE 19

the table it is clear that the portion of the assistance on Maternity and Child Health Services has increased from 50% to 72% during the period 1976-79. Although, the percentage share of recurring expenditures has declined in absolute terms it has increased three fold since 1976.

Table 20 gives the percentage distribution of UNICEF assistance to the health sector and other areas. The percent of the total assistance that is expended on the health sector is increasing and the percent of the total expended on other areas has declined. The situation points out the needs for proper utilization and constant monitoring of the increasing assistance for the health sector. If recurring expenditures continues to increase the health sector will become more dependent on this assistance. It is felt that a planned redirection of expenditures from consumable to expenditures of a capital nautre would be good for the donor and the beneficiary.

1.6. Drugs and Supplies Distribution and Accountabilty

It was observed that the health professionals posted to Rural Health Centres and Basic Health Units work independent of each other. The Medical Officer, Rural Health Inspector and Lady Health Visitor at the Rural Health Centres and the Medical Assistant, Rural Health Inspector and Lady Health Visitor at the Basic Health Units have a high degree of autonomy from each other.

The distribution, accountability, record keeping and storage of drugs was observed to be established according to the source of

TABLE 20

Percentage Distribution of Total
UNICEF Assistance
1976-79

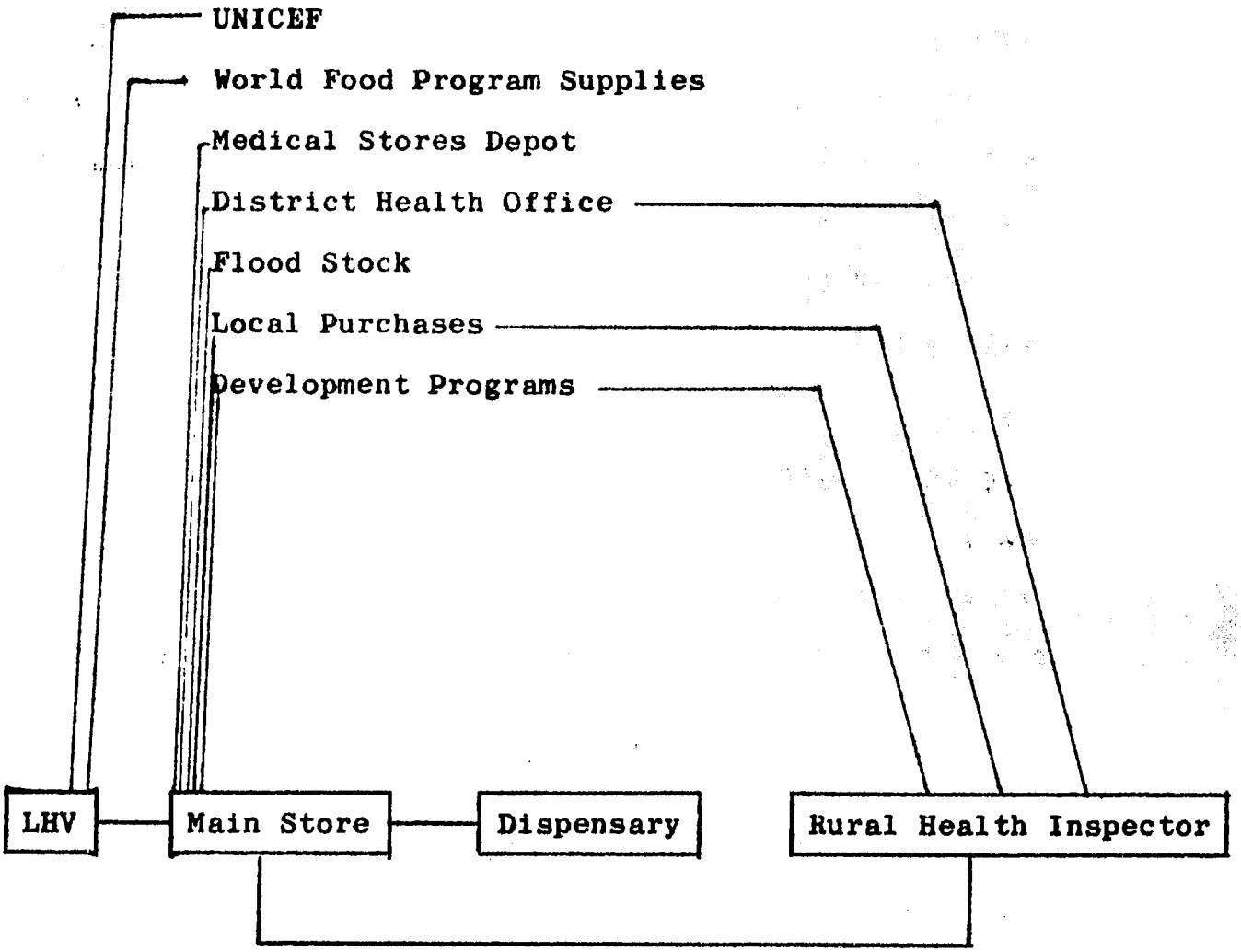
Year	Total Assistance	Expended on Health Sector	Expended on Other Areas
1976	100	64	36
1977	100	75	25
1978	100	72	28
1979	100	77	23
1976-79	100	72	28

drugs, health professional prescribing, and by type of program. Figure 35 illustrates various sources of drugs and supplies, users or disbursement outlets and linkages between the health professionals. Various practices with regard to the distribution, storage, accountability and record keeping for the supplies from these sources are described in the following sections.

5.1. Drugs and Supplies Distribution - An analysis of the drugs and supplies distribution was conducted to determine the delays in the system. For the purpose of the analysis, the distribution system was analysed for the Medical Stores Depot's drugs and supplies, for the UNICEF drugs and supplies which come to the Rural Health Centres and Basic Health Units and supplies which come from other sources. The documents and registers involved in the distribution from the sources

FIGURE 35

SOURCES OF DRUGS AND MEDICAL SUPPLIES AND USERS AT RURAL HEALTH CENTRES AND BASIC HEALTH UNITS



through the delivery outlets were identified and control arrangements for supply shrinkages were checked.

For Medical Stores Depot's drugs and supplies, indents are required to be filed with the Medical Stores Depot prior to the delivery of drugs and supplies to the health facilities. For the annual indents the time schedule is fixed for each Division. All the annual indents filed by a particular Division are processed and met during scheduled period. If an annual indent is filed after the specified period, the delay in processing is not the responsibility of the Medical Stores Depot.

a) A variety of distribution practices were observed from the Medical Stores Depot to the Rural Health Centres. In some cases collection from the depot was made for more than one facility and in other cases the collection was for only one facility. In cases where a collection was made, a person from the indenting health facility was sent to the Medical Stores Depot to fetch the supplies. In cases where supplies were fetched for more than one facility, various arrangements were made to drop them at the respective health facilities. In some cases supplies were kept at the District Health Office or at some other convenient place and then collected by the respective health facilities. In other cases these supplies were not kept at the intermediary stores and were dropped at the respective health facilities immediately after collection from the Medical Stores Depot.

In cases where the collection was only for one facility various transportation arrangements were made by the respective facilities. The usual mode was by train or bus. When the stores reach the nearest Railway Station or bus stop, tongas were hired. In some cases supplies were booked by trucks to a place near the health facilities and from there the arrangements are made for collection. It was very rare that the whole truck was hired for the transportation of supplies for one facility because of the low volume of supplies. In cases where the shipment was made for more than one facility the shipment was usually made by train.

Control of supply shrinkages when the supplies are in transit are good. Control documents at the delivery outlet and receiving point are entries on the expense books. In cases where the shipments were made by train most cases of pilferage were reported. Whenever the drugs and supplies reach the Rural Health Centres, they are checked, counted, stored and are entered on the receipt section of the Medical Stores Depot's Supplies Register, maintained at the health facilities.

It was observed that the cost of alternative modes of transportation for supplies is given little consideration. Because the supply system is piecemeal in nature, the frequency of occurence of distribution costs is important and should be given more consideration. A standard distribution system is not followed because of the difference in geographic location of health facilities.

b) An internal indent is prepared and filed with the storekeeper to get supplies from the store room to the dispensary at Rural Health Centres. The indent is prepared on a weekly or fortnightly basis or whenever the dispensary runs out of a particular

drug. Sometimes if the drug is not available at the dispensary, the patient is directed to the store room. Expensive drugs are not kept at the dispensary but are issued from the store room. This policy is to ensure the control over the issue of expensive drugs. Control documents are the Medical Officer's prescription chits, daily used Medicines Register and the Expense Books.

An internal indent is used to distribute supplies from the main store room to the Lady Health Visitor. The indent is prepared by the Lady Health Visitor and filed with the store keeper with the approval of the Medical Officer. The indent is entered on the Source Expense Book (e.g. UNICEF, Medical Stores Depot,Flood Stock, etc.) and the receipt is recorded on the lady Health Visitor's Source Expense Book. The distribution of the drugs from the main store room to the Lady Health Visitor is not on regular basis. It occurs when the Lady Health Visitor runs out of drugs or when she undertakes curative responsibility for treatment of female patients in the absence of a lady doctor. Control documents are the Daily Used Medicines Register, Internal Indent Book, Source Expense Book kept by the Lady Health Visitor and the main store room.

Distribution from the main store room to the Rural Health Inspector also require that an internal indent be filed with the Storekeeper. This is required only three or four times a year because most of the supplies for the Rural Health Inspector are sent directly to him from the District Health Office. The contrl documents used in the distribution are the indent book, vaccination book in which the receipt is recorded etc.

c) A variety of practices were observed in the distribution of drugs from the Rural Health Centres to Sub-health Centres. The supplies to the Sub-health Centres were delivered on monthly, quarterly or annual basis. This variance depends on the arrangement between the Rural Health Centre and each Sub-health Centre. Transportation of supplies to the Sub-health Centres do not pose any major problem. When the supplies are provided to the Sub-health Centres on a monthly basis, the distribution is usually linked with the payroll collection. At the beginning of the month the person incharge of the Sub-health Centre makes the monthly collection along with the payroll. For monthly and quarterly collections, an internal indent is filed with the main store room at the Rural Health Centres. Since consumption of supplies at the Rural Health Centre is faster than at the Sub-health Centres, the Sub-health Centres that receive their supplies on a monthly basis, are provided very little or no supplies near the end of the year. Also, Rural Health Centres are in a position to keep stock at the expense of shortages at the Sub-health Centres.

In cases where the distribution to the Sub-health Centres is made on an annual basis one half of the supplies received by the Rural Health Centre are usually divided among three Sub-health Centres. It was observed that distribution on annual basis ensured the availability of more supplies at the Sub-health Centres. For vaccines, in some cases Sub-health Centres independently collect the supplies from the District Health Office. There is no definite criteria for what drugs are to be distributed to a Sub-health Centre. The mix of the supplies to be distributed is usually arrived at by mutual agreement between the Medical Officer

and person incharge of the Sub-health Centres. When the supplies reach the Sub-health Centres they are entered on the respective source register and kept in the store.

d) In case of Basic Health Units the drugs and medical supplies are issued from the Medical Stores Depot. Since the Basic Health Units are still under the jurisdiction and control of the District Health Officer, the indent is filed separately with the depot through the District Health Office. A variety of collection arrangements are made from the depot. When the supplies are received, they are entered on the Medical Stores Depot expense books. The internal distribution of drugs and supplies at the Basic Health Unit is the same as it is in the Rural Health Centre.

It was observed that in the case of Rural Health Centres and Basic Health Units, the Lady Health Visitor was often denied access to drugs and supplies from the Medical Stores Depot. She also has a very limited access to the drugs and supplies from other sources at the main store room of the Rural Health Centres and the Basic Health Units.

1.6.2. UNICEF Drugs and Supplies Distribution - The majority of UNICEF drugs and supplies are categorized as UNIPAC items and are supplied from UNICEF in Copenhagen. The ownership of UNICEF drugs and supplies passes to the Pakistan Government

as soon as they enter Pakistan. Thereafter all the charges incurred after import are the responsibility of Pakistan Government. In other words, after importation, the Government of Pakistan decides the mode of storage, onward transportation, and distribution of UNICEF supplies.

After importation the interim storage of UNICEF supplies is at the Government Medical Stores Depot Karachi. In the past the UNICEF supplies from the Karachi depot were shipped direct to the health facilities. This practice created financial problems for the consignees since payment for the shipping charges from Karachi was the responsibility of the consignees. Also, since the shipments of the drug and diet supplement kits were exclusively for Lady Health Visitors, they created collection problems for the Lady Health Visitors. This was because of the social constraint upon the Lady Health Visitor for travelling to the station and dealing with railway employees to get the supplies cleared. To clear the goods from the Railway Delivery Office, the Lady Health Visitors had to pay the shipping charges out of their own money. In the absence of a reimbursement system Lady Health Visitors often had a recovery of payments problems.

Under the present policy, supplies and equipment is despatched to the officials operating at the district level who are usually incharge of UNICEF assisted programs. In cases where the material is to be stockpiled before the start up of a program, the supplies are sent to the provincial offices to hold until they are actually required.

The Drugs and Diet Supplement Kits are usually routed to the Maternity and Child Health Services outlet through the District Health Office. The shipment is usually for all the Maternity and Child Health Centres in a district. Usually every Maternity and Child Health Services outlet is provided one kit. It is at the discretion

of the District Health Officer to issue a second kit when it is needed. In some cases the drugs and diet supplement kit are divided at the District Health Office and distributed to facilities other than Maternity and Child Health Centres. This was usually done under the conditions of acute shortage of supplies from the Government Medical Stores Depot. Dai kits and equipment kits for the Rural Health Cenres and the Basic Health Units are also sent through the District Health Office The District Health Officer exercised control over the distribution of all UNICEF provided kits.

The drug and diet kits from the District Health Office are usually collected by the Lady Health Visitors incharge of the Maternity and Child Health Centre. Usually the transportation charges for the kits are paid by the Lady Health Visitors. It was observed that the collection of the drugs and diet supplement kits did not cause any inconvenience for the Maternity and Child Health Centre.

The UNICEF drugs and supplies are kept by the Lady Health Visitor in her own store room. In case of Rural Health Centres it was observed that kit items were not adequate because the supplies have to be shared with Sub-health Centres. Lady Health Visitors are required to visit the Sub-health Centres to provide antenatal and postnatal care. The Lady Health Visitor takes with her the necessary drugs and diet supplements when visiting the Sub-health Centres. In case of Maternity and Child Health Services at the Basic Health Units the contents of the kit are sufficient.

In some cases the distribution of kit items within the health facility often created tension between the Lady Health Visitor and Medical Assistants or Dispensers. The Lady Health Visitor feels that she has an exclusive right to the use of UNICEF drugs and diet supplement. In

turn, the Medical Assistants or Dispensers restricted the Lady Health Visitors access to the drugs and supplies at the main store of the health facility. In other cases where a friendly atmosphere prevails, reciprocity and exchange of items was observed and the Lady Health Visitor was allowed proper access to the supplies from the main store.

1.6.3. Distribution of Flood Stock Supplies - Drugs and medical supplies to meet flood emergencies are provided only to the health facilities which are in potential flood areas. Officially the use of flood stock for other purpose is prohibited and the stock is reserved for emergencies. If an acute shortage of supplies at the main store occurs or when certain items in the flood stock near expiry, their use is allowed with prior permission from the District Health Officer. This stock when used for other purposes has to be replaced out of the health facilities' budget for drugs and medical supplies or from supplies received from the Medical Stores Depot.

It was observed that the flood stock reserves were maintained at the District Health Office, at the Rural Health Centres and in some cases at the Basic Health Units and Sub-health Centres. The flood stock is recorded on a separate expense book, stored and accounted for separately. There is a separate budget allocation for flood stock. The Deputy Director sends the budget allocations to the District Health Officers who purchase the stock from the Medical Stores Depot.

1.6.4. Insecticides and Immunization Supplies Distribution - In most of the cases insecticides and immunization supplies are kept by the Rural Health Inspector in his own store. Usually the

Rural Health Inspector gets these supplies direct from the District Office. Whenever a need for supplies occur a request, with the approval of the officer incharge of the health facility is placed with the District Health Office. If the supplies are available at the District Health Office they are provided to the health facility immediately. In cases when the supplies are not available, the District Health Office makes arrangements to purchase the required items. Insecticides were usually procured from the Medical Stores Depot or from the local market by the District Health Office. In case of some health facilities, the insecticides are requested on their annual indents to the Medical Stores Depot.

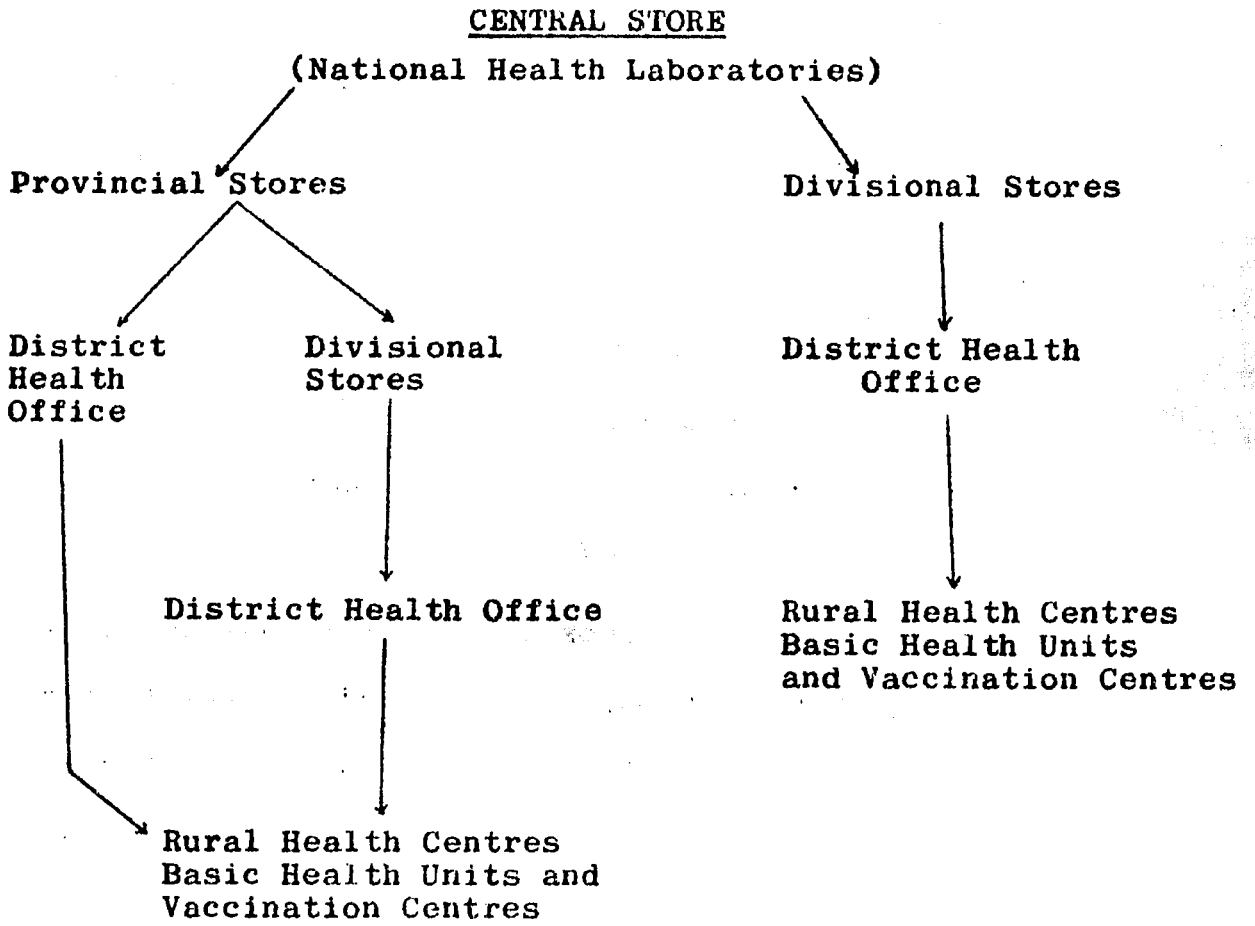
The District Health Office usually determines the vaccines requirements for the districts and make arrangements for procurement from the Directorate or from a Divisional store room. In some situation a particular district is linked for this purpose to a Division store room outside its' own Division. This is because of location and transportation facilities. Vaccines are usually collected on personal visit to the store and distributed by the District Health Office to the health facilities. Vaccines are distributed in an ice box. Two refrigerated vans have been approved by UNICEF and will be provided to the central store at the Directorate in the near future.

The Expanded Program of Immunization kits are also distributed through the multi-tier system of distribution that is used for vaccines. A variety of modes of transportation from the District Health Office to the health facilities are used. Transportation at this level is not a problem.

The multi-tier distribution system for vaccines is shown in Figure 36.

FIGURE 36.

VACCINE DISTRIBUTION SYSTEM



1.6.5. Consequences of Multiple Distribution Sources - Many sources and consequently multiple distribution channels result in the following consequences :

a) Results in excess supply of drugs to health facilities because the same drugs are supplied through various sources and through various distribution channels. For example at many health facilities anti-T.B. drugs were found in abundance. Since the excess supplies cannot be used within the shelf-life of the drug, it results in expiry of many useful and costly drugs and hence a wastage of limited resources.

b) Results in the increase in distribution costs because the costs are incurred separately for each distribution channel from each source.

1.6.6. Cost of Collection and Distribution - It was observed that in the distribution system cost of collection and distribution of the supplies was not given adequate consideration. When the collection of supplies was on an individual basis for each health facility, cost of collection and distribution was naturally higher as compared with distribution for more than one health facility. The disadvantage in the collective distribution was that when the supplies were not immediately drop-shipped after collection from the Medical Stores Depot, they are usually kept for a longer period at in interim storage at the District Health Office. The distribution from the District Health Office to the health

facilities was usually not very efficient and was usually regarded as the responsibility of the person incharge of the health facilities. These people were usually reluctant to collect the supplies because of the lack of a cost-reimburseable system. Secondly when supplies were distributed for many facilities, finding the right boxes for a particular facility from a big pile of boxes was difficult. So the boxes have to be opened to find out which boxes contain the indented items for a particular facility.

1.7. Storage of Drugs and Medical Supplies

Storage facilities and storage practices at the Rural Health Centres, Basic Health Units and Sub-health Centres were analysed to determine the extent of inventory shrinkages, the extent to which it is possible to determine the stock levels at any point in time and to identify various deficiencies in the system. At present 20% to 40% of the indented items come from the Medical Stores Depot. This quantity along with the supplies from the other sources does not create a storage problem. Once the Basic Health Units are linked with a Rural Health Centre and arrangements made to increase the percentage of supplies that come from the Medical Stores Depot, it is expected that storage will be a problem and an improvement in the storage facilities and practices will be required.

1.7.1. Existing Storage Facilities

It was observed tnat proper storage facilities do not exist at the District Health Office level. When the supplies from the Medical Stores

Depot are obtained for more than one facility, they are held on an interim basis in the corridors or on the veranda.

UNICEF equipment and drugs and diet kits, flood stock and supplies from other sources were kept in vacant rooms in the office. Boxes of stores are usually piled up without a proper retrieval system. For vaccine cold chain facilities were provided. Some District Health Officers regarded the existing cold chain facilitiesas inadequate.

Adequate storage space is now available at the Rural Health Centres. The storage space available at the main store room is approximately 20 square metres. Four to six steel or wood cupboards are provided at each centre. Also, some open shelving space is available. One or two cupboards are also provided to the Lady Health Visitor, where she keeps her own drugs and equipment. Separate storage space for equipment and surgical instruments supplies was also available next to or in the operation theatre. For vaccine supplies, a 150 l. refrigerator was provided to each Rural Health Centre. Some Medical Officers regarded the cold chain as inadequate and believe that a freezer and a large refrigerator with proper stock of ice bags and boxes is required.

At the Basic Health Units, an adequate store room is available. One or two steel cabinets with glass windows are available. The Lady Health Visitors at the Basic Health Units had their own stores which is kept in a steel cabinet.

In case of Sub-health Centres, no separate store room was available for the storage of the drugs and medical supplies. For storage purposes two cupboards were provided which were adequate

to keep the monthly supplies received from the Rural Health Centres.

1.7.2. Storage Practices - It was observed that storage practices were individualized. For each source of drugs and medical supplies separate storage practices were followed because of the separate accountability requirements.

Stores are kept separate for each source and separate bincards (if there was a bincard system) were maintained for the same items from different sources. In cases where inventory is small, items are strewn around in the cupboard so that it appears to the casual observer that there is more inventory. In the case of one facility it was observed that the packages of the same drug were stored on three different shelves of a cupboard.

1.7.3. General Stock Position and Condition in the Store - In case of Basic Health Units it was observed that some capsules were becoming sticky because of the room temperature. This was because the roofs of the Basic Health Units were lintelled with no heat resistent earth layer on the roof.

In case of Rural Health Centre temperature in the store room is not a problem. However, the stock position, both at the Rural Health Centres and Basic Health Units was quite low. It was observed that the expired drugs at the health facilities are not destroyed and are kept in the store along with fresh drugs. The store-keepers at the health facilies are not properly trained in stores handling.

1.7.4. Inventory Shringkages - An inquiry was conducted to determine the level of inventory shrinkages at the rural health facilities.

For this purpose a sample of a few expensive drugs was taken and the available quantities were compared against the caseload for those drugs. It was observed that the caseload for particular diseases is much higher than the utilization of the drugs for each disease. An enquiry into the possibility that drugs "grow legs" and disappear revealed that there was no big incentive for inventory shrinkages. In cases where shrinkages did occur, the drugs were rarely sold to sales outlets but were used in the private practice of the practinioner at the health facility.

From a careful analysis, it was concluded that inventory shrinkages in case of rural health facilities are much lower than is suspected. People usually complain about the inventory shrinkages, because they do not get the drugs from the health facilities. This is because of the short supply from the Medical Stores Depot and an inadequate drug budget.

1.8. Audit and Accountability for Drugs and Supplies

Record keeping and storage practices at Rural Health Centres, Sub-Centres and Basic Health Units were analysed to determine how the accountability and an audit trail is established. This enquiry was also necessary to reduce inventory shrinkages and to identify unnecessary workload in record keeping.

1.8.1. Record for Audit and Accountability - The following records for accountability and audit which are maintained at rural health facilities :

a) Medical Stores Depot Register

b) UNICEF Register

c) Flood Stock Register

d) Local Purchase Register

e) Vaccine Register

f) Instrument Register (MSD)

g) Instruments Register (UNICEF)

h) Lady Health Visitor's Medical Supply Depot Register

i) Lady Health Visitors UNICEF Register

j) Lady Health Visitor's Diet Program Register

k) Instruments Register (Lady Health Visitor)

l) Daily Used Medicines' Register at the main dispensary.

m) Daily Used Medicines' Register maintained by the Lady Health Visitor.

Drugs and supplies are accounted for by recording receipts and issues in these registers (Expense Books) that are maintained for each source, i.e. MSD, UNICEF, etc. Most of these records are maintained at the point where the inventory is stored. Said another way a separate register is maintained for each source by the Dispenser, the Lady Health Visitor and Rural Health Inspector. The registers are organized with a separate page for each item.

Each register is maintained by calendar year. The first column of the expense book is used to record the data of the individual transactions. The second column is used to indicate "receipt" or "issues" and in the case of issues, to whom issued. Col. 6 used for the initials of the person who recorded the transaction.

1.8.2. Audit and Accountability at the Rural Health Centres - Accountability at the Rural Health Centre is established separately for each source of supplies, for the type of use and person prescribing and dispensing the drugs.

Ultimate accountability for all drugs and supplies used at the Rural Health Centre is not institutionalised with or through the Medical Officer at the Rural Health Centre. The audit trail for drugs and supplies prescribed by the Medical Officer and dispensed by the Dispenser at the main dispensary is complete when the total of drug quantities as shown by the Medical Officers prescription chit matches the quantities dispensed as shown by thetotals on the Daily Used Medicines Register.

The quantity on Daily Used Medicines Register should in turn match the duplicate indent book leaflet kept by the dispenser and the original kept by the Dispenser in charge of the store room and with the entry made on the respective expense book and recorded with date e.g. MSD, UNICEF, Flood Stock etc. The audit trail is completed when the balance shown by the expense book matches the balance shown by the bincard of the respective store (if the bincards are kept) and verified by the physical counting of the stores.

Similarly the audit trail for the Lady Health Visitors stores is completed through the Daily Attendance Register, Daily Used Medicines Register and the balance on the respective expense book which can be verified by the physical counting.

The accountability and the audit trail for Rural Health Inspector is again by source of item. The audit trail cycle for his

supplies is completed through the vaccine register where the address of the recipient of the service is written and endorsed by the recipient signature and/or thumb impression. The audit trail is illustrated in Figure 37.

1.8.3. Audit and Accountability at Sub-health Centres - Accountability is by sources of supplies and separate registers are maintained for each source. The audit trail is completed through the daily attendance register, daily used medicines register, expense book for the respective source, bincards (if kept) and physical counting. The balance plus quantities dispensed should match the issues as shown in the issue column in the expense book at the Rural Health Centre.

1.8.4. Audit and Accountability at Basic Health Units - Accountability for the drugs and supplies and audit trail cycle for the Medical Assistant, Lady Health Visitor and Rural Health Inspector's use of supplies is the same as for their counterparts at the Rural Health Centre.

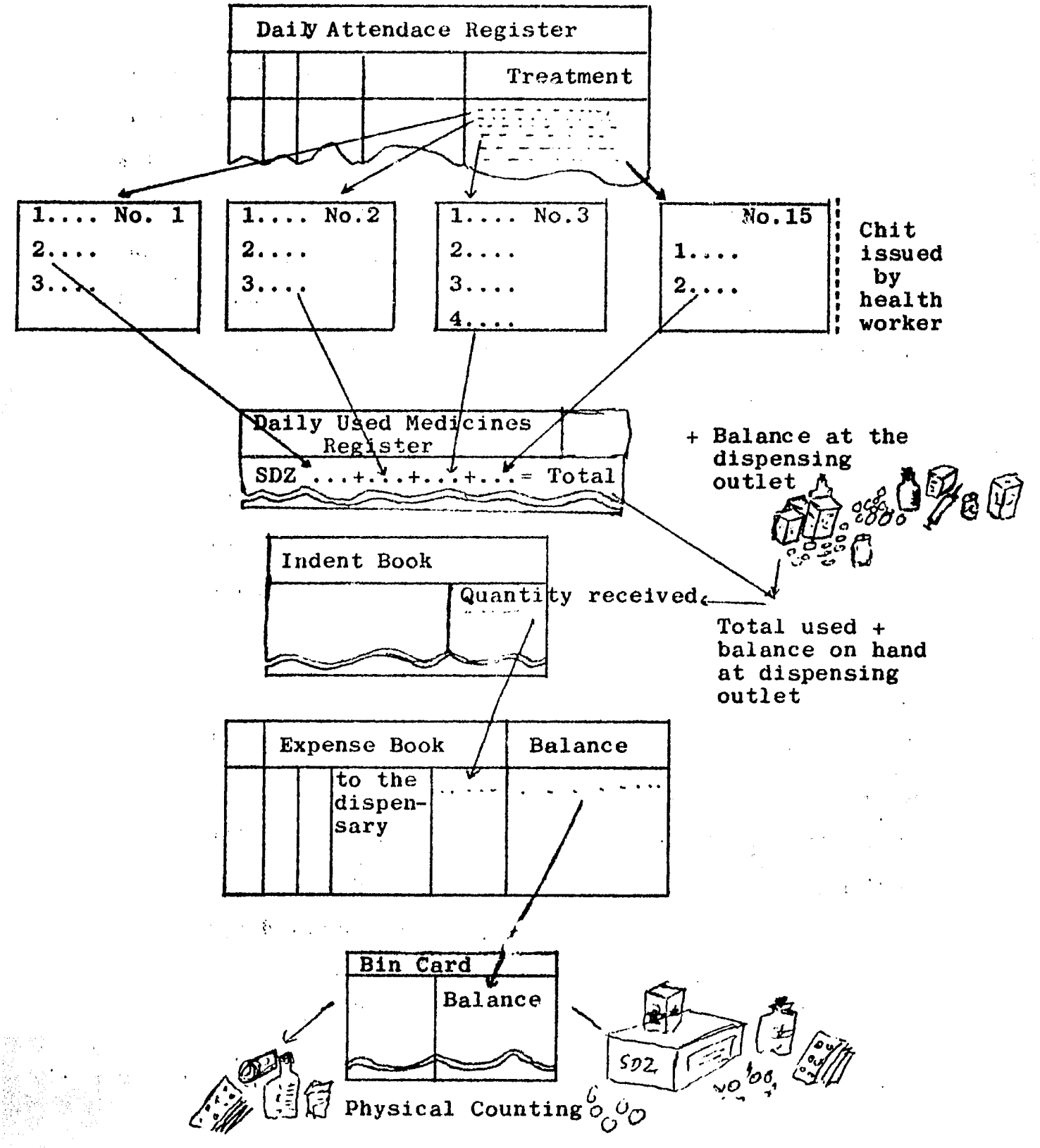
1.8.5. Consequences of Vertical Basis of Accountability - At the Rural Health Centres and Basic Health Units accountability, record keeping and storage of drugs and supplies is maintained vertically as shown in Figure 38. Under this scheme the different sections within a Rural Health Centre and a Basic Health Unit i.e. Dispenser, Lady Health Visitor and Rural Health Inspector perform these functions separate and apart from each other. In this context following observations were made :

a) The Rural Health Centres and Basic Health Units are maintaining three identical systems This

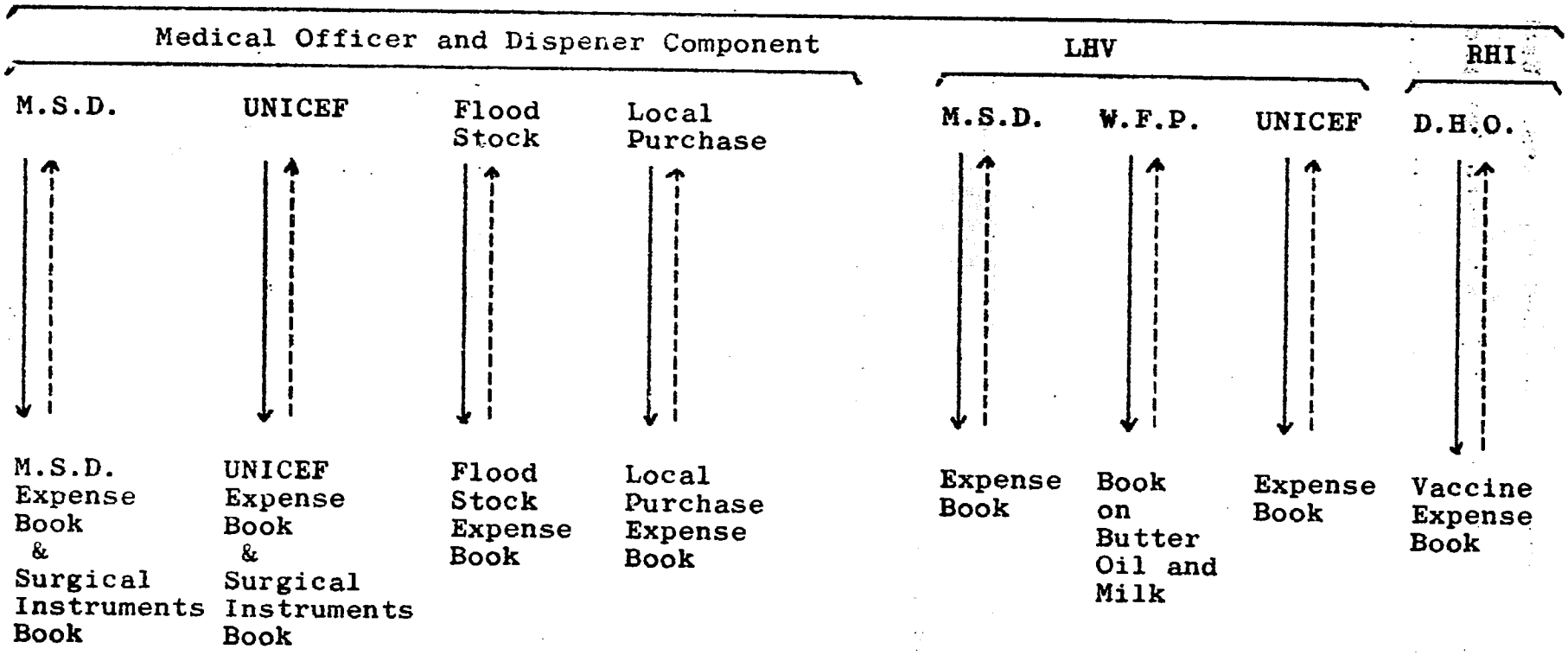
FIGURE 37

AUDIT TRAIL

(MEDICAL OFFICER-CUM-DISPENSER COMPONENT)



ACCOUNTABILITY OF DRUGS AND SUPPLIES AT
RURAL HEALTH CENTRES AND BASIC HEALTH UNITS



Key: _____ Flow of Supply.

--------- Line of Accountability.

FIGURE 38

practice results in duplication of work and has the potential for errors in accounting for drugs and supplies. Each section of supply, type of program the drugs are used for and the dispensing authority. Source of supply records are maintained for :

UNICEF

Medical Supply Depot

Flood Stock

Local Purchases

Development Programs

By type of programme, records are maintained for :

General Treatment

Mother and Child Health Care

Prevntive Programs

Dispensing authority records are maintained for :

Dispenser (and Medical Officer)

Lady Health Visitor

Rural Health Inspector

b) As previously described drugs and supplies are accounted for on a vertical basis. In other words drugs and supplies are received at the Rural Health Centres and Basic Health Units and are accounted for by the person dispensing the item. This is in contrast to a system where drugs and supplies are accounted for by the facility for all persons dispensing within the facility.

c) Under the Dispenser and Medical Officer Component, drugs recommended by the Medical Officer, Dispenser or Medical Assistant

(at BHUs) are issued from the dispensary and recorded in appropriate register, according to source of supply, i.e. Medical Store Depot, UNICEF, Flood Stock, Local Purchases and annual development program sources. The system of audit and accountability requires that the drugs and supplies be stored separately be source and in those centres that are using a bincard inventory system, a separate inventory system be maintained for each source.

d) Under the Lady Health Visitor Component drugs and supplies are dispensed from the stock that is maintained by the Lady Health Visitor. The Lady Health Visitor maintains registers on supplies received from Medical Stores Depot, UNICEF, and the World Food Program (Butter Oil and Milk).

e) Under the Rural Health Inspector component drugs and supplies are dispensed from stock that is maintained by the Rural Health Inspector. The Rural Health Inspector maintains register on supplies received from several sources including annual development programs, Communicable Disease Control Program, etc.

f) Maintaining separate registers has created additional clerical work for dispensers, Lady Health Visitors and Rural Health Inspectors. If this workload is reduced with an appropriate system, these persons could devote more time to patient care. With the present system an Integrated Rural Health Complex, with four Basic Health Units will be maintaining from 20 to 25 registers for drugs and supplies accountability. It is believed that this number could be reduced to five or six and the system can still provide the required accountability.

g) Seprate registers and duplicate bincard systems do not indicate the actual stock level at any point in time and shortage or surpluses cannot be easily determined. Moreover, with many registers a claar picture of the actual drug needs in terms of types of drugs and quantities is difficult.

h) The record and registers require updating because the existing registers contain obsolete information or information in obsolete units of measure.

1.8.6. Official Audits for Rural Health Facilities - Annual official audits are required for rural health facilities. Near the end of the financial year audit terms are usually sent to the rural health facilities to audit the drugs, supplies and equipment at each facilities.

1.8.7. Lack of Regular Reporting System on Drugs and Medical Supplies - There is no regular reporting system for monitoring the utilization of drugs and medical supplies. Only occasional reports on drugs and medical supplies are sent to the District Health Officer. Mostly these reports are sent on request from the District Health Officer and cover items in flood stock that are about to expire.

Drugs and medical supplies is an important and major budget line item. The absence of a periodic reporting system on drugs and medical supplies results in the availability of drugs in excess at one facility while they are not available at other facilities. Also, certain items may expire on the shelves of one facility while patients at other nearby facilities suffered

for its non-availability. A periodic reporting system is required which could be the basis for reshuffling stock of items from one facility to another. When certain items are near expiry at one facilty, those items could be moved to the other facilities where their utilization rates are higher.

1.9. Dispensing Procedure

An enquiry was conducted into the procedures for dispensing drugs to patients. The procedure for the receipt of drugs by the patient during the initial visit for a particular complaint and during revisits for a prior complaint was reviewed and analysed. The primary focus of the analysis was on the registers and documents that are used to record drugs and supplies disbursements. The analysis was conducted for the Rural Health Centres, Sub-Health Centres and Basic Health Units.

1.9.1. The Existing Procedure at Rural Health Centres - The dispensing procedures for out-door patients is organised on the basis of three semi-independent components which are the Medical Officer and/or Dispenser, Lady Health Visitor and Rural Health Inspector. The Rural Health Inspector component is excluded from the analysis because no dispensing is involved and only the utilisation of vaccines for preventive programs is recorded.

For the Medical Officer and/or Dispenser component a variety of practices were observed. The procedure at one Rural Health Centre was assumed as standard and then at other centres deviations from it were noted. Under the standard system the patient visits the Medical

Officer who issues a chit (2 copies) bearing prescription and diagnosis. The patient then visits the dispenser or the person who generally sits outside the Medical Officer's room with the out-door patients register. The Dispenser or the person maintaining the out-door register records the serial number, the patient's name, the chief complaint, diagnosis and drugs prescribed with quantities on the out-door register. A purchee fee of Rs.0.25 is collected by the person maintaining the out-door register. The purchee fee is collected only on the first visit by a patient for a particular complaint. After the Medical Officer's chit is recorded in the out-door patient register and assigned a chit number (the year-to-date patient number) the patient goes to the dressing room or the dispensary for the treatment or drug.

One copy of the chit is kept at the dispensary for recording the drug dispensed on the daily used medicines' register. The second copy of the chit is kept by the patient for followup visits for the same complaint. If the patient is not from the local area he is provided with drugs for more than one day. Disbursement of the drug for more than one day is at the discretion of the Medical Officer when he writes the prescription. If the patient is from the local area drugs are dispensed on a daily basis.

After four days, if the patient is not cured, he consults the Medical Officer again on the basis of his self-retained chit. The Medical Officer may continue on the basis of the original diagnosis and prescription or may change it. If the prescription and diagnosis is changed the health facilities do not usually record the new diagnosis because the patient revisit is treated as an old patient. The original

provisional diagnosis is used for the health facilities.

Lady Health Visitors in most Rural Health Centres and Basic Health Units keep their own stock of drugs and supplies. Even when UNICEF drugs are kept in the main store room, she gets some stock from the main store room and dispense it to patients.

When consulting with a patient she enters the patients name and address on the Daily Attendance Register, writes a chit for the patient and records the quantities dispensed on the "Daily Used Medicines Register". A Rs.0.25 perchee fee is collected. Patient revisits are recorded the same way as for Medical Officer and Dispenser component. The format of Daily Attendance Register, Lady Health Visitor's chit and Daily Used Medicines Register is similar to the registers that are maintained by the Medical Officer and/or Dispenser component.

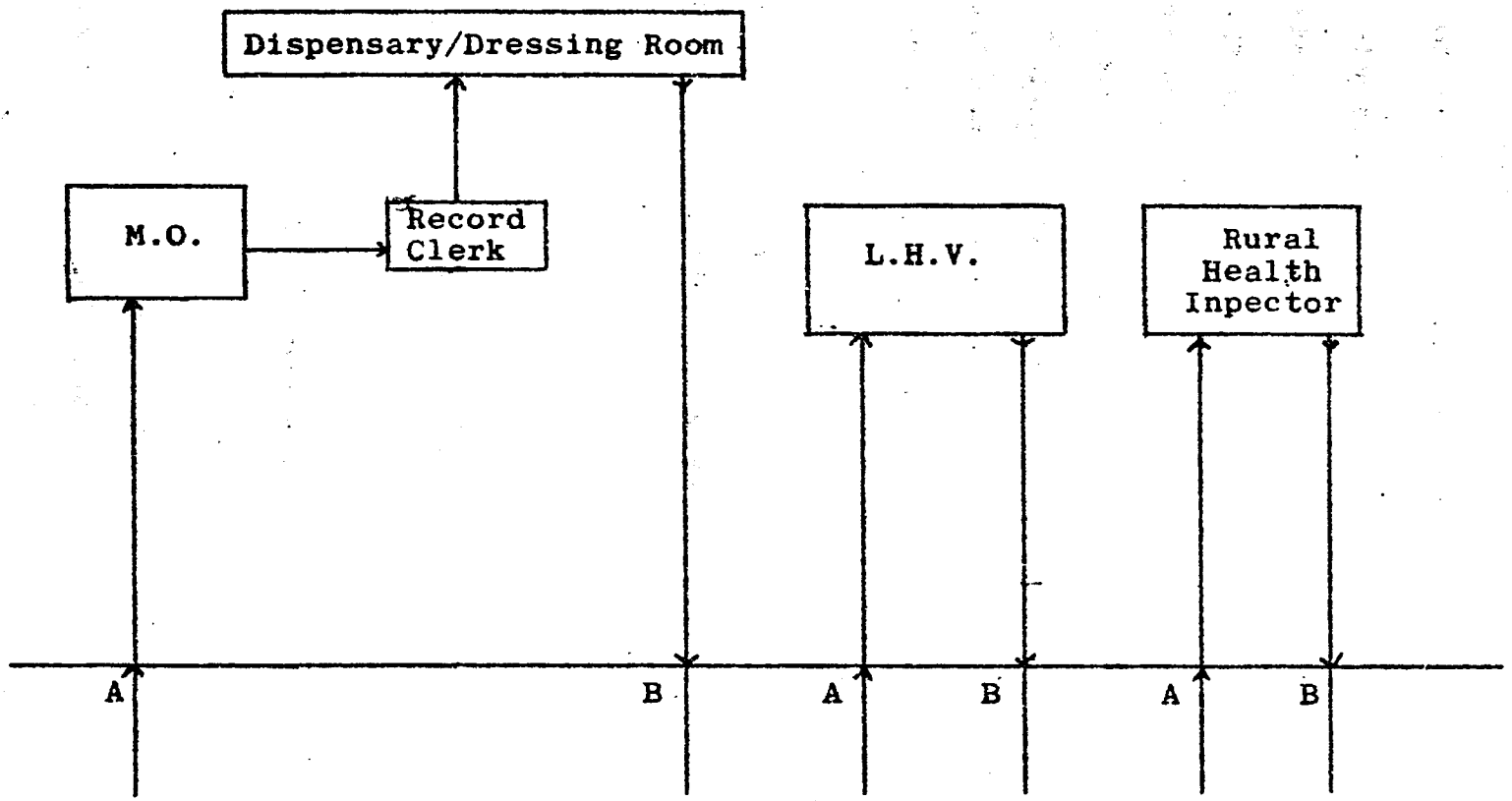
The Lady Health Visitor also distributes wheat, milk and Butter oil which is supplied by the World Food Program. Distribution is made on a fortnightly or monthly basis to pregnant or lactating mothers and to the children under five. Disbursements are in standard quantities to each recipient and the entries are made on the toddler register and food register (for detail see Section 1.10)

The drugs to the in-door patients are administered from the in-door dispensary. The drugs dispensed are recorded on the in-door patient registers.

The procedure at Rural Health Centres is shown in Figure 39.

1.9.2. The Existing Procedure at Sub-health Centres - The Dispenser incharge of the Sub-health Centre performs the following

DISPENSING PROCEDURE AT RURAL HEALTH CENTRES



⟶ The movement of the patients

At point A The patient enters the Health Delivery System

At point B The patient leaves the Health Delivery System

FIGURE 39

functions in connection with dispensing of drugs:

a) Keeps inventory records

b) Diagnoses, prescribes and records on the Daily Attendance Register

c) Dispenses drugs to the patients

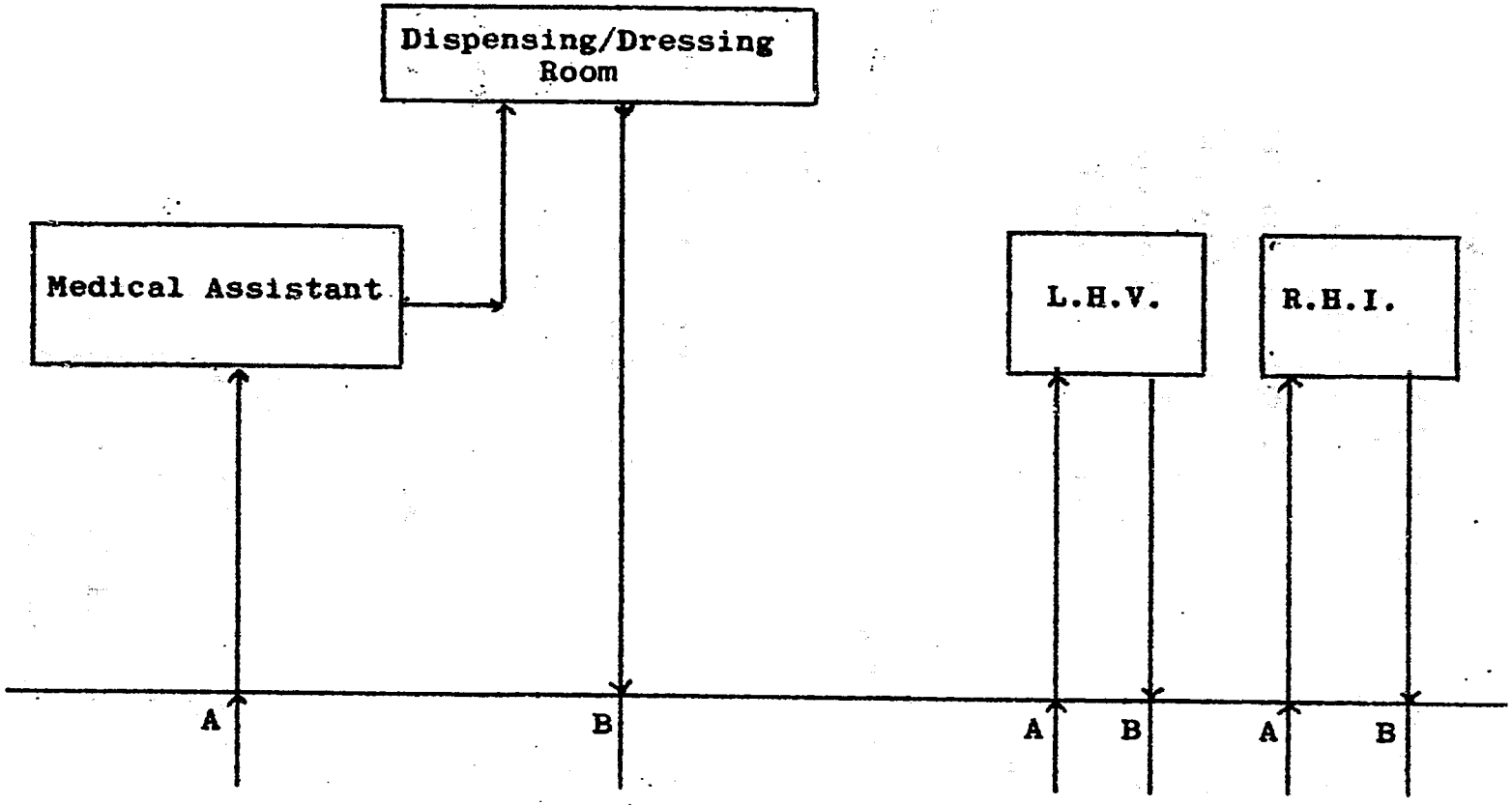
When a patient visits the Sub-health Centre, he is issued a chit, his name and address is recorded on the Daily Attendance Register and he is issued the required drugs. The drugs and the quantities dispensed are recorded on the daily used Medicines Registers. Patient revisits are recorded the same way as they are at the Rural Health Centres.

1.9.3. The Existing Procedure at Basic Health Units - Dispensing procedures for drugs and supplies at Basic Health Units is a micro-model of the system at the Rural Health Centre. Like Rural Health Centres, dispensing procedures at Basic Health Units are organised into two independent components. The two components are illustrated in Figure 40.

The variation from one unit to another in the dispensing practices of the Medical Assistant-cum-Dispenser components at the Basic Health Units were minor. There appeared to be considerable standardization. The reason for this is that there is only one dispenser and one Medical Assistant and this standard practice appear to be the only workable solution. The variation in practices in case of Rural Health Centres was due to the fact that the Medical Officer and two or three other people prescribe and/or dispense.

The patient consults the Medical Assistant. The Medical Assistant records the patient's name and address on the Daily

DISPENSING PROCEDURE AT BASIC HEALTH UNITS



→ The movement of the patients

At point A The patient enters the Health Delivery System

At point B The patient leaves the Health Delivery System

FIGURE 40

Attendance Register, collects the pherchee fee of Rs.0.25 and issues two copies of a chit, The patient takes the chit to the dispensary and gets the drugs. One copy of the chit is retained by the patient and one is kept by the Dispenser to record the quantities dispensed on the Daily Used Medicine's Register. Patient revisits are recorded by the Medical Assistant the same way as they are at the Rural Health Centre. At some Basic Health Units, it was observed that the Medical Assistants keep a stock of essential drugs on their table and dispense directly to the patient.

The Lady Health Visitor component at Basic Health Units follows the same procedures as Lady Health Visitor at Rural Health Centres.

1.9.4. Lack of Standard Procedures - There is no standard procedure for dispensing drugs at the six Rural Health Centres covered by this study. Many departures from the procedures documented in the previous sections were observed. For example, Medical Officer at some centres issues the chits, collects the perchee fee, maintains the out-door register and dispenses the drugs. Whereas at some facilities the task of maintaining the out-door patient register was the responsibility of one dispenser and another dispenser issued the drugs.

This lack of standard procedure may have the following consequences:

a) At the facilities where the out-door patient register is maintained by the Medical Officer a long queue of patients was observed. This is

because of the extra workload on the Medical Officer. He has to spend much time on recording the entries on the register, writing chits and collecting the perchee fee. This adds to the waiting time for patients and require more than twice the amount of time by the Medical Officer than at a facility where a dispenser performs these functions. This clerical workload diverts the Medical Officer's time and effort from the more useful area of treating the patients.

b) Facilities where the maintenance of the Out-door Patient Register is the responsibility of the Dispenser, saves time for the Medical Officer. However, this practice requires that the facility have two Dispensers.

c) In the case of Basic Health Units, again a variety of practices were observed. Besides the record keeping function, the dispensing function was also being performed by the person prescribing drugs. In these cases the Medical Assistants posted at the Basic Health Units usually keep a store of necessary drugs on their table and dispensed directly to the patient. In cases where the patient is prescribed other than commonly used drug he is directed to the dispensary or store room.

1.9.5. Instructions to the Patients about the Use of Drugs - It was observed that patients are not properly instructed on the use

of prescribed drugs. In cases where the Medical Officer, Medical Assistant or the Dispenser properly instructs the patients about the use of drugs, the patients tend to forget the instructions after they leave the health facilities. Often the patients take drugs at the wrong times or forget a dose. In some cases they either reduce the dose to make the treatment last longer or increase it hoping for a quicker cure.

In certain cases it was observed that those patients who are on long courses of treatment often stop the use of drugs too soon or they switch over to some other mode of treatment. They do this because they do not understand the action of drugs in the body. As a result these patients are not cured and the drug is wasted.

To determine the extent of this problem, a sample of fifty patients at different health facilities was interviewed about the usage of drugs as they were leaving the facility. Only 30 patients remembered the exact use of drugs. This problem is quite serious and results in a considerable wastage of money.

According to the estimates of many District Health Officers and Medical Officers, such cases varied from 10% to 40%. At some health facilities, it was observed that the patients were more conscious about the drugs use and asked repeatedly about the use of drugs. The extent of the problem varied from place to place. Nevertheless the problem adds to the cost of treatment of the patients and results in the wastage of drugs.

1.10. World Food Program

The World Food Program is initiated in an area on the basis of nutrition status surveys. Surveys in Pakistan have shown a high prevalence of severe malnutrition and high mortality rates in infancy and pre-school ages mainly due to protein energy deficiency, associated with diarrhea and infectious diseases. Therefore, an action program directed to cope with the problem was started in 1976 and since then World Food Program supplies have been provided.

A program for the distribution of dry supplementary rations of wheat, dried milk and butter oil in Punjab, N.W.F.P., Azad Kashmir/Nothern Areas and the Federal Administered Tribal Areas has been initiated. The program is called Scheme A. The scheme faced major difficulties in implementation and could not distribute necessary quantities of commodities. The major difficulties were shortages of counterpart funds for transport and personnel. Moreover, the arrival of commodities in Pakistan and at the centres did not occur simultaneously. When only one commodity was available at the centres, distribution was stopped. The food allocations to the provinces and regions were not always made proportionately to the stipulated ration scale thus leading to an early exhaustion of those commodities that were in short supply. Poor management both at provincial and federal level during the initial project phase contributed to unsatisfactory project performance.

The scheme required 80 mothers and 160 children as beneficiary at each distribution outlet. In the past there was no standard

reporting system. Now a reporting and record system has been developed and is being properly followed.

1.10.1. Distribution and Storage - Transport and storage problems which had hampered smooth project implementation in the past have been solved. Wheat is channeled countrywide through the distribution system of the Food Wing of the Ministry of Food and Agriculture and the funding for the transport and storage has been confirmed on the part of the counterpart. The butte oil and dried supplement milk are received at the Karachi por and are transported by trucks or rail to the Districts for onward distribution to the centres.

The District Health Officers are allocated an amount of wheat which they are entitled to receive for their districts from District Food Controllers. The District Health Officer is responsible for supplying the food commodities to the centres and for providing proper storage either at one or two health centres or by hiring a suitable store.

The storage for wheat supplies does not pose any problem at the district level because the wheat supplies are kept at the local godowns of the Food Department until they are distributed. The usual practice is that a permit is issued to the centre for collection of wheat from Food Department godown which is nearest the centre. Usually a man is sent from the Rural Health Centre to the godown for which the permit is issued and wheat supplies are usually brought back to the centres on tongas or hired pickups. Butter oil and dried supplement milk are usually distributed by hired pickups or

jeeps of the Communicable Disease Control Program. Scale of distribution to the beneficiaries from 1st of July 1980 is :

	Grams per day per beneficiary	
	Mothers	Children
Butter Oil	20	10
Dried Supplement Milk	40	40
Wheat	250	100

Most of the centres distribute the rations according to the official ration scales, on a fortnightly or monthly basis. Proper cans and pots for measuring rations were available in all centres. Beneficiaries bring their own containers to collect the food. Distribution is very time-consuming for the Lady Health Visitors and usually takes all day on the day of distribution. Lady Health Visitors maintain their own store for the World Food Program, where adequate supplies for one to four months are kept. For the purpose of recording, cards are issued to the beneficiaries.

The storage of wheat is not required as the supplies are provided by the food department from their local godowns according to the need of the centres. The storage of wheat, butter oil and dried supplement milk at the Rural Health Centres does not pose any major problem and supplies for a quarter of a year can be easily accommodated. Nevertheless, the storage for the World Food Program supplies at the Basic Health Units will certainly be a problem.

1.10.2. Selection of Beneficiaries and Period of Entitlement - Beneficiaries are selected on the basis of low income, under weight

and haemoglobin level. In the case of mothers a person who is 50% below the WHO standard is accepted. Women are entitled beginning in the 4th month of pregnancy and lactating mothers receive food upto the 6th months of lactation. Distribution for 12 months of lactation was recently introduced, to cover the gap of six months, originally intended to be covered by distribution of weaning food.

Pre-school children receive food from one to five years of age. No limit on duration for individual children is applied.

1.10.3. Followup - Followup of beneficiaries was done by periodical weighing. However, repeat haemoglobin test are not performed on a routine basis. Growth charts were drawn in only a few centres. These were in Kgs whereas most centres had scales in lb. Weighing of children upto 3 years of age was usually imprecise, since only weight to the nearest full Kgs is recorded.

Until butter oil becomes available, the quntity of wheat has been increased to bring the energy content of the diet of recipients upto 300 gm. The rations are considered adequate as supplements, since they cover more than 50% of the energy requirements and almost 100% of the protein requirements.

Since the food is taken home, the provision of different rations of wheat and oil for mothers and children is not available. In fact it makes distribution more complicated and time consuming. Mothers should be taught to use the foods for themselves and the children but cannot be expected to use at home the exact quantities stipulated.

Due to the irregular supplies and distribution of food in the current project, no mearingful evaluation of the impact on nutrition status of beneficiaries can be carried out. The following deficiencies in reporting procedures were observed:

a) Defaults in reporting and delays in the preparation of District Reports. Provincial reports were not prepared unless all districts had submitted their reports. However, the system is now being streamlined.

b) Gaps in food supplies resulted in interruption of distribution. When such gaps occured, no reports were submitted.

c) It is observed that reporting needed some streamling. A variety of forms, ledgers, registers and ration cards were kept at the centres and in a number of centres entries in various books were duplications. There were centres which kept a single book for all beneficiaries, whereas other had different books for pregnant women, nursing mothers and toddlers.

1.11. Equipment and Instruments at Rural Health Centres

An enquiry was conducted to determine the extent of standardization that exist in the presently available equipment at the Rural Health Centres. This enquiry was required to develop a base for the development of a standard equipment list.

1.11.1. The Existing Equipment - The available equipment and instruments at four Rural Health Centres was compared. From the comparison of the available equipment it was observed that almost 40% of the items were

common at all the health facilities. Quantitative variation with regard to the available common equipment was also observed and was insignificant in most of the cases.

The reasons for 60% variation were the piecemeal supplies of equipments and instruments to the rural health facilities. Another reason was that when a Medical Officer with an interest in surgery is posted to a health facility, he indented the surgical items from the Medical Stores Depot. These items are often not utilised when a Medical Officer without an interest in surgery is posted at these facilities. By such postings and transfers of the Medical Officers, a large stock of unused equipment is available at some facilities.

1.11.2. Equipment Utilization Survey - It was observed that at some health facilities the majority of the instruments had not been used for upto 10 years. The situation is that now most of the instruments are not useable because they are rusty or lack simple repair.

An equipment utilization survey was conducted to determine the extent of utilization of the presently avaialble equipment and instruments. For this purpose available items were categorised as Daily, Weekly, Fortnightly, Monthly, Quarterly, Occassionally, or Rarely used. The results of this survey are given in Table 21.

From the table it is clear that most of the items fall in the category of rarely used items. This is especially true for surgical instruments.

TABLE 21

Utilization of Equipment
and Instruments

Frequency/Category of Use	Percentage of Items
Daily	10% approximately
Weekly	10%
Fortnightly	21%
Monthly	24%
Occassionally	5%
Rarely	30%

It was observed that the initial equipping of facilities was made without a proper need analysis of the actual requirements. It appears that equipping was done in some cases according to what surplus stock was available .

In some cases it was observed that Medical Officers managed to get items that should never had been supplied to a Rural Health Centre. For example, at one of the Rurual Health Centres a Boyle's anaesthesic apparatus was found, which requires a highly skilled person for its operation.

1.11.3. Cycle of Instruments Decay - There is a cycle related to the lack of utilization of equipment. When the equipment and instruments are provided to a health facility, they are often not used, because there is no Medical Officer and even if there is one, sometimes he does not use them. When the instruments are not used, they are not properly maintained and become rusty and unuseable. When a new Medical Officer is posted to the health facility and he wants to use the instruments they cannot be used because they are rusty and require m nor repairs

In the absence of preventive maintenance or a replacement system, the Medical Officer tries to get new instruments. The new instruments are again not used when he is posted to some other facilities and the cycle starts again.

1.12. Existing Drugs and Medical Supplies

In the absence of a standard drug list for the primary health care system, various kind of drugs which may not be required for a Rural Health Centre or Basic Health Unit were found to be available at some facilities. These included the costly drugs which in some cases are beyond the skill level of the Medical Assistants. The reasons given for this situation was the short supply from the Medical Stores Depot. When indents are filled on personal visit to the depot, if the required items are not available the person filing the indent takes whatever is available.

In some cases it was observed that costly drugs were procured by some health facility because they thought of them as more effective. Short supply to the rural health facilities was also because in the absence of a standard drug list the demand of the rural health facilities is not communicated in objective terms to the Medical Stores Depot.

2.0. RECOMMENDATIONS

In developing the recommendations consideration was given to the following:

a) Simplification of the clerical work associated with the procurement process.

b) Reduce the cost associated with the procurement process.

c) Improve the effectiveness of the supply procurement process.

d) Optimize the uses of funds allocated for the purchase of drugs and medical supplies.

The impact of particular recommendation on the total supply system was considered in formulating all recommendations.

2.1. The Indent System

On the basis of observations and findings, it can be concluded that the indent system is neither effective nor efficient. It is not effective because only a small percentage of the supplies indented are provided and it is a system of piecemeal procurement. It is not efficient because it involves a long cumbersome procedure and a lot of unnecessary clerical work. It is inefficient also because the assessment of the drug requirements is rarely related to actual needs.

2.1.1. Annual Indents Vs. "Drop-Shipping"

A feasibility study of replacing the annual indents by a substitute system of "drop shipping" was conducted. As a result of this enquiry it is recommended that annual indents be eliminated because :

a) The indent system is cumbersome and involves a lot of clerical work.

b) Peculiar practices associated with the indent system like overindenting through intentional under estimation of prices (1.1.4) and intentional indenting for items not-available

(1.1.5) are difficult to check and will always result in an inappropriate mix of items at both the health facilities and at the Medical Stores Depot.

c) The quantitative assessment of the drug requirements by the indentors is based on trial and error (1.1.7). Incorrect assessment of drug requirements, overindenting and intentional indenting for items not-available are reflected in the procurement indents at the Medical Stores Depot and results in the purchase of the wrong mix of items.

d) Because of the haphazard indent system, the Medical Stores Depot does not know the drugs and medical supply requirements of the rural health facilities.

e) Under the indent system, the supply situation to the rural health facilities will always be influenced by the inflationary reductions in number of items and their quantities (1.1.8). Since the indent system is a peacemeal procurement process, the inflationary reductions in quantities often go unnoticed because it is known what quantities were available during the year at the health facility.

f) The indents filed by the rural health facilities results in the acquisition of less items and quantities because of urban bias in the present system (1.1.11).

A "kit system of drop shipping" is recommended. Under this proposed system, standarized drug and medical supply kits for

the rural health facilities would be prepared by the Medical Stores Depot. The rationale behind drugs and medical supplies kits is that the rural drug and medical supplies needs are alike both in terms of the number and types of items (1.1.12) and because under a limited budget for drugs and medical supplies there will always be a shortage. Therefore, what is provided, will be consumed. Under the kit system, the selection of kit items could be planned in advance and an optimum mix of items arrived at.

It is recommended that the kit contains consumable items and be provide on semi-annual or annual basis. Kit could be distributed throughout the year by scheduling shipments on a division by division basis, one division every other month. This would spread the workload at the depot over 10 months. Different kits containing the appropriate mix and quantities of items would be necessary for Rural Health Centres, Basic Health Units and Community Health Programs.

Contents of the kits should be determined by a committee of senior Medical Officers and other officials. A kit for each level of an IRHC, i.e. Rural Health Centre and Basic Health Unit should be developed and the contents should be reviewed at least annually.

2.1.2. Flexibility in the Kit System - During the study it was observed that 70% to 80% of items indented are common to all rural health facilities (1.1.12). If 100% of the budget is spent on kits, the system will become inflexible to the demands. To avoid this problem only 75% to 80% of the supply budget should be spent on kits with the balance held in reserve to cover the cost of items

procured through supplemental indents and for local purchases. This arrangement will provide for occasional needs arising out of an increased case-load at a particular facility.

2.1.3. Advantage of the "kit system and supplemental indents - Following are the advantages of the proposed system:

a) It will reduce the time required to process indents and the clerical work involved in indenting and re-indenting.

b) The demand will be predictable because the contents of the kit would be decided in advance. This will enable the medical stores depot to procure the right mix of items.

c) Bulk shipment of supplies upto 75% to 80% would be ensured at the beginning of the supply cycle (semi annual or annual).

d) It will give better control and provide a better awareness of the items which should be available at a health facility.

e) The drug and medical supply requirements of the rural health facilities would be communicated to the depot in an objective way and will reduce the paperwork at the Medical Stores Depot that is required to determine drug requirements.

f) Will eliminate the urban bias of supplies to health facilities in the urban areas.

g) In deciding the contents of the kits a trade-off between population of the catchment area, cheaper or expensive drugs etc. may be arrived at in a better way.

h) Will reduce the clerical work involved in pricing of the indents received from different health facilities, because each type kit will be priced once a year.

i) By ensuring 75% to 80% of the supplies to the Integrated Rural Health Complexes the present high level of uneconomical local purchases can be reduced.

j) The budget can be arrived at on the basis of the contents of kits, i.e. what is needed can be decided first, then budgeted for. It will reduce the effect of inflation on drug budget.

2.1.4. Working Procedure for the "Kit System" - Contents of the kits should be communicated to the procurement body six months in advance of the supply cycle. The procurement body will assess the demand for the Integrated Rural Health Complexes on the basis of the standard contents of the kit and number of complexes and ensure the availability of all the kit items two months in advance of the beginning of the supply cycle. The Medical Stores Depot will act as a storage and processing centre where the contents of the kits would be assembled and packed.

One month before the kits are ready, all the Integrated Rural Health Complexes in a division would be notified as to the date

of shipment and on the respective date the Medical Store Depot will arrange for drop shipment. Under this system if the contents of the kits are carefully decided, the chances of surpluses are minimal. In cases where surpluses and shortages do occur within an Integrated Rural Health Complex a system for reallocating these supplies is recommended in Section (2.8.2) of this report.

2.2. Local Purchases

From the observations and findings it is concluded that :

a) In the absence of a reimbursable imprest account, the system of local purchases is ineffective because of the procurement delays and lengthy procedures involved in making payments to suppliers.

b) The system is cumbersome because budget provisions are made for local purchases for each health facility and the District Health Officers do not have adequate authority to make local purchases for the cumulative budget of the facilities under their jurisdiction.

c) The formalistic behaviour, i.e. the discrepancy in the prevalent attitude not to decentralize the financial powers and the actual practice where the major purchases are made at lower levels aggravate the shortage situations. Because of the high degree of formalism, purchases have to be split into smaller lot size. This splitting results in the loss of economies of bulk purchases.

d) The discrepancies in prescribed and actual behaviours in budget utilizations, resul in a high budget left-overs. These left overs are reappropriated to other

budget line items or surrendered at the end of the financial year aggravating the shortage situation.

e) A major portion of the drug budget is used haphazardly and uneconomically and local purchases do not assure quality control of any kind.

2.2.1. Reduce the Level of Local Purchases - Since local purchases are an uneconomical way of budget utilization and control over quality of items purchased locally is not possible, it is recommended that the level of local purchases should be kept as low as possible. This can be accomplished by adopting the recommendation on drop shipment of kits. An ideal budget utilization pattern would be 80% for kits, 15% for supplemental indents and 5% for local purchases.

2.2.2. The Petty Cash System - The Medical Officers at Rural Health Centres are allowed under emergencies to make purchases not exceeding Rs.50 per purchase. This amount is too small. The Medical Officers rarely use this authorization because of the lengthy reimbursement procedures.

It is recommended that a petty cash system be started at the Rural Health Centres. The petty cash system for the Basic Health Units is not recommended because these facilities are further away from the markets and cannot easily make purchases. In emergencies the patient can be referred to the Rural Health Centre or the requirement of drug can be fulfilled from the Rural Health Centre.

For the drugs and medical supplies purchases it is felt that the level of Rs. 500 per month would be sufficient for the whole

complex. This amount is recommended for the purchase of drugs and medical supplies and does not include an allowance for POL (Petrol, Oil, Lubricant), or other expenses. It will be necessary to provide an additional amount to cover these items.

2.3. The Procurement Process

As a result of the observations and findings it is concluded that the lack of an effective solution for the short supply problem will always interfere with the operational efficiency of the Integrated Rural Health Complexes. The piecemeal system of supply and the resulting shortages will always be there unless the procurement system is streamlined. The need to streamline the procedure is supported by the following :

a) Local purchases is not an economical solution to short supplies from the Medical Stores Depot because the prices are usually higher.

b) Sub-optimal supply management and purchasing at the Medical Stores Depot will result in drug shortages at the health facilities.

c) Restrictions on consumer access to drugs and supples does not provide a solution to drug shortages at the health facilities.

d) Until an effective solution to the short supplies from the Medical Stores Depot is implemented problems associated with indenting cannot be remedied.

e) The procedure for the quantitative assessment of drug requirements is inaccurate.

f) The present system does not include product controls over inventory shrinkages at the health facilities.

g) Urban biases contribute to the short supply problem at rural health facilities.

2.3.1. Centralized Vs. Decentralised Purchasing and Storage - Realizing that the solution to the short supply problems is in the procurement system there are two alternative solutions :

a) Abolish the existing system of centralized purchasing and the centralized Medical Stores Depot and decentralise the purchasing to the Divisional or Districl level.

b) Reorganize the present system of centralized purchasing and storage.

Feasibility and acceptability of the two alternatives was checked through a comparative analysis . On the basis of this analysis, the first alternative is not considered to be feasible. The analysis is as follows:

Decentralized Purchasing and Storage	Centralized Purchasing and Storage
1. Decentralized purchasing is more efficient because it avoids delays in procurement.	Centralised purchasing is not very efficient because it is slow.
2. Since purchases are split into smaller lots economies of bulk purchasing are lost.	Economies of bulk purchasing are possible in a centralised system of purchasing.
3. Decentralised purchases are difficult to control and	Centralized purchasing is easy to control and supervise

	supervise because of the many levels and locations	because it is at one level and location.
4.	Under decentralized purchasing, the Medical Stores Depot at the central level would be replaced by Medical Stores Depots at the District and Division level. This would add to the capital and personnel costs.	Under the centralised purchasing the Medical Stores Depot would be used as the central storage and processing unit. Personnel and capital costs, would be economical.
5.	Chances of inventory shrinkages would increase and be more difficult to control.	The level of inventory shrinkages would be low and would be controlable.
6.	Drug testing would be aggravated because the number of samples to be tested at the drug testing laboratory would increase.	The workload at the drug testing laboratory would be within reason.
7.	Situations will occur where different facilities procure the same or similar products at different prices.	Drugs and supplies would be procured at unified prices.
8.	The decentralised system is not acceptable to suppliers because they would have to spread their marketing efforts over a larger georgraphical area.	The system is acceptable to suppliers (especailly the manfacturers) who, under this system concentrate their marketing efforts, distribution and collection at one place.

9.	Decentralization would increase the paper work involved in procurement. There would be a lot of duplication of work.	Centralization results in reduced paper work involved in floating tender enquireis, calling bids and other procedures involved.
10.	Power to control the product's make, packing and labelling would be lost because of the many purchase centres and smaller quantities purchased.	Control over the product's make, packing and lebelling will be better because of volume purchasing.

From the comparative analysis it is clear that centralized purchasing and storage is more cost-effective.

2.3.2. Three Alternatives for Purchasing - Once it is accepted that centralized purchasing and storage is more cost-effective, the question arises as to what purchase system should be used so as to avoid procurement delays.

In this connection three alternatives for purchasing were reviewed and analysed as follows :

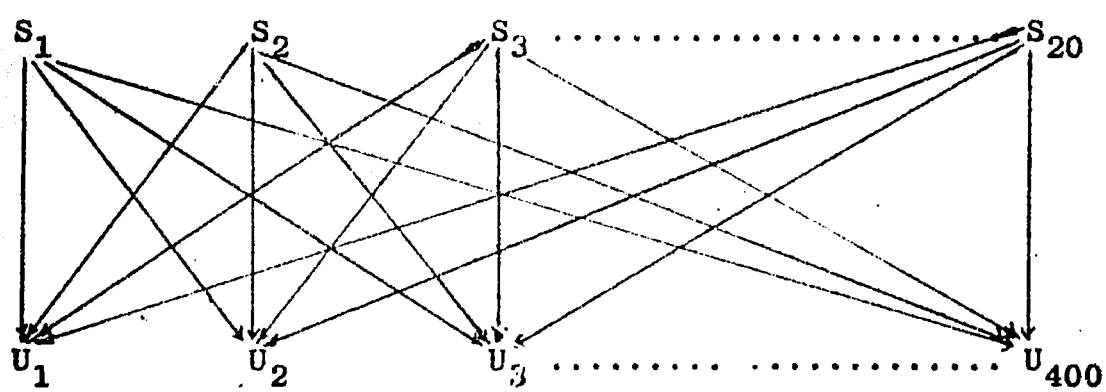
a) Purchases Through the Competitive Bids (The Existing System) - At present three committees have been constituted to make purchases. The working of these committees is inconsistent with the principles of division of work because the same work is performed by each committee. Under this system procurement delays are unavoidable. Bidding

is done two or thre times per year for 400 to 600 items with approximately half of the items being procured two or three times a year. The duplications of paper work is tremendous. The competitive process eliminates many quality products because of price. This causes a problem for the physician at the health facility who wants to use a quality drug.

b) The second alternative reviewed was the running rate contract with direct shipment to the end users. Under this system unit prices are agreed to with the suppliers for a certain period(usually one year) and whenever there is a need the purchase is made from the suppliers at the predetermined rate. The advantage of the system is that it eliminates the need for calling bids each time a purchase is made. Moreover, it also eliminates procurement delays. This system has been tried in Sind and has been abolished. In Sind the system worked as shown in the Figure 41.

FIGURE 41

DIRECT SHIPMENT FROM SUPPLERS TO USERS



S = Supplier U = User (Health Facility)

Under the system, a rate for a period of time was negotiated with suppliers at the provincial level and direct orders by the users were placed with the different suppliers. Shipments were made from the suppliers directly to the health facilities.

The system was abolished because :

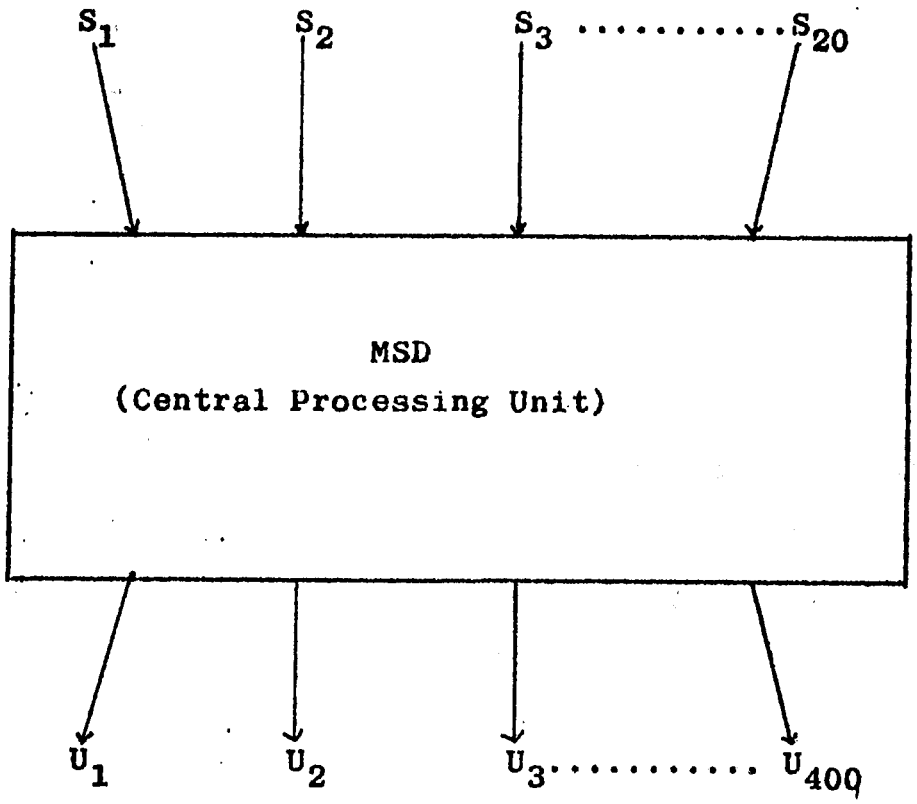
- It resulted in a piecemeal procurement for the health facilities. Purchases were made from many suppliers in small quantities. This was because no manufacturer could supply all items.
- The system created more work for the health facilities in terms of procuring drugs from different sources.
- The system creared a recovery of payment problem for the suppliers because they had to make recoveries against suppliers from more than 300 health facilities.

c) The third alternative is the running rate contract with shipment to the Medical Stores Depot. Under this system prices are negotiated on an annual basis and orders for drugs and medical supplies are placed by the depot on an as needed basis. The flow of goods in this alternative is shown in Figure 42.

Under this alternative drugs and supplies are assembled into kits at the depot and shipped to the health facilities. Special items that are not available at the Medical Stores Depot can easily be ordered from the manufacturer without calling for bids and can be sent to the user along with the kit or drop shipped by the manfacturers.

FIGURE 42

RUNNING RATE CONTRACT WITH
INDIRECT SHIPMENT



This system has the following advantages :

a) Reduces the possibility of items not available.

b) Eliminates the piecemeal nature of the procurement process.

c) Eliminates procurement delays because bidding is done once a year.

d) Eliminates duplication of work, that is required by the three committee system.

e) Solves the recovery problems of the suppliers because the recoveries will be made at one place against supply for all insitutions.

On the basis of analysis of these three laternatives, it is evident that the third alternative will result in a more efficient procurement system with minimum cost and workload. Alternative three is therefore recommended.

2.3.3. Topping-up System of Inventory Management - It is recommended that the economic order quantity for each item at the Medical Stores Depot be determined. The minimum level of stock for each item should also be determined. When the stock on hand falls below that level, the economic order quantity should be ordered. This will ensure the optimum level of stock for all items.

2.3.4. Other Measures to Improve the Procurement System - Include :

a) Drug testing has been a major bottleneck in procurement. This is a critical problem area which require priority attention. Moreover additional drug testing facilities need to be created and existing facilities should be improved. The stock received at the Medical Stores Depot should not be kept for long periods while waiting for the drug testing report. The stock should be issued to the health facilities while waiting for the test report. This may result in some recalls but this can be reduced by penalising the suppliers when a recall is required.

b) Payment to the suppliers should be made at the earliest possible time.

c) The purchase committees should be reorganized according to the type of items to be purchased, i.e. antibiotics, syrups, etc. This would enable committee members to become knowledgeable in particular types of items and would improve their efficiency.

d) Inventory shrinkages could be minimized by having volume drugs custom made, with special packing that identified the items as government issue. On pills a mark such as "G" or "GOP" could be stamped as they are manufactured. This mark on coated pills and capsules can be printed on each item at the time of manufacture.

2.4. The Government Medical Stores Depot

With the commissioning of Integrated Rural Health Complexes it is anticipated that the workload at the Medical Stores Depot will increase. The suggestions described below will alleviate a bottleneck at this level.

2.4.1. Reorganization Study of the Medical Stores Depot

When the budget gap is filled and as the proposed kit system is adopted, the Medical Stores Depot should be reorganized. Therefore at this stage reorganization study of the Medical Stores Depot is recommended. In the reorganization study it is recommended that emphasis be placed on:

a) How the supplies are grouped and stored in the sections to facilitate kit assembly and packing.

b) The division of work so as to lower the operational costs.

c) How to determine economic order quantities so as to strike a balance between hospital requirements, the requirements for kits and supplementary requirements for rural health facilities.

d) Time and motion study of the different work operations should be performed to determine staff requirements for each section of the depot.

2.4.2. The solution to the Accommodation Problem - In order to overcome the shortage of accommodation, it is suggested that :

a) The present accommodation for Medical Stores Depot should be acquired from the Food Department on a permanent basis, so that the necessary alteration/additions to increase the storage space may be carried out according to the requirements of the depot.

b) Another godown should be acquired from the Food Department. This will increase the available area for Medical Stores by 929 sq. meters.

c) The godowns now being used have a ceiling height of about 8 meters. The engineering feasibility of coverting them into a double story by placing a slab at a height of 4 meters from the floor should be determined. If feasible this would double the space available to 9,300 sq. meters.

2.4.3. The Solution to the Budget Problem (MSD) - The Medical Stores Depot budget discrepancy is a major cause of short supplies from the depot. This discrepancy could be removed by adopting one of the following recommendations:

a) The budget for the Medical Stores Depot should be on a par with the allocations of budget for

the health facilities that is reserved for purchases through Medical Stores Depot.

b) The budget of the Medical Stores Depot should be on a revolving basis so that the Medical Stores Depot could turnover its trading budget three or four times every year.

2.5. UNICEF Assistance

From the observations and findings it is evident that :

a) UNICEF assistance of recurring nature is creating a dependency syndrome and results in the Governments paying little attention to the areas where UNICEF assistance is available (especially the Maternity and Child Health Services).

b) UNICEF assistance of a capital nature is being underutilised or not utilised.

c) Separate accountability for UNICEF drugs and supplies and equipment requires additional unnecessary clerical work.

d) Inventory shrinkages are also reported to occur for UNICEF supplies.

e) Supply of 'Dai Kits' need special attention because short supply of these kits results in underutilization of the trained Dai.

f) Assistance needs to be monitored more closely by UNICEF staff.

g) Assistance with setup, operator training and preventative maintenance for capital equipment needs to be provided.

h) Program Officers do not have ampal time for field visits to appraise progress of programs. This may result in underutilization of donor assistance.

The above mentioned conclusions indicate the need for the government to encourage restructuring of UNICEF assistance.

2.5.1. Role Reversal: A Solution to the Dependency Syndrome - A Solution to the dependency syndrome will require actions by UNICEF and the Government of Pakistan, both individually and jointly. A conditional role reversal is recommended as a solution for this syndrome. Conditional role reversal means that UNICEF should be encouraged to assume the responsibility for financing expenditures of a capital nature through contribution of an amount equal to or more than the present recurring UNICEF budget on the condition that the government will assume the responsibility for financing the expenditures of a recurring nature. Assistance of non-consumable nature may take many forms. It may be in terms of financing the construction and initial equiping of Integrated Rural Health Complexes and Maternity and Child Health Centres. Another opportunity that could be expored is the construction, equipping and start-up of a drug manufacturing facility. This would enable Pakistan to eventually become self sufficient in drugs.

Role reversal is recommended for the following reasons:

a) Expenditures of recurring nature are repititive and continue year after year with limited self development results.

b) Expenditures of capital nature have an end point in time and can, if desirable be linked to performance on the part of the recipient.

c) Expenditures of non-recurring nature can remain constant over a period and ultimately, there would be a downward trend in the expenditures of non-recurring nature.

d) Role reversal will provide the health department with justification for additional funds for recurring budgets.

e) Role reversal to capital programs will give UNICEF more say in programs because of the strong participatory incentives (recurring expenditures) on the part of the government.

f) Since capital expenditures have an end point, the demand for UNICEF assistance ultimately will decrease and it will leave UNICEF with sufficient funds for other important programs.

Assistance of a consumable nature has caused a dependency syndrome. It is recommended that when the government request UNICEF assistance that assistance be directed toward the achievement of self-sufficiency, i.e. helping the beneficiary stand on its own.

2.5.2. Constant Monitoring - It was observed that UNICEF or the government does not have regular evaluation and monitoring systems to evaluate the impact of assistance received. Constant monitoring by the donor and the government is recommended for donor assistance and programs.

2.5.3. Mobile Preventive Maintenance Workshops - UNICEF could assist the government by having a mobile preventive maintenance workshop for preventive maintenance of medical equipment. This is recommended because it was observed at many health facilities that most of the equipment is not used because of the lack of preventive maintenance, lack of replacement parts and lack of operative skill. It is also recommended that UNICEF should arrange some training courses for parameicals to develop their operative skills and knowhow about the technical equipment provided to the health facilities.

2.6. Distribution System

It was observed that distribution cost was given little consideration in the system. In addition the absence of an appropriate reimburseable system, distribution delays often occurred. Therefore, a solution for the above mentioned problems is required.

2.6.1. "Kit System of Drop-Shipment" for Efficient Distribution - These deficiencies can be corrected by adopting the recommended "Kit System of Drop-Shipment". Any number of kits can be drop-shipped at a particular health facility because each kit will contain the same quantity and mix of items. Distribution will be easy because 75% to 80% of supplies will be drop-shipped once or twice a year.

2.6.2. Integrated Distribution System - It is recommended that the distribution of the UNICEF Drug and Diet Supplement Kit and other UNICEF supplies be combined with the kit from the Medical Stores Depot.

2.7. Storage of Drugs and Medical Supplies

At present the storage of drugs and medical supplies at Rural Health Centres and Basic Health Units does not create difficulties because the volume of the available drugs and supplies is low. However, with the increase in the volume of drugs and supplies that will result by adopting the "kit system" certain improvements will be required for storage facilities.

2.7.1. Categorical Arrangements of the Items in the Store - For convenience in storage and retrieval, it is recommended that drugs be stored on an accessible shelving system. Items should be divided into categories which can be quickly found by the storekeeper.

Division of the drugs into categories should be the same as listed in the formularies, e.g. antibacterial, antiprotozoan and antispasmodic etc. Arranging the drugs in this way will not only facilitate the retrieval process but will also provide first hand knowledge about the availability of various substitutes under each drug category.

Similarly the drugs that are classified as narcotics should be kept as a separate category. Supplies recently received should be stored behind older supplies, so that the older supplies are used first.

2.7.2. Staff Training for Vaccine Storage and Handling - The potency of each vaccine depends on the temperature, and time of storage. The higher the storage temperature, the shorter the shelf life of vaccines. Vaccines are also affected by accidental freezing and defreezing. Therefore careful handling and reliable equipment is necessary to maintain the potency of vaccines. It is recommended that the storekeeper be trained to handle vaccines.

2.8. Audit, Accountability and Record Keeping

From the observations and findings it is clear that the audit trail and control is adequate. However, since the audit trail for each source is kept separately, many registers have to be maintained.

2.8.1. Record Keeping for Drugs and Supplies - Elimination of various registers and integration of various information being kept in them is not only necessary for reducing the workload but also, to get an appropriate picture of drugs on hand at any point in time. Therefore, an integrated record system is recommended for the accountability of drugs and medical supplies. The audit trail and accountability should be combined for the utilization of supplies from different sources. To accomplish this purpose, the register format shown in Figure 43 is recommended.

The recommended register identifies the sources of drugs along with quantities received and gives the total for all the drugs received in the balance column. The register also shows issues made on the prescription of:

a) The Medical Officer

b) The Lady Medical Officer

RECOMMENDED EXPENSE BOOK FORMAT

UTILIZATION RATE PER MONTH DURING

1st Qtr.	2nd Qtr.	3rd Qtr.	4th Qtr.
Mon./Days	Mon/Days	Mon/Days	Mon/Days

THE PERIOD THE DRUGS WAS NOT AVAILABLE

DRUG NAME _____

- Average utilization rate per month (excluding the period the drug was not available = ----------
- The period the drug was not available at the facility during the year. ----------

Date	RECEIPTS		ISSUES								Balance
	Source	Quantity	Medical Officers	MT	FMT	GENERAL					
						BHU	RHC	CHW	Any Other	Total	

FIGURE 43

c) Medical Technician

d) Lady Health Visitor

e) General Category

The general category may include the issues made to the Rural Health Inspector, to the Basic Health Units from the Rural Health Centres or to the Community Health Workers by the Basic Health Unit. Recording issues in separate columns will make it possible to check over-issues or overuse of drugs.

This register also takes stock of the constraint or limitations on the use of drugs which are sepcifically meant for vertical programs. For example, UNICEF may not approve of drugs supplied for Lady Health Visitors being used for other purposes. With the recommended system the use of a separate register can be avoided because at year end, UNICEF receipt totals /issues made on the Lady Health Visitors' prescriptions and total can be compared to determine any discrepancies.

The recommended register will also provide first hand information on shortages or surpluses of certain drugs and the period over which these shortages or surpluses occured during a particular year. In addition the new format will help Medical Officers in their supervisory function. Medical Officers may check from the totals of issues column, the over-use of certain drugs by Medical Technician. In this way Medical Officer can control the Medical Technician bias for certain drugs.

At the top of the recommended Integrated Expense Book is a set of boxes for writing in the utilization rate of the drug for each quarter of the year and for periods during the quarter for which the drug was not available. This will give the health facility staff information about the stock position and utilization during the year. This will also

help when the Medical Officer visits Basic Health Units or the District Health Officer visits Rural Health Centres by giving them a check on excessively low or high utilization rates for certain drugs.

For example, high usage at one time, or consistently high usage could be due to waste or overuse, inventory shrinkages etc. Under the proposed system, anticipated stock depletion rates can be calculated, so that special supply orders can be placed in advance of the depletion date.

2.8.2. Drugs and Supplies Reporting System - It is recommended that a quarterly reporting system for drugs and medical supplies be initiated for the purpose of monitoring and reshuffling supplies from Basic Health Units where there is a surplus to facilities within the complex where a shortage is anticipated.

For example, high usage at one time, or consistently high usage could be due to waste, overuse, or inventory shrinkages etc. Under the proposed system, the anticipated stock depletion date both for the Basic Health Units and Rural Health Centres could be calculated so that special supply orders can be placed in advance of the depletion date.

For this purpose it is recommended that all the Basic Health Units in a complex send a quarterly report to the Rural Health Centre and a consolidated report be sent to the District Health Office. The District Health Officer could then arrange for reshuffling of drugs and medical supplies among the Integrated Rural Health Complexes within the district. The format of the report to be sent from the Basic Health Units is shown in Figure 44.

FIGURE 44

QUARTERLY DRUGS AND SUPPLIES UTILIZATION

Basic Health Unit _____

S.No.	Essential Drugs	Unit	Utilization Rate	Balance

The reports from all the Basic Health Units should be entered into the stock position register at the Rural Health Centre. The format of the stock position register is shown in the Figure 45.

The stock position register for the Integrated Rural Health Complex will be a valuable decision making tool for the Medical Officer. At a glance he will be in a position to know the utilization at all the facilities in the complex for selected drugs. The report will provide first hand knowledge of the stock positon and utilization rate at different Basic Health Units. He can anticipate shortages before hand and can reshuffle items from the one facilities where utilization rate is low to facilities where it is higher.

It is recommended that similar stock registers be maintained at the District Health Office for recording average stock utilization for each Integrated Rural Health Complex so that the reshuffling of items between complexes can be accomplished by the District Health Officer.

2.8.3. Daily Cross Checks System - Daily cross checks system is recommended as a check on inventory shrinkages. The idea behind cross checks is that the drugs prescribed at the facility must match the drugs dispensed from the dispensary. Under this system, the Medical Officers and Medical Technicians at the health facility would be required to forward a report on the drugs prescribed during the day to the Officer-in-charge of the health facility on a daily basis. Similarly at the end of the day the dispenser will forward a "report on the drug dispensed" to the

FIGURE 45

STOCK POSITION REGISTER

IRHC _____ Quarter _____

S.No.	Drug Name	Utilization Rate/Month					
		Stock Position					
		RHC	BHU	BHU	BHU	BHU	Average for the Complex

Officer-in-charge of the health facility. The Officer-in-charge of the health facility will see if the drugs dispensed are equal to the total of drugs prescribed by various persons at the facility. These reports can be prepared the same way as the entries in the present "daily used medicines registers" are made. This procedure will not create extra work because the need for two chits bearing treatment prescribed can be reduced to one and entries on the daily cross checks report can be made in a simpler way.

Daily cross check system is also essential because in the present system the loophole is that fake chits can be prepared and there is no cross check to the issue of drugs from the dispensary, once the chit is issued.

2.9. Dispensing and Disbursement Procedures

From the observations and findings it is concluded that :

a) Rural Health Centres and Basic Health Units operate as semi-independent components.

b) A variety of dispensing procedures and practices exist within the Rural Health Centres and Basic Health Units.

c) Some dispensing systems and practices take more of the physician's time and divert the use of his time from treating patients.

Therefore a standard system is recommended to cope with the problem of under-utilization and diversion of the physician's time.

2.9.1. The Proposed System for Rural Health Centres - The procedures for providing treatment and dispensing drugs to patients at the six Rural Health Centres covered by this study are not standardized. Many departures from the procedures documented in observations and findings were observed. Therefore a standard system is required to relieve the prescribing physicians at the Rural Health Centres from cumbersome timeconsuming practices.

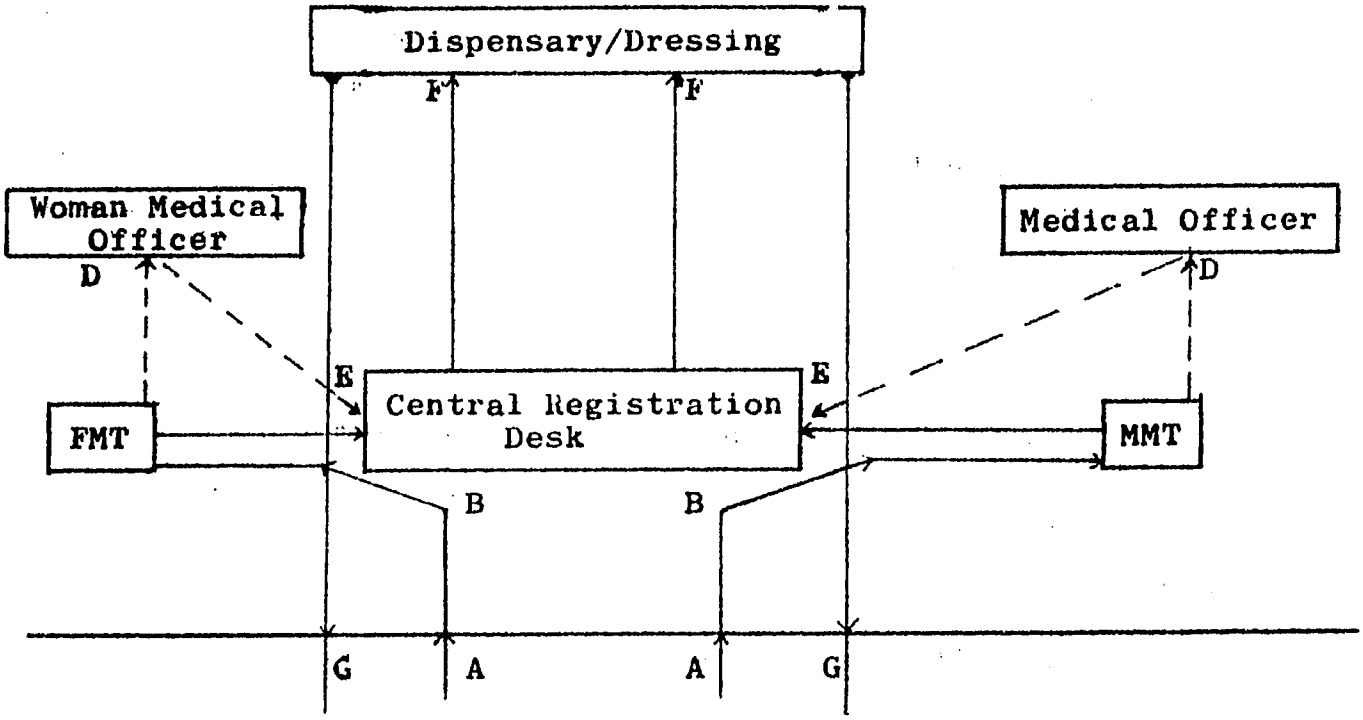
The proposed system for the Rural Health Centre is shown in the Figure 46. The proposed system integrates the dispensing and record keeping system. When the patient visits the Rural Health Centre, he or she will stop at the central registration station, receive treament or be directed to the appropriate health worker The health worker issues a chit showing diagnosis and treatment.

The patient then takes the chit to the Centration Registration Station where the information is recorded on the out-door patien register. At this station the perchee number is assigned, the percheee fee collected and the patient is directed to the dispen sar or dressing room. After getting the drugs or treatment, the patient is released. On revisits the patient has the chit recor ded at the Central Registration Statio- and gets treatment from the dispensary or dressing room.

The recommended system will eliminate the record keeping and dispensing by the Medical Officer. It will also allow other health workers more time for the supervisory function and will be a step toward integration of the semi-independent Lady Health Visi tor component into the operation of the facility.

FIGURE 46

DISPENSING SYSTEM FOR THE
RURAL HEALTH CENTRE



Legend

At point A - Patient enters the system

B - Directed at the central registration desk to the health worker to be consulted

C - Patient consults the MT/FMT. MT/FMT conducts a provisional diagnosis and decides the referral to the MO/FMO. If referral is not required, MT/FMT writes two chits bearing prescription and diagnosis if the patient is to be referred then MT/FMT writes a referral chit to MO/FMO.

D - Patient takes the referral to MO/FMO. MO/FMO writes two chits bearing prescription and diagnosis.

E - Patient takes the chits to the central registration desk where the chits are recorded, assigned a number perchee fee is collected.

F - Patient takes the chits to the Dispensary or Dressing room where patients given the prescribed treatment. One chit is retained for record.

G - Patient leaves the system with one patient retained chit and the drugs.

2.9.2. The Recommended System for Basic Health Units - The size of the facility and the caseload at the Basic Health Unit does not justify a separate Central Registration Station for the maintenance of the out-door register, and collection of the perchee fee. Under the proposed system, it is recommended that the dispenser incharge of the dispensary perform the above mentioned functions along with dispensing,

Under the recommended system the patient will first visit the Medical Technician who will examine the patient and issue a chit bearing diagnosis and prescription and make an entry in the cross-check report. The patient will take the chit to the dispensary. The Dispenser will:

- record the chit in the out-door register
- collect the perchee fee
- dispense the drugs or treatment

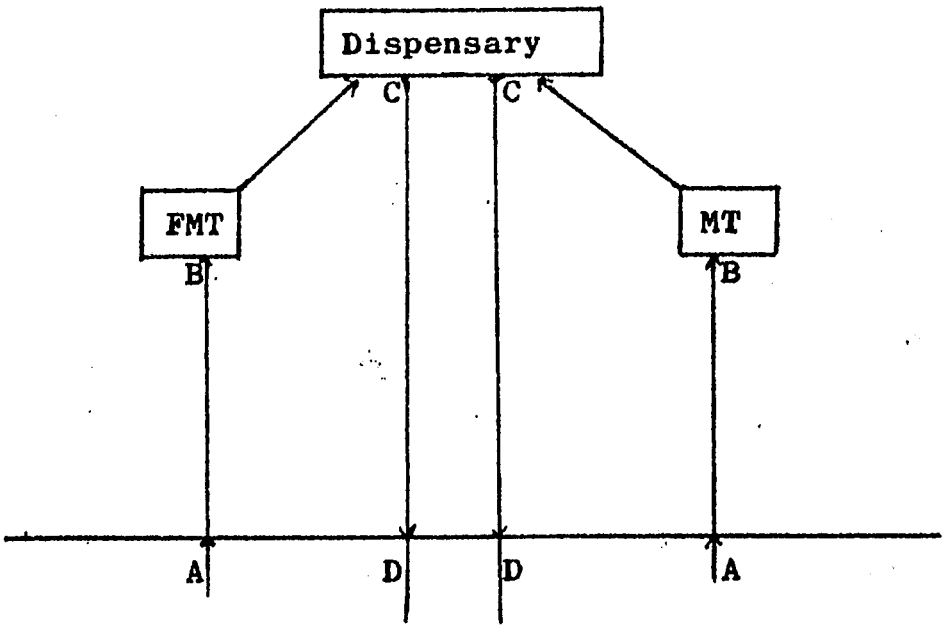
On revisits the patient is not required to consult the Medical Technician but can go to the dispensary where he will be recorded as an old patient on the out-door register. The recommended procedure is shown in Figure 47.

2.9.3. Patient's Education About the Use of Drugs - It was observed that because of the lack of adequate instructions to the patients lack of education of the patient about the drug use, poor retention of instruction by some patients and strange whims of the patients about drugs that drugs are often misused.

To avoid this waste it is recommended that the Medical Officers, Lady Health Visitors and Medical Technician properly instruct and educate patients about the use of drugs. It should be explained carefully how to take the drugs. In cases where the Patients

FIGURE 47

Dispensing System for the
Basic Health Units



Legend

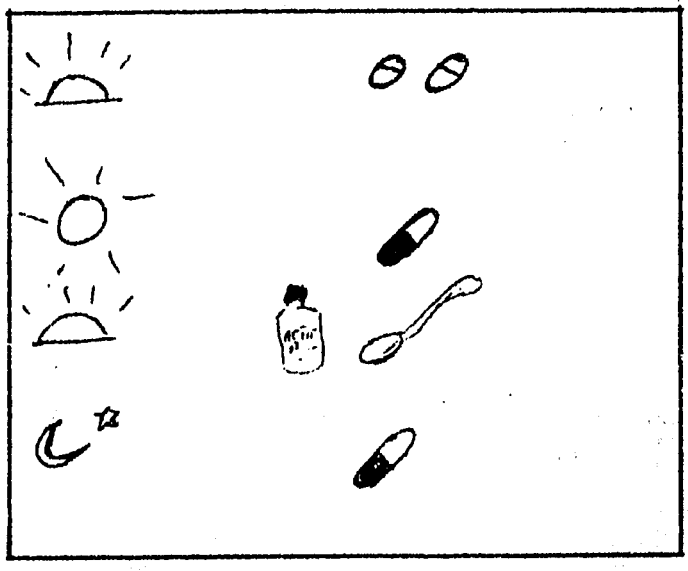
At point A - Patient enters the system

B - Patient consults the Medical Technician MT/FMT issues him/her two chits bearing diagnosis and treatment. MT/FMT records the drugs on daily cross check sheet.

C - Patient takes the chit to the dispensary where the chit is recorded, assigned a number, perchee fee is collected. One chit is retained by the dispensary.

D - Patient leaves the system with one chit and treatment.

are illiterate and have poor retention, the use of figurative explanation should be made. For example, the sun, moon, star could be used to explain the time the drug is to be taken. This is illustrated below. Reference to prayer times could also be used.



2.10. The World Food Program

The World Food Program is regarded as an effective means of improving the nutrition status of vulnerable groups. However, the program should be more fully integrated into the health care delivery system.

2.10.1. Prepacking of Supplements - It was observed that the distribution of the World Food Programs supplies creates a heavy burden on the Lady Health Visitor. The distribution usually occupies her from 8:00 A.M. to 6:00 P.M. on the day of distribution. To reduce the workload on the Lady Health Visitor it is recommended that the prepacking of food supplements into standard disbursible units be introduced. Prepacking is only required for butter oil and dried milk. For the distribution of wheat, proper cans and pots for measuring

ration should be provided to each centre. Prepacking and provision of measuring pots and cans will reduce the workload on the Lady Health Visitor considerably.

2.10.2. Monthly Disbursements - It is recommended that the disbursement of food supplement be made on a monthly basis. The disbursement on fortnightly basis usually complicates the distribution problem and creates an unnecessary burden. Whereas the same purpose could be served with monthly disbursements.

2.10.3. World Food Program Supplies at Basic Health Units - Storage facilities at the Basic Health Units are not adequate to accommodate the supplies for even two months. Because of the lack of proper storage facility an efficient distribution system is required. It is felt that the food program supplies for the Basic Health Units be kept at the Rural Health Centres and provided to the Basic Health Units three or four days in advance of the monthly disbursements. With the availability of transport at the Rural Health Centres, distribution of food supplement to the Basic Health Unit will not be a problem.

2.11. Recommended Standard Equipment List

Standard equipment list for Rural Health Centres and Basic Health Units was developed on the basis of the equipment utilization survey and need analysis of additional requirements. In developing the list of equipment and instruments, consideration was given to the type of surgical operations to be performed at the Rural Health Centres.

2.11.1. Type of Surgical Operations that May be Performed - When the Rural Health Centres were commissioned under the old primary health care scheme, no surgery was allowed. Gradually a more enlightened approach was adopted and if a Medical Officer had the knowhow and inclination towards surgery he was permitted to perform it at the Rural Health Centre. On the basis of interviews with health officials, it was concluded that if a Medical Officer is inclined and has the skill for surgery he should be allowed to use his abilities.

It was observed that the following type of surgeries are being performed at the Rural Health Centre:

MAJOR OPERATIONS

a)	Eye	- Cataract Removal
b)	Abdominal	- Appendectomy
		- Chollecystectomy
		- Caeserian Section
		- Hernia Repair
c)	Urological	- Supra-Pubic Prostatectomy
		- Removal of the Bladder Stone
d)	Gynaecological	- Dilatrition and curetting
e)		- Piles

MINOR OPERATIONS

a) Incision and Drainage of Abscess

b) Wound Repair

It is clear that when the equipment for these procedures is provided to Rural Health Centres, they will be underutilization at some facilities. The need for developing a solution to this underutilization is important.

2.11.2. Recommended System for Optimum Use of Surgical Equipment - Under the present system equipment and instruments supplied to a Rural Health Centre for surgery become the property of the centre whether a Medical Officer is posted there or not. This results in underutilization of the surgical instruments. It is recommended that the instruments for surgeries should not become a possession of the Rural Health Centres and if the Medical Officer does not have the skill or inclination for surgery such supplies should be withdrawn and supplied to a Rural Health Centre where these are needed or where a Medical Officer has the skill level and inclinations for surgery. It is recommended that sets for various surgical operations be developed and kept at a central depot. These sets should be supplied to Rural Health Centres where a Medical Officer is posted and has inclinations for surgery. The set should be issued from the central store and withdrawn when the post of Medical Officer is vacant or a new Medical Officer posted to such a facility does not have the aptitude or an appropriate skill level for surgery Such a system will ensure the optimum use of a limited resources. Also, it will ensure the proper preventive maintenance of the instruments when the sets are withdrawn to the store.

2.11.3. Minimum Equipment and Instrument Requirements for a Rural Health Facilities - The minimum equipment and instruments requirement for rural health facilities was developed considering the functions, roles and skill level of the staff that will be posted there. The requirements for various sections at the Rural Health Centre, e.g. the laboratory, the labour room, operation theatre etc. were developed separately on the basis

of equipment utilization survery and the need analysis.

A recommended list of minimum requirements for instruments and equipment for Rural Health Centres and Basic Health Units is given in the Appendix IV. This list was developed given consideration to the following:

a) Lists should contain the items that would be used at the health facility at least once during a year.

b) The items that are not now being used at the health facilities because of habit or lack of know-how but should be used, are included in the list.

c) Items which were never used at the health facility as shown by the utilization survery but their use is anticipated during emergencies are also included in the list.

This recommend list should be used as a working list for a committee of experienced Medical Officers. The committee should decide on the items to be included in the final list and should review the list annually.

2.11.4. Annual Inventorying and Preventive Maintenance of Equipment Instrument - It is recommended that all the equipment and instruments be inventoried annually and wornout or rusty instruments should be replaced or repaired. It is also recommended that adequate stock of replacement parts for various electro-medical equipment be maintained so that replacement of various components of instruments and equipment can be quickly preformed.

2.11.5. Clarify policies and Procedures - It was reported that surgeries are not allowed at the rural health facilities but still various kinds of surgeries are being performed at these facilities. Moreover, a variety of instruments for various kind of surgeries have been provided to these facilities. The point is, if the surgeries were not to be allowed at the Rural Health Centres, why were instruments supplied to rural health facilities. It is recommended that this policy be clarified.

During the field visits, it was observed that many Lady Health Visitors do the dilatrition and curetting. It should be noted that the Lady Health Visitors were never taught this procedure during their training. It is recommended that either the Lady Health Visitors be properly trained in the above-mentioned procedure or that these procedures be prohibited.

Such practices can be best checked by adopting the recommendation on withdrawal of a set of instruments when a Medical Officer or woman Medical Officer is not posted to a Rural Health Centre or does not have the skill or aptitude.

2.12. Drugs and Medical Supplies

2.12.1. Standard Drugs List with Minimum Required Quantities - A recommended minimum standard drugs and supplies list for Rural Health Centres and Basic Health Units was developed keeping in view the existing drugs and supplies that were available, the cost and efficacy analy-

sis of different type of drugs and on the skill level and training of the Medical Technicians who are to be posted at these facilities. In developing the lists, consideration was given to frequency of occurance of various diseases and to the referral system. Ensuring the availability of an appropriate variety of drugs at each level in a Integrated Rural Health Complex makes possible better treatment at a higher facility, if the patient is not cured at the lower tier in the system.

Since the budget for drugs and supplies is limited, a better mix of items can only be decided by a careful analysis so as to avoid shortages of necessary items and surpluses of items which are used infrequently. Cost of treatment was one of the major decision variable for the selection of the items to be included in the standard drug lists.

The recommended standard drug list for Rural Health Centres and Basic Health Unit is shown in Appendix V. The list is arranged by type of drugs with those drugs recommended and most essential for Basic Health Units marked by an asterisk (*). The entire list is recommended for Rural Health Centres. This recommended list should be used by a committee of Medical Officers to develope a final list and to determine the contents of "drug kits".

2.12.2. Drugs and Supplies Required by Community Health Workers - There will be two community health workers, one male and one female per 1000 of population. From the training modules for the Community Health Workers, their diagnostic skills and curative abilities for various common clinical problems were identified.

To arrive at the quantities required of each treatment per year per 1000 population, the probable number of cases for each

clinical problem per 1000 population per year in different geographic areas (designated Rural Health Complexes) was determined. The probable number of cases was arrived at on the basis of the abstract reports and the estimates of the Medical Officers, Medical Assistants, Medical Superintendents and the District Health Officers of the respective area for unreported cases.

Expected average number of cases per 1000 population per year for expected clinical problems is given in Table 22. It was observed that there is only a 20% to 30% variation in different geographic areas. On the basis of the expected caseload and treatment per patient per average cure period, quantities of various treatments required per year was calculated

It is recommended that the drugs shown in Table 22 be provided to the Community Health Workers on a monthly basis, and that a provision for these supplies in the drug budget of the health facilities should be ensured. The Community Health Worker should come to the health facility to pick up supplies once a month. There is an advantage to using this supply method as it creates an additional circumstances when the Medical Technician could communicate with the Community Health Worker about developments in the village and could provide continuing education on the use of drugs. An alternative distribution method would be for the Medical Technician to deliver the supplies to the Community Health Workers when visiting the village. Issues to the Community Health Workers should be recorded in the expense book of the issuing facility and each Community Health Worker should keep an Expense Book for each quarter showing the drugs received by him. Format of the Expense Book is shown in Figure 48. The recording of the drugs dispensed is not required because the audit trail can be easily established by

RECOMMENDED DRUGS AND SUPPLIES
COMMUNITY HEALTH WORKERS

S. No.	Common Clinical Problem	Treatment	Treatment Period	Treatment per Patient per Average Cure Period	Average No. of Cases per 1000 Population Per Year	Quantity Required Per Year	Provided By
1.	Conjuctivitis	Tetracycline Ointment	4-5 days	1 Tube	50	50 Tubes	Govt.
2.	Infected skin Lesion	Salt Water			70		Local
3.	Scables	Benzyl Benzoate	2 days	4 Ounce/ Patient	35	500 Ounce	Govt.
4.	Round Worm Infestation	Piperazine	1-2 days	8 tablets (single doze	100	800 Tab.	Govt-
5.	Peneumonia	Penicillin Tab.		1/2 tab.pd r child (refer to BHU)	50	50 Tab.	Govt.
6.	Malaria	Chloroquine		Presumptive doze 4 tab. refer to BHU)	60	200 Tab	Govt.
7.	Pediculosis	Benzyle Benzoate	1 day	1/2 ounce per treatment (ounce)	30		Govt.
8.	Wound,Burns etc.	Gentian Violet	2-3 days	1/60 pound	100	5 pounds	Govt.
9.	Severe Burns(for Rehydration)	Bicarbonate of Sodha			100	2 lb.	Local
10.	Diarrhea	Salt Water Sugar Solution			300		Local
11.	Pain Fever	Paracetamol, Dispirin	2 days	4 tablets	100	400 tab.	Govt.
		EXTRA SUPPLIES FOR FEMALE COMMUNITY HEALTH WORKER					
1.	Pregnancy Ante-natal Prenatal Care	- Folic Acid Tablets	3 months (Throughout pregnancy diet supp-lement)		45	4000	Govt.
2.	Pregnancy Ante-natal Prenatal Care	- Iron Tabs.	2-3 Tabs		45	2000	Govt.

FIGURE 48

COMMUNITY HEALTH WORKER
EXPENSE BOOK

Name of the Drug ----------

Month	Receipt	Issues	Balance	No. of cases Drug was given

comparing the drugs dispensed with number of cases seen by the Community Health Worker.

It is also recommended that there should be flexibility in issuing drugs to the Community Health Workers. If a Community Health Worker shows good performance and needs more drugs, he should not be denied. Nevertheless the Medical Technician should review the items and quantities requested rather sympathetically. Any questions or changes should be throughly discussed.

X TRANSPORTATION EQUIPMENT AND FACILITIES AND COMMUNICATIONS INFRASTRUCTURE

1.0. OBSERVATIONS AND FINDINGS

1.1. Road Conditions and Distances

There are very few metalled roads in rural areas that are suitable for public transport vehicles such as buses, wagon or taxi cabs. Even kucha roads which can be better described as dusty tracks cannot be used throughout the year because rains leave them impassable. Little or no maintenance of these tracks is provided.

Community Health Programs for providing health education and or prevention of disease are to be located in villages within a convenient distance of a Basic Health Unit. These programs are to be manned by Community Health Workers who treat minor cases requiring first aid and provide preventive services. Cases requiring further attention will be referred to a Basic Health Unit which is located from 2 to 6 Kms from the village.

Rural Health Centres are located an average of 15 kms from Basic Health Units and are usually located close to metalled roads.

District Headquarter Hospitals are at an average of 40 Kms from Rural Health Centres. Exact distances from Basic Health Units to Rural Health Centres and from Rural Health Centres to District Headquarter Hospitals for the six district covered by this study are shown in Table 23.

1.2. Usual Mode of Transport

1.2.1. Staff Visit - Transport available at the Rural Health Centre or Basic Health Unit level for the staff to visit Basic Health Unit or Villages is very limited. This limits the staff in supervision, patient consultations,

TABLE 23

Distances from BHU to RHC and RHC to District Hospital

District	Name of Centre	Distance from DHQ Hospital	Distance from RHC
Sialkot	RHC-Chawinda	29 Kms	-
	1) Partanwali	16	32 Kms
	2) Kotle Sayyadan	33	5
	3) Badiana	19	9
	4) Pindi Bhaggo	-	19
Sheikhupura	RHC-Warburton	10	-
	1) Bahuman	12	9
	2) Laggar	35	12
	3) Feroz Wattan	25	6
	4) Mortanpur	72	16
Gujrat	RHC-Lalamusa	19	-
	1) Punjam	24	9
	2) Kiranwala	22	8
Jhang	RHC-Shah Jewana	32	-
	1) Haveli Sheikh Raju	29	22
	2) Iqbal Naggar	29	21
	3) Inayat Pur	51	19
	4) Ratter Matter	42	9
Bahawalpur	RHC-Uch Sharif	80	-
	1) Budhuwali	90	9
	2) Haiderpur	85	9
	3) Bhualla Jullan	96	20
	4) Noonari	69	22
D.G. Khan	RHC-Choti Zareen	35	-
	1) Mana Ahmeddani	29	21
	2) Memori	19	12
	3) Choti Bala	-	29

health education, etc.

Lack of transport is one of the main reasons why Medical Officers in Rural Health Centres rarely visit Basic Health Units. The lack of frequent visits results in inefficiency operation of the Basic Health Units. Visits would enable the Medical Officer to observe deficiencies in the management and he could hold the staff accountable. In addition visits would boost the morale of the local population because they would have greater confidence in a qualified doctor. At the same time during visits the Medical Officer could provide immediate medical attention to the needy and help improve diagnosis and treatment by the Medical Technician.

Inadequate transport facilities also confines the Lady Health Visitors to their centres or units and they are unable to visit or even to reach some areas in emergencies. For effective health care it is important that Lady Health Visitors visit the villages for health education and child care and for the treatment of women and children under the age of five. In a few exceptions the Lady Health Visitors walk to the villages, accompanied by a another female member of the staff (mostly dai). In most cases it is neither safe nor convenient and is even objected to by the orthodox village folks for women to visit houses alone.

Rural Health Inspector and Sanitary Patrol have bicycles for visits. However, they only visit rural areas in fair weather. This is because during the rainy season it is difficult or even impossible to ride a bicycle.

1.2.2. Transporting Patients - Common methods of transporting patients from the villages to Basic Health Unit are :

a) Charpoys (Cots)

b) Bullock Carts

c) Horse/Camel

d) Tractor Trollies

e) Horse driven tongas

Charpoys or cots are used by those patients who are very poor and ca not afford other types of transport. Transporting a patient on char poy require four persons as carriers.

Some families own a bullock cart mainly for transporting farm produc When a person in these families require medical attention he is take to the basic health facility in this cart.

Some families own horses or camels that are primarily used as work a mals. When necessary these animals are used to transport sick membe of the family.

Tractor trollies are owned by a few well-to-do familities and is the fore not a very common mode of transporting patients.

Horse driven carts or tongas are available in most of the villages b they are rarely available in the central part of the village. They mainly parked at their stands which are from 2 to 4 Kms away. It wa learned that hiring a tonga costs between Rs.10-15 depending on the distance.

The usual mode of transport from Basic Health Unit to Rural Health Centre or District Headquarter Hospital are :

a) Tongas

b) Taxis

c) Buses

d) Trains

Once the patient is transported to the Basic Health Unit the necessa medical care is provided. If a case is serious and requires referra

to a Rural Health Centre, it is difficult for the patient to reach the centre or hospital. Valuable time is lost due to inadequate transport to these facilities. A metalled road is usually from 4 to 6 Kms from the Basic Health Unit and the patient has to be transported to the main road by the same mode of transport which was used to reach the Basic Health Unit. From the main road public transport facilities like buses, taxis, wagons etc. is usually available.

Buses are the cheapest mode of transport but they are usually overcrowed and do not operate on a regular basis. Unfortunately, due to the transport situation patients find it easier and most convenient to go to District Hospitals, bypassing the Rural Health Centre. This breaks the referral chain and shifts the workload of Rural Health Centres to District Hospitals which are already working at near capacity.

Use of taxis is a very expensive mode and is not always readily available. Hiring a taxi from a village to Rural Health Centre or District Headquarter Hospital costs about Rs.100-150.

Trains are also one of the available modes of transport, Because of limited access and frequency of service this mode is rarely used for movement of patients.

1.2.3. District Health Offices - Transport at the District Health Office in many districts is either not available or is not in good working condition. Jeeps or pickups where available were originally sanctioned for Assistant District Health Officers who were required to visit Rural Health Centres in their district on a regular basis. Because of a shortage of doctors

these posts have been lying vacant for several years. In many cases the District Health Officer is using the vehicles sanctioned for these post.

1.2.4. Rural Health Centre - The Rural Health Centres are manned by doctors and a staff of support personnel, however, the movement is restricted due to non-availability of proper transport. At the time these centres were established in the 1960's they were provided a vehicle. But lack of fund for the replacement of vehicles has deprived most of the Rural Health Centres of a vehicle. The vehicles that are still in service are in such poor condition that they can neither be used for transporting patients nor for supervision purposes. They are slow, have high fuel consumption and high maintenance cost. At present Rural Health Centre are provided with an average of two bicycles for use by Rural Health Inspectors and Sanitary Patrol for visiting rural areas.

1.2.5. Basic Health Unit - The only transport available at Basic Health Units is one or two bicycles. The staff at these units usually remain at their place of duty, and rarely visit the villages in their area.

Vehicles that were available at the time this study was completed in the six districts is shown in Table 24.

1.3. Budget Provisions

The district budget allocations are placed at the disposal of District Health Officers who in turn make provisions for the various Rural Health Centres, Basic Health Units, Sub-centres,

TABLE 24

Vehicles Available
Six Districts in Punjab

Districts	Vehicles	Conditions
Gujrat		
DHO	Jeep 1971 model	On road
ADHO (Kharian)	Jeep 1964 model	On road
RHC (Lalamusa)	Jeep 1962 model	On road
Bahawalpur		
DHO	pickup 1964 model	Off road, unservic able, replacement demanded.
RHC (Uch Sharif)	Jeep 1961 model	On road, not in go working condition.
D.G. Khan		
DHO		
RHC (Choti)		
Jhang		
DHO	Jeep 1964 model	On Road
ADHO	V.W. Car 1964 model	Off road, poor working condition
RHC (Shah Jewana)		
Sheikhupura		
ADHO	V.W. Car 1974 model	On road
RHC (Warburton)	Jeep 1951 model	Off road
Sialkot		
DHO	Land Rover 1975 model	On road
RHC (Chawinda)		

Maternity and Child Health Centres and Dispensaries under their juris diction. With the exception of Uch Sharif in Bahawalpur district and Lala Musa in Gujrat district, vehicles were not available at any of t six Rural Health Centres or Basic Health Units covered by this study. These locations are sanctioned budget for petrol, oil lubricants and maintenance which ranges between Rs.2,000 to Rs.2,500 per annum. The Rural Health Centres were provided vehicles in 1960's and obviously their fuel consumption as well as maintenance charges are much highe than the sanctioned budget.

Each District Health Officer is sanctioned between Rs.2,500 and Rs.3, per annum for operating and maintaining a vehicle. This is usually mu less than the actual expenses because the District Health Officer is incharge of all health facilities (except District Headquarters Hospi within a district. As such he has to tour a lot for supervision and trol of these institutions. The actual cost is usually between Rs.15 and Rs.20,000. The deficit between the sanctioned budget and actual expenditure is met from funds allocated for other purposes such as pu ase of drugs and supplies.

1.3.1. Procedure for Disbursement of Funds - The Finance Department releases a lumpsum amount for health services to Directorate Health Services at the beginning of each fiscal year. The Dire torate of Health Services makes the annual budget allocations the divisions or districts during the month of August. The Deput Director or District Health Offices provides budgetary funds to the Rural Health Centres, Basic Health Units, Sub-centres, Maternity and Child Health Centres, Dispensaries and Tehsil Hospital in the district. The District Health Office prepares a state ment of excesses and surrenders on a semi-annual basis at the

end of October and March. Purpose of this statement is to show whether the allocated budget is short of actual requirements or if there is an excess of funds.

The District Health Officer after scrutinising these statements either surrenders the surplus or asks for additional funds with reasons and justification for the action.

Rural Health Centres are not authorised to draw cash for operating expenses. Instead they can make purchases on credit and transmit the bills to the District Health Office for disbursement. This means that the Rural Health Centres and Basic Health Units have to refer to the District Health Office for making payment when needed.

1.4. Maintenance Facilities

The budget provision for vehicle operation and maintenance of Rs.2,500 for Rural Health Centres and Rs.3,500 for District Health Offices is not sufficient to meet the requirements and in fact most of it is spent on Petrol, Oil and Lubricant (POL) leaving little funds for the maintenance, repairs or replacement of worn out parts. This results in "off the road" vehicles at the Rural Health Centres and District Health Offices.

1.4.1. Workshop Facilities - A mechanic is posted at each District Health Office to attend to minor repairs. This mechanic is a fulltime paid employee of the Communicable Disease Control (CDC) workshop which is now under the District Health Office. Prior to 1977 the CDC program (previously Malaria Eradication Program) was independent

of the District Health Office. In most cases the workshop has only one mechanic and he is not properly equipped. Even common tools, such as spanners, pliers, hammer, screw-drivers etc. were not available. Even minor repairs were carried out at the local private repair shops with the mechanic serving as driver to deliver the vehicles for repair.

For major repairs there are workshops at the divisional (in Punjab) and the provincial level. At the divisional level there are workshops in

a) Multan
b) Sargodha
c) Bahawalpur
d) Rawalpindi

These workshops have the facilities for complete overhaul of engines but lack facilities for machining, denting and painting. These workshops repair vehicles for the District Health Offices, Divisional Directorate and other vehicles which are available within the division. The staff at divisional workshop (Except Multan) is shown in Table 25. Since the shop in Multan is combined with the CDC shop it is somewhat better staffed. The staff for this shop is shown in Table 26.

Whenever a vehicle is sent to a divisional workshop it is inspected by the driver, who submits a defect report to the Deputy Director for review. The report is then sent to the transport officer who estimates the cost of repair and the needed spare parts. A list of the spare parts is sent to the provincial workshop. If available in the provincial workshop store, the parts are issued to the concerned division. If parts are not available a certificate is issued which enables the divisional office to buy the parts from the local market. The divisional office is not authorised to buy spare parts for more than Rs.100 without prior approval . In order to buy spare parts from the local market, tenders are issued to the suppliers and quotations are invited and the lowest bidder is given the order.

TABLE 25

Staff at Divisional Workshop
(Except Multan)

Staff	Strength	NPS
Mechanics	3	5
Cleaner	1	1
Fitter	1	1

TABLE 26

Staff at Multan Division Workshop

Staff	Strength	NPS
Transport Officer	(Vacant)	16
Foreman	1	8
Senior Mechanic	2	8
Junior Mechanic	24	5
Junior Electrician	1	5
Welder	1	5
Trimer	1	5
Tin Smith	1	5
Workshop Boys	3	1

The spare parts are bought on credit and the bill is transmitted to the respective District Health Office for disbursement. Meanwhile the repair of the vehicle is started in order to save time.

At the provincial level in Punjab, there are two separate workshops one at CDC and the other at the Health Directorate. Both the work-

shops are in Lahore. Even though CDC has been integrated with health services the workshops still operate separately.

HEMO (Health Equipment and Maintenance Organization) workshop is located at the Directorate. It was established in 1967 with assistance from UNICEF. The CDC (Communicable Disease Control) workshop which was established in 1963 with assistance from USAID is located at the CDC office. Both workshops are now under the control of the Health Directorate.

HEMO workshop attends to general overhauling of engines, differentials gear boxes and brakes. The shop also provides minor repair services such as tunning, oil changing, greasing, servicing batteries, electric horn repair, changing of bulbs, etc. The workshop is equipped with the following :

a) Compressor
b) Grinder
c) Drill Machine (Hole Master)
d) Table Vice
e) Tanger (battery charger)
f) Jacks
g) V.W. Engine Fixer (stand)

Staff at the HEMO workshop is shown in Table 27.

This shop does not have a permanent officer for supervision and technical guidance. At present it is under the control of a medical doct who does not have the required training to look after the shop. The post of provincial chief has not been filled on a permanent basis because of the lack of interest by experienced electrical or mechanic engineers. Only inexperienced engineering graduates can be found for the post.

There are approximately 600 vehicles in use by the Punjab Health Depar tment that use this shop for major and minor repairs. Vehicles needir

TABLE 27

HEMO WORKSHOP STAFF

Staff	Strength	NPS
Provincial Chief	1	18
Spare Parts Manager	1	11
Foreman	1	8
Mechanics	5	5 and 8
Fitters	5	5
Helpers/Cleaners	4	1
Carpenter	1	3
Auto Electrician	1	1

major repairs are sent to this shop from all over the province. Each vehicle is inspected and a cost estimate prepared, including spare parts required. These estimates show spare parts which are needed and are available in the store, spare parts which have to be purchased from the local market and the machining to be done in the local market, These estimates are put up on a demand form which is sent to the concerned department for payment. As soon as the department releases funds the repair of the vehicle is started. It was found that the offices concerned delay in making payment or responding to demand forms. This requires repeated reminders and often delayed the repair of the vehicle.

Repair facilities are available at the CDC workshop for denting, painting, electrical, and complete overhauling. Facilities for Camshaft grinding, valves seat grinding and fitting are not available. The workshop is equipped with the following equipment:

a) Lathe
b) Drum tuning lathe
c) Valve tuning machine
d) Bench drilling machine

e) Battery changer

f) Compressor

g) Arc welding set

h) Spark plug touching machine

i) Self tester

j) Coil tester

k) Hydraulic press

This workshop is divided into sections for carrying out various ty of repairs. The sections are :

a) Engine shop

b) Machine shop

c) General repair shop

d) Electrical shop

e) Denting shop

f) Painting shop

g) Upholstry shop

h) Black smith

Staff at the CDC workshop is shown in Table 28.

TABLE 28

CDC WORKSHOP STAFF

Staff	Strength	NPS
Transport Officer	1	16
Foreman	1	8
Senior Mechanics	3	8
Junior Mechanics	7	5
Senior Electrician	1	8
Junior Electrician	1	5
Trimer	1	5
Black Smith	1	5
Carpenter	1	5
Denter/Welder	2	5
Painter	1	5
Turner	1	5
Storekeeper (General)	1	-
Tin Smith	2	5
Workshop Boys	3	2

The CDC workshop is controlled by a transport officer, who is an Associate Engineer of Automobile Technology with 20 years experience. He has worked as transport officer of CDC since 1965 in NPS 16.

Thirty percent of the vehicles assigned to CDC are repaired by the divisional workshop in Multan. This workshop previously repaired only CDC vehicles. Since its integration into the Health Department workshop all the vehicles needing major repairs are sent to the provin vial workshop. The driver submits a defect report and the vehicle is inspected. The required spare parts are requisitioned from the workshop store. Spare parts which are available in the store are released against the requisition for replacement while parts which are not available are purchased from the local market. The CDC workshop has adequate funds and repairs are usually completed without delay.

1.5. UNICEF Vehicle Policy

UNICEF has provided vehicles for various development and social uplift program activities in Pakistan for many years. The government submits a request to UNICEF spelling out their vehicle requirements and the benefits that will accrue. UNICEF scrutinizes the request and arranges for the provision of vehicles for approved purposes. UNICEF has supplied vehicles for various programmes including family planning, primary health care and social welfare.

The vehicles are provided for a specific project or programme and not to any particular place or person. The allocation of

vehicles to places or persons becomes the responsibility of the government which determines the priorities.

Spare parts for each vehicle are provided for a period of two years. After two years it is the responsibility of the government to purchase spare parts. The spare parts donated by UNICE for the vehicles for health programmes are stored at Health Dir torate Workshop. The two year supply of spare parts for vehicl provided by UNICEF against requirements of various projects and programmes are made available to the workshop that is required repair the vehicles.

In addition to provincial and divisional workshops equipment fo mobile workshops in Multan, Khairpur and Quetta divisions was donated. These mobile workshops functioned well till 1967 and thereafter service begain to deteriorate due to a lack of vehic replacements and funds for spare parts.

UNICEF policy requires that all vehicles provided remain the pr erty of UNICEF and when rendered unserviceable are auctioned. Replacement, however, is not the responsibility of UNICEF and i is up to the project or program to make arrangements for replac ment from their own resources.

1.6. Need for Communication

Communication is one of the basic requirements for establishing and maintaining liaison between various tiers of Integrated Rura Health Complexes. Lack of communication facilities is a serious problem and will become more of a liability with the organizatio of additional Integrated Rural Health Complexes. Also, lack of communication will require increased use of transportation for

the accomplishment of many simple administrative details that would otherwise be attended to via telephone or two way radio.

Communications is the "Life Blood" of the Rural Health Delivery System and is the most convenient way to maintain referral patterns and solve day-to-day administrative problems. In fact the absence of adequate communication results in a feeling of isolation on the part of the staff at remote facilities and contribute to the problems associated with recruiting and retaining skilled personnel for these posts. Obviously communications facilities can supplement or in some cases replace the need for transportation at less cost.

Communications facilities are essential for the following reasons:

a) Timely access to the Medical Officer by Medical Technicians for assistance with patients consultations.

b) Routine supervision requirements of the staff working at Basic Health Units and Rural Health Centres.

c) Save valuable time and increase efficiency in handling administrative problems including provision of life saving drugs or other supplies needed in emergency cases.

d) Efficiency in organizing logistic of patient referrals.

e) Overcoming professional and social isolation of the staff at various tiers in a complex.

f) Prompt conveyance of information on reportable diseases.

g) Reduce the need for transportation and the use of messengers for the routine tasks.

1.7. Existing Communication Facilities

Most of the Rural Health Centres covered by this study have be provided a telephone for communication with the District Healt Office, However, calls are transmitted through an exchange wh means that there is no direct dial service. Basic Health Unit have no telecommunication link with Rural Health Centres, Dist Headquarters Hospital or District Health Office. They do, how have messenger services which is inefficient, outdated and an adequate means of communicating.

Most of the villages covered by this study were found to have post offices or distribution system of their own. A central office serves a number of villages on a weekly basis. A letter despatched to this post office may take upto seven days to reac it's destination. Rural Health Centres are better off in this respect because the post office is usually situated in the vici and letters despatched through this office take the normal deli period of 2-3 days. Despatches from this post office to the Ba Health Units usually take longer than normal because of the del ery and despatch system.

Normal or routine information from the District Health Office t Basic Health Units is despatched and received by post while the emergency information is communicated to the Rural Health Centr on the telephone from where it is delivered to the Basic Health Unit by messenger.

Messengers are used for communications between Rural Health Cen res and Basic Health Units. A message from a Rural Health Cent is carried by peon on a bicycle. Since many Basic Health Units

are located from 5 to 20 Kms from the Rural Health Centre delivery of messages requires several hours. The Basic Health Units serve several villages and are mostly located between villages' some distances away from the main road. In most cases there are no direct roads to the Basic Health Units with the result that during the rainy season access by bicycle becomes impossible. During this period the system of communications between Rural Health Centres and Basic Health Units completely breaks down. This leaves the Basic Health Units in isolation without any supervision or medical help from the Rural Health Centre.

In the absence of other communication links, correspondence between various tiers has been accepted to be the only means for conveying messages and directives. It has naturally gained in importance within the Integrated Rural Health Complex and between various tiers of the complex and district and division health offices. All correspondece despatched is recorded in a "Despatch Register". However, the centres and units do not maintain a "Receipt Register" so there is no record of correspondence received.

Most of the Basic Health Units are not electrified. Some of Basic Health Units have completed the requirements of WAPDA for the supply of electricity but are waiting for the connection.

1.8. Two-Way Radio System

Two-way radios are not allowed for public use in Pakistan. Their sale is also banned. If a government department, project or program requires two-way radio communications they have to get permission from the Pakistan Wireless Board in the Telegraph and

Telephone Department. This Board consists of members from different departments such as Army, WAPDA, Railways and Police.

A department, prior to establishing a wireless station must complete an application form. The application is submitted to the Director General, Telegraph and Telephone Department, Islamabad. Twenty copi each of Form 'A' & 'B' and a site plan must be submitted along with the application. The application and form A and B is shown in Appen dix VI.

The Director General scrutinizes the application and supporting mate ial to determine if a wireless license is needed by the applicant. set of these forms is then passed to the Divisional Engineer (Freque Coordination) for the technical scrutiny and clearance of frequency another set to the Home Affairs Division for security clearance.

The Divisional Engineer (Frequency Coordination) has all technical aspects scrutinized in his office. This scrutiny covers the followi

a) Is the scope and the requirement of the proposal clear and precise?

b) Is an alternate communication facility available in the area?

c) Frequency coordination:

- Is the requested frequency unallotted?
- Is it in the proper band?
- If unallotted, what is the nearest allotted frequency?

d) Will use of the requested frequency interfere with the nearest allotted frequency?

e) Is the power output of the proposed wireless

at the minimum required for establishing a good communication link?

Frequency and other relevant data, found to be technically acceptable is then circulated by the Divisional Engineer (Frequency Coordination) to all members of the Board who will immediately acknowledge the receipt and send their comments if any within a period of one month of the receipt of the proposal. If no comments are received within this period, it is understood that the proposal has been accepted and the frequencies requested are allotted to the applicant. In case of an objection on technical grounds, the requesting organization is asked to amend the request, within a fortnight.

The proposal is placed before the Wireless Board for consideration at its next meeting. On approval from the Board, the proposal is passed on to the concerned branch of the Telegraph and Telephone Department for the issue of a license. The license is issued after the receipt of security clearance from the Home Affairs Division.

It should be noted that the use of radios is not allowed within 50 Kms of the country's border. However, this restriction is relaxable in case of urgent need for two-way radios. In such a case the Board request permission from the neighbouring country and also from the International Frequency Registration Board (IFRB) for the allotment of frequency so that the allotted frequency will not hinder communication in the neighbouring country.

1.9. Telephone Facilities

It is not feasible to provide telephone facilities to the rural

areas because of the huge expenditure. Additionally the limited commercial use would not be sufficient to generate the revenues to offset the cost. The government is now paying more attention to the needs of the rural population and recognize the importance of better communication. Inspite of this such a venture still remain uneconomical from a commercial point of view.

Public call offices are opened in rural areas to provide telephone facilities to the people living in remote areas of the country. According to existing procedure adopted by the Telegraph and Telephone Department, the following points are taken into consideration in the planning and preparation of schemes for opening of long distance public call offices:

a) Is the village or town where the public call office is to be opened important from a commercial, industrial or other points of view? Priority is given to administrative centres to help the local administration communicate important information.

b) How many people will be benefited by the opening of the public call office? It was found that a public call office will be considered if the population of a particular area is more than 6,000.

c) Who will be responsible for taking care of the public call office? If a post office or a sub-post office exists in the area, the Postmaster is entrusted with the responsibility. If there is not a post office in the area a primary school can be used. This enables the Telegraph and Telephone Department to locate the

the public call office in an existing building and avoids the cost to construct its own building.

d) The cost of line construction is directly proportionate to the distance between the public call office and the exchange to which it is to be connected. The maintenance cost and the efficiency of operation of the public call office is also dependent on this distance. Because of the high fixed cost of the equipment at each end of the line the route should be at least four Kms.

The link to connect the public call office with its parent exchange is of two types. The first type is a single channel VHF (very high frequency) system. This involves the installation of a single channel VHF set at either end. The system is operated on commercial power supply if available. In cases where commercial power is not available an engine generator with rectifier is provided to charge batteries and for running the system. However, before the installation of the system the terrain between the public call office and the exchange is surveyed and tested by an expert for the feasibility of the system on that route. This system works efficiently upto a distance of 50 Kms.

The second type is a land line. Routes which are not found feasible to be linked by VHF are linked by land line. The line is mostly strung on 5 m. high metal pole with 15 posts per km. In special circumstances where a strong alignment is required, 6 m. high metal pole are used. The 5 m. post are preferred since they costs less. The wire used is 242 lb per mile, copper weld wire. Power to the public call office is provided by it's parent exchange.

1.9.1. Repair Facilities - The Pakistan Telegraph and Telephone Department is a central government agency under the Ministry of Communications. This department is responsible for the installation, testing, maintenance and operation of the telephone communication network through out the country.

The Telegraph and Telephone Department is operating a lar network of microwave systems and VHF links for providing long distance communication in the country. It is well equipped with the installation, maintenance and operatic facilities for all types of radio systems. In Punjab, th main maintenance centres of the department are located a the Divisional Headquarters in Lahore, Multan and Islama In addition, maintenance facilities are also available a a number of other stations. In a majority of the cases, departments like WAPDA, PIA etc. and other private organizations seek assistance from the Telegraph and Telephone Department for establishing any type of UHF/VHF network which envisages purchase of equipment, installation, testing and subsequent maintenance and operation. The organizations make payment to the Telegraph and Telephone Depatment for the entire cost of establishing these networks For maintenance and operation separate charges are paid annually.

2.0. RECOMMENDATIONS

2.1. Transportation Requirements

The study has revealed that the basic requirement of transport in the rural areas remain a problem and is likely to present

further difficulties in the provision of health services. The existing transport system is not only inadequate but also hazardous. The three tiers i.e., Community Health Program, Basic Health Units and Rural Health Centres have to be made accessible to each other so that the patients can be speedily transported upto the Rural Health Centres and from there to District Headquarters Hospital without experiencing extreme difficulties for lack of transport.

As has been mentioned previously, the Basic Health Units are mostly centrally located so that Community Health Worker may refer cases after precautionary measures have been taken. In cases where Basic Health Unit staff consider the patient beyond their control, he or she is referred to a Rural Health Centre. The existing means of transportation upto the Basic Health Unit and from there to the Rural Health Centre are not adequate except in a very few cases where public transport is available.

Lack of funds is stated to be a reason for not being able to provide proper transport to the Rural Health Centres and Basic Health Units. The transport required for rural areas has to be an all-weather vehicle/ ambulance and since the cost is prohibitive according to sanctioned budget funds from other sources must be sought.

Non-existing or inadequate transportation facilities may adversely affect the functioning of the rural health programme for which substantial expenditure is being incurred. It is therefore, imperative that the basic problem of transportation be solved in order to make the health programme successful and to enable the rural population to benefit from the programme. It is to be appreciated that no amount of drugs or number of trained medical personnel can be of service to the patients

unless the patients have access to the health facility.

From the above it is obvious that the following requirements m be considered:

a) Provision of a network of all weather roads or tracks connecting the three tiers of Integrated Rural Health Complexes.

b) Selection of adequate transport vehicles suited for the patients and staff.

c) Provision of necessary funds for the purchase of proper vehicles and spare parts.

d) Additional funds for the maintenance and operating cost of the vehicles.

e) Reorganization of workshop facilities for maintenance and repair of the vehicles.

2.2. Provision of Roads

Provision of a network of metalled roads connecting the villag to the Basic Health Units and then to Rural Health Centres is neither feasible nor practical at the present since it involve a huge expenditure which is not available within the limited resources of Pakistan. However, in the economic and social de opment of a country such a need cannot be overlooked. From a practical point of view the level of kutcha tracks can be rais at a height above the adjoining fields by laying stone ballast or pitching and filled with sand and rolled to provide a firm surface. This would make these tracks of greater use throughc the year. With proper maintenance these tracks will last for indefinite period. For this purpose, the government can prov

the necessary technical know-how and supervisory staff while the villagers can be induced to offer a volunteer work force at a nominal wage or by serving free meals and tea.

The digging implements can be easily made available at the village while specialized equipment and rollers may be arranged at government expense. Village people have to realise the importance of such a job and the benefits they are expected to derive from it. This task can be entrusted to the local bodies of the area to muster such a work force. Secondly, a manual on low-cost roads in the language of a layman could give the necessary guidance on how low-cost roads can be constructed. The main initiative to start construction of such roads should rest with the local bodies. Public as well as private transporters should be encouraged to ply their vehicles on these routes. This would help solve the general transportation problem of the rural population to a greater extent and may even create healthy competition among the different villages to expedite road construction within the shortest possible time.

2.3. Selection and Use of Vehicles

Taking all the factors into consideration a suitable vehicle for transporting the patients as well as for use of the staff on their official visits should be an all year vehicle. Under these circumstances an all-weather vehicle is needed which could connect Basic Health Units with Rural Health Centres for carrying patients and supervisory staff. It has to be an all-wheel drive ambulance or wagon with modifications to accommodate stretcher cases.

The capital cost has to be taken into consideration because the financial constraints cannot permit the purchase of expensive

vehicles yet the condition of the terrain should not be ignored. vehicle has to be sturdily built to have a longer life for plying these areas. UNICEF is expected to provide vehicles for the six D nated Integrated Rural Health Complexes in the districts of Gujrat Sialkot, Sheikhupura, Jhang, D.G. Khan and Bahawalpur, but apart f these six vehicles the transport requirements should be viewed in overall perspective of the plan i.e., provision of transport facil to all the Integrated Rural Health Complexes throughout Pakistan.

It is also suggested that all the vehicles to be provided in futur of same make in order to make the maintenance more economical.

Fuel consumption is also a prime consideration in the selection of vehicle. Fuel prices have been repeatedly raised in the past and likely to be further increased in the near future. A vehicle for Integrated Rural Health Complex will be required to travel thousan of miles because of the nature of duties of supervisory personnel well as for carrying patients. A suitable vehicle would use no mo than 9-11 litres per 100 Kms.

Diesel, all-wheel-drive vehicle are not very common in Pakistan. Ho ever, it is necessary that this type vehicle be given preference. T type vehicle is the best alternative for the terrain and the future needs of transport because the running cost per mile is much less t a petrol run vehicle.

After considering several vehicles and in view of the above conside tions a leyland Land-Rover Station Wagon (109" wheel base) with die engine is recommended to transport patients. The price of this veh is about Rs.1,80,000($ 9,000+100% custom duty). It has a fuel cons tion of 11-14 litres per 100 km.

It is sturdy, powered by 4-cylinder diesel engine and has four-wheel drive. The diesel engine is particularly suitable for stationery power take-off applications having an inbuilt governor and a hand throttle as standard equipment. It has a non-corroding aluminium body with high ground clearance.

In addition to the station wagon which will be used as an ambulance, a Suzuki Jeep Lj80v, is recommended for supervision purpose. It is a small jeep with an adequate spares and service available in Pakistan. It's price is Rs.65,000 and has a fuel consumption rating of 8-9 litres per 100 km. It is four-wheel drive with a petrol engine. The engine is four-stroke, OHC, Water-cooled, four-cylinder engine. It has low fuel consumption with a reasonable price and is quite versatile for the areas in which it is to be used. The interior is spacious and functional when compared to the outside dimensions. It is most suitable for manoeuvrability in sandy or rough country.

2.3.1. Alternatives - There are three viable alternatives for providing transport coverage to both the staff working at Rural Health Centres and Basic Health Units and to patients.

a) To provide one ambulance for Rural Health Centre and one jeep to each Basic Health Unit.

b) To provide one ambulance for Rural Health Centre and one jeep for all the Basic Health Units within the catchment area of each Rural Health Centre.

c) To provide one ambulance to Rural Health Centre, one motorcycle and a hired tonga to each Basic Health Unit.

The advantages, disadvantages and the cost associated with each alternative is as follows :

a) Alternative No.1

Under this alternative there would be one ambulance for the Rural Health Centres and a jeep for each Basic Health Units. This means that each Integrated Rural Health Complex would be provided with five or six vehicles depending on the number of Basic Health Units in the complex.

The cost of the ambulance that is recommended is Rs.1,80,000 and the cost of each jeep is Rs.65,000. This cost is in addition to maintenance and operating cost. The cost for an Integrated Rural Health Complex with five Basic Health Units is shown in Table 29.

TABLE 29

USE OF VEHICLES
ALTERNATIVE NO. 1

Vehicle	Capital Cost	Km per Month	Maintenance and Operating Cost					
			Monthly			Annually		
			Fuel Cost	Maintenance	Total	Fuel Cost	Maintenance	Total
Ambulance	1,80,000	3,200	880	200	1,080	10,560	2,400	12,9
Jeep	65,000	1,200	459	200	659	5,508	2,400	7,9
Jeep	65,000	1,200	459	200	659	5,508	2,400	7,9
Jeep	65,000	1,200	459	200	659	5,508	2,400	7,9
Jeep	65,000	1,200	459	200	659	5,508	2,400	7,9
Jeep	65,000	1,200	459	200	659	5,508	2,400	7,9
Total	5,05,000	9,200	3,175	1,200	4,375	38,100	14,400	52,5

Data in this table is based on :

a) Purchase price including customs duty.

b) Fuel prices of Rs.2.50 per litre for diesel and Rs.4.25 for petrol.

c) Fuel consumption of 11 litres per 100 Km for the ambulance and 9 litre per 100 Km for the jeep.

d) Utilization of the Land Rover is estimated to be 800 Km per month for supervision by the Medical Officer and 2,400 Km per month for transporting patients.

e) Utilization of a jeep is estimated to be 400 Km per month for supervision of Community Health Workers and 800 Km per month for transporting patients.

The advantage of this alternative is that the entire population covered by the Integrated Rural Health Complex will be provided with adequate transport facilities. They would be more mobile and receive medical attention without loss of time. The serious cases would be saved from the hazards of travelling under the existing arrangements. The Medical Officer and the staff at the various units and centres would be able to pay frequent visits resulting in greater supervision and control of the staff working under their jurisdiction.

b) Alternative No.2

Under this alternative there would be one ambulance for the Rural Health Centre and one jeep for all the Basic Health Units within

the catchment area of the centre. The cost for an Integrated Rural Health Complex is shown in Table 30. The reader should note that under this alternative utilization of the vehicles will be higher, resulting in higher fuel and maintenance cost per vehicle.

TABLE 30

USE OF VEHICLES
ALTERNATIVE NO. 2

Vehicle	Capital Cost	Km Per Month	Maintenance and Operating Cost					
			Monthly			Annually		
			Fuel Cost	Maintenance	Total	Fuel Cost	Maintenance	Total
Ambulance	1,80,000	3,600	990	300	1,290	11,880	3,600	15,480
Jeep	65,000	1,400	535	300	835	6,426	3,600	10,026
Total	2,45,000	5,000	1,525	600	2,125	18,306	7,200	25,506

Data in this table is based on :

a) Purchase price including customs duty.

b) Fuel prices of Rs.2.50 per litre for diesel and Rs.4.25 for petrol.

c) Fuel consumption of 11 litres per 100 Km for the ambulance and 9 litres per 100 Km for the jeep.

d) Utilization of the land rover is estimated to be 3,600 Km per month for supervision and transporting patients.

e) Utilization of the jeep is 1,400 km per month for supervision of Community Health Workers and transporting patients.

The ambulance at Rural Health Centres would be basically used for transporting emergency cases to District Headquarters Hospital from Rural Health Centres or from Basic Health Units on call and by the Medical Officer for visits to Basic Health Units.

The jeep will be at the disposal of the medical staff and the Medical Technicians whose visits will have to be pre-arranged under this alternative. The ambulance when used by the Medical Officers for visiting a Basic Health Unit can transport the Medical Technicians of the Basic Health Unit to the villages while the jeep can take the Medical Technicians of any of the other four Basic Health Units to villages in their area.

c) Alternative No.3

In this alternative the Rural Health Centre would have an ambulance and each of the Basic Health Units a motorcycle and a hired tonga. The tonga will be contracted on a regular scheduled basis for a specific number of days per month.

The capital cost of the ambulance at the Rural Health Centre will be the same as that of other two alternatives i.e. Rs.1,80,000. The cost of a motorcycle is Rs.8,700 (70 cc Honda) and the hiring charges of a tonga on a daily basis is estimated to be Rs.25.

The cost for an Integrated Rural Health Complex is shown in Table 31.

Data in this table is based on :

a) Purchase price including customs duty

b) Fuel prices of Rs.2.50 per litre for diesel and Rs.4.25 for petrol.

c) Fuel consumption of 11 litres per 100 Km for the ambulance and 2 litres per 100 Km for the motorcycles.

d) Utilization of the Land Rover is 3600 Kms per month for transporting patients and for supervision of Basic Health Units.

e) Utilization of a motorcycle is 480 Km per month for visiting the villages and for calling the ambulance from the Rural Health Centre.

f) Cost of hiring a tonga is Rs.25 per day for two days each week for each of five Basic Health Units.

TABLE 31

USE OF VEHICLES
ALTERNATIVE NO. 3

Vehicle	Capical Cost	Km Per Month	Maintenance and Operating Cost					
			Monthly			Annually		
			Fuel Cost	Maintenance	Total	Fuel Cost	Maintenance	Total
Ambulance	1,80,000	3,600	990	200	1,190	11,880	2,400	14,280
Motorcycle	8,700	480	38	20	58	456	240	696
Tonga	-	-	-	215	215	-	2,580	2,580
Motorcycle	8,700	480	38	20	58	456	240	696
Tonga	-	-	-	215	215	-	2,580	2,580
Motorcycle	8,700	480	38	20	58	456	240	696
Tonga	-	-	-	215	215	-	2,580	2,580
Motorcycle	8,700	480	38	20	58	456	240	696
Tonga	-	-	-	215	215	-	2,580	2,580
Motorcycle	8,700	480	38	20	58	456	240	696
Tonga	-	-	-	215	215	-	2,580	2,580
Total	2,23,500	6,000	1,180	1,375	2,555	14,160	16,500	30,660

The ambulance will be used for transporting emergency cases. The Motorcycle at the Basic Health Unit will be used by the Medical Technician and other staff. The tonga can be contracted on a competitive rate of hire. This would save a considerable expenditure on the purchase of tongas its maintenance, horse feeds, driver's salary and other unforeseen incidentals. The tonga should be scheduled on a regular basis for specific days of each week. It will be used by female Medical Technicians and other staff for visits.

2.3.2. Comparison of Alternatives - The capital and annual recurring cost of the three alternatives is shown in Table 32.

TABLE 32

COMPARISON OF THREE ALTERNATIVES

	No.1	No.2	No.3
Capital Cost	5,05,000	2,45,000	2,23,500
Fuel	38,100	18,306	14,160
Maint./Fees	14 400	7,200	16,500
Total Annual Recurring Cost	52,500	25,506	30,660
Total First Year Cost	5,57,500	2,70,506	2,64,160

Comparing the cost of the three alternatives and considering the limited availability of funds, alternative No. 3 is recommended. Alternative No. 1 cannot be considered because the cost is prohibitive.

Even though the difference in the total first year cost of laternative No. 2 and No. 3 is only Rs.6,346. Alternative No. 2 does not provide adequate transportation coverage for an Integrated Rural Health Complex.

Alternative No. 3 on the other hand, would provide adequate transportation to the entire staff of a complex and make it possible for male and female staff to travel between facilities and to villages. Also, this alternative is consistent with the customary mode of transportation in rural areas and would be acceptable to the staff and to rural people.

2.4. Provision of Funds for the Purchase of Vehicles

The necessary funds for the purchase of the approved vehicles wil have to made available either from the provincial budget or throu donations by an international agency. As far as provision from t provincial budget is concerned, it will be very difficult for the government to bear the capital cost of the vehicles. Dr. M.B. Khawaja, Director Health Services, Punjab, said while addressing the 3rd Semi Annual Review Meeting of Basic Health Services Proje "that it is not possible for the Provincial Health Department to provide funds for the transport at the Integrated Rural Health Complexes". The need for the transport at the Integrated Rural Health Complex was recongnised by Maj. Gen. Iqbal Mohammad Chaudhry, Director General Health, at the same meeting when he said, "that a suitable transport vehicle should be provided at Rural Health Centres for referral and supervision purposes".

A possible solution to this dilemma is to seek help from donor agencies. The term donor agency is used with particular referen

to UNICEF as they had provided vehicles in the past not only to the Health Department but to other programmes aimed at the well being of the socially deprived communities in Pakistan. However, the request for donations should be in accordance with the needs of the area. UNICEF should be asked to provide vehicles which can be of greater use in our environmental conditions, easier to maintain and economical to operate.

At the same time there has to be some long term arrangements in the annual budget, in addition to operational/maintenance cost of the vehicle, to replace the vehicles when they are rendered unserviceable through wear and tear or through collision damage.

2.5. Funds for Recurring Expenditure

Recurring expenditure for maintenance and operation of vehicles will have to be borne by the provincial government. The budget provision in this connection will have to be increased in order to keep the vehicles on the road. Dr. M.B. Khawaja, Director Health Services, Punjab, has been of the opinion that the necessary funds for the POL (Petrol, Oil and Lubricants) and the driver's salaries can be met by the Provincial Health Department provided, of course, the vehicles are donated by one of the international agencies. It is suggested that part of POL/maintenance expenditure can be met from the following sources:

a) The well-to-do landords (Zamindars) should be encouraged to make donations. A biannual or annual function can be arranged in the areas and the well-to-do families should be asked for donations for the well-being and welfare of the

village population of their area. The names of the donors should be prominently displayed at the Basic Health Units or Rural Health Centres. It would provide a sense of pride and prominence to the donors and will help in getting generous donations.

b) A nominal health cess (tax) could be levied on those families in the rural areas who can afford it.

c) A transport charge could be levied on patient who can afford it. Rates should be lower than the available public or private transport charges.

d) A rural health fund could be established to collect donations as well as nominal medical fees from each of the patients who can afford to pay.

2.6. Improvement of Maintenance Facilities

Maintenance facilities are available at the district, divisional and provincial level. Also, mobile repair units are available. However, vehicles are not properly maintained. These workshops were found to be neither fully equipped nor suitably staffed to undertake all the types of repairs, with the result that vehicle remain unattended for long periods. The following recommendations are made for improving the maintenance facilities :

2.6.1. Abolition of Divisional Workshops - The existing system of sending the vehicles requiring repairs or replacement of parts costing more than Rs.100 to the divisional workshop is inefficient and costly since it ties up a driver and the vehicle consumes petrol for the trip. In additic

the divisional workshop has to request parts from the provincial workshop and has to get a Non-Availabilty Certificate before non-available parts can be purchased in the local market. The reorganization or additional funds for the divisional workshops is not considered necessary because the workshops have neither spare parts, adequate staff or equipment for carrying out all types of major repairs.

It is, therefore, recommended that the workshops at divisional level be abolished and the expenditure now incurred on these workshops be utilised for reorganising the provincial workshop. It is better and more economical to have a full fledged established workshop at one level instead of inefficient and poorly equipped workshops at different levels.

The staff at divisional workshops thus rendered surplus may be absorbed in the reorganised provincial workshop as far as possible or employed at the district level.

2.6.2. Employing a Mechanic at District Level - In order to keep the vehicles running and to maintain them in good repair, adequate maintenance facilities at the district level should be provided. The practice of getting minor repairs costing upto Rs.100 at local workshops should be discontinued in the interest of economy as well as speedy attendance. It is felt that to get the minor repairs done by the local works ops takes at least twice as much time and costs more when compared to a self-sufficient operation.

It is recommended that one mechanic be employed at each District Health Office to carry out minor repairs and preventive

maintenance. Except for major repairs like overhauling the engine, denting, painting etc., the mechanic should be experienced enough to locate and repair minor faults on the spot.

The comparison shown in Table 33 illustrates that the employment of a mechanic at this level will cost less and would require less time to get vehicles back on the road.

TABLE 33

DISTRICT MECHANIC VS.
LOCAL MARKET REPAIRS

Mechanic's pay	Type of Repairs	Expenditure on Repairs		Time Requirement	
		Own Mechanic	Private Workshop	Own Mechanic	Private Workshop
Rs.360	Brakes	Rs.8/- labour + Rs.18/- brake oil	Rs.25/- + Rs.18/-	4 Hours	Hours including waiting time
	Tuning	Rs.8/- approx.	Rs.25/-	4 Hours	12 Hours including waiting time
	Front suspension	Rs.15/-	Rs.40	8 Hours max.	12 Hours including waiting time

A mechanic is placed in NPS-5 which is (290-10-350-12-470) plus 40% of base pay for house rent, 5% or 10% D.A. and Rs.45 as C.A. It means that a mechanic getting Rs. 290 as base pay will draw Rs.116 as H.R., Rs.45 as C.A. and Rs.14.50

as D.A. for a total of Rs.465. The maximum pay in NPS-5 is Rs.655. With an average of ten vehicles at the district level and a minimum of Rs.100 per vehicle per month for minor repairs (by a district mechanic) the total amount for repairs is Rs.1,000 per month. If the same ten vehicles are repaired by a private workshops the amount would be approximately Rs.2,500. Having vehicles repaired by a mechanic assigned at each district would save Rs.1,500 per month or Rs.18,000 per annum for each district. This saving could be allocated for the purchase of tools and equipment and spare parts for minor repairs. Each of the mechanic should be equipped with a proper maintenance tool kit. This tool kit would cost approximately Rs.2,200. This is a non recurring expenditure and will not require replacement for three or four years.

In the absence of a maintenance tool kit, the existing mechanics employed at some of the districts were found to be ineffective because even minor repairs were being carried out through private workshops at comparatively higher charges. It is therefore essential that the mechanics be furnished a complete maintenance tool kit.

2.6.3. Reorganization of Provincial Workshop - The existing provincial workshop known as HEMO (Health Equipment and Maintenance Organization) is not fully equipped to undertake all types of major repairs. The other workshop at the provincial level CDC (Communicable Disease Control) workshop is better equipped than HEMO. This workshop is underutilized since they only repair CDC vehicles. It is recommended that the HEMO workshop be discontinued and the facility closed and that the CDC workshop be redesignated as the provincial workshop. The CDC workshop

was selected as the site for the new provincial shop because it is larger and better equipped.

Adoption of this recommendation will result in :

a) Less staff which could result in a saving of at least one third of salaries cost.

b) Less expenditure on equipment.

c) Availability of larger number and variety of spare parts.

d) Saving of the extra amount spent on the purchase of two separate set of spare parts.

The integration of the above two workshops for all intents and purpose will be more economical and efficiently organised and would result in consolidating the responsibility for the repair of vehicles.

The new workshop will require the tools and equipment shown in Figure

The cost of the tool room equipment may not be fully justified. As su a centre lathe drilling machine and tool grinder may be considered wit the work normally performed on the other machines being carried out private workshops.

It will not be necessary to purchase all of the items since the tools and equipment now used by HEMO and CDC will be combined in the new sho

The staff selected for the new workshop should have the necessary experience and knowledge. Utmost care should be exercised in selectin the staff, with particular emphasis on technical know-how. The Works Manager (Provincial Chief), in addition to being a qualified automobil engineer should be a good administrator capable of efficiently handlin the work force. The recommended staff is shown in Figure 50.

FIGURE 49

TOOLS AND EQUIPMENT REQUIRED
COMBINED PROVINCIAL WORKSHOP

a) Electrical Equipment

1. Electrical Diagnoser
2. Combustion Analyzer
3. Timing Lights
4. Electric Tester
5. Tack Dwell Points Tester
6. Battery Cell Tester
7. Alternator Checker
8. Ignition Tester
9. Battery Cell Charger
10. Ovometer
11. Amps. Meter
12. Electric drill with drill bits.

b) Mechanical Equipment

1. Wheel balancer dynamically
2. Wheel alignment equipment with CAMBE and CASTER GAUGE
3. Universal type puller
4. Engine compression tester
5. Trolley Jacks
6. Axle bearing Inst./remover
7. Chain pully block 3 tons
8. Valve grinder

c) For Diesel Vehicles

1. Fuel injection pump tester
2. Plugger automizer tester
3. Differential adjustment equipment
4. Universal polar sets.

d) Service Station Equipment

1. Long chassis lifts
2. Air compressor
3. Water

e) Painting Denting Equipment

1. All necessary tools/kits spray guns
2. Gas welding equipment

f) Tool Room Equipment

1. Centre lathe
2. Universal cylinderical grinding machine
3. Camshaft Grinder
4. Milling machine
5. Drilling machine

FIGURE 50

RECOMMENDED STAFF
COMBINED PROVINCIAL WORKSHOP

Foreman	1
Accountant	1
Typist	1
Parts Manager and Store Keeper	1
Helper	1
Senior Mechanical Diesel Engine	1
Senior Mechanic Petrol Engine	1
Junior Mechanics	8
Trimer	1
Blacksmith	1
Carpenter	1
Electrician	2
Helper Electrician	1
Apprentice/Workshop Boys	5
Body Denter	2
Painter	1
Gate Keeper	1
Peons	2
Watchman (Chowkidar)	1

Quick and timely replacement of worn out or damaged parts will ensure smooth running and longer life of a vehicles Some of the spare parts may or may not be required for an indefinite period but it is not advisable to ignore them though the number of such parts can be restricted to a minimum. The quick wearing parts should be available in abundant supply. The development of a list of spares for the new shop should be left to the experience and discretion of the Workshops' Manager. A complete list is to be drawn up and the spares properly stored and an inventory showing make and model of the vehicle is to be maintained.

2.6.4. Training of Mechanic - The mechanics employed at various districts should receive six months on the job training at the new Provincial Workshop.

The senior mechanics at the workshop should make these mechanics acquainted with the minor faults and their remedy as well as the process of day-to-day maintenance. These mechanics should work with and under the supervision of the senior mechanics at the workshop as helpers and learners. This scheme will not involve any extra financial expenditure since both the supervisors and trainees will be contributing their share of effort to the repair work.

The senior mechanic should exercise supervisory control over these mechanics according to their specific trades. As an incentive the supervisors may be paid an amount equivalent to a month's pay after the completion of training of a batch. The best mechanic trainee should be awarded a month's pay on the basis of test and report of his supervisor.

The replacement of mechanic trainees should be decided in according with requirement at the workshop as well as at the district level. They should also be bonded to serve the Health Department for a minimum period of two years after successful completion of training. This arrangement will off set the shortage of skill mechanics.

2.7. Improving the Communication Infrastructure

The basic need is to provide effective and speedy communication between the various tiers of Integrated Rural Health Complexes. Most of the Rural Health Centres covered by this study have telephone facilities to communicate with the District Health Office. It is necessary in emergencies to avoid the usual delays in such communications. It is recommended that the Telephone Department issue directives to the concerned telephone exchange to give top priority for the clearance of emergency calls from Rural Health Centres.

2.7.1. Postal System - The postal system in the rural areas should be streamlined and made more effective. One post office meets the requirement of a minimum of five villages. The office is located in one of the villages and is insufficiently staffed for the distribution of post. In order to carry out speedy distribution of the post, the number of postmen should be at least doubled. Otherwise arrangements should be made at the Basic Health Units to send a person to the post office to collect the post on a daily basis.

2.7.2. Provision of Telecommunication Facilities - The Basic Health Units should be connected with the Rural Health Centre by one of two telecommunication systems:

a) Provision of telephone to each of the Rural Health Centre and Basic Health Unit.

b) Provision of two-way radios at all the Rural Health Centres and Basic Health Units.

Most of the Rural Health Centres covered by this study have telephones but none of the Basic Health Units have these facility. The provision of telephones at the Basic Health Units involves :

a) Capital Cost

b) Availability of Material

c) Recurring Expenditure

Capital cost - Since there are no telephone lines or exchanges in the vicinity of most of the Basic Health Units, the capital cost will be very high. The capital cost to install telephone lines is estimated by the Telegraph and Telephone Department to be approximately Rs.22,000 per km. Taking the average distance of Basic Health Units from the Rural Health Centres as 12 kms, the capital cost for one Integrated Rural Health Complex consis ting of one Rural Health Centre and four Basic Health Units will be:

One Kilometer	-	Rs. 22,000
12 Kilometers	-	Rs.2,64,000
Total Cost for 4 BHUs.	-	Rs.10,56,000

Availability of Material - The equipment and material for installing lines is locally available and no difficulty is expected.

Recurring Expenditure - The recurring expenditure involved is not expected to be high. The exchange which would cater to these extra lines, in most cases will not require additional staff for maintenance for operation. However, the charges for technical maintenance will have to be paid. These charges are 15% of the capital cost per annum,

- Capital cost - Rs.2,64,000
- Tech. Maintenance Rs.39,600

This amounts to Rs.3,300 per month for each Basic Health Unit.

2.7.3. **Two-Way Radio Systems** - There are two types of systems that could be used :

a) Short wave or high frequency (HF)

b) Very high frequency (VHF) with frequency modulation(FM)

Short wave or high frequency (HF) Radios are not technically advisable. These sets are of greater use for longer distance communication (150 kms or more). Also, the quality of speech is not very clear because of it's dependence on atmospheric conditions. These sets are comparatively expensive and are not in common use in Pakistan.

Very high frequency (VHF) sets are commonly used in Pakistan. Their maintenance and repair is also comparatively easier. VHF

sets have 24 hour reliable transmission, since propogation is not a function of atmospheric conditions. The range for these radios is approximately 50 kms.

Considering the technical features, availability of experienced and trained personnel for maintenance, reliability as well as the range of transmission, VHF sets are considered to be better suited. In order to provide two-way radio facilities within Integrated Rural Health Complexes a multi channel access rural VHF system is recommended.

In this system, one Rural Health Centre can be connected with a number of Basic Health Units by providing a single radio set at the Rural Health Centre. An "omni"(all direction) antenna can be used at this location and the Basic Health Units can use a "BEAM" (directional) antenna, aimed in the direction of the Rural Health Centre.

The systems is a single radio link (open party line), available for all the Basic Health Units attached to a Rural Health Centre. This link will be available to all the Basic Health Units on a first come, first serve basis. The radio link will be available to the first subscriber who wishes to establish a call and the remaining Basic Health Unit subscribers will get a busy tone. After the line is released, the next Basic Health Unit subscriber will be able to establish the link with the Rural Health Centre.

This system is recommended for the Integrated Rural Health Complexes because it is most economical than other systems that are considered effective for application in Pakistan.

a) Does not require a separate radio (or frequency) at the Rural Health Centre to communicate with each Basic Health Unit. This will reduce overall cost.

b) Economy in the frequency spectrum as only a single frequency will be required for all Basic Health Units in an Integrated Rural Health Complex. Also, the same frequency could be used for other complexe as long as the distance between complexes is 200 to 250 km.

The capital cost of this system for an Integrated Rural Health Comple with four Basic Health Units is as follows:

Station	Equipment	Towers	Instalation	Total
RHC	Rs.27,500	Rs.15,000	Rs.42,350	Rs.84,850
BHU (4)	Rs.110,000	Rs.60,000	Rs.169,400	Rs.339,400
Total	Rs.137,500	Rs.75,000	Rs.211,750	Rs.424,250

The recommended system is already in use in Pakistan and is being maintained by the Telegraph and Telephone Department. This job should be entrusted to them on a contractural basis. Otherwise the Health Department will be required to create such facilities from scratch. The Health Department would be required to establish a Maintenance Centre at a central location for covering all districts. Establishmen of maintenance centre by the Health Department would involve substantial capital cost and a recurring cost of at least Rs.10,000 per mont Since utilising Telegraph and Telephone Repair Facilities would avoid this cost and the associated difficulties with operating the network, it is recommended that Telegraph and Telephone Department be given th task of purchasing and maintaining the sets for the Health Department It will relieve the Health Department of the problems of selection of

appropriate radio equipment, recruitment of qualified staff for maintenance and repair, installation and maintenance.

Purchase of the equipment will be on the basis of competitive tenders. The Health Department has not used these sets and will find it difficult to select the best one for the purpose. The Telegraph and Telephone Department already has these sets in use and they have the staff and technical know-how. The annual charges for maintenance by the Telegraph and Telephone Department are computed at 12% of capital cost of equipment, power plant, accessories and towers plus 3% of the installation charges. This fee covers travel to the field, field or shop service of defective equipment and spare parts. On this basis annual service would cost Rs.6,370 per station or Rs.531 per month per station. Viz: (0.12x42,500) + (0.03x42,350)= Rs.6,370 per year.

No special technical training is required for operating either type radio system. Only a few instructions for operating the sets are required. No operator will be needed at the Basic Health Unit or Rural Health Centre. It is suggested that the Medical Technician can be instructed on radio operation during the course of their training.

Two-way radio system, though expensive, is recommended because there is no other feasible alternative system to meet the requirement. There are certain Integrated Rural Health Complexes that are working in isolation because of their remote location and the distance between facilities. One of the examples being Uch Sharif, Bahawalpur District, which is 80 kms from the District Health Office and District Headquarters Hospital while the distance between the Rural Health Centres and Basic Health Units ranges from 9-22 kms. There are many other remote complexes in Punjab as well as in the other provinces. Realising

the financial constraints, it is suggested that donor assistance should be sought to install a pioneer system at least in several remote areas and to extend it to other areas when financial resources are available.

LIST OF PERSONS CONTACTED

PERSONS CONTACTED

Name	Title	Location of Contact
Dr. A.A. Khan	D.H.O.	Sialkot
Dr. Mohammad Hussain	M.O.	Chawinda
Inayat Ali	R.H.I.	Chawinda
Dr. Abdul Shakoor	A.D.H.S	Multan
Dr.Abdul Majid	D.H.O.	D.G. Khan
Dr. Hafiz Saadullah	M.O.	Choti Zareen
Rahim Bakhsh	M.A.	Mana Ahmedani
Dr. Mohammad Bashir	A.D.H.S.	Bahawalpur
Dr. Javed Hasan Ajmi	M.O.	Uch Sharif
Tahira Iqbal	L.H.V.	Uch Sharif
Rahmat Hussain Khawaja	M.A.	Haiderpur
Umat-ul-Basit	L.H.V.	Haiderpur
Ali Ahmad	Dispenser	Haiderpur
Dr. Mohammad Ali Sheikh	D.H.O.	Jhang
Shagufta Yasmin	L.H.V.	Shah Jewana
Mazhar Saqlain	M.A.	Haveli Sheikh Raju
Noor Mohammad	Dispenser	Haveli Sheikh Raju
Narjis Khatoon	M.A.	Ratta Matta
Mumtaz Begum	L.H.V.	Ratta Matta
Hafiz Mohammad Hayat	M.A.	Inayatpur
Dr. Abdul Ghafoor	D.H.O.	Sheikhupura
Dr. Rafiq Hussain Chaudhri	M.O.	Warbuton
Mrs. Karrar Hussain	L.H.V.	Warbuton
Asghar Ali Shah	Dispenser	Warbuton
M. Karam Hussain	Statistical Officer	Multan

Name	Title	Location of Cont
Abdul Hafiz	M.A.	Bahuman
Shahnaz	L.H.V.	Bahuman
Mohammad Bashir	Dispenser	Bahuman
Mohammad Jazaid	M.A.	Laggar
Sahibzadi	L.H.V.	Laggar
Tahir Aqeel	Dispenser	Laggar
D. Roen Repp	Deputy Representative (UNICEF)	Islamabad
A. Merz	Vehicle Management Advisor(UNICEF)	Islamabad
Franco Squera	Program Officer (UNICEF)	Islamabad
S. Hasnoputro	Program Officer (UNICEF)	Islamabad
Abdul Rahman	R.H.I.	Warburton
Zakia Khanum	L.H.V. (New)	Warburton
Surraiya Bibi	Dai	Laggar
Riffat Ayesha	Dai	Bahuman
Abdul Hamid	2nd Head Clerk	Sheikhupura
Dr. Hameeda Khatoon	Principal	Public Health Nursing School Lahore.
Dr. Sirajul Haq Mahmood	Senior Chief, Planning Commission	Islamabad
Dr. Asghar Nayyar	D.H.O.	Gujrat
Dr. Mohammad Ali	M.O.	Lalamusa
Mrs. Saida Zafar	L.H.V.	Lalamusa
Mohammad Inayat	Dispenser	Lalamusa
Miss Nazreen A. Malik	M.A.	Punjan Kasana
Mohammad Fayaz	Dispenser	Punjan Kasana

Name	Title	Location of Contac
Rasool Bibi	Dai	Punjan Kasana
Arshad Mahmud	M.A.	Kiranwala
Sarwari Begum	L.H.V.	Kiranwala
Khalid Kalani	Dispenser	Kiranwala
Nasreen Nazli	Dai	Kiranwala
Abdul Sattar	R.H.I.	Kiranwala
Mohammad Arshad	Dispenser	Baharwal
Hameeda Begum	Dai	Baharwal
Zafar Iqbal	Senior Clerk A.D.H.O. Shakargarh	Sialkot
Mohammad Ikram	District Sanitary Inspector	Sialkot
Miss Salima Rahman	L.H.V.	M.C.H. Model Town, Sialkot
Ch. Mohammad Shafi	Administrative Officer	C.D.C., Sialkot
Barkat	Senior Clerk	C.D.C., Sialkot
Maulvi Fazal	Accountant	C.D.C., Sialkot
Mohammad Amin		Amin Auto, Sialkot
Fida Hussain	Assistant Chief Health Section Planning Division	Islamabad
Najam-ul-Hasan Baig	Statistical Officer Ministry of Communication	Islamabad
Jalil Ahmad	Sales Manager Modern Motors	Rawalpindi
Tufail Ahmed	Works Manager Modern Motors	Rawalpindi
Aziz Ahmed Khan	Sales Manager Shahnawaz Motors	Rawalpindi

Name	Title	Place of Contact
Mr. Zubair	Program Officer (UNICEF)	Islamabad
Mrs. Susan Holcombe	Public Health Care Assistant, (UNICEF)	Islamabad
Najma Rana	Economic Investigator (National Transport Research Centre)	Islamabad
Rashid Qureshi	Works Manager (Islamabad Autos)	Rawalpindi
Abdul Aziz	Mech I/C Tool Room	HEMO, Lahore Lahore
Abdul Majid Alvi	Sen. Mech. (Now Foreman)	HEMO, Lahore Lahore
Bashir Ahmed	Storekeeper	HEMO, Lahore Lahore
Khalid Rahman	Mechanic	HEMO, Lahore Lahore
Niaz A. Shamim	Supdt. Provl. BHS Punjab	Lahore
Dr. Mahmud Nawaz	Project Director	Health Directorate Lahore
Dr. Munawarud-Din	Deputy Director Planning & Development Health Services Punjab	Lahore
Nawab Ali	Budget Assistant	Health Directorate Lahore
Mrs. Amin	Assistant Director Nursing, Punjab	Lahore
Dr. Javed Rasool	A.D.H.S.	Rawalpindi
Kishwar Shaheen	Local Govt. and Rural Development	Islamabad
Major M.M. Ilyas Khokhar	Resident Representative (National Motors)	Rawalpindi
Rana Charrar Mohammad	Accountant Cashier	HEMO, Lahore

Name	Title	Location of Contact
Shah Iqbal	Job Clerk	HEMO, Lahore
Zafar Ullah Shah	Transport Officer	CDC, Lahore
Dr. S.M. Nasir	Assistant Director Malaria	CDC, Lahore
Sheikh Mohammad Ahsan	Supply Officer, Auto	CDC, Lahore
Dr. M.B. Khawaja	Director Health Services, Punjab	Lahore
Arshad Hussain	Assistant Manager	GMSD, Lahore
Ch. Allah Rakha	Superintendent	GMSD, Lahore
Ali Hussain	Assistant Supdt.	GMSD, Lahore
Mohammad Hanif	Assistant Store Supdt.	GMSD, Lahore
Joseph Jacob	Assistant Supdt.	GMSD, Lahore
Rahmat Ullah	Superintendent Statistical Section	GMSD, Lahore
Haider Chaudhary	Superintendent Receipt Section	GMSD, Lahore
Abdul Haque	Senior Clerk Administration	GMSD, Lahore
Rahim	Superintendent	GMSD, Lahore
Saeed Akhtar	Senior Clerk A/C	GMSD, Lahore
Mirza Mohammad Sadiq	Superintendent (A/C)	GMSD, Lahore
Mohammad Ashraf	Senior Clerk	GMSD, Lahore
Abdul Rashid	Assistant Supdt. (PMS)	GMSD, Lahore
Dr. Tahir Jameel	Assistant Director Directorate of Health Services, Punjab	Lahore
Shamus Din	Senior Supdt.(DDHS)	Directorate Health Services, Lahore
Dr. M.A. Farooqi	DDHS, Lahore Division	Directorate Health Services, Lahore

Name	Title	Location of Cont
Malik Mohammad Anwar	Purchase Officer	Directorate of Industries
Mr. Wajih-ul-Hasan	Officer-in-Charge	GMSD, Lahore
Mohammad Rafi	Assistant Incharge	Directorate of Industries
Usman Ali Khan	Purchase Officer	Directorate of Industries
Mrs. Titi Memet	Representative (UNICEF)	Islamabad
Mumtaz Ahmed Sheikh	Manager, Fazal Din & Sons, Chemist	Lahore
Zafar Hayat	Medical Sales Officer, HOECHST	Lahore
Abdur Rahman	Institutional Sales Manager	Muller & Phipp Ltd., Lahore
Harun Irshad	Sales Executive	Muller & Phipp Ltd., Lahore
Feraoz Sharfuddin	Field Officer	Beecham (Pakis Ltd., Lahore
Dr. Mohammad Idrees Ch.	D.H.O.	Bahawalpur
Dr. Mohammad Saleem	D.D.H.S.	Sargodha
Dr. Mohammad Aslam	D.H.O.	Sargodha
Arshad Begum	Asstt: Inspectress	Sargodha
Dr. Mohammad Saleem Ch.	M.O.	Mochiwala
Dr. Faiz Rasool	D.H.O.	Jhang
Mr. Bijan Sharif	Program Officer (UNICEF)	Islamabad
Dr. Aftab Ahmed Chaudhry	D.H.O.	Attock
Chaudhry Rabnawaz	Senior Clerk	Attock
Dr. Mumtaz	M.O.	Khairabad
Dr. Yaqub	Principal, Para-Medical School	Landi Kotal

Name	Title	Location of Con
Dr. Miandad Bungish	D.H.O.	Kohat
Dr. Mubarak Ali	A.D.H.O.	Kohat
Dr. Abdul Khaliq	D.H.S.	Peshawar
Dr. Nazir-ul-Haq	A.D., B.H.S.	Peshawar
Dr. Mohammad Aslam	D.H.O.	Sialkot
Dr. Mohammad Akhtar Hussain Chatta	M.O.	Warburton
Dr. Iftikhar Bhatti	M.O.	Lalamusa
Dr. Zamin Ali Mirza	D.H.O.	Rawalpindi
Tahira Sial	L.H.V.	Mochiwala
Rubina Shaheen	M.A.	Shah Jewana
Mohammad Siddiq Farooqui	M.A.	Iqbal Naggar
Mohammad Siddique	Director, NIPA	Lahore
Mr. Shamshad Ahmed	Chief Statistical Officer, MOH	Islamabad
Mian Mahmud	Section Officer Statistics, Govt. of Punjab	Lahore
Mohammad Munawar	Statistical Officer Health Directorate Punjab	Lahore
Aslam Farukh	Deputy Chief Engineer (Operations) T&T	Islamabad
Khurshid Hasan Rizvi	Asstt. Deputy Director General (Telephones)	Islamabad
Anwar-ur-Rahman	Statistical Officer	Bahawalpur
Mohammad Sadarat Khan	Superintendent General Branch	Bahawalpur
Dr. Hafiz Mahmud	D.D.H.S.	Bahawalpur
Mohammad Nazir	Senior Supdt.	Multan
Malik Ashiq Mohammad	Health Inspector	Rattanlal

Name	Title	Location of Co
Allah Wasaya	Dispenser	Rasoolpur
Bashiran	Dai	Rasoolpur
Nusrat Ara	L.H.V.	Haiderpur
Sabiha Khaliq	L.H.V.	Buddhuwali
Abdul Majid	M.A.	Buddhuwali
Syed Talib Hussain Bokhari	Principal Para Medical School	Bahawalpur
Abdur Rehman	Senior Mechanic	Bahawalpur
Aleem-ud-Din Aziz	DCE - Long Distance	T&T, Lahore
Anwar Hussain Khan	Director Planning	T&T, Lahore
Sajjad Akhtar	Director Microwave	CTR, Lahore
Zakria Khan	Director Telegraph	Lahore
Surreya Bokhari	Assistant Inspectress Health Centre	Lahore
Akhtar Ahmed Bajwa	Director Planning Long Distance (T&T)	T&T, Lahore
Wasiq Mahmud	Divisional Engineer (H.F. Construction)	Islamabad
Mrs. Fahmida	L.H.V.	Khairabad
Dr. Mian Said Wahid	Agency Surgeon	Landi Kotal
Ahmed Gul	T.O. (HEMO)	HEMO, Peshawa
Dr. Ali Sher	D.D.H.S. (Medical) Incharge of HEMO	HEMO, Peshawa
Nazar Gul	Senior Mech.	HEMO, Peshawa
Fazal Mahmood	Statistical Officer	Peshawar
Dr. S. Rafiuddin	Officer Incharge GMSD, Peshawar	Peshawar
Dr. Shah Jehan	Officer-in-Charge	GMSD, Quetta
Aslam Butt	P.T.O.	Quetta
Dr. Zahoor Ahmed	P.D./BHS, Cell Baluchistan	Quetta

Name	Title	Location of Contact
Dr. Ayaz Ali Sheikh	D.H.O.	Thatta
Dr. Khalid Rashid	P.D/BHS, Cell Sind	Karachi
Dr. Gul Mohammad Jamani	M.O.	Jherruck
Anjum	L.H.V.	Jherruck
Dr. Ali Gohar Laghari	Officer-in-Charge	GMSD, Peshawar
Dr. Nisar	D.D/Food Program	Karachi

RECOMMENDED STANDARD DIAGNOSIS LIST FOR OUT-DOOR PATIENTS

No.	Disease or Injury	Detailed List No.
1.	Tuberculosis of resp. system	001-008
2.	Tuberculosis, other forms	010-019
3.	Syphilis and its sequelae	020-029
4.	Gonococcal infect.	030-935
5.	Typhoic and para-typhoid	040-041
6.	Cholera	043
7.	Bacillary dysentery	045
8.	Amoebiasis	046
9.	Diarrhoea	047-048
10.	Diphtheria	055
11.	Whooping cough	056
12.	Meningococcal infections	057
13.	Plague	058
14.	Leprosy	060
15.	Tetanus	061
16.	Acute poliomyelitis	080
17.	Acute infectious encephalitis	082
18.	Smallpox	084
19.	Measles	085
20.	Infectious hepatitis	092
21.	Rabies	094
22.	Trachoma	095
23.	Typhus and other rickettsial diseases	100-108
24.	Malaria	110-117
25.	Kala-azar	120
26.	Intestinal parasite (helmintps)	129-130
27.	Avitaminosis and other metabolic diseases	280-289
28.	Diseases of blood and blood forming organs	290-294
29.	Diseases of nervous including psychoses and psychoneuroses	300-369
30.	Eye diseases	370-388
31.	Diseases of ear	390-398
32.	Rheumatic fever	
33.	All other diseases of circulatory system	410-468
34.	Diseases of respiratory system	470-527
35.	Dental diseases	520-535
36.	Diseases of digestive system	536-587
37.	Diseases of genitourinary system	590-637
38.	Complications during pregnancy	640-649
39.	Complications after pregnancy	680-689
40.	Skin diseases	690-716
41.	Congenital diseases and malformations	750-759
42.	Diseases of newborn (upto 4 weeks age)	760-776
43.	All other diseases	
44.	Motor vehicle accident	810-825
45.	All other accidents	

RECOMMENDED STANDARD DIAGNOSIS LIST FOR IN-DOOR PATIENTS

No.	Disease or Injury	Detailed List No.
A-1	Cholera	000
A-2	Typhoid fever	001
A-3	Paratyphoid fever and other salmonella infections	002,003
A-4	Bacillary Dysentery and amoebiasis	004,006
A-5	Enteritis and other diarrhoeal disease	008,009
A-6	Tuberculosis of respiratory syst.	010-012
A-7	Tuberculosis of meninges and central nervous system	013
A-8	Tuberculosis of intestines, peritoneum and mesenteric glands	014
A-9	Tuberculosis of bones and joints	015
A-10	Other tuberculosis, including late effects	016-019
A-11	Plague	020
A-12	Anthrax	022
A-13	Brucellosis	023
A-14	Leprosy	030
A-15	Diptheria	032
A-16	Whooping cough	033
A-17	Streptococcal sore throat and scarlet fever	034
A-18	Erysipelas	035
A-19	Meningococcal infection	036
A-20	Tetanus	037
A-21	Other bacterial disease	005,007 021 024-027 031-038 039
A-22	Acute Poliomyelitis	040-043
A-23	Late effects of acute poliomyelitis	044
A-24	Smallpox	050
A-25	Measles	055
A-26	Yellow fever	060
A-27	Viral encephalitis	062-065
A-28	Infectious hepatitis	070
A-29	Other viral diseases	045,046 051-054 056,057 061 066-068 071-079
A-30	Typhus and other richettsioses	080-083
A-31	Malaria	084
A-32	Trypanosomiasis	086,087
A-33	Relapsing fever	088
A-34	Congenital syphilis	090
A-35	Early syphilis, symptomatic	091
A-36	Syphilis of central nervous system	094
A-37	Other syphilis	092,093 095-097
A-38	Gonococcal infecs.	098

No.	Disease or Injury	Detailed List No.
A-39	Schistosomiasis	120
A-40	Hydatidosis	122
A-41	Filarial infection	125
A-42	Ancylostomiasis	126
A-43	Other helminthiases	124
A-44	All other infective and parasitic diseases	085,089 099 100-117
A-45	Malignant neoplasm of buccal cavity and pharynx	140-149
A-46	Malignant neoplasm of esophagus	150
A-47	Malignant neoplasm of stomach	151
A-48	Malignant neoplasm of intestine, except rectum	152,153
A-49	Malignant neoplasm of rectum and rectosigmoid junction	154
A-50	Malignant neoplasm of larynx	161
A-51	Malignant neoplasm trachea, bronchus and lung	162
A-52	Malignant neoplasm of bone	170
A-53	Malignant neoplasm of skin	172,173
A-54	Malignant neoplasm of breast	174
A-55	Malignant neoplasm of cervix uteri	180
A-56	Other malignant neoplasm of uterus	181,182
A-57	Malignant neoplasm of prostate	185
A-58	Malignant neoplasm of other and unspecified sites	155-160 163,171 183,184 186-199
A-59	Leukaemia	204-207
A-60	Other neoplasm of lymphatic and haemotopoietic tissue	200-203 208,209
A-61	Benign neoplasms and neoplasms of unspecified nature	210-239
A-62	Non-toxic goitre	240,241
A-63	Thyrotoxicosis with or without goitre	242
A-64	Diabetes mellitus	250
A-65	Avitaminoses and other nutritional deficiency	260
A-66	Other endocrine and metabolic diseases	243-246 251-258 270-279
A-67	Anaemias	280-285
A-68	Other diseases of blood and blood-forming organs	286-289
A-69	Psychoses	290-299
A-70	Neuroses, Personality disorders and other nonpsychotic mental disorders	300-309
A-71	Mental retardation	310-315
A-72	Meningitis	320
A-73	Multiple sclerosis	340

No.	Disease or Injury	Detailed List No.
A-74	Epilepsy	345
A-75	Inflammatory diseases of eye	360-369
A-76	Cataract	374
A-77	Glaucoma	375
A-78	Otitis media and mastoiditis	381-383
A-79	Other diseases of nervous system and sense organs	321-333 341-344 346-358 370-373 376-380 384-389
A-80	Active rheumatic fever	390-392
A-81	Chronic rheumatic heart disease	393-398
A-82	Hypertensive disease	400-404
A-83	Ischaemic heart disease	410-414
A-84	Other forms of heart disease	420-429
A-85	Cerebrovascular disease	430-438
A-86	Diseases of arteries, arterioles and capillaries	440-448
A-87	Venous thrombosis and embolism	450-453
A-88	Other diesease of circulatory syst.	454-458
A-89	Acute respiratory infections	460-466
A-90	Influenza	470-474
A-91	Viral Pneumonia	480
A-92	Other pneumonia	481-486
A-93	Bronchitis, emphysema and asthma	490-493
A-94	Hypertrophy of tonsils and adenoids	500
A-95	Empyema and abscess of lung	510-513
A-96	Other diseases of respiratory syst.	501-508 511,512 514-519
A-97	Diseases of teath and supporting structures	520-525
A-98	Peptic ulcer	531-533
A-99	Gastritis and duodenitis	535
A-100	Appendicits	540-543
A-101	Intestinal obstruction and hernia	550-553 560
A-102	Cirrhosis of liver	571
A-103	Cholelithiasis and cholecystitis	574,575
A-104	Other disease of digestive organs	526-530 534-536 537 561-570 572-573 576,577
A-105	Acute nephritis	580
A-106	Other nephritis and nephrosis	581-584
A-107	Infection of kidney	590
A-108	Caculus of urinary system	592,54

No.	Disease or Injury	Detailed List No.
A-109	Hyperplasia of prostate	600
A-110	Diseases of breast	610,611
A-111	Other diseases of genitourinary system	591,593 595-599 601-607 612-629
A-112	Toxaemias of pregnancy and the puerperium	636-639
A-113	Haemorrhage or pregnancy and child birth	632 651-653
A-114	Abortion induced for legal indicattions	640-641
A-115	Other and unspecified abortion	642-645
A-116	Sepsis of childbirth and the puerperium	670,671 673
A-117	Other complications of pregnancy, childbirth and the puerperium	630-631 633-635 654-662 672 674-678
A-118	Delivery without mention of complications	650
A-119	Infections of skin and subcutaneous tissue	680-686
A-120	Other diseases of skin and subcutaneous tissue	690-709
A-121	Arthritis find spondylitis	710-715
A-122	Non-articular rheumatism and rheumatism unspecified	716-718
A-123	Osteomyelitis and periostitis	720
A-124	Ankylosis and acquired musculoskeletal deformities	727 735-73
A-125	Other diseases of musculoskeletal system and connective tissue	721-72
A-126	Spina bidfia	741
A-127	Congenital anomalies of beart	746
A-128	Other congenital anomalies of circulatory system	747
A-129	Cleft palate and cleft lip	749
A-130	All other congenital anomalies	740 742-74 748 750-75
A-131	Birth injury and difficult labour	764-76 772
A-132	Conditions of placenta and cord	770-77
A-133	Haemolytic disease of newborn	774-77
A-134	Anoxic and hypoxic conditions not elsewhere classified	776
A-135	Other causes of perinatal morbidity and mortality	760-769,
A-136	Senility without mention psychosis	794
A-137	Symptoms and other ill-defined conditions	780

No.	Disease or Injury	Detailed List No.
AE-138	Motor vehicle accidents	E810-E823
AE-139	Other transport accidents	E800-E807 E825-E845
AE-140	Accidental poisoning	E850-E877
AE-141	Accidental falls	E880-E887
AE-142	Accidents caused by fires	E890-E899
AE-143	Accidental drowning and submersion	E910
AE-144	Accident caused by firearm missiles	E922
AE-145	Accidents mainly of industrial type	E916-E921
AE-146	All other accidents	E900-E909 E911-E915 E929-E949
AE-147	Suicide and self-inflicted injury	E950-E959
AE-148	Homicide and injury purposely inflicted by other persons legal intervention.	E960-E978
AE-149	Injury undetermined whether accidentally or purposely inflicted	E980-E989
AE-150	Injury resulting from operations of war	E990-E999
AN-138	Fracture of skull	N800-N804
AN-139	Fracture of	N805-N809
AN-140	Fracture of limbs	N810-N829
AN-141	Dislocation without fracture	N830-N839
AN-142	Sprains and strains of joints and adjacent muscles	N840-N848
AN-143	Intracrancial injury (excluding skull fracture)	N850-N854
AN-144	Internal injury of chest, abdomen and pelvis	N860-N869
AN-145	Laceration and open wound	N870-N908
AN-146	Superficial injury, contusion and crushing with intact skin surface	N910-N929
AN-147	Foreign body entering through orifice	N930-N939
AN-148	Burn	N940-N949
AN-149	Adverse effects of chemical substances	N960-N989
AN-150	All other and unspecified effects of external causes	N950-N959 N990-N999

RECOMMENDED LI
INSTRUMENTS -
AND BASIC

List of Equipment and Instruments

RURAL HEALTH CENTRES

S. No.	Name of the Article	Qty
1.	Chair	21
2.	Table	11
3.	Examination Stool	4
4.	Bench with back	8
5.	Screen	8
6.	Steel Almirah	19
7.	Clock	6
8.	Call Bell	2
9.	Penstand	5
10.	Ceiling Fans	12
11.	Thermometer	12
12.	Reflex Hammer	4
13.	Tongue Depressor	6
14.	Nasal Speculum (large)	3
15.	Nasal Speculum (small)	3
16.	X-Ray View Box	2
17.	Snellen's vision chart	2
18.	Stethoscope	7
19.	Sphygmomanometer	7
20.	ENT Diagnostic Set	4
21.	Chalamchi with wash hand stand	12
22.	Torch	9
23.	Adult Weighing Machine	4
24.	Stature Measurement	2
25.	B.C.G. Kit	6
26.	EPI Kit	4
27.	Demonstration Flip Chart	4
28.	Model Woods Latrine and Houses etc.	2
29.	Fridge for vaccine 150 litre 220 volts	1
30.	Spray Gun	3
31.	Ice Boxes	6
32.	Ryltube	2
33.	Typewriter	1
34.	Paper Tray	9
35.	Dust Bin	14
36.	Dressing drum for bandage	3
37.	Dressing drum for cotton	3
38.	Flattray with cover	3
39.	Acriflavian posts (Galipots)	5
40.	Kidney tray	4
41.	Dressing Forceps	3
42.	Chetal Forceips	4
43.	Irrigator (Anaema Can)	3
44.	Vinyle Sheet	1
45.	Apron	4
46.	Sterilizer(Electric)	3
47.	Scissor (curved)	2

S. No.	Name of the Article	Qty
48.	Scissor (straight)	2
49.	Artery Forceps	4
50.	Probe Silver	1
51.	Spirit Lamp	2
52.	Splints for hands knees and feet	20
53.	Spatula and slab	2
54.	Bucket	2
55.	Jug	2
56.	Hamam (water container)	2
57.	Ear Syringe	2
58.	Syringe 2cc & 5cc	20
59.	Needle size 18 gauge(box)	2
60.	Needle size 20 " "	2
61.	Needle size 22 " "	2
62.	Needle size 24 " "	2
63.	Ounce measures and scale weight set	1
64.	Pestle mortar	1
65.	Dispensing table	1
66.	Mixture Bottles	13
67.	Pharmocapia chart	1
68.	Apron	1
69.	Stair stool	1
70.	Harican Lamp	2
71.	Fetoscope	4
72.	Breat Pump	4

S. No.	Name of the Article	Qty
73.	Baby weighing machine	2
74.	Delivery table	1
75.	Instruments trays with cover 10.5"x7"	5
76.	Gloves pair	7
77.	Vaginal speculum	4
78.	Sterilizer (fuelheated)	2
79.	Dai Kit	2
80.	DNS	1
81.	Round speculum	1
82.	Simple vaginal speculum	1
83.	Uterine sound	1
84.	Ovum Forcep	1
85.	Dilators set	1
86.	Trolley	2
87.	Stiching needles (Pkt)	2
88.	Catgut	1
89.	Vaginal douche can	1
90.	Catheter (female) Metalic	1
91.	Catheter female 8 FR	2
92.	" " 10 "	2
93.	" " 12 "	2
94.	" " 14 "	2
95.	Aspirator (Mucus Sucker)	2
96.	Hot Water Bottle	6
97.	Baby Cot	2
98.	Patromax	2

S. No.	Name of the Article	Qty
99.	Iron Beds	8
100.	Bedside Lockers	8
101.	Stools (wood)	8
102.	Beddings	16
103.	Dustbins	26
104.	Chalamchi	6
105.	Fire Extingulisher	1
106.	Nylon thread sutures	50
107.	Gatgut Oz (vials)	50
108.	Needle holders	8
109.	Stitching needles (doz)	4
110.	Bowels 4"	2
11.	Bowels 8"	4
112.	Bowels 12"	6
113.	Dressing drum with stand	1
114.	Autoclave	1
115.	Instrument Cabinet	3
116.	Oxygen cylinders (for emergencies)	2
117.	Resuscitator (Pump for providing oxygen)	1
118.	Catheter Matallic (Male)	2
119.	Catheter Metallic(female)	2
120.	Tooth extraction forcep set	1
121.	Operation Table	1
122.	Shadowless lamp	1
123.	Instrument trolley with top	1

S. No.	Name of the Article	Qty
124.	Surgeons cap	6
125.	Ice caps	8
126.	Inhaler (large size)	2
127.	Inhaler (small size)	2
128.	Heater	1
129.	Brush Surgeon	6
130.	Kidney tray 16 oz	2
131.	Kidney tray 28 oz	1
132.	Basin solution 6 ltr	2
133.	Bowel sponge	2
134.	Jar Dressing	1
135.	Measuring Jug	2
136.	Urinary Test Set	1
137.	Tourniquit	1
138.	Nail File Finger	1
139.	Birth Atlas Book	2
140.	Hospital Demonstration Doll	1
141.	Pelvis Female Ligamented	1
142.	Scale Infant (Metric)	3
143.	Catheter sterilizer tray	3
144.	Sputum Mug	3
145.	Spoon	4
146.	Apparatus for samples from well	1
147.	Chlorimeter	1
148.	Eye Bath Cup	2

S. No.	Name of the Article	Qty
149.	Funnel rubber stomach tube	1
150.	Urinal (male)	4
151.	Urinal (female)	4
152.	Bedpan (Male)	4
153.	Bedpan (Female)	4
154.	Bed cushion (rubber)	10
155.	Cabinet instruments 56"x27"x12" with deep front cupboard below	2
156.	Cabinet instruments 24"x16"x12" with deep cupboard below	2
157.	Bogie urethral set	2
158.	Instrument Homorroidal set	1
159.	Needle suturing full curve 3/8 (pkt)	1
160.	Needle suturing full curve size 9	1
161.	Needle suturing full curve size 15	1
162.	Needle suturing full straight 6	1
163.	Sound bladder size 4"	1
164.	Sound bladder size 8"	
165.	Needle suturing full curve half circle	1
166.	Scoope with curette	1
167.	Knife plaster blader with handle	1
168.	Curette flushing	1
169.	Dilation and inflation apparatus	1

S. No	Name of the Article	Qty
170.	Can opener	3
171.	Finger stall box of 12	3
172.	Spatula	2
173.	Spittoons	4
174.	Overall	17
175.	Physician coats	12
176.	Funnel catheter 3 oz	3
177.	Catheter urethral soft rubber 8 fr.	2
178.	Catheter urethral soft rubber 10 fr.	2
179.	Catheter urethral soft rubber 14 fr.	2
180.	Syringe rectal (infant)	2
181.	Tube rectal rubber 22 fr.	2
182.	Thermometer clinical rectal centigrade	6
183.	Brush Nursing Bottle	2
184.	Forceps utility 28 mm	4
185.	Mask Anaesthetic child	1
186.	" " Adult	1
187.	Midwifery kit type 3	1
188.	Needle infusion 1.0x6.3 (dozen)	2
189.	Needle Hype luer syringe 1.25x51 mm	2
190.	Needle Hypeluer 0.70x88 mm	2
191.	Needle Hyperluer 0.55x19 mm	4

S. No.	Name of the Article	Qty
192.	Needle Hypeluer 0.90x38 mm	4
193.	Needle Hypeluer 0.45x10 mm	4
194.	Scissors bandage lister 182 mm	4
195.	Speculum vaginal, bivalve graves small	1
196.	Speculum vaginal bivalve graves large	1
197.	Syringe ear, irrigation 3 oz	2
198.	Syringe Hypodermic Luer 2 ml	12
199.	Syringe Hypodermic Luer 5 ml	3
200.	Syringe Hypodermic Luer 10 ml	3
201.	Syringe Hypodermic Luer 20 ml	1
202.	Syringe Tuberculin Luer 1 ml	1
203.	Urinometer squibe with cylinder	1
204.	Blance Laboratory and dispensing	2
205.	Beaker 50 ml griffinlaw form form	3
206.	Beaker 150 ml " "	3
207.	Beaker 250 ml " "	3
208.	Bottle dropping 60 ml flint glass	1
209.	Comparator	1
210.	Testpaper wide range PH2 to PH 12	2
211.	Cover glass mirroscrope	10
212.	Cylinder graduated 10ml	2
213.	" " 50ml	2
214.	Flask conical erlenmeter	2
215.	Forcep microslide kirkbride	1
216.	Funnel Lab. glass plain 65 mm	2
217.	Gauge wire 4"x4" with absestos centre	2
218.	Hemacytometer complete set	1
219.	Hamemoglobinometer set sahili type	1
220.	Pipette blood sedimentation westergreen	3
221.	Pack blood sedimentation westergreen 6 units	1
222.	Rod stirring flint glass assorted (pkg)	4
223.	Slide microscope plain (75x25 mm box of 72)	1
224.	Stand support lab. med.	4
225.	Support test tube wood	3
226.	Test tube 16x150 mm without lips	72
227.	Tripod lab. iron 3" I.D.x6" high	5
228.	Tubing standard flint glass assorted	2
229.	Wire nickle chromimum Swg 22.2 Ft. length	1
230.	Holder needle approximately 6" long	1

S. No.	Name of the Article	Qty
231.	Jar staining vertical complin	2
232.	Spirit lamp 250 ml	1
233.	Morter & pestle glass 4 oz	1
234.	Microscope Monocular	1
235.	Pencil wex red china marking	1
236.	Paper filter qualitative 10cm x 15cm diameter padage of 100 each	4
237.	Pipette Serological 1 ml in 0.01	2
238.	" " 5 ml	2
239.	" " 10 ml	2
240.	Centrifuge Machine (electric or fuel heated)	1
241.	Water Distillation Machine	1
242.	Airway	1
243.	Aplicator Ear & Nasal	1
244.	Aspirator Syringe	1
245.	Adopter	1
246.	Bone-cutting Forceps (straight & Curved)	2
247.	Kit Bag	1
248.	Proctoscope Illuminated	2
249.	Basic cutting set	1
250.	Minor Operation Set	1
251.	Basic abdominal set	1

S. No.	Name of the Article
252.	Intestinal set
253.	Rectal set
254.	D & C set

ANTIBACTERIALS

S. No.	Name of the Drug	Recommended Quantity: Rural Health Centre	Recommended Quantity: Basic Health Unit
1.	Penicillin Crystalline*		
	Forms:		
	Vials 200,000 Units	500	200
	500,000 "	1,000	500
	1,000,000 "	500	200
2.	Penicillin, Procaine*	4,000	2,000
	Forms:		
	Vials containing 400,000 Units		
3.	Ampicillin		
	Forms:		
	Syrups 125 mg/5 ml	14,000 ml	7,000 ml
	Capsules 250 mg/cap	2,000	1,000
4.	Tetracycline -HCL		
	Forms:		
	Capsules 250 mgm	10,000	7,000
	Tablets 250 mgm	5,000	4,000
	Syrup 125 per 5 ml	15,000 ml	10,000 ml
	Pediatric drops 125 mgm per ml	-	-
	Injectable: I.M. 1000 mgm vial	500	300
5.	Streptomycine*		
	Form:		
	Inj.	15,000	10,000
6.	Chloroamphenicol		
	Form:		
	Suspension 1.25 mgm/5 ml	50,000 ml	20,000 ml
	Capsules 250 mgm	10,000 cap	6,000
	Injectable 1.0 Gm/vial	500	100

S. No.	Name of the Drug	Rural Health Centre	Basic Health Unit
7.	Isoniazid		
	Form:		
	Tablets 50 mg	1,000	500
	100 mg	4,000	300
8.	Thiacetazone & INH*		
	Forms:		
	Tablets 100 mg	1,000*	500
	300 mg	4,000	3,000
9.	Triple Sulpha*		
	Tablets 500 mgm	15,000	10,000
10.	Sulpha Diazine*	20,000	10,000
11.	Sulphonamides		
	Tab. 0.5 g.	20,000	10,000
	ANTI-PROTOZOANS		
	A. Antimalarial		
1.	Cholroque Phosphate*		
	Forms:		
	Tablets: 150 mg base	20,000	8,000
	Inj: 40 mg base in 1 ml	100	40
	Syrup: 50 mg in 5 ml	2,200 ml	1,000 ml
2.	Pyrmethamine		
	Form:		
	Tablet 25 ml eal	20,000	5,000
	B. Anti-Amoebics/Giardias		
3.	Metronidazole*		
	Form:		
	Tablets 200 mg	20,000	8,000

S. No.	Name of the Drug	Rural Health Centre	Basic Healt Unit
	C. Anti-Trichomonas		
4.	Gentian Violet*	2 Kg	1 Kg
5.	Di-Iodhydroxyquin*		
	Form:		
	Vaginal Suppository (100 mg)	3,000	1,000
	ANTI-HELMINTHS		
1.	Piperzine*		
	Forms:		
	Tab. 300 mg	25,000 tab	10,000
	Syrup (elixis) 750 mg/5 ml	35,000 ml	,000 ml
2.	Bephenium Hydroxynaphthoate*		
	Forms:		
	Pellects: 1.25 G. in each 5 G tub	5,000	,000
	Powder: 1.25 G. in each 5 G tub	6 Kilo	Kilo
3.	Tapeworm Tablets		
	500 mg each	100	60
	ANTIFUNGAL		
1.	Nystatin*		
	Forms:		
	Tablets: 500,000 units	4,000	,000
	Ointments: 100,000 units in each gram	700 Gm	500 Gm
2.	Griseofulvin*		
	Forms:		
	Tablets	2,000	,000
	Syrup	10,000 ml	,000

SKIN PREPARATIONS

S. No.	Name of the Drug	Rural Health Centre	Basic Health Unit
	A. Antiseptics		
1.	Spirit Acriflavian Lotion*	30 Lb.	20 Lb.
2.	Dettol*	20 "	10 "
3.	Hydrogen Peroxide Solution	10 Ltr	5 Ltr
4.	Potassium per Magnate*		
	Forms:		
	Crystal:	1 Kilo	0.5 Kilo
	B. Anti-Inflammatory		
5.	Calamine Lotion*	14 Lb	7 Lb
6.	Hydrocortisone Skin Ointment	3,000 Gm	2,000 Gm
	C. Anti-Bacterials (Skin)		
7.	Sulphur Ointment	5,000 Gm	3,000 Gm
8.	Sulphadinazine Ointment*	5,000 Gm	3,000 Gm
9.	Whitefield Ointment	1 Kg	0.5 Kg
10.	Iodex*		
	Form: Liniment Ointment	2 Kg	1 Kg
	D. Anti-Scabies/Lice		
11.	Benzylbenzoate* Emulsion Lotion	5 Kg	5 Kg

ENT/DENTAL PREPARATIONS

	A. Eye		
1.	Sulphacetamide Sodium*	1,000 vials	500

S. No.	Name of the Drug	Rural Health Centre	Basic Health Unit
2.	Chloramphenicol*		
	Forms:		
	Drops	500 vials	200 vials
	Ointment	200 tubes	100 tubes
3.	Penicillin Crystalline* Eye Drops	500	200
4.	Tetracycline Ointment*	1000 tubes	800 tubes
5.	Bacitracin-Polymysin-Neomycine*	2000 "	500 "
6.	Noversine Eye Drops	15 btl	1 btl
7.	Silver Nitrate	(100 ml)	-
8.	Atropline Eye Drop	500 ml	-
9.	Diamox		
	Forms:		
	Tablets	1000	100
	Injections	50	-
	B. Ear		
10.	Soda Glycerine Ear Drops*	1 Kg	0.5 Kg
	C. Throat		
11.	Saline Expectorant*		
	Form: Mixture	10 Kg	6 Kg
	D. Anti-Allergic		
12.	Chlorophenіramine Maleate*		
	Forms:		
	Tablets 4 mg	10,000	5,000
	Syrup 2 mg/5 ml	30,000 ml	10,000 ml
	Inj. 10 mg/ml	200	100

CARDIO-VASCULAR DRUGS

S. No.	Name of the Drug	Rural Health Centre	Basic Health Unit
	A. Anti-Hypertensive and Diuretics		
1.	Reserpine Usp*		
	Forms:		
	Tablets 0.25 mg/tab	5,000	1,000
2.	Hydrachlorothiazide		
	Form:		
	Tablets 50 mg	2,000	1,000
3.	Lasix*		
	Form:		
	Tablets 40 mg	2,000	1,000
	Inj. 10 mg/ml	500	100
	B. Heart Stimulants		
4.	Digoxin*		
	Form:		
	Tablets 0.25 mg	500	100
	Injections 0.25 mg/ampule	50	-
	C. Anti-Angina Pecterus		
5.	Glyceryltrinitrate		
	Forms: Subbing tab. 0.5 mg	500	200
	ANTIASTHMATICS		
1.	Ephedrine* Hydrochloride		
	Forms:		
	Tablets: 25 mg	1,000	400
	Injections: 25 mg/ml (1 ml ampule)	500	100
2.	Aminophyline		
	Forms:		
	Tablets 100 mg	1,000	500
	Injectable 250 mg in each 10 ml ampule		

GASTRO-INTESTINAL DRUGS

S. No.	Name of the Drug	Rural Health Centre	Basic Health Unit
	A. Antispasmodics		
1.	Belladona*		
	Forms:		
	Tablets 12.5 mg	5,000	2,000
	Tincture 300 mg/ml	5,000 ml	2,000 ml
2.	Buscopan*		
	Forms:		
	Tablets 10 mg	10,000	7,000
	Injections 20 mg/5 ml ampule	1,000	500
3.	Metamizole		
	Forms:		
	Tablets	5,000	3,000
	Injections	500	200
	B. Antacid		
4.	Soda Bicarb		
	Form:		
	Powder	50 lb	30 lb
5.	Carminatives*		
	Forms:		
	Tablets	15,000	10,000
	Mixture	100 litre	50 litre
6.	Gelusil*		
	Forms:		
	Tablets	1,000	200
	C. Anti-Diarrhoeal		
7.	Light Kaoline*		
	Form:		
	Mixture	10,000 ounce	5,000 ounce

S. No.	Name of the Drug	Rural Health Centre	Basic Health Unit
8.	Oralytle Bags*	2,000	1,000
	D. Laxative (Puragatives)		
9.	Glycerine*		
	Forms:		
	Supporitory	1,000	200
	Glycerine	20 lb	5 lb
10.	Liquid Paraffin*	25 lb	15 lb
11.	Castoroil	3 Kg	2 Kg
12.	Milk of Magnesia*	50,000 ml	2,000 ml
13.	Magnesium Supphate*	5 Kg	3 Kg
	E. For Vomiting		
14.	Sodium Chloride	2 Kg	1 Kg
	DRUGS USED IN OBSTETRICS		
1.	Egometrine Maleate*		
	Forms:		
	Tablets	1,000	400
	Injections	200	50
2.	Oxytocin		
	Forms:		
	Injectable	200	100
	CENTRAL NERVOUS SYSTEM DRUGS		
	A. Analygesics/Antepyretics		
1.	Aspirin*	20,000	10,000
2.	Paracetamol*	20,000	10,000

S. No.	Name of the Drug	Rural Health Centre	Basic Health Unit
3.	Novalgin*		
	Forms:		
	Tablets	10,000	2,000
	Injectable	1,000	200
	Drops	-	-
4.	Pethedine Hydrochloride		
	Form:		
	Injectable	50	-
	B. Anti-Convulsants		
5.	Phenobarbitone*		
	Forms:		
	Tablets	5,000	2,000
	Injections	100	50
6.	Dilantin		
	Forms:		
	Capsules	500	100
7.	Diazepam		
	Forms:		
	Tablets 2 mg	,000	100
	Injections	100	20
8.	Chlorpromazine HCL		
	Forms:		
	Tablets	,000	500
	Injections	200	50
	Syrup	5,00 ml	1,000 ml
	D. Hypnotic		
9.	Chloral Hydrate		
	(not used)	2 Lb.	

S. No.	Name of the Drug	Rural Health Centre	Basic Heal Unit
	D. Respiratory Stimulant		
10.	Coramine*		
	Forms:		
	Injectable 250 mg in 1 ml ampule	100	50
	REPLACEMENT FLUIDS		
1.	I.V. Fluids*	5,000	100
	Oral Fluids		
2.	Salt-Sugar Medicines	500	100
3.	Orabyte Solution*	1,000	200
	VITAMINS AND MINERALS		
1.	Multivitamins*		
	Forms:		
	Tablets	40,000	15,000
	Syrup	50,000	15,000 ml
2.	Multivitamins with minerals tablets	5,000	-
3.	Adexoline*		
	Syrup		-
	Capsule	40,000	
4.	Vitamin B-Complex*		
	Forms:		
	Injectable	200	-
	Tablets	5,000	500
	Syrup	2,500	-
5.	Vitamin C.		
	Forms:		
	Tablets	10,000	5,000
	Injections	500	100

S. No.	Name of the Drug	Rural Health Centre	Basic Health Unit
6.	Kaplin		
	Forms:		
	Injections	100	20
	Tablets	1,000	100
7.	Ferrous Sulphate* (Iron)		
	Forms:		
	Tablets	50,000	15,000
	Injection	200	50
	Elixir	10,000 ml	3,000 ml
	ANTIDIABETIC DRUGS		
1.	Insulin		
	Form:		
	Injectable	500	100
2.	Diabinase		
	Form:		
	Tablets 100 mg	500	100
	250 mg	500	100
3.	Daonil		
	Form:		
	Tablets 5 mg	500	100
	MISCELLANEOUS DRUGS		
	A. Local Anaesthetic		
1.	Xylocaine*		
	Form:		
	Injectable	200 vials of 50 cc	10 vials
	B. Steroids (Hormones)		
2.	Dexamethasone	5,000	500

APPLICATION AND FORMS A AND B FOR TWO-WAY RADIO LICENSE

APPLICATION FORM FOR A FIXED STATION LICENCE

Application from Pakistan or Pakistan State Subject for a License to Establish Maintain and Work Wireless Telegraphs in Pakistan

---

1. Name of Applicant (in Block Capitals) .....
   Address .....
   Age .....
   Occupation .....
   Nationality. (Evidence of Pakistan or Pakistan State nationality and two written reference as to character should be enclosed).....
   Father's name and home address .....
   .....

---

2. Scientific qualifications (if any)of applicant .....
   Particulars of any experience in working wireless telegraph transmitting apparatus .....
   Particulars of certificates of competency as wireless operator held by applicant .....
   Speed at which applicant can send and receive in the Morse Code .....

---

3. Purpose for which license is required .....

---

4. Particulars of apparatus to be used. The trade name of the set in the case of standard set bearing a recognized trade name (Diagrams to be furnished and attached to this form unless a standard set bearing a recognised trade name is to be employed) :

   (a) Transmitting .....

   (b) Receiving .....

(c) Antenna (including sketch and dimensions and means of support) .....

---

5. Power in watts to be used for transmission (A) :

(a) Source of power supply (B) .....

(b) Measured at input .....

(c) Volts ..... Amperes .....

(d) D/Cor A-C .....

(e) Cycles per second (A/C) .....

(f) Maximum watts at input to aerial .....

If more than one station is desired details must be given for each station separately.

(A) Power is defined as the power taken from the terminals of the main generators of equivalent point.

(B) If batteries are used state kind; x if secondary cells, state capacity and maximum discharge rate; if dynamo, state maximum power available and if supply main, state voltage (whether direct or alternating) and periodicity.

*The term wireless telegraphs includes wireless telephones.

Particulars of stations:

Exact location(a)	Type(b)	Class(b)	Remarks

Note:- (a) State full postal address at which the station is to be created, if the station is to be moveable state place in which it will normally be located and area over which it is desired to move.

(b) For 'type' and Class see table on page 1 of the pamphlet "Instructions governing licences for wireless telegraphs in Pakistan".

Transmitting - Normal ..... Kc/s

Additional .....

7. Wavelength it is desired to use:

Receiving .....

Additional .....

8. Range of wave over which apparatus is capable of being adjusted:

Transmitting .....Kc/s
Receiving .....

9. Stations with which it is desired to communicate .....

10. What messages from Government stations it is desired to read and make use of? .....

11. Hours of working desired (P.S.T) Transmitting .....
Receiving .....

12. If the applicant proposes to employ operators to work the transmitting apparatus give names, address, qualifications of operators with particulars of their certificates of competency as wireless operat .....
.....
.....

If more than one station is desired details must be given for each station separately.

DECLARATION

I undertake to observe the conditions of the license and hereby certify that the apparatus herein described can and will be worked in accordance with the provisions of the license. I further declare that, if the apparatus is licensed for the transmission of messages, only operators holding approved certificates of competency shall be employed to work the transmitting apparatus.

Signature of Applicant .....
Date .....

The application, when completed, should be forwarded to the Director General, Telegraph and Telephones, Karachi, through the province in which the station will be located.

FORM 'A'

PAKISTAN WIRELESS BOARD

(SITE CLEARANCE)

Details required to be submitted with application for setting of a wireless station

(1)	Name of Station:
(2)	(a) Longitude & Latitude of station (for rural area) (b) Postal Address (for urban area)
(3)	If to be used for transmitting or receiving or both.
*(4)	Power output of transmitter:
*(5)	Type of transmitting antenna
*(6)	Overall height of transmitting antenna (indicate whether from ground or roof top)
*(7)	Type of receiving antenna:
*(8)	Height of receiving antenna:
(9)	In case the wireless station falls within 10 nautical miles of the nearest serodrome, the bearing and distance of the station from the serodrome:
*(10)	Transmitting frequencies
*(11)	Receiving frequencies
*(12)	Frequency Control VFO or Crystal:
*(13)	Type of emission:

(14) Probable date of installations:
(15) Name of other stations already installed:
(16) Whether equipment is available or is to be imported from abroad:
(17) Period for which wireless system is required:

* Filling up of these columns is optional.

REMARKS

FORM 'B'

PAKISTAN WIRELESS BOARD
(FREQUENCY CLEARANCE)

Details required to be submitted for approval of frequency

Notifying Body:

Assigned Frequency:

Date of putting into use:

Name of transmitting station:

(a) Longitude & Latitude of transmitting station: (for rural area)

(b) Postal Address (for urban area)

Points of reception:

Length of circuit:

Class of station and nature of service:

Type of emission with bandwidth:

Power in KW:

Transmitting Antenna characteristics:

(a) Azimuth of Max. radiation.

(b) Angular width of main lobe.

(c) Antenna gain in db.

Maximum hours of operation:

Supplementary information:

BIBLIOGRAPHY

BIBLIOGRAPHY

ORGANIZATION, SUPERVISION AND PERSONNEL

"The Pygmalion Effect in Management" Supervisory Management; February 1979, pp 15-18.

"Supervisor Subordinate Role Perception", Personnel Administration/Public Review; November - December 1972, pp 3-11.

Administration in Developing Countries; Riggs, Fred W.; Indiana University, Bloomington, Indiana, USA.

"Matrix Management, A Primer for the Administrative Manager", American Management Association, Chicago.

Manpower and Primary Health Care: ed, Smith, Richard A., M.D. MPH,; The University Press of Hawaii, Honolulu, 1978.

"Problems of Matrix Organizations"; Stanley M. Davis and Paul R. Lawrence, Business Review; May - June 1978.

"The Human Side of the Matrix"; Paul R. Lawrence, et. al.; Amacom, American Management Association; Summer 1977.

OPERATIONAL PLANNING

The Fifth Five Year Plan 1978-1983. Planning Commission, Government of Pakistan, June 1978.

On Being in Charge. A Guide for Middle Level Management in Primary Health Care, Experimental Version. World Health Organization, Geneva, 1979.

Planning and Management of Health Services at the District Level. National Health Planning Unit, Ministry of Health. Accra, Ghana, June, 1979.

An Approach to Planning the Delivery of Health Care Services. National Health Planning Unit, Ministry of Health, Accra, Ghana, June, 1979.

Strategic Long Range Planning. Theodore S. Weissman. (Date and Location Unknown).

Primary Health Care in Pakistan, Planning Commission, Government of Pakistan, Islamabad, December 1977.

HEALTH INFORMATION

Accessibility of Health Establishments and Their Utilization. Health Section, Planning & Development Division, Government of Pakistan, Islamabad, April, 1978.

Evaluation of Maternity and Child Health Centres. Dr. Sirajul Haq Mahmud and Dr. Bashirul Haq, Islamabad, September 1978.

Evaluation of Project for Establishment of 150 Rural Health Centre. Planning Commission, Government of Pakistan, Islamabad, May, 1976.

Fifth Five Year Plan, 1976-81 (Draft). Planning Commission, Government of Pakistan, January 1976.

Health and Health Related Statistics of Pakistan. 2nd Edition. Planning Commission, Government of Pakistan, Islamabad September 1978.

Health Planning Organization and Process; A Case Study of Pakistan. Dr. Sirajul Haq Mahmud, Planning Commission, Government of Pakistan, Islamabad, February 1977.

Manual of Rural Health Centres. Department of Health Services, West Pakistan, 1952.

National Health Conference, 1978, 14th Annual. Public Health Association of Pakistan. Lahore, May 1978.

Plan of Action for Development of National Health Statistics Information System for Management of Health Services Islamabad, July 1979.

Primary Health Care in Pakistan. Planning Commission, Government of Pakistan, Islamabad, December 1977.

Primary Health Care in Rural Area of Pakistan. Dr. Sirajul Haq Mahmud, Health Section, Planning Division, Government of Pakistan and Professor N.R.E. Fendall, Professor of Community Medicine, Liverpool, England. Planning Division, Government of Pakistan, Islamabad (no date).

Proposal and Recommendations for the Review of Development Loan Committee. U.S. Department of State, Agency for International Development, Washington, D.C. (no date).

System of Local Health Services in Pakistan. Public Health Association of Pakistan. Lahore, 1969.

The Health Information System. Mian Mahmud Ahmad, Section Officer, Statistics, Government of Punjab, Department of Health, Lahore, Pakistan.

TRANSPORTATION AND COMMUNICATIONS

Accessibility of Health Establishment and Their Utilization; Health Section, Planning and Development Division, Government of Pakistan, Islamabad, April 1970.

Evaluation of Project for Establishment for 150 Rural Health Centres; Planning Commission, Government of Pakistan, Islamabad, May 1976.

Health Planning Organization and Process; A Case Study of Pakistan; Dr. Sirajul Haq Mahmud, Planning Cossion, Government of Pakistan, Islamabad, February 1977.

Manual of Rural Health Centres; Department of Health Services, West Pakistan, 1952.

Primary Health Care in Pakistan; Planning Commission, Government of Pakistan, Islamabad, December 1977.

Primary Health Care in Rural Area of Pakistan; Dr. Sirajul Haq Mahmud, Health Section; Planning Division, Government of Pakistan and Prof. N.R.E. Fendall, Professor of Community Medicine, Liverpool, England; Planning Division, Government of Pakistan, Islamabad, (no date).

Proposal and Recommendation for the Review of Development Loan Committee, U.S. Department of State, Agency for International Development, D.C. (no date).

Roads and Road Transport Development; Tajammal Hashmi, Joint Secretary, Transport, Government of Pakistan, Islamabad, January 1972.

Frequency Clearance and Wireless Licensing Procedure; Pakistan Wireless Board. Karachi 1970.

Nigeria: Use of Two-Way Radio in the Delivery of Health Services; Dr. A. Adeniyi Jones (UNICEF) Dr. E. Kalimo (WHO) and Dr. M. Torfs (WHO) (no date).

Planning and Utilization of Two-Way Communication in Support of the MEDEX Program in Guyana (Draft), Anna Stahmer, Academy for Education Development, August 1979.

Technical Recommendations for the Use of Two-Way Radio in Support of the MEDEX Program in the Republic of Guyana; Stanley G. Burns; March 1979.

Two-Way Radio Communication for the MEDEX Program, Guyana; Ned Wallace (no date).

Two-Way Radio in Support of the MEDEX Program - Guyana, "Implementation, Operation and Evaluation Plan"; Anna Casey-Stabmer; Communication Planning Academy for Education Development; August 1979.

DRUGS AND MEDICAL SUPPLIES

Supply and Warehouse Management; Consultancy UNICEF - Pakistan 1979; The Crown Agents for Overseas Governments and Administration.

Evaluation of Maternity and Child Health Centres; Dr. Sirajul Haq Mahmud and Dr. Bashir-ul-Haq, Islamabad, September, 1978.

Manual of Rural Health Centres; Development of Health Services, West Pakistan, 1952.

Evaluation of Project for Establishment of 150 Rural Health Centres; Planning Commission, Government of Pakistan, Islamabad, May 1976.

Primary Health Care in Pakistan; Planning Commission, Health Section, Government of Pakistan, Islamabad, December 30, 1977.

Final Report Short-term Consultation of Drugs and Pharmacy Distribution Systems; by David E Kuhl, University of Hawaii MEDEX Program, June 5, 1979.

Establishment of Pharmaceutical Industries in Developing Countries; Report and Proceedings of Expert Working Group Meeting. Budapest, 5 - 9 May, 1969 : United Nations, Geneva.

Surgical Instruments Illustrated Catalogue; G.T. Surgical Limited, Sialkot, Pakistan.

The Vaccine Cold Chain : A District Level Care Study; Expanded Program on Immunization. World Health Organization.