MINISTRY OF HEALTH
MANAGEMENT SCIENCES FOR HEALTH
KABUL, AFGHANISTAN

PARWAN BASIC HEALTH CENTER
PILOT PROJECT

EVALUATION REPORT

March, 1976
PARWAN BASIC HEALTH CENTER PILOT PROJECT
EVALUATION 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 (Dr. Adal) and his MSH counterpart. The idea was attractive because

1) many existing Ministry of Public Health 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. Dr. Wahabzadah was particularly helpful and encouraging.

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--Clean 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.
II. Objectives

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

OUTLINE

SERVICE

A. To increase number and types of services

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

   a. Ante-natal services

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

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

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

   b. Child care services

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

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

      - 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

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

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

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

      TOTAL 41 tests per month
SERVICE (cont.)

b. Innoculation 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. For example, each ante-natal patient was supposed to receive the following on each visit (depending on the circumstances): hemoglobin test for anemia; urine test; one in a series of three tetanus shots; packet of polyvitamins; a physical examination; BCG and smallpox innoculations (if not already innoculated); and food commodities.

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 500 ante-natal visits in five of the pilot centers (Panjshir excluded) indicates the following percentage of women receiving the specified services:
<table>
<thead>
<tr>
<th></th>
<th>Mean % Receiving</th>
</tr>
</thead>
<tbody>
<tr>
<td>1) Physical exam</td>
<td>91%</td>
</tr>
<tr>
<td>2) Lab tests: Hb% urine</td>
<td>66% 0% *</td>
</tr>
<tr>
<td>3) Tetanus (1 or more)</td>
<td>69%</td>
</tr>
<tr>
<td>4) Routine curative drug (polyvitamins, anemia)</td>
<td>27.1%</td>
</tr>
<tr>
<td>5) WFP</td>
<td>99%</td>
</tr>
</tbody>
</table>

While these results do not indicate an ideal level of services to ante-natal patients, they do 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.

*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.
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:

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

The "innovations" in this patient care area are the child's age/weight growth chart and oral therapy for diarrhea. While the lack of local knowledge and materials precluded an active nutrition education effort, the existence of the newly developed child's card offered the opportunity to introduce nutrition education to BHC's and also to evaluate the card. See Objective #2 for an evaluation of this card.

The second innovation was oral glucose electrolyte therapy. Use of this therapy, combined with relevant curative medicines, is intended to reduce dehydration problems of children and to mitigate secondary malnutrition caused by 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. The two labs operating prior to the project, Najrab and Ghorband, were producing a total of seven and sixteen tests per month respectively.

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

<table>
<thead>
<tr>
<th>BHC</th>
<th>Median number tests per month</th>
<th>Mean number tests per month</th>
</tr>
</thead>
<tbody>
<tr>
<td>Najrab</td>
<td>12</td>
<td>42.5</td>
</tr>
<tr>
<td>Panjshir</td>
<td>24</td>
<td>41</td>
</tr>
<tr>
<td>Syed Khel</td>
<td>41</td>
<td></td>
</tr>
<tr>
<td>Bagram</td>
<td>44</td>
<td></td>
</tr>
<tr>
<td>Jamal Agha</td>
<td>62</td>
<td></td>
</tr>
<tr>
<td>Ghorband</td>
<td>64</td>
<td></td>
</tr>
</tbody>
</table>

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

<table>
<thead>
<tr>
<th>Type</th>
<th>Number/%</th>
<th>Range Among BHC's</th>
</tr>
</thead>
<tbody>
<tr>
<td>1. Hb%</td>
<td>14/34%</td>
<td>0-37 tests</td>
</tr>
<tr>
<td>2. TB (sputum)</td>
<td>11/27%</td>
<td>2-32 tests</td>
</tr>
<tr>
<td>3. Parasites (stool) &amp; malaria (blood)</td>
<td>12/29%</td>
<td>5-18 tests</td>
</tr>
<tr>
<td>4. Urine</td>
<td>4/10%</td>
<td>3-7 tests</td>
</tr>
</tbody>
</table>

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.

Specific Comments

1) Hb% Test: The low total number of tests is in sharp contrast to the large number of new and repeat pregnant women. This indicates that instructions to perform at least one Hb% test for each pre-natal case were not followed. The frequency of favorable Hb% findings (i.e., low prevalence of anemia) indicate better health conditions than general impressions would lead one to conclude. It is more likely the result of systematic procedural error or technician's bias. The wide-spread variation in lab results between the various centers reinforces the possibility of either systematic error or wide differences in lab techniques. The fact that, of more than 50 different diagnoses in the six BHC's, anemia is perceived as the most common health problem also raises questions about the number and results of the Hb% tests.

2) Urine Tests: As with the Hb% tests, the low number of urine tests (average four per month) contrasts sharply with the numbers of pregnant patients for whom this test is specified. The relatively high percentage of albumin positive test results suggests either a faulty reading of test results or an excessively sensitive testing method. No other data or observations support the finding that about 30% of all patients referred to the lab for a urine test would have albuminuria.
3) **TB Tests:** Although coughs of more than 14 days duration are a common symptom, the low number of sputum tests indicate a small number of referrals. While it is not normally possible to confirm more than 50% of infected cases through direct microscopy, lab results during the project show a high incidence of positive results. The foregoing suggest that

   a) apparently advanced cases are not tested but are referred elsewhere;
   b) suspected cases which produce a negative finding on the first examination are not retested;
   c) confirmed TB cases undergoing treatment are not retested at regular intervals.

4) **Parasites (intestinal and malaria):** The evaluation data are almost evenly spread between the cold and warm (including malaria transmission and non-transmission) seasons. As would be expected, lab tests showed a high percentage of positive findings—an average of 59 per cent.

**Conclusion:**

Evaluation of lab performance in the pilot BHC's shows a gross under-utilization of lab facilities. An average of two tests per day is far below the capacity of the equipment and lab technician. This under-utilization is evident in all principal diagnostic categories. This shows especially clearly that project instructions to screen pregnant women for Hb% and urine tests were not carried out.

**Recommendations:**

For the future expansion of labs in the BHC's, the following measures are recommended:
a) Operation of fewer, but shared, labs per province;

b) Introduction of an effort to increase utilization of labs through
   (1) better training,
   (2) a better resupply system,
   (3) closer supervision,
   (4) the enforcement of standing orders for lab referral;

c) Assignment of additional responsibility to the lab technician, such as
   (1) patient screening,
   (2) TB,
   (3) active case detection.

b. Innoculation services

BCG and smallpox innoculations were increased on an average of 50 percent 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--Communicable Disease Control (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 tested 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 under-employed 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.

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

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

Reliable data on the number of patients seen per day are available only by going directly to the clinic registers. Service statistics have been shown to be very unreliable. Since there were no registers before the project for the male nurse and ANM, it was necessary for this period to estimate the number of patients seen by each based on an estimated percentage of those seen by the doctor. These estimates provided the following percentages: doctor, 71%; male nurse, 13%; ANM, 16%.

The above figures indicate an average improvement in the desired direction of 41% for the doctor; 185% for the male nurse; and 31% for the ANM. These data substantiate the fact that the male nurse is now seeing a much higher proportion of routine care patients, most of whom had previously been seen by
the doctor. It will be noted that the increase in the ANM's workload has been relatively small. This is because the time-consuming preventive routine and associated administrative procedures, which are less amenable to streamlining, place a ceiling on the number of patients that she can see per day. 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.

a. Task description

In addition to the more general job descriptions included in each staff member's manual, there is a table listing the major tasks of each under the following headings: Family Health Tasks; CDC Tasks; Polyclinic Tasks; Tasks in Sub-Center; Recording Forms and Registers; Who Performs Task if Staff Member is Absent.

The chart seems to have been understood, accepted, and followed. The basic division of labor delineated in this document is considered suitable for national adoption. It should be noted, however, that neither the CDC breakdown nor the outreach strategy mentioned above has yet been tested. Such testing could result in revisions of the work breakdown scheme.

b. Filter system--patient flow

Contrary to original expectations that most patients would continue to insist on seeing the doctor, and that he would not support any effort to diminish his pre-eminent status, the patient flow system has been readily accepted.
Although the staff filter persons sometimes have trouble maintaining order, especially on crowded MCH/WFP days, most patients do see the appropriate staff member. In general, the working areas of the pilot BHC's are more orderly and less noisy and crowded than before the introduction of the filter system. Intra-clinic referrals also work reasonably well. In-clinic patient flows ideally operate as shown in Table C. The system is adequate in the better centers.

In order to make this system work, it was necessary to rearrange the staff room assignments in each BHC. Resistance to this measure was very slight. This patient flow system can be considered a reasonably successful and useful innovation.

2. Division of new drug list among staff

For a thorough evaluative statement about this innovation, see Appendix D. On the basis of the known epidemiology of rural Afghanistan, a list of the 40 most appropriate drugs and the quantities of each was formulated. These drugs were field tested in the pilot area. They were divided among the key paramedical staff, thus providing the staff, for the first time, drugs to dispense. In summary form, the analysis indicates the following:

a. 90-95% of all complaints registered at the six BHC's could have been adequately taken care of with the experimental list. Either a complete cure or symptomatic relief could have been effected, depending on the specific characteristics of each case.

b. The 20 most common diagnoses cover 87% of all patients seen. These 20 diseases are generally easily diagnosed and treated. Thus, with appropriate training and supervision, medical auxiliaries could take proper care of the majority of cases.

c. The experimental list, in terms of both drug properties and quantities, is clearly superior to the GOA General Medical Depot (GMD) standard lists A and B.

(Continued)
d. The GMD list is in need of a critical review, since it contains several items of only historical interest, drugs not now recommended for therapeutic use.

e. Drug demand/need is clearly in excess of what GMD presently supplies and is also probably in excess of what the budget will accommodate. See Objective #4 for cost data.

f. Variations in drug use between centers indicate the need for a more flexible resupply system and for a drug redistribution system at the provincial level.

g. An in-center system with the doctor, male nurse, and ANM dispensing their own drugs can be successful and has obvious advantages. Among others, it reduces the routine work of the doctor, as shown above. Prepackaged drugs, when appropriate, strengthen and facilitate this system.

3. Provide Health Worker Manuals in modular form

The objective was to provide each member of the BHC staff with programmatic, administrative, and technical reference materials. The materials were designed in "modular" form to allow the combination of both specific and generally applicable materials suited to the needs of each staff member. Only the lab technician, by virtue of his special duties, has a unique manual. Each manual contained the following:

a. A "problem" index to assist the paramedical in locating the technical section relating to the patient problem in question.

b. A "work program" section to clarify who performs which task. This section included the individual's job description, a BHC work breakdown chart (who performs which job under what conditions), and a chart illustrating desired patient flows.

(Continued)
c. A "technical procedures" section designed to assist paramedical staff in performing the various family health and CDC technical tasks assigned. In addition to the problem-response verbal and tabular materials, this section included a drug list and usage chart and a set of supporting decision-tree "protocols" to assist the worker in thinking through the various technical tasks.

Results:

BHC staff have shown the most interest in the drug dosage chart, the patient flow system, and the BHC staff Work Breakdown Chart. In general, the protocols are the least understood and least used materials. Although repeated attempts were made in both the formal training sessions and in the BHC to explain and encourage use of these protocols, it is clear that neither the training team nor (as a partial consequence) the BHC doctor, ANM, or male nurse have been able to grasp the protocol concept or its use.

To a degree, this problem may be attributed to the historical inexperience of Afghan health personnel with written materials, especially those of the less formal, handbook reference variety. The problem of under-utilization of written material extended, more or less, to all the material included in the manuals. For example, many staff members kept their manuals in their homes (despite the protests of the project staff) rather than in the clinic as a ready reference. Presumably, this was to reduce risk of loss (and consequent censure).

Beyond this, however, it is clear that the protocols require further effort to adapt them to the Afghan BHC milieu:
a. A general simplification and condensation of each diagnosis and treatment procedure which eliminates all possible detail.

b. Whenever possible, reduction of references in one protocol to another by making each problem-response area discrete and self-contained.

c. Making a greater attempt to learn how to teach the protocol concept and use procedure— for example, through oral methods, role-playing, puppets, etc.

d. Reorganization of the flow diagrams into groups of small, but logical, problem-response categories.

Until these steps have been taken and tested, the project staff do not feel that the introduction of protocols to Afghan BHC's will have received an adequate trial.

Based on the experience gained in the project, a completely revised manual has been prepared which incorporates an attempted revision of the protocols along the lines suggested above. The new manual includes a new "problem-response" index to the technical material; an introduction; an expanded work program section with "do it yourself" weekly work program and filter system materials; a simplified technical procedures section merging the protocol with the textual and tabular materials, offering a revised drug usage chart; and a new administration section providing guidance and reference on a number of key administrative points. The revised manual is specifically designed for applicability to the general BHC system. Copies are available from MSH/Kabul.
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."

It is also clear that there is a continuing tendency for the physicians to see some cases which could be treated by the paramedical staff. This behavior is likely to be persistent in Afghanistan, as in most places. Better public health training and continuing reinforcement by MOPH supervisors are no doubt the keys to improvement in this area.
Objective #2: **Provide Logistic and Information System Support for Services.**

**OUTLINE**

**SERVICE**

A. To develop better logistic support
   1. System design
      a. Central Warehouse
      b. PHO System Coordinator
   2. Inventory system

B. To rationalize aspects of the BHC information system
   1. Introduction of new records and reports
      a. Clinic Register for Male Nurse and ANM
      b. Vaccinator Register
      c. Active Case Detection Form
      d. Mother's card and Child's card
      e. Patient-retained Health Form
      f. TB materials
   2. Improvement of existing forms
      a. Monthly Clinic Activity Report
      b. Vehicle Report
      c. Drug Use
      d. Laboratory Report
   3. Elimination of unnecessary forms:
      Daily Clinic Work Sheet

**ACHIEVEMENT/STATUS**

<table>
<thead>
<tr>
<th>SERVICE</th>
<th>ACHIEVEMENT/STATUS</th>
</tr>
</thead>
<tbody>
<tr>
<td>A.</td>
<td>Basic design complete, not tested</td>
</tr>
<tr>
<td></td>
<td>Completed, operational</td>
</tr>
<tr>
<td></td>
<td>Not tested</td>
</tr>
<tr>
<td></td>
<td>Workable, although familiarization slow</td>
</tr>
<tr>
<td>B.</td>
<td>Accepted, very useful</td>
</tr>
<tr>
<td></td>
<td>Accepted, very useful</td>
</tr>
<tr>
<td></td>
<td>Not tested</td>
</tr>
<tr>
<td></td>
<td>Child's card needs revision</td>
</tr>
<tr>
<td></td>
<td>Not accepted by BHC staff</td>
</tr>
<tr>
<td></td>
<td>Accepted</td>
</tr>
<tr>
<td></td>
<td>Rarely submitted, questionable data</td>
</tr>
<tr>
<td></td>
<td>Not tested (no vehicles)</td>
</tr>
<tr>
<td></td>
<td>Rarely submitted</td>
</tr>
<tr>
<td></td>
<td>Rarely submitted</td>
</tr>
<tr>
<td></td>
<td>Not needed</td>
</tr>
</tbody>
</table>
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 BHC's--were supplied on a roughly 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. A recent decision to keep MOPH drugs in the General Medical Depot (GMD), rather than to stock them at the Central Warehouse, raises questions about the workability of 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 or 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.

It was decided from the beginning that lack of knowledge and materials would preclude the initiation of a standardized nutrition education effort in the BHC's. However, the existence of a child's health card with an age/weight chart, newly developed by the MOPH Family Health Division, offered the opportunity to introduce a needed service to the BHC's and to evaluate the new card.

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.

The major revision needed is in the layout of the age/weight matrix. Other areas needing improvement:
--in the blank area provided, specification of history information to be gathered;

--an overall layout which will permit a double folding, in preparation for a trial effort to give cards to mothers for safekeeping and home review;

--a more "instructional" format for specifying and recording innoculations;

--elimination of wasteful margin;

--a clearer number-grid relationship on the age/weight graph to reduce confusion over entry locations.

Further testing of this important health tool should be done following its revision. National adoption should await these necessary steps. A further possibility is that WHO/UNICEF may be in the process of developing a standard child's card for use on an international basis. If and when such a card becomes available, it should replace all other cards then in use.

It was originally decided that the mothers would take their and their children's cards home with them on a trial basis. The purpose of this was to investigate whether this would

1) reduce the filing and locating task of the ANM,

2) allow the mother to monitor her child's nutritional development, and

3) show mothers how to be reliable in the safekeeping and return of the cards.

Such an approach has worked well in several African countries. The BHC and Training Team staff reacted negatively to the suggestion of this experiment, and therefore, it was not attempted. The idea has potential merit, however, and should be attempted as soon as possible.

e. Patient-retained Health Form

The Patient-retained Health Form, or "Village Health Card," provided a brief medical history and a record of services received. It was to be
used by all but mothers and children receiving WFP and was to be retained by the patient.

The "Village Health Card" was introduced into the pilot centers on an experimental basis as a way of improving the quality of health care provided by the BHC. The brief medical history plus record of treatment could readily provide the BHC with the information needed for better diagnoses and also provides a ready BHC and community health evaluation device. Unfortunately, it was not possible to evaluate properly the design or public acceptance of this card. With few exceptions, BHC staff either did not understand the value of the card or felt themselves simply too overworked to take on another form. The idea could have merit under the proper circumstances and should be tested again when feasible.

f. TB materials

All new TB materials were provided by the TB program of the MOPH for the project. These included the following:

1) Referral Slip: for the use of patients sent from the Health Center to the provincial hospital or the Kabul TB Institute.
2) ID Card: for each patient who is diagnosed as a TB case.
3) Monthly Report: for staff to record number of patients, type, etc.
4) 12-Month TB Report: a detailed form for TB activities.
5) TB Manual: Prepared by the TB Institute, it includes instructions for case detection, work plan, etc.

While the above were not carefully evaluated, they appear to have been accepted and utilized as intended.
2. Improvement of existing forms

a. Monthly Clinic Activity Report

The monthly clinic activity report form was revised to reflect more clearly the BHC's CDC activity and to report all facets of family health services performed, including family planning. While the form was easy for the BHC staff to comprehend, it was only rarely completed and sent to the MOPH. Furthermore, a careful comparison of service statistics data (from the few reports sent in) with sample data collected from the clinic registers indicates the former to be unreliable. Thus, despite much urging by project participants, pilot BHC's for the most part continued to ignore the MOPH requirement to send in service statistics regularly. Reasons for this are discussed below.

b. Vehicle Report

The previous form was greatly simplified. Changes included a conversion into a single form from the previous three and the addition of several items of needed information, e.g., noting mechanical faults in need of attention. Since no vehicles were allocated to the pilot BHC's during the project, these forms could not be tested.

c. Drug Use—report form rarely submitted.
d. Laboratory Report

The Central Laboratory in Kabul provided its newly revised monthly report form to the pilot centers. The completed form was rarely received from the centers.

3. Elimination of unnecessary forms: Daily Clinic Work Sheet

This form had provided only the sketchiest information about important activities like MCH and in practice was normally not used. It was fully replaced by the clinic, lab and vaccination registers. The form was removed from the pilot centers.

4. General comments

a. Miscellaneous registers. There is no regular procedure by which the lab technician is supplied a notebook or register for recording his lab tests and results, or the clerk/storekeeper a similar item for his WFP receipt/distribution. Although there are supposedly funds for such purchases in the BHC budget, these items seem rarely to be procured. In such cases, project participants either obtained the items in Kabul or, more commonly, encouraged these staff to make their own "registers" from the generous supply of brown paper in each BHC.

b. The ANM. The ANM is burdened with an unusually large number of forms, cards, and registers. These included the following:
A routine mother or child visit would entail the ANM making entries into four of the above records! Although the purpose of the newly introduced WFP register is not entirely clear, it would appear to be an imposition of questionable value on the ANM. The problem requires further, careful analysis. In fact, much of the entire burden of WFP distribution falls on the ANM. For an elaboration of this point, see Section III. A.

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 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

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

ACHIEVEMENT

   Proved a viable approach
   Shown as key implementation step
   Fair results

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 two training groups. A third group was formed to implement most of the same measures outside the pilot area. Each team was headed by one of the three physician-regional supervisors and replicated the composition of the BHC staff so as to provide a one-to-one counterpart system. The teams were provided with all project materials and were given seven days of formal familiarization prior to the field period. The teams spent two weeks in each BHC implementing the project.

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. These conditions must be stipulated in tandem with the constraint or difficulty which underlies each one:
**REQUIRED CONDITION**

a. That the Afghan personnel who are to lead or carry out BHC implementation participate in the development of materials, the plan, and all other key operational planning.

b. That all team members agree to be tested in connection with the formal teaching in order to ascertain areas of low understanding and to improve the pedagogical technique.

c. That the teams, including the team leader-physician, be closely supervised by more experienced MOPH staff.

d. That team field activities be carefully planned and organized by a more experienced MOPH staff member and that each field trip be carefully specified as to program

**CONSTRAINT/PROBLEM**

Afghan personnel showed no interest in materials development. This resulted in a lack of identification with the project by MOPH staff, at least in its initial phases.

Either as a function of culture or of interpersonal dynamics, the training team refused to be tested in any way. While it was apparent that there were gaps in their understanding, it was not possible to pinpoint these.

All team members, including the MD, seemed to require a great deal of technical advice and emotional reinforcement. Lacking this, the team members frequently bluffed through a poorly understood technical problem or would gradually appear to lose interest.

Such teams are poorly equipped to plan or organize these periods in the field and need help. Limited and carefully specified objectives and field episodes would reduce confusion.
REQUIRED CONDITION

and objective. Also, each field trip should be limited as to time and geographical coverage.

e. That personnel only be allowed to participate on these teams who are interested, capable of understanding the effort, and able to spend considerable time in the field.

f. That more generous per diem be awarded for this difficult task, comparable at least to the current UNICEF per diem level.

CONSTRAINT/PROBLEM

and slackening interest.

A number of personnel were involuntarily assigned to the teams with predictably poor results. Only those who can and wish to do this should be appointed.

It has been repeatedly demonstrated that MOPH personnel are reluctant to go to the field. Current MOPH per diem levels are obviously an inadequate incentive. Higher per diem levels greatly increase incentive.

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 is to implement most pilot project features in two regions consisting of twelve provinces.

2. Physical improvement of centers by training 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. The major problem was in procuring missing drugs, commodities, personnel, supplies, etc. Mechanisms for a rapid response to such requests are not well developed.

3. BHC staff training in the centers

The approach to training the BHC staff was as follows:

a. An initial briefing lecture was given on project purposes and approach upon arrival of team.

b. The team member and counterpart worked together daily during clinic hours.

c. A more formal, lecture presentation of all aspects of the project was given daily following lunch. This phase normally only lasted during the first of the two weeks in each center.

Although the above approach seems basically sound, certain problems were noted:

a. Some training team personnel either lost interest in the work of their counterparts or failed to utilize the manual and other reference materials. This can be corrected only through better supervision by the MD/team leader.

b. As noted, team members had a tendency to bluff their way through a poorly understood point rather than look it up in the manual or ask an advisor. One distressing consequence of this behavior was that contradictory advice was given to the BHC staff on technical
points during training, which resulted in staff confusion and skepticism. Better training and better supervision are the keys to correcting this dysfunctional behavior.

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 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—such as, 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 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 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 support. The Parwan PHO lacked adequate role reinforcement and support from the MOPH/Kabul. Although the MOPH has committed itself to providing the following minimum facilities to the PHO, these still have not been made available:

1) own office away from the hospital;
2) own clerical staff;
3) incentive per diem while visiting BHC's.

Until the PHO's are provided some usable reference materials on how to carry out their tasks, and until they are provided the basic facilities by the MOPH, it is unlikely that they will be effective supervisors.
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.

As with the BHC doctor and the PHO's, the regional supervisors will require material describing in detail their duties as supervisor.
Objective #4: Gather and Evaluate Other Information Relevant to BHC Analysis and Planning.

OUTLINE

INFORMATION

A. Costs
   1. General
   2. Drugs and supplies
   3. Laboratory

B. Patient attendance and travel distance
   1. Patient attendance
   2. Patient travel distance
   3. Population coverage

C. Village survey

D. Diseases seen at BHC--new drug list

ACHIEVEMENT

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

**DISCUSSION**

An effort was made to gather project-related data and to evaluate the data emanating from the project. It was 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 and discussed below.

A. Costs

BHC operating costs include 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.

1. General

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.*

*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 following.
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 into 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 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 them at the rate of 317,616 afghanis each per annum:

<table>
<thead>
<tr>
<th>No. of BHC's in operation</th>
<th>1353</th>
<th>1354</th>
<th>1355</th>
<th>1356</th>
</tr>
</thead>
<tbody>
<tr>
<td>Afghanis required to operate system</td>
<td>36.2 million</td>
<td>42.6 million</td>
<td>48.9 million</td>
<td>56.5 million</td>
</tr>
<tr>
<td>Amounts budgeted for BHC's</td>
<td>32 million</td>
<td>38 million</td>
<td>? million</td>
<td>? million</td>
</tr>
</tbody>
</table>

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 increased size and complexity of the BHC Central Office expected under the expansion program, plus the addition of several regional offices, will exacerbate this problem. The question of opportunity cost—i.e., whether the GOA could get more services delivered or attain a greater health impact through alternative delivery strategies—is interesting and vital but was not a question considered in the present evaluation.

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 D: Cost Breakdown Per Patient Visit During Project

<table>
<thead>
<tr>
<th>Item</th>
<th>Afs Per Visit</th>
<th>% of Per Visit Cost</th>
</tr>
</thead>
<tbody>
<tr>
<td>1. Salaries</td>
<td>6.44</td>
<td>46%</td>
</tr>
<tr>
<td>2. BHC operating costs</td>
<td>3.50</td>
<td>25%</td>
</tr>
<tr>
<td>3. Equipment and vehicle</td>
<td>1.82</td>
<td>13%</td>
</tr>
<tr>
<td>4. Drugs and supplies</td>
<td>.84</td>
<td>6%</td>
</tr>
<tr>
<td>5. Lab costs</td>
<td>.70</td>
<td>5%</td>
</tr>
<tr>
<td>6. Other (minor supplies and sub-center rental)</td>
<td>.70</td>
<td>5%</td>
</tr>
</tbody>
</table>

14 afghanis 100%

Two items on the above deserve further comment.
2. Drugs and supplies

It is apparent to those knowledgeable about BHC's that the amount and type of drugs traditionally supplied to each center are inadequate to meet the demand. Thus, the figure of .84 afghanis per visit, although hardly cheap when extrapolated on a national basis (4.66 million visits x .84 afs equals 3.9 million afghanis for BHC drugs alone), is an under-representation of the demand. Were the government to implement fully its policy of free health care to all, including medicine, this already substantial national drug bill would be much higher. This being the case, it is encouraging to note that the MOPH budgeted 65 thousand afghanis per BHC for 1354 (compared to 15 thousand afghanis for 1353). This translates to a total 1354 drug budget of 6.89 million afghanis. A budget of this size would permit the adoption of the improved, pre-packaged drug list tested in the pilot project (see Appendix D).

3. Laboratory

One immediately notes that the lab cost per patient visit is nearly as high as the drug costs. In the pilot project, the number of lab tests rose from nearly zero to about two per day per BHC. The cost per lab test under these "favorable" conditions may be estimated as follows:

Cost to operate lab: Lab Tech. 19,200 afs + other 19,956 afs
Tests per annum: 2 per day x 270 work days equals 540 tests

N.B.: "Other" includes chemicals and equipment amortization
By any criteria, this cost level per lab test indicates a very poor cost-effectiveness ratio. When one takes the questionable quality of these tests into consideration, the finding is an even greater source of concern. The measure for lowering costs per test is, of course, to increase the number of tests done, since it does not seem feasible to reduce lab operating costs. A different approach would be to use the grossly under-utilized lab technician for other tasks, e.g., operating the filter system. If it turns out to be impossible dramatically to lower the cost per lab test, the MOPH may wish to reconsider its policy of operating a lab in every BHC for its exclusive use.

B. 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:

<table>
<thead>
<tr>
<th>Age Group</th>
<th>Before Project %</th>
<th>During Project %</th>
</tr>
</thead>
<tbody>
<tr>
<td>0-1 years</td>
<td>4%</td>
<td>7%</td>
</tr>
<tr>
<td>1.1-4.9</td>
<td>16%</td>
<td>16%</td>
</tr>
<tr>
<td>5-14.9</td>
<td>21%</td>
<td>21%</td>
</tr>
<tr>
<td>15 plus</td>
<td>59%</td>
<td>56%</td>
</tr>
</tbody>
</table>

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

<table>
<thead>
<tr>
<th></th>
<th>Before Project %</th>
<th>During Project %</th>
</tr>
</thead>
<tbody>
<tr>
<td>Males</td>
<td>59%</td>
<td>53%</td>
</tr>
<tr>
<td>Females</td>
<td>41%</td>
<td>47%</td>
</tr>
</tbody>
</table>
The preceding represent a 15% 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:

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.

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

The foregoing figures represent more than a 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. At first glance, one is tempted to attribute much or most of the increased attendance to the fact that at least half of the pilot centers were out of WFP prior to the project and were resupplied during project phase one. The people's enthusiasm for WFP is well known. But the fact that the increased attendance is not disproportionately in favor of women and children clearly indicates that the main attraction was not WFP. Perhaps it was the new supply of drugs. Unfortunately, the present evaluation effort is unable to illuminate this interesting question.
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. See the methodological appendix for information on data sources used for this entire evaluation.

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>
<thead>
<tr>
<th>BHC</th>
<th>Winter</th>
<th>Summer</th>
<th>Overall</th>
</tr>
</thead>
<tbody>
<tr>
<td>Jamal Agha</td>
<td>2.25/28</td>
<td>2.5/30</td>
<td>2.3/28</td>
</tr>
<tr>
<td>Bagram</td>
<td>2.5/30</td>
<td>2.5/30</td>
<td>2.5/30</td>
</tr>
<tr>
<td>Najrab</td>
<td>3.7/45</td>
<td>5/60</td>
<td>4.4/53</td>
</tr>
<tr>
<td>Syed Khel</td>
<td>5/60</td>
<td>5/60</td>
<td>5/60</td>
</tr>
<tr>
<td>Ghorband</td>
<td>5/60</td>
<td>6.6/80</td>
<td>5.8/70</td>
</tr>
<tr>
<td></td>
<td>3.6/44</td>
<td>4.3/52</td>
<td>3.9/48</td>
</tr>
</tbody>
</table>
The foregoing table also indicates that patients may be willing to travel farther 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 table below provides these data:

<table>
<thead>
<tr>
<th>BHC</th>
<th>Winter Kms</th>
<th>Summer Kms</th>
<th>Overall Kms</th>
</tr>
</thead>
<tbody>
<tr>
<td>Bagram</td>
<td>3.2/38</td>
<td>2.5/30</td>
<td>2.8/34</td>
</tr>
<tr>
<td>Syed Khel</td>
<td>5/60</td>
<td>5/60</td>
<td>5/60</td>
</tr>
<tr>
<td>Jamal Agha</td>
<td>3.7/45</td>
<td>7.5/90</td>
<td>5.6/68</td>
</tr>
<tr>
<td>Najrab</td>
<td>7.5/90</td>
<td>10/120</td>
<td>8.7/105</td>
</tr>
<tr>
<td>Ghorband</td>
<td>10/120</td>
<td>10/120</td>
<td>10/120</td>
</tr>
</tbody>
</table>

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.
3. 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.

In an attempt to derive some estimate of the percentage of woleswali population covered by the pilot BHC's, the preparers of this report developed a simple, theoretical methodology. Although the methodology produced results of an entirely theoretical nature, they may be interesting enough to stimulate further efforts in this direction.

<table>
<thead>
<tr>
<th>BHC</th>
<th>Estimated Woleswali Population</th>
<th>No. Persons w/Potential Access</th>
<th>% Population w/Potential Access</th>
<th>Mean No. Villages w/Potential Access</th>
</tr>
</thead>
<tbody>
<tr>
<td>1. Bagram</td>
<td>61,315</td>
<td>19,441</td>
<td>32%</td>
<td>25</td>
</tr>
<tr>
<td>2. Syed Khel</td>
<td>61,571</td>
<td>13,846</td>
<td>22%</td>
<td>16</td>
</tr>
<tr>
<td>3. Jamal Agha</td>
<td>72,000</td>
<td>17,131</td>
<td>24%</td>
<td>24</td>
</tr>
<tr>
<td>4. Panjshir</td>
<td>63,135</td>
<td>18,032</td>
<td>29%</td>
<td>22</td>
</tr>
<tr>
<td>5. Najrab</td>
<td>64,965</td>
<td>10,191</td>
<td>16%</td>
<td>34</td>
</tr>
<tr>
<td>6. Ghorband</td>
<td>78,508</td>
<td>25,923</td>
<td>33%</td>
<td>27</td>
</tr>
<tr>
<td>Overall Mean</td>
<td>66,916</td>
<td>17,427</td>
<td>26%</td>
<td>25</td>
</tr>
</tbody>
</table>

Before proceeding, it is necessary to explain the meaning of three of the above categories. (See the methodological appendix for details.)

Estimated woleswali population—in most cases, these are merely the figures calculated from the "Village Gazetteer." Since the BHC's have responsibility for the population of the woleswali where located, this seemed a reasonable approach. In two cases (Syed Khel and Ghorband), this simple approach was unrealistic.
In these cases, the figures shown are a composite from two or more areas. Number and percent of persons with potential access to BHC's were constructed from a list of villages from where patients actually come to a BHC. These were ranked closest to furthest and assigned an arbitrary "population accessibility factor" of between 100% (the closest group) and 5% (the farthest) in proportion to distance. Accessible population numbers were then calculated for each village and the sum of these divided by the total wolesswali population to give the percent of population with potential access.

The foregoing figures roughly suggest that the average BHC in the pilot area could reasonably expect to treat some 17,000 (26%) of its 67,000 assigned population. That, of course, would leave about 50,000 people (74%) per BHC with no easily accessible health care.

To grasp fully the dimensions of this problem it is necessary to extrapolate these figures to the national level. Assuming a total Afghan population of 12 million provides the following results:

a. 12 million less 10% urban population = 10.8 million
b. 26% of non-urban population covered by BHC's = 2.8 million
c. 74% of non-urban population not covered by BHC's = 8.0 million

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 foregoing does not suggest that there is a linear relationship between the number of health centers and the percent of population covered by the system. Great variations in population density and topography alone insure that this
will not be the case. Furthermore, at some point the system 1) is no longer cost-effective, 2) no longer derives the benefits of economies of scale, and 3) begins to raise questions about and reacts to the opportunity cost to the rest of the health sector.

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 innoculation 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 to provide information to MOPH decision-makers which they need to heed for planning, policy making, and evaluation.

The conclusions and recommendations of that survey are summarized below.

1. Although there is a high overall prevalence of illness in rural Afghanistan, women and children share a disproportionate burden of illnesses and deaths.
   --68% of all deaths occur in children under the age of five.
   --The reported prevalence of illness in the three months prior to the survey was approximately twice as great for adult females as males.
   --In the age group over fifty (50) years, there are 1.5 males for every female.

2. A relatively small number of health problems account for a major proportion of all morbidity and mortality.
   --Measles, diarrhea/dysentery, and pneumonia accounted for 63% of all deaths in children under five years.
   --61% of all child deaths have been attributed to one of the same three diseases.
   --Body pains constituted over one-third of all currently mentioned health problems.

3. Priority health problems as perceived by villagers themselves are in close congruence with the illnesses attributed to the cause of death in children.
   --Measles, diarrhea/dysentery, and pneumonia constituted 47% of responses to a question concerning the "most serious illness" facing villagers.

4. Rural Afghanistan has an extensive network of health services, both traditional and modern, which are utilized by the villager in seeking to maintain health.
-55% of all households had used the services of a mullah in the year prior to the study; 44% had visited a shrine for health reasons; and 32% had purchased medicines from a village dokhan.

Pharmacies had been used by 36% of all households in the previous year; 70% knew someone who could administer an injection if needed.

Traditional services--bonesetters, hakims, midwives, barbers--although apparently on the decline, represent a continued source of health service and possess the potential for the adaption of modern health practices.

5. Lack of information represents a more serious barrier to improved health than does the lack of availability of services.

Almost 50% of those who died in the year prior to the survey had sought or received no treatment outside of the household.

The majority of mothers interviewed lacked knowledge about the best treatment for common childhood illnesses; for example, 58% knew no treatment for a child who is thin and weak; almost 20% did not know of any treatment for a child with diarrhea.

Of those treatments known, many are of questionable therapeutic value. For instance, over 70% of mothers believe that the best treatment for a child's eye infection is found in the traditional practice of lining the eye with a black dye; 35% use anise as the primary treatment for diarrhea.

6. Although malnutrition is neither perceived as a serious health problem by those interviewed, nor reported as a frequent cause of child death, it is undoubtedly a major threat to child health. The cause and severity of malnutrition is directly attributable to an inadequate knowledge of the basic nutritional needs of mothers and children.
-- Almost 30% of all children between the age of 2 and 3 for whom are circumference measurements were carried out were classified as malnourished.

-- The mean reported age at which solid foods are introduced to a child's diet is over 15 months; some important high protein foods such as meats are not introduced until almost three years of age.

7. The amount of money spent annually by a household to obtain health services is considerable, both in absolute and relative terms. It is spent for a wide variety of modern and traditional services.

-- The average household expenditure of 918 afs ($15.80) represents 6.8% of the annual household income of the population studied.

-- The second largest health expenditure is for health-related religious services, with visits to mullahs or shrines accounting for 20% of the health expenditure.

-- The total annual health expenditure for the estimated target population of a BHC (estimated at 50,000 people) would equal 7¼ million afs, or over $130,000.

8. BHC's represent a valued health resource whose full potential is yet to be realized, particularly in the area of education for mothers and the expansion of services into the villages.