

**RURAL HEALTH SERVICES
AS AN
OUTREACH OF THE JOHN F. KENNEDY MEDICAL CENTER**

A Report Prepared By

MAYHEW DERRYBERRY, Ph.D.

NORMAN E. HOLLY, M.A.

LLOYD J. FLORIO, M.D.

JEAN M. PINDER, M.P.H.

During The Period

MARCH 13 THROUGH MAY 11, 1973

Published By The

AMERICAN PUBLIC HEALTH ASSOCIATION

In Agreement With The

AGENCY FOR INTERNATIONAL DEVELOPMENT

Authorization:

AID/csd 2604, TO1

Ltr. HPA/POP: 2-16-73

APHA Assign. No. 89

PREFACE

Mrs. Jean M. Pinder and Dr. Lloyd J. Florio visited Liberia in November 1972 at the request of USAID/Liberia and the Africa Bureau of AID. The purpose of their visit was "to determine the feasibility of an outreach program for the John F. Kennedy Medical Center". Two conclusions from their investigations were: 1) "An outreach program for the . . . Medical Center is possible, practical and desirable," and 2) "A team . . . should be assigned to Liberia to work out a specific integrated implementation plan. . . . (It) should be a coordinated phased plan . . . as well as a better health program for Liberia."^{1/}

In keeping with the second conclusion, a team was assigned to work in Liberia for the period from March 13 to May 11, 1973. It was composed of Dr. Mayhew Derryberry, the coordinator, Norman E. Holly, a health economist, and Mrs. Pinder and Dr. Florio serving as consultants.

The directive given to the team was "to develop a project for an outreach program (health service delivery system beginning in Lofa County). Project is to be designed jointly by the survey team, the GOL and the USAID".

In carrying out its task the team reviewed pertinent documents from the Ministry of Health, WHO and USAID, interviewed knowledgeable individuals working in relevant areas and made numerous field trips. The team was particularly impressed with the interest and constructive concern of representatives of the Government and of the U.N. organizations. The proposals and recommendations of this report are a distillation of the suggestions made to the team during its study.

The team wishes to express its thanks to those who gave freely of their time to help in the development of the proposal. A list of those interviewed, to whom we are especially grateful, appears as Appendix I of this report.

Mrs. Jean M. Pinder
Dr. Lloyd J. Florio
Mr. Norman E. Holly
Dr. Mayhew Derryberry

^{1/} Pinder, Jean M. and Florio, Lloyd J.; *Survey to Determine Feasibility of Developing an Outreach Program for the John F. Kennedy Medical Center, Trip Report, Nov. 2, 1972 to Nov. 11, 1972. Mimeo.*

CONTENTS

	<u>Page</u>
Preface	i
Summary	i
Introduction	5
I. Emphasis on Preventive Services	9
II. Placement of Health Facilities	11
III. Functions of Health Posts and Health Units	17
IV. Staffing the Health Facilities	19
V. Personnel System	25
VI. Training of Personnel	27
VII. Equipment for the Facilities of the Outreach Program	33
VIII. Supervisory System	35
IX. Transport	37
X. Drugs and Medical Supplies	39
XI. Communication	47
XII. An Adequate Record System	49
XIII. Administrative Relationships	51
XIV. Cooperation with Other National Agencies Official and Voluntary	55
XV. Evaluation	57
XVI. Program Emphasis	59
XVII. Participation of Other Donor Agencies	61
XVIII. Fees and Fee Schedules	63

APPENDICES

**RURAL HEALTH SERVICES
AS AN OUTREACH OF THE
JOHN F. KENNEDY MEDICAL CENTER
Monrovia, Liberia**

SUMMARY

The Government of Liberia (GOL), its Ministry of Health and Social Welfare, and the John F. Kennedy Medical Center are interested in extending the preventive and curative services to rural areas as an outreach activity of the Medical Center. This report proposes the establishment of peripheral facilities called health posts to serve 4,000 to 5,000 people. These posts will be manned by two physician assistants, one of whom will provide out-patient medical service to the people while the other will conduct health education in the villages on maternal and child health, nutrition, family planning, immunization, sanitation, and on other preventive measures.

For every four to six health posts there will be a health unit with facilities for in-patient services of short duration and for the conduct of deliveries. Each unit will be manned by midwives, nurses (practical), senior physician assistants, a laboratory technician and a sanitary inspector. Health conditions that cannot be handled by staff in the health posts will be referred to health units.

Conditions requiring more specialized care than can be provided in the health units will be sent to the County hospital. The John F. Kennedy Medical Center will be a reference hospital to handle cases requiring medical specialties not available in the County hospital, either through reference of the patient to the Medical Center or the specialist of the Center attending the patient in the County hospital on a scheduled basis.

A critical component of the system is constant supervision of each type of facility. Staff at the health posts will be supervised by senior staff from the health units; the health units will receive supervision from physicians in the County hospital, and the County hospitals will be supervised by the Medical Center.

A second critical component is a well-trained staff in the units and posts capable of effective health education and the diagnosis and treatment of, or referral of, patients with specified types of conditions.

A third critical factor is an adequate and timely supply of drugs, medical supplies, and equipment throughout the system.

Another important component is transport. Vehicles are necessary for supervisors to visit the installations for which they are responsible at least once every two weeks and also for the transport of patients from one facility to the more specialized installation.

To facilitate communication between installations, radio connections are proposed between the Medical Center, the Ministry of Health, the County hospital and the health units.

It is planned to initiate the program in Lofa County with 30 health posts and five health units. One criterion for a choice of village for a health post is the presence of one of the schools included in the "Selected Services to Schools" project.

Inputs required over and above the present health expenditures in Lofa County are:

1. Upgrade the competence of existing personnel and training of a sufficient number of additional physician assistants to man the health facilities.
2. Increase in the training capacity at the Tubman National Institute of Medical Arts (TNIMA).
3. Stipends for the additional trainees that must be recruited.
4. Increase in budget for the necessary additional personnel, drugs and supplies.
5. Additional transport.
6. Logistic support especially in a better system of distributing drugs and facilities.
7. Better communication system between health installations.

The recurrent costs above the present expenditure of the GOL in Lofa County appear to be within current resources. Funds and technical assistance are being sought to assist in the initiation of the project.

CONCLUSION

The team recommends that favorable consideration be given to the request of the Government of Liberia to develop the outreach program if the Government of Liberia agrees to the following conditions:

1. That the health budget be increased to provide necessary personnel to staff the rural facilities;
2. That the health budget include sufficient funds to maintain adequate quantities of drugs and supplies;
3. That funds be budgeted for maintenance, petrol and replacement of vehicles when required;
4. That a supervisory system be established and retained;
5. That counterparts be appointed for all American technicians (training will be provided as required).

In the opinion of the team, the program, as indicated in the report, can make a significant impact on the health status of Liberia if the commitments listed above are accepted by the Government.

FINANCIAL SUMMARY

Tables 1 and 2 summarize the financial resources that are necessary to provide adequate preventive health services, including family planning, and to intensify medical care activities. The present inputs of the GOL, AFR, and PHA/Population and the increased funds necessary are also shown.

TABLE 1
SUMMARY INPUT REQUIREMENTS

Source	FY 1973	FY 1974	Outreach FY 1974	Total FY 1974
A.F.R.	\$1,400,000	\$1,300,000	\$103,400	\$1,403,400
Title X	107,000	0	335,000	335,000
G.O.L., (Lofa Co.)*	154,362 (1)	154,362 (1)	68,950	223,312

*Calendar year

(1) Excludes hospital personnel.

**TABLE 2
BREAKDOWN OF COSTS
OUTREACH PROGRAMS**

Item	1974	1975
*Salaries	\$132,412	\$132,412
*Drugs and Supplies	65,000	65,000
*Petrol and Vehicle Maintenance	11,000	11,000
Training	41,000	40,000
Contraceptives	50,000	50,000
Equipment (Medical)	40,000	10,000
Equipment (Communication)	15,000	5,000 (1)
Teaching Aids	10,000	7,000
Vehicles	54,000	0
Warehouse	25,000 (2)	25,000 (3)
Consultants	30,000	25,000
Advisors	120,000	120,000
Participants	40,000	40,000
Other Costs	25,000	50,000 (4)
Contractor Overhead Estimated	39,000	39,000

*GOL

(1) Maintenance

(2) First Stage

(3) Second Stage

(4) Includes assistance in self help well and latrine construction.

INTRODUCTION

A wide disparity exists between the health services which the Government of Liberia (GOL) provides for the rural people of the country and those it gives to the population living in and around Monrovia. The latter have access to the comprehensive services of the John F. Kennedy Medical Center while the rural areas are generally limited to one, or at most two, government hospitals in each county, a few mobile clinics, and scattered health posts manned by allied health workers. The purpose of this document is to suggest how this disparity can be reduced through a systematic network of health services extending as an outreach activity of the Medical Center.

As an important contribution towards achieving the above purpose, the Medical Director of the John F. Kennedy Medical Center prepared a document of the study team which provided a conceptual framework for the organization of a suitable network. (See Appendix A.) This document, as well as the *Ten-Year National Health Plan* (Government of Liberia, Monrovia, 1967) proposes decentralized health services with a strong emphasis on preventive services. Since the team is in complete agreement with the overall framework presented by the Medical Director's paper, it will be referred to frequently in this report.

For purposes of reference the basic units of the decentralized system and their broad functions as proposed by the Medical Director are:

1. Health posts which would conduct health education, preventive services, including family planning, and medical care for circumscribed minor illnesses that constitute a large portion of rural health care needs. Health posts would be staffed by two physician assistants who would refer more difficult illnesses to health units.
2. Health units would serve the function of health posts in their area, provide limited in-patient services for cases referred from health posts, laboratory services, comprehensive family planning services, and supervision to the surrounding health posts. They would refer the most complicated cases to the hospital with which they would have radio communication. The staff of ten would include medical assistants, nurses, midwives, a laboratory technician, physician assistant, sanitarian and cleaner.
3. County hospital where total patient care of difficult cases could be provided for most of the County population. Only those cases requiring certain equipment not in the County hospital or needing some specialized medical attention, would be referred to the John F. Kennedy Medical Center. County hospital would have radio communication with health units, the Medical Center and the Ministry of Health. Its technical supervision would be provided from the Medical Center.

4. John F. Kennedy Medical Center where specialist services would be provided to the County hospital by visits of medical, nursing, laboratory and record specialists, consultant services by radio and where treatment for the most complicated cases would be given. Direct training, pre-service and in-service, of certain categories of personnel as well as supervision of other training activities, would emanate from the Center. Logistics of drug supply equipment and maintenance would be provided by the Center.
5. The Ministry of Health would develop a personnel system and be responsible for recruitment, assignment, evaluation and promotion of all personnel in the County. It would also secure the budget to operate the County system.

The system as described is appropriate for Liberia in view of present personnel and budgetary limitations. It is designed to restrict the use of the more expensive facilities and the more highly qualified staff to the conditions that require more competence and more sophisticated equipment.

Estimated recurrent costs to the GOL to operate the system for the units and posts necessary to reach the majority of the population of Lofa County would be approximately \$220,000. Since this is a substantial increase in annual expenditures, the team reviewed alternate procedures for implementing the outreach program at a less than ideal level. A brief description of some of the alternatives reviewed follows.

Alternative I. This alternative would maintain the relatively ideal arrangements as described above, but would reduce the coverage of the population, thus limiting the number of posts and units to the number that could be accommodated within the Health Ministry's expanded appropriations. The disadvantage of this alternative is that existing meager services to some areas would be discontinued and a considerable part of the population would have no services at all, a condition that the outreach program is designed to alleviate. To be sure, services could be expanded later, but if the outreach program is to be extended progressively into the other nine Counties in subsequent years, the expansion for Lofa County would probably be long delayed. However, if this alternative is chosen, the reduction in recurrent costs for each post eliminated would be about \$5,000. The reduction in recurrent costs for each health unit eliminated would be approximately \$28,000.

Alternative II. In this system there would be the same elements as described in the more ideal situation. However, the health posts would be manned by one health assistant instead of two. This alternative has the disadvantage that demands for curative services would probably require the entire time of the worker. Even though his job description stated that he would spend 2 or 3 days a week in the field for health education and preventive work, the demands of the people with urgent illnesses even on days he should be in the field would thwart the less demanding educational and preventive work. If no preventive work is undertaken by the health post worker, there will be no real improvement in the health of the people and the curative load will persist at its present level.

The reduction in recurrent costs for the number of selected posts would be about \$30,000.

Alternative III. This alternative proposes the elimination of health units from the system. Health posts would refer serious cases requiring laboratory and short in-patient care directly to the County hospital for services. Supervision of the health posts would be by staff from the hospital. This alternative has many disadvantages:

- 1) The hospital to which the patients would be referred is already overcrowded with the daily census of patients almost double the regular bed capacity.
- 2) The cost of occupancy of a hospital bed is more expensive than the cost in a bed within a health unit. Exact differences in cost are impossible to calculate but a reasonable estimate would approximate \$25 per patient hospital day as compared to \$6 to \$8 per patient health unit day.
- 3) The distance referred patients would have to travel would be almost prohibitive in some cases. More transport for patients would be required than is now available or proposed.
- 4) The travel required to provide supervision would be greatly increased, thereby costing more in terms of gasoline and maintenance.
- 5) The extra time spent in travel would reduce the time available to the supervisor to help the health/physician assistants become more proficient in their work.
- 6) Transport provided for the supervisor of health posts would probably be commandeered frequently for other purposes, thus reducing the critical function of supervision of health posts.

The team urges the adoption of the system as developed by the Medical Director and expanded by this report. If this is not at all feasible, the team would recommend Alternative I as the system that is most likely to provide safe and effective service to some of the people.

The team has identified 15 essential elements that must be present or provided if the decentralized outreach program is to be effective. These are:

1. A strong emphasis on preventive health activities including child spacing.
2. A network of health installations strategically placed so as to be accessible to the people.
3. Clear delineation of functions performed in each type of facility including a specification of the conditions that can be treated at health posts and health units and the conditions that should be referred.

4. A full complement of staff at each installation.
5. A personnel system that assures the appointment of competent personnel, maintains comparable salaries for comparable responsibilities, rewards those who do outstanding work and permits disciplining of those who shirk their duties.
6. A training program that results in the ability of each category of personnel to perform satisfactorily assigned functions.
7. Adequate equipment at each installation to facilitate the service it provides.
8. A system of supervision to every installation designed to help the workers overcome the problems they encounter in the field.
9. Necessary transportation facilities and provision for their regular maintenance. Regular travel and subsistence allowance for those who must travel.
10. A distribution system for drugs and supplies that assures that each installation has adequate medicines and equipment to give the services prescribed for the unit.
11. Adequate communication between units of the system.
12. A records system that assures continuity of care to the patient, a reporting system whereby the activities of the various health installations are recorded with provision for feedback to the several units of the system.
13. A clear explicit policy statement on the respective responsibilities of the Ministry of Health and the John F. Kennedy Hospital in this outreach endeavor and a mechanism developed for resolving disagreement.
14. Cooperative relations with all other government ministries, missions and concessionaires concerned with development and improvement of the condition of the people.
15. A plan for evaluation.

Suggestions for realizing these essential elements and program suggestions that may be useful constitute the remainder of this report.

I. EMPHASIS ON PREVENTIVE HEALTH SERVICES

The Problem. Wherever curative and preventive health services are offered, the demand for curative services tends to absorb all the health resources that may be available. Because successful curative activities produce visible results, health workers concentrate on treatment services rather than devote time to prevention where their accomplishments are not so obvious.

The team observed in the installations it visited that this universal tendency to give priority to curative service was also typical of the Lofa County health workers. All of them know the theoretical value of prevention. Even those whose job descriptions included health education in the communities around the health posts made infrequent visits to the towns and villages. Most of their preventive services were given in the pre-natal and child health clinics and thus were limited to the people who came to the clinics. Often the ones who do not attend such clinics are most in need of the services.

Possible Solution. The proposal of the Medical Director (see Appendix A) contained a unique plan of assuring that health prevention receives an equal share of attention. At the most peripheral level of service (health posts) where the Medical Director advocates two workers (health/physician assistants) there would be developed two distinct sets of functions. One of these would involve intensive education in the villages to encourage participation by the villagers in better health practices such as good nutrition, drinking safe water, safe disposal of excreta, care of children, immunization and child spacing. The other set of functions would provide curative services at the health post. Each assistant would be trained to perform both sets of functions and the two assistants would rotate every week or month in the function each is to perform. This rotation would appear to have several advantages.

A certain amount of status, respect and confidence develops for a worker who successfully treats illnesses. Less respect accrues to the person carrying on preventive work. The latter constantly urges changes in behavior which may not be entirely pleasing to the people of the community. By rotation, this status is shared. The villages served by the health post can be divided into two groups with one worker responsible for the education of one part of the population and the other responsible for the other part. This encourages competition and innovative approaches by the workers. Furthermore, if difficulties should arise in the logistics of supplying drugs and other materials so that no curative services can be given at the health post, both workers could use their time in the villages on preventive health activities.

The procedure has the added advantage that a health assistant can visit distant villages served by the health post. If it takes several hours to reach the town, the worker can remain overnight in order to have enough time with the people to be of benefit.

At the health unit there would also be two medical assistants, one of whom would be working as a member of the health unit team on curative activities and the other would be out supervising the health posts and meeting with community leaders. Periodically they would exchange responsibilities. Such interchange heightens the effectiveness of supervision and overcomes to some extent personality clashes that might develop between health/physician assistants and their supervisors.

In like manner, the two physicians, advocated by the Medical Director, would alternate between medical services in the hospital and visits to the health units to encourage preventive activity, to ascertain the problems in the communities, and to provide overall helpful supervision to the staff. In short, within the staff of each type of installation there would always be one person engaged in preventive work in the field and a second in curative activities at the facility.

II. PLACEMENT OF HEALTH FACILITIES

The Problem. A number of health installations already exist in Lofa County. There is the County Hospital at Voinjama with a rated capacity of 65 beds. Oftentimes it has twice that number of patients. In addition, there is the Curran Memorial Hospital at Zorzor with which the Government of Liberia cooperates. It has 97 acute beds, 48 tuberculosis beds, and 24 beds for motherless children. It also maintains a maternity camp of 16 cots for women who come in from the villages to deliver at the hospital.

There are 43 structures that have been constructed throughout the County through a program of "self-help". Under this program, the community decides it wants a health facility. It agrees to provide the labor to build the building if the Government (Ministry of Local Government, Rural Development and Urban Reconstruction) will provide the material that is not available locally. When the structure is completed, the Ministry of Health agrees to man the facility to the extent its budget permits. No systematic pattern or plan for the placement of these peripheral health installations exists, so their placement has been largely determined by the desires and initiative of the local people. Their location may not conform to a rational plan.

The team was provided with a list of 40 of these installations in which one or staff are posted. On the records of the Health Ministry, half of these facilities are designated as "health posts" and others are called "clinics".

Although the *Ten Year National Health Plan* (Government of Liberia, Monrovia, 1967) recommended health units as a part of the network of services no such facility in Lofa County has been so designated, nor is any installation serving as a reference point for patients from other health posts.

Proper location of the necessary health posts and health units was a serious concern of representatives of the Government of Liberia and the survey team. Unless the installations are in convenient locations that will be accessible to the people, the decentralization of services will not accomplish its purpose. The team felt that the following criteria should guide the selection of existing sites and the placement of additional facilities:

1. Health posts should serve from 4,000 to 6,000 people depending on the density of the population in the villages and surrounding area. With an estimated population of 175,000, Lofa County would have about 35 peripheral facilities.
2. Health posts should be on or near projected road routes since feeder roads and paths will converge on highways when they are completed.
3. The posts should not be so close together that the population would be too small to justify the minimum staffing pattern.

4. Health units should be strategically placed with respect to health posts so that the distance from the health posts (for which a unit serves as a referral facility) should be a minimum.
5. Insofar as possible existing structures should be utilized without the expense of building new facilities.
6. Health units or health posts should be placed in locations that have been chosen for intensive development projects such as "Selected Services for Schools". (See Section XIV.)

The team could not make a satisfactory determination of the present placement of the existing facilities. It was not possible to make an objective evaluation of all the installations in the time available. An adequate assessment would have required visiting in the surrounding area as well as observing all the operations of the facility for at least one session. Furthermore, some of the locations were accessible only by air and others required long treks into the bush. The team did, however, visit 13 installations to talk with the staff, observe the physical facilities, the drug supply situation, and the degree to which the facility was being used by the people.

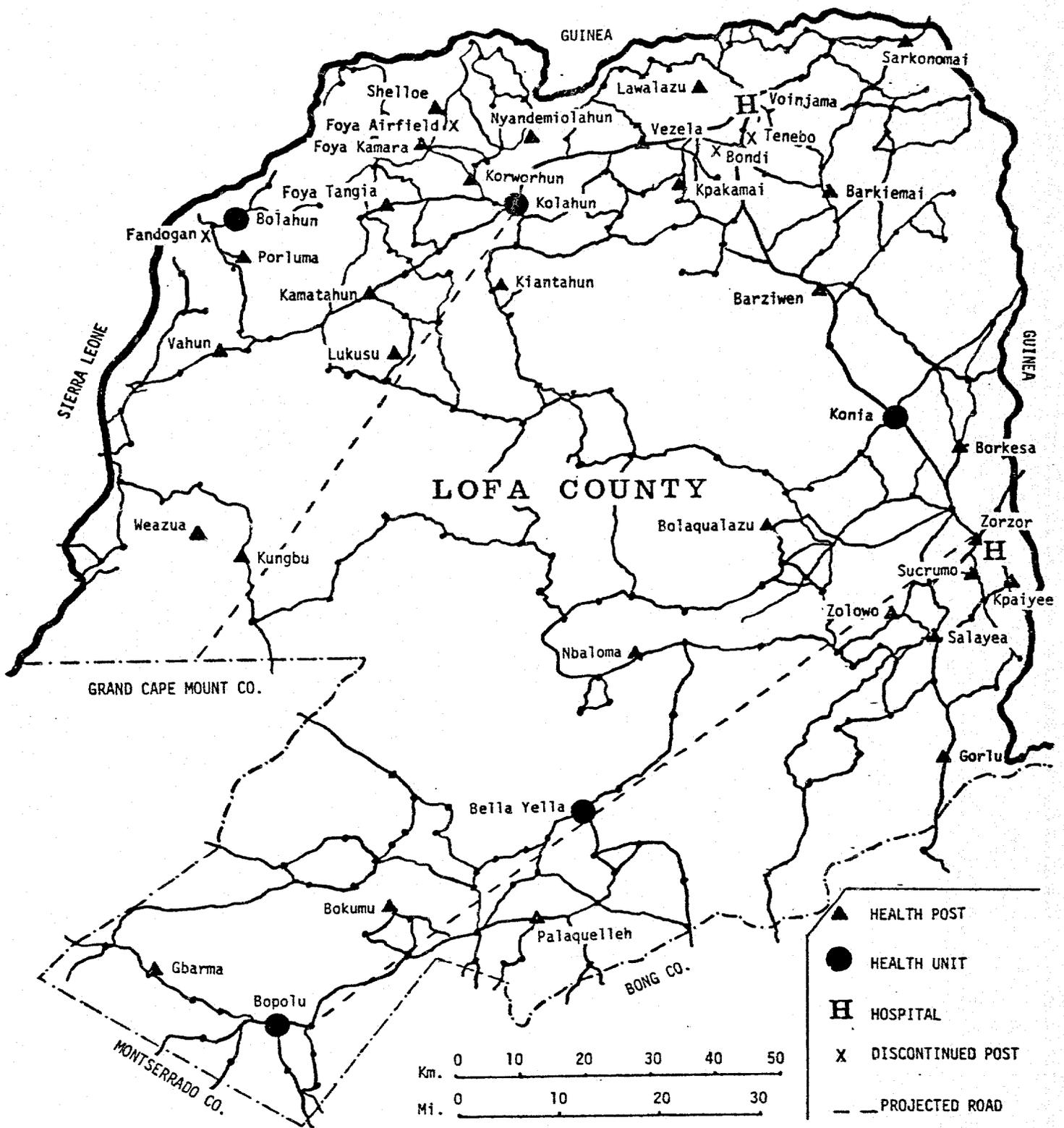
The Ministry of Health preferred not to discontinue services in locations where some services are being rendered unless a strong justification could be made for such action. To do so would arouse serious resentment toward the Ministry of Health. Neither was it possible to determine precise need for additional facilities.

No official completely accurate map of Lofa County could be obtained. The team located several maps but they differed so much in completeness and in the precise location of villages, it was impossible to measure distances between villages. The map of road projections did not indicate village locations. The only recent census figures available were limited to the upper section of Lofa County. Population counts on villages with 100 or more people from that census were made available to the team by the Ministry of Planning and Economic Affairs in advance of their publication. However, the location of these villages on a reference map was not sufficiently accurate to permit measuring of distances between them.

Faced with these difficulties, the team, representatives of the GOL and residents in the County made an arbitrary selection of the sites of facilities in which services would be given. Approximate location of existing sites and selected sites are shown on the accompanying map.

Recommendations:

1. The existing hospitals should continue in their present towns. The Curran Lutheran Hospital should continue to serve as the reference institution for installations in the Zorzor District. Overall supervision of the health facilities in the Zorzor District would be provided by the physician and his staff at the Zorzor Hospital. The Voinjama Hospital would continue to be the reference institution for health units in the Voinjama, Kolahun, and Bopolu-Bella Yella Districts. Likewise supervision of the health units established in these districts would emanate from the Hospital.



2. The following existing facilities should become health units: Kolahun, Konia, Bella Yella and Bopolu. A fifth health unit should be established through a cooperative arrangement of the GOL with the Holy Cross Liberian Mission at Bolahun where there are adequate physical facilities but insufficient staff to serve as the reference unit and provide supervision to health posts in that area.

It would appear to the team that there is adequate space in the Konia and Kolahun facility to accommodate the functioning of a health unit. Some renovation particularly at the Kolahun facility, should be undertaken.

The team could not visit the Bopolu or Bella Yella installations. However, it is reported that both these installations would need considerable expansion.

3. The following facilities should be continued as health posts:

Bolaqualazu	Lawalazu
Barkiema	Lukusu
Barziwen	Nbaloma
Bokumu	Nyandemoilahun
Borkesa	Palaquelleh
Foya Tangia	Porluma
Foya Kamara	Salayea
Gbarma	Shelloe
Gorlu	Sarkonomai
Kamatahun	Sucrumo
Kiantahun	Bahun
Kpakamai	Vezela
Kpaiyee	Weazua
Korworhun	Zorzor
Kungbu	Zolowo

4. The installations at Shelloe and Foya Airfield should be combined into one health post located at Shelloe. Although the facility at Shelloe is in very poor condition and would need considerable renovation, it is across the road from one of the schools included among the community schools selected by the Ministries of Education, Agriculture and Local Government and supported by several of the U.N. agencies for the purpose of a coordinated community development project. (See Section XIV.) It therefore meets the criterion (6) described earlier.

Foya Airfield is within two miles of Shelloe so a good facility at Shelloe could easily serve Foya. The quality of service provided at Shelloe would need to be greatly improved so as to demonstrate what good health service means. Otherwise the potential cooperation of the community teachers and agricultural staff who will be working in thycommunity school will not be realized.

Likewise the MCH Clinic at Kolahun should be combined with the Kolahun health unit. If the health unit is adequately staffed, there seems to be no justification for these two facilities in the same town.

5. The installations at Bondi, Tenebo and Fandogan should be closed and the personnel transferred to other facilities. Neither Bondi or Tenebo are serving enough clientele to justify the presence of full time personnel. Furthermore, both of them are sufficiently near Voinjama that the people who use the facilities could easily obtain service at the Voinjama hospital and out-patient facility. There will be even less reason to maintain these facilities when the new Voinjama hospital is built. The reports from Fandogan indicate a very inactive facility. At least initially, the worker should be transferred until a more intensive review of the need and reason for low utilization can be made.
6. No new posts are being recommended due to inadequate data for making such a determination. The team recognizes that with completion of projected roads, the possible opening of industrial activities and shifts of population, additional health posts will be needed.
7. It is recommended that a community proposing to build a health post through self-help be required to submit evidence that the site meets the above criteria for placement before there can be agreement to staff the post.
8. Anticipating the extension of this outreach program to other Counties, it is recommended that as soon as the data from the 1973 Census is available, the Ministry of Health and Welfare in cooperation with County officials, should draw up master plans of strategically placed health facilities – units and posts – for each County. These master plans should be filed with the Ministry of Local Government, Urban Reconstruction and Development, and no facilities approved for construction that do not conform, in general, to the master plan.

III. FUNCTIONS OF HEALTH POSTS AND HEALTH UNITS

A system with differing facilities and technical capacities requires clear statement of the functions of each. One of the important differences in the installations is the complexity of health disorders which the separate facilities would treat and the types of health conditions they would refer to the more adequately equipped facility.

The Problem. In the *Ten Year National Health Plan*, (Government of Liberia, Monrovia, 1967), the functions of the health posts and health units are similar to those described by the Medical Director of the Hospital. For example, the functions of the health posts are defined as:

- a) Provision of simple medical care comprising of symptomatic and first-aid treatment, and the continued treatment of common illnesses. Cases that cannot be given adequate or suitable attention will be referred to the related health unit or to the County hospital.
- b) Detection and prevention of disease by active case finding.
- c) Maternal and child care.
- d) Basic environmental sanitation, i.e., provision of communal and individual sanitary facilities and proper disposal of refuse, etc.
- e) Health education with population participation.
- f) Statistics. Collection of data as to births, deaths and prevalent illnesses.

The functions of the health units are:

- a) Health care of the mother and child including the school child.
- b) Detection, treatment and prevention of common diseases.
- c) Environmental hygiene.
- d) Immunization and mass treatment campaigns.
- e) Execution of nutritional programs.
- f) Provision of facilities for simple laboratory procedures.
- g) Maintenance of records and health statistics.
- h) Health education.

These two statements describe in general the functions that will be performed by the two different installations. However, for the purposes of training personnel, equipping the facilities and providing them with the kind of drugs and supplies that will be needed, a much more definitive list of conditions that each facility can handle is required. No such specific listing was available to the team from any sources within the Health Ministry. The physician at Zorzor had prepared a list of conditions to be treated by personnel working the Zorzor District which he used in training personnel assigned under his supervision. The team considers that final decision on what medical service should be given in each type of installation is a responsibility of technical medical personnel in Liberia. However, as suggested criteria to guide such decisions, a tentative list has been developed and appears as Appendix B.

Recommendation:

1. That members of the John F. Kennedy Medical staff and staff of the Tubman National Institute of Medical Arts (TNIMA) decide on what conditions each type of facility should handle and which ones shall be referred, and that these decisions be made before the project begins and training is started.

IV. STAFFING THE HEALTH FACILITIES

In general, the team is in accord with the staffing pattern of hospitals, health units and health posts as described by the Medical Director. According to that pattern two physicians are required at the Government hospital and the remaining hospital personnel needed is dependent on the patient load.

Each health unit requires nine allied health workers or a total of 45 for the recommended five units. The number of the various categories of personnel required in each unit and for the five units is:

<u>Category of Personnel</u>	<u>Needed Per Unit</u>	<u>Total Needed</u>
Medical assistant	2	10
Midwives	2	10
Physician Assistants	1	5
Laboratory Technician	1	5
Nurses or practical nurses	2	10
Sanitary Inspector	1	5

The team feels that in addition each health unit should have a general utility person to serve as cleaner, messenger, driver, etc.

Two health assistants are needed for each health post making a total requirement of 60 health/physicians assistants.

In summary, there would be a need for 105 individuals with some degree of professional training, plus five cleaner/driver workers or an overall total of 110 workers to man the facilities exclusive of hospital staff. Additional logistical personnel would be required to man the drug and supply distribution system, but the number and type are given in the section on "Drugs and Supplies".

The Problem. There are 96 budgeted positions in the 1973 Ministry of Health budget for Lofa County and 84 personnel working in the health installations exclusive of the hospital. The budget classification for the positions budgeted and filled and the numbers in each classification are:

TABLE 3
HEALTH POSITIONS, BUDGETED AND FILLED
LOFA COUNTY

<u>Category</u>	<u>Budget 1973</u>	<u>Current Payroll</u>
Medical Assistants	9	11
Health Assistants	21	17
Professional Nurses	13	10
Practical Nurses	1	1
Laboratory Technicians	3	3
Midwives	21	13
Empirical Midwives	3	2
Dressers	21	20
Nurses Aides	1	3
Cleaner	2	3
Vaccinator	1	1
Total	<u>96</u>	<u>84</u>

In addition, there are 12 sanitary inspectors in the area. Three of these already have their headquarters in towns chosen for health units. Two others would be transferred to the remaining districts so that the number of inspectors required to man the units is adequate.

Unfortunately for program planning purposes, the budget classifications of personnel do not reflect the real training and experience of the workers. For example, to qualify as a medical assistant, an individual must be a high school graduate, be trained as a nurse and have one year of advanced training in administration and supervision. The team was informed that there are no more than five such qualified individuals in Lofa County.

Records of the placement of health assistants who completed their training in TNIMA show that 19 are employed in Lofa County. This figure does not coincide with the figures shown in the previous table.

Some of the dressers who were employed several years ago have taken additional training and might be able to qualify as practical nurses, but the majority are not sufficiently competent to fill any constructive role in the program.

Because the actual professional credentials in terms of education and training were not available, the team could not specify the number of each professional category of personnel already in the system and the additional number needed to operate the outreach program. If, however, all the 96 budgeted

positions were used for personnel with the qualifications required in the health posts and units, then only nine new positions would need to be budgeted to carry on the outreach program. (110 needed – 96 budgeted positions – 5 sanitary inspectors.)

As the first step to obtain more adequate information on the credentials of the workers, a Personal History Form was developed and distributed to the workers (see Appendix F). Returns had not been received at the time this report was prepared.

The present distribution of workers in the health installations is very uneven. Some of the larger installations have as many as seven or eight workers while the smaller posts may have one to three. The difference in number of workers did not seem to have much, or any, relation to the number of patients served by the facility. For example, the records in one installation with three workers showed that they served less than 10 patients a day while another with only one worker was serving 40 to 50 patients a day.

The team was advised that large scale transfer of personnel to conform to a uniform staffing pattern or even one based on clinic load would constitute a serious administrative problem as well as additional expense both to the program and the personnel.

With these difficulties in the classification of personnel and limitations on the transfer of workers, the team could only estimate the number of existing personnel who could be fitted into the system and the number and type of workers who would have to be recruited and trained. Based on observations in the health installations visited and preliminary discussions with Dr. Mertens and Guluma, the team estimates that a least 75 of existing workers either have the qualifications or could be trained to have the competence needed by some category of the workers required this would leave 35 individuals to be employed and trained, exclusive of hospital staff.

Sources of Trained Personnel. For some of the categories of needed personnel, there are individuals already trained, such as laboratory technicians, who can be employed and assigned to work in the system with only orientation training. Eleven midwives are being trained at the Curran Memorial Hospital at Zorzor and will be available within one year; another 16 have just entered training, most of whom will be available for employment when they graduate.

Some individuals who are classified as dressers are trained as practical nurses. Once their credentials and experience are evaluated, they could move into the practical nurse category. It is estimated that the need for practical nurses can be met through upgrading of dressers and recruitment of individuals who are already trained.

The program prepared by the Medical Director proposes that individuals with 9th grade education could be given a one-year training program to become health assistants. However, in discussion with various faculty at the Tubman National Institute of Medical Arts (TNIMA), which is a part of the John F. Kennedy Medical Center complex, the team was assured that if sufficient funds and faculty were available, it would be possible to staff health posts with physician assistants who meet present entrance requirements, i.e., twelfth grade graduates who are given a two-year training program.

The team has accepted this assurance from TNIMA. However, it is recommended that if sufficient high school graduates cannot be recruited to meet staffing needs that this requirement be lowered.

The category of workers for which there will be the greatest need is physician assistants. It is estimated that a minimum of 35 new workers will be needed to man 30 health posts.

One problem that the Government will have to resolve if they wish to recruit and retain secondary school graduates as physician assistants is the salary scale. It is not likely that high school graduates will be interested in a career which requires two additional years of training and results in a salary of \$75 per month when there are opportunities for them to obtain employment at \$100 or more per month with little or no additional training. Various other inequities were noted in the salary structure of the health services. It seems that various categories of workers having the same educational level with the same period of additional training should start at the same salary level. The entire salary structure of the Ministry of Health requires review and restructuring by the Civil Service Commission.

Judging from the quality of health assistants which the team observed on its visits, the procedure used by TNIMA in selecting the trainees appears quite successful. Candidates are given an examination and those ranking highest are interviewed twice before final acceptance as trainees. Nomination of trainees has been sought only from school officials in the past. It is suggested that, in addition, presently employed health assistants who are doing outstanding jobs be asked to nominate candidates for training.

Funds for the New Personnel. As stated in Table 3, there are 96 budgeted positions in the 1973 budget. However, the pay for 27 of these positions (dressers, empirical midwives, nurse's aides and vaccinator) is little more than half the minimum salary paid any one of the professionally trained people required for the program. Assuming that the 9 new positions will be physician assistants at \$100 per month, \$10,800 would be needed for additional posts and approximately \$19,000 in increased salaries for existing posts.

If any of the existing unqualified personnel are continued in their present positions, or if excess personnel in some of the health posts is not transferred, then the personnel costs will be increased in proportion to the number and salary of such continued positions.

Recommendations:

1. That a second physician be recruited and added to the staff at Voinjama Hospital. This is an absolute essential for the outreach program to be successful. The heavy clinic load on the present physician makes it impossible for him to do any consistent supervision of the health installations in the part of the County for which he is responsible. The Ministry should recruit and post the second physician at Voinjama as early as possible and certainly before the health units begin to function in that capacity.
2. That a personnel evaluation committee including Mr. Ellis, Dr. Mertens, Dr. Guluma and one or more representatives of the John F. Kennedy Medical Center review the personnel histories of the existing personnel and such other evidence as they are able to collect and make the following determinations:

- a) What existing staff members are capable of performing at the health unit or post level with short-term orientation training? How many of these can be transferred to one of these health installations?
 - b) What staff are capable of upgrading through additional training such as dressers to practical nurses?
 - c) What staff members should be given different functions from those they are now performing and how much training will they need to undertake the new tasks?
 - d) After the above determinations, what number of workers of each category is necessary to complete the staffing pattern?
3. That the hospital staffing and equipment needs of the Voinjama Hospital be studied by the Medical Center staff and such improvements made as are necessary.
 4. That the training and experience of candidates for employment, who already have the basic professional preparation, be evaluated and only those who are most qualified be employed.
 5. That candidates for all other vacancies be screened, recruited and trained.

The total recurrent costs for the essential personnel to man the outreach program in Lofa County, excluding two physicians at Voinjama Hospital would be \$103,000.^{1/} The annual budget for the personnel presently employed is \$73,000. Thus, to implement the program that is being proposed would require augmentation of the present budget to the amount of \$30,000

^{1/} This estimate is based on the minimum number of personnel (110) necessary to operate the system. If some of the personnel now in the system who cannot perform the duties required are continued as aides or other auxiliary personnel this figure would be increased.

V. PERSONNEL SYSTEM

Workers whose responsibilities embrace service to sick people must be capable, well-trained and diligent in the discharge of their duties. Incompetent personnel may injure rather than benefit the health of the people whom they serve. It is therefore essential that personnel policies be developed that will assure a high quality of devoted personnel.

As mentioned in the previous chapter, available workers have been placed in budgetary titles even though they may not have the qualifications to perform the duties required. No systematic method of personnel selection is in effect whereby the best candidate for an opening is assured of appointment. Instead, it was reported that some workers were appointed because of the persons they knew rather than for outstanding qualifications.

A personnel system is needed that encompasses principles and procedures which are equitable, will strengthen morale and provide opportunities for professional and technical growth. Some provisions which should be included in the system are:

1. Job classifications;
2. A method for selection and appointment to job;
3. A procedure for promotion and rewards based on capability and job performance;
4. Equitable leave provisions;
5. A uniform salary scale related to position classification and provisions for salary step increases within grade or classification range;
6. Travel allowance when an employee is required to carry out official business away from his/her assigned duty station;
7. An opportunity for employees to appeal grievances.

Recommendation:

It is suggested that the Personnel Rules and Regulations of the John F. Kennedy Medical Center might be adapted and used to meet the personnel needs for the outreach program. This could lead to uniform personnel regulations and procedures throughout the national health delivery organizations and ultimately could be integrated into a national personnel or civil service system.

VI. TRAINING OF PERSONNEL

An integrated yet decentralized system of health services requires well-trained staff at each level of the system. Every worker must be competent to perform his own work and know how he fits into the system.

The Tubman National Institute of Medical Arts (TNIMA), a part of the John F. Kennedy Medical Center, is an outstanding training facility. It was founded in 1954. During the period of its operations, it has had considerable assistance from WHO and AID in developing to its present competency. In addition, UNICEF has contributed generously over the years by providing stipends for students during their period of training. The 1973 TNIMA Catalogue states, "In its 25 years of existence (it) has provided basic health science professions for 624 young Liberians in the areas of nursing, midwifery, environmental health, laboratory technology, health education, and medical and health assistance." At the present time it is continuing to train workers in environmental health, nursing including practical nursing, and physicians' assistants.

The training of midwives has been discontinued in order to establish a baccalaureate nursing program and a curriculum for training nurse-midwives.

In 1971, AID provided two public health nurse advisors to assist the GOL in developing an in-service training program in maternal and child health/family health. During the two years in which this project was being implemented approximately 59 health workers received in-service training in MCH/FH, of which four were from Lofa County. In addition, empirical midwives were trained and MCH was integrated into the course for health assistances at TNIMA. County training programs were proposed for four of the Counties, but because of various problems, this activity was not implemented.

A number of problems were noted and recommendations were made by the public health nurse-midwife advisor in her completion-of-tour report. Among the recommendations made which related to the proposed outreach program were: the improvement of teaching and supervisory staff; the continuation of in-service training; greater emphasis on public health orientation and greater decentralization of administrative and supervisory responsibilities.

The category of personnel for which there will be the greatest need in the outreach program is the physician assistant. TNIMA has had a minimum faculty and other limited resources for the preparation of these workers. The curriculum is a combination of academic courses and clinical instruction conducted in the health facilities of the Medical Center with limited experiences in the field. Because of the meager faculty (See Appendix C), the Director of the program must solicit the cooperation of physicians in the Medical Center for the clinical instruction. All too often emergency medical problems arise in the Center to which the clinician must attend, causing the organized training schedule to be disrupted. It is anticipated that most of this difficulty of providing scheduled clinical instruction will be overcome when a physician with public health background becomes the coordinator of the physician assistant training program in July.

The training has not been job-oriented because the positions for which the students were being trained has differed over the years. At times it was considered that graduates from the course would serve strictly as physician assistants, working under the direct guidance of a physician. At other times, the graduates were to work in peripheral health installations making decisions for treatment on their own, with periodic supervision from more qualified individuals. Consequently, the newer methods of job-oriented training, where the content and method of instruction focuses directly on problems with which the trainees must cope, has not been adopted by the faculty. Neither has a reference text or manual been developed for the trainees to take with them when they complete the course.

In the class of physician assistants that will graduate in 1974, there are only three students, but in the 1975 course there are 20 students. Experience over the years has shown a high attrition rate of from 25 to 50 per cent. Part of this attrition has been due to the trainees' inability to perform satisfactorily as students and part has been the tendency of the trainees to find other attractive work offers and leave the program.

Despite these limitations it is believed that with some augmentation of training personnel, the staff and facilities of TNIMA can be expected to conduct a large portion of the necessary training without disrupting too much its on-going program of providing basic training to high level paramedical health workers.

As already mentioned, there are 84 personnel working in Lofa County with a wide variety of educational background, training and experience. Without an evaluation of each person's qualifications and competences, such as was proposed in the section on "Staffing the Health Facilities", no precise schedule of refresher and pre-service training can be drawn up. However, it is possible to identify certain classes of personnel and suggest training experiences necessary for them.

Some of the classes of workers needing training, the kind and suggested length of training are:

- a) **Individuals selected for the five health units.** These workers should be given orientation training in their responsibilities as a group and also refresher training in their own professional specialty. Insofar as possible the various workers to be assigned to each health unit should be trained as a team so each is thoroughly familiar with the work of the other members and the way in which his functions dovetail with those of his team mates. The training period should be about a month long, approximately one half of which time would be devoted to methods of working as a team and the remainder to refresher training in the special tasks that are peculiar to each category of personnel.

It is suggested that this group of workers should be trained at the beginning of the project. The training could be given at TNIMA by augmenting the faculty. The workers should be provided subsistence stipends while in Monrovia. It is further suggested that the staff from two health units (18 professional workers) be trained at one time. After the second training period when the staff of four units will have been oriented to their jobs, it is proposed that the orientation training of the full staff of the fifth health unit be delayed until the basic training of the various categories of personnel on the staff can be

completed. (It is anticipated that it may be necessary to recruit individuals from the vicinity of Bella Yella and give them their basic training before that health unit can be put into operation fully.)

- b) **Health assistants who are now functioning in health posts.** These workers need training to make sure they can perform the tasks assigned to them as well as understand the new procedures of rotating community education and clinical responsibilities. It is estimated that 20 to 25 workers could be given this initial orientation in one month. Those who cannot demonstrate satisfactory proficiency in that period of time should be asked to repeat the training. If at the end of two months orientation, the health assistants are not proficient in educational planning and procedures or cannot demonstrate their ability to diagnose and treat or refer patients, they should be dropped from the program. The stimulation of better health practices among the people or the fate of sick individuals cannot be left to incompetent workers.

Training of these assistants can be given at TNIMA with its augmented staff and with the provision of adequate stipends for the period of training. The training period would follow the orientation of the two groups of health unit personnel.

- c) **New physician assistants to be added to the system.** These individuals should receive the full two years of preservice training in a revised TNIMA course. As mentioned earlier, the curriculum should be changed from a simplified medical education course to job-oriented training. The latter consists of a set of experiences designed to develop directly the knowledge and skills needed to perform the jobs which the trainees must undertake in the field. An illustration of the analytical steps necessary to develop such a job-oriented course will be found in Appendix H.
- d) **Individuals (R.N.s) selected for senior positions, i.e., to be in charge of health units.** These would be trained in administration and supervision at the WHO training center in Lagos.
- e) **At least one midwife from each health unit and from the two hospitals.** These individuals should have training in family health and the insertion of I.U.D.s. They should be sent for three months of participant training at Downstate Medical Center in New York, or some comparable training center.
- f) **Empirical midwives now practicing in the towns of Lofa County.** It is reported that almost every village has in it an empirical (traditional) midwife who delivers most of the babies born in the village. These women should be given training on the recognition of difficulties of pregnancies, in sterile techniques for performing deliveries and in child-spacing family planning education. These individuals, after training, would not receive any compensation except what they collect as their fee. The training would increase their competence and reduce the complications that arise from improper midwifery practices.

- h) **An educator-trainer should be recruited and given participant training in the newer techniques of training procedures, development of teaching aids, curriculum building, etc. to assist staff at TNIMA in improving their training methods and also participate in planning in-service training of personnel in the field.**
- i) **A graduate in behavioral sciences should be recruited and given participant training to become a health educator in the Bureau of Preventive Services. With a strong emphasis in the outreach program on prevention, health education of the people is essential for success. There is need, therefore, for a professional health educator to provide consultation and support to the educational efforts of the workers at the health posts and units.**
- j) **Private physicians of Liberia in the newer development in obstetrics and gynecology and the advances in contraceptive technology. Much of the population of Monrovia, particularly the leaders and opinion-makers, use private physicians for their medical care. If these physicians are well informed about the newer developments in obstetrics and gynecology and the value of child-spacing as a preventive health measure, it will contribute much to the health of their patients as well as popularize the concept of family planning. This continuing education activity would constitute another dimension of the outreach program of the Medical Center.**

Recommendations:

1. That a systematic schedule of training staff to man the outreach program be drawn up along the lines of the above suggestions at the beginning of the project.
2. That at the completion of the training of the first group of physician assistants an evaluation be made to determine:
 - a) Is the length of training adequate or too long to produce physician assistants capable of carrying out the job assigned?
 - b) Should the method of training be modified and how?
 - c) Is the minimum educational level of trainees too high?
3. That the individuals selected to be in charge of the health units, who have not had administrative and supervisory training, be sent for six months training in the facility maintained by WHO at Lagos.
4. That provision be made for the participant training of seven midwives at Downstate New York beginning as soon as it can be arranged. (21 months of participant training.)
5. That two administrative-generalists with college degrees be recruited and given one year of training in public administration, logistics and public health.

6. That two nurse-midwives be selected and sent for one year of participant training at a School of Public Health that has a strong MCH department.
7. That an individual with a bachelor's degree in education be selected, given two months orientation to the teaching problems at TNIMA, and then sent for one year of participant training at a School of Public Health such as North Carolina where there is a good faculty in newer methods of training personnel.
8. That at least two suitable senior physician assistants be sent to Lagos for training as instructors to join TNIMA faculty on their return.
9. That a post of health education consultant be created in the Bureau of Preventive Health Services and that an individual with suitable educational background be recruited and given 18 months to two years of participant training in a School of Public Health to become a consultant in health education for the outreach program.
10. That continuing education opportunities in obstetrics and gynecology be offered to the private physicians of Liberia and if sufficient interest is shown, specialists in these fields be brought over on a short-term consultant basis to provide the necessary training.
11. That the job-oriented method be adopted in TNIMA for the training of all outreach workers. (A brief description of the method appears in Appendix H).
12. That sufficient training aides, particularly in family planning, be made available for faculty at TNIMA and for the individuals who will be giving MCH and family planning in the County.
13. That a text book or manual be developed on the functions performed by all staff in the outreach system, and copies be given to them for continuing reference at the completion of their training.
14. That short-term consultants on the newer methods of training be made available as needed to facilitate fast and effective preparation of the outreach workers.

In addition to the training described above, it is recommended that a plan be developed for continuing education of the health staff. This type of activity has already begun under Drs. Mertens and Gulma who hold monthly sessions for health post staff during which time problems encountered in the field are discussed.

Extending this type of training to health unit staff, developing a planned program to introduce new methods and techniques, etc. can serve to improve over a time the overall quality of health service.

Summary

As training is a key element in the development and implementation of the outreach program, a summary of the major recommendations is provided.

1. All existing health personnel in Lofa County be given refresher training to include:
 - a) Public health orientation
 - b) Family planning and maternal and child health
 - c) Refresher training in their special field
2. Suitable personnel be given training in supervision (10) at Lagos.
3. Nurses or midwives (7-10) be selected for training at Downstate Medical Center.
4. Approximately 30 new candidates be recruited for training as physician assistants at TNIMA.
5. Candidates with suitable training and experience be selected for training as teachers (2-3) to join faculty at TNIMA. (Training at Lagos).
6. Training for empirical midwives be initiated in Lofa County or some other suitable location.
7. Two appropriate candidates be selected and trained in the U.S.; one as an educator-trainer and the other as a health educator.
8. One or two University graduates be recruited for one year of training in public administration, logistics and public health in the U.S.
9. Two nurse-midwives be selected for participant training in a U.S. School of Public Health in MCH and Family Planning.
10. Continuing education in the new development in obstetrics, gynecology and contraceptive technology be offered to private physicians of Liberia.
11. The method of training of physician assistants of TNIMA be redesigned so that it is job-oriented.

Continuing education should be made an integral part of the overall training program and suitable manuals be developed and made available at each post and health unit.

VII. EQUIPMENT FOR THE FACILITIES OF THE OUTREACH PROGRAM

The Problem. Although there is adequate housing at most of the sites chosen for outreach installations, few if any have safe water and sewage disposal facilities. Also there is almost no equipment in either the posts or the units. The team was not able to inventory the limited equipment which now exists in the 35 installations being recommended nor in the two hospitals of the system. But if the 13 facilities that were visited are typical of the entire 35, then all of them need to receive a full packet of equipment. Such limited duplication as may occur can be stored as surplus and later used to replace breakage or non-functioning items.

Recommendations:

1. Since no health facility can operate effectively without water, it is recommended that necessary steps be taken to place a sanitary well at each health post. For the comfort of the patients who must wait long hours at the health posts, there should also be built a sanitary latrine large enough to accommodate the number of people attending clinics.

An additional well and sanitary latrine should be constructed in each community where there is a health post as a demonstration of safe water and sewage disposal for the people in the town. Construction of these facilities might be undertaken as a cooperative self-help project by the communities, the Ministry of Local Government and the Ministry of Health.

2. Each type of facility should have all the equipment needed to perform the functions allotted to it, but no items that would encourage its personnel to give treatments more complicated than those for which they were trained. In keeping with this principle, it is recommended that a list of equipment necessary for each type of facility be developed and supplied to each installation (A suggested list that corresponds to the conditions to be treated appears in Appendix B). A total of \$40,000 has been suggested as necessary to equip adequately all health posts and health units in Lofa County.

VIII. SUPERVISORY SYSTEM

Supervision of the performance of the personnel at the peripheral installations is absolutely essential if quality health service is to be rendered to the rural people. The workers in each type of installation will be working at the height of their knowledge and skill. In the beginning, they may encounter many problems which their training and experience has not equipped them to handle. Hence, frequent advice and guidance from a sympathetic supervisor are necessary to enrich their experience and make them more competent and confident workers. Furthermore, the degree to which they perform what they do know is subject to their own choice, industry and enthusiasm unless there is frequent review of their activities.

In countries where decentralized services have been initiated and personnel sent out to rural areas without supervision, the services rendered have been poor. Oftentimes minor problems encountered by the workers have caused them to give no service rather than seek some acceptable method of solving their difficulties.

The Problem. Many of the 80 workers in Lofa County have not received the amount of supervision they wished. Dr. Mertens and his hospital staff have been able to provide more intensive supervision to the limited area of Zorzor District than has been possible in the other Districts of the County. Although no objective appraisal was made, it appeared to the team that more and better service was rendered in Zorzor District than in installations observed elsewhere.

A supervisory system is needed that provides assistance to the health post staff and serves as liaison between the post, the health unit and the Regional Medical Officer. To strengthen effectively and improve the quality of service the supervision should be the "helping" rather than the "looking for what is wrong" type. It should provide advice and support to the health post staff – both in the provision of clinical services and in the public health education and preventive aspects of services. It is therefore essential that visits of supervisory staff to health posts not be limited to the four walls of the post itself but be planned to include visits to villages it serves. Whenever possible, supervisors visiting health posts should be accompanied by the health unit sanitarian who can provide advice and suggestions to health post assistants regarding sanitation problems in its village and communities.

Supervisors should be alert to, and active in, solving any operating problems that may arise. This means close working relations between the staff at the post, health unit, hospital and medical officers.

Recommendations:

1. Insofar as possible supervision of each installation should begin as soon as personnel are stationed there and offer service. Patterns of practice are developed early and good supervision can provide the kind of support and guidance that will determine future routine activities.

2. Supervision should be conducted on regularly scheduled biweekly visits and perform the following functions:

- a) examine referred cases and discuss them with health assistants;
- b) assist with diagnosis of difficult cases;
- c) review of selected case records;
- d) assess health post drugs and supplies;
- e) collect vital data reports on hand at health post and return birth certificates for previously reported births;
- f) collect disease surveillance data;
- g) check drugs and supplies brought with health post assistant and turn over supplies previously requisitioned;
- h) make field visits with health post assistant;
- i) discuss and assist health post assistant in solving any specific problems;
- j) review immunization records.
- k) prepare evaluation reports of health post assistant's work and discuss evaluation with the individual employee (during first year on a quarterly basis, thereafter semi-annually);
- l) submit monthly report to Medical Officer at Regional headquarters containing:
 - (1) General comments regarding health post — assessment of services, etc.
 - (2) Vital data reports
 - (3) Disease surveillance reports
 - (4) Drug utilization reports from health posts
 - (5) Special problems noted in course of supervisory visits.

IX. TRANSPORT

The following vehicles will be needed to mobilize adequately the outreach program in Lofa County:

- a) Two ambulances or combination ambulance/general purpose carriers for the County Hospital in Voinjama and the Curran Mission Hospital in Zorzor.
- b) Four vehicles for regional supervisors in Voinjama, Kolahun, Konia and Bopolu, to enable day-long supervision and in-service training visits to peripheral health posts associated with each.
- c) Four vehicles for the U.S. advisors in family planning, training and coordination.
- d) A combi-bus at Kennedy Medical Center to transport students for clinical experience, deliver drugs, etc.

The vehicles must be sufficiently sturdy to endure harsh driving conditions on rough dirt roads in dry and rainy season. They must also be fairly inexpensive to acquire, maintain and operate, and more important, they must be easily, quickly and inexpensively repairable.

Maintenance and repair is the most crucial factor affecting the mobility of supervisors and contract advisors. The supervisors and advisors, in turn, are absolutely essential to the success of the outreach program. These points cannot be overstressed. Failure of the program would follow failure of the chosen vehicles.

It is important to note also that vehicles disabled for longer than a few days in Liberia are cannibalized and often disappear without a trace. Availability of spare parts within the County, and speed of repair service, are therefore major considerations in the selection of vehicles.

There are no vehicle repair facilities in Lofa County. Either spare parts must be brought in from Monrovia, some 250-300 miles distant, or disabled vehicles must be towed to Monrovia. These alternatives are equally unlikely, with one exception.

The exception is a mobile repair service which is being established by the International Labor Organization Transport Equipment Maintenance Office in Sinkor, for the purpose of affording regular preventive maintenance and emergency repair for the vehicles which UNESCO will supply to the "Selected Services for Schools" (community schools) project. Mr. David I. J. Burrige, ILO Transport Management Consultant for this office, has assured the team that the ILO mobile repair service would be available to service vehicles of similar manufacture which might be donated by other international development organizations, including AID.

The vehicles being supplied by UNESCO are Volkswagens. The ILO mobile repair shops will carry a complete inventory of Volkswagen parts including complete replacement motors in addition to the technical expertise to effect speedy repair at point of breakdown. This fact alone amply justifies waiver of the "buy American" requirement regarding AID-donated vehicles, and favors purchase of Volkswagen vehicles for the outreach program as well.

The repair of U.S.-origin vehicles is always difficult and haphazard in Liberia and in some cases practically impossible. We are also informed by Mr. Burrige that U.S. vehicles have a poor repair record in his facility. The team feels strongly that insistence on U.S.-origin vehicles for the outreach program courts disaster and invites inexcusable financial loss.

The cost of recommended vehicles is:

3 VW-231 combi-bus with optional cots for use as ambulance @ \$5,200 (duty free)	\$15,600
8 VW squareback sedan @ \$4,000 (duty free)	32,000
wide radial tires and other accessories	<u>1,200</u>
	\$48,800

These prices will be discounted 7½ percent or more at Hansen Volkswagen in Monrovia according to Sales Manager Richard Voss. Also all Model 1200 Volkswagen imported through Hansen are equipped with Model 1300 motors, and combi-busses are equipped with heavy duty shock absorbers and suspensions, as well as modified engine air intake to avoid road dust entering the motor.

X. DRUGS AND MEDICAL SUPPLIES

For FY73 the GOL appropriation for drugs and medical supplies was:

Health posts and clinics nation-wide (Average \$500; range \$250-\$900)	\$139,500
Ten County hospitals	86,100
John F. Kennedy Medical Center	330,263

The 1973 ceiling on drugs expenditure for Tellewoyan (Lofa County) Hospital was \$14,000. The 1972 actual expenditure in Lofa County totalled \$32,184, which included \$15,921 for the Tellewoyan Hospital at Voinjama and \$16,263 for health posts and clinics.

Drugs are distributed to health posts, clinics and County hospitals as follows:

- a) Requisitions are filed quarterly (or semi-annually where air delivery is necessary) by each health post and clinic to the Ministry of Health and Social Welfare via the respective County hospital. (As a matter of practice, new requisitions are filed only after previous requisitions have been filed; hence orders may be late or skipped). These requisitions are relayed to the Ministry by the hospital together with its own requisition.
- b) The Drug Section of the Ministry compares each requisition against established regulations, reduces the order as it deems necessary, and unit-prices the order. The Drug Section then completes a combined "Local Purchase Order" which is signed by the Minister of Health and Social Welfare and sent to the concessionaire, Evans Medical (Liberia) Ltd.
- c) Evans fills the order from existing stock and packages according to County hospital; then notifies the Ministry to pick up at Evans' dock. For items not in stock, Evans may special-order from England or advise local purchase elsewhere.
- d) A GSA truck picks up the order at Evans' dock and delivers it to County hospitals. Hospitals, in turn, either deliver to health posts or hold deliveries for pick-up.
- e) The Ministry records each shipment for preparation of annual report.

The Problem

1. Drug expenditure ranges from 23 cents per patient, treated in smaller posts, to 3 cents per patient, treated in busier posts, an inadequacy that has been observed by the Minister in her 1972 Annual Report.

2. Drugs are distributed quarterly (or semi-annually). With inadequate supply, consumption tends to be immediate rather than spread over the allotment period. This results in periodic, and sometimes protracted, shortages which may add to the risk of illness and in some situations are said to alienate communities from their health workers.
3. There is little or no communication with health posts to verify or accommodate sudden or substantial increases in demand for drugs. Large increases in requisitions of certain items are arbitrarily reduced by the Ministry's Drug Section on presumption of "padding," generally with scant inquiry into necessity which further encourages the practice of padding. Similarly, there is little redistribution of drugs from areas of over supply to areas of shortage.
4. Pick-up from Evans' depot and delivery to health posts tends to be irregular depending on availability of GSA vehicles.
5. There is lack of control over pilferage and unwarranted withdrawals from stock at several points along the supply route, including the health post.

The Evans Contract. In 1957 the GOL contracted with Evans Medical (Liberia) Ltd. for exclusive supply of drugs and medical supplies used in Government facilities. The contract established the following price structure for Evans:

- a) 2 1/2 per cent C.I.F. charge on all drugs and supplies imported for sale to the Government.
- b) 25 per cent markup on the landed cost (at minimum, including C.I.F.)
- c) 2 1/2 per cent commission as procurement fee to Evans as "purchasing agent" to its parent company, Evans Medical (U.K.) Ltd. The commission appears to be based on the landed *retail* price.
- d) A \$20,000 annual depot overhead charge.
- e) We are informed that the current contract requires an additional GOL payment to Evans in the amount of \$12,000 per month service charge. We are unable to verify this statement as a copy of the current contract could not be found in any Government office.

In addition Evans is granted duty-free entry privilege on imports (which is said to include all imports) and is permitted to operate retail outlets in Liberia.

The contract committed the GOL to indent to Evans one complete year's supply of drugs and medical supplies, and to deposit an additional \$60,000 to Evans' account as "further consideration."

Evans was committed under the original contract to train three Liberian pharmacists. In fact, they were never trained; and when the contract was renewed in the mid-1960s, this provision was modified so as to provide only a 3 to 6 month pharmacy tour abroad for a Liberian pharmacist whose training was already completed.

The Problem

- 1) The Evans contract permits no latitude to the GOL in procurement and gives preference to Evans' products and other brand-names regardless of cost. It is clear that considerable savings could result from open bidding; possibly the supply of drugs could be doubled for the same expenditure (although a close calculation was not possible within the time available). For example, price differentials for selected drugs used in Government facilities would include:

	Evans*	Other Sources*
Butazone	\$ 9.10/1000	\$ 4.94/1000
Banocide	15.60/1000	2.45/1000
Flagyl	25.20/250	16.00/250
Isonaizid	2.80/1000	1.07/1000
Librium	36.50/1000	15.90/1000
Prednisdone	14.00/1000	6.44/1000
Sulfaquanidine	8.20/1000	3.99/1000

* From an analysis made by the J.F. Kennedy Medical Center.

Additional savings could be realized by purchasing some items generically. For example, Penicillin V is available locally at \$19.16/1000 but has been supplied generically through PLOT for less than \$3.00/1000.

- 2) The GOL is dependent on Evans for depot services at an annual charge of \$20,000. (Presumably this charge covers overhead for the entire depot operation, including services in respect to Evans' private retail stock). This service charge could be eliminated through construction of a warehouse on the Kennedy Hospital compound at a cost of \$15-\$20 per square foot or by GOL purchase and expansion of the existing depot. Operating costs would approximate \$8500 payroll and \$2000 gasoline and utilities.
- 3) The GOL is dependent on Evans for short-term financing owing to current settlement procedure which permits accounts two or three months in arrears. Considerable savings could be affected by establishing a revolving inventory fund to take advantage of discounts for early payment, economic-quantity orders and drop-ship delivery schedules.
- 4) The GOL is dependent on Evans for pharmaceutical services owing to Evans' failure to train Liberian pharmacists as originally promised.
- 5) Evans is not obligated to supply all items requested; they may oblige the GOL to locate its own sources for items not in stock. Although ambiguous, the present contract would appear to enable Evans to assess commission in respect of items imported through other GOL

suppliers. It also appears that Evans avoids duty payment on its retail sales although its retail prices tend to be 10 per cent to 20 per cent higher overall than those of other local pharmacies. Thus the GOL is deprived of revenue in respect of the retail portion of Evans' imports.

Recommendations

1. **The Evans Contract.** The contract with Evans Medical (Liberia) Ltd. should be revoked or amended to provide for:
 - a) Elimination of the exclusive source provision and of the penalty clause for procurement outside Evans.
 - b) Elimination of the \$20,000 annual service charge.
 - c) Release of all records pertaining to Government procurement to the Ministry of Health and Social Welfare.
2. **Procurement.** The GOL should require open bidding on all procurement of drugs and supplies used in Government facilities (except minor orders); should order generically except where brand-name items are justified economically or medically; and should endeavor to take advantage of discount for quantity (where spoilage risk is low) and prompt payment. Monthly drop-ship delivery schedules should be arranged as possible for repeat-order items.
3. **Revolving Inventory Fund.** A revolving inventory fund in the order of \$500,000 should be established for advance purchase and inventory maintenance of Government drugs and supplies.
4. **Depot.** A bonded depot for Government drugs and supplies should be built and maintained at Kennedy Medical Center for advance storage, control and distribution. Present pharmacy manpower should be augmented as necessary to operate the depot, process requisitions and deliver orders.
5. **Stock Control.** Government hospitals and health units should follow the "Recommended Drug Stock Control Procedures" and "Recommended Equipment Acquisition Procedures" shown below.
6. **Perpetual Inventory.** Each Government facility (hospital, health unit, health post, clinic) should maintain a perpetual inventory record for all drugs and medical supplies. Requisition forms for new orders should include the inventory record as prerequisite to filling of the order. Hospitals and health units should devise a flagging procedure to signal timely reorder dates.
7. **Importation.** Twenty-four hour customs clearance should be arranged in accordance with sealed importation to the bonded depot.

8. **Deliveries.** Orders should be delivered monthly in a vehicle owned or controlled by Kennedy Medical Center.
9. **Surveillance.** Regular surveillance of drug consumption should be effected through Kennedy Medical Center on a quarter audit and semi-annual field audit.
10. **Drug committee.** A drug utilization review committee should be appointed in each health unit and hospital complex. The Maintenance Section should review equipment needs and requisitions from hospital and health units as well as to advise on utilization and maintenance of equipment items ordered.
11. **Approval procedure.** A schematic diagram of recommended approval procedure for drug and supply order is shown in the accompanying table.

Recommended Drug Stock Control Procedure for Hospitals and Health Units.

1. Items maintained in store stock to include
 - a) those for which there are more than 20 calls annually and
 - b) those considered "standby" necessities or emergency use items.
2. A perpetual inventory to be kept to indicate:
 - a) minimum and maximum store quantities for each item
 - b) pipeline time on reorders,
 - c) optimum or economic order quantities, and
 - d) average monthly use requirements.
3. Reorder procedure:
 - a) to determine overuse and misuse departments order stock items according to catalogue.
 - b) Store room checks order book against department inventory periodically.
 - c) Store room Manager checks propriety of each order against order book.
 - d) Materials Management Supervisor investigates "unusual" orders and denotes "fill" or "no-fill."

4. Store room to be authorized a fixed drawing account quarterly. Procurement within this balance may be placed without prior clearance from Finance.
5. Hospital departments to be allocated fixed credits quarterly for open market purchases. They complete requisition that is forwarded through Finance, who certifies that funds are available; then the requisition goes to procurement.
6. Maintenance items to go directly to a Subsidiary Store Stock in the Maintenance Department rather than to the Store Room.
7. Catalogue to be maintained of all items in Store Stock and Subsidiary Store Stock. No item to be entered into stores catalogues without approval of administrator or department head.
8. No purchases to be reimbursed unless a receiving report is issued (copies to inventory clerk, receiving clerk, procurement clerk and final user).

Recommended Equipment Acquisition Procedure for Hospitals and Health Units.

1. Replacement requests are reviewed by an Equipment Committee who establish allocation priority.
2. The Business Office notifies the Purchasing Agent as to availability of funds.
3. Order is circulated to the Maintenance Section to determine if the specified item can be serviced and maintained adequately in Liberia. If not, the Material Supervisor is notified to schedule a substitute item, preference based on availability of spare parts.
4. When the ordered item arrives at the receiving dock, it is routed to the Maintenance Section for operation check; returned to the Procurement Office; recorded in the Perpetual Inventory; delivered to and received by the department that placed the order.

Figure 2

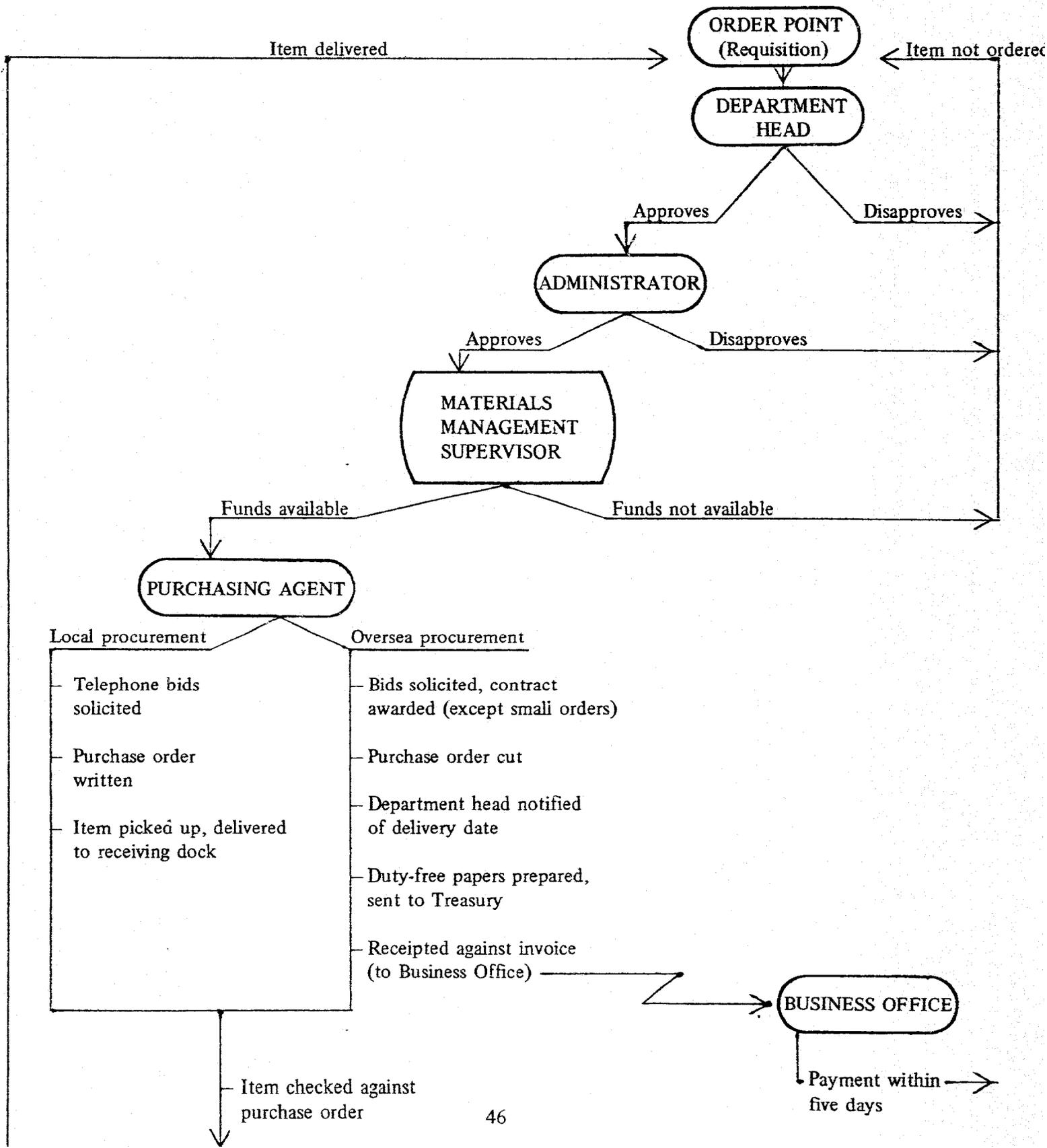
SCHEMATIC PROCEDURE FOR IMPORT ORDERS OF DRUGS AND MEDICAL SUPPLIES

Procurement:

- (1) Local, <\$100
- (2) Local, >\$100
- (3) Oversea

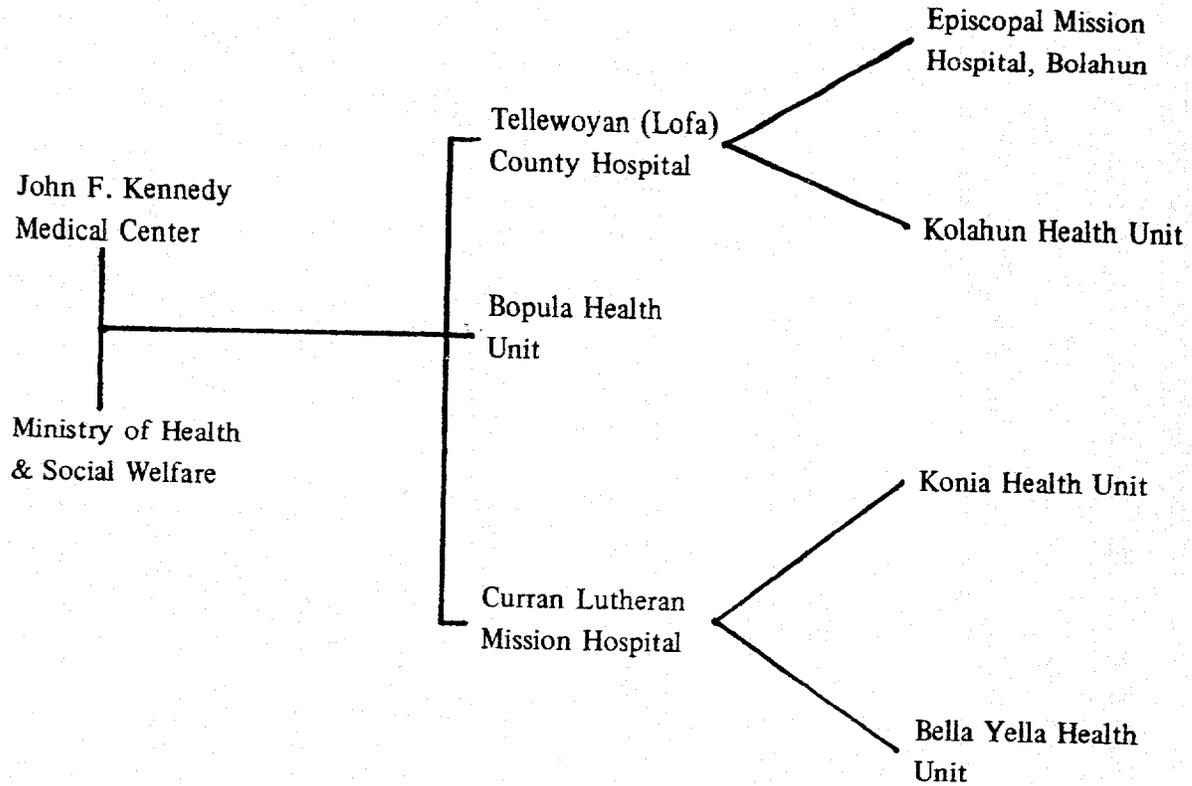
Lapse Time:

- 24-48 hours (1-2 hours in emergency)
- 10 days
- Shipping time + 10 days



XI. COMMUNICATION

The outreach plan specifies two-way radio contact between John F. Kennedy Hospital, the Ministry of Health and Welfare, and County hospitals, and between County hospitals and health units. In Lofa County the suggested deployment is:



Owing to the proximity of Bopulu and Monrovia it is recommended that the health unit to be established in Bopulu communicate directly with the master station at Kennedy Hospital. Direct communication is also recommended between Kennedy and Curran Lutheran Hospitals, owing to the level of treatment afforded in the latter. The Episcopal Mission Hospital in Bolahun has a transceiver operating in the 40-metre band, but it is not too reliable.

The radios to be installed in these facilities should have the following characteristics:

1. Sideband transceiver operation (send and receive).
2. Alternate channel selection so that existing units in Mission hospitals can be accommodated.
3. Pretuned crystal control for each channel, rather than variable frequency tuning, to simplify tuning operation and to obviate accidental tuning out.
4. Optional 115 VAC or 12 VDC power supply, with hand-operated generators at 12 VDC sources.

5. Convenient operation requiring minimal technical skill.
6. Tone actuated squelch to eliminate interference.
7. Complete housing to minimize deterioration.
8. Convenient repair/spare parts availability.

One unit that satisfies these criteria is the Motorola transceiver Model SA-100. It has four-channel send/receive capability covering a frequency range of 3 to 15 megacycles. Costs for the SA-100 are:

Transceiver, including antenna and 3 months free repair (FOB New York)	\$1,450.00
Additional crystal for second channel	15.00
Installation*	<u>100.00</u>
	\$1,565.00

\$1565.00 X 9 = \$15,085 Total

*May be reduced if transportation and galvanized pipe antenna tower provided.

Installation and maintenance are available through F & F Electronics, Inc. (Robert Flemister, General Manager) Sinkor, Monrovia. This firm also offers a maintenance agreement at \$15 per radio per month which covers service, parts replacement and twice yearly check up at F & F Electronics. AID would be responsible for bringing the transceiver to Monrovia, although an F & F technician would accompany the radio's return to health unit in cases of suspected power failure.

The team also recommends investigating the alternate possibility of substituting a comparable Heathkit unit. A Heathkit or other unit could be serviced by F & F Electronics under the maintenance agreement mentioned above if wiring diagrams were available.

XII. AN ADEQUATE RECORD SYSTEM

The successful operation of an outreach program involving some 37 installations that are providing health services to thousands of individuals each year requires an adequate record and reporting system. Records of each patient are necessary to provide continuity of service to the patient. Reports of services rendered are essential to planning, budgeting, directing and supervising the activities of the outreach personnel. Records of vital events such as births and deaths are necessary for informed health planning.

No attempt is made in this report to develop simple adequate records, logging and reporting system. The advantages of a uniform system are obvious. If this report is accepted and implemented, one of the first tasks should be the development and making available of all the necessary forms required by the system. Examples would include patient records, immunizations given, drug and supply requests and inventories, fees collected, demonstrations given, sanitary facilities developed, etc.

The Problem. Records of patients are now kept on plain 5 x 8 cards. There are no printed forms which help to keep the entries orderly and easily readable.

Each health post is required to file a monthly report of its activities with the County health office and the health officer is likewise required to submit his report of activities to the Vital Health Statistics Section each month. No analysis or summary of the reports are sent to the reporting installations. Consequently, reports may be delayed for long periods because the reporting unit sees no evidence that the report serves any program purpose and other problems or activities are given priority. Some feedback to the reporting unit should be made so that the usefulness of the report is demonstrable both to the central office and the reporting units.

The reporting of births and deaths in Liberia is very incomplete. Although reporting of such fact is required, there are many reporting failures. The health posts do not seek out vital facts to report. Neither does the Vital Health Statistics Section provide those who do report a vital event, a birth or death certificate except on payment of a fee.

Recommendations:

1. That uniform patient records and logs be printed and made available to the health posts and health units. They should be designed in such a way as to simplify the collection of service data and facilitate the kind of analysis that will result in the improvement of services.
2. That some analysis of reports sent to the central offices in Monrovia be made and fed back to the reporting units even if it be no more than a compilation of the several reports from similar reporting units. If such compilations are sent back to the units, they can compare their own activities with those of other units. This may suggest ideas that will improve their own performance.
3. That all personnel be urged to secure reports of births and deaths and see that they are filed with the Vital Health Statistics Section.

4. That personnel of all agencies working in the Lofa area be asked to encourage the reporting of vital events.
5. That the Vital Health Statistics Section provide without charge, to the parents of each reported birth an announcement of birth as a mechanism to encourage birth reporting.
6. That the Vital Health Statistics Section also provide death certificates to bereaved families as a procedure to foster death reporting.

XIII. ADMINISTRATIVE RELATIONSHIPS

Whenever two independent entities such as the Ministry of Health and Welfare and the J.F. Kennedy National Medical Center jointly operate a program, it is essential for effective and efficient administration that the respective responsibilities of the two organizations be understood and agreed upon. Without this understanding, confusion can arise in the field and conflicts occur between the two operating organizations.

The Present Situation. The J.F. Kennedy Memorial Hospital operates under policies developed by a hospital board that is independent of the Ministry of Health and Welfare even though the Minister of Health is chairman of the board. The hospital complex has its own personnel and salary system and carries out its day-to-day operations without any reference to the Ministry. Practically all its operations are concerned with curative medicine. The administrative organization for the hospital is shown in Figure 3.

The Ministry of Health and Welfare is responsible for the Preventive Health Services of the country and the curative services of all localities outside of Monrovia. The organization through which these services are provide is shown in Figure 4.

The outreach program herein described undertakes to integrate the expertise of the hospital and the preventive services of the Ministry into a united operating program. In this union, mutually acceptable administrative policies and procedures must be worked out, agreed upon, and a mechanism for implementing the policies in day-to-day operations must be established.

The team feels that the exact mechanism developed must be mutually agreed upon by representatives of the two organizations. However, it does make the following suggestions for the use of those who will determine the administrative set-up and operations:

A committee on Operational Policy would be set up to determine broad administrative and operation policies and procedure. The Committee would have representatives of the concerned organizations, J.F. Kennedy Medical Center, TNIMA, Ministry of Health, WHO, UNDP, and AID. In principle, the J.F. Kennedy Medical Center would advise and guide the development of technical standards for operations and for personnel qualifications. It would also advise on the application of these standards in operations.

The Ministry of Health and Welfare would be responsible for all the administrative aspects of the program except as later indicated.

The Policy Committee would have two executives who would act for the Committee, one from the Medical Center and the other from the Ministry of Health. Each would make day-to-day administrative decisions in his own sphere. In those decisions in which there are both technical and administrative considerations or in which both groups are jointly involved, the two executives would consult with one another as well as the appropriate technicians and reach joint decisions.

Some of the areas of decision-making and the agency responsible are indicated below:

Personnel Policies	—————	Ministry of Health with advice of the Center
Personnel Actions	—————	Ministry of Health with advice and concurrence of Center
Appointments		
Assignments		
Transfers		
Promotions		
Dismissals		
Maintenance of Vehicles and Equipment	←—————	Ministry of Health
Extension of specialist medical services	—————	John F. Kennedy Medical Center
Purchase and distribution of drugs and supplies	—————	John F. Kennedy Medical Center with advice from Ministry of Health

The team noted the limited number of staff in the Ministry who have been trained in administration. In the early stages of the project the administrative decisions and revisions of procedures will be a heavy staff load. Steps need to be taken to correct this deficiency. Furthermore, as the outreach program spreads from Lofa to other Countries, the services of full time persons will be required in the Ministry and at the Medical Center to be responsible for the day-to-day operations. These two individuals could be members of the Committee on Operational Policy and also constitute the executive committee to settle jointly questions that involve both the Health Ministry and the Medical Center. Since this report also proposes a full time medical generalist on the AID staff, this individual would have two natural counterparts. Consequently, the two positions in the Ministry and the Medical Center should be budgeted. The candidates could be trained in administrative practice in the new Liberian Institute of Public Administration. Without them, the operation of the outreach program would have to be diffused through already overburdened staff and the advantages of centralized authority lost, to say nothing of the difficulties the AID counterpart would have in relating to many persons in both Liberian agencies, none of whom would have the required comprehensive view of the entire program.

Recommendations:

1. That a formal mechanism for making administrative and operational decisions concerning the outreach program be set up.

2. That the functioning of the mechanism be evaluated periodically and such changes made as seem necessary to produce the smoothest administrative process possible.
3. That funds be budgeted to recruit and train two individuals in sound administrative practices at the Liberian Institute of Public Administration, one for the Medical Center and one for the Ministry of Health, who would be responsible for the day-to-day operations of the outreach program.
4. That the Ministry of Health search for individuals in its system who have the capacity to benefit from advanced training in public health administration and provide them with such training. Only in this way can the Ministry contribute the leadership and technical competence needed for programs such as this outreach project. The team observed a great need for individuals both in the Ministry and in the Counties who have sufficient technical public health training to provide technical leadership and background for administrative decisions which must be made in the overall health organizations.

Figure 3

JOHN F. KENNEDY MEDICAL CENTER ORGANIZATIONAL STRUCTURE

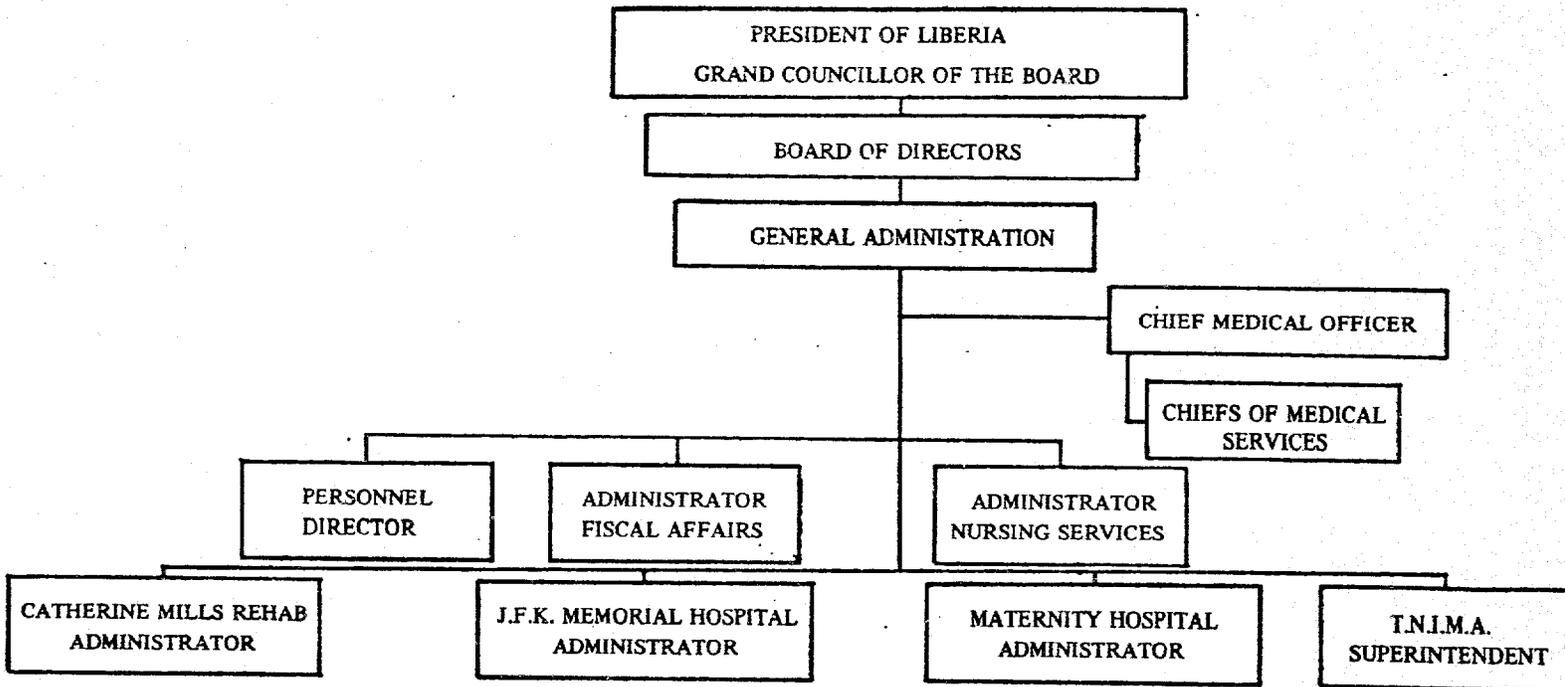
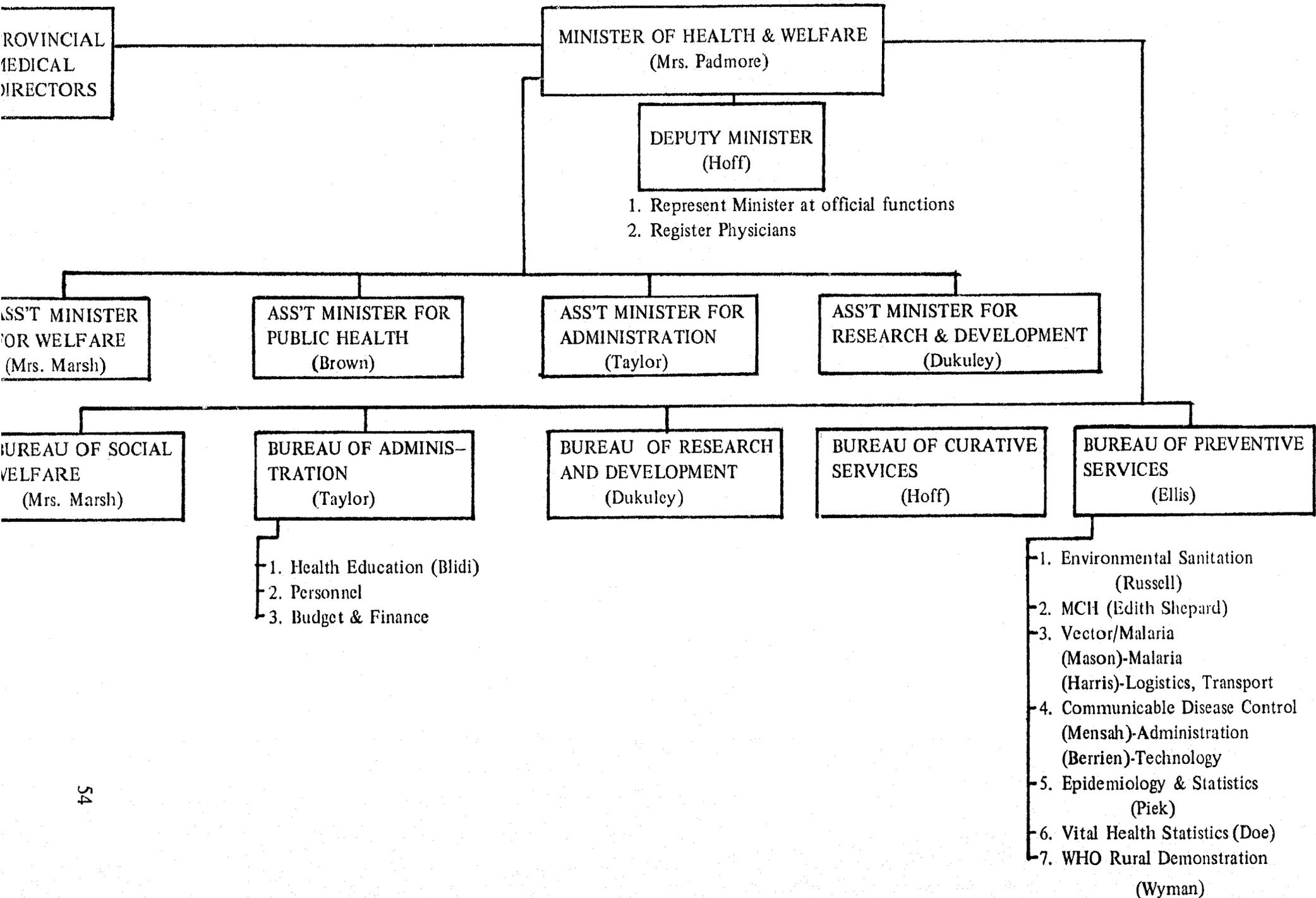


Figure 4



XIV. COOPERATION WITH OTHER NATIONAL AGENCIES OFFICIAL AND VOLUNTARY

Any program whose purpose is to improve the health behavior of the people has greater chances of success when all those who come in contact with the people are working towards common goals. The team encountered full recognition of this fact from the beginning of its study in Monrovia. Ministers of Agriculture, Education, Public Works, Local Government, Urban Renewal and Development, Finance, Planning and Economic Affairs were invited by the Minister of Health and Welfare to acquaint them with the goal of the project. For that meeting a draft statement of the approach was made available to the Ministers.

The statement indicated some of the types of cooperation desired from each Ministry. (See Appendix G) The Ministers expressed their interest in the project and pledged full cooperation of members of their staffs. Later the team visited the representative Ministries to explore in more detail the resources of each Ministry in Lofa County and the kinds of local cooperative activity that might be expected when the project gets underway.

As an example, the Ministry of Agriculture has three home economists and 28 agricultural extension agents working in Lofa County. The work of the home economists in the communities where they are assigned includes instructions on child care, food and nutrition, health and sanitation. Particularly important are the demonstrations given on the preparation of nutritious meals and the planning of balanced diets. Likewise the extension agents are promoting the raising of foodstuffs in gardens. Staff in the Ministry expressed real interest in cooperative work with health personnel and recognized that by working together they could bring more health improvement than would be possible when each worked independently.

Likewise the Ministry of Education expressed interest in cooperation of the teachers in the outreach program. The Ministry has home economists in selected schools of Lofa County whose responsibilities involve teaching nutrition, family living, environmental sanitation and good health practices. These individuals would be very willing allies in the outreach program. Furthermore, the representative of the Ministry indicated that the cooperation of all teachers could be solicited in the registering of births and deaths in their communities. He also indicated that the possibilities of some cooperative in-service training of teachers in health education should be explored. Appreciation was expressed for the assistance being provided by the Ministry of Health in the initial training of teachers at the Kakata Teacher Training Institute.

The most extensive cooperative development activity which the team encountered was the project "Selected Services for Children." The stated aim of the project is "to satisfy the priority needs of children and youths . . . to provide by a combination of educational, health, social and other training programs . . . to provide effective means of improving the quality of life for the Liberian people, particularly in the rural areas, and of preparing them for the role they will be called upon to play in the social and economic future." The project is starting in selected schools in each County. Cooperating are the Ministries of Education, Agriculture, Local Government, Labor and Youth, Health and Welfare, and the National Food Assistance Unit. The international agencies of UNDP, UNESCO, UNICEF, ILO and WHO are also cooperating to make the project a success.

Each selected school will be a community center with a demonstration garden, kitchen for preparation of nutritious diets, and visiting teachers who work with the adults as well as regular teachers in the schools. The training of both groups of teachers has a large component of health content. Cooperation of the health assistants with the teachers in the towns where there are selected schools should reinforce the efforts of each.

Conceptually, the aim of the project is ideal and has the potential of contributing to the health of the people in the vicinity of the particular schools.

One aspect of the project particularly appropriate to the outreach program is the well-drilling project. A well will be drilled at each school and four additional wells will be drilled in the surrounding area. One of these could be at the health post if the proper arrangements are made locally.

Other cooperative agencies are the missionary groups. A very cordial and satisfactory working relationship has already been established with the Curran Lutheran Memorial Hospital. The Holy Cross Liberian Mission has agreed to the use of its former hospital to house the health unit recommended for Bolahun. The opportunities for integration of the Mission health staff with the Ministry of Health staff seem very good.

Recommendations:

1. That the cooperative attitudes of the central Ministries in Monrovia continue to be fostered and that this policy of working together be communicated to personnel working in the field so that the spirit of cooperation expressed may become an existing reality.
2. That health workers seek out personnel of other agencies working in their area to discuss ways of providing mutual assistance towards the goal of each agency.

It is especially important that health assistants posted to those communities in which the "Selected Services for School Children" project is operating should develop cooperative working relations with the various staff members of the project.

3. That the warm working relations with the Mission groups be continued and enhanced wherever possible.

XV. EVALUATION

Use of allied health workers with limited training in a rural health delivery network has never been attempted in Liberia. Since the introduction of the network into Lofa County would serve as a prototype for extension to other Counties, measurement of its effectiveness should be an integral part of the program operation.

To assure adequate measurement, a base line should be established before the network begins to operate with periodic subsequent measurement as the program progresses. Some possible evidence of effectiveness of the program would be:

1. Reduction in the occurrence of neonatal tetanus.
2. Increase in use of contraception to space children.
3. Increase in the interconceptual period.
4. Increase in weight of children brought into health post.
5. Decrease in incidence of diarrhea, malaria, measles and other preventable complaints.
6. Increase in number of children completely immunized against smallpox, diptheria, pertussis, tetanus, polio, measles and given B.C.G.
7. Increase in latrines built and in their use.
8. Increase in the number of families or huts with safe water supply.
9. Improvement in housing.

Recommendation: That a well-designed evaluation scheme be developed as a first step in the initiation of the project and a base line established against which to measure progress. If necessary, a short-term consultant should be brought in to develop the criteria to be used, the data collection methods and the projected analysis to be made.

XVI. PROGRAM EMPHASIS

The need to place emphasis on prevention rather than curative activities was stressed in the first section of the present report. The purpose of this section is to be more specific about the health problems that should command major attention.

Morbidity and mortality data for Liberia on which to plan health measures are grossly inadequate and inaccurate, a condition common to developing countries. The statistics that do exist, coupled with observations by the team and verbal reports from workers in the field, indicate that much of the mortality and morbidity is preventable. If the people knew and followed hygiene practices of good nutrition, sanitation, and used properly preventive and protective health services, they would enjoy better health.

Therefore, health education of the people on the benefits of better health practices is of paramount importance. It must be recognized that effective health education requires intensive analysis of the reasons for the people's present behavior and carefully planned procedures to help them change to more healthful habits.

Some of the areas of health education and preventive service that should be emphasized are:

- a) **Prenatal Care.** If women are educated to submit to a few simple procedures several times during their pregnancies, such as weight, blood pressure, urine examination, and improved diet, morbidity and mortality will be markedly reduced for both mother and child.
- b) **Delivery.** Minimal training of empirical (traditional) mid-wives so that they use sanitary procedures during and after delivery. Cutting and dressing the cord properly will insure the survival of a greater per cent of mothers and infants.
- c) **Infants and preschool hygiene.** Immunization and improved nutrition of the young children will save innumerable lives and reduce morbidity. In the education about nutrition, native foods should be emphasized and minimal dependence placed on foreign foods. (Including milk even though desirable nutrients may be available in limited quantities as gifts from concerned donors.) Especially important is a thorough understanding by the mother of the values of prolonged breast feeding and the use of native weaning foods of high nutritional value. Changing long ingrained food habits and beliefs is a difficult process. It will require intensive and innovative educational efforts.
- d) **Family Planning.** Child spacing and family size limitation, normally a part of any complete maternal and child health program, results in better health for the children and the family. The mother is not worn down by frequent pregnancies. High parity mothers have the highest infant and maternal morbidity. The children are better cared for, more food is available to the family, the resources of the country are not dissipated in providing more and more government services such as schools.

There is now practically a universal desire and acceptance of the principles of child spacing. President Tolbert has already emphasized its importance. (See Appendix E). Many women embrace the concept eagerly. What is needed are the facilities and supplies to implement the wish. Health education will contribute immeasurably to an even greater acceptance of the philosophy of family limitation and spacing. Perhaps the greatest long term benefit to the health and welfare of the Liberian family can be made by the development of an effective program in this area.

- e) **Safe water supply.** Many diseases will be avoided if communities can be persuaded to use wholesome safe water. It need not be supplies piped into each household but rather water obtained from simple strategically located wells protected from contaminations.
- f) **Sewage disposal.** Indiscriminate dissemination of fecal material leads to diarrhea, dysenteries, parasitic infections, cholera, etc. Education of the families to construct *and use* protected latrines will confine this infectious material and remove the threat of disease spread from this source.
- g) **Malaria.** No specific program can be detailed here that will be equally applicable in all parts of Liberia for this ubiquitous disease. However early diagnosis and treatment, prophylactic measures and perhaps house spraying with DDT in certain instances will do much to minimize the effects of this incapacitating and often fatal disease.

Conclusion: No attempt has been made in this brief presentation to be complete or exhaustive. We have simply tried to indicate in a broad general way some of the program areas that should be emphasized.

XVII. PARTICIPATION OF OTHER DONOR AGENCIES

The Medical Director in his document pointed out that the cooperation of other Liberian agencies was a valuable asset. The same is true if donor agencies are agreed on a common program and can supplement one another in the inputs they are able to make.

The Situation. The team was particularly pleased with the enthusiastic interest of the donor agencies with whom the proposal was discussed.

As previously mentioned the conceptual plan for this project is the *Ten Year National Health Plan* prepared in 1967. In the interim WHO has made substantial contributions to the training program of TNIMA where a number of personnel now working in Lofa County were trained. Members of the WHO were pleased that the project would give real impetus toward the goal for which they and the Ministry of Health have been working. The inclusion of the communications system and additional transport, as well as provision for more intensive supervision, were recognized as assets in implementing the plan. The Country Representative pledged full cooperation of the WHO/Liberia staff particularly in assisting with the training of the necessary staff.

A family health advisor has been made available to the Ministry of Health and Welfare by UN/FPA whose duties are consonant with the goals of this outreach program particularly in the area of maternal and child health and family health. The team was assured by the UNDP resident representative that this advisor would assist in integrating child spacing into the maternal and child health activities at the several installations.

The U.N. Interregional Advisor on Social Welfare and Family Planning expressed much interest in the proposed plan. Although he could not commit assistance from the U.N. he did assure the team representative that he would recommend U.N. assistance if such were requested.

UNICEF has made available stipends for the training of workers at TNIMA. It has also furnished vehicles to various health installations in the Counties to facilitate better services to the rural population. Certain equipment and drug supplies have also been provided.

The UNICEF representative from Abidjan was enthusiastic about the project and indicated that UNICEF would be willing to increase their stipend contributions if necessary and would consider requests for other inputs that fit within their framework of operations.

The willingness of the Transportation Equipment Maintenance Organization (TEMO) to provide systematic preventive maintenance to the vehicles of the project has already been described.

The UNESCO team at the Kakata Teacher Training Institute has expressed a vital interest in the way schools, particularly those in the areas of the Selected Community Schools, can coordinate their health educational efforts with those of the project.

Members of the Peace Corps stationed in Liberia as well as Peace Corps representatives from Africa and Washington expressed their interest in the concept of the project and indicated the possibility of contributing Peace Corps Volunteer Service in a variety of ways if and when the project gets underway.

The National Food Assistance Unit, with food contributed through the PL 480 Title II program has been distributing food to pregnant and lactating mothers and preschool children through MCH clinics and other health installations. With the increase in preventive and educational activities through this project, the goal of reaching more mothers will be facilitated.

Recommendations:

1. That all donor agencies concerned with development in Liberia, and particularly with extension of health services, be kept informed of the project as it develops and be invited to make those inputs that fit into their overall operational procedures.

2. That Peace Corps Volunteers be requested to assist in:

- training of peripheral workers;
- solving such logistical problems as may arise;
- conducting health education in the villages;
- providing service at clinics;
- locating midwives for training; and
- participating with communities in building latrines and other sanitary facilities under the direction of the sanitarian.

XVIII. FEES AND FEE SCHEDULES

By direction of the Government of Liberia (GOL), new patients registering for services in Government facilities are assessed a once-only "registration fee" -- normally S2. at Government hospitals and 50 cents at health posts (infants and indigent patients excepted). These fees are to be transmitted monthly from the health facility to the GOL where they are entered into the exchequer general fund.

The Problem. In practice this arrangement is abused in two ways:

- 1) Some health facilities under-report new registrations in order to use the fees for purchasing badly needed drugs at mission hospitals and commercial outlets.
- 2) Some health facilities assess additional service charges that may or may not be sanctioned officially. These charges are said to vary from 15 cents for medicines and dressings, to \$100. for certain operations. They likewise arise out of necessity to supplement drugs and supplies although it is alleged that part of such fees may accrue to the fee-collector. (The team made no attempt to verify this and other allegations; the point is that such possibilities exist under present circumstances and are suspected in certain quarters.)

Inherent in this assessment mechanism are several undesirable features. First, it serves to penalize honesty and to reward unauthorized activity among health workers. Second, it may inhibit necessary referral of patients. As a corollary, it may also serve to defeat health planning efforts by distorting natural demand patterns. (The team received third-hand statements that some patients have foregone operations in the hospital serving their area and reported instead to a more distant or less desirable facility because of considerable difference in fee.) Third, the fees make treatment less pleasant for patients who expect Government services to be free. They are also annoying to health workers who may have to defend such fees to their patients.

To the extent that these practices are known and tacitly condoned by the GOL, they may encourage continued deprivation of drug allocations through established channels. However, such substitution is faulty in that resources generated out of registration fees fail steadily to keep up with demand for treatment accompanying the new patient load.

Finally, and perhaps most significant in the long run, this resort to under-reporting and unauthorized fee assessment in order to maintain necessary services serves to discourage enthusiasm among dedicated health workers who generally are already overburdened, working in different circumstances, and (so far as they are able to discern) supported only haphazardly by their Government.

It should be emphasized that under-reporting and unauthorized fee-setting are usually acts of desperation on the part of providers, arising out of necessity characterized by persistently inadequate and untimely distribution of drugs and supplies through established GOL channels. (For further discussion of this point, see Section X.) It should also be noted that some of the fees withheld are spent for necessary non-medical supplies and repairs; such as kerosene to operate drug refrigerators, which may not otherwise be provided for or reimbursed by the GOL.

In our opinion, there is no way to control under-reporting of fee collection under the present system that could be economical. Effective control would probably cost more than the amount recouped. Successful policing of the present system would also be self-defeating in further diminishing access to treatment which is already in short supply. Correction requires either revision or abolition of fee assessment and use.

Recommendations:

1. The Ministry of Health and Welfare should establish standard fee schedules for health posts, units and hospitals which are reasonable within the context of patient income, and should ensure that such schedules are posted conspicuous to all patients in all health facilities. Provision should be made for waiver of fees in known cases of need.
2. Each health facility should be required to issue numbered receipts in triplicate for each fee collected, copies delivered to a) patient, b) health facility records, and c) Ministry of Health and Welfare for control.
3. All fees collected should be retained by the respective collecting health facility, and should be used for purchase of necessary medicines, medical supplies and other supplies and repairs according to the discretion of the health facility director (or by mutual agreement among senior health personnel serving on the payroll of a health facility for which no director is designated). Alternatively, expenditure decisions may be assigned to a regional health committee. Receipts for all such purchases should be sent to the Ministry of Health and Welfare to be checked against fee receipts.
4. It should be established to the understanding of all personnel that all fees collected by a facility will augment, and will not in any way diminish, the regularly and equitably allocated GOL disbursement of drugs and supplies.
5. If any of the above recommendations fails of adoption, then no fees of any sort should be permitted in any Government health facility, and notice of same should be displayed prominently in all facilities.

APPENDICES

Contents

APPENDICES

- A. The John F. Kennedy Medical
Center Outreach Program
by Dr. Nehemiah Cooper,
Medical Director
- B. Functions of Health
Posts and Health Units
- C. Full-Time Instructors
at T.N.I.M.A.
- D. History of the John F. Kennedy
Medical Center
- E. Statement by President W. R. Tolbert, Jr.
- F. Personal History Form
- G. Extension of Health Services In Rural
Areas - Description of the Program
- H. Suggested Training Procedure
- I. Principal Contacts

APPENDIX A

The John F. Kennedy Medical Center Outreach Program
by
Dr. Nehemiah Cooper, Medical Director

INTRODUCTION:

This paper proposes to set forth a detailed plan for the establishment of Lofa County, Liberia of a pilot project in health care delivery. The health care delivery system for Liberia in essence involves the organization of peripheral units - with their complexity increasing as they converge upon the National Medical Center, which will presumably be a well equipped and staffed Medical Center, with teaching capability at university level, and including whatever sophisticated amenities as are necessary to total patient care in the modern context.

The rationale for the approach of using sub-physician personnel as well as use of the basic socio-cultural pattern of the village will not be defended here. It has been set forth in several previous memoranda. We believe that two fundamental premises and their ramifications adequately present the case without overstatement. The premises are:

1. Any acceptable ratio of physicians: population to satisfy the needs of the country is not an attainable objective in the ensuing generation. Furthermore, one cannot be certain of what such a ratio would be.

2. In this environment, and at our level of development, the accent in health care must be on the preventive aspect. The traditional pattern of practice where a facility is organized on a "come and get it" basis has not been effective. In the first instance, there was never enough of "it". Then there was not the means for those who needed care to "come". Even more painful is the realization that the indications for seeking care are frequently not understood, and even if they were understood, these indications are superseded by more elementary needs in the business of survival.

Thus any plan that does not take cognizance of education, nutrition and simple hygiene on location is doomed to futility. Similarly, any divorcement of preventive practice from curative care will be ineffective.

The above comments are applicable to the entire Liberian scene, particularly the rural sector, and that is where 90% of the population is. Now, with respect to Lofa County, certain pertinent considerations are worthy of note:

Population: With a population of approximately 150,000, this county represents about 10% of the nation's people. This is a justifiable sample.

Accessibility: Most areas of the county are now accessible, or should be so within the next three years. The population density is such that while not ideal, it is a more feasible situation than is some of the other counties.

Adaptability: The agricultural potential of the area is such that sufficiency in basic food products is feasible. Also, because many other development activities are already underway in the region, there is the promising opportunity for cooperation with other agencies in agricultural and rural development. This asset cannot be overestimated. Any one approach by itself is immeasurably more difficult than a concerted and integrated approach. Health care here is no less a matter of economics than it is anywhere else.

Included in the consideration of adaptability also is the fact that a basic framework already exists, in the number of "clinics". A significant note of caution needs to be interposed at this point, however. In a naturally industrious and competitive indigenous population, there tends to be a proliferation of so-called "clinics", mostly developed on a "self-help" basis. The implied promise that the Government would help in staffing and support of these projects has not materialized. Nor should it have, in every instance. While initiative is not to be stifled, it is necessary to deploy our resources in a rational and economical manner. This approach entails more objective parameters of assessment than ambition and local jealousies will allow for. We have taken only minimal note of political considerations. For all practical purposes, political considerations do not exist beyond the level of the County Seats; and, fortunately for us, these have already been determined. In this context, it might be helpful to have the views of a Physician with long experience in the region, dedication to the task of health care delivery, as well as a keen understanding of local mores. Dr. Merten's letter to the Minister of Health is reproduced here with the Minister's permission. (Appendix A¹)

Definition of Terms:

There has been wide discussion of the basic plan of health care delivery, which is in fact an adaptation of the 10-year plan developed by the National Public Health Service in 1967,

with the aid of the U.S. Government and WHO. The definition applied to the care facilities, as well as to the personnel who staff them, have been sometimes confused. For the purpose of this paper, we shall set forth what we mean by the various terminologies. Where they are at variance with other schemes set forth in the recent past, the terms used here represent a compromise or change of view based on accumulated experience to date. The basic concept is unaltered.

A Post = Village level	5 Posts report to 1 Health Unit	All Health Units reports to County Health Officer
------------------------	------------------------------------	---

Facilities:

I. HEALTH POST

A post is the most peripheral unit in the system. It exists at the village or multivillage level. The population figure it serves cannot be arbitrarily set at 5,000, even though this may be a tidy arrangement. They should be strategically placed, dictated largely by distance between villages. In Lofa County, already their number is listed at 20, with 19 "clinics" and one MCH facility, to total 40. This number fairly well covers the estimated population. But it is obvious on visiting many of these facilities that definition is not uniform. Moreover, because of inaccessibility due to lack of roads, Bopolu District is practically severed from the rest of the County. Vahun, tucked into a northwestern pocket, is also separated from the nearest Liberian village by 9 hours walk. There must be other towns such as this, but the example is good. Two important road linkages now under construction will change the entire logistic pattern by the end of 1973 - or by the time this project is at zero count down. In any case, it will be necessary to reclassify some existing units, upgrading those that are indicated to the next higher level (Health Unit) and possibly eliminating some so-called "self-help" installations, with reassignment of personnel and a more sensible deployment of resources.

We conceive the Health Post as being a simple free-standing unit, that houses the two attendants and provides their "office". It might be well to have some uniform identification of a Post (painting and symbol of some sort).

A. PERSONNEL: Of the two physician-assistants that man a post, on alternate weeks one is stationary while the other scouts the territory. It has been suggested that one attendant should be female (see functions below), but this Writer believes this is not practical at this time. Socio-cultural mores will make it unworkable.

Two Attendants

Level of education - 9th grade

Training: 12 months distributed as follows:

6 months - TNIMA/JFK, Monrovia

6 months - On location at Lofa County Hospital

Rotating Instructor from TNIMA to participate in training program at Voinjama, in order to follow progress.

B. FUNCTIONS OF PERSONNEL

1. Diagnosis and treatment: Limited number of disease states. Empirical approach, with accent on functional, problem-oriented management. For example:

<u>Problem</u>	<u>Indicated Action</u>
Fever + Headache = malaria	Treat with chloroquine
Fever + Headache + stiff neck:	Give Chloroquine and send to Health Unit.
	Possible Meningitis
Convulsion in Child	Treat as malaria and transfer to Health Unit
Convulsion in Adult	Give (phenobarbital or Valium) and transfer immediately
Prolonged labor:	(Adopt Zaire formula)
Dyopnea + oedema = Heart failure	Refer to Health Unit

It may be useful to copy the scheme proposed by Dr. Derrick B. Jelliffe. These so-called "Zagreb Guidelines" are sufficiently universal so that they can be adopted with minimal adjustments to the local solution.

2. Dispensing

Basic Drug List to include as examples

- a) Chloroquine
- b) Hematinics - ferrous sulfate, folic acid
- c) Piperazine, TCE
- d) Pencillin (caution against sensitivity)
- e) General skin ointments
- f) Oral hydration mixture
- g) Bandages for sores
- h) Streptomycin
- i) Sulfa
- j) Thiacetazone

3. Preventive Procedures:

Provide definite immunization schedule (Appendix A²)

- a) BCG
- b) Smallpox
- c) DPT

Note: Measles vaccine not practicable at this level because of refrigeration requirement for storage and reconstitution.

4. Prenatal/Post natal care
Hemoglobin, urine control, BP, weight

5. Family Planning

- a) Education on the advantages of child-spacing and methods of contraception
- b) Pass out contraceptive pills
- c) Refer I.U.D. candidates to Health Unit

6. Sanitation

At village level, it should be of first importance to accomplish two ends:

- a) A protected Water Supply - Wells
- b) Adequate waste disposal

A tripartite team of Public Works, Local Government and Health Officer should accomplish this together. Health Officer designates sites, Local Government mobilizes labor force, Public Works supervise execution of project.

The physician-assistant's job is to supervise maintenance of these facilities, once established.

7. Health Education

Weekly lectures in

- a) Diet - balancing
- b) Infant feeding and care
- c) Prophylaxis

II. THE HEALTH UNIT:

The Health Unit is the secondary facility in the system. In practice it performs all the functions of a Health Post for the Town in which it is located, plus serving as a direct referral station from 4 - 8 satellite posts. (Number will vary by population dispersal and distances with average of 5 posts to each Unit).

Physical Structure:

We envisage a more or less substantial main building (no edificies) plus two or more surrounding open shed types, to serve the following functions:

- a) 10-bed patient unit
- b) Labor & Delivery with small recovery area
- c) Rehydration Unit
- d) Drugs and supplies storage
- e) Treatment room
- f) Central Records bank for all posts served
- g) Offices (two) - supervisors
- h) Laboratory

One satellite "Kitchen" for lectures and demonstrations, possibly for film projection where electricity available.

One Satellite "Kitchen" for routine OPD and Well Baby Clinic. Space should be no problem; so we envisage a demonstration area showing a model well, model latrine and model vegetable garden. Products from the garden can be used for cooking demonstrations in one of the "Palaver Huts" described above. Konia and Kolahun could be readily developed into model units with sites for two others to be identified immediately and two others when the Bopolu District is connected by road for a total of six units for the County. (From the rule of thumb estimates given a total of 6 Health Units should be required for a population of 150,000). (Foya and Bella Yella have been proposed as suitable sites for Health Units)

A. PERSONNEL

Staffing of a Health Unit should consist of the following:

- 2 Medical Assistant (R.N. + 1 year Practitioner oriented training)
- 2 Midwives
- 1 Physician Assistants (from present 2 year course)

- 1 Laboratory Technician
- 2 Nurses (Practical Nurses with Public Health orientation would do)
- 1 Sanitarian

Total 9

Accurate job-descriptions should be drawn up. It is easy to stress "team effort", but unless a clear line of authority is drawn at this level, trouble will certainly ensue. It must be emphasized that the Medical Assistants (RN + 1 year) are the top professionals at the Unit. Whatever we call them, the local population will call them all "Doctor". So there must be no equivocation as to who is in charge. It is neither fair nor reasonable to subordinate the talents of a professional R.N. to those of the Physicians-Assistant, who happens to have been trained with a practitioner orientation. It is the Writer's opinion that names matter little. But others with more experience believe the above conflict is inevitable. One practical solution lies in the abolition of the "Physician Assistant" course as now constituted which would allow that school to take in two classes per year, six months each at the JFK, thus making for a faster attainment of the goal of approximately 80 Health Assistants for Lofa County, supplying two for each of the 40 Health Posts.

Those "Physician Assistants" already trained would be absorbed at the Health Unit level, or could be the senior partner at the Health Post until a Corps of Health Assistants were available. Thereafter, the slots now filled at the Health Units by Physician Assistants (having been phased out), would constitute promotion possibilities to which Health Assistants with over two years experience could advance. The alternative to this arrangement would be to maintain a two tier level of personnel with very close educational levels, but one being in a different (and lower) category. This might hamper recruitment of those we need in greater numbers (Health Assistants), who might well opt for two years' training from the 10th grade, in view of greater rewards. And in actual practice, the Writer suspects very strongly that the two persons would ultimately be indistinguishable in five years. Especially would this prediction come true if the supervision input is effective from the County Health Center, and in turn from the JFK. Those involved in training at the TNIMA patently do not hold this view. The decision if evaluated and thought to be of merit, may have to be imposed "for the good of the Service". Or perhaps, with an augmented Staff, both programs could proceed in harmony whatever the eventual 5-year result may be.

B. FUNCTIONS OF THE HEALTH UNIT:

(Generally, all the functions of a post, plus others related to inpatient care).

1. Diagnosis and Treatment

Larger scope of disease states. Still emphasize the problem-oriented approach, but broaden the empirical limitations.

e.g.

<u>Problem</u>	<u>Indication</u>
a) Fever + headache	Not malaria necessarily, but any number of possibilities, that might be excluded by Lab;
b) Fever + headacher + Stiff neck	Indication of work-up, including L.P. If purulent CSF, isolate and notify Doctor. (By radio when that is available);
c) Convulsion in infant	Rule out malaria. Treat according to standing orders and then consult Doctor at center. Transfer may or may not be indicated;
d) Convulsion in adult	Ascertain from history, if possible epilepsy - treat by standing orders and hold for Medical Officer on next rounds. If hisotry of trauma or neurological deficit (motor paralysis transfer immediately to Center.

2. Dispensing

Wider range of drugs, including digitalis, antihypertensives, diuretics, analeptics and broad spectrum antibiotics (with appropriate caution). See separate list (Appendix A³).

Key here is to place limit on duration of treatment without upward consultation - e.g. 5 days.

Also key is mandatory reporting of all instances in which certain drugs are dispensed, either by stat call or logging to be inspected by Medical Officer on rounds.

3. Preventive Procedures

Provide check of all immunizations (patient keeps card, but Unit keeps information bank). When telecommunications improve, Post will routinely phone in information to be banked at Health Unit. This will eventually be the most peripheral source required for collection of vital statistics by County Health Office. That Office should be located in the County Administrative Office Building.

4. Prenatal/Postnatal Care

For the town in which Unit is located, and for problem cases from Posts, including:

- a) Excessive weight gain
- b) Elevated B.P.
- c) Persistent albuminuria
- d) Any suspected C.P.D.
- e) Prenatal on all previous sections (refer to Center one week before EDC)
- f) Encourage all primipara to deliver at Health Unit, encourage all multipara with no complicated history to deliver at home or Post
- g) Apply "Zaire" scale for upward referral to Center.

5. Family Planning

- a) Advise on value of family planning and contraceptive methods
- b) Dispense contraceptive pills
- c) Insert I.U.D. (Only one specially trained Nurse at each Health Unit.) Not to be routinized beyond this

6. Health Education

More elaborate program here than at post level. Regularly scheduled lectures and demonstrations including associated films, where electrical power exists. The demonstration garden should be a strong program, encourage attendance by villagers from surrounding areas for scheduled instruction in dietary components and food preparation. This priority program should be buttressed by periodic visits of trained Home Economist/Nutritionist from Ministry of Agriculture. Health Assistants and Physician Assistants can refresh and continue their own education at seminars held here. Ministry of Information can prepare appropriate cartoons for educating local population in food substitution and introduce the concept of variety in diet (this is important).

7. In-Patient Care

- a) Deliveries (as above) - 24 hour hold, no more. Transfer if necessary to bed for more than 24 hours.
- b) Acute care - 5 day limit - limit food budget to discourage longer stay. Let family provide boarding. This will eliminate protracted stays.
- c) Rehydration Unit - Adopt standing orders from JFK rehydration unit. Transfer all serious cases;
- d) Specify all categories indicating immediate transfer, e.g. Jaundice, coma, etc.

8. Laboratory Facilities

- 1 Technician
 - a) CBC
 - b) Urinalysis
 - c) Stool
 - d) No chemistries

A list of equipment proposed for the Health Post and the Health Unit respectively has been appended to this paper (Appendix A⁴ and

9. Central Records File

(As described) for all Posts under control. The necessity for orderly records is not arguable. These institute the basic input from which all planning and projects are derived.

10. Communications

Minimum requirement - SSB linkage - one band to connect each Health Unit to Center, either Voinjama or Zorzor. Battery operated sets for those Units without electrical power. The complete scheme of communications linkages of a County Hospital to the JFK and its related services is outlined as an appendix to this paper. (Appendix A⁶) The value of communications cannot be overemphasized. After reviewing the present systems of other agencies of Government (e.g. Agriculture), it does not appear that there is a practical manner in which the Health Services could use already existing equipment.

An important consideration, however, should be the type of radio equipment. For example, should we purchase the same type equipment as Agriculture, the Agent in Liberia might have a sufficient volume to permit his carrying a suitable stock

of spares, so that maintenance and reliability would be a practical proposition. Moreover, when projecting regarding possible sources of equipment, it is helpful to remember that both the RF consideration and Motorola have agents and responsible maintenance facilities locally and both types have been extensively used by the U.S. Army recently in a situation not completely different from ours in terms of development.

III. THE COUNTY HOSPITAL

The County Hospital is conceived as a miniature Medical Center. It should be capable in every respect of providing total patient care for over 90% of the population. Referrals to the JFK in Monrovia should be limited to cases requiring appurtenances located in the Center that cannot be physically removed. These include for example, specialized surgery or Radiation therapy.

A. PERSONNEL

A major break-through occurred when the Government accepted the principle that every County Hospital be staffed by a minimum of two Physicians, rather than one as is at present. Beside the obvious advantages, this would be a logical extension of our present approach in emphasizing preventive practice.

The long-range goal is to have each County Hospital staffed by two General Duty Medical Officers - public health oriented, and yet capable of performing routine surgical procedures, such as herniorrhaphy appendectomy and Caesarian Section. In the ideal situation, two such GDMOs would alternate for periods of one to two months as either Medical Officer in charge of the Hospital or County Health Officer, travelling to various Health Units and overseeing the preventive program. This is a continuation of the same basic concept for the Health Post; a man in motion and a pivot - the difference being that at the Post level, there is the physician-assistant, at the Health Unit level there is the Medical Assistant (R.N. + 1 year) or a senior physician-assistant, and at the County Hospital - Medical Center - level, the Physician.

The actual number of additional personnel will vary from one County to another, dependent upon bed capacity and patient load, but the categories for such personnel will depend upon the projected function of the Center, and therefore, will not vary, since their functions are identical. Thus required personnel will include, Nurses, Laboratory Technicians, a Radiographer and aides. What needs to be emphasized is the concept that each category of Health Worker should perform to the limit of its capability, and should at the same be accorded adequate supervision.

B. FUNCTIONS

1. Diagnosis and Treatment

Total range. Physician in Out-Patient Department to see only referrals. Primary care still supervised by M.A., should encourage segregated clinics, e.g. hypertensive and cardiac, prenatal, etc., although it will not be possible to regulate completely.

2. Laboratory

Two Technicians, ideal, one adequate. Periodic in-service refresher at JFK. Routine: CBC, urine, stool, FBS, BUN, bilirubins, AFB, simple cultures with sensitivity discs. Should be able to collect Paps, simple tissue biopsies and more complicated chemistries for transfer to JFK when team rounds.

3. X-Ray

Simple 50 M.A. machine. Should be capable for doing chest films routinely as well as extremities for fracture. Film reading service on a monthly or bi-weekly basis can be provided by JFK. Candidates for contrast media or other X-Ray diagnostic procedures will be referred to JFK when the indication is confirmed by JFK Team on regular visits.

4. Operating-Room

Should have at least two on permanent staff. At this level, it is possible to have Nurse Anesthetist double on wards when not on operative duty. Of the two permanent Operating Room Staff, one can also double as dressing and Emergency Room Attendant when not operating. One nurse, the senior, is Operating Room Supervisor, in charge of instruments, dressings, central supplies for entire hospital, with no other duties.

Instruments:- General surgical instruments enough to comprise one (1) major lap pack and one (1) minor tray. For out-patient use, the same complement as required by Health Unit, plus one (1) combination cystoscope set and one (1) proctosigmoidoscope, regardless of whether the Physician attending is familiar with their use. In case of the sigmoidoscope, if he is not, it is urgent that he be instructed by JFK Consultant. We would not insist that he be able to use cystoscope, but one should be in each County Hospital's equipment stock for use by Consultant.

Alternatively, to save money at this stage, we might consider having the combination cystoscope set as equipment in the Out-Reach project vehicle that accompanies the JFK Team. As each County Hospital acquires capability of using a scope, one can be acquired. But this instrument, in any case, is an essential diagnostic tool.

IV. THE JOHN F. KENNEDY MEDICAL CENTER

The role of the John F. Kennedy Medical Center in support of the National Health Care Delivery systems lies in two main categories:

- 1) Consultative and supervisory Medical Staff; and
- 2) The aspect of Medical Logistic Support

Staff support will present no problems if the present policies are continued and extended logically. Under the reorganization of the Ministry of Health, although recruitment of Medical Staff has been separate, the Chief Medical Officer of the John F. Kennedy Medical Center has reviewed all credentials, and advised on staffing requirements of the various facilities in the System, but outside of the JFK Complex. The Chief Medical Officer also exercises review over the professional performance and discipline of Medical Staff throughout the system. There will eventually be uniformity of contracts and required skills, so that transfers within the system would be no problem. The advantages of uniformity are so obvious in the area of medical staffing that the point will not be belaboured. The further assumption is that the Ministry of Health will implement immediately the declared policy of Government to post at least two doctors to each County Hospital. Experience accumulated in Lofa County will be used to determine the detailed approach to the subsequent Counties.

In the area of logistics, the importance of this aspect of support cannot be overestimated. Failure here will demoralize staff at the peripheral facilities, and the system will collapse.

Napoleon has been credited with the statement "an army travels on its stomach". This statement is an oversimplification of the fact that any project, program, or effort is only as good as the logistical system that supports it. Too often this fact has been overlooked in health planning because most health experts are not trained nor have the inclinations along administrative lines. This is not the case in so far as the "Kennedy Out-Reach Program" is concerned. Consideration has been given to logistical problems at every step of the way and operational difficulties have at times caused modification of the ideal to a program that can and will be capable of logistical support.

1. General Considerations:

In considering both the Out-Reach program and its logistic support, it became obvious that any logistic support system would have to provide for at least the following:

- a) Centralization of prime support functions;
- b) Minimum of bureaucratic red tape;
- c) A compromise with the ideal in order to make the system economical and within our technical capabilities;
- d) Sufficient safeguards to provide a minimum of "down time" due to lack of supplies, personnel or equipment;
- e) A high degree of standardization to assure continuity of techniques and care during any referrals.

In addition, the following functions were also considered:

- a) Liberia will have to depend on other countries for the purchase of the bulk of her medical supplies for at least the next ten years, if not longer;
- b) Even with improved in-country telecommunications and road conditions, most out-stations, will have to be capable of storing, handling and safeguarding sufficient stocks to last 45 days;
- c) The supply of trained technical manpower will remain relatively tight for many years to come; so a centrally controlled and uniformly maintained personnel system offering uniform and satisfactory benefits will be needed.
- d) Accurate data and financial information of a uniform and equitable type must be kept and a system of analyzing and storing these data for reference for use by the facility and the Ministry of Health and Welfare;
- e) Because of climatic and other conditions, use of A.D.P. and similar electronic systems is not presently feasible.

2. Bureaucracy:

To minimize bureaucracy, the logistical system has attempted to balance centralization against span of control to come up with a system that while centralizing some aspects, provides some local autonomy and keeps centralization as close to operations as possible.

For logistical support, all centralized logistical units will deal with the County Hospital. The County Hospital will then deal with the Health Units and the Health Units in turn will deal with the Health Posts. No centralized logistical unit will deal with either a Health Unit or a Health Post, unless specifically requested to do so, by the County Hospital. County Hospitals will be expected to have sufficient resources to handle all but unexpected or special demands of the Health Units and Posts.

In dealing with logistical problems within the delivery system, no centralized logistical unit will have any line or staff control over any up-country unit. Their role will be entirely supportive of these units. In such areas as supplies, repairs, etc. that require outlays of funds, approval by the Ministry of Health and Welfare will be required before the supplies are released or the services rendered.

Outlined below are brief sketches of how the logistic support will be furnished. In all areas, existing elements of the Kennedy Medical Center will be expanded and adapted to fulfill this role. In most cases, basic systems to meet the needs of the five separate institutions of the Center Complex are presently in existence, and can be expanded to meet the demands of the Out-Reach program.

3. Supply

In the area of materials, management will come the biggest changes. The existing system of the Kennedy Center is still in its formative stages; so that while the changes may be most profound, they will also be the easiest to effect.

Basically, stock levels of all medical supplies will be increased by amounts sufficient to meet the requirements of the "Out-Reach Facilities". All requisitions coming into the Depot will be handled in the same manner that requisitions from other units of the Center are handled. The only difference is that the requisitions will be verified with the Ministry of Health as to fund availability before being filled and a Depot truck will take the order to the up-country

facility. A member of the Depot Staff will accompany the driver of the Depot truck to the facility and check the merchandise in, and at the same time check the goods on hand for deterioration, overstocking and similar problems. Once the order has been received, the Depot will issue an invoice for payment to the Ministry of Health.

The Depot, itself, will be operated by a trained Materials Management Specialist, who will hold the same status of: Administrator for Fiscal Affairs; Administrator for Nursing Services; and Administrator for Personnel. He will report directly to the General Administrator and receive policy direction from him. As a matter of policy, a Liberian counterpart will be provided for this post, so that the operation can be effectively taken over when technical assistance in this area is phased out.

A revolving Trust Fund, separated from the Kennedy Center operating budget would be established for use in maintaining inventory levels in the Depot. Billed amounts for merchandise issued would be deposited to this account. This Fund would be audited every three months to insure its integrity and verify inventory and operating figures.

Functionally the Depot would handle the following categories of supplies:

1. Medical and Surgical supplies
2. Drugs, and pharmaceutical items
3. Housekeeping and linen supplies
4. Forms and administrative supplies
5. Some specialized maintenance supplies.

The depot would not handle such things as canned goods, perishable food stuff, tools, etc. All of these can be brought in Monrovia from reliable dealers. Thus stocking them at the beginning of the Depot Operation does not appear reasonable.

The Depot would also be equipped to break large quantities down to usable units - cases to packages, etc. In addition, the Depot would be equipped to pre-package drug items into patient issue quantities and label them accordingly. This function will help to prevent overstocking and wastage as well as help assure patient safety.

The Depot will also act as clearing house for all medical equipment and supplies that are requested but not available from stock. They will also maintain equipment inventories for all facilities in the system. Every effort will be exerted to assure standardization of equipment in the units of the program so that effective but economical spare parts inventories may be maintained.

In conjunction with the spare parts service it is anticipated that the Depot will operate an equipment repair service. Staff from the Maintenance Section of the Center will carry out minor repairs at the Depot and send repairment to the various facilities to do on-site work. Costs for such repairs will consist of parts plus 10% and transportation if any is required, and will be billed to the facility requiring such services in the same manner as supplies. If the item must be returned to the manufacturer for repair, the facility will be expected to bear all costs.

Finally, the Depot will maintain a fleet of trucks to make deliveries and handle the repair service. Field facilities will not have to worry with delivery problems and the like. The truck fleet will be tied in with the radio communications network proposed for the program to allow maximum use of their services.

4. Personnel

Logistical support from the personnel section will be in the form of:

- a) recruitment
- b) testing
- c) job standardization
- d) personnel processing

As can be seen from the foregoing list, personnel activities are all supportive in nature. The facility and the Ministry of Health and Welfare will carry the line authority. Personnel will only move into action after requested to do so.

Centralization of personnel functions will assure:

- a) Uniformity of pay
- b) Uniformity of job and qualifications
- c) Uniformity of testing and standards
- d) A regular listing of prospective candidates

Once a request to fill a job vacancy is received, personnel will review its candidates list. If it has eligibles, it will contact them and see if they wish to be considered. If no candidates are available, personnel will handle advertisement and testing for the position.

If the position is a new one, personnel will assist with development of job descriptions, qualifications and classification. Again, the assistance will be staff in nature and not line. Only the final classification will be line.

The only function personnel may take on its own will be advertising for certain pre-selected categories so that a current list of eligibles may be maintained.

Centralized personnel services, it is hoped will:

- a) help to reduce proselytization of personnel in scarce categories;
- b) provide upward and lateral mobility for all employees;
- c) provide uniform and equitable pay scales for all positions within the system;
- d) give continuity of service to those selecting health service careers with the Government.

5. Finance

In the area of finance, services will be primarily in the area of consultation and advice. Ministry of Health and Welfare maintains its own finance section and it is anticipated that this section will continue to function as it has in the past.

The Fiscal Affairs Section of the Center will maintain control ledgers on the supply operation and process procurement actions by the Depot.

6. Maintenance

Maintenance specialists from the Center will be available for consultation and advice. Except as outlined in the Depot functions, they will not do any direct repair or maintenance. These functions will be left to the Ministry of Health and Welfare and Public Works as in the past.

In addition, field facility personnel will be notified of various training courses being offered at the Medical Center for maintenance personnel. Field Facilities may send staff to these courses at their own expense if they wish.

Maintenance contracts negotiated by the center will be expanded, on request, to cover equipment in the outlying facilities. The costs of such contract expansion will be borne by the facility involved.

This then is the preliminary planning for logistical support to the "Out-Reach Program". It is designed to achieve:

- a) economy
- b) efficiency
- c) standardization

It is hoped that these aims may be achieved with a maximum of autonomy and a minimum of bureaucracy.

Appendix A
Curran Lutheran Hospital
Zorzor
March 9, 1973

Honourable Mai Padmore
Minister of Health & Welfare

Dear Honourable Padmore,

When the 10-Year Health Plan was made, a system of health care was outlined in which the County Medical Officer, working out of a Health Center in the County seat, supervised strategically-located health units, which in turn each supervised 5 to 7 health posts located around them. Each health unit was to have perhaps 10 to 12 beds, and be capable of admitting certain illnesses within their ability to treat, do deliveries, and elementary laboratory work. In addition to a medical assistant, a health assistant, a midwife, a health inspector, and a laboratory assistant, each health unit was to have a vehicle and a driver, making it possible to transport the personnel from the health unit on a regular schedule to the surrounding towns where no medical facility existed to hold clinics, vaccinate, and do health teaching, and to transport the medical assistant and midwife to towns with health posts to give supervision and hold prenatal clinics. The vehicle would, of course, also act as an ambulance to transport critical patients to the hospital.

As of 1973, we have a good number of conventional clinics and health posts, but none of the key health units. I hear that plans have been started for JFK to supervise at least one such unit in Monrovia or Montserrado County, but I have not heard of any definite plans to develop any such units yet in the outlying counties. Meanwhile, more towns are requesting conventional clinics, and already-established clinics are requesting more personnel--every clinic seems to feel it needs an R.N., a health assistant, a midwife, and a laboratory technician. Yet the fact is that, at least in the Zorzor District, most clinic personnel work only 2 to 4 hours per day--there are not sufficient patients to keep them fully busy--and they do not spend the additional time in productive ways, such as health teaching or regular clinic visits to other towns. Further, it would seem to me to be economically unsound at the present time to really adequately develop a good midwifery facility in every town, fully-equipped for all common obstetrical emergencies and staffed by professional midwives. With these points in mind, I would like to make the following suggestions:

1. That, where a fair concentration of clinics now exist, no further conventional clinics or health posts be established. This would include most of the Zorzor District.
2. That, in most cases, additional clinic personnel not be assigned to already-existing clinics.
3. That clinics presently overstaffed have personnel reassigned to other areas or to health units.
4. That 2 10-bed health units, capable of performing the functions described in the first paragraph be instituted now in Lofa County, with 1 additional full health unit and 4 sub-units in the future.

Lofa County presently has 2 clinic situations in which the buildings are ideal for health units, eliminating the need for building expenses. Most of the required staff is already found in each clinic, again reducing the expense of such a move. These clinics are Kolahun and Konia.

Kolahun has a spacious house originally built for Hon. Jusu. It has sufficient rooms for the following uses:

- 3 patient rooms each with 3 or 4 beds, one for obstetrics, one for pediatrics, and one for medical patients.
- 1 delivery room
- 1 prenatal examination and conference room
- 1 clinic examination area
- 1 nurse's office
- 1 laboratory
- 1 small drug storage room
- 1 larger supply storage room
- 1 large waiting area

No further rooms are needed.

The present staff consists of:

- 2 midwives
- 1 dresser
- 1 laboratory assistant
- 1 aide

A health inspector is presently assigned to Kolahun and could join the health unit staff. A medical assistant or experienced R.N., a driver, and a vehicle would yet be needed to develop a functioning health unit here, as well as 10 beds.

Konia is the other location where present conditions would make development of a health unit practical. The building is adequate. It contains:

- 10-bed patient ward
- Delivery room
- Patient examination room
- Conference room
- Drug storage room
- Laboratory
- Dressing room
- Large waiting area

The staff consists of Mr. Aggrey, a nurse with health unit training (in a short WHO course in Nigeria), a midwife, a lab. technician, and a records clerk. An empirical midwife and an R.N. with midwifery training from Guinea also assist. A driver, and perhaps a well-trained R.N. with experience in treating common illnesses would be desirable. However, Mr. Aggrey is able to drive. A vehicle would also be needed.

Dr. Guluma and I have talked about the development of health units for some time, and we both feel that a start should be made as soon as possible. Bopolu is another location where a health unit should be started in the future, and sub-units should be located at Bella Yella, Salayea, Bazanwen, and perhaps Vahun, also in the future.

I strongly feel that such health units, properly staffed and equipped, will give Lofa County better medical care for more people at less cost than would the continued expansion of present standard clinics.

Sincerely,

(Sgd.) Paul E. Mertens, M.D.

cc: Dr. Guluma, Voinjama

IMMUNIZATION SCHEDULE IN LIBERIA

<u>TIME</u>	<u>VACCINE</u>	<u>ROUTE</u>	<u>REMARKS</u>
Antenatal First visit	Tetanus toxoid alum absorbed	I.M.	
7th - 8th month of pregnancy	Tetanus toxoid alum absorbed	I.M.	
Birth	B.C.G.	Intradermal (Dermo jet or) (heat gun)	Maternity wards or first visit to MCH clinic site: Right arm
1 month	D.P.T. Poliomyelitis	I.M. Oral	Read B.C.G. repeat if "no take"
2 months	D.P.T. Poliomyelitis	I.M. Oral	
3 months	D.P.T. Polio		
6 months	Measles* Smallpox	Dermo jet	Site - left arm
1 year	D.P.T. (Booster) Measles*	I.M.	
5 years	D.P.T. (booster) Polio (booster) Smallpox	I.M. Oral	

Notes (1) If child first seen when over 6 months old and unimmunized:

First visit	D.P.T. alum absorbed Polio
-------------	-------------------------------

IMMUNIZATION SCHEDULE IN LIBERIA

<u>TIME</u>	<u>VACCINE</u>	<u>ROUTE</u>	<u>REMARKS</u>
	B.C.G. Smallpox		
One month later	D.P.T. alum absorbed Polio Measles		
Six months later	D.P.T. Poliomyelitis		

* May be repeated at age of one (1) year.

APPENDIX A³

DRUG LIST (UNIT)

Adrenaline 1:1000*
Aluminum Hydroxide
Benzyl benzoate Ointment
Bismuth Kaotim
Castor Oil
Chloroquine
Choramphenicol
Cough Syrup
Diabenase (Chlorpropamide)
Digoxin
Dilantin
Ferrous Sulfate
Folic Acid
Fragyl
Imferon
Ipecas
Isoniazid-thiacetazone
Insulin
Largactil
Lasix
Mintezol
Paregoric
Procaine
Phenobarbital
Piperazine
Phenergan
Procaine Penicillin
Pethidine
Reserpine
Streptomycin
Sulfa
Tetracycline
TCE
Multivitamins
Whitfield's Ointment

BASIC EQUIPMENT FOR PERIPHERAL HEALTH
INSTALLATIONS

HEALTH POST

2 B.P. Cuffs
2 Stethoscopes
2 Bivalve Specula
1 Fetal Stethoscope
Flashlight
Tongue blades & Applicator Sticks
Slides, glass
Wax Marking Pencils
Specimen bottles, 15cc & 30cc
Normal Saline Stock Solution
Oral Hydration Mixture
Formaldehyde
2 gastric tubes
2 Transfer forceps & holders
Bandages - plain gauze and elastic , 1", 2" and 3"
5cc Syringes
Hypodermic Needles
Simple Boiling Pot with cover
Alcohol
Alcohol lamp (flame)
Wooden Examination Table (local construction)
Scales (no Spring) Standing - Baby
Diagnostic Sticks for Dextrose & Albumin
Assorted Basins, Pans
Thermometers (R) & (0)

BASIC EQUIPMENT FOR PERIPHERAL HEALTH
INSTALLATIONS

HEALTH UNIT

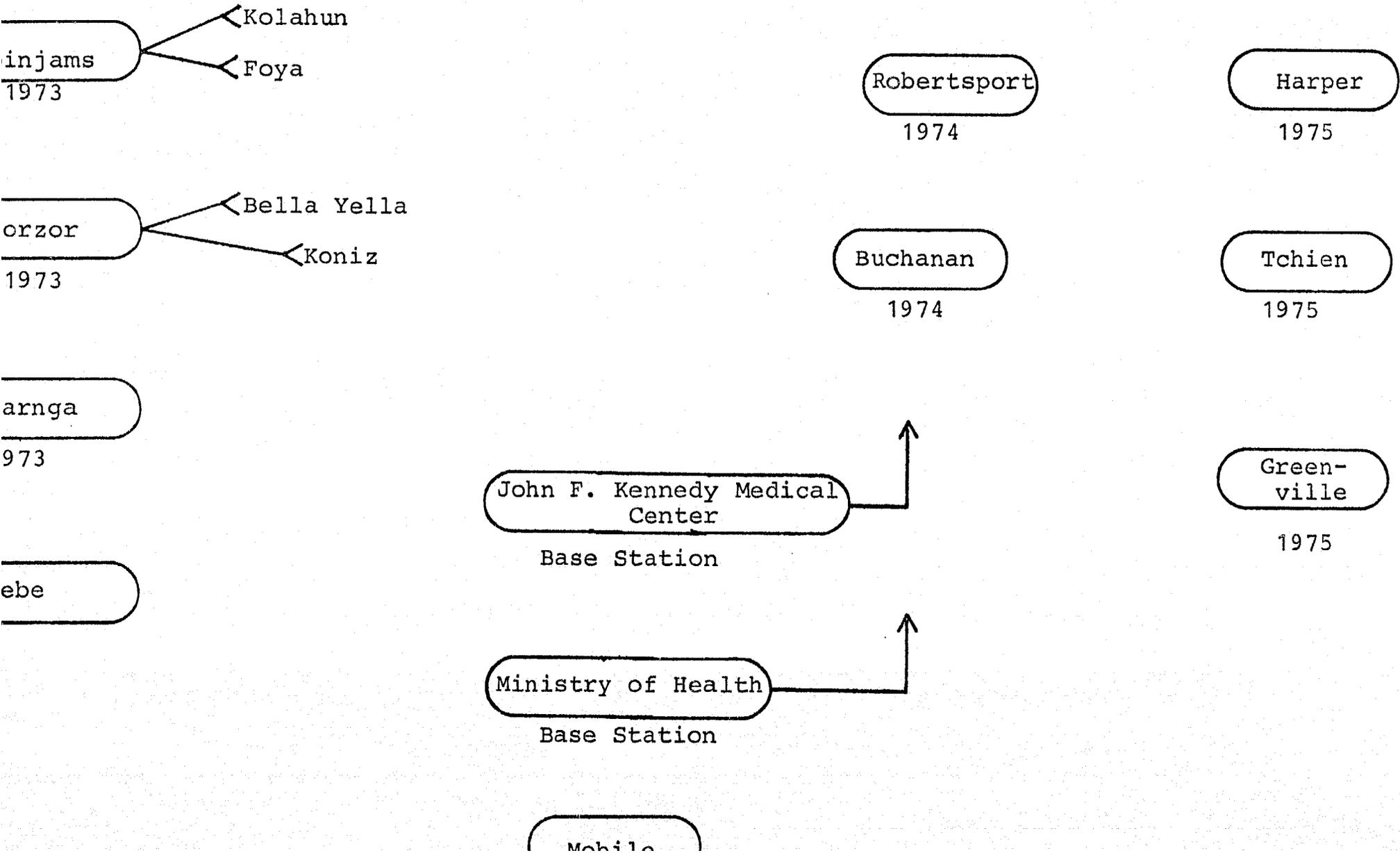
All Equipment of Post plus the following:

Endotracheal tubes (child & adult)
Tracheotomy tube - set of 6
Oto Scope Diagnostic Set
Stains - AFB, Gram Wright's Giemsa*
Microscope
Basic infusions. D-5-W; D-5-5
I.V. delivery Sets
Assorted Catheters
Gastric tubes for feeding/lavage
Urethral Sounds
Basic Cutdown tray (Venesection)
Laceration repair tray
Simple Suture
Catgut plain - 0, 00
Silk 0, 00,000
Thomas Splint, Child & Adult sizes, one each
Assorted sizes Syringes 2-30cc
Simple Boiler (electrical where feasible)
Wooden I.V. Poles (Local Construction)
Vacuum Extractor (where feasible)**
Central Records System & Information Bank
 a) Filing Cabinets
Thermometers

* Use of a prepared kit marketed at cost from Medical Assistant Program, Inc. might be ideal for our situation. The possibility is being explored at private level at this time.

** This is an important adjunct. In areas where electrification does not exist, a manual vacuum pump outfit might be considered.

MINISTRY OF HEALTH - JFKMC OUT-REACH PROGRAM
SSB COMMUNICATIONS NETWORK



J.F.K. MEDICAL CENTER
VHF COMMUNICATIONS NETWORK

Mat.
Center

Proposed Base Station

JFK

Base Station

Rehab.
Center

Proposed Base Station

JFK

Monitor Receiver

Mobile

Ambulance

Mobile

CMO

CMO

Monitor
Rec.

Mobile

Ambulance

Mobile

G.A.

LEGEND

To cover the required functions, two separate communications systems are required. A VHF Network linking the JFK to Mobile Units such as the ambulances and the Chief Medical Officer, is a requirement that the Center will have to meet in order to function well - even without the Out-Reach Program. That aspect is not considered a part of the Lofa Project.

With regard to the Pilot Project itself, one of the basic assumptions is that an adequate communications system will be available. Without it, the entire consultative and supervision processes collapse. So no other justification is included in this paper. The mechanics of the system works as follows: A Network of single sideband base station transceivers is required (this type because of distances). The need for a base station at the Ministry of Health is obvious, as there will be matters other than purely professional that require consultation.

Prearranged set periods for reporting will be established. Emergencies will, of course, be accommodated at any time. As a beginning, the set could be installed at the County Hospital level only with inclusion of the 6 Health Units in the county as the demands are established. This presupposes that each Unit would have a vehicle capable also of serving as an ambulance to make transfers to the County Hospital. Although the Pilot Project is restricted to Lofa County, it would be impractical to omit Gbarnga in the Network in this first phase. Because of the proximity of Phebe to Gbarnga, one might omit Phebe in phase one. Thus the initial network would be Voinjama _____ Zorzor _____ Gbarnga _____ JFK/MOH with option of including Kolahun, Konia, Foya and Bella Yella now, or midway in the Project.

APPENDIX B

Functions of Health Posts and Health Units

This Section lists the diseases that will be diagnosed and treated at the health post and health unit, and the drugs and equipment that will be available, presumably, in both installations. In making up these lists, certain arbitrary decisions had to be made. Each experienced individual will have his own notions as to what should be treated, where and what drugs should be allowed to be used by paramedical personnel. Time and experience will determine additions and subtractions, whether a disease should be moved from one category to the other or perhaps become solely the responsibility of the hospital. Diseases not listed are arbitrarily hospital responsibility. It is, therefore, vital that the staffs of the health units and posts recognize when they are beyond their depth or dealing with a disease not on the list and refer the patient to the hospital. This means, for example, that the paramedical personnel must recognize appendicitis and immediately refer it to the hospital. A vital part of the training of the personnel will be the recognition of situations that are beyond them and require referrals.

It is also obvious that all diseases treated will not respond as expected and these, of course, must be referred. It is also clear that occasional errors will inevitably be

made to the detriment of the patient. These must be expected and accepted since the scheme is built on the premise that the good resulting will outweigh the harm done.

It is re-emphasized that physicians and classically trained supporting personnel are not in adequate supply in Liberia. Even if they were, the country could not afford a sufficient number of them to meet the need and they probably would not be willing to live outside of Monrovia. Consequently, if the people of this country are to get a modicum of medical care and preventive services, we must be prepared, for the time being, to live with a much less than ideal situation. We have striven for the highest standards that seem possible in the current Liberian situation. Experience may show that even these standards may need to be lowered a bit. We do not profess infallibility or that the lists that follow are complete in every detail.

Many of the diseases listed are rare or uncommon. If an uncommon case presents, the assumption is that some treatment will be prescribed. Consequently, the drug list is long. Alternative drugs, of which there are many, have not been listed. Thus, the Committee on Operational Policy, elsewhere described, must make the necessary decisions as to what diseases and drugs should be omitted from the list.

Within the parameters of the philosophy herein briefly described but which permeate the whole report, it is wise to indicate the criteria which have been used in reaching the

decisions relative to the diseases, drugs, and equipment which have been prepared for the health units and posts. Since the health units will have the more experienced and trained personnel who will supervise the work of the health posts (and in turn be supervised by the County medical officer), it is apparent that they will be given the responsibility for the more difficult and complicated diagnoses and treatments. The team accepts the philosophy that many medical, preventive and public health procedures can be effectively executed by properly trained individuals who are not expected to have the competence of the fully trained professionals usually found in more developed countries. The lists that eventually follow will largely be the basis for the training of the personnel that will deliver these services.

It is also visualized that a number of diseases such as tuberculosis, leprosy and diabetes, while probably diagnosed at the hospital or health unit, can be given continuing treatment at the health post. For this reason drugs are included at the post that are distributed only on the prescription of higher authority.

Criteria for Where Services are to be Rendered
(Examples)

<u>Services and Activities</u>	<u>Health Posts</u>	<u>Health Units</u>
Diagnoses	Relatively easy	Relatively more difficult
Laboratory	None	Simple
Drugs	Largely specific and simple	More dangerous drugs prescribed
Travel by Patient	Minimal for simpler services	Longer travel required for more complex diseases and powerful drugs
Immunization	Not done routinely by post personnel because too time-consuming on individual basis. No refrigeration.	More effectively done by health unit personnel on scheduled occasions at health posts. Have refrigeration.
Family Planning	Counselling and education; distribute pills, foams, condoms	Counselling and Education plus insertion of loops which require more training, to be done by midwife or nurse
Deliveries	No beds	Beds available
Water and sewage	Can demonstrate and organize community for construction	Too far away for individual attention except in immediate community
Nutrition	Can demonstrate, counsel and educate	Too far away except in immediate community
Well Baby Clinics (on scheduled basis)	Babies close by	Too far away - immediate community only
Prenatal Care	Close at hand, simple criteria for normal or abnormal processes	Complicated cases referred

Diseases to be Diagnosed and Treated at Health Posts
*Diagnosed at health unit or hospital but followed at post

Infectious, Communicable and
Parasitic Diseases

Ascaris
Bronchitis (acute)
Chicken pox (dif. from smallpox)
Common Cold
Conjunctivitis
G.C.
Impetigo
Influenza
Measles
Mumps
Malaria
*Onchocerciasis
Pneumonia
Pediculosis
Syphilis
Tonsillitis and pharyngitis
Thursh
*Tuberculosis
Whooping cough (children over
age 1)
Yaws

Allergic Disorders

Allergy (mild)
Asthma (mild)
Drug sensitivity

Hematologic Disorders

Anemia (simple)

Cardio-Vascular

Shock (initial treatment)

Gastro Intestinal

Constipation
Diarrhea and dehydration
(simple, early)
Gastritis
Nausea and vomiting (simple)

Ear, Nose and Throat

Otitis Media
Sore Throat

(Diseases to be diagnosed and treated at health posts, Cont'd.)

Neurologic

Headache (simple)

Musculoskeletal

Osteo arthritis

Dermatologic

Burns (simple)

Fungus

Furuncles and carbuncles

Heat rash, prostration or cramp

Herpes simplex

Puritis Ani

Scabes

Tropical ulcer

Disorders due to physical agents

Trauma (minor)

(Several sutures permitted)

Burns (simple)

Poisons

Snake bites (initial treatment)

Diseases to be Diagnosed and Treated at Health Units

* = Hospital makes diagnoses and outlines treatment)

All diseases diagnosed and treated at health posts, Plus

Infections and Parasitic

Amibiiasis

Cholera (refer to hospital if not responding)

Respiratory

Croup (mild)

Genito Urinary Disorders

Dysentery

Hookworm, Guinea worm

*Leprosy

Syphilis

Shistosomiasis

Trachoma

Filariasis

Cardio Vascular Disorders

Hypertension

Shock (Initial)

Obstetrics

Deliveries (normal)

Endocrine

Diabetes (with foot care)

Goiter

Circumcision

Infections

Urinary Retention (initial)

Gastro Intestinal

Food poisoning

Gout

Hypoproteinemia

Marasmus

Psychiatric

Mild neurotic symptomatology

Epilepsy

Poisons

Snake bites

Preventive Medicine and Public Health Activities at the

Different Installations

Health Post

Health education in its broad aspects including nutrition and dental hygiene.

Sanitation. Sewage and water with practical demonstrations

Family planning (counselling and education, distribution of pills, foams and condoms).

Prenatal care

Well baby clinics

Immunization campaigns (organized by health post and conducted by unit mobile team).

Health Unit

Family planning (in part)

Immunizations (twice yearly on a planned basis by mobile teams).

Supervision of all health education activities.

Prenatal care and all other health post activities.

Drugs to be Stocked at the Health Posts and Health Units

Note: The following drugs should be kept in rationed quantities at the health posts so as to discourage too widespread use:

Penicillin	Cough syrup
Multivitamins	Folic acid (for anemic prenatals)

*Antidiabetic pill	Hydration fluid (oval) salt, sugar and coloring to be prepared locally)
Aspirin	
Alcohol	Iron Sulphate
Antiseptic	*INH; TBI; streptomycin
Aluminium hydroxide	Liniment or capsulin ointment
Benzyl benzoate	Procaine
Bismuth Kaopectate	Paragoric

Bicarbonate of soda

*Colchine

Chloroquine

Castor Oil

*Chloremphenical (pill and ointment)

DDT (lice)

*Dapsone

Gentian violet

Piperazine

*Reserpine with diuretic

Sulfas (soluble and insoluble)

Soda mint tablets

Saline (1 or 2 units with injection set)

Saline and potassium and acetate

Tetracycline (pill and ointment)

*Thyroid

Whitefield ointment

* To be stocked only if so ordered by higher authority.

Drugs to be Stocked Only at the Health Units

Antivenoms (snake)

Adrenalin

Digitoxin (hospital prescription)

Dilantin (hospital prescription)

Diethylcarbamazine

Ether

Ergatrate

Metronidazole (or Flagyl)

Phenobarbital

Stibophen

Silver nitrate

Saline and potassium and acetate

TEC

Tartar Emetic

Immunization Materials

Foot operated Pedo Jets

BCQ

Smallpox

Polio (oral)

Measles

Equipment and Supplies for Health Posts and Health Units

Applicators (wood, also used as tongue depressors)	Clipper (hair)
	Desks and chairs
Basins (emesis)	Envelopes (drug dispensing)
Bottles (screw cap for prescriptions)	Forms (various to suit needs)
Bandages (adhesive, cotton and elastic)	Filing cabinets and supply cabinets
Blood pressure cuffs (sphygmometer)	Flashlights
Burner (alcohol)	Forceps (various types - non obstetrical)
Cups (paper)	Scales (baby and adult)
Gloves (surgical - various sizes)	Stove (kerosene)
Hemoglobin determination (simple paper color comparasion)	Soap (liquid and bar)
Gauze	Security equipment (locks)
Glasses (medicine)	Sterilizers (appropriate)
	Sutures (for skin)

Labels (gummed)	Scissors (bandage)
Lubricant (surgical)	Syringes (appropriate sizes)
Lights (appropriate)	Stethoscopes
Maintenance and housekeeping supplies (brushes, brooms, soap, mops, etc.)	Tables and chairs
Needles (surgical)	Towels (paper)
Otosopes	Thermometers (oral and rectal)
Stretchers (simple canvas)	

Additional Equipment and Supplies for Health Units

Bags (hot water or ice)	Obstetrical kits (for home deliveries)
Brushes (surgical scrub)	Sutures (episiotomy)
Bedpans	Scissors (episiotomy)
Cots (folding)	Speculum (vaginal)
Catheters (urethl)	Stethoscope (foetal)
Diapers (local procurement)	Scalpel with blades
Ear bulbs	Suction pump (manual)
Extractor (vacuum hand pumps)	Table (obstetrical, local manufacture)
Refrigerators (kerosene if necessary)	Tubes (gastric, tracheotomy, endotrachial)
Ligatures (umbilical)	Thermos flasks and fillers (large for transporting vaccine)
	Urinals (wide mouth bottles)

Laboratory Equipment for Health Unit Only

A prepared kit would probably be the simplest and easiest. Such an item is marketed at cost by the Medical Assistance Program.

There follows a list of items if it is determined not to purchase the kit.

Alcohol lamp	Lancet (blood or Bard Parker Blades)
Brush (test tube)	Labels (gummed)
Blood counting chamber with cover slip and pipettes for W.B.C.s	Microscope and lens paper
Beakers (various sizes)	Marking pencil (China)
Bottles (specimen)	Racks (test tube)
Centrifuge (hand spun)	Stains (ex. gram and acid fast)
Funnels and filter paper (Several sizes)	Staining dish
Flasks (erlymeyer, various sizes)	Stool containers (paper)
Graduate cylinders (various sizes)	Test tubes
Glass slides and cover slips	Test strips and color charts (H ion, sugar, protein, ketone, blood)
Hemoglobinometer (wedge type)	Urine bottles (wide mouth simple bottles)

APPENDIX C

FULL - TIME INSTRUCTORS AT T.N.I.M.A.

School of Nursing:

Jennie Bernard, Director; Instructor of Sociology and Head
Nursing Administration

Frances Giddings, Asst. Director; Instructor of Medical/
Surgical Ngs.

Mary Wade, USPHS Advisor, Instructor of Public Health
Nursing

Wvannie Scott, Senior Instuctor; Instructor of Pediatric
Nursing

Rosalind Abdullai, Senior Instructor; Instructor of Obstetrics
and Gynecology

Carolyn Johnson (PCV), Instructor of Fundamentals of Nursing

Maie Karmo, Senior Instructor; Instructor of Medical/Surgical
Nursing

Bendu Greene, Junior Instructor; Instructor of Medical/
Surgical Nursing

Hawa Massaquoi, Junior Instructor; Assists in Clinical Areas

Jessie Duncan, (Part-time); Instructor of Medical/Surgical
Nursing

Dorathy Wrase (PCV); Part-time - Instructor of Nutrition

School of Environmental Health

Hylton Parkinson, Director; Instructor of Sanitation Drawing,
Building Construction, Meat Sanitation

David Moses, USPHS Advisor; Instructor of Statistics,
Parasitology; Epidemiology and Communicable Diseases

Ermanuel Dueh, Senior Instructor; Instructor of Meat Sani-
tation, Food Sanitation, Communication

Nathaniel Massaquoi, Instructor of Food Sanitation, Applied
Math, Water Sanitation

Raphael Kpissey, Instructor of Public Health Organization,
Survey and Mapping

Solomon Tumu (Part-time), Instructor of Waste Disposal

School of Physician Assistants

Agnes Dagbe, Director; Instructor of Personal Hygiene and
First Aid

Hanna Dunbar, Senior Instructor; Instructor of English
Composition

Joseph Quaye, Junior Instructor; Assistant Instructor in the
Clinical Areas

John Dorbor, Assistant Instructor in Clinical Areas

INSTRUCTORS OF TNIMA (THESE SERVE IN ALL THREE SCHOOLS)

C. Augustus Dundas, Health Educator; Instructor of Health
Education

Joseph Bailey, Science Instructor

Timothy Lathrop (PCV), Science Instructor

N O T E : There is a long list of part-time Instructors
for each of the schools.

APPENDIX D

History of the John F. Kennedy Medical Center

On October 23, 1959, the Government of Liberia entered into an agreement with Litchfield-Whiting-Bowne and Associates for professional services. This contract provided for LWB to act as architect/engineer for a 200-bed hospital to be erected in Monrovia. The contract was between the GOL and LWB on an owner-architect/engineer relationship.

Programs were developed by the parties to the contract and their staffs; architectural and site studies were made, reviewed and the preliminary drawings and specifications were approved by the GOL on April 22, 1960. This preliminary work was developed in accordance with a program prepared by LWB and a Medical Advisory Board appointed by President Tubman. The preliminary submittal was approved by the Medical Advisory Board and the architect of the Department of Public Works of the GOL.

In October of 1960, after LWB conferred with President Tubman who was then in Switzerland for medical reasons, the work of LWB was halted pending receipt of a new program President Tubman envisaged while in Switzerland integrating a Medical School with the Hospital.

On February 20, 1961, LWB was instructed by the GOL to contact certain members of the medical profession in Switzerland regarding the design of a Medical College and further to proceed with agreed changes to the documents for the Hospital.

Notes on a tentative program for a Teaching Hospital were received from the Dean of the Medical Faculty of the University of Zurich on February 27, 1961. These recommendations were incorporated into the Hospital Contract.

In 1961, President Tubman paid an official visit to the United States and met with the late John Fitzgerald Kennedy, then President of the United States of America. One of the results of this visit was a joint communique by the United States and the Republic of Liberia stating the United States' interest in helping to finance the construction of a National Medical Center to support that country's national public program. This Center not only provides hospital care for the citizens of Liberia but will serve as the focal point for health care services and paramedical training within the Republic of Liberia.

When fully operational, this Medical Center will provide comprehensive referral, consultative and clinical teaching services for virtually all medical specialities. The medical and paramedical training programs will continue in their efforts to meet the ever-expanding health manpower needs of the nation.

A Brief Historical Review

1. October 1959 The GOL and LWB Associates entered into a contract for the design of a Liberian Government Hospital in Monrovia.
2. April 1960 Preliminary drawings and specifications approved by the Department of Public Works, GOL.
3. October 1960 Work on the contract documents was halted after President Tubman in Switzerland envisaged a new program.
4. February 1961 Recommendations submitted by members of the medical profession in Switzerland were incorporated into the Hospital contract documents.
5. October 1961 President Tubman made an official visit to the United States, meeting with the late President John F. Kennedy.
6. January 1962 The Government of Liberia purchased land for the Medical Center and engaged architectural and engineering services.
7. 1962-1965 The Government of Liberia and the United States of America continued to negotiate and plan for the National Medical Center.
8. February 1965 The U. S. Public Health Service (USPHS) was officially engaged as the sponsoring agency for the JFK Medical Center team.
9. June 1965 Final arrangements were completed for a capital loan (U.S.) to Liberia in the amount of \$6,850,000 with a concurrent \$1,000,000 contribution by the Government of Liberia.

10. August 1965 The construction contract was signed and a Notice to Proceed was issued December 21, 1965.
11. January 1967 The inaugural meeting of the Hospital and Training Board was held.
12. June 1970 Construction of a new hospital, paramedical training wing and dormitory was officially completed.

Component of the Medical Center

1. John F. Kennedy Hospital (new construction)
 - a. Site - overlooking the Atlantic Ocean, Tubman Boulevard, at 21st Street, Sinkor.
 - b. Bed complement - 250 beds
 - c. Student dormitory - 135 capacity
 - d. Type of construction - five-story reinforced block and masonry construction
 - e. Services:

(1) Administrative

Administration
Business Management
Personnel
Purchasing
Dietary
Housekeeping
Laundry
Maintenance
Health Records
Nursing
Pharmacy
Dental
Physiotherapy
Laboratory
X-ray

(2) Medical

Anesthesiology
Ear, Nose and Throat
Internal Medicine
Ophthalmology
Orthopedics
Pathology

Pediatrics
Radiology
General Surgery
Urology
Dermatology
Physical Medicine
Dentistry

2. Maternity Hospital

- a. Bed complement - 150 beds
- b. Obstetric and gynecological in-patient and out-patient care
- c. Originally operated by the Baptist Mission Board with property purchased by the Government of Liberia in 1964
- d. Located two miles toward town from the John F. Kennedy site

3. Tubman National Institute of Medical Arts

- a. Founded in 1945
- b. Student complement (1970) - 107 students
- c. Programs of instruction include:

Professional Nursing
Practical Nursing
Midwifery
Environmental Health
Health Assistants
Medical Assistants

- d. Faculty includes eighteen full-time members supplemented by several part-time instructors

4. Catherine Mills rehabilitation Center

The charter of the John F. Kennedy Medical Center provides that other elements may be incorporated into the Center. Consequently in 1972, it was determined that the Catherine Mills Rehabilitation Center should become part of the Medical Center. This institution is really a short stay psychiatric unit of 60 beds. No mental hospital existed in Liberia until 1961 when this one was founded. It also operates a mental clinic, making early discharges from the institution possible. There is also a half-way house with a capacity for 16 patients, and a chronic ward for 10 patients. Both are in addition to the bed capacity of 60 in the short stay unit.

5. John Eugene Roberts Memorial Tuberculosis Hospital

The decision to include the tuberculosis hospital as a part of the Medical Center was made in 1972 and effectuated in 1973. The capacity of this institution, physically separated from the John F. Kennedy Medical Complex approximates 300 beds, though this number of patients would overcrowd the facility. It is now in the process of rehabilitation which is badly needed.

Summary

1. Components:

John F. Kennedy Hospital
Maternity Center Hospital
Tubman National Institute of Medical Arts
Catherine Mills Rehabilitation Center
John Eugene Roberts Memorial Tuberculosis Hospital

2. Capital Development Financing: \$7,850,000
3. Date New Construction Completed: June 24, 1970
4. Total Beds 250 (new); 150 (existing)
5. Operating Authority: National Public Health Service, Republic of Liberia, with delegated operational responsibility to the Hospital and Training Board
6. Technical advisory assistance provided by USAID through a participating agency agreement with the United States Public Health Service, Indian Health Service

APPENDIX E

The Executive Mansion
Office of the President
Monrovia, Liberia

May 1, 1973

STATEMENT BY PRESIDENT W. R. TOLBERT, JR.
FOR RELEASE

The new Liberia that we envision does not constrict itself by dogmatism and outdated concepts. Our new Liberia demands rational planning and cool professionalism in implementing our programs to achieve their determined objectives.

The Wholesome Functioning Society envisages an integrated development plan of qualitative improvement in the standard of living for all our people. This involves not only the development of physical amenities such as roads and buildings, but also improved techniques of food production, health education toward the achievement of improved nutrition, protected water supplies, sanitary waste disposal, systematic immunization, maternal and child health and family planning.

Somewhere along the line, the impression may have been left that our Health Policy precluded the concept of family planning. This is an illogical assumption. It would be self-defeating to advocate the raising of living standards, while at the same time denying the need for qualitative growth. Responsible parenthood is just as important as responsible fiscal policy. We owe it to ourselves and to posterity, to take advantage of modern technology wherever it is available.

The Government attaches high priority to the development of our health care delivery systems. Within our means, we intend to press forward with extending the benefits of modern care and prophylaxis to all our people. We shall not relent until these goals have been achieved.

APPENDIX F

PERSONAL HISTORY FORM

1. My name is _____
2. I am _____ years old.
3. Presently I work at _____ (give health post or clinic)
4. I was trained as _____ My present work classification is: (check in this column) (check in this column)

_____	Medical Assistant	_____
_____	Professional Nurse	_____
_____	Practical Nurse	_____
_____	Health Assistant	_____
_____	Midwife	_____
_____	Laboratory Technician	_____
_____	Nurses Aid	_____
_____	Dresser	_____
_____	Vaccinator	_____

5. I have completed _____ years of schooling
6. I have had _____ months of health training
7. The year (s) when I received my training was _____
8. I received my health training at _____ (Name of institution)
9. I hold a certificate of _____
10. I have been working for the National Public Health Service for _____ years

APPENDIX G

EXTENSION OF HEALTH SERVICES IN RURAL AREAS DESCRIPTION OF THE PROGRAM*

Comprehensive medical services are now provided by the John F. Kennedy National Medical Center. These services include surgery, medicine, tuberculosis, cholera and other communicable disease service, short term psychiatric care at the Catherine Mills Rehabilitation Center and education and training of personnel. By and large these comprehensive services are only available to approximately 20 per cent of the population living in and around Monrovia. They are not readily accessible to the majority of the population living in the rural areas, nor is there any systematized method of consultation and referral whereby the people in rural areas can benefit from the expertise, specialized knowledge and skill of the staff or of the facilities of the Center.

In order to provide better, though limited, medical care to the rural people and to extend the benefits of resources within the Medical Center, the Ministry of Health and Welfare in cooperation with the John F. Kennedy Medical Center is proposing an outreach health program for rural areas. The project would set up a formal liaison between the peripheral medical services and the Medical Center with the goal of bringing to reality a systematic referral and consultation mechanism where none exists at the present time.

Taking into consideration the limited resources of the Country, any attempt to develop an outreach program to cover the entire rural area immediately would be too ambitious for success. Besides, there is need to test out and decide on the most effective mechanisms before they are put into wide-scale application. Therefore, in its initial stage a prototype project is proposed to be developed in one Country, preferably Lofa County, which would be expanded and extended to the other Counties within a ten-year period.

*Document prepared for meeting of Ministers of Government

At present there are three hospitals in Lofa County (the Curran, Tellewoyan and Bolahun Mission Hospital) and 43 clinics to serve a population of approximately 170,000. However, with an inadequate road network system, majority of the people cannot be reached with health services.

Limited resources for procurement of drugs and other medical supplies further compound the problem of providing meaningful health services to the people. The outreach program should take into account existing resources with these additions:

- a) Health posts manned by trained rural health workers and supplied with specific drugs and equipment. At these posts the health workers could diagnose and treat the more common health problems according to specified instructions. Those too complicated for the health worker to handle alone would be referred to one of the hospitals in the county for consultation and treatment. In addition to his curative activities, the health worker would also provide preventive services including immunization, nutrition, maternal and child health services, health education and promotion of safe water and adequate sewage disposal in the communities. There should be a health post to serve each 4-5,000 population.
- b) The county and missionary hospital would diagnose and treat conditions referred to them from the health post. In critical situations where the patient could not be moved, the hospital would direct the activities of the health worker over a two-way communications system. Follow-up of convalescent patients from a hospital would be provided by the health worker on instructions from the hospital.
- c) The John F. Kennedy Medical Center would provide back-up reference for conditions requiring specialist assistance. Physicians from John F. Kennedy Medical Center would go to the hospital if needed or patients could be brought into the Center. Specialists from the Center would conduct continuing education sessions for the doctors in the County Hospitals.

OPERATIONAL REQUIREMENTS

In order for the plan to become operative, the following are required:

- 1) The Ministry of Health and Welfare must give to the existing staff a two months' orientation and refresher training for the enlarged duties they are to perform. At the end of the training period, they can begin to give service in their assigned posts.

To extend the program to other areas, additional workers will be recruited and trained in batches. These workers should have a minimum education of 9-12 grade and be mature individuals whom the people will trust. Their training would probably extend over a one-year period. Much of it should be devoted to supervised practice in clinics and in the field.

For each 10-12 health posts there should be one supervisor whose responsibility will be to help the workers become more skillful in diagnoses and treatment. He should also encourage the workers in their preventive activities in the community. Individuals with adequate technical training would require possibly a month of training in the principles and methods of health supervision.

- 2) The health posts must be supplied with the necessary equipment for giving health services. There must be set up a dependable supply system so that health services will not be interrupted by lack of drugs and materials.
- 3) A two-way communication system should be set up with its master station in the John F. Kennedy Medical Center. The system should provide possibilities of communication between the Medical Center, the Ministry of Health and Welfare, and the Peripheral Hospitals. Communications must also be possible between the health posts and the peripheral hospitals.

Through this system health workers and hospitals will be able to obtain expert consultation and advice on conditions which require greater medical expertise than that of the peripheral workers and

hospitals. To keep the system functioning well-trained communications personnel must be made available for maintenance.

- 4) There must be adequate logistics to support all aspects of the program. The supervisors will require transportation such as motorbikes if they are to make the necessary visits in the field. There should be budgetary provision for maintenance of motorbikes and travel allowance for workers while in the field. The amount of travel payment should conform to existing rates.

INTERMINISTERIAL COOPERATION

Cooperation and participation of the following Ministeries are essential for maximum effectiveness of the project:

- 1) Ministry of Agriculture: Cooperation is needed in promoting the production of highly nutritious food crops and education of the people to eat a more nutritious diet.

There is a circular relationship between inadequate nutrition and ill health. Poor nutrition increases susceptibility to disease and magnifies its debilitating effect, thus impairing the ability of the food to restore normal vitality and energy levels and diminishing both an individual's ability to produce and his willingness to innovate - for example, to undertake credit risk or to accept improved methods of production. At the same time the fevers and enteric afflictions to which he is more highly susceptible consume and waste essential nutrient.

According to estimates in some regions, as much as 20% to 25% of total food consumption may be wasted through disease, thus defeating the goals and efforts of agricultural development.

Cooperation of agricultural extension workers is needed so that illnesses which they discover in their educational work through the communities will be referred to the health facilities for early treatment.

- 2) Ministry of Education: Cooperation is needed in emphasizing the teaching of health, nutrition, family life and safety to the children and, where possible, their families. Improvement in health practices among children will reduce absenteeism from school and result in more efficient learning.

Cooperation of teachers is needed in screening of children and referral of those with health problems to health posts and facilities for amelioration of their condition. Early detection and referral of such defects and conditions will improve the children's health and reduce the likelihood of more extensive problems in the future.

It should be pointed out that the proposal under consideration here would cooperate and coordinate its activities with the program of "Selected Services for Children". The latter program is primarily for school children. The present project will provide health services not only for school children but for the total population.

- 3) Public Utilities Authority: Cooperation is needed in the provision of safe water and sanitary latrines at each of the health post. Without water the health posts cannot function. They should not be guilty of spreading disease through use of a polluted water supply or inadequate sanitary facilities.
- 4) Ministry of Public Works: Cooperation is needed in making available plans and routes for future road building in Lofa County. New health posts that may be established need to be readily accessible to the people. They should be located near or on planned roads so that people may reach them without difficulty.
- 5) Ministry of Finance: Advice and guidance on the financial practicality of the project is needed. The program would establish a coordinated network of basic rural health services with back-up technical support from the John F. Kennedy Medical Center. Existing personnel and facilities will be incorporated wherever possible and supplemented in areas not presently served. As the prototype program in Lofa County becomes effectively operational, extension will be made to other Counties with full coverage expected in ten years. The success of such a phased program depends on a viable long-term funding plan that complies with the Government's fiscal capabilities.

It should be noted that the heaviest financial burden will comprise one-time expenditures to provide training facilities, material and communications equipment. The continuing expense - salaries, drugs and supplies, maintenance, etc. - are relatively less and could be regularized into the annual budgetary process with comparative ease.

- 6) Ministry of Planning and Economic Affairs: Advice and guidance is needed to assure that the program is compatible with the Government's priorities for continuing economic and social growth and is coordinated with all other development plans in the County.
- 7) Ministry of Local Government: Cordial working relations with local authorities are crucial to the success of the program. Their assistance is needed in such matters as site selection, self-help contribution, manpower recruitment, advice on local customs and social acceptance, promotion of preventive measures against disease and encouragement of wide-scale individual use of the services

APPENDIX H

SUGGESTED TRAINING PROCEDURE

The following procedure for training staff to man the "out-reach" program is based on "task-oriented" training. For the staff already on the job it involves a testing-learning-performing procedure. For new staff it utilizes the "learn by doing" philosophy of John Dewey with the rationale for each action being given only in connection with the action and not as academic abstract information.

More specifically the training procedure involves:

1. Precise statement of functions of a given worker.
2. Analysis of each function into the specific detailed tasks necessary to perform each function.
3. Specifying the knowledge and skills necessary to carry out the task successfully.
4. Defining the teaching procedures designed to help the student learn the necessary knowledge and skills.
5. Developing a testing or evaluation mechanism to assure that the student can perform satisfactorily the tasks of the job.

Training of health assistants: Illustration of the application of the above procedure to the initial training of health assistants follows:

1. The functions of the health assistants are:
 - a) Diagnosis and treatment of limited number of disease states
 - b) Dispensing drugs for acute and chronic conditions as part of initial treatment or as prescribed by health unit or hospital
 - c) Arranging for immunization of population
 - d) Prenatal, postnatal care
 - e) Family planning or child spacing
 - f) Sanitation
 - g) Health education
2. Some of the tasks involved in performing one of these functions are detailed below.*

*Not all the tasks are given but some of the detail necessary for the worker to perform effectively is illustrated. Without such detail the trainee may not learn essential steps in performing each function.

- a) Diagnosis and treatment of limited number of disease states
 - 1) Take a symptomatic history
 - 2) Observe patients for visible symptoms
 - 3) Take blood pressure, temperature and pulse
 - 4) Discriminate what treatment applies to the combination of symptoms presented
 - 5) Treat various conditions with skill. (The specific treatment needs to be spelled out in detail for each condition.)
 - 6) Prescribe or dispense proper drugs where that is the indicated treatment
 - 7) Instruct patient on use of drugs and check to see if patient understands

3. An illustration of the knowledge and skills necessary to perform tasks 1) and 4) are detailed below.
 - a) Take a symptomatic history
 - 1) Knowledge of what symptoms to elicit when patients comes in with a given complaint
 - 2) Knowledge of the significance of each symptom
 - 3) Skill in asking non-leading questions in obtaining history
 - 4) Skill in checking the accuracy and seriousness of reported symptoms.

 - b) Discriminate what treatment applies to a combination of symptoms.
 - 1) Knowledge of the many combinations of symptoms (each combination to be detailed) and the treatment to be given for each
 - 2) Knowledge of critical symptoms that would require referring patient to the unit
 - 3) Skill in diagnosing conditions in terms of the treatment that should be given
 - 4) Skill in follow-up of treatment to make sure the decision about the treatment was correct.

4. Since one of the most important tasks of the health assistant is the symptomatic diagnosis and treatment of health disorders, the training method should simulate as closely as possible the job to be done.

Knowledge of the manifestation of visual symptoms can be stimulated initially by photographs of different individuals in which the same symptom is shown accompanied by explanation of the important characteristics to observe. Further knowledge about the manifestation of visual symptoms can be stimulated by exhibiting the symptom in live patients at a clinic or in a hospital ward.

Knowledge of the significance of findings from histories can similarly be initiated by explanations of the meaning of replies to history-taking (possibly some recorded histories which students learn to interpret).

Knowledge of the combination of symptoms and their meaning for treatment can be stimulated again by pictures of patients with a given combination of symptoms. (If there is a teaching group of pictures and a testing group of pictures, the knowledge and skill of the trainees to identify combinations of symptoms and their meaning for treatment can be tested using the testing pictures.)

Finally the training method involves sending the trainees onto the ward or into a clinic and requiring that they examine patients and write down the treatment (or referral) they would give to each patient they examine. Each trainee's decision can then be checked with the diagnosis and treatment made by a professional health worker. Where errors are made, discussion by the trainer with the students will reveal misunderstandings that need to be corrected and the kinds of supervised practice required. During these discussions the rationale of the doctor's decisions can be imparted so that the trainees have some understanding of the scientific background for the discriminations they are called upon to make.

The above analysis of the way in which to build a task, or job-oriented, curriculum has illustrated only a very small part of detailed planning required. Such detailed specifications of each step in the process have been shown in industry to produce effective workers at all levels of operation in the shortest time possible. The initial training of the health assistant would seem to fit into this training procedure admirably.

In-service training of present workers. Applying the training procedure described above to reorienting present workers to their assignments in the network of health services, the workers would be presented with the test photographs and other symptomatic data, described in Section 4 above, and asked to indicate treatment and/or referral for each. The outcome from this test would indicate to the trainer the learning needs of the trainees. Workers would then be instructed and drilled on assigning the proper treatment for the various conditions until they had gained proficiency in doing so.

They would then be sent to clinics or wards of the hospital to examine patients and indicate the treatment they would give for each. When their performance corresponded with that of the professional, they would be ready to discharge the first function listed on Page 1 above.

Other appropriate task-related methods would be used to orient them to the other functions they need to perform.

APPENDIX I

Principal Contacts

American Embassy

Mr. Melvin L. Manful, Ambassador
Mr. David L. Gammon, Deputy Chief of Mission

A. I. D. Mission

Mr. William C. Wild, Jr., Director
Mr. Elmer J. Moore, Deputy Director
Mr. Thomas B. Stuman, Comptroller
Mr. Frank W. Campbell, Multi-Sector Officer
Mr. Dale Thorngren, Asst. Multi-Sector Officer
Mr. Julius Cole, Program Officer
Mr. Angel M. Diaz, Deputy Program Officer
Miss Winifred Evans, Midwifery Advisor
Mr. James Cretecos, Public Safety

Ministry of Health and Welfare

Mrs. Mai Padmore, Minister
Mr. William H. Hoff, Deputy Minister
Mr. Josiah N. Brown, Asst. Minister
Mr. Meimei Dukuley, Asst. Minister
Mr. Frank Awode, Comptroller
Mr. J. Robert Ellis, Director, Bureau of Preventive Service
Mrs. Edith Shepherd, Director, Maternal and Child Health Program
Miss Frances Jinlack, Asst. Director MCH Program
Dr. Poniah Nadarasa, Drug Section Advisor
Mrs. Harriet Dennis, Instructor of Midwives
Mrs. Mary Brown, Instructor of Midwives
Mr. Henry G. Russell, Chief of Environmental Sanitation
Mr. Anthony S. Wote-Doe, Chief of Vital Statistics
Mr. Nathaniel Krazolu, Vital Statistics Section
Mrs. Katurah Hingston, Vital Statistics Section

John F. Kennedy Medical Center

Dr. Nehemiah Cooper, Medical Director
Mr. Moses K. Weefer, Administrator
Mrs. Elouise Duncan, Director of Nursing

Tubman National Institute of Medical Arts

Mr. C. A. Dundas, Acting Director, Health Educator
Mrs. Jennie Bernard, Director, School of Nursing
Miss Rosalind Abdullai, Instructor, School of Nursing

Miss Bendu Greene, Instructor, School of Nursing
Miss Wvannie Scott, Instructor, School of Nursing
Miss Agnes Dagbe, Instructor, School of Physician-Assistants
Mr. David Moses, Instructor, USPHS Advisor
Miss Lorel Edwards, Instructor, USPHS Advisor
Miss Mary Wade, Instructor, USPHS Advisor

Maternity Hospital

Mrs. Adelaide Morris, Administrator

Catherine Mills Rehabilitation Center

Mrs. Buckeley, Nurse-in-Charge

AID, PASA Team

Dr. Robert Patton, Advisor

Mr. Ken Nelson, Advisor

Miss Marion Bayless, Advisor

Mr. Frank Lawler, Advisor

Ministers of the Liberian Government and their Representatives

Mr. Everett J. Goodrich, Minister of Local Government,
Rural Development and Urban
Reconstruction

Mr. Peter Zwarg, PC/V in the Ministry

Mr. D. Franklin Neal, Minister of Planning and Economic
Affairs

Mr. Henry Y. Yaidoo, Deputy Minister of Planning and
Economic Affairs

Mr. Paul Jeffey, Ministry of Planning and Economic Affairs

Mr. Manley B. Reeves, Ministry of Planning and Economic Affairs

Mr. James T. Phillips, Jr., Minister of Agriculture

Mr. Alfred Fromayan, Director of Agricultural Extension
Service

Mr. James Bedel, Agricultural Extension Service

Mr. Gabriel J. Tucker, Minister of Public Works

Mr. M. T. Padmore, Engineer, Ministry of Public Works

Mr. Logan Campbell, Public Utilities Authority

Mrs. Ellen Sirleaf, Asst. Minister of Fiannce for Fiscal
Affairs

Mr. Byron Tarr, Asst. Minister of Finance

Mr. Frank Stewart, Director, Bureau of the Budget

Mr. Joseph G. Morris, Ministry of Education

United Nations Representatives

Mr. Curtis Campaigne, U.N.D.P. Representative

Dr. M. P. Otolorin, W.H.O.

Dr. I. B. Ogun, W.H.O. Advisor

Miss Marie Hallonan, W.H.O. Nursing Advisor

Mr. John Rumford, U.N.D.P. Assigned to Ministry of Planning
& Economic Affairs

Mr. John Bolton-Maggs U.N.E.S.C.O Rural Development Officer
Mr. Akfasey, U.N.I.C.E.F., Abidjan
Mr. David I. J. Burrige, Transportation Equipment Maintenance
Organization
Dr. Ahmid, U.N. Inter-regional Advisor on Social Welfare
and Family Planning

Kakata Teacher Training Institute

Dr. Schweighofer, Coordinator, UNESCO Project
Mr. Erickson, Curriculum Research
Mr. Taransus, Community Development Advisor
Mr. Wheeler, Science Advisor
Mr. Zarti, Health & Physical Education Advisor
Miss Patton, PC/V Home Economics Teacher

Individuals in Lofa County

Mr. Edward S. Jones, County Superintendent
Dr. Samuel Guluma, Medical Officer
Dr. Paul Mertens, Chief, Zorzor Hospital
Miss Karen Tompkins, Nurse, Zorzor Hospital
Father Parsell, Holy Cross Liberian Mission
Father Stephens, Holy Cross Liberian Mission
Brother Lawrence, Holy Cross Liberian Mission
Miss Boo, Swedish Hospital
Staff of 13 health installations

Peace Corps.

Mr. Daniel Goe, Deputy Director
Dr. Peter Polatin, Physician
Miss Alameda Harper, Associate Director
Mr. Kenneth A. Cobb, Program and Development Officer
Dr. Michael Wight, PC/West Africa
Dr. Ivan S. Alio, Health Program Consultant, PC/Washington

Miscellaneous

Mr. William Hill, Director, Family Planning Association of
Liberia
Mr. Robert B. Flemister, Gen'l Manager, F&F Electronics Inc.