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PARWAN BASIC HEALTH CENTER
PILOT PROJECT

Evaluation Report
Summary

March, 1976

PARWAN BASIC HEALTH CENTER PILOT PROJECT

EVALUATION REPORT

SUMMARY REPORT

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I. Introduction

The idea for a Basic Health Center Pilot Project took form at the beginning of 1974 during discussions between the then Director General of Basic Health Services and his MSH counterpart. The idea was attractive because

- 1) many existing Ministry of Public Health (MOPH) policies about the BHC system had never been carefully tested and evaluated;
- 2) more work seemed to be needed to improve the administrative, training and supervisory support systems; and
- 3) there were gaps in BHC technical policy and detailing which needed elaboration.

The Ministry and various donor agencies were receptive to the idea for a project incorporating these general goals.

During the ensuing months, several approach documents and a draft proposal for a project in six BHC's were drawn up by WHO, MOPH, and MSH colleagues. Mr. Hoelgaard (UNICEF, Kabul) and USAID Kabul provided generous and timely support to several critical project elements. The project was approved by the minister in the spring of 1974. Project phases were as follows:

- Phase I--Clear up and restock the pilot BHC's
- " II--Training of mobile training teams
- " III--Implementation of project inside six BHC's
- " IV--Implementation of project outreach phase
- " V--Project evaluation

From the outset, a concerted attempt was made to keep the project

- 1) practical rather than theoretical;
- 2) Afghan rather than foreign;
- 3) closed-ended, with feedback into the rest of the BHC system at the earliest moment; and
- 4) capable of replication.

It is gratifying to note that the MOPH has adopted numerous features of the project for the national implementation which is now underway, beginning in two regions, which constitute more than half of the country.

The area selected for the project comprised the two adjacent provinces of Parwan and Kapisa, located, at their nearest point, nearly one hour north of Kabul. The two provinces contain extremely diverse topographic, economic, and demographic areas which support either agricultural or pastoral activity or both. Like the country itself, these areas are predominantly rural, with only one substantial urban center of about 100,000. The total population of the two provinces is 1,389,000. The six BHC test sites were deliberately selected for their diversity. While no claim can be made that these six centers and their surrounding areas (or any other six) are "typical" of Afghanistan, they served well as test sites and produced much valuable information and experience.

The careful reader will note the omission of explicit pilot project activity in the areas of environmental health or curative medicine as provided through the BHC polyclinic. Material on Environmental Health (EH) was reluctantly left out of the project for the simple reason that a really usable EH work program could not be developed in time for the pilot project. It is hoped that such a program can be developed in the foreseeable future. The area of curative medicine was deliberately ignored for project purposes

for the following reasons:

- 1) BHC staff had received their principal training and experience in curative services and presumably were already quite proficient;
- 2) Given the already overwhelming attention to curative rather than preventive services, it was felt that the curative side should be played down.

Following the project, however, it has been decided that a section in the new BHC manual should be devoted to the organization and practice of emergency services.

The primary purpose of this evaluation statement is, of course, to provide data and analysis of the pilot project experience. This should help the decision-makers in the MOPH to assess cost and demand aspects of the present BHC system and to consider the broader suitability of the several improved approaches tested in Parwan/Kapisa. To the extent that the experiment and this document do help in the ways intended, the project may be considered worthwhile.

The present document is a summary version of that evaluation report.

II. Objectives

Objective #1: Increase and Rationalize Services in the Basic Health Center.

OUTLINE

SERVICE

ACHIEVEMENT

A. To increase number and types of services

1. "Package of Services" approach--MCH focus

a. Ante-natal services

Before project, almost no service except WFP.
During project:

- 1) physical exam
- 2) Hb% and urine test
- 3) tetanus shot
- 4) routine curative drugs
- 5) food commodities (WFP)
- 6) referral

91% received
60% received
69% received
10% received
remained high
increased

b. Child care services

Before project, almost no services except WFP.
During project:

- 1) weight-growth chart
- 2) BCG and smallpox shots
- 3) oral diarrhea therapy
- 4) WFP
- 5) referral

estimated 89-90% received
estimated 50% received
provided to 3075 patients
over 90% received
increased

c. Contraceptive services on demand

244 pill acceptors

2. Other clinic services

a. Laboratory services

Before project, almost no activity.
During project, average BHC performed:

- 1) Hb%
- 2) urine
- 3) TB test
- 4) parasites (including malaria)

14 tests per month
4 tests per month
11 tests per month
12 tests per month

TOTAL

41 tests per month

SERVICE (cont.)

- b. Inoculation services
 - 1) BCG
 - 2) smallpox
- 3. Clinic outreach--CDC
 - a. School vaccination program
 - b. Village vaccination program
 - c. TB case and other defaulter follow-up
 - d. Active case detection
 - e. Post-partum home visits
 - f. Facilitate and rationalize sub-center activity

B. To rationalize and improve services

- 1. Division of labor to free doctor from routine
 - a. Task description
 - b. Filter system--patient flow
- 2. Division of new drug list among staff
- 3. Provide Health Worker Manuals in modular form

C. Concluding statement

ACHIEVEMENT (cont.)

Before/after activity not quantified.

estimated 50% increase during project

Unable to test these strategies/materials during project

Before project, M.D. saw approx. 71% of all patients.
During project, M.D. saw 42%.

Well-accepted, workable.

Well-accepted, workable.

Well-accepted, popular.

Valued. Familiarization slow, especially with flow charts. A needed innovation.

Objective #1: Increase and Rationalize Services in the Basic Health Center.

DISCUSSION

- A. To increase number and types of services
 - 1. "Package of Services" approach--MCH focus
 - a. Ante-natal services

Prior to the project, very few services were provided to MCH patients, except for World Food Program (WFP) commodities. The project specified a "package" of services for certain high risk patients (e.g., ante- and post-natal cases, and children) coupled with reasonably functioning support services provided by the vaccinator and laboratory.

Most of these were new services either in the sense of not being provided for in MOPH policy (e.g., tetanus and family planning) or because they simply have not been provided on a regular basis (e.g., lab tests).

A sample of ante-natal visits in five of the pilot centers indicates the following percentage of women receiving the specified services:

	<u>Mean % Receiving</u>
1) Physical exam	91%
2) Lab tests: Hb%	66%
urine	0% *
3) Tetanus (1 or more)	69%
4) Routine curative drug (polyvitamins, anemia)	27.1%
5) WFP	99%

*NB: As will be shown below, a few urine tests were performed each month on the average. A relatively small sample plus careless record-keeping in the BHC's account for the minor discrepancy.

These results show a dramatic improvement over the pre-project service levels. It should also be noted that the foregoing results are a direct consequence of intra-clinic referrals, a phenomenon almost unknown prior to the project.

b. Child care services

As with ante-natal services, child care services were extremely rudimentary prior to the project. Here too a package of services was specified for each patient. These services, and the estimated percentage of patients receiving each, were as follows:

	<u>Estimated Mean % Receiving</u>
1) Child's age/weight growth chart	80-90%
2) BCG and smallpox shots	50%
3) WFP	nearly 100%
4) Intra-clinic referral	increased

The "innovations" in this patient care area are the child's age/weight growth chart and oral therapy for diarrhea.

c. Contraceptive services on demand

Prior to the project, the Government of Afghanistan (GOA) offered no contraceptive services directly to the public. This was one of the innovations of the pilot project. The contraceptives used for the project were Norlestrin (28) oral contraceptive pills and "Silvertex" condoms.

As a matter of MOPH policy, the BHC staff were not allowed to promote these methods in an active manner. Thus, patients had to

- 1) discover that such devices existed and were available from these six BHC's, and
- 2) ask for them under the semi-public conditions of the crowded BHC's.

Despite these difficulties, the five active BHC's recruited 244 pill acceptors over the approximately eight-month project period. In addition, there were more than 100 condom acceptors; poor record-keeping precludes an accurate count. These results validate the widely-held belief among many Afghans and expatriates that there is a latent demand for such services in the rural areas.

2. Other clinic services

a. Laboratory services

Prior to the project, only the labs in two pilot centers were operational. The rest lacked equipment, supplies (reagents, cotton, alcohol), or a lab technician, or all three.

All laboratories were made operational at an early phase in the project. The following tables show the lab activity during the eight-month project period:

Laboratory Activity During
Entire Pilot Project

Table A: Average Number of Lab Tests per Month by BHC

1. Najrab	12
2. Panjshir	24
3. Syed Khe1	41
4. Bagram	44
5. Jamal Agha	62
6. Ghorband	64
Median number tests per month	42.5
Mean number tests per month	41

Table B: Average Number of Lab Tests by Type of Test

<u>Type</u>	<u>Number/%</u>	<u>Range Among BHC's</u>
1. Hb%	14/34%	0-37 tests
2. TB (sputum)	11/27%	2-32 tests
3. Parasites (stool) & malaria (blood)	12/29%	5-18 tests
4. Urine	4/10%	3-7 tests
Average number tests per month	41	

The foregoing results indicate a substantial percentage increase in lab activity, although not an absolute increase. The principal reasons for this are that:

- physicians are not accustomed to utilizing lab facilities and do not refer patients either for the initial diagnosis or after treatment;
- many lab technicians are so out-of-practice that they have forgotten how to do the tests;
- good quality alcohol, important for several tests, was unavailable.

b. Innoculation services

BCG and smallpox inoculations were increased on an average of 50% in each pilot BHC by means of:

- 1) replacement of expired vaccine with an adequate supply of fresh vaccine;
- 2) the "package" of services approach which provided a clear definition of those patients to be referred to the vaccinators;
- 3) encouraging the vaccinators to do scar checks of as many children as possible who passed through the BHC.

3. Clinic outreach--CDC

The objective of this activity was to test several new or improved approaches for health delivery extension as a means of increasing the services range of the BHC. This aspect of the project, designated Phase IV, was scheduled to begin after the improved internal functioning of each pilot center had become routinized.

These approaches include:

- a. an active school and village vaccination program;
- b. a communicable disease follow-up program for non-returnee TB, measles, diphtheria, trachoma, and typhoid cases;
- c. an active case detection program at the village level;
- d. an amplified and organized home visit program by the ANM, accompanied by the vaccinator;
- e. an increase in the number and efficiency of satellite sub-centers.

Results: Up to the end of the project, the MOPH was unable to assign a training team for this phase of the Parwan pilot effort. This is regrettable, given the importance of this type of delivery strategy to a system with a very limited radius of services delivery. It is important that the materials and strategies already developed be treated at the earliest possible moment.

B. To rationalize and improve services

1. Division of labor to free doctor from routine

Prior to this project, the practice had been for the BHC doctor to see most cases, routine as well as serious. This left the paramedical staff underemployed and kept the physician too busy to act as trainer, manager, and supervisor. The project includes several measures designed to remedy this situation:

- a. an effective patient flow and referral system;
- b. a clear, written delineation of staff tasks and the services to be performed by each;

- c. relevant pre-packaged, dosage-related drugs provided to the male nurse and ANM to reduce unnecessary reference to and dependence on the physician;
- d. a manual, in modular form, provided to each member of the BHC staff, containing administrative and technical reference materials.

General Results: The following data indicate the average percentage of clients seen by each staff member before and during the project.

	<u>Doctor</u>	<u>Ranges</u>	<u>Male Nurse</u>	<u>Ranges</u>	<u>ANM</u>	<u>Ranges*</u>
Before Project (estimated)	71%	-	13%	-	16%	-
During Project	42%	23-52%	37%	20-61%	21%	11-35%

* These data do not include data from Panjshir BHC, which were unavailable.

Although these results are partially based on arbitrary estimates, they clearly indicate that it is possible to make significant, positive changes in the work habits of the BHC staff.

C. Concluding statement

It is clear from the experience of the pilot project that it is possible without great additional expenditure of resources to:

1. greatly increase the number and types of services offered by a BHC;
2. improve the utilization of paramedical staff by allowing them to treat most routine cases; and
3. improve the mutual supportiveness--the "teamwork"--among all BHC staff, resulting in increased intra-clinic "referrals."

Objective #2: Provide Logistic and Information System Support for Services.

OUTLINE

SERVICE

ACHIEVEMENT/STATUS

A. To develop better logistic support	
1. System design	Basic design complete, not tested
a. Central Warehouse	Completed, operational
b. PHO System Coordinator	Not tested
2. Inventory system	Workable, although familiarization slow
B. To rationalize aspects of the BHC information system	
1. Introduction of new records and reports	
a. Clinic Register for Male Nurse and ANM	Accepted, very useful
b. Vaccinator Register	Accepted, very useful
c. Active Case Detection Form	Not tested
d. Mother's card and Child's card	Child's card needs revision
e. Patient-retained Health Form	Not accepted by BHC staff
f. TB materials	Accepted
2. Improvement of existing forms	
a. Monthly Clinic Activity Report	Rarely submitted, questionable data
b. Vehicle Report	Not tested (no vehicles)
c. Drug Use	Rarely submitted
d. Laboratory Report	Rarely submitted
3. Elimination of unnecessary forms:	
Daily Clinic Work Sheet	Not needed

SERVICE (cont.)

ACHIEVEMENT/STATUS (cont.)

- 4. General comments
- C. To help improve flow and processing of service statistics

Not tested

Objective #2: Provide Logistic and Information System Support for Services.

DISCUSSION

- A. To develop better logistic support
1. System design

Prior to the project, drugs--the principal supplies provided the BHC's--were supplied roughly on an annual basis. Most BHC's, especially the busy ones, would run out of drugs months prior to resupply. Other items, such as forms and registers, were never supplied on a regular basis, and centers were chronically short of these. World Food Program (WFP) food commodities have been resupplied on an apparently random basis through an entirely separate logistics network. For this reason, WFP supplies were not a subject for improvement during the project.

A project objective was to design and test a revised approach to BHC logistics. The new system would utilize the Central Warehouse at the supply end with the Provincial Health Officer (PHO) to act as intermediary and coordinator. The system is based on a standard supply list for each BHC, a wall-mounted inventory chart covering drug stocks and transactions, and a quarterly, pre-printed report from each BHC showing the inventory status of each item. A shipment of all items needed for the BHC's in a province would be dispatched from the Central Warehouse (if in stock) bi-annually. The PHO would then distribute.

Results: System design completed. This design has been incorporated into the first draft of the MOPH Seven Year Plan and is intended for eventual national implementation.

a. Central Warehouse.

The MOPH Central Warehouse is now fully operational and ready to play a key role in the new system.

b. PHO System Coordinator.

For a complex variety of reasons, aspects of the new system design involving the dispatch and distribution of supplies by the PHO were not tested.

2. Inventory system

The in-clinic inventory system was tested and worked fairly well. The major problem arose over the difficulty in teaching BHC staff how to complete the chart properly.

It is important that this new logistics system be carefully tested as soon as possible.

B. To rationalize aspects of the BHC information system

An early step in the project was to procure a full set of all forms, registers, etc., that are normally supposed to be made available to a BHC.

As there is no regular resupply procedure for such forms, the BHC's are typically short of these or out of stock. The implementation of the new logistics system should correct this situation, since it includes these forms among the other commodities for resupply.

A number of changes were made in the traditional system of records and reports:

1. Introduction of new records and reports
 - a. Clinic Register for Male Nurse and ANM

A standard clinic register for both the Male Nurse and the ANM using the same headings as the doctor, but with instructions for the ANM on recording Family Health Services.

Results: Readily accepted and very useful for reports and for supervisor's review.

- b. Vaccinator Register

A vaccination register made from a commercially available notebook showing type of vaccination by age group and by date.

Results: Readily accepted and useful for reports and for supervisor's review.

c. Active Case Detection Form

Active case detection form to be used in connection with extension work of vaccinator/sanitarian at villages on schools.

Results: Not tested since project outreach phase not implemented.

d. Mother's card and Child's card

-- A revised mother's card was provided, taken from the Zaishgah (Kabul) urban clinics. The card records services provided and medical history.

Results: It was readily accepted and is an improvement over the former BHC card.

-- An entirely new child's card with an age-weight chart was introduced.

Results: While an important innovation and one which has worked successfully elsewhere (such as India), this new card clearly requires certain revisions prior to general adoption. It proved difficult to teach even the experienced midwives on the training teams how to use the card properly. Their confusion continued even after they were repeatedly exposed to use of the card, and confusion was still greater for ANM's in the BHC's.

2. Improvement of existing forms

Several existing forms were simplified or improved with good results.

It is apparent that there are a great (and growing) number of forms, registers, and other paperwork in Afghan health centers. Are there too many information

instruments in terms of practical management information needs? Since this was the only one of many pilot project concerns, it did not receive the systematic analysis required to answer this question. The task of developing the simplest possible management information system consistent with MOPH needs and capacity remains to be accomplished. The Parwan experiment made a modest contribution to the data recording aspects of this analysis task.

C. To help improve flow and processing of service statistics

It has long been apparent to those familiar with the BHC system that:

- 1) the data are only the roughest approximations of reality, and
- 2) no attempt whatever is made to encourage or compel BHC's to submit these to Kabul on a regular basis.

Since the causes of this problem are attitudinal and structural and reside mainly in the MOPH/Kabul, the Parwan pilot project alone was not in a position to change this unhappy situation. In the absence of the necessary structure and process in Kabul, most pilot centers evinced little interest in sending in such data despite repeated urging.

The initial expectation was that the Bureau of Basic Health Services would be revised and up-graded at the beginning of 1354 (March 22, 1975). Despite the fact that these changes did take place earlier than had been anticipated--in the summer of 1975--it was too late to influence pilot project results. Much work is needed in this area.

Objective #3: Provide Training and Supervision Support for BHC's.

OUTLINE

SERVICE

ACHIEVEMENT

A. Training

1. Mobile training teams with counterparts to the BHC staff
2. Physical improvement of centers by teams

Proved a viable approach

Shown as key implementation step

B. Supervision

1. By BHC doctor
2. By PHO
3. By regional supervisors

Partial success

Not tested

Not tested

Objective #3: Provide Training and Supervision Support for BHC's.

DISCUSSION

A. Training

1. Mobile training teams with counterparts to the BHC staff

The objective was to test the feasibility of using Afghan training teams to implement the pilot project. Since one of the purposes of the pilot project was to provide policy feedback to the MOPH leadership on tested possible improvements for the national BHC system, it is imperative that a process be identified through which these improvements could ultimately be implemented. Accordingly, it is important to review the potential of Afghan training teams for national implementation.

The pilot project was implemented by MOPH employees organized into training groups. The teams were provided with all project materials and were given seven days of formal familiarization prior to the field period.

Results: In general, the two pilot project teams did the job of field implementation with enthusiasm and ability. Although climatic conditions and accommodations were often difficult, most team members showed a meaningful commitment to the enterprise. Under certain conditions, it is felt that such teams can successfully implement a "package" of improved procedures throughout the BHC system.

In conclusion, the Afghan training team approach appears to be a viable one, under certain conditions, for implementing an improved national program. Such an effort was begun in March 1975, the purpose of which was to implement most pilot project features in two regions consisting of twelve provinces.

2. Physical improvement of centers by teams

The first phase of the project was to "clean up" and restock the pilot BHC's, and it preceded both the training and implementation phases. This phase is necessary in almost all centers given the fact that so many centers are unkempt, poorly equipped, and often suffer from low stocks of medicines and food commodities. Furthermore, the successful establishment of the patient flow "filter" system usually required the relocation of rooms in the center. In general, the teams performed this phase enthusiastically and well with little need for external supervision.

B. Supervision

Supervision should ideally take place at three levels:

- 1) in the BHC by the doctor;
- 2) at the provincial level by the PHO; and
- 3) at the regional level by the regional supervisor.

1. By BHC doctor

In the traditional center, the doctor sees the majority of patients and retains control over nearly all medicines. Although the ANM is often very busy, mainly by virtue of her food distribution functions, other staff are frequently underemployed. It will be recalled that a major purpose of Objective #1 was to free the doctor from routine tasks, thus enabling him/her to act more as a manager and supervisor.

Despite the fact, theoretically, that doctors now have more time, there is little indication that most have assumed greater supervisory duties. Although this revised role is mentioned in the doctor's task description and was mentioned during the training program, no further elaboration or documentation--for example, on how to be a better supervisor, trainer, etc.--was provided. These materials, plus much reinforcement from PHO's and Regional officers, will no doubt be needed to make this uncharacteristic behavior a reality.

2. By PHO

The PHO showed a strong initial interest in the project, spent time with the training teams, and assisted several BHC's by making his vehicle available. For a variety of reasons, the PHO was absent from the province for several extended periods and was distracted by other responsibilities. In addition to the foregoing were the following problems:

a) Specific materials and training. In retrospect, it is inadequate merely to introduce a supervisory officer (PHO, BHC doctor, etc.) to the work program and detail of a health activity and to provide him/her only with a brief, general job description. As with other tasks to be performed by the BHC staff, it is probably necessary to detail precisely what the supervisor is supposed to do, and where, how and when he/she is supposed to do it. Such an elaboration should then be provided in simple, clear written form in a supervisor's manual.

b) Role reinforcement and tangible support. The Parwan PHO lacked adequate role reinforcement and other support from the MOPH/Kabul.

3. By regional supervisors

As was discussed earlier, the entire cadre of MOPH regional supervisors played a major role in implementing this project. This heavy involvement by the supervisors during the lengthy implementation phase precluded both the need and the opportunity for any sort of "regular" supervisory visits.

Objective #4: Gather and Evaluate Other Information Relevant to BHC Analysis and Planning.

OUTLINE

INFORMATION

ACHIEVEMENT

A. Costs

1. General

Done

2. Drugs and supplies

Done

3. Laboratory

Done

B. Patient attendance and travel distance

Done

1. Patient attendance

2. Patient travel distance and
population coverage

C. Village survey

Done

D. Diseases seen at BHC--new drug list

Done

Objective #4: Gather and Evaluate Other Information Relevant to BHC Analysis and Planning.

DISCUSSION

Information was gathered during the pilot project in a number of project-related areas. Some of this information emanated from a special village survey that was carried out.

It is hoped that these data might facilitate analysis of the problems and capacities of the BHC's and would also help with the planning of the ultimate national BHC system.

These data are summarized briefly in the Conclusions section, and more fully in Appendices A through D. Because of its length and relative complexity, the Village Health Survey is only briefly summarized here (Appendix B). The report from this survey is available from MSH, Cambridge, Massachusetts.

III. Conclusions and Recommendations

A. Conclusions

1. To increase and rationalize services

a. The "package" approach for services delivery, and the specification of these in writing, resulted in far more services, both in type and number.

b. A child's health card containing an age/weight matrix is needed in the BHC's. The present card requires extensive revision and further testing prior to adoption on a national basis.

c. Oral glucose electrolyte therapy, although not fully tested, has the potential to become an extremely valuable weapon against infant/child diarrhea and secondary malnutrition.

d. Contraceptive services. Despite serious obstacles, the five clinics alone had 244 oral pill acceptors which indicates an existing demand at the village level.

e. Laboratory services. Although the number of lab tests increased greatly, only two lab tests were done per day per BHC. It is concluded that the labs are underutilized, produce results of questionable quality, and are not cost-effective.

f. Innoculation services. It is possible to increase the number of inoculations given through the several simple measures introduced by the project.

g. Clinic outreach. Unfortunately, it proved impossible to test the materials and strategies developed for BHC outreach activities.

h. BHC staff division of labor. The several new procedures used in the project resulted in the doctor seeing 41% fewer routine care patients, and resulted in the following increase in patients seen by the male nurse and ANM respectively: 185% and 31%. These techniques also helped to increase intra-clinic referrals and to smooth patient flows. The patient filter/referral system and written task descriptions were particularly useful in this context.

i. New drug list. The new drug set can treat at least 90% of all diagnoses made in the pilot centers. Prepackaging and labeling were popular innovations that eliminate the need for a "pharmacist" and improve treatment regimens. Medical auxiliaries could have treated most patients who came to the BHC.

j. The provision of technical and administrative reference material in manual form to each staff worker was a mixed success. While some sections were understood and used, several were not. These manuals have now been rewritten to be more usable and suitable for non-pilot project adoption.

k. Disease patterns. The ten most common diagnoses account for 57% of the total; the 25 most common for 84% of the total. The commonly seen diseases are easily diagnosed and treated.

2. To provide logistics and information support for services

Logistics and information flow systems were partially tested with mixed results. More commitment to improvement in these areas is needed by the MOPH and much more work must be done.

3. To improve training and supervisory support for services

a. Training teams. The use of special Afghan training teams to implement the project was found to be a feasible approach. This approach could

be adopted for national BHC implementation with certain specific changes.

b. Supervision. Improved BHC supervision was not attained. Certain revised approaches are suggested. This area needs more commitment to improvement and much additional effort.

4. To gather and evaluate information

a. Cost

1) General

(a) Current and planned BHC budgets are falling short of the amount required to operate the BHC system.

(b) It is possible through increased attendance to reduce per patient visit costs by a factor of three.

(c) A drug budget per BHC per year of 65,000 afghanis begins to approach the patient demand.

(d) 73 afghanis per lab test is unnecessarily high; it can and should be reduced.

b. Patient attendance and travel distance

1) Patient attendance. There was a 15% increase in female attendance and more than a threefold increase in overall patient attendance.

2) Patient travel distance. The maximum expected travel distance to a BHC is about 6 kilometers one way.

3) Population coverage. A theoretical methodology suggests that up to 26% of the population of a woleswali containing a BHC could have reasonable access to it. This, of course, leaves 74% without easy access to modern medical services.

c. Village survey. The survey revealed the following information:

- 1) Women and children share a disproportionate burden of deaths and illnesses.
- 2) A small number of health problems account for a major proportion of all morbidity and mortality.
- 3) The health priorities of villagers are primarily focused on illnesses which most commonly result in child mortality.
- 4) Rural Afghanistan contains an extensive network of traditional and modern (mainly the former) health services.
- 5) Lack of information is a more serious barrier to improved health than the limited availability of services.
- 6) Malnutrition is a major threat to child health; its cause and severity are due to lack of knowledge about the basic needs of mothers and children.
- 7) Village households spend over 900 afs. per annum on both traditional and modern health care; the largest percentage of this expenditure is for drugs.

5. System strengths and constraints

Although the health system has many strengths, it also suffers from certain constraints. These include especially the lack of several key organizational systems and problems related to staff commitment and morale.

B. Recommendations

1. BHC technical and administrative improvement

a. Specification of "package" of services. Consideration should be given to the idea of specifying the services to be provided by each BHC and the supporting role to be played by each staff member. Specifications should be written in a "package" type format which offers a clear understanding of the services to be provided to several of the major categories of patients. This is particularly applicable to family health patients. Such an innovation should be considered for adoption on a nation-wide basis.

b. Child health card. The child health card should undergo preliminary revisions and then be subjected to a retest. Following a carefully done retest and additional revisions, if any, the card would be suitable for national adoption concomitant with a suitable training program.

c. Family planning. Family planning services should be included as part of the regular "package" of family health services.

d. Activation of labs. Given the gross underutilization of laboratories in BHC's, the MOPH should consider:

- 1) operating fewer individual and more shared labs per province;
- 2) increasing the utilization of labs through better training, a better supply system, better supervision, and the enforcement of standing orders for lab referral;
- 3) assigning extra responsibilities to the lab technician, such as patient screening, TB follow-up or case management, and active CDC case detection.

e. BHC outreach. The materials and strategies developed to test a new clinic outreach program should be carefully tested at the earliest

possible moment. Given the limited population coverage of BHC's, it is important to consider new strategies for rural health delivery. The MSH management team has developed the outlines of a new "Village Health Worker" strategy which should be reviewed for its applicability to Afghanistan.

f. Paramedical use and routine care. The techniques developed to free the BHC doctor from routine case work and to improve intra-clinic referrals should be considered for national adoption. These include a patient flow and referral system and staff task descriptions.

The foregoing, plus the detailed analysis of the disease patterns commonly found in BHC's, indicates that it is both feasible and desirable to make far greater use of paramedical personnel in treating routine cases.

g. BHC drug list. The MOPH should address the following issues:

- 1) Revision of present drug list;
- 2) Consideration of the use of pre-packaged drugs;
- 3) Study of the idea of charging for drugs in order to increase drug supply and to up-grade the quality of the current list;
- 4) Maintenance of an increased budget for drug supplies;
- 5) Careful consideration of replacement of current GMD and donor-provided drugs with generic drugs where the savings are obvious;
- 6) Implementation in all BHC's of the practice of dividing drugs among key paramedical staff.

Without improvement in drug quality and quantity, it is unlikely that the increased performance demonstrated in the pilot area can be duplicated on a national basis.

h. Drug payment. The proposed committee should also be given the responsibility of studying the idea of charging for drugs in order

to insure that the drug supply keeps pace with patient demand and to up-grade the quality of the current list.

i. BHC staff manual. A revised manual in modular form, suitable for each BHC staff member, has been completed. This has been carefully reviewed by responsible MOPH personnel. Following a final revision, this document should be tested in no more than two regions, then evaluated, and necessary additional revisions made. Only then should this manual be implemented nationally.

2. Logistic and information support for services

a. Logistics system. The strategy and materials developed for a new BHC logistics system should be tested and evaluated as soon as possible.

b. Information system. A small committee headed by the President, BHS, should review all forms used in the BHC's and rationalize the system. A system to compel the submission of monthly reports, and to process them, should be established.

c. Diagnostic categories. The Ministry should consider adopting the WHO list "A" of 150 diagnostic categories for the recording and processing of data on morbidity and mortality. See Appendix C for an explication of this point.

3. Training and supervisory support

a. Training teams. Afghan training teams can be used to implement and to sustain the improved national BHC system. Several conditions are stated above which are considered necessary system characteristics if this approach is to be successful.

b. Supervision. Both in the BHC and at the provincial level, it will be necessary to develop specific materials and training which will

define precisely what the supervisor is supposed to do, and where, how and when he/she is supposed to do it. These should be included in a manual.

Further, the PHO's will require several basic facilities (office, staff, car, per diem) in order to become effective supervisors.

4. Information for policymaking

a. Costs and population coverage analyses. A further analysis, with the benefit of all needed information and materials, should be undertaken of cost and population coverage of the BHC's. If possible, the analysis should detail the cost of individual BHC program sectors--i.e., family health, lab, drugs, etc.

b. Village survey. The senior officials of the MOPH should carefully review the results of this survey in a series of seminars in order to make recommendations on new or revised policies based on its findings.

5. Performance constraints

a. Constraints. A committee of senior MOPH officers should carefully review the list of constraints on better BHC staff performance in an attempt to solve or mitigate as many of these as possible. This review might reveal other constraints as well which will require consideration.

b. WFP program. A senior MOPH official, knowledgeable about Basic Health Services, should work with the director of FAO's World Food Program to:

- 1) determine the necessity of the newly introduced WFP register, and
- 2) reach mutually agreed upon revisions in the current WFP distribution practices in order to reduce the conflict between commodity distribution and medical care delivery.

6. Disease patterns

BHC services should focus on the prevention and treatment of the most common diseases. All supplies, equipment, training, supervision, and written staff materials should reflect and support this focus.

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APPENDIX A

BASIC HEALTH SERVICES COSTS

BHC Operating Costs.

This includes 1) the calculation of the fixed and recurring cost of a "typical" BHC, and 2) extrapolation of these to a national system of 178 BHC's. Only the main points will be presented here. For additional detail, see Appendix B.

It is costing an average of about 1.25 million afghanis to operate one BHC per annum. Of this, only 34% is needed for running the center, the remaining 66% being required to support the WFP program.*

The annual expenditure for each BHC without WFP (personnel or commodities) is 378,780 afghanis. Of this amount the GOA contributes 317,616 and donor agencies 61,164 afghanis (84% and 16% respectively, with rounded percentage figures). The total 1353 Operating Budget for the MOPH was 200 million afghanis. For 1354, the figure is 248 million afghanis. Of these '53 and '54 budgets, the share of the Basic Health Services System was 16% and 15% respectively.

The easiest way to put these figures into a meaningful context is to extrapolate them to the immediate and planned number of BHC's and compare these figures with the amounts budgeted. For present purposes, it is assumed that future budgets and future costs will increase at approximately the same rate, keeping this relationship fairly stable. The analysis also assumes

* This disproportionate figure reflects a substantive conflict of interests between the BHC's tasks of delivering health care and distributing WFP. For an exposition of this point, see the following.

that donor agencies will continue to provide their input at required levels.

The following table juxtaposes the planned number of BHC's with the estimated GOA funds required to operate these at the rate of 317,616 afghanis each per annum:

	<u>1353</u>	<u>1354</u>	<u>1355</u>	<u>1356</u>
No. of BHC's in operation	114	134	154	178
Afghanis required to operate system	36.2 million	42.6 million	48.9 million	56.5 million
Amounts budgeted for BHC's	32 million	38 million	?	?

The above table suggests that there have been shortfalls in the amounts budgeted for 1353 and 1354 of 13% and 12% respectively. Note that the "Afghanis required" row does not include the amount needed to operate the BHC Bureau in Kabul; thus, the shortfalls noted are in practice much worse.

The average cost per visit per health center (no WFP costs included) before the project was about 45 afghanis. With nearly constant costs and a greatly increased attendance after the project began, the per visit cost dropped to an estimated 14 afghanis, a substantial improvement in clinic cost-effectiveness.

The foregoing per visit estimates include both GOA and donor inputs but exclude WFP commodities or WFP personnel costs. The following are the components which account for the cost of each patient visit:

Table A: Cost Breakdown Per Patient Visit During Project

<u>Item</u>	<u>Afs Per Visit</u>	<u>% of Per Visit Cost</u>
1. Salaries	6.44	46%
2. BHC operating costs	3.50	25%
3. Equipment and Vehicle	1.82	13%
4. Drugs and Supplies	.84	6%
5. Lab costs	.70	5%
6. Other (minor supplies and sub-center rental)	.70	5%
	<hr/>	<hr/>
	14 afghanis	100%

"Typical" Amounts and Sources of Funds per BHC per Annum
Amount and Sources of Funds

Item	MOPH Amount	% a/	UNICEF Amount	% a/	WFP	Row Totals	% b/
1. Salaries	175,800	47%	-	-	-	175,800	46%
2. Operating Costs	94,464	25%	-	-	-	94,464	25%
3. Other Expenses							
a) drugs/supplies	15,396	4%	8,544	14%	-	23,940	6%
b) WFP	53,844	14%	-	-	843,564	897,408 c/	
c) forms	2,400	1%	-	-	-	2,400	1%
d) laboratory	2,556	1%	17,400	28%	-	19,956	5%
e) vaccines	N/A	-	N/A	-	-	N/A	N/A
f) medical equipment	-	-	6,264	10%	-	6,264	2%
g) vehicle purchases	-	-	22,800	37%	-	22,800	6%
h) major vehicle maint.	5,700	2%	-	-	-	5,700	2%
i) furniture	4,500	1%	-	-	-	4,500	1%
j) sub-centers (2)	16,800	5%	-	-	-	16,800	4%
k) s.c. equipment (2)	-	-	6,156	10%	-	6,156	2%
Column Totals - Afs	371,460	100%	61,164	100%	843,564	1,276,188	100%

Total BHC cost w/o
WFP commodities

432,624 Afs

Notes

Percentages of total d/
by source

MOH
86%

UNICEF
14%

a/, b/, c/, d/
See explanations
next page

Total BHC cost less all WFP
(personnel & commodities)

378,780 Afs/\$6,645

Table B
BHC Operating Costs

Table B

Notes--"Typical" Amounts and Sources of Funds

- a. These figures are the percent of the total expenditure in each column, i.e., the MOPH or UNICEF.
- b. These figures are the percent of the total row expenditures on the BHC, excluding WFP. The following amounts were used for calculating these percentages: MOPH--317,616 afghanis;
UNICEF-- 61,164 afghanis;
Row Total--378,780 afghanis.
- c. WFP represents 66% of the total expenditure on the BHC.
- d. These are the percentages contributed by the MOPH and UNICEF to the total cost per BHC of 432,624 afghanis. A figure which excludes WFP commodities.
- e. Information source:
 - 1) Panjshir and Jamal Afha Health Centers
 - 2) MOPH budgets for 1353 and 1354
 - 3) FAO agreement with GOA on WFP program

Table C

Breakdown of "Typical" BHC Operating Costs
For One Month (Afs 57 to \$1)

1. <u>Salaries a/</u>	Sub-total:	14,650 (per month)
2. <u>Operating Costs</u>		
A. Building amortization b/		6,258 afs
B. Petrol, kerosene, motor oil		708
C. Wood for heating c/		156
D. Posters, etc.		42
E. Staff local travel		167
F. Local vehicle repairs		333
G. White medical coats		83
H. Miscellaneous supplies		<u>125</u>
	Sub-total:	7,872 afs
3. <u>Other Expenses</u>		
A. Drugs and medical supplies d/		1,995
B. WFP commodities e/		74,784
C. Forms		200
D. Laboratory		
1) Reagents, alcohol, etc. (\$150 p.a.)		713
2) Equipment (\$1000; 5 years use)		950
E. Vaccines (BCG and smallpox)		N/A
F. Medical equipment (UNICEF main center sets) (including refrigerator)		522
G. Vehicle (assume \$2000 new, 5 years use)		1,900
H. Major vehicle maintenance (assume \$800 per vehicle)		475
I. Furniture g/		375
J. Sub-centers, rental each 700 afs p.m. (assume two per BHC)		1,400
K. Sub-center equipment (s.c. set only-- 257 x 2) f/		<u>513</u>
	Sub-total	83,827 afs
	Grand Total	<u>106,349 afs</u>
	Less WFP =	31,565 afs

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Notes

- a. Salaries assume one MD, one nurse, one ANM, one sanitarian, one lab technician, two vaccinators, one clerk/storekeeper, two peons, and one driver.
- b. Building assumes a new main building constructed by the MOPH (not rented-- no other buildings) with a 20-year use expectancy plus land. $\$26,350/20$ years equals 6,258 afghanis per month for the main building and land only. To this would have to be added building maintenance. A "typical" cost per month of rented quarters would be about 600 afs per month.
- c. Wood. Annual allowance is 1,875 afghanis. The per month figure listed is 1/12 of this figure, even though the wood is used only in winter.
- d. Drugs. Data based on the 1353 standard drug list. Total cost is \$420 (GMD \$270; UNICEF \$150). This GMD figure is half the 1352 drug budget per BHC. A new, more costly, drug list was provided by UNICEF and GMD for the Parwan Pilot Project. This new list is far more realistic, in terms of quantities, than the current "standard" list which fluctuated downward for 1353.
- e. WFP. This figure is based on a 5-year WFP/FAP budget plus GOA budget for BHC's only of \$8,656,590. This information is from the current WFP/FAO-GOA Plan of Operations. The 5-year total does not include cost of running the WFP administrative operations in Rome or Kabul, nor does it include the cost to the GOA of transporting the commodities from the warehouse to the various centers. The total number of BHC's in being in 1353 was about 110.

The monthly WFP cost estimate treats every center as equal.

$$\frac{8,656,590}{5 \text{ years}} = \frac{\$1,731,318 \text{ p.a.}}{12 \text{ months}} = \frac{\$144,277 \text{ p.m.}}{110 \text{ BHC's}} = \$1312 \text{ per BHC/month}$$

$$\$1,312 \times 57^* = 74,784 \text{ afghanis}$$

* \$/afghanis exchange rate

f./g. Medical equipment. Main center set--\$453 plus refrigerator
(@ \$97) equals \$550/60 month use equals
\$9.16/522 afghanis per month
Sub-center set--\$270 ea./60 months use
equals \$4.50/257 afghanis per month
(assumes 2 sub-centers in operation per
BHC).

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APPENDIX B

PATIENT ATTENDANCE, COVERAGE, AND VILLAGE SURVEY

A. Patient Attendance and Travel Distance

1. Patient attendance

a. Age distribution. The age distribution of patients changed only slightly--in the direction of the youngest age group--during the project. The overall mean percentages for the entire project period were as follows:

<u>Age Group</u>	<u>Before Project Percent</u>	<u>During Project Percent</u>
0-1 years	4%	7%
1.1-4.9	16%	16%
5-14.9	21%	21%
15 plus	59%	56%

b. Sex distribution. The sex distribution of patients changed as follows during the project:

	<u>Before Project Percent</u>	<u>During Project Percent</u>
Males	59%	53%
Females	41%	47%

The above represent a 15 percent increase in female attendance. It is not clear from the experience to date what specific steps could be taken to increase dramatically female and child services. It is probable, however, that the following would help to improve these ratios:

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- 1) a continued higher visibility for the ANM, with her own drugs and a mandate to offer routine curative services;
- 2) a more effective outreach program, including home visits and school and village vaccination programs.

c. Total patient attendance. Clinic attendance increased dramatically as a result of the project:

	<u>Median No. Patients/Day</u>	<u>Estimated Patients/12 months (270 days)</u>	<u>Range of Patients/Day</u>
Before Project	31	8,370	20-62
After Project	98	26,460	71-129

The foregoing figures represent a greater than threefold increase in the number of patient visits to the six pilot BHC's. This, of course, translates into a threefold increase in women and children patients as well.

Extrapolating the foregoing data to the planned-for national system of 178 BHC's provides some interesting estimates. The difference between the median number of clients seen per BHC per annum before and after the project is over 18,000. Multiplying this by 178 provides a total increase in overall national clinic activity of nearly 3.25 million visits per annum. The total number of patients seen by the 178 BHC's would be about 4.7 million.

2. Patient travel distance. Half of the patients in the sample from the five pilot centers (the median) travelled between two and six kilometers one-way for BHC services. This calculation is predicated on the assumption that this group travels on foot at the rate of five

kilometers per hour. The following table provides the basic data:

Table D: Median Patient Travel Distance

<u>BHC</u>	<u>Median kms distance/time in minutes</u>		
	<u>Winter</u>	<u>Summer</u>	<u>Overall</u>
Jamal Agha	2./25	2.5/30	2.3/28
Bagram	2.5/30	2.5/30	2.5/30
Najrab	3.7/45	5/60	4.4/53
Syed Khe1	5/60	5/60	5/60
Ghorband	<u>5/60</u>	<u>6.6/80</u>	<u>5.8/70</u>
	3.6/44	4.3/52	3.9/48

The foregoing table also indicates that patients may be willing to travel further during the summer months. The probability of this as the major causative factor is not clear since other influences were present. The above table indicates that most people in the areas surrounding the pilot health centers are prepared to travel a distance of at least 4 kilometers (48 minutes) and perhaps more, depending, among other things, on the season.

Although any decision is arbitrary, a current convention is to accept the 75-80% patient range as the maximum expected travel distance. The following table provides these data:

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Table E: Majority Patient Travel Distance

<u>BHC</u>	<u>Kms Distance/Time in Minutes</u>		
	<u>Winter</u>	<u>Summer</u>	<u>Overall</u>
Bagram	3.2/38	2.5/30	2.8/34
Syed Khel	5/60	5/60	5/60
Jamal Agha	3.7/45	7.5/90	5.6/68
Najrab	7.5/90	10/120	8.7/105
Ghorband	<u>10/120</u>	<u>10/120</u>	<u>10/120</u>
	5.8/71	6.9/84	6.3/77

The foregoing affirms the expected disparity between summer and winter travel behavior. Increasing the patient "travel catchment" from 50 percent to 75 percent of all patients extends the mean distance travelled to the BHC's to 6.3 kilometers, or 77 minutes one way.

Thus, the overall pilot project services radius is about 6 kilometers, as a reflection of majority behavior. This represents an unfortunately small catchment area. In areas of low population density, like Ghorband, the physical catchment area may be larger but, of course, may not include greater numbers of people than smaller but more dense areas.

B. Population Coverage

The optimal way to ascertain the population coverage of a given BHC, once the services radius (or catchment area) has been computed, is to lay this out on a map and sum the population of the villages enclosed. Security regulations of the GOA prevented access to the maps needed for such an exercise.

We have already seen that a fully elaborated system of 178 BHC's might be able to see as many as 4.7 million patients (that is, patient visits--the average number of visits per patient per annum is unknown). This is the theoretical drawing capacity of the BHC system. Bringing the BHC's up to this limit could decrease the "uncovered" population by an additional 1.9 million, leading as well to greater economies of scale, i.e., greater BHC efficiency.

The obvious possibility for increasing the small services radii of the BHC's would be through a rigorous attempt to improve their outreach activities. An analysis of the obvious outreach strategies suggests that only incremental gains in population coverage can be expected, even were they to be implemented perfectly. In population coverage terms the biggest increases would derive from effective school and village vaccination programs. Admittedly, however, this would provide only inoculation services, not the comprehensive basic health services which are the goal of the GOA. Nevertheless, the effort to increase the population coverage of the BHC's must be made.

C. Village Survey

A survey of health problems, needs, and resources was carried out in five areas of Parwan-Kapisa province during the winter 1975. The survey had several objectives:

- to describe the existing health system of rural Afghanistan;
- to determine the potential for new approaches needed to take health services to the villages;
- to ascertain how well existing health resources, traditional and modern, meet rural health needs;
- to provide information about the Afghan health milieu which will be useful in evaluating the Parwan pilot project experience.

The ultimate objective of the survey is to help provide information to MOPH decision-makers which they need to heed for planning, policy making, and evaluation.

The complete findings, conclusions, and recommendations of this survey are available from MSH, Cambridge, Massachusetts.

APPENDIX C

DISEASE PATTERNS AT SIX PILOT PROJECT BHC'S

A. Background

The BHC system was begun about eight years ago. In most centers daily patient registers have been used by MD's to record services rendered. Services rendered by ANM's and male nurses are not on record at the BHC and in the service statistics appear only in the monthly totals for patients seen.

To date, no longitudinal data have been available. No records based on these data have been requested by the MOPH, and no analysis of disease or service patterns has been carried out.

A variety of rural health surveys has been provided, but the question of whether the known epidemiology is reflected in the disease pattern seen at the BHC's has not been addressed.

Consequently, it is not known what diseases are being seen or what medical services are being rendered. Neither is it known what makes people seek treatment at the BHC. Do they come for all complaints, or will they only seek help if they know that there is a possibility of being helped? Furthermore, it is not known to what degree MOPH policy and recommendations are being carried out. One problem is that MOPH policy has not been very clear as to what services are to be provided. Generally, most centers have tried to handle everybody, and if the needed service was unavailable, the BHC doctor either issued a prescription to a pharmacy or recommended

that the patient go to another health institution or a specialist physician. There is no institutionalized referral system, and it is unknown to what degree patients can or will follow a referral from a BHC.

MOPH has not yet adopted any international list with classifications of diseases. This is reflected in the BHC registers, where sometimes only a vague diagnosis of disease or the mere listing of symptoms is written. As a result of the above, little systematic effort has been made to date to improve medical performance at the BHC level. Without standard criteria for decision-making and evaluation, such an effort is precluded.

B. Pilot Project

By providing registers for the doctor, ANM, and male nurse, all services provided have been recorded. These standard registers, unfortunately, do not allow for a differentiation between first and repeat visits. Consequently, all visits result in a new diagnosis. Thus, chronic cases with numerous visits may have influenced the analysis.

To ascertain the disease pattern reflected in the diagnosis recorded, random samples were drawn from all registers in the six centers (total 1207 diagnoses). Sample size from each staff member was in direct proportion to the total number of patients seen by each category of health worker. In order to ascertain seasonal patterns, sampling was done twice--once to reflect the winter period and once to reflect the summer. Diagnoses were not broken down by age and sex.

The first step in analyzing the distribution of diseases seen during project was to organize them into three major "severity" categories according to the following:

Mild	Moderate	Severe
Self-limiting, short; Duration: less than 1 week; Generally only symptomatic treatment.	Not normally self-limiting; Duration: 1-4 weeks; Treatment normally shortens duration; may determine outcome.	Not self-limiting; Duration: any treatment of disease determines outcome; Frequently residual effects.

NOTE: For calculation purposes, good health has been classified as mild, pregnancy and child birth as moderate.

Applying this categorization scheme to the frequency distribution of diseases seen provides the following:

Severity of Case	Mild	Moderate	Severe
Percent of total	47%	40%	13%

Comment: Although these categories are arbitrary, and many diagnoses merely a listing of symptoms, the table indicates that nearly one-half of all cases represents only mild, self-limiting disease; 2/5 fall in the moderate category, and the remainder, about 13%, represents diseases of a severe nature.

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Table F
Ten Most Common Diagnoses, Winter/Summer

The ten most common diagnoses are

<u>Winter</u>		<u>Summer</u>	
1. Common cold	10%	1. Diarrhea and dysentery	13%
2. Dyspepsia and gastritis	9%	2. Dyspepsia and gastritis	8%
3. Conjunctivitis	8%	3. Good health	7%
4. Rheumatism	7%	4. Rheumatism and lumbago	6%
5. Anaemia	6%	5. Conjunctivitis	5%
6. Pregnancy and child birth	5%	6. Family planning	4%
7. Cough	5%	7. Pregnancy	3%
8. Pneumonia	4%	8. Cough	3%
9. Wounds	4%	9. Bronchitis	3%
10. Good health	3%	10. Headache	3%

Table G

Ten Most Common Diagnoses, All Seasons

1. Dyspepsia, gastritis, and stomach ache	8%
2. Rheumatism, lumbago, aches and pains	8%
3. Conjunctivitis	7%
4. Common cold	7%
5. Pregnancy and child birth	6%
6. Diarrhea and dysentery	5%
7. Good health	5%
8. Anaemia	4%
9. Cough	4%
10. Pneumonia	<u>3%</u>
Total	57%

NB:

The 10 most common diagnoses account for 57% of all diagnoses made.
The 25 most common diagnoses account for 84% of all diagnoses made,
with those in the 10-25 rank category adding a 27% increment.

APPENDIX D

EVALUATION OF THE DRUG COMPONENT

A. Introduction

As an essential component of the Parwan/Kapisa Pilot Project, a revised drug list comprising 42 different drugs, fluids, and vaccines was proposed. The drug list was composed and the quantities of each item estimated, on the basis of the best available information on rural epidemiology and the numbers of patients served by each center. UNICEF agreed to supply this list and to air freight an initial 25% in order to ensure that drugs were available from the start of the project, September 1974. The rest were supplied via contained transport.

The drug list was tested over a period of nearly one year in order to permit observation of seasonal variations in disease patterns. It was tested in five fully operational BHC's and in one partly operational BHC.

B. Background

The approximately 100 operational BHC's in the country are presently supplied with drugs once a year according to standard list "A" (densely populated areas) or standard list "B" (less populated areas). These drug supplies have been supplemented with MCH-related items by UNICEF. No provision exists for the interim resupply or in-province redistribution of drugs.

The use of a standard list means that annual resupply has been independent of use or local disease pattern. Thus, except for the difference in quantities between list "A" and list "B", no provision has been made to link drug supply to annual patient load or number of active sub-centers. The standard lists "A" and "B" have been in use for several years without revision and are believed to have been developed principally on the basis of surplus inventories at G.M.D.

Judging from data obtained during "Phase I" (clean-up phase) of the Parwan/Kapisa project, this system has the following three major disadvantages:

1. A considerable wastage of some drugs resulting from supply levels in excess of demand.
2. A decreased ability to treat patients as well as considerable frustration of the professional staff because active centers rapidly run out of important drugs.
3. A tendency to reduce the dose prescribed for a specific illness to such small amounts that cure is unlikely.

Current practices have several disadvantages. The whole center is frequently inoperative when one person is absent. If the doctor is away, no diagnosis or prescriptions are made, no matter how basic the ailment. If the staff member assigned to give out drugs is absent, no prescriptions can be filled, since he is accountable for the drugs and this responsibility is not easily transferable.

C. Major Innovations in the Drug Component of the Pilot Project

1. A new list of 42 basic drugs, estimated in advance to cover approximately 90% of the most common complaints.
2. Drugs supplied to each BHC in a quantity estimated to cover one year's consumption.
3. A drug usage chart with indications, common usage, and dosages.
4. Development of technical instructions in the form of logical flow diagrams in order to increase the probability of correct diagnosis and treatment. This was produced as a much needed reference help, considering the limited medical skill of the paramedical staff and the limited diagnostic facilities of the BHC's.
5. Distribution of drugs, primarily in prepackaged form, among the doctor, ANM, and the male nurse according to skill level and category of patients seen (as specified in the BHC Task Description Chart and job descriptions).
6. Introduction of a new drug, glucose-electrolyte solution, for the improved treatment of dehydration due to infant and childhood diarrhea and vomiting.

D. Relationship Between Conditions Seen and Properties of the New Drug List

Can a limited list adequately take care of the complaints seen at BHC's, or is a full pharmacy required?

The samples drawn from the clinic registers show that the 10 most common diseases account for 57% of all diagnoses made. The 25 most common diseases account for 84% of all diagnoses.

Nearly one-half of all cases represent mild, self-limiting disease, where symptomatic treatment is the rule.

Comparison of the properties of the drugs on the new drug list and the complaints listed in the registers shows that with this list approximately 90% of all complaints can be taken adequate care of. Of course, the drugs must be supplied in sufficient quantity to meet demand.

A similar comparison, using the traditional G.M.D. standard list, indicates that this list will be adequate for no more than 50% of all complaints, again assuming that the drugs are supplied in sufficient quantities.

The BHC is designated to take care of the common complaints and to refer the complicated cases.

The new list has the capacity to achieve this goal, and based on rural epidemiology from other developing countries, it appears that the new list should be adequate for the majority of the most common complaints.

Conclusion. Prepackaged drugs have not been used by the MOPH before. They are used widely in developing countries and, in essence, constitute only a packaging improvement over the usual distribution in a little paper cone made by the dispensing person. This innovation does add one new component, a label with a written and pictorial description of how to take the drug. A survey of clients leaving the clinic showed that most did not know how to take their drug. However, all clients could either read or knew someone who could and were willing to solicit help.

Prepackaging was well received by the BHC staff as a useful innovation. Although the G.M.D. has no facility for prepackaging, it was quite easy to establish a pill-packaging center for purposes of the pilot project.

The machinery is quite simple, and personnel are easily trained and supervised. There is an indigenous commercial production of good quality plastic bags.

Can the benefits justify the cost of prepackaging? For the pilot project, 1,709,000 tablets and capsules were prepackaged into 69,000 bags. The cost per bag, based on the above, was 1.124 afs. This cost calculation included cost of plastic bags, labor, labels, stencils, supervision, transportation and overhead. Sixty percent of this cost was for labor, since the prepackaging was done manually and primarily on overtime.

A cost of about .5 afs per bag for prepackaging can be assumed to be a realistic cost if prepackaging becomes institutionalized and greater economies of scale are achieved. A cost of .5 afs per bag appears to be a reasonable cost to add to a course of treatment. In national terms, the possibility of packaging BHC drugs appears feasible. Assuming a 25% population coverage by the BHC system, and one course of treatment per person, a total of 2,250,000 bags will be needed, at an approximate cost of 1,125,000 afs. The present MOPH drug budget is 7,150,000 afs + 1,650,000 afs contribution from UNICEF. In this context, the cost of national implementation for prepackaging appears neither disproportionate nor prohibitive, increasing the total cost by about 12%.

Based on the experience from the pilot project, one can assume that the following benefits can be realized:

- a. Safer, easier and faster distribution of drugs.
- b. Saving of staff time in dispensing of drugs.
- c. Easier and more correct inventory recording.
- d. More correct prescriptions.
- e. Fewer unstable drugs due to deterioration in open tins and bottles.
- f. Increased likelihood that patients will accept the drug and take it as prescribed.

E. Conclusions and Recommendations

This analysis of the UNICEF drug component in the Parwan/Kapisa pilot project indicates the following:

1. Conclusions.

- a. A list of 40 basic drugs can adequately take care of approximately 90% of all complaints seen at the BHC's.
- b. Most clients did not know how to take the prescribed drugs, but all those who were issued prepackaged drugs were able to locate someone who could read the label.
- c. Prepackaging and labeling of drugs in cure/dose-related form was well received and popular with the BHC staff as well.
- d. Prepackaging and labeling added 1.124 afs to each dose of drugs. This cost could be reduced to about .5 af per dose if institutionalized.
- e. A drug usage chart and TB treatment scheme provided much needed reference material for the staff.
- f. The present inventory and logistics system has none of the features necessary to keep rural health units well equipped and supplied with drugs.
- g. The reasonably accurate estimates of amounts of the 40 basic drugs needed for the pilot project showed that acceptable forecasting of drug demand is possible. It also showed that drug demand is far in excess of what is presently supplied.
- h. Based on the pilot project data, the cost of supplying an adequate amount of drugs to 100 BHC's would total approximately 12 million afs per annum. This contrasts with a previous drug budget of 1.5 million afs and this year's budget of 6.5 million afs.

2. Recommendations. It is recommended that the MOPH consider the following in order to improve the efficiency of the BHC's:

- a. Revision of the present G.M.D. standard drug list to conform to the new information about rural epidemiology.
- b. Implementation of a system of prepackaging and labeling of drugs.
- c. Adaptation of a policy of drug division in BHC's to permit auxiliaries to dispense preventive and safe creative drugs according to standing orders.
- d. Introduction of drug usage charts and TB treatment schemes in all medical institutions.
- e. Improvement or redesign of the present inventory and logistics system.
- f. Developing a drug forecasting and monitoring system to serve the BHC system.
- g. Increase in the quantities of drugs supplied to BHC's to meet true demand.
- h. Provision of sufficient funds for an increased drug budget, either by increasing the budget or by revenue-generating methods such as charging patients for certain drugs.

The implementation of any or all of the above recommendations is likely to increase BHC effectiveness and efficiency, i.e., lowering total cost per client treated.