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MINISTRY OF HEALTH
MANAGEMENT SCIENCES FOR HEALTH
KABUL, AFGHANISTAN

قيم منجمنت
وزارت صحیه
کابل - افغانستان

A FIELD SURVEY OF HEALTH NEEDS,
PRACTICES AND RESOURCES
IN RURAL AFGHANISTAN

July, 1975

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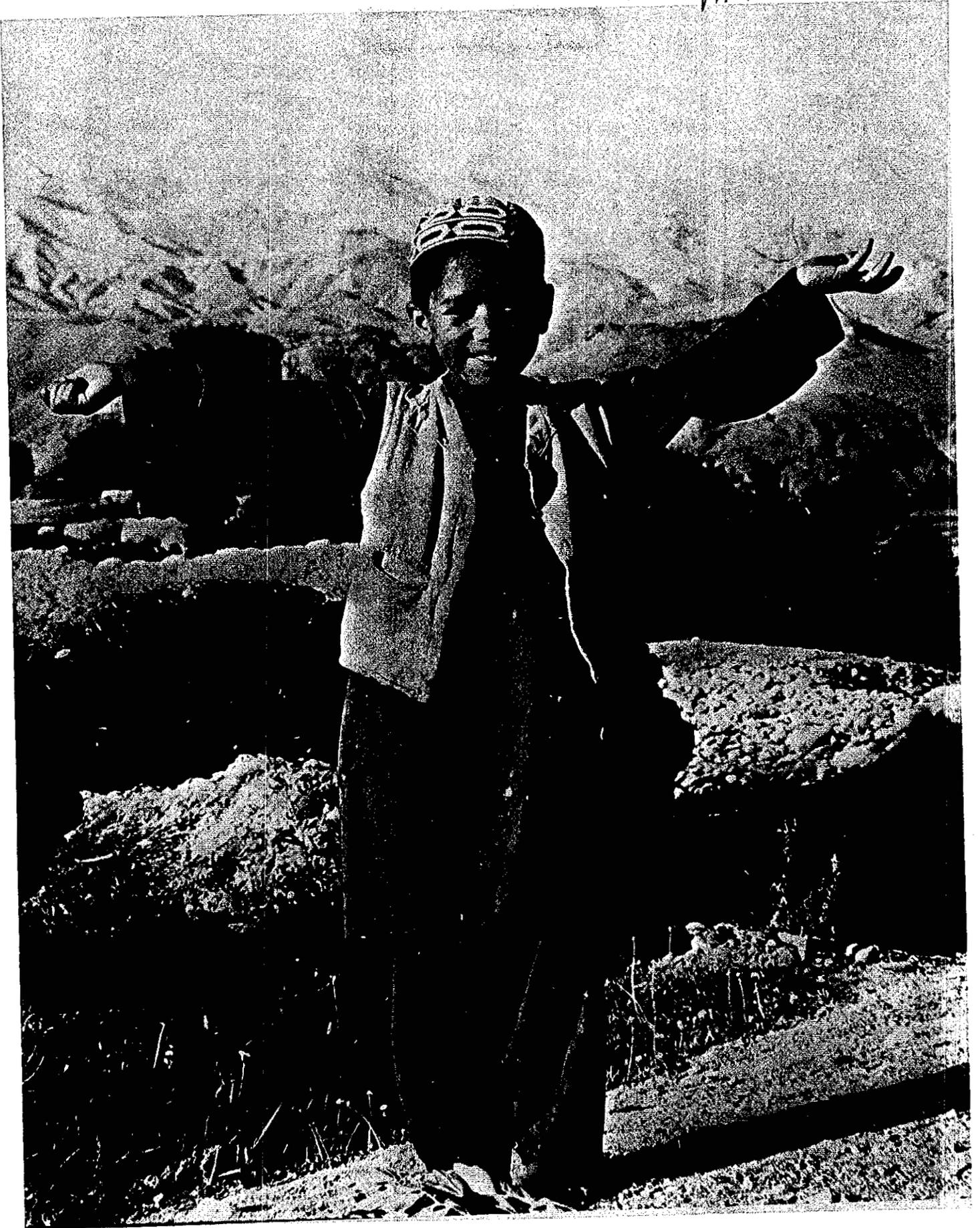
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TO THOSE WHOSE HEALTH IS THE
COUNTRY'S STRENGTH

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Acknowledgements

There are many persons who have collaborated in the survey reported on here. The Minister of Health, Republic of Afghanistan, Dr. Nasar Mohammad Sekandar provided its initial impetus and guided its implementation. Gratitude is owed to Dr. Ghulam Ali Yakubi, Deputy President of Preventive Medicine whose assistance in introducing the researchers to the Ministry of Health and for his continued support was essential.

Our interviewers, Roestum, Rogal, Rokhia, Faridah, Rahimi, Audala, and and translator Yusaf, deserve special commendation for having braved the Afghan winter and for their patience in reviewing the results of their work with us.

Others who shared with us both their hospitality and knowledge of Afghanistan included Martin Kumorek, Dick Scott, Paul Hedrick, Graham Kerr and the staff of Afghan Demographic Studies. Philip Smith of ADS deserves special thanks for his assistance in data processing. Byron Good provided us with the overall framework, which has been used in describing the Afghan health "system".

Finally, deepest thanks must go to all of those interviewed, whose warm reception was a measure of not only their own traditional hospitality but also their eagerness to see change enter their lives.

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17

A FIELD SURVEY OF HEALTH NEEDS, PRACTICES AND RESOURCES IN RURAL AFGHANISTAN

Table of Contents

Acknowledgements

Introduction - Purpose of Survey

1. Methodology of Survey
2. Overview of the Afghan Rural Health System
3. Local Variations in Health Pattern - Jamal Agha and Bolaghyn
4. Findings of Survey
 1. Demographic Characteristics of Sample Population
 2. Indicators of Fertility & Child Survival
 3. Mortality and Morbidity Indicators
 4. Health Problems and Needs as Perceived by Respondents
 5. Pathways Followed for Illness
 6. Household Health Expenditures
 7. Attitudes Toward Basic Health Center Services
 8. Maternity, Nutrition, and Child Rearing Practices
 9. Attitudes Toward Additional Children
5. Potential for Expansion of Health Services to the Village
6. Conclusions and Recommendations
7. Notes and References

Table of Contents, Continued

Appendices

- 1. Questionnaire Used in Survey
- 2. List of Hot and Cold Foods
- 3. Measuring Malnutrition
- 4. Summaries of Interview with Sources of Health Care
- Traditional and Modern
- 5. Oral Glucose/Electrolyte Therapy for Acute Diarrhea
- 6. Steps Towards the Implementation of a Village Health
Care Program - A Flow Diagram
- 7. Is The Chinese "Barefoot Doctor" Exportable to
Rural Iran?
- 8. Summary of Demographic Calculations

Introduction

Purpose of survey

Every society has, over the course of its history, evolved mechanisms to care for the health of its members. These health "systems", varying widely from society to society in concepts, effectiveness and degree to which they have incorporated "new" ideas into traditional practices, are molded within a complete set of cultural constraints determined by the society. Understanding of that health system and the culture which produces it is an essential prerequisite of anyone attempting to introduce changes affecting health practices of a community.

Health innovations are never poured into an "empty vessel" but rather are superimposed upon a system which has already, to one extent or another, demonstrated its ability to meet the health needs of a community.

This report will attempt to describe the existing health system of rural Afghanistan as found in five separate areas of the Parwan-Kapisa Province. No claim is made that the areas selected for description are typical of Afghanistan in general. To the contrary, each of the five is for historical, geographic, ethnic and economic reasons, distinct from other sections of the country as well as from each other. It is hoped, however, that by describing these health systems, greater appreciation will be generated for the shared threads of health beliefs and practices which, shaped by local conditions, produce a common fabric.

It can be argued that the health care practices in rural Afghanistan do not comprise one system, but two: a traditional system, which forms

the core of health services for most rural people, to which has been attached in relatively recent times, a new system made up of concepts and practices often categorized as "modern medicine". The boundary between these two "systems", however, is unclear; a woman treating her child for diarrhea will readily add tetracycline capsules purchased from a village shop to her armamentarium of traditional herbal and dietary treatments. For the purpose of this report the pathways that people follow when sick will be considered to be one system, regardless of the destination to which they might lead, and concentration will be placed on describing the options which are available to the rural Afghan and on the reasons why he may choose to follow one path and not another.

This survey was not done in vacuum, but as a part of a larger effort on the part of the Ministry of Health to introduce needed health services to rural peoples by the most effective and economical means. Current plans call for the development of a network of 178 Basic Health Centers and subcenters to serve needs of the vast majority of Afghanistan's population who live in rural areas. It is recognized, however, that even if this ambitious goal is reached, health services will still lie beyond the reach of many people living in remote areas. As such, one objective of the survey has been to determine the potential for new approaches which will take health services beyond the basic health center and into villages and homes of those whose needs are unmet. Since one method of extending the capacity of modern health services is to make use of those resources already available through traditional health systems, attention in this survey has been focused on traditional practitioners--midwives, hakims, herbal medicine sellers, religious healers

and bloodletters--their present practice, importance to the village and potential for use in a broad scheme program of improving rural health. In Section 5, the potential usefulness of these indigenous practitioners will be discussed and recommendations for their incorporation into the present Ministry of Health rural health program will be presented.

Another objective of the survey has been to gain a more complete understanding of how well existing health resources--both traditional and modern--meet the health needs of the people they serve. In Section 4 relevant findings of the survey will be used to describe the current attitudes and practices of rural Afghans in maintaining health and securing treatment for illness, including the use of modern services such as basic health centers.

In the final section of the report conclusions of the survey will be reviewed and recommendations for extending the reach of health services to rural populations will be presented.

The ultimate test of any study is the usefulness of its findings. It is hoped that this study will be useful to the student of Afghan culture and to those whose role it is to assist the Republic of Afghanistan in meeting the needs of all of its people. Above all, it is hoped that this study will fulfil the needs of the Ministry of Health for information with which to plan and carry out its goals and that one result of the effort will be the eventual improvement in the health service available to the people of rural Afghanistan.

MINISTER'S SUMMARY

1. Methodology of Survey

A team of two men and four women interviewed 190 males and 422 females in five sites, at 4 basic health centers and at 1 sub-center, in the Parwan-Kapisa Province, using an interview schedule designed to gain information about current health problems, pathways followed for health care, health expenditures, and use and attitudes toward BHCs (See Appendix 1). Additional information was obtained by unstructured interviewing with health providers, traditional and modern, and with village residents.

1. Methodology of Survey

In order to complement the Ministry of Public Health (MOPH) pilot health center project, the Parwan-Kapisa Province was selected as the location for the survey. Within that area, five sites were selected for interviewing, each having a functioning basic health center (BHC) or subcenter as its focal point. Interviews were conducted at the health centers by a team of two male and four females using a questionnaire which had been pretested in other areas of Parwan-Kapisa Province (See Appendix 1). A total of 612 interviews were completed with the following breakdown by area:

	<u>Number of Respondants</u>	<u>Percent of Total</u>
Bolaghayn (Subcenter)	100	16.3
Jamal Agha (BHC)	205	33.5
Najrab (BHC)	144	23.5
Bagram (BHC)	87	14.2
Ghorban (BHC)	76	12.4

One hundred and ninety of the respondents were male (93.2% heads of households) and 422 were female (93.8% wives of heads of household).

Interviewing took place from January 8th to April 16th. The average time required for each interview was 30 minutes, male interviewees requiring slightly less time as males were not asked questions concerning maternity and child rearing.

Interviews were restricted to the health center at the request of the Ministry of Health. Hence, selection of respondents is biased towards

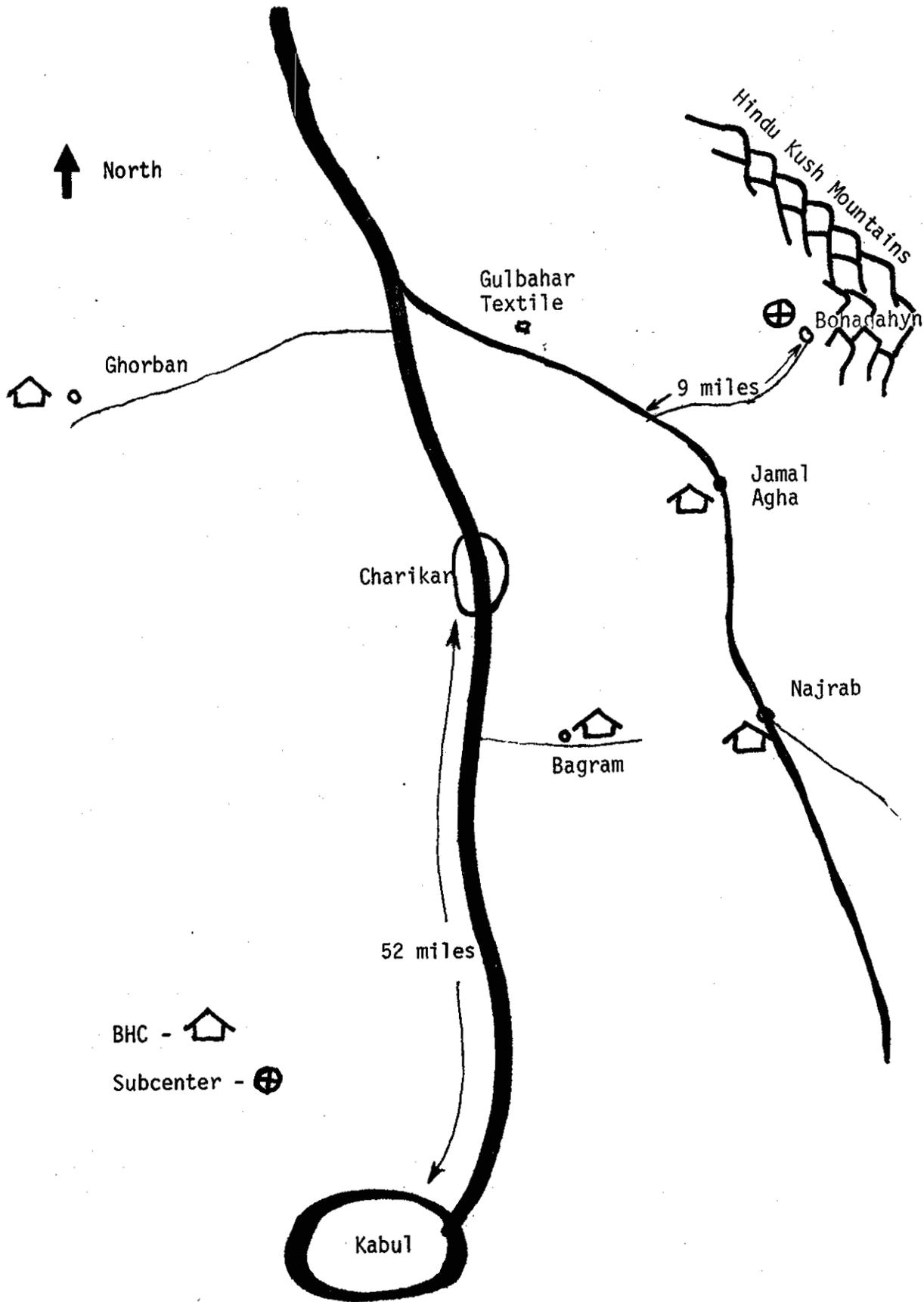


FIGURE 1.1

MAP OF AREAS STUDIED IN PARWAN KAPISA PROVINCE

those using health center services. As the average distance that the patients travel in order to visit a basic health center is 2.7 km.¹ the population interviewed can be viewed as broadly representative of the entire population within the vicinity of the health center.

The questionnaire used in the survey was designed to collect information on the following topics:

- . Household membership, education and employment
- . Number of living and dead children of respondents
- . Deaths in household in past year
- . Present and recent illnesses of all household members
- . Perceptions of most serious health problems
- . Perceived needs for improved health in community
- . Best treatment for selected illnesses
- . Health actions of last year and their cost
- . Use of assistants at delivery (for female respondents)
- . Use and attitudes toward basic health centers
- . Estimated annual health expenditures
- . Child rearing and feeding practices

In addition, arm circumference measurements were obtained for all respondents' children between the age of 1 and 5 for use in nutritional assessment (See Appendix 3 for technical details on the use of arm circumference measurements).

While the interview schedules served as a central data gathering instrument, other methods were used as well to supplement, complement and verify the information obtained from household interviews, including:

- . Non-structured questioning of respondents on designated topics
- . Conversations with village headman and elders
- . Interviewing of individuals providing health services, both traditional and modern

The first objective of the non-structured interviewing was to check the veracity of the information being collected daily by the interview technique. The second, and equally important objective, was to obtain a fuller picture of the total health care network in the community.

Summaries of interviews with indigenous practitioners and others providing health services to the rural villages studied can be found in Appendix 4.

NOTE: The conversion rate used in this report is 58 Afs = \$1.00.



Figure 1.2. The Interviewing Team

MINISTER'S SUMMARY

2. Overview of the Afghan Rural Health System

The health system of rural Afghanistan can be analyzed using a five-level framework to describe both traditional and modern services available 1) in the home, 2) in the village, 3) at the larger or central marketplace, 4) in the towns, and, 5) in the cities (Figure 2). Decisions about the level and type of care to be sought in the event of an illness in the household are determined by a number of factors including:

- . Perceived severity of illness
- . Perceived cause of illness
- . Resources available to household
- . Availability of transportation
- . Sex of individual
- . Traditional beliefs
- . Past experiences in seeking health care

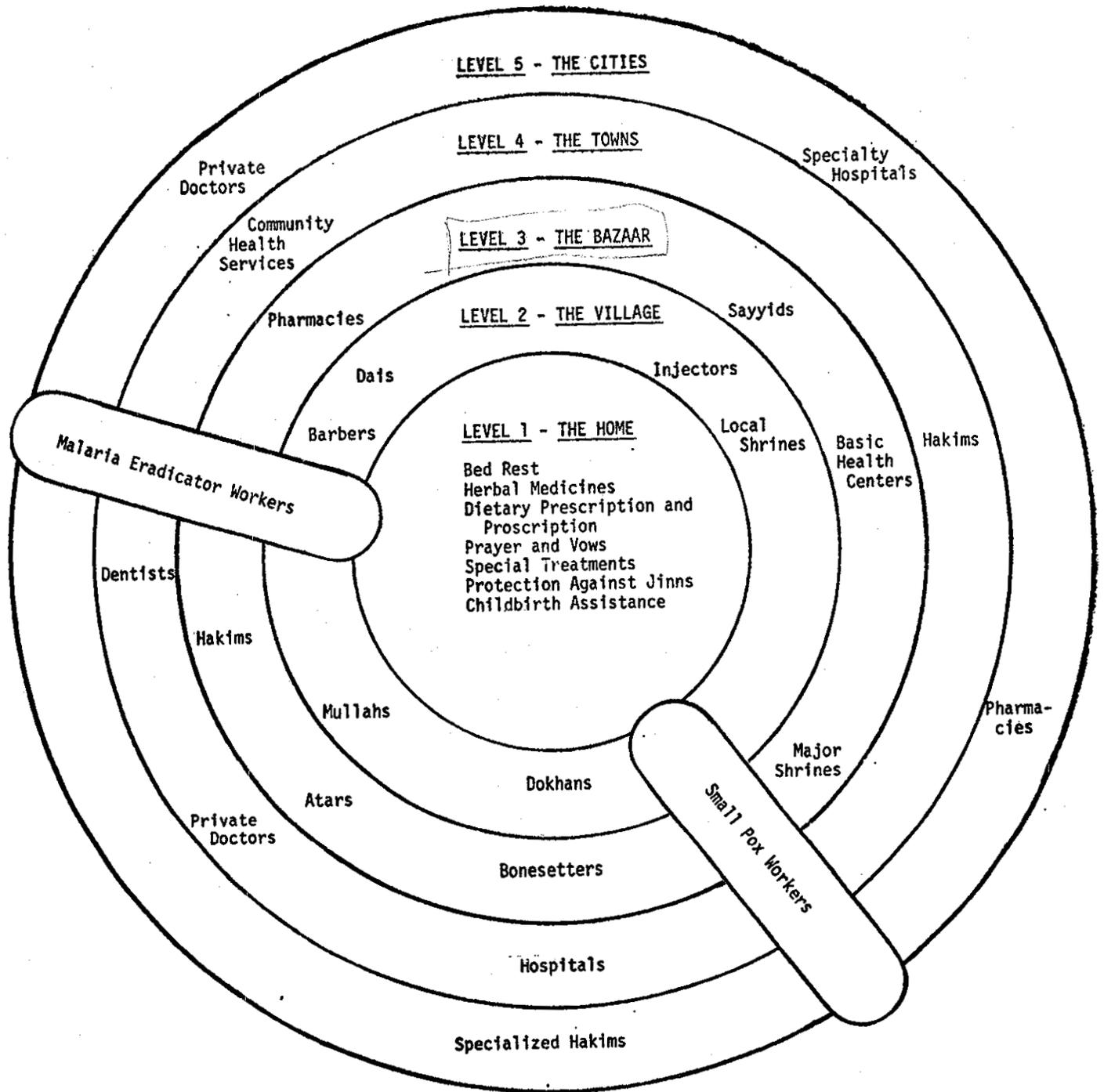


Figure 2.1 Overview of Afghan Rural Health System

2. Overview of the Afghan Rural Health System

There are a variety of health care alternatives which a person living in rural Afghanistan has available when sick. In this section we will present a general overview of these alternatives and will describe some of the variables which affect the selection of specific alternatives in the event of illness. In section 3 we will move from a general description of the options available for maintaining health and alleviating illness to a description of how choice and chance operate in two of the areas studied, determining the most common pathways followed by members of that community when sick.

For the purpose of analyzing the health system of the area of rural Afghanistan studied, a framework will be used which begins with a description of the actions taken in the home to preserve health and which moves outward to describe successive layers of services which can be utilized in the health-seeking process. It is hoped that by reviewing the system from this perspective it will provide a map of medical care possibilities as seen by the villager himself. Following this, some of the factors which influence the actual pathway that is followed in the event of an illness, or the threat of an illness, will be discussed.

A. HEALTH SERVICES AVAILABLE

Level 1 - The Home

The single most common source of health care in rural Afghanistan is undoubtedly the household. It is not surprising that the Afghan household, which strives for self-sufficiency in most of its other essen-

tial needs, would have the capability of caring for many of its health needs within the walls of its compound. This is a pattern which is not unique to Afghanistan; for instance, recent studies in the U.S. have shown that up to 80% of all illnesses sustained are adequately cared for in the home without turning to outside medical expertise.

Treatments which are carried out entirely or partially in the home include:

Prayer and Vows

One of the first actions taken in the event of an illness is to make a plea to God to alleviate the problem. Often the supplication takes the form of a vow of the type, "If my son's health improves, I promise to visit the shrine every Friday for a year."

Bed Rest

Sick individuals are usually expected to rest. When possible, their household responsibilities are taken over by others and their health needs are met by other family members, especially women.

Dietary Prescription and Proscription

The predominant concept of diet during illness follows the widespread "Greek" humoral beliefs of "hots" and "cold". The diet of each individual is altered according to the body temperature of the individual and hot or cold nature of his illness. Foods are likewise classified as being hot or cold, and the proper alignment of body temperature and food type is strived for during illness. This survey did not attempt

to classify diseases and foods according to their "hot" or "cold" natures, but it is an essential factor which must be taken into consideration when attempting to understand the treatment patterns followed during episodes of illness.

Appendix 3 presents a classification of foods according to their "hot" and "cold" nature, prepared by the CINAM team who studied two villages in northern Afghanistan. While regional variations can be strongly suspected, this list does provide a general guide to the nature of foods in Afghanistan and does tend to point out that dietary capabilities are not necessarily severely limited by either a hot or cold diet as the food options on either regime easily allow for a balanced, nutritious diet. Another important class of dietary treatment is the total withholding of foods for some illnesses, as often occurs during childhood diarrheas.

Herbal Medicines

In addition to bed rest and diet change, herbal medicines play an important role in home treatment. These medicines, usually grown locally, but also procured from herbal medicine shops (atars), are kept in the household for use when needed, and are the domain of the woman of the household--usually the older woman.

Special Treatments

There are a number of special curing procedures which take place in the home. One of these is the treatment of fevers and injuries by wrapping a patient in goat skins (Post-i-gosphand). Another example reported in the survey is the care of a weak and thin child, for which wheat flour is taken from seven different households in

the village and baked into bread which must be shared by at least forty women. Numerous other special practices such as for the treatment of wounds, skin ailments and aches and pains also take place in the home.

Childbirth Assistance

Pregnancy and childbirth are recognized as a time of potential physical and emotional health problems. To overcome these problems, special care and precautions are prescribed for a pregnant woman. In the home, assistance both during childbirth and after is provided by female members of the family. While in many cases the services of a dai or traditional midwife will be called upon for actual childbirth, it is common for older women in the household, who have experienced a number of deliveries of their own, to provide the sole assistance to a woman at childbirth. Use of dais appears to vary greatly from area to area.

Protection Against Jinns

A common belief is that some illnesses such as repeated death of infants is caused by jinns or evil spirits. As might be expected, there are a series of rituals and protective actions to guard the individual, especially a newborn child, from attack by the jinns. One example of this is an amulet of "tawiz" worn by almost every child from birth. Another is "shewest", whereby the child drinks water in which a written verse of the Koran has been immersed.

The health activities which take place at the household level are usually the responsibility of the women of the household. It is unusual that men, for instance, have knowledge of traditional herbal medicines, this being in the female realm. Men, too, are explicitly proscribed

from any role in childbirth, other than for emergencies which involve the transportation of the woman to a hospital or doctor.

The treatments which are administered in the home share the characteristics of being inexpensive and for the most part traditional in nature. They provide the first line defense against illness. If they fail to prove effective, a decision must be made as to the next treatment that will be sought. This is a decision that involves the potential expenditure of money and transportation. At this point decisions about the care become a matter for the attention of the men in the household. Depending upon the nature of the illness and the amount of money available to the family, care may be sought from any of the following levels, or from, possibly, several at once.

Level 2 - The Village

In the immediate area of the village there are frequently persons who can be turned to for assistance in the event of a health problem. These include:

Dais

In most, if not all, villages there are women specialized in the delivery of babies who will come to a woman's house to assist her at the time of delivery. They are usually older women, often infirm, who bring to their task years of experience and the ascribed respect of the community. The frequency with which traditional midwives, or dais, are used, the services they perform, and the competence with which they carry them out apparently varies greatly, with both regional and individual variation being present. Although most

deliveries continue to take place in the household, only 30.8% of female respondents in the survey reported using a midwife to assist in her delivery. Dais may or may not receive rewards (money or goods) for their services depending upon regional custom and the ability of the woman's family to pay. Often the dai will visit a woman before birth to examine her and for some time after the birth of the child, she may continue to visit the household to observe the condition of the mother and child and to lend emotional support as needed.

Barbers

Each village has one or more barbers who traditionally have provided a number of services. In addition to cutting hair and shaving, the barber also performs circumcision, pulls teeth and draws blood to release "bad blood" which is considered to be the cause of many illnesses.

There are indications that the barber's role as bleeder is one that is diminishing as new concepts of illness diffuse through rural Afghanistan and as sanctions against their practice are enforced. Blood letting is frequently described by villagers as something that "was done in the past, but not anymore". This is supported by the fact that only 9.8% of the households interviewed reported having made use of the barber's service in the past year.

Mullahs

In each village there will also be found one or more religious leaders or mullahs, who, in addition to leading the community in prayer and interpreting the Holy Koran in the context of everyday village life, play an important role in the curing and prevention of illness. One

of the main procedures employed by the Mullah is the giving of amulets (tawiz), which usually consist of appropriate verses from the Koran inscribed and sewn into a cloth packet which is then pinned to the patient's clothes or worn on a string around the neck. The tawiz can be both curative, as is usually the case with adults, or preventative as is extremely common with children. It is said that the Mullah's greatest effectiveness is in treating emotional problems, nervousness, anxiety, mental illness and illnesses caused by "jinns" or spirits. Thus he can be seen as being especially important in the maintenance of the psychological well-being of the individual and of the community. He may also perform a role in filtering illnesses and making appropriate referrals to health facilities outside the village.

One indication of the importance of the Mullahs' role in village health can be seen in his reported use from survey findings. Fifty-five percent of respondents reported having visited a mullah for health reasons in the year preceding the interview. For those who reported using his services, the average number of times any member of the household had made use of his services was 4.5. Almost 9% of the total annual health expenditure, as reported in the survey, is used for this service.

Dokhandars

There are dokhans, or small shops, in even the most remote villages. They usually sell a variety of small essential items, including medicines. Many of the medicines they sell are non-prescription items such as aspirin, vitamin C, cibasol, and Vick's Vaporub. There are indications that many also sell common antibiotics and other prescription drugs which they have obtained either from

pharmacies or illegal distributors, although none of the dokhandars visited during this survey did. Almost one third of all respondents reported having purchased medicines from the dokhan during the previous year, with those that do, spending 152 Afs annually. *Almost \$3*

Injectors

It is common to find individuals in the village who are retired hospital workers or who have had some experience in delivering care in the military who provide advice and simple care to their fellow villagers. One of their common roles is to provide injections to patients who have visited a doctor and have received prescriptions in their injectable form.

One variant of this type of practitioner is the individual who purchases drugs in large quantities from pharmacies or outside sources and sells his services to the community. Our survey did not locate any persons following this pattern. However, this may be due to the unsanctioned nature of the activity or the relative proximity of the sample population to health centers rather than to its total absence. Seventy percent of respondents in the survey reported knowing someone who could give them an injection if needed.

Local Shrines

Almost all villages have a shrine--the burial site of a pious ancestor which is venerated and called up for its ability to effect a cure for certain illnesses. Other, more specialized shrines which are found outside the village are described below.

Although there are a number of important health services which are carried out at the village level, they tend to be of a relatively unspecialized nature, provided by part-time practitioners. Once a decision has been made to seek health services outside of the house-

hold, the nature of the illness frequently determines the pathway that is to be followed. As such, it is common for the villager to turn either to the bazaar, the towns, or the cities, where full-time, specialized health providers are located.

Level 3 - The Bazaar

A large bazaar or marketplace supplies a number of villages with the goods and services they require. Here the specialist, be he a gunsmith or hakim, can establish his trade and draw upon a large enough population to support his trade. At this level can be found both the traditional and modern health specialist, including:

Pharmacies

There are more than 500 pharmacies in Afghanistan, with at least one being in every major market settlement. They sell both non-prescription drugs and prescription drugs, with a stock which is usually impressive in volume and variety.

There can be no doubt that the compounder in the pharmacy is an important primary health care provider, especially in areas which do not have a doctor. Not only does he provide advice to his customers but he prescribes and, as in the case of injections, may administer medicines. A number of measures of the acceptance of modern medicines by rural Afghans and the importance of the pharmacist to the health system emerges from the survey. For example, 32.3% of the total annual household health budget is spent on the purchase of drugs from the pharmacy. Slightly over 36% of all households had purchased drugs from a pharmacy in the preceding year, with the average number of visits being 3.5 at an average cost of 226 Afs per visit.

BY

Hakims

Hakims or traditional medical practitioners are ordinarily not found in the villages, but in the bazaars and towns, with the more successful ones (and supposedly the more effective ones) being located in the cities. These practitioners, often Hindus, use procedures and medicines which descend both from the Unani medical traditions of India and from the Arabic traditions of the West. The influence of the hakim, while still significant, may be waning since they tend to be located in areas where modern doctors are also present, setting up a natural competition which is probably destined to be won by the private physicians and hospitals. For instance, only 3.5% of respondents claimed that anyone in their household had visited a hakim within the year.

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Atars

Atars are shopkeepers or sidewalk vendors who specialize in the sale of herbal medicines. They are often small scale operators with little knowledge of health and illness themselves. As many of the herbal medicines used by villagers are well-known plants found growing in their own vicinities the atar's role is a marginal one, only 1.7% of those surveyed having used his services in the year.

Bonesetters or Shekesta bande

This practitioner is not found at every bazaar, as bonesetting is one of the more specialized trades. As the name implies, the shekesta bande sets broken bones. He also treats sprains, dislocations, and assorted body pains. The value of their profession is attested

to by the large numbers of villagers who report using their services in preference to hospitals. 239 out of 432 respondents reported that the best treatment for broken bones was to be found at the bonesetter. Bonesetting is a profession which is apparently not so much chosen as thrust upon a person out of the necessity for someone in a community to be able to meet the need to set bones. Bonesetters do not report training apprentices to carry out their work, although it is suspected that someone will take over their role when they die. (One bonesetter interviewed was about 100 years old, and reportedly still very active).

Consistent with their working out of demand rather than for economic gain, bonesetters often claim not to charge for their services, accepting money only as offered; as such they are not usually part of the bazaar economy and are not ordinarily full-time workers. However, due to their degree of specialization they serve a very broad population and are usually located in the vicinity of a central marketplace. Research during the survey identified 4 bonesetters serving the needs of Parwan-Kapisa Province.

Major Shrines

Another source of help which lies outside the village is major shrines or "ziarats". Often "ziarats" are renowned for their ability to effect cure for a particular illness. Thus, special shrines are to be found for rabies, snake bites, or deafness. Other shrines are acclaimed for their powers over more general categories of illness. One common reason for making a pilgrimage to a shrine is to pay for relief from barrenness--an extremely serious affliction in a patrilineal society. The importance of shrines in health maintenance and cure is witnessed by the fact that visits to shrines, local and

major, represent the second largest individual health expenditure for the rural Afghan household, with an average annual cost of 107 Afs. One fact in the relatively large expense for shrines is that visits to renowned shrines, such as Mazar-i-Sharif in northern Afghanistan, entail considerable travel expenses.

Sayyids

Certain holy persons, or sayyids, who claim to be descendents of the Prophet, are also considered to be helpful in the treatment of illness. However, as none were interviewed or reported as being used by any informants in the survey, their relative importance remains undetermined.

Basic Health Centers

These health facilities are most often located at the bazaar level. With a usual staff of about 6 persons, including a physician, male nurse, vaccinator, sanitarian, clerk, and occasionally an auxiliary nurse-midwife, the basic health center represents a significant health resource.

Government-supported basic health centers which provide preventive services and serve as a distribution center for food supplementation programs as well as supplying essential curative services, are a relatively new component in Afghan rural health system. Their impact and acceptance will be discussed in Section 4.

Not all the services described above are to be found in every bazaar. In addition, many types of services which have been described as being associated with the village level are also available at the central marketplace level; for instance, shops that sell medicines, barbers, dais, and injectors.

Level 4 - The Towns

Towns are enlarged bazaar areas which serve as regional centers for trade and government. They usually have a population of 30-50,000, making specialization in all areas of trade and service more feasible and more rewarding than at the bazaar level. Health services regularly found in the towns include:

Private Doctors

Most towns are large enough to support one or more private physicians as well as most of the services found at the smaller market centers. Town doctors like most other doctors in Afghanistan, are usually government physicians who augment their official practices with private patients, seen after official working hours. Dentists may be found in some towns as well.

Although town doctors may be more convenient to rural people than doctors in the larger cities, the survey in Parwan-Kapisa Province indicates that once the decision had been made to bring a patient to a doctor, the town is often bypassed and services of a doctor in Kabul are sought out. Probable reasons for this pattern include the limited choice of physicians in towns (possibly linked with negative rumors about their practice), the general attraction of the city, the availability of friends and relatives in the city who can provide accommodations and advice on medical care and the relatively insignificant difference in cost and effort to go to the city rather than to the town, once one has started on the path to find a doctor.

Hospitals

Some towns also have hospitals. The same pattern as for town physicians appears to be common, however. If hospital services are needed

the patient is usually taken to the city, even in the case of emergencies where promptness of care is a factor. Undoubtedly quality of care is a prime consideration in this choice. Five percent of respondents' households had visited the local hospital in Charikar during the past year while nearly 7% had used hospitals in Kabul.

Company Health Services

In some areas of the country, companies play an important role in providing health care to their employees and others in the community. One example is the Gulbahar Textile Mill which provides a hospital, doctor service, and pharmacy for all of its employees as part of an employee insurance program. In addition, members of the community can use the company services on a fee-for-service basis or can make use of the physicians in their private hours. However, the high fees charged to non-workers appears to have some influence on reducing the utilization of this type of health service.

In general, health services in towns are less adequate than those in cities. One result of this is that the health facilities are often underutilized and those of the cities are crowded with people who have come many miles for treatment. One step in alleviating this problem is the upgrading of provincial or town hospitals, a task that may require time and considerable resources.

Level 5 - The Cities

Not surprisingly, the cities of Afghanistan, especially Kabul, are centers for specialized health service. In addition to specialization, however, the cities offer the patient a choice--an option which the patient often utilized in the extreme.

Private Physicians

There are approximately 500 private doctors in Kabul⁽²⁾, each with a prominent sign directing the needy to his office. The usual pattern by which the patient from outside Kabul chooses a doctor upon alighting from his bus is best described by an informant, "we find a doctor by his sign or by asking someone in the street. If we are lucky we get a good doctor"

Judging from the amount of "shopping" for a doctor that goes on, the patient is not often lucky. It is not uncommon for an individual to produce 5-10 prescriptions that he has received from different physicians for the same illness, each representing a cost of 20 Afs for the doctor's visit plus as much as 250 Afs for drugs and associated transportation costs. Over 10% of the annual health expenditure of those surveyed was allocated to visit Kabul physicians, a category surpassed only by medicines and shrines.

General and Specialty Hospitals

In Kabul there are a number of hospitals, including specialty hospitals for maternity cases, children's diseases, T.B., women's illnesses and eye problems. This survey did not include a review of their services and clientele, but a number of rural respondents have reported use of them. Major hospitals are located in other cities as well, but as Kabul served as the main reference area for the Parwan-Kapisa Province, their usage was not reported.

Specialized Hakims

There are a number of hakims in the cities, some which are renowned, drawing patients from throughout the country. Degrees of speciali-

zation exist within this group as well as it does among modern practitioners. There are no facilities for in-patient care by hakims practicing in towns; their usage may be on the decline.

Mass Campaigns

In addition to the services which have been described as being present at different levels, there are some services which are available at all levels of organization. The malaria eradication and smallpox immunization programs are the examples of services which permeate all the way from the level of the largest city to the most remote village. Both of these programs have regularly extended their services into the village and, in doing so, may have played an important role in introducing modern health concepts to a population with little previous contact with it.

B. PATHWAY DECISIONS

Given the variety of options open to the sick individual or his family, how is the decision made as to which pathway or pathways are to be followed? There are a number of considerations that go into each decision and each decision is made somewhat easier by the fact that, except in genuine life-threatening situations, there may be no one final decision, but a number. Selection of health services tends to be sequential or parallel. One action may be taken in conjunction with a seemingly conflicting action, as in the case of the man who stops to visit the hakim in town on the way to the doctor's office. If such actions are taken jointly or even sequentially, it becomes difficult to determine the source to which the cure is attributable, or whether, in fact, a number of sources are working in conjunction.

There are a number of factors affecting the choice of treatment selected; these include:

1. The perceived severity of the illness - Time cannot be wasted in the event of serious illness. For example, an attack of appendicitis in a remote village will bring an immediate response, such as the organization of transportation to bring the patient to the hospital in Kabul. A child's diarrhea, on the other hand, may proceed through a series of steps depending upon the perceived gravity of the illness at its various stages.

2. The perceived cause of the illness - The proper action to be taken in the event of an illness often depends upon the beliefs about its cause. Although time did not allow ample consideration to be given to considerations of causation during the survey, some general concepts did emerge which, incidentally, were consistent with known theories of disease causation in neighboring countries. Some of the common explanations which logically follow are:

Bad Winds

One notion, common to most Greek medical beliefs, is that winds can enter the body and cause illness, especially rheumatism, aches, pains and headaches. The accepted treatment of diseases of this origin has traditionally been cupping, by which the bad winds are drawn off.

Bad Blood

Blood that is not clean can be the source of many problems, including fever, discolored skin, infections and general weakness. The expulsion

of bad or dirty blood historically takes place by bloodletting (raxon), usually carried out by a barber using a razor.

Bodily Imbalance

Some illnesses are said to be brought on by an irregularity of the forces working within the body. One main element in the causation is related to the theory of hots and colds. Each body has its own normal characteristics (for example, men are considered to be warm but move toward cold as they age). If for any reason the temperature of the body changes, it can bring an illness.

Natural causes

Some diseases have no known cause and simply happen, especially those which are common and self-limiting. Colds and diarrheas can fall into this category, depending as much as anything upon the individual's beliefs and need to determine a cause for each affliction. The first line of defense against natural illnesses is time or simple remedies available in the home.

Foods

Improper diet can cause illness, as in the cases of too many cold foods causing stomach pains or too many hot foods causing fevers. Also there are beliefs that the mixing of two incompatible foods can cause illness; as the case of stomach ailments brought on by drinking tea after eating melons. Remedy for this type of illness is found in a change of diet.

Microbes

So-called "modern" concepts of illness have spread to even the most isolated communities in the country. Those who accepted this explanation

for illness, logically, are prone to seek out "modern" sources of treatment, including doctors, hospitals, and pharmacies.

Evil Eye

Some people are able to cause disease in others. This is most often not malicious, but simply something that happens due to a power which a person may unknowingly possess. Cure in suspected cases of "evil eye" usually involves ritual carried out in the home. One example is the throwing of seeds into an open fire while asking questions about the source of the evil eye. If seeds pop in the fire as the question is being asked whether a specific person is responsible, it is taken as a positive answer. Cure then becomes a matter of confronting the person whose evil eye is the cause of the problem.

Jinns

Jinns, or spirits, are said to be responsible for a number of illnesses, especially among the newborn and for those diseases which manifest themselves as mental disorder. Protection is the first defense against this ubiquitous cause of illness. Once the "jinn" has made its presence known in an individual, treatment consists most often of visits to the Mullah or to sayyids, who are said to be the only persons immune to attack by the spirits.

3. Resources available to the household - When asked what members of a household do when someone is sick, a number of respondents have replied in a similar vein, "If they are part of the lucky 20% who have the money, they go to Kabul; if they do not, they wait in the village either to die or to get well." In Section 4 the costs of various health services as reported in interviews will be discussed. Local treatments are almost always considerably cheaper than the use of distant, modern health

services. In cases of serious illness it is not unusual for a family to exhaust its options and its savings in seeking a cure. Among the very poor, services involving any expense at all may be beyond practical capabilities, and reliance may have to be placed upon inexpensive or free services which can be obtained at the level of the home or the village.

4. Transportation - In some remote areas the scarcity of transportation limits options. This may not be a severe limitation in non-emergency cases, as buses penetrate to most areas of the country, but with acute cases in remote areas, the absence of transportation may preclude the patient from reaching the type of care he would select if he had transportation available to him.

5. Sex of Individual - Many health services are more available to men than women. For instance, when a man is sick he can often transport himself to Kabul and seek out care. His wife, however, when she finds herself in the same situation, may have to rely on her husband or male relative to accompany her to a physician, or, in some extreme cases, may even have to rely on her husband to convey her symptoms to a doctor, hakim or pharmacist and to return with medication. Interestingly, the basic health center, with its concentration on women and young children may be a partial remedy to this inequity as can be seen in the service statistics of the BHC in the Parwan-Kapisa Province which shows that 49% of the persons using services are female (3).

6. Traditional Beliefs - Innovations do not diffuse and are not accepted at equal rates throughout a traditional society. Not only are some areas more reticent to use modern health services than others, but, in some areas, there are negative feelings towards particular traditional

practices as well. For example, the people of the Panshir valley hold midwifery in low esteem, apparently, due to the many years women from that particular area served as midwives and wet nurses to the elite of Kabul.

7. Past Experience - This is, perhaps, one of the most important considerations in the selection of a path to be followed when sick. If a procedure has been tried and has proven successful it is likely to be tried again. For example, if the last case of bronchitis in the household was cured by taking the patient to a shrine, the same course of action will most likely be followed when the next member of the household develops the same symptoms. It should be noted, however, that the converse may not always be true, as in the case of patients who make a practice of pursuing a series of doctors even though none has been able to bring any satisfaction for a sickness.

The process by which a society seeks to preserve the health of its members is, above all, rational. Over time, numerous experiments in seeking care have been conducted. As new options become available, new experiments become inevitable. It is a body of knowledge built up from these past experiences which guides the decisions by which care is sought. Inherently conservative, the process, nonetheless, contains the ingredients by which it can test and assimilate that which is new and desirable.

C. FACTORS UNASSOCIATED WITH PATHWAY DECISIONS

In concluding a description of the factors involved in an individual's choice of actions to preserve his health it may be helpful to note some factors which do not play an important role in the choice.

1. Commitment to either the traditional or modern health system - Few if any individuals align themselves completely with one "system" of health care or another. In fact, from a pragmatic viewpoint of the patient, there often does not exist two distinct systems, but only one. An example of an actual pathway followed by a patient may be illustrative: While talking to a hakim in his shop in a medium-sized bazaar, a patient entered with a complaint of asthma, asking the hakim if he had any medicine that could help him. Upon questioning the patient about the history of his illness it was learned that he had already taken the following actions for the complaint:

1. received herbal medicines at home
2. visited a Mullah
3. purchased medicine from a pharmacy
4. visited local hospital
5. was seen by a doctor in town
6. visited a doctor in Kabul

His explanation for his coming to the hakim on that occasion was, "I was on my way to the doctor and thought I would stop to see if you had any medicine good for asthma. None of the other things I have been given so far have done any good at all."

This patient provides an example of a common pattern by which persons seek out care; the use of a complete spectrum of services available to

him without regard to their tradition or origin.

2. Social class of the individual - With the possible exception of some well-educated in larger cities, the individual's background is not a limiting factor in his choice of health services. Doctors' offices in the cities are crowded with villagers who have travelled great distances for their care. Conversely, traditional medicine thrives in the cities. For example, while in a well-known hakim's shop in Kabul during the course of this survey, a man entered asking if the hakim had had medicine for his father's skin rash which he had been treating for over a year with a number of different ointments. The hakimji produced a medicine and gave a detailed description of how it should be used. When the man left I was informed that he was a well-known physician from one of Kabul's specialty hospitals.

In summary, the complex network of health services available to rural Afghans is, in their own minds, much more a holistic system than it would appear from a mere listing of the sum of its parts. It is, however, a changing system that may not appear the same ten years from today as it is today. Any change that does take place in the system, however, will be a result of the realization on the part of the villager that some elements of the system serve his needs better than others.

Minister's Summary

3. Examples of Local Variation in Health Services

Health services in two of the areas studied are compared. Jamal Agha, a large marketplace located on a main road link between several larger towns, is medically well served. In addition to a fully-staffed, basic health center, services are available which include a local pharmacy, shops selling a variety of medications, barbers, several traditional midwives and access to a company health system. In addition, availability of transportation allows residents to readily seek out health care at the next level--the towns and cities.

Bolaghayn, though only nine miles from Jamal Agha, is an isolated community with few reliable and continuous sources of health care available to it. A subcenter of the Jamal Agha health center provides services once a week during seasons when travel is possible. At other times sources of modern health services are few, limited to the shops which sell simple preparations. Traditional practitioners are likewise few, contrary to what might be expected in an area where modern services are scarce. Transportation to medical care outside the area is difficult; buses are infrequent and travel involves a four-hour walk. Emergency cases are carried to the main road, where transportation to the cities can be arranged.

Summary Continues on Next Page

Minister's Summary, Continued

Health problems as seen by the people of these areas are compared. In Bolagahayn the major problem is acute illness, especially those associated with childbirth, appendicitis and infectious illness. People of Jamal Agha express concern over environmental issues such as polluted water. Households in the more remote areas spend more than twice as much per year on health services than the people located near the Basic Health Center. Comparison of health services used by the two areas paints a picture of two distinct sets of pathways pursued in seeking health care.

As more basic health centers are introduced in rural Afghanistan, a broadening of the gap between those who have adequate health services to meet their needs and those who do not will be inevitable.

Village-level health programs are proposed as a mechanism to promote parallel health development throughout the country. Their potential is to be discussed in detail in Section 5.

Section 3. Local Variation in Health Patterns: Jamal Agha and Bolagahyn

The preceding section has provided a general description of the Afghan health system. In this section more specific details will be presented on how the system actually functions in two different locations. The two locations which will be discussed are geographically not distant, being separated only by nine miles. However, they do represent two very distinct points on the continuum of health care in rural Afghanistan, and are undoubtedly broadly typical of the health situation in many parts of the country.

Jamal Agha

Jamal Agha is a large village settlement (over 500 households) which serves as both a marketing and social center for farmers from surrounding areas. As it is on a direct road between Kabul and the provincial center of Mahmaud Raqi, transportation to neighboring towns and to the city by bus, jitney and truck is both available and relatively inexpensive.

Health services in Jamal Agha itself include a basic health center and a pharmacy. The health center, one of approximately 100 in the country, is located in a rented building, consisting of five rooms and a spacious courtyard. It has been open for 3 years, serving a population which comes from as far away as 12 km for services. The staff, which includes a physician, male nurse, 2 auxiliary nurse midwives, two vaccinators, a laboratory assistant, a sanitarian and a clerk/storekeeper are all government employees whose services are provided without charge to all coming to the health center. Special emphasis is placed upon the care of children

mat

and mothers, with the center providing immunizations, child weighing and simple curative care as well as serving as the distribution center for foods provided to mothers and children through the World Food Program.

The Jamal Agha health center is one of the first in the country to have the services of newly graduated auxiliary nurse midwives, and has been able to establish an actual maternal and child health program. During the year previous to the survey, 36% of the patients seen were under five years old; 48% of all clients were females.



Figure 3.1 Health Center at Jamal Agha

Preventive services provided by the health center include inspection of the markets by the sanitarian and immunization provided at the BHC, in the schools, and in the villages.

Drugs which are provided by the health center are free when in stock; when drugs are not available the patient is given a prescription for a drug to be used at the pharmacy in Jamal Agha or in one of the neighboring towns. At the time of the survey the pharmacy in Jamal Agha was planning to close because of lack of business.

In the bazaar at Jamal Agha dokhans can be found selling traditional medicines and commercial medicines (aspirin, Vicks Vaporub, etc.).

Here there is also an abundant number of barbers who, although often denying it, unquestionably perform services that include bloodletting and toothpulling. Hakims are not readily found in the medium-sized bazaar at Jamal Agha but can be located in the nearby, larger town of Gulbahar. Mullahs are available both in Jamal Agha bazaar and in the villages.

Many of the men in Jamal Agha work in the nearby cotton textile mills

at Gulbahar and benefit from its medical insurance plan which provides for care for workers and their families at the companies' hospital, dispensary, and pharmacy. Others in Jamal Agha can use these services on a fee-for-service basis but the much more common practice is to travel to Charikar, a town about 15 miles away or to Kabul (35 miles away) when sick.

There are a number of dais in the community serving the needs of women during childbirth. The auxiliary midwives at the health center are also available, but their effectiveness is limited by the fact that they often cannot travel to the villages after dark because of a lack of a proper chaperone. Medical emergencies arising from childbirth are usually brought to Kabul by the family, either in a rented automobile or by bus, instead of to the health center, as it is known that the mother will most likely be referred to Kabul anyway by the health center doctor, who does not have the facilities or training to handle such cases.

Why not?

Bolagahyn

About one mile north of Jamal Agha a small rocky road intersects with the main road. Nine miles beyond, this smaller road ends at the scattering of shops and teahouses which make up the bazaar at Bolagahyn. From here houses climb up the base of the mountains which cut off Bolagahyn from most of its neighbors, and spread out into about fifty different villages with a total population of about 40,000. On a hill overlooking the bazaar is the office of the alakadar (government official) and three rooms which are facilities for a subcenter--served once a week (much more sporadically in the winter) by the doctor, nurse and auxiliary midwives from the Jamal Agha health center. Many of the

same services which are provided at the health center are available here on a weekly basis, including immunization, maternal and child health clinics, WFP food supplements, and treatment of medical complaints. And, as with the health center, many of those making use of the services are women and their children.



Figure 3.2 Main Bazaar at Bolagahyn

During the remainder of the week, health services are meager. There is no pharmacy. Two small shops in the bazaar sell a limited assortment of medications, mostly aspirin and other preparations for aches and pains.

Almost any illness which can not be satisfactorily treated in the home or the villages requires travel to the larger centers at Jamal Agha and Gulbahar. One bus leaves Bolagahyn each morning. If this is missed the choice is either a four-hour walk or to wait until the next day. For those who can leave, the decision is either to visit the doctor in Gulbahar, who will see patients at the end of his regular work day at the textile plant or to travel straight to Charikar, or, more commonly, to Kabul. Emergencies such as complications of childbirth and appendicitis require the patient to be carried on a bed the nine miles to the main road, where, with luck, a private car can be hired, or, in daylight hours, a bus found.

Contrary to what might be expected in an area where modern medical services are not available, traditional forms of care do not abound in Bolagahyn. Hakims restrict their practice to the larger more lucrative market centers and are not to be found in Bolagahyn. Barbers, which can be found in abundance in larger towns, are difficult to locate and are said not to practice the traditional medical cures. Deliveries are usually assisted by older women in the household; the few traditional midwives who are available are limited in their capabilities. As in all villages there are mullahs who offer up prayers and administer "tawiz" and other treatments to ward off and treat illness.

A Comparison

A comparison of two areas of rural Afghanistan less than ten miles apart is instructive. One is relatively wealthy in the medical resources it has access to; the other has a near vacuum of services, both traditional

and modern. Not surprisingly, these differences manifest themselves in a number of ways.

Conversations with the men of Bolagahyn lead to discussion of health problems that include emergencies of childbirth, appendicitis, and acute infection, poor roads, and lack of transportation. The men of Jamal Agha speak of the problem of polluted water and the fact that sewage from the textile mills flows into the juies (small canals) which provide their water for irrigation and consumption.

Substantial differences also appear in the health behaviors of the two areas. In Bolagahyn the annual expenditure on health services per household is 1473 Afs, while in Jamal Agha a household spends less than half as much--709 Afs. The difference is not simply in transportation costs; for instance, the households of Bolagahyn spend an average of 2/3 more per annum on drugs than do the people of Jamal Agha. This may be attributable to the provision for free drugs at the BHC in Jamal Agha or to the fact that those coming from more remote areas are prescribed larger prescriptions than those within easy access of the pharmacy and doctor. The fact that their difference is not a function of the number of visits per year to a pharmacy, but rather the cost per unit (Bolagahyn spending 378 Afs per visit and Jamal Agha 152 Afs per visit), would tend to give some support to the second interpretation.

Also noteworthy from the comparison, is the paradox that areas with a vacuum of "modern health services" do not necessarily have a more flourishing system of traditional health services. As examples, in Bolagahyn fewer respondents (14%) claim to use hakims than in Jamal Agah (26%) and fewer know someone who can give them an injection if they need it (56% compared to 70%).

825
1473
116
315
818
581709
58

One possible effect of the variation in total health services in the two areas studied may be observable in the child survival rates. (Note, a number of other factors such as diet, education or economic levels may be responsible as well). Sixty-three percent of all children ever born to respondents in Bolagahyn were reported as living at the time of the survey; for Jamal Agha this figure was almost 70% (significance, $p = 0.025$).

Thus the picture that emerges is of two distinct areas which, for a number of reasons including their locations, histories and ability to support "health specialists", have evolved differing sets of pathways to be pursued in seeking health. As a major portion of the difference between these two areas is the existence of a modern, fully functioning basic health center in one and not in the other, the implication is clear. As modern services are introduced to any area they will initially widen the gap between communities whose health systems meet their needs and those which do not. One approach to narrowing this inevitable gap and promote parallel health development -- the use of village-level health workers -- will be discussed in detail in Section 5.

Minister's Summary

4. Findings of Survey

Households interviewed had an average size of slightly over 6 persons, with a large percent of members of households (almost 50%) being under 15 years of age. Survival rates for women are much lower than for men; past the age of 50 there are 1.5 males for every female.

Women approaching completed fertility (age 35-44) have an average of 7.1 live births, approximately 30% of whom died. The overall mortality rate for the sample population in the previous year was 20.1/1000, 68% of which were children under five years of age. 63% of these childhood deaths were attributed to either measles, diarrhea or pneumonia.

Over one third of all individuals in the households studied had been sick in the last three months; almost 60% of these were still sick when interviewed. Body pains was the most frequent complaint mentioned, accounting for 34% of the total; upper respiratory infections being next with almost 15% prevalence. Diarrhea was not frequently mentioned, perhaps due to the fact that the interviews were conducted in winter. Women over 44 reported a prevalence of illness almost twice as great as that of men.

Respondents perceived the "most serious illnesses" to be pneumonia, diarrhea, dysentery and measles, and their most "serious health needs" to be medicine, doctors and hospitals. Almost 50% of all those who

Minister's Summary, Continued

had died in the previous year had not sought any treatment. Of those reporting an illness in the last three months, 36% had received no care. Those who did use some care demonstrated a preference for modern services--doctors, pharmacies, BHCs, hospitals--over traditional services. An exception is the mullah--54.8% of all households having used his services in the previous year.

The average amount of money spent for a household's health services in the previous year was 918 Afs. 37.5% of this was used to purchase medicines and another 20% was allocated for the use of mullahs or shrines. The amount spent on health services accounted for 6.8% of the total average household income.

Basic Health Centers are viewed as an important source of health care by the rural Afghan. 60.5% of the sample expressed the view that the BHC provided the best care when sick. The vast majority of BHC users felt that the services and personal attention they received was favorable, although a number expressed concern over the fact that the BHC role in food supplementation often interfered with the provision of health services to those who needed it.

Almost all (91%) of rural women report that the maternity services which they have available are not satisfactory. There is also an indication of widespread lack of knowledge on child rearing practices, especially as related to nutrition. While breast feeding is extended

816

$$\begin{array}{r} 58 \overline{) 58778} \\ \underline{58} \\ 077 \\ \underline{70} \\ 778 \\ \underline{770} \\ 8 \end{array}$$

Minister's Summary, Continued

(up to 24 months average), solid foods are not introduced into a child's diet early enough to properly augment the nutrition for mother's milk. Similarly, the types of foods used at weaning tend to indicate insufficient diets for children in weaning. Nutritional assessment, using arm circumference measurements, points to severe nutritional problems, especially among those at age of weaning-- age 2 to 3.

4. FINDINGS OF SURVEY

1. DEMOGRAPHIC CHARACTERISTICS OF SAMPLE POPULATION

A. Household Characteristics

A total of 612 respondents were interviewed during the survey--190 males and 422 females. Of these, 177 males were heads of households (household being defined as all persons sharing a common food store-house or budget for food) and 396 females were wives of heads of households. Their average age was 34.8 years.

A total of 3,695 individuals were enumerated, 39.6% of whom were married; each household having an average of 2.4 married persons, or 1.2 nuclear families, a figure which tends to belie the traditional belief that the extended family is the norm for Afghan households.

Divorce was almost nonexistent (only 2 cases being reported) and widowhood was equally uncommon, perhaps a function of cultural patterns of early remarriage for widows. Almost one half of those reporting as having an occupation were farmers; 21% skilled workers, 11% unskilled workers, with the rest being divided between business, the military and the civil service.

Only 18.4% of all individuals ever attended school; however, 35% of the males and 13% of the females were reported as being able to read and write. Fifty-six percent of the respondents reported living in houses of two rooms or less; only 4.5% had 5 or more rooms.

B. Age/Sex Characteristics of Sample Population

1. Sex Ratios

For the total population in the sample there were 1.08 males for each female. A breakdown of this ratio by age groups is instructive. For the age group 0-14 years, there are slightly more females than males (0.989:1). However, for the age group 50 years and over that ratio is 1.54 males for each female.

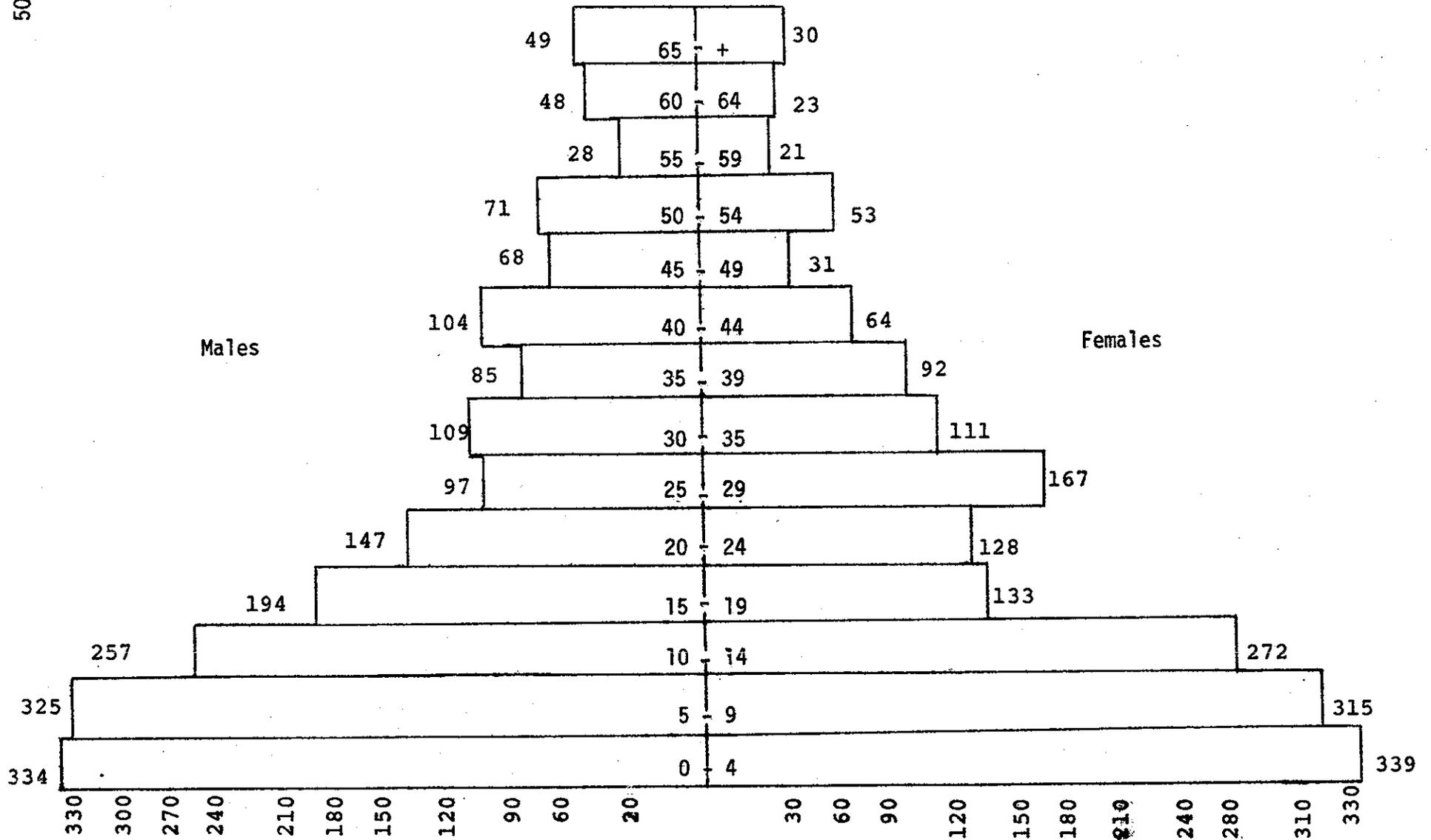
2. Age Distribution

As Tables 4.1 and 4.2 show, the population studied was young, with 49.8% being under 15 years. Only 11.3% of the total population was over 45 years.

Table 4.1 - Age Distribution of Sample Population

Ages:	0-4	5-14	15-44	45-64	65+
Males	17.4%	30.3%	38.4%	11.3%	2.6%
Females	19.1%	32.9%	39.2%	7.2%	1.6%
Total:	18.2%	31.6%	38.7%	9.2%	2.1%

TABLE 4.2 - AGE-SEX PYRAMID



The dependency ratio of the sample population, i.e., the total number of persons 0-14 and over 65 divided by those 15-64 is 108, a reflection of the number of young persons in the population.

C. Summary

Since the sample population in the summary was restricted to those attending basic health centers, the data should not be interpreted as representative of the entire population of the area under study. The data does, however, allow for some generalizations to be made concerning the dynamics of population in rural Afghan settings.

Predominant characteristics of the population include:

- . An average household size of slightly over 6 persons
- . A large proportion of the population which is under 15
- . Females with a lower survival rate than males, especially after age 44.

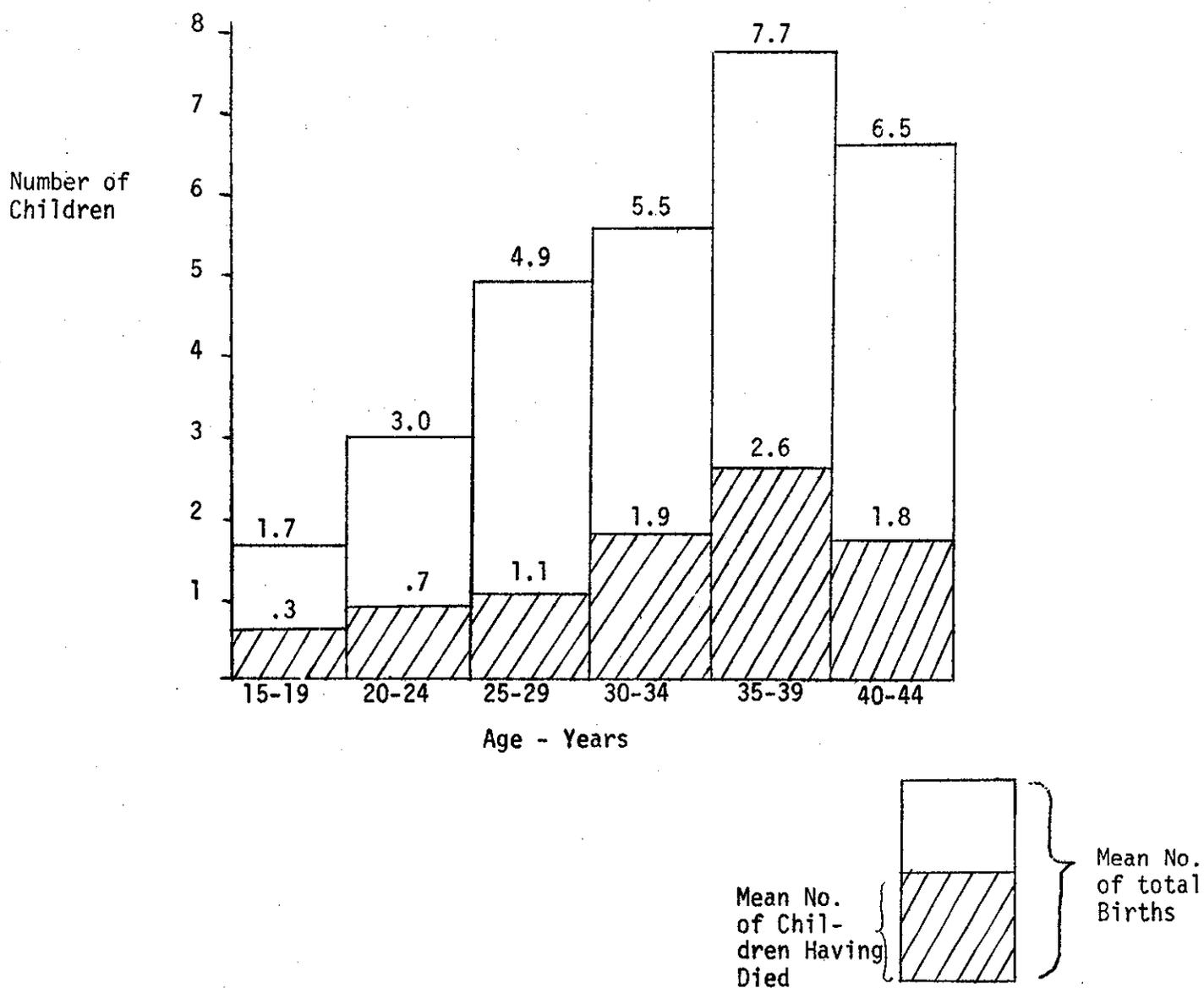
(Additional demographic data and comparisons of sample population with other populations is contained in Appendix 8).

2. Indicators of Fertility and Child Survival

Table 4.3 shows the proportion of total live births and children who have died for women of reproductive age (15-44) broken down by five-year intervals. Approximately 30% of all live births were dead by the time of the interview.

Table 4.3 Mean Number of Live Births and Children Having Died For All Women, Age 15-44

(N = 353)



The estimated crude birth rate for the sample population is 43 births per thousand. (See Appendix 8 for details of estimate).

The corresponding general fertility rate is 243 births per thousand fertile women.

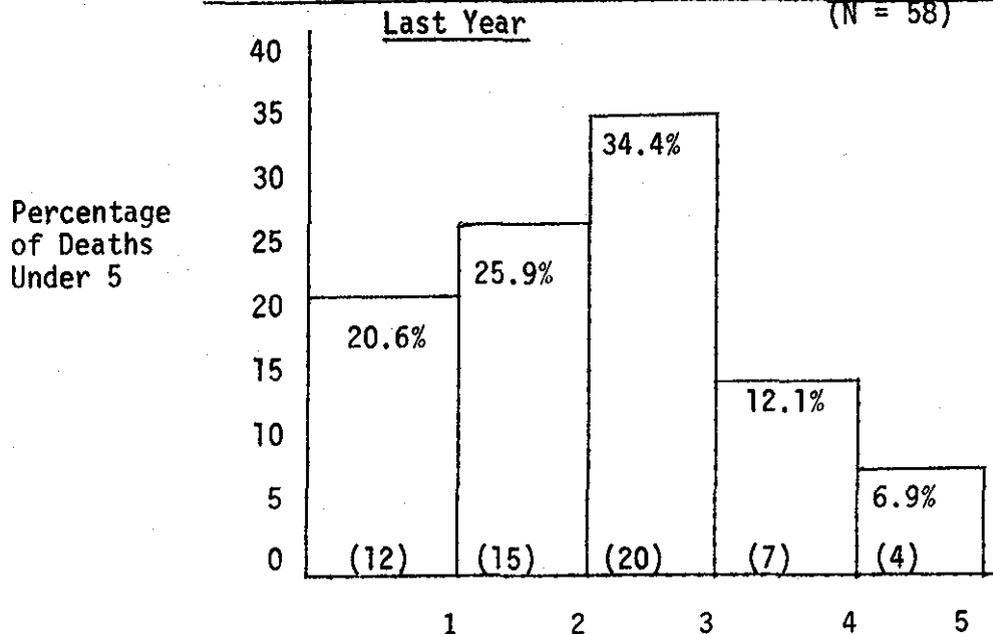
3. Mortality and Morbidity Indicators

A. Total Deaths in Previous Year

Eighty-five deaths were reported in the 612 households in the period since the previous Ide Ghorban. When the reporting period is adjusted to one year the estimated crude death rate of the sample population is 20.1 per 1,000.

Of the deaths during the period, 58 or 68% were children under the age of 5 years. A breakdown of these deaths is presented in Table 4.4:

Table 4.4 - Percentages of Deaths Under Five by Age For Deaths In Last Year (N = 58)



The infant mortality rate for the population studied was in the neighborhood of 150 to 200 deaths per thousand (please see Appendix 8).

The illnesses which were associated with deaths during the period investigated are reported in Table 4.5. Sixty-three of all deaths under five were attributed to one of three causes: measles, diarrhea/dysentery, or pneumonia.

Table 4.5 Illnesses Associated with Deaths In The Last Year

Illness	All Deaths	Children Under Five
Measles	24.4%	31.5%
Diarrhea/Dysentery	15.9%	16.7%
Pneumonia	13.4%	14.8%
Cough	4.9%	3.7%
Black Cough	3.7%	3.7%
Small Pox	2.4%	3.7%
Asthma	2.4%	-
T.B.	2.4%	-
Weakness	2.4%	3.7%
Typhus	1.4%	-
Cough w/sputum	1.2%	1.8%
Sore throat	1.2%	-
Other	19.5%	13.0%
Unknown	4.8%	5.5%
	100.0%	100.0%

15.16
 13.4

 29.56%
 resp.
 total

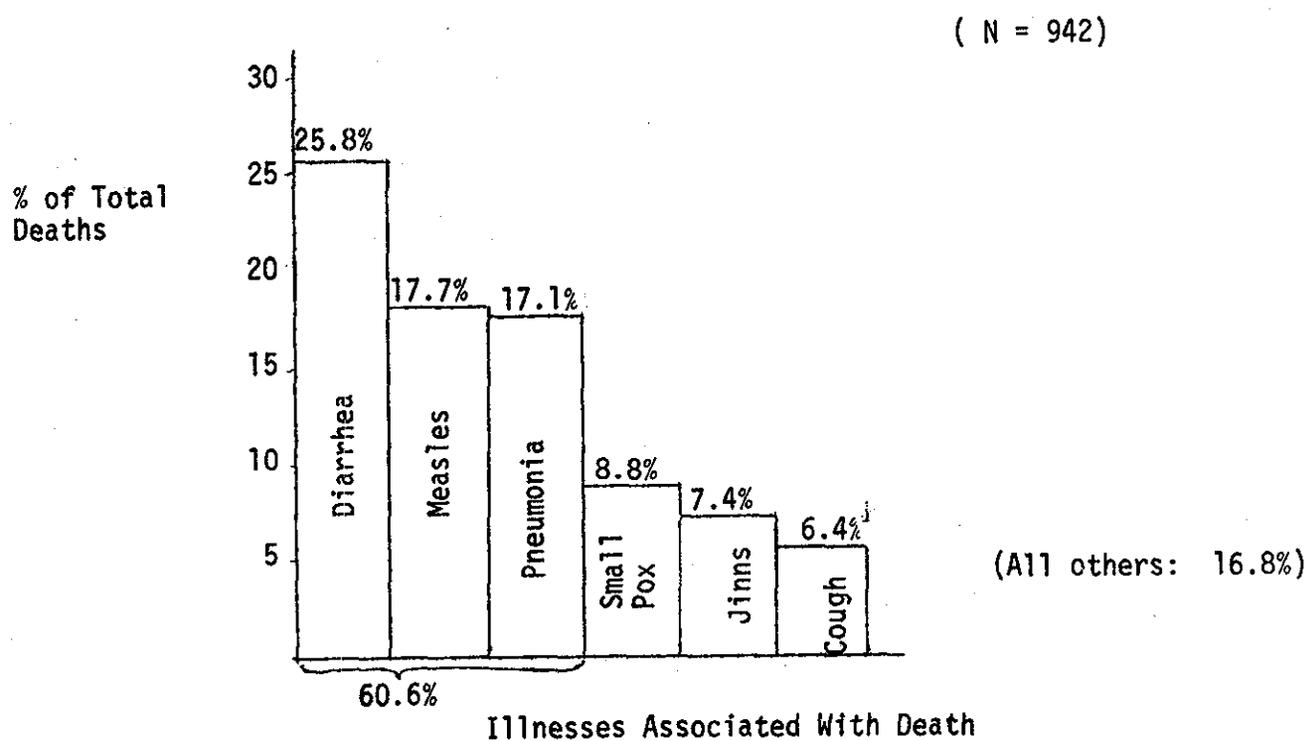
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24.4% }
 15.9% } 53.7%
 13.4% }
 31.5% }
 16.7% } 63.0%
 14.8% }

B. History of Deaths to All Children of Respondents

Respondents were also asked to describe the illnesses which were associated with each of their children's deaths. Table 4.6 summarizes this information. Notable is the close congruence of this data with that for all deaths in the last year. (Table 4.5) Diarrhea, measles or pneumonia were reported as being associated with 60.6% of all child deaths.

Table 4.6 Illnesses Associated with All Child Deaths of Respondents



A breakdown of the ages for 942 child deaths under five is summarized in Table 4.7.

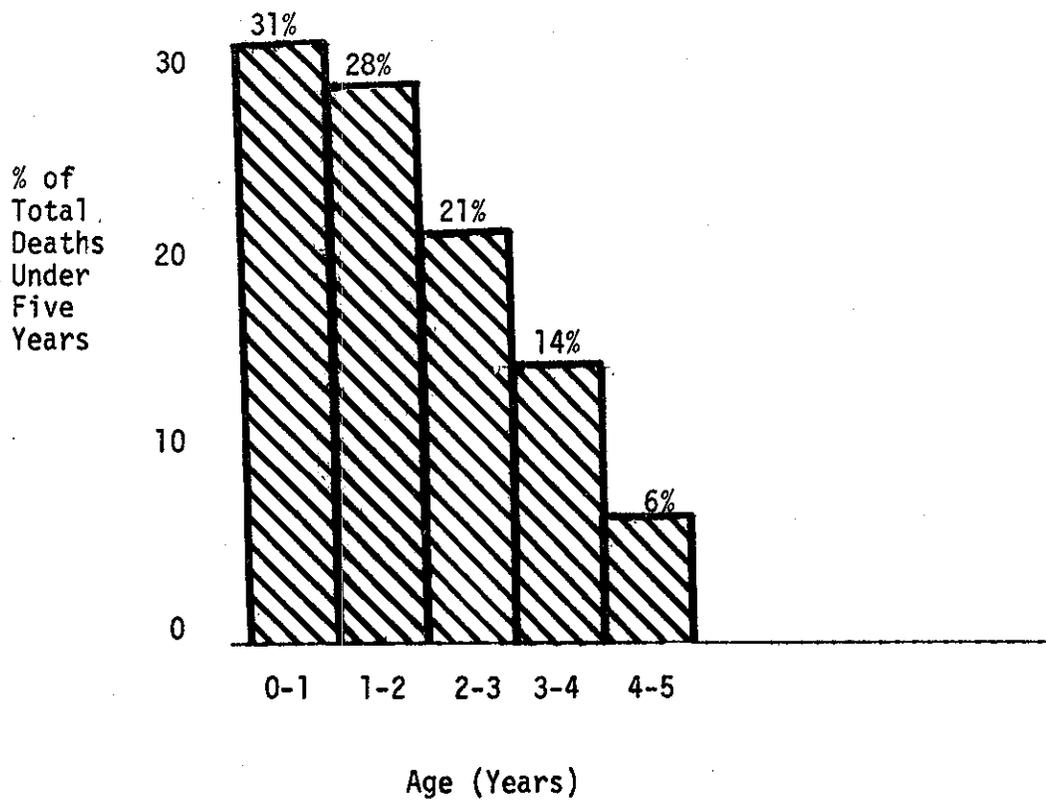
Table 4.7 All Child Deaths by Age

Table 4.8 presents a breakdown of all child deaths by the age of the death and its associated cause, with illnesses ranked by incidences for all ages.

Table 4.8 Cause of Death by Age for all Child Death Age 1-5 - Rank Order For Total Disease of All Age Groups

CAUSE OF DEATH	AGE					TOTAL	RANK
	0-1	1-2	2-3	3-4	4-5		
Upper Respiratory Infections	127	44	32	22	8	233	1
Diarrhea/Dysentery	122	45	36	17	9	229	2
Measles	61	24	32	21	6	144	3
Jinns	48	13	8	4	1	74	4
Small Pox	24	11	12	11	7	65	5
Too Little Milk	8	3	2	1	2	17	6
Fever	8	4	2	2	1	16	7
All Others	80	38	24	13	9	164	8
GRAND TOTAL:						942	

C. History of Illnesses to All Household Members In Last Three Months

Each respondent was also requested to report illnesses for all members of his household since Ide Ramazan (a period approximately three months prior to the start of the survey). 34% of the total population were reported as having been sick during the period. The types of illnesses by age and sex are indicated in the table that follows. Of those reporting an illness during the period, 59.2% claimed to still be sick at the time of the interview.

Table 4.9 Description of Illnesses For All Household Members Reported
In Last Three Months

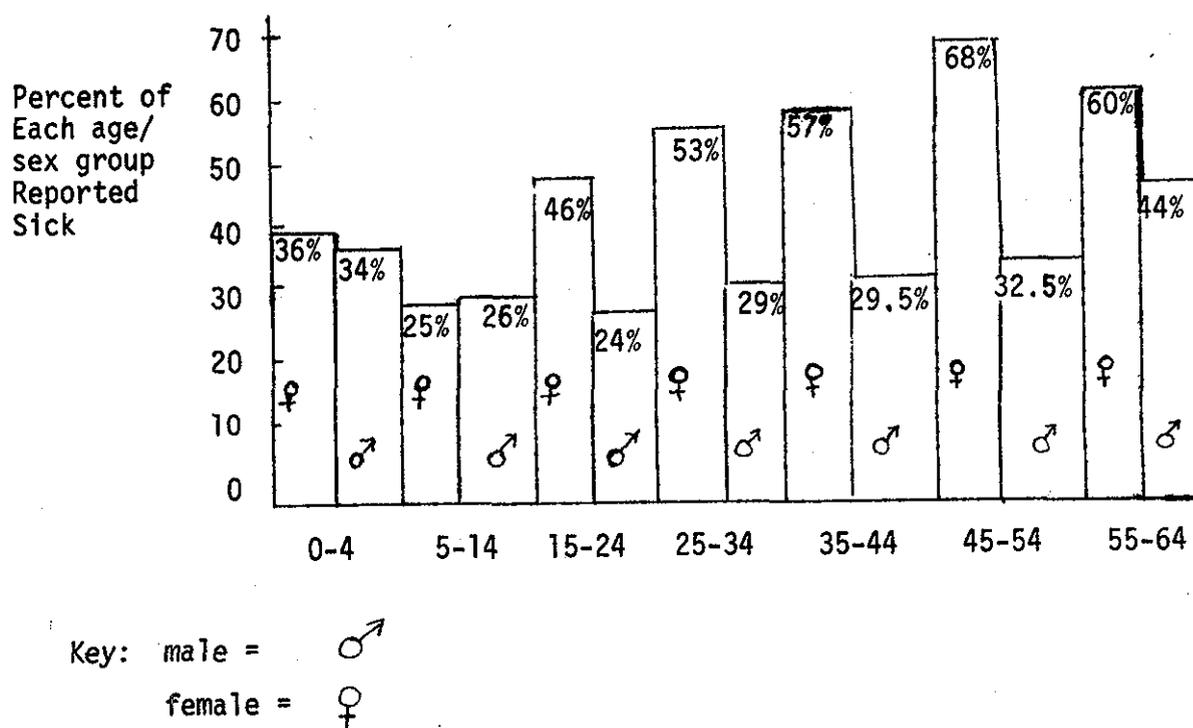
N = 1267

1. <u>Body Pains</u>		
Head	6.2%	
Stomach	10.3%	
Back	5.5%	
Ear	1.9%	
Hands/feet	1.7%	
Whole body	2.6%	
Legs	2.7%	
Arthritis/Rheumatism	<u>2.6%</u>	
	Subtotal	33.5%
2. <u>Upper Respiratory Infection</u>		
Common Cold	4.6%	
Cough	8.1%	
Cough w/sputum	0.4%	
Pneumonia	<u>0.4%</u>	
	Subtotal	13.5%
3. <u>Gastrointestinal</u>		
Diarrhea	4.2%	
Dysentery	<u>2.3%</u>	
	Subtotal	6.5%
4. <u>Other</u>		
Constipation	6.8%	
Worms	5.1%	
Weakness	3.5%	
Quolong (Cramps)	3.4%	
Asthma	3.2%	
Eye Disease	3.0%	
Sore throat	2.5%	
Skin disease	2.3%	
Heart disease	2.3%	
Kidney disease	1.7%	
Fever	1.6%	
Women's disease	1.2%	
Other	<u>9.9%</u>	
	Subtotal	46.5%

The fact that the period of recall fell during late fall and winter may account for the relative infrequency with which diarrhea and dysentery were reported. The survey should be repeated during the summer months for comparison.

As shown in Table 4.10, women beyond the age of 15 report a significantly higher percentage of illness than males. This in turn should be viewed in connection with the previously mentioned lower survival rates for females.

Table 4.10 Reported Illness in Last 3 Months By Sex and Age



4. Health Problems and Needs as Perceived by Respondents

All respondents were asked "In your opinion, what are the most serious illnesses which affect your household and others in your village? Which illnesses cause the most sickness and death for the most people? Replies are summarized in Table 4.11.

Table 4.11 Most Serious Illnesses (All 3 Mentions Combined)

Pneumonia	19.9%	} 47.2%
Diarrehea/Dysentery	16.3%	
Measles	11.0%	
Bad Cough	9.6%	
T.B.	8.6%	
Typhus	6.2%	
Colds	5.7%	
Rheumatism	4.4%	
All others	18.3%	

resp: Pneumonia 19.9
Bad cough 9.6
Colds 5.7
TB 35.2
8.6
43.8

Illnesses low in mention included women's diseases (0.2%) and eye problems (0.3%) and malaria (0.5%).

Respondents were also asked, "In your opinion, what things do you think are most needed to improve the health of the people in your village?"

Responses to this question clustered as follows:

(Percentages for all three mentions combined)

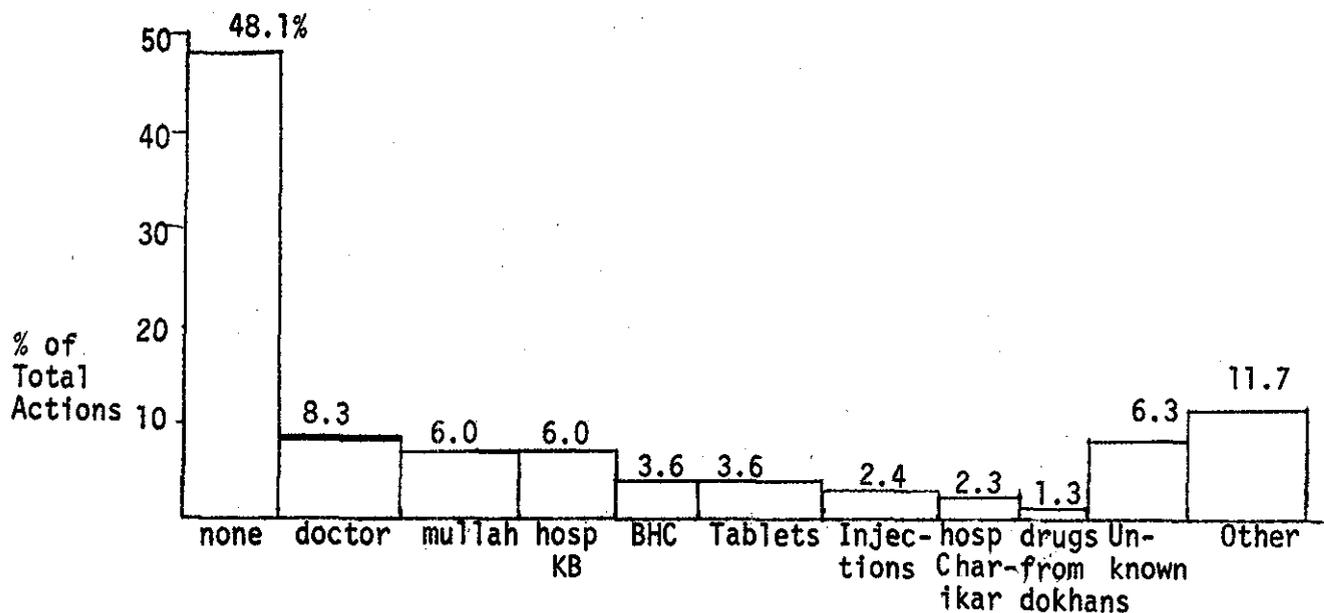
Medicine	32.4%
Doctor	25.6%
Hospital	24.3%
Roads or Transportation	5.7%
Clean Water	3.3%

Access to medicine appears to be more valued than availability of a doctor or a hospital. A total of fifteen percent of all respondents mentioned road or transportation as one of the most needed improvements.

5. Pathways Followed for Illness

Information was obtained for the primary treatment which was sought for all deaths that occurred in the previous year. Table 4.12 summarizes these replies:

Table 4.12 Primary Treatments Sought for all Deaths in Previous Year
(N = 85)



Almost 50% of those who died in the previous year had received no treatment prior to their deaths. Similarly, when respondents were questioned as to the steps which had been taken by members of the household who were sick in the last three months (Table 4.13), the largest percentage (36%) had not taken any steps to seek treatment; of those that did, slightly more sought the services of a basic health center, doctor, or hospital in Kabul than used home remedies only. (As only primary remedies were tabulated, undoubtedly home treatments are undercounted as they most frequently had been used in some stage of the illness, before seeking the next level of care.)

The relatively infrequent mention given to Mullahs and shrines in both of these replies is inconsistent with household health expenditures reported for their use in the next section. The data does not readily explain the discrepancy. One possible interpretation is that events

requiring the use of a mullah or shrine do not center on the event of an illness, rather on the prevention of an illness; i.e., tawiz for protection of a child or a visit to a shrine for a woman's infertility. While visits to the mullah and shrines for these purposes would not be mentioned as actions taken in the event of an illness, they would appear as part of the total annual household expenditure for health services.

Table 4.13 Treatment Sought for Illnesses In Last 3 Months

(N = 1,001)

<u>1. Home Treatment</u>	
Herbs	13.2%
Aspirin or Vicks	3.6%
Special Foods	3.5%
Wrap in Animal Skins	<u>0.1%</u>
Subtotal:	20.4%
<u>2. Outside Home Treatments</u>	
Mullah	3.4%
Shrine	0.1%
Hakim	<u>0.7%</u>
Subtotal:	4.2%
Tablets	4.6%
Injections	2.9%
Capsules	1.2%
Worm Syrup	<u>0.7%</u>
Subtotal:	9.4%
BHC	16.6%
Doctor	9.1%
Hospital - Kabul	<u>3.4%</u>
Subtotal:	29.1%
<u>3. No Treatment Obtained</u>	36.9%

The questionnaire also gathered information on the respondents' attitude toward the best treatments, at the level of the home and outside it, for a number of illnesses. This information is summarized in Table 4.14.

Salient findings from this data summarize as follows:

- Reportage of home treatments varied considerably by type of illness under consideration. For example, on one end of the continuum, over 80% of respondents reported knowing a home remedy for diarrhea, eye infection, bronchitis, and measles, while fewer than 60% were aware of actions which could be taken in the home for T.B., skin diseases, and broken bones. Fewer (41.8%) respondents knew what to do for a child who was thin and weak than for any other illness mentioned, indicating the possibility that malnutrition may be viewed by Afghans as a condition which is either not an illness or which is not considered treatable: 12.0% did, indeed, report that there was no treatment for a thin and weak child.
- Responses as to best treatments outside the household denote a strong preference for modern medicines over traditional. One exception to this is for broken bones for which the most frequent response (39.2%) was bonesetter.
- The basic health center is apparently viewed as an efficacious source of treatment for some illnesses (diarrhea, malaria, eye infection, measles) and not others (bronchitis, T.B., broken bones, thin and weak children.)

Table 4.14 Attitudes Concerning "Best" Treatment
in the House and Outside For Selected Illnesses
(N = 610)

Illness	Best Home Treatment		Best-Out-of-Home Treatment	
	Treatment	% of All Replies	Treatment	% of All Replies
<u>Diarrehea</u>	Anise (herbs)	35.2%	BHC	28.9%
	Don't know	17.9%	Capsules	23.9%
	Other	11.6%	Doctor	20.5%
	Zoof (herbs)	7.2%	Don't know	6.7%
	None exists	6.6%	No treatment	7.4%
<u>Malaria</u>	Don't know	29.2%	BHC	20.8%
	Kasni (herbs)	20.5%	Don't know	20.7%
	Other	15.5%	Doctor	17.4%
	Keep warm	15.2%	Other	11.8%
	None exists	6.9%	No treatment	8.7%
	Quinine	3.8%	Mullah	5.9%
		Cilasul (Medicine)	4.1%	
<u>Eye Infections</u>	Rangi Chesm (Red color on eyes)	54.9%	BHC	19.5%
	Darroof (Red color on eyes)	19.2%	Don't know	16.9%
	Don't know	12.0%	Drops	13.0%
	Other	6.6%	Doctor	12.6%
	Penicillin	3.4%	Penicillin Drops	10.0%
		No treatment	8.7%	
<u>Measles</u>	Chaskee (herbs)	69.3%	Injection	26.9%
	Don't know	12.3%	Don't know	22.3%
	Keep warm	6.4%	BHC	16.7%
	Other	6.7%	Doctor	15.2%
	No treatment	3.6%	No treatment	11.3%
<u>Bronchitis</u>	Keep warm	19.5%	Don't know	27.9%
	Don't know	17.0%	Hospital	18.9%
	Omach (herbs)	14.3%	Aspirin	14.1%
	Other	13.6%	Doctor	13.8%
	Aspirin	10.2%	No treatment	12.0%
	Hsmach (herbs)	5.7%		
<u>TB</u>	Don't know	47.2%	Don't know	32.0%
	Other	19.0%	Hospital	20.2%
	Joshanda (herbs)	16.2%	Doctor	16.2%
	No treatment	12.6%	No treatment	13.9%
	Anise	2.0%	Other	5.7%
	Rub Oil	1.5%	Medicine	3.9%
		Injection	2.3%	

Continued

Table 4.14 Attitudes Concerning "Best" Treatment in the House and Outside For Selected Illnesses, Continued

<u>Illness</u>	<u>Best Home Treatment</u>		<u>Best Out-of-Home Treatment</u>	
	<u>Treatment</u>	<u>% of All Replies</u>	<u>Treatment</u>	<u>% of All Replies</u>
<u>Skin Diseases</u>	Don't know	40.8%	Don't know	33.9%
	Other	23.8%	No treatment	13.9%
	Zoof leaf (herbs)	10.2%	Doctor	13.0%
	Marham (ointment)	10.0%	Shrine	11.8%
	No treatment	9.5%	BHC	9.5%
	Shrine	1.1%	Other	6.1%
	Apricot Seeds	1.0%	Hospital	4.6%
<u>Broken Bones</u>	Don't know	46.7%	Bonesetter	39.2%
	Tie it	35.1%	Don't know	25.9%
	No treatment	10.3%	Hospital	12.0%
	Other	5.6%	No treatment	11.8%
		Doctor	7.2%	
<u>Thin and Weak Child</u>	Don't know	58.2%	Don't know	43.8%
	Other	22.3%	Doctor	15.4%
	No treatment	12.0%	No treatment	13.3%
	Potatoes, Carrots and Rice	4.9%	Hospital	11.3%
			Syrup	5.9%
			Other	5.2%
		Mullah	3.8%	

Several other questions provided information about the pathways to health care used by the study population. Only 5.8% respondents reported with a specific name when asked "Which hakim do you consider the best?";

5.2% having purchased traditional medicines from a hakim or atar in the preceeding year. On the other hand, 63% reported having a specific source for the purchase of modern medicine and 36.4% of households had bought drugs from a pharmacy during the year. 70.5% of respondents reported knowing someone who could administer an injection if required, the sources breaking down as follows:

Someone at BMC	51.6%
Doctor	25.6%
An "injector"	12.2%
A neighbor	4.8%
Nurse	2.5%
Pharmacy	1.8%

6. Household Health Expenditures

One of the primary objectives of the survey was to obtain information about the annual expenditures of a household for all health activities. All respondents were asked the following question: "What is your best estimate of the total amount of money which your household spent on health services in the last year. Don't forget to include all expenses, including transportation costs, and for all services used including hakims, mullahs, dais, doctors, hospitals, and all medicines that you had to buy." The mean annual household health expenditure (HHE) as as obtained from the reply was 918 Afs (\$15.82). The per capita expenditure was 151.2 Afs or \$2.62. 

Respondents were also questioned on the number of times they used particular health services and the amount of money that they spent for the service itself and for transportation. (See question #11 of questionnaire). The mean annual household expenditure arrived at by aggregating these costs was 908.6 Afs. The average amount spent for service and percentage of the total health budget is presented in the following table:

Table 4.15 Ranking of Health Expenditure by Service

<u>Service</u>	<u>% of Total Mean Health Expenditure</u>	<u>Average Household Expenditure (Afs.)</u>
1. Pharmacy	32.2	294
2. Shrine	11.9	107
3. Doctor - Kabul	10.5	95
4. Hospital - Kabul	9.2	84
5. Mullah	8.6	78
6. Doctor - Charikar	7.8	71
7. Dokhan for Medicine	5.2	47
8. Other	4.4	40
9. Hospital - Charikar	2.5	22
10. Basic Health Center (free)	2.1	20
11. Compounder	1.8	17
12. Hakim	1.4	13
13. Barber	0.9	8
14. Bonesetter	0.8	7
15. Atar	0.3	3
16. Other	0.30	3.0
		<u>908 Afs</u>

The total expenditure for medicines, purchased either at the pharmacy or the dokhan represents 37.5% of the total H.H.E. (Comparable U.S. figure is 10%).⁽⁴⁾ The next highest expense was for shrines and mullah-at a total of 20.5%. As the table points out the reported use of traditional practitioners--hakims, barbers, bonesetters, atars--is low. This supports the information that was obtained through nonstructured interviews and through the previous set of questions concerning attitudes towards best sources of care.

The following table (Table 4.16) summarizes two different types of data: the percentage of households reported using various health services and the most commonly reported amounts or costs associated with each type of service.

Table 4.16 Household Utilization and Most Common Cost by Service
(N = 612)

<u>Service</u>	<u>Percent of HH Using During Preceding Year</u>	<u>Most Commonly Mentioned Cost</u>
BHC	66.5%	0 (Afs)
Mullah	54.8%	10-20
Shrine	44.1%	0-100
Pharmacy	36.4%	150-250
Dokhan	32.2%	10
Barber	9.8%	10-20
Doctor - Kabul	8.7%	20-500
Doctor - Charikar	8.0%	20
Hospital - Kabul	6.8%	0-2000
Bonesetter	6.1%	10-50
Hospital - Charikar	4.9%	0-300
Hakim	3.5%	100
Atar	1.7%	30

Annual household incomes derived from a 1971 survey of 254 farmers in Parwan and Ghazni Provinces* have been used to calculate the percent of total income used for health services:

$$\frac{\text{H.H.E}}{\text{Annual Income}} = \frac{918 \text{ Afs}}{13,600 \text{ Afs}} = 6.8\%$$

(In U.S., 8.1% of per capita GNP is used for health services ⁽⁴⁾).

Another way of viewing the health expenditure data is that rural Afghans spend approximately 6 1/2 times the government per capita health expenditure, which has been estimated at \$.40 ⁽⁵⁾. This, incidentally, is in close correspondence with the recent finding of health expenditures in Thailand. ⁽⁶⁾ yes.

7. Attitudes Toward Basic Health Center Services

The survey indicates that, in general, basic health centers are perceived as a valued source of health service. For instance, when asked, "In general,

*"The Afghan Farmer: A Report of a Survey", by Gordon C. Whiting and Rufus B. Hughes, for Robert R. Nathan Associates, Washington, D.C.

where do you think that you get the best care when sick?" the following responses were generated:

Basic Health Center	60.5%	
Hospital - Kabul	11.5%	
Hospital - Charikar	4.6%	(N = 612)
Other	4.3%	
Private Doctor	3.4%	
Pharmacies	2.6%	
In Village	0.3%	
Don't Know	12.8%	

Attitudes towards the qualities of the medicines and services provided by the Basic Health Center were more divided, as the following tabulation shows:

Very good	9.1%	
Good	34.8%	(N = 612)
Fair (intermediate)	35.6%	
Poor	20.5%	
Very Poor	0	

Considering that those interviewed were BHC clients the negative responses are somewhat surprising. Perhaps the fact that the primary purpose of attending the health center for many is to receive food supplements rather than health services explains why users can express the amount of negativity toward the quality of health care which they do. Seventy percent of respondents felt that the personal treatment which they received at the health center was favorable. Many of the comments heard from those who did not feel that health center services were of high quality or that they were favorably treated, centered on their dissatisfaction with the food supplement program. One objection commonly voiced was that the health center had become nothing but a food depot and it was difficult for the ill to be seen by the doctor. (At one BHC, where interviewing took place, over 200 women were lined up to receive the food

supplements which had recently been delivered after a hiatus of five months.

8. Maternity, Nutrition, and Child Rearing Practices

1) Maternity Services

Slightly less than 31% of the 420 women questioned reported using a dai to assist them in delivering. Of those who did not, 83.6% were assisted by someone in their own household and 11.8% by someone from a neighboring household. Only 2.3% reported being assisted by an auxiliary nurse midwife and only 6.7% travelled to Kabul to deliver.

91.9% of females stated that they were not satisfied with the assistance that they now have available to them.

2) Indicators of Nutritional Status of Children

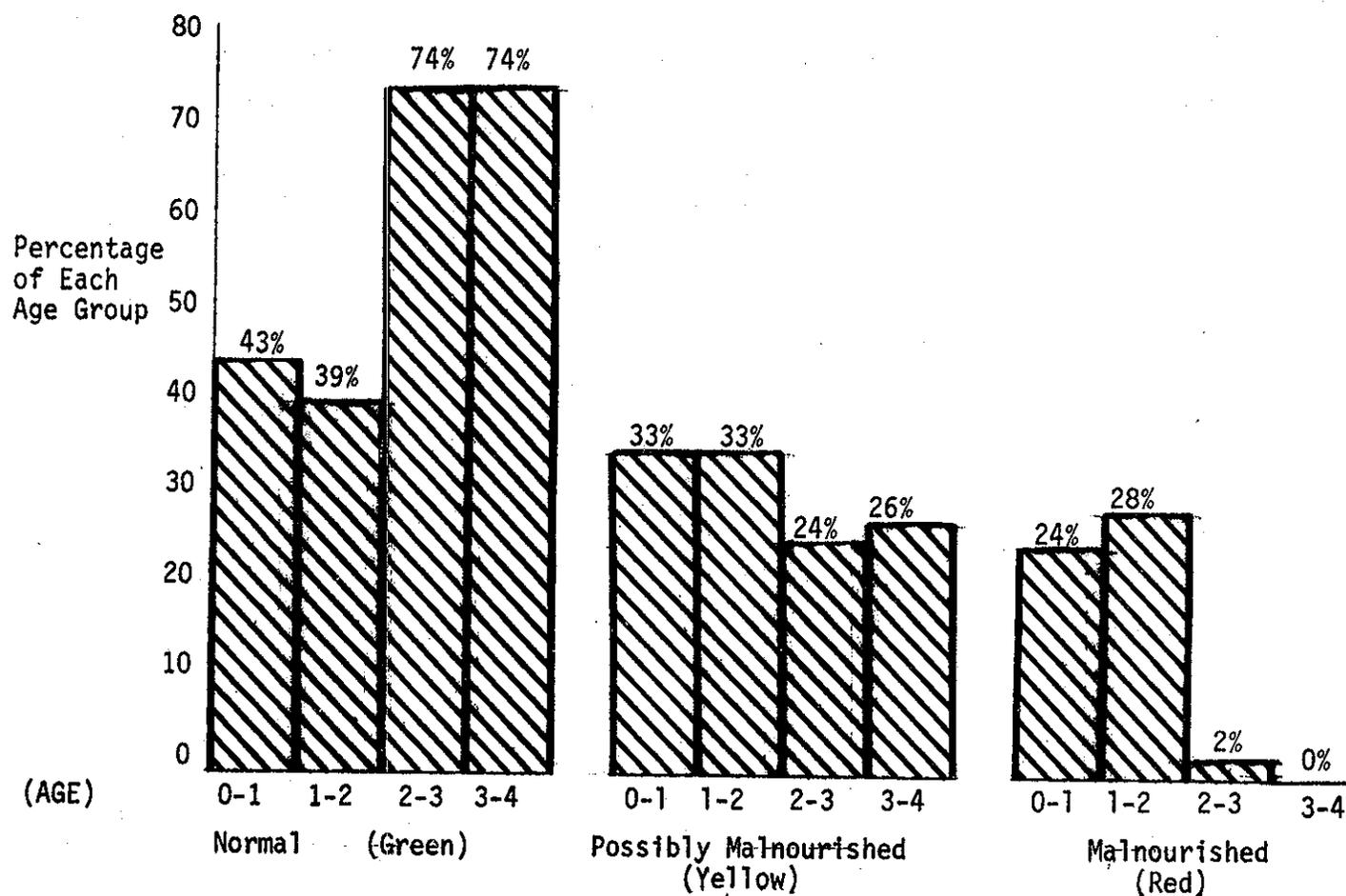
The nutritional status of rural Afghans, especially children, is a subject of some debate. For instance, one epidemiological survey of four widely separated villages in Afghanistan concludes, "the quality of nutrition ... was generally fair with only minor variations."⁽⁷⁾

Another nutritional survey conducted using a population of children brought to a hospital in Kabul cites malnutrition as being one of the most serious health problems affecting children⁽⁸⁾. Both the WHO Infant and Early Childhood Mortality Survey⁽⁹⁾ and the CINAM village survey⁽¹⁰⁾ support the latter contention.

One of the important secondary objectives of this survey was to complement what is currently known about nutritional problems and their causes. As mentioned in Section 1, arm circumference measurements were carried out for those children age 1 to under 5 years who were available at the time their parent was interviewed. There were no significant differences for boys and girls in the 150 children measured. Results of the measurement summarize as follows:

Table 4.17 Results of Arm Circumference Data

(N = 150)



Given the sample size and its nature (mothers who bring their children to a basic health center for food supplements may have more poorly nourished children than other mothers) there is little that can be conclusively said about nutritional status of rural Afghan children; the findings are, however, suggestive.

Approximately one quarter of all children age 1 - 3 can be categorized as frankly malnourished according to the criterion. It is interesting to speculate as to the dynamics involved in the drop after age three. One could hypothesize that children after passing through the critical stage of weaning, catch up on their growth, and record as normal. On the

other hand, one may just as easily hypothesize from the data that the reason for the drop off after this age is that children who would ordinarily be in this age group have died. Data in Table 4.4 on the breakdown of childrens' deaths in the previous year by age would support this latter hypothesis. More studies are required in this important area.

3) Child rearing Practices

Several possible causes for nutritional problems in children can be found in a study of the child rearing practices of rural Afghan mothers. Respondents reported an ideal age for weaning which is quite old: mean, 24 months for boys, and 29.6 months for girls. (The difference is attributable to cultural factors. In the area studied, it is believed that girls receive fewer household resources over time than boys. Longer breast feeding for girls is seen as one way that this inequity can be partially ameliorated.)

However, the reported duration of breast feeling is ideal. An event, such as the pregnancy of a mother with the next child, can abruptly cause an alteration in this norm of any individual and the actual weaning periods of children may be significantly shorter.

Although the rather extended ideal breast feeding is conducive to the good nutrition of children, other feeding practices may not be.

Specifically, the mean age at which mothers reported beginning to feed their child solid foods in addition to milk is 15 months. These foods most commonly introduced include:

<u>FOOD</u>	<u>% OF TOTAL MENTIONS</u>	<u>FOOD</u>	<u>% OF TOTAL MENTIONS</u>
Rice	25.3%	Soups (Vegetables)	8.7%
Bread and Tea	22.4%	Milk Products	6.0%
Cow's Milk	12.4%	Halva	1.8%
Fruits	11.6%	Eggs	1.0%
Cookies	10.2%	Others	11.9%

The following table summarizes the mean age at which mothers felt that a specific food can be fed to a child:

Table 4.18 - Mean Age for Introduction of Specific Foods

<u>Food</u>	<u>Age (In Months)</u>
Soft Meats	33.7
Eggs	27.4
Bread	15.1
Tea	13.7
Vegetables	16.5
Fruits	15.5

needs to be introduced at

old - protein meaning

The late age and selection of foods which supplement a mother's milk is without doubt a handicap to child nutrition. Although this survey did not analyze household eating patterns to determine if there was an absolute shortage of food available to all members of the household, it can be safely concluded that one of the most serious nutritional problems, if not the most serious, is the existing belief about child feeding. Specifically, mothers need to be instructed and motivated to design proper feeding programs for their children, including the early introduction (by 6 months) of a variety of foods prepared in a way that children can safely eat them. Other current feeding practices are already compatible to good feeding; for instance, the majority of mothers reports feeding a child of about 2 years old often during the day--that is whenever he is hungry. Likewise, eating patterns within the household

are compatible to special feeding for the child; 91% of mothers report feeding a child from his own bowl, half separate from the family and half with the family. Only 9% feed the two-year-old from the family food bowl--a practice which can have disastrous results for the young child (perhaps already weakened by malnutrition and illness) who cannot compete successfully with his hungry siblings.

As might be expected in a poor economy, mothers are seldom able to buy milk powder for their children. Only 4.7% of the sampled mothers reported doing so regularly.

Diarrhea is an illness with special implications for a child's nutrition.

The child with diarrhea not only often loses his appetite but may become dehydrated as well. Both conditions lead to a general worsening of his nutritional status. This is exacerbated in some cultures by the custom of purging a child of all foods when he has diarrhea. Sampled parents were asked to describe what they considered to be the best treatment for their child when he has diarrhea:

Figure 4.18 Best Treatment for Diarrhea (Percentage of All Mentions)

N = 531

Capsules	162	30.4%
Medicine, Doctor or Hospital	126	23.6%
Anise or Ajwan Seeds	120	22.5%
Other	75	14.1%
Podina (mint)	39	7.3%
Cibazol	5	0.9%
Yoghurt	2	.4%
Egg	1	.2%

The exact nature of capsules used for diarrhea is uncertain and needs study. They may be the entervioform-type tablets or tetracycline commonly available in the dohkan. Of note is the fairly equal distribution of answers between traditional home treatments, modern services and medicines presumably obtained from shops.

Foods considered to be best to give a child with diarrhea include:

Table 4.19 Best Foods for Children with Diarrhea
(Percentage of All Mentions)

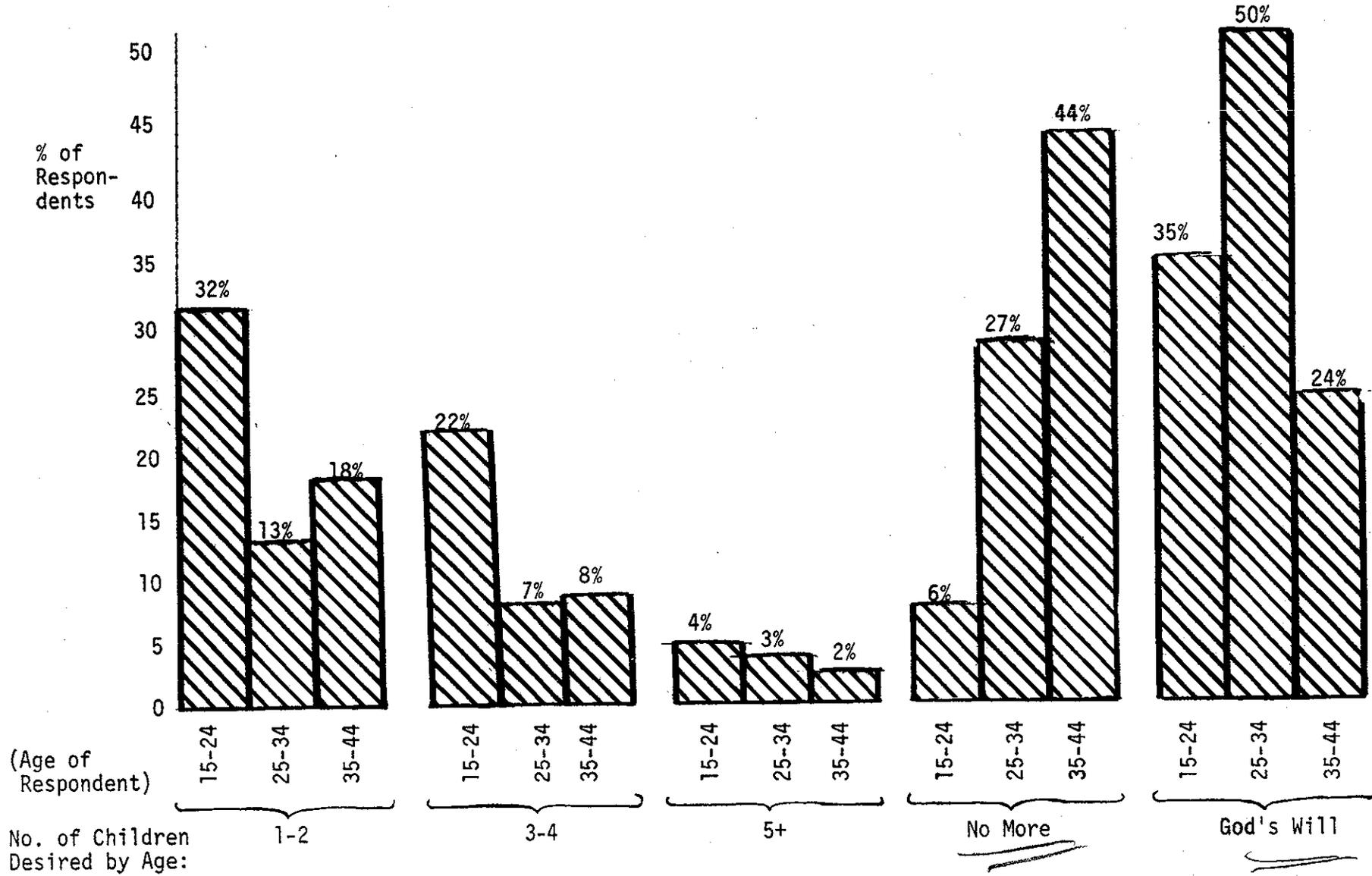
<u>Food</u>	<u>Percentage</u>
Rice	37.4%
Bread and Tea	25.0%
Other	16.0%
Vegetables	4.5%
Eggs	3.7%
Vegetable Soup	3.6%
Nothing	1.9%
Yoghurt	1.7%
Cookies	1.4%

9. Attitudes Towards Additional Children

Each female respondents was asked "How many more children would you like to have?" Table 4.20 summarizes responses by age of respondent.

Table 4.20 Number of Additional Children Desired - by Age of Female Respondents

(N = 273)



The most common reply to this question was, "Whatever God wills". (For the age group 35-44 almost 50% of respondents wanted no more children). The exact meaning of the response "God's will" is somewhat difficult to interpret. One interpretation may be that the concept of being able to control the number of children one has is beyond the present scope of comprehension of the respondent; this, however, must be understood within the full context of Islamic beliefs, in which the will of the individual is subjugated to the will of Allah.

Minister's Summary

5. The Potential For Expansion of Health Services to the Village

The health system of rural Afghanistan is viewed from the perspective of those introducing change, with particular attention to ways that existing resources can be used to expand services into rural areas. Considerations in the development of any village level health service include:

The Need for Service - which has been demonstrated in Section 4.

The Availability of local resources - discussed in detail in earlier chapters with an analysis of the "compatibility" of categories of health providers in this section.

The Inherent Problems constraining any program - Commonly encountered problems in the development of a health scheme using local personnel are discussed including:

- . Lack of Community Resolve
- . Selection Criteria for Workers
- . Training Needs
- . Job Definition
- . Supervisory Needs
- . Referral Systems
- . Reimbursement Medium
- . Education of Users

5. Minister's Summary, Continued

Willingness to Experiment There are no established answers to the best methods of expanding rural health services in Afghanistan. Experiments must be conducted to determine which approaches will work best given the problems and resources of the country.

Regardless of which approaches are selected, in order to demonstrate their value and appropriateness for expansion on a nation-wide scale, they must demonstrate their managerial soundness. Specifically, they must:

- . Provide services that can be demonstrated as being effective.
- . Be organized in a way that will allow them to be self-sustaining.

Finally, no program, regardless of its potential managerial soundness, will be of value unless the steps to implement it are organized and coherent; thus, emphasis must be placed on the careful planning and implementation of each experiment undertaken in order to guarantee that it receives an optimal trial.

5. THE POTENTIAL FOR EXPANSION OF HEALTH SERVICES TO THE VILLAGE

In the preceding sections an attempt was made to describe the health system of the people of Parwan-Kapisa Province as actually seen and utilized by them. In this section the focus will change to a look at the present health system from the point of view of those attempting to introduce innovations in modern health care, with specific attention directed toward the utilization of existing resources to reach beyond the basic health center and into the village.

There are a number of considerations which must be kept in the foreground when planning health services capable of penetrating down to the level of the village. For Afghanistan they include:

- A. The widespread need for basic preventive and curative health services in the villages.
- B. The availability of local resources to be used in the implementation of any village health scheme.
- C. The inherent problems which will constrain attempts to deliver services at the village level.
- D. The need to be willing to experiment with a number of different approaches to providing essential health needs in the village.

A. THE NEED FOR SERVICES

There can be no question of the need for health services in the villages of Afghanistan. As described in Section 4, there is an overwhelming variety and volume of illness that affects the rural Afghan household. Many of these, however, are illnesses (colds, bronchitis, aches and pains) which will respond to simple curative treatment, delivered at the hands

of a person with rudimentary health training. Others are preventable (TB, whooping cough, measles, neonatal tetanus, diphtheria, polio) and still a larger number are capable of being ameliorated by alert, early action of someone trained in the diagnosis and treatment of diarrhea, pneumonia, malaria, eye infections skin disease, and malnutrition.

Another category of problem often mentioned by villagers is the true medical emergency associated with accidents, difficult child birth and acute illness such as appendicitis which require prompt referral to higher levels of health care such as hospitals.

In each one of these categories of health need there are easily distinguishable roles that local health workers could play in providing assistance, ranging from the distribution of symptomatic medicines in the first case, through liason with health centers, hospitals and sources of transportation, in the last case.

B. THE RESOURCES AVAILABLE

The developed resources available to meet the health needs of rural Afghanistan are scarce (See Table 5.1). Approximately 100 basic health centers dot the countryside with an area of almost 250,000 square miles. In light of a number of studies of health services in developing countries which indicate that a single health center can effectively serve only those persons living within a 5-7-mile radius (up to 90% of all users coming from within this area), it can easily be seen that even an expanded basic health center system will fall short of adequately meeting Afghanistan's need. For instance, it has been estimated that the 178 planned basic health centers could effectively serve only 26% of the total rural population of Afghanistan. (11)



Table 5.1 Comparison of Government Health Resources for Selected Countries

Country*	Health Expenditure Per Capita per Annum (US \$)	Number of Persons per Physician**
Nepal	.38	49,770
India	.40	4,800
Afghanistan	.40++	20,000
Nigeria	.50	58,260
Thailand	.60	7,970
Malawi	.64	75,250
Sudan	1.02	15,940
Guatemala	2.36	3,620
Senegal	3.46	14,940
United States	47.00	630
United Kingdom	56.00	820

* Figures do not include private health care expenditures from Bryant and King (1967-1968) unless otherwise noted

** WHO - World Health Statistics Annual 1970, pp.41-45.

++ Estimate of Management Team, Ministry of Health, 1972.

One approach to circumventing the restrictions of available health services is to develop services that will reach out beyond the stationary health services into the villages and homes where health services are needed. These approaches, which often make use of villagers themselves to deliver services, have as their aim the handling of problems at the local level so that pressure can be relieved from centralized health services and so that solutions can be worked out that are appropriate for the particular setting.

As seen in Section 2, there already exists a network of persons who serve the Afghan village's health needs to one degree of satisfaction or another. The challenge in expanding care "beyond the health center" is to selectively make use of those resources, and others in the village as yet unexplored,

which have the potential to be brought in as working partners in a government-sanctioned village health program.

A necessary first step to improve village health is the examination of current health providers whose ability to work in a modern health program depends on the nature of their present functions, their acceptance in the village, their clientele, and their ability to take on new roles.

These characteristics may be referred to as their **potential compatibility** with modern health services. Table 5.2 classifies current health providers in this manner:

Table 5.2 Compatibility of Indigenous Practitioners

<u>Category</u>	<u>Compatible</u>	<u>Possibly Compatible</u>	<u>Non- Compatible</u>
Dais		X	
Barbers (Bloodletters)			X
Barbers (Toothpullers)	X		
Shopkeepers		X	
Pharmacists	X		
Injectors		X	
Bonesetters	X		
Mullahs		X	
Hakims			X
Atars			X

1. The Non-Compatibles - Because a category of practitioner is not compatible with the development of a village-level health system, their efforts should not necessarily be discouraged. They may, in fact, perform very important functions in the maintenance and restoration of health, but given their system of belief and traditional practices, are less likely than others to perform effectively in a health scheme based on "modern" concepts

of health and illness. Examples of categories of persons now performing health functions in rural Afghanistan classified as non-compatible are:

The barber as bloodletter - It is difficult to see the feasibility of drawing upon the barber in his role as a bloodletter to assist in the delivery of health services. He is normally not well-educated, fully entrenched in humoral concepts of health and not notably interested in learning new ways of doing things. As noted below, however, in his other role as a toothpuller, he may have important potential for filling a serious need.

Hakims and Atars - While undoubtedly "dawa unani", or traditional medicine, has real therapeutic values--more study is required to study this-- it is questionable whether these practitioners could be successfully integrated into a village health scheme due to their traditional views of health. From the practical point of view, these practitioners usually do not reside at the village, they are usually older, and in many cases, of ethnic stock different from the majority of the population they serve. Also, their relatively infrequent current use would indicate that they don't command the full respect of villagers.

2. The Possibly Compatibles - There are a number of reasons for classifying a category of practitioners as "possibly compatible". One reason is inadequate knowledge of their beliefs and actual practices, or, more importantly, their willingness and capability to afix new concepts and practices to their traditional ones. Another is the variable proficiency and compatibility of this group, with some being very proficient and others ineffective and possibly deleterious to good health. This extreme variation precludes gauging the compatibility of this category

of health workers as a group. Included in this category are:

Dais - In theory, women who have taken on the role of assisting in childbirth in their community should be "ready-made" village health workers. There are a number of factors, however, which may mitigate against their wholesale incorporation into a village health program. The first of these is the characteristics of traditional midwives themselves. Many are old, often times widows, and not physically healthy, perhaps not capable of taking on the new training and responsibilities which would be part of an expanded role in village health. Also, there are some indicators that their effectiveness varies greatly from individual to individual. There is also a variation in location with regard to the cultural acceptance of midwife. In some cases, for instance in Bolagahyn (See Section 4) dais are held in low esteem and most deliveries are assisted by older women who are part of the extended family.

It should be emphasized, however, that even with the constraints surrounding them, traditional midwives should be one of the first resources considered in planning to improve village-level maternity and child health.

The Mullah - Although undoubtedly useful in some types of illnesses, including mental illness, anxiety and conditions arising from social and personal conflicts, mullahs tend to hold beliefs concerning the cause and treatment of illnesses which would probably preclude their effectiveness in providing modern health services in the village. In other roles, such as organizers of mass immunization programs or referral agents, the mullah could prove very effective.

Shopkeepers- The size of shops, levels of education and knowledge of their proprietors (dokhandars) and appropriateness for use in providing simple medicines and health services vary greatly. In remote rural areas where there are no pharmacies, many shopkeepers are already selling medicines, often including some prescription items such as tetracycline and penicillin. On a selective basis, it may be possible to upgrade, support, and supervise these activities to put basic, safe, essential drugs within access of villagers at a cost they can afford. Given the variability of dokhandar characteristics, any effort to make use of the dokhandar as a local health resource would require careful recruitment, supervision and evaluation.

Injectors - This class of practitioner encompasses a range of different types of persons who provide services. Their unifying characteristic is that they dispense at least some "modern" medicines and accept payment on a fee-for-service basis, either in the form of goods or money. Some may have received training in a health role, such as an auxiliary nurse, dresser or corpsman in the army; others may have simply "picked up" the trade themselves. Due to their variability it would be imprudent to recommend their a priori incorporation into a health program. They are a potentially important resource, however, and one that often has already demonstrated capability of more utilization than is already being attempted.

3. The Compatibles - These are individuals who are independently providing services to the community which can already be judged as compatible with village-level health needs. Anyone planning to develop a village level health program would do well to study carefully the services that

these practitioners are already providing and to try to integrate them into a planned health system.

Barber - In his role as toothpuller the barber is an important health provider. Perhaps lacking in modern concepts of dentistry and prevention of infection though he may be, he does fill a very large vacuum in health services, one that is not likely to be filled in the near future.

Pharmacists - Pharmacists in Afghanistan, like everywhere else in the world, are often called upon to dispense advice as well as medicines. Given the relatively advanced network of pharmacies which permeates the country, the potential for health services delivered through pharmacies is great. In addition, the integration of privately-owned pharmacies into a public health system would be facilitated by the fact that each pharmacy is required by law to have a trained compounder in its service. As all compounders in the country are government employees, whose former responsibilities were in dispensing drugs in government hospitals and health centers, they could be expected to function well in an integrated health setting.

Bonesetters - Proof of the value of the bonesetter's work can be found in the favorable attitudes of those he serves. Even if the bonesetter were to function as he does now, completely isolated from any large health system, he would be performing an important role that is apparently compatible with accepted practice for the treatment of broken bones, dislocations and body pains. If, however, he could be brought into a referral relationship with other government health services, it would be a gain for all concerned.

In addition to those who are currently performing definable health functions at or near the village level, there are others who could be potentially brought into health roles, including:

The educated young - In most areas of rural Afghanistan there are a number of young who have completed some secondary education and who could be trained for village health roles.

Mature women - In view of the studies which demonstrate that the best educators and change agents are those who most closely resemble in characteristics their target audience,⁽¹²⁾ many of the problems which fall into the "maternity-childbearing complex" could feasibly be approached through the training of mature village women as educators and providers of basic maternal and child care. Although in Afghanistan, literacy and freedom of movement ordinarily is quite low for this group, programs should be attempted which will explore the possibility of using this valuable indigenous resource.

Village innovators - There is a differential rate with which any new ideas are accepted into a society: some people accepting and using innovation almost immediately and others accepting and using innovations only after having definite proof of their advantages (or perhaps never). Those who can be identified as innovators may be appropriate persons to be recruited and trained to introduce new concepts, especially in health education to their fellow villagers. An example of one village innovator encountered in the survey is described in the interview which follows:

While conducting interviews at Bologhayan, we desired to learn about roles that local dokhans played in supplying medicines. We asked a

middle-aged man (A.A.) if he could direct us to the shop which served the village. He led us up the hill to the dokhan, with the following conversation transpiring en route:

KD In your opinion, what are the most serious health problems in the village:

AA Childbirth, measles and diarrhea in children.

KD What do you do for the diarrhea?

AA I do things differently from other people. I withhold solid foods, bread and meats, from the child and cook carrots and rice and give him the juice to drink. I also go to the pharmacy and get some tetracycline and vitamin C. If it gets very bad, I take the child to the doctor in Charikar. But the real problem with diarrhea is that the child gets very thirsty and dried out--not the diarrhea itself. What I do is make up a solution of boiled water, 2 spoonfulls of sugar and 1/2 spoonful of salt and feed two spoonfuls to the child in the morning, noon, and night.

KD Does it help?

AA It seems to pick up their morale and replaces the salts.

KD Do you ever help other people in the village to treat their children when they have diarrhea?

AA No, not usually.

KD Why not?

AA Well, to be truthful, I don't want to take the responsibility. Something may go wrong. The child may not get better. When the people here get angry they are savage. If I was doing it officially it would be different, but I wouldn't just do it on my own.

A.A., who has had three years of formal education, claims that he learned quite a bit of what he knows in the army. His concepts on the best treatment for diarrhea (as for other diseases discussed) are extremely compatible with physiologically sound concepts in use today (See Appendix 5 for a description of the use of oral rehydration in the prevention of dehydration). When asked whether he would be interested in learning more and serving his community, he was very enthusiastic, and when, later at a meeting of about 45 headmen or maliks from the area the possibility of a village health worker was brought up (by the maliks themselves!), A.A. was enthusiastically suggested as a person who could perform this role.

In summary, there is no shortage at the village level of people who have the potential to provide health services. the challenge lies in developing these human resources within a framework that will allow them to effectively work with established health services in attacking problems.

Another resource which already exists at the village level is money. As reported earlier, the average annual household health expenditure was 918 Afs (\$15.82), indicating that people are already spending 6.5 times the government health expenditure. From a management point of view, the question might be asked, What people are currently getting for the money they are spending? Are there ways that the money they are spending could be better used, for instance, in supporting locally-based health services? Given the unlikely expansion of national health spending in the near future, one way--perhaps the only way--to expand services is to make better use of money currently being spent.

A final village level resource important to a health program is transportation. As was seen in the example presented in Section 3, availability of transportation varies significantly from location to location. Where reliable local transportation is not available, methods of moving health workers to the village and patients to higher levels of care will have to be sought.

C. INHERENT PROBLEMS

The problems that arise in establishing a village-level health system will be many and varied. Below are some of the more readily identifiable ones:

- Lack of community resolve - Almost any village level health program (immunization campaigns being a possible exception) carries with it a prerequisite for a high level of community cooperation. Through history, the Afghan village has been known more for the individuality of its members than for its communal spirit. Most village health programs are based on the concept of equal access to pooled resources. A health worker, for instance, recruited from the community to serve the community should provide services to all the people of that community, not simply to those for which a kinship or friendship is shared. The extent to which the lack of community resolve can be a hindrance in the development of a village health program is well illustrated in the article, Is The Chinese "Barefoot Doctor" Exportable to Rural Iran?, included in Appendix 7.
- Necessity of developing selection criteria - How will it be determined who will be selected in a village to provide health services?

Who are the best people? What education or degree of literacy must they have, if any? (A bias of those instituting programs is that the people to be selected must have at least minimal literacy. This is most often a function of their inability to convey concepts without reliance on the written word, and needs rethinking.) How will it be insured that they have allegiance to the entire community and not simply to part of it? How will ethnicity, social status, education and history of feuding in the village influence their allegiances? V

- Need for appropriate training - How can villagers best be taught that which is important in carrying out a health role? How long should training be? Where? In the villages themselves, at training centers? What training methods? What should be taught? By whom?
- Need for a clear definition of jobs - What is the actual job to be performed by the local health worker? What guarantee is there that individuals will stay within the bounds of their job description? How can jobs be changed as necessary?
- Need for a supervisory system - The key to any health program using auxiliary personnel is supervision. How can this be built into a village health worker scheme? Who will supervise? How will they supervise?
- Need for a referral system - No matter how effective a village-based health program is, there will always be the need for higher level specialty health care. Where does the local health worker turn when he or she has problems that are beyond the worker's capacity to handle? What guarantees are there that those working at the higher

levels of care will be helpful? How can doctors, nurses, midwives working in health centers and hospitals learn to appreciate the problems and value of the person working at the village level? How can the health profession and the VHW combine their efforts to bring the best possible care to the people they serve?

- Need to set up a method of reimbursing health workers - Few, if any, individuals are able and willing to serve their fellow citizens without receiving some benefits in return. In Afghanistan, where it is unlikely that government resources will allow for the hiring of health workers at the local level, how will they be rewarded for their services? Should they be placed on a salary by the community? Should they charge for each service they provide? If so, how do they get rewarded for preventive services, such as sanitation education, which has no individual benefactor, but benefits instead the entire community?
- Need to educate people that not all illnesses need a doctor - Even if the most complete village health system were available, it would not be successful if people did not use it. How do you educate people that a VHW can treat diarrhea as well as a doctor? How do you generate confidence in the ability of a young person or a mature woman to improve health in the village?

D. WILLINGNESS TO EXPERIMENT

There are many models of village health programs but few answers! Every country is unique in its economic, cultural, historical, political and geographical characteristics. In many cases, one section of a country may also be unique. There is no one answer to the question of the best way of establishing a village health program. The health planner whose res-

possibility it is to design health programs that will deliver services to the local level must be ready to experiment, trying a number of ideas, including some that might prove inappropriate or unworkable, with the hope that from them will come increased knowledge and skill in diffusing health services to rural peoples.

Based upon what has been learned from the village health survey and from other information about health in Afghanistan, and upon what is known about village health schemes currently being attempted and implemented in a number of other countries in the developing world, the following suggestions for expanding health services are offered:

1. The basic health center must serve as the core of any village health program - Any program's intent to deliver health services through village extension services must be linked closely with an ongoing health system which can reliably perform the important functions of training, referral, supervision, resupply and legitimization of the non-professional health worker. Without this necessary core, which must include a staff of the basic health center dedicated to the concept of village health care, any efforts to move beyond the health center in providing services are destined to limited success at best.
2. Experiments must be instigated to integrate appropriate local practitioners into an overall health delivery system - Included in this category are existing health resources which have been described earlier, including:
 - Dais
 - Injectors
 - Bonesetters
 - Shopkeepers
 - Pharmacists
 - Barbers (as toothpullers)
 - Mullahs

3. New categories of health workers must also be recruited, trained and integrated into a rural health system. - Examples of possible new health roles and their descriptions are:

Village Health Worker - A locally recruited individual trained in general village health; including simple curative care, immunization, education, sanitation and the essential preventive services, to be integrated by supervisory and referral systems into the basic health center network. This type of worker is presently common in a number of countries including Guatemala, New Guinea, India and, of course most notably, China, where he or she is known as the "Bare-foot Doctor".

Village Dispensers - In areas where there are no established pharmacies, local shopkeepers or responsible individuals can be recruited to stock and dispense a number of essential drugs and medications. These dispensers would be restricted in the drugs they could provide as well as to the illnesses they could attempt to treat. Drugs would be limited to those that are safe, effective, and economical. Close supervision would have to be provided by workers at the basic health center. Resupply procedures and methods of stocking a village dispensary would have to be developed as well as the methods of paying such a worker. One possible model for the economics of such an undertaking would come from the Philippines and Haiti where village-based cooperative dispensaries are being successfully implemented.

Specialized Health Workers - In the village setting it may prove to be most advantageous to draw upon particular skills and characteristics of individuals for use in specialized health roles.

Examples of specialized village health workers include:

Maternity Assistants - While the traditional midwife is the logical first choice to fill this specialty, there may be compelling reasons why other women in the village might be selected and trained "do novo" for this important function. The auxiliary nurse-midwife training program which is already functioning, is an example of an effort being made to recruit women locally for service in their own areas. These same concepts, expanded to include women who would function at the level of the village rather than the health center, are worthy of thorough investigation.

Mother-and-Child Health Workers - As many of the most serious health problems at the village level surround the mother at the time of her maternity and the child in his first five years of life, a specialized health worker who would concentrate on these groups could bring a substantial health improvement, especially in remote areas. Such a worker might, in actual practice, be a Maternity Assistant (see above) who has been trained to meet an enlarged range of health problems.

Nutrition Educators - As has been seen in this survey, one of the most serious hindrances to child health is the inadequate knowledge that women have about child feeding. The dimension of this problem warrants a special category of health worker whose

central responsibilities would be to educate parents with regard to the proper nourishing of their children. If a special category of nutrition educator is not feasible, every village health worker should be trained, motivated and supported to help attack the wide scale problem of child nutrition in the Afghan village.

Candidates for the special role of nutrition educator should be selected from the village they will serve and should be mature women who have successfully raised children of their own and who are held in high esteem in their community. Younger people, on the other hand, regardless of their educational accomplishments, may not be able to perform this role with a high degree of success, if villagers cannot be convinced of the younger person's competence to advise in such matters.

Village Sanitarian - Although most Afghan villages are neat and well kept, there are often opportunities for improving sanitation--waste and fecal disposal, drinking water supplies and animal housing--which could undoubtedly be improved by the placement of an individual whose training and responsibilities would allow him to attack the problems.

Undoubtedly, not all of the above suggestions will prove to be equally feasible, nor may they be equally profitable in expanding health services. Nevertheless, they do represent a set of experiments worthy of trial. Importantly, all information should be carefully obtained

from any such experiments and dispersed to provide a better understanding of what approaches work, and, of greatest interest, why.

In establishing any village health schemes it must be remembered that the greatest resource available is the people themselves. The men and women in the villages, for whom illness and death are all too common occurrences, are eager for change. Their anxiety and desire for change can be successfully channeled into action--even that type of cooperative action which up until now has not been a notable characteristic of the Afghan village. Health may, in fact, prove to be one of the unifying needs that will pull people together to make significant improvements in their lives in general.

4. Concepts of Expanding Village Health Services must be managerially sound. - The criterion for success in evaluating any experiment providing village level health service must be whether that service is both effective and economically feasible on a nation-wide scale. In order to meet the criterion of effectiveness, the service must demonstrate that it is capable of meeting the objectives it was designed to meet. This is usually measured quantitatively by the services performed; the number of children treated for diarrhea, latrines built, or person instructed in child feeding. Qualitative measurement is often more difficult. What effect did the services performed have upon the health of the village? Where it is not possible to measure this impact, it should at least be possible to determine the attitudes of clients towards the care provided through an experimental village health program.

To meet the second criterion of feasibility on a nation-wide scale,

any health experiment in rural Afghanistan must be self-sustaining. With little possibility of the Government being able to provide salaries and supplies for programs in each of the country's 15,000 villages, self-sufficiency is a must. (Some examples of how this can be done can be found in a companion publication to this, "A Review of Alternative Approaches to Health Care in Developing Countries", available through Management Sciences for Health).

Any experiment which after careful evaluation fails to meet either of these criteria is not managerially sound and should not be used as a model for the expansion of village health services to the country as a whole.

In addition, the planning for any experiment must be carried out systematically. Appendix 8 presents a overview flow diagram of the steps required to plan and implement a village health worker scheme. No program, regardless of how effective it could ultimately prove to be, will stand the test of time if its planning is not conducted in an organized and coherent manner.

6. CONCLUSIONS AND RECOMMENDATIONS

A. Conclusions

The survey of health problems, needs, and resources in five areas of the Parwan-Kapisa Province described in this report provides the following general conclusions:

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. Malnutrition, although neither perceived as a serious health problem by those interviewed nor reported as a frequent cause of child death, is undoubtedly a major threat to child health, whose cause and severity is directly attributable to inadequate knowledge of basic nutritional needs of mothers and children.

- Almost 30% of all children between the age of 2 and 3 for whom arm 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 on an absolute and relative basis, and is spread over a wide variety of modern and traditional services.
- An average household expenditure of 918 Afs (\$15.80) represents 6.8% of the annual household income of the population studied.
 - 37% of the annual household health budget is used for the purchase of drugs from pharmacies or dokhans.
 - The second largest health expenditure is for traditional religious services--visits to mullahs or shrines account for 20% of the health expenditure.
 - The total annual health expenditure for the estimated target population of a Basic Health Center (estimated at 50,000 people) would equal 7 1/2 million Afs, or over \$130,000.
8. Basic Health Centers represent a valued health resource whose full potential has yet to be realized, particularly in the area of education for mothers and expansion of services beyond the stationary limits of the center and into the village.

B. Recommendations

1. New approaches to delivering health services in rural Afghanistan can be designed to make maximum use of existing manpower and money.
- Given the dimension of health problems in rural Afghanistan and the limited levels of direct government financial support available, every effort must be made to design village services that are self-sustaining and capable of reproduction on a nation-wide basis.
 - Villagers presently invest a considerable amount in private health expenditures and have a pressing desire for improvements in their access to rural health services.

- Experimental programs making use of both those traditional health resources - midwives, mullahs, hakims, barbers, bonesetters, shopkeepers - and modern - pharmacists, malaria workers - who currently provide services, should be carried out and evaluated.
2. In order to provide services in a manner that will be both economical and maximally effective, high priority must be given to those currently at greatest risk - mothers and young children.
- Emphasis should be placed on programs aimed at the presentation and treatment of the most manageable infant killers - diarrhea and upper respiratory infection.
 - The essentials of nutrition should be communicated to mothers in a way that will have practical application for the feeding of their children and themselves.
 - Greater awareness should be developed at the village level of effective steps which can be taken at the onset of an illness in children, and appropriate steps to be followed if village resources are not appropriate for treatment.
3. Traditional health practices consistent with good health should be encouraged and supported.
- Those practitioners presently in greatest use, such as mullahs, should be studied to determine how they can be used more effectively in both a treatment role - as in the provision of symptomatic treatment for common illnesses not requiring BHC services such as aches and pains of the body - and in the referral of patients to appropriate sources of treatment outside the village.
4. New categories of health workers should be developed.
- Many of the illnesses encountered in the village setting could be treated by someone residing in that village who has had training in the essentials of illness and health care.
5. Nutrition should be raised to the level of a national concern.
- For example: A central governmental agency composed of representatives from a number of ministries could be organized in order to:
- Study the effect of nutrition on national development.
 - Design and implement studies to define further the extent and nature of malnutrition in Afghanistan.

- Plan and carry out programs designed to educate rural women in the proper nutrition of both themselves and their children.
 - Reevaluate current nutrition policy, particularly the distribution of food supplements through Basic Health Centers.
 - Explore the use of mass media - radio, advertising, and group meetings - to diffuse information and to motivate mothers to improve nutritional practice.
6. The expansion of health services beyond the network of Basic Health Centers and into the villages of Afghanistan requires that the MOPH and GOA be willing to try a number of different approaches. While there is a growing number of "models" for village health services from several countries around the world, Afghanistan will have to adapt its approach to its own problems and resources, and in doing so will ultimately have to develop unique solutions in response to the needs of the Afghan people.

7. NOTES AND REFERENCES

1. Preliminary Evaluation of the Parwan Project
Management Sciences for Health, June 1975.
2. Initial Analysis and Work Plan, Management Support for
Rural and Family Health Services,
Management Sciences for Health, March 1974
3. Preliminary Evaluation of Parwan Project, Op. Cit.
4. Who Shall Live; Health, Economic and Social Choice
Victor R. Fuchs, Basic Books, New York
5. Initial Analysis and Work Plan, Op. cit.
6. Michael Stewart, Personal Communications
7. Health and Disease in Rural Afghanistan
Alfred A. Buck et al, Johns Hopkins Press, 1972, Page 97
8. Nutritional Assessment Survey in Kabul Hospitals,
Care, 1970
9. Preliminary Report on Infant
and Early Childhood Mortality Survey in Greater Kabul
Paul Hedrick, September, 1974
10. Services for Children Within Regional Development Lines
CINAM, July 1973
11. Preliminary Evaluation of Parwan Project, Op. Cit.
12. Diffusion of Innovations
Everett M. Rogers, Free Press, 1962

APPENDIX 1
Questionnaire

MINISTRY OF PUBLIC HEALTH
HOUSEHOLD QUESTIONNAIRE - FEMALES
VILLAGE HEALTH SURVEY

Household Number	Village Number	Malaria Number	Interviewer
1111	1	11111	1

Introduction:

Important! Considerable time and care must be taken in introducing the survey to the informants. A full description of the purpose of the study, its nature and possible benefits must be completed before any questions are asked. The informant must be given the opportunity to ask any questions that he or she may have. A full ten minutes should be spent on each introduction. Remember the way you introduce the survey will directly affect the cooperation you receive.

If the informant does not want to cooperate do not force him. Report the problem to your supervisor.

-
-
1. Name of respondent _____
 2. Sex Male - 1
Female - 2
 3. Age _____
 4. Relation to head of household _____

First we would like to ask you some questions about all the persons in your household. Please include only those persons who live in your household permanently.

Definition of Household: Those persons who share a common budget or a common stockhouse for food.

Indv. No.	Name	Sex Male-1 Female-2	Age		If under five date of birth	Relation to Head	Marital Status unmarried-0 married-1	Years of School	Reads & Writes No-0 Yes-1	Occu- pation	Ann Circum- ference (1-5yrs only)	Comments
			If years	If months								
1												
2												
3												
4												
5												
6												
7												
8												
9												
10												
11												
12												
13												
14												
15												

Now we would like to ask you some questions about the health of each member of your household. Is that alright?

6. From Ide Ramazan until now has _____ been ill? (Repeat question for each individual in household.)

No.	Name	Been Sick 0=No 1=Yes	Description of Illness	Treatment Sought so Far	Still Sick 0=No 1=Yes
1					
2					
3					
4					
5					
6					
7					
8					
9					
10					
11					
12					
13					
14					
15					
TOTALS					

108

7. Number of living children _____

Number of children _____

Of children who died:

No.	What did they die from?	Code	What Age?
1			
2			
3			
4			
5			
6			
7			
8			
9			
10			

8. God forbid, from Ide Ghorband last year until today, has anyone in your household died? (Do not forget to include babies who may have only lived a very short while after birth.)

0 = No

1 = Yes

<input type="checkbox"/>
<input type="checkbox"/>



8-a

Name	Age at Death	Cause of death	Treatment sought before death

9. In your opinion, what are the most serious illnesses which affect your household and others in your village? Which illnesses cause the most sickness and death for the most people?

List in order of importance 1. _____
2. _____
3. _____

10. In your opinion what things do you think are most needed to improve the health of people in your village? Think a minute before answering.

List in order of importance 1. _____
2. _____
3. _____

11. Now I would like to ask you about several different illnesses and I would like you to tell me what you think is the best type of treatment for each.

Illness	Best Home Treatment	Code	Best Treatment Outside Home	Code
1. Diarrhea in Children				
2. Malaria (fever & chills)				
3. Eye Infections				
4. Measles				
5. Bronchitis				
6. Tuberculosis (Cough with Sputum)				
7. Skin Diseases				

Illness	Best Home Treatment	Code	Best Treatment Outside Home	Code
8. Broken Bones				
9. Thin and Weak Children				

12. From Ide Ghorban last year until now approximately how many times has anyone in your household visited any of the following when sick? Approximately how much does it cost for each visit?

Name	No. of Times Visited	Approximate Cost for Visit	Code	Approximate Cost of Transportation for Each Visit	Code
1. Hakimiji					
2. Atar					
3. Bonesetter (Shekesta bande)					
4. Barber					
5. Cupper (Ajomatgar)					
6. Mullah					
7. Dokhan for Medicine					
8. Pharmacy					
9. Compounder in village					
10. Private Doctor (Chari kar of local)					
11. Private Doctor (In Kabul)					

101

Name	No. of Times Visited	Approximate Cost for Visit	Code	Approximate Cost of Transportation for Each Visit	Code
12. Shrine			/		/
13. Basic Health Center			/		/
14. Hospital (Charikar)			/		/
15. Hospital (Kabul)			/		/
16. Other			/		/

13.a. Which dai do the women in your household use?

1. _____ Location _____

2. Don't Use Dai

b. **IF DON'T USE DAI** who assists in delivery?

- 1. Women in household
- 2. Women from outside household
- 3. ANM at health center
- 4. Hospital (charikar)
- 5. Hospital (Kabul)
- 6. _____

c. Are you satisfied with the assistance you can get in delivering babies?

1 = Yes

2 = No

d. **IF NOT** why aren't you satisfied? _____

112

14. Which hakimji do you consider the best?

1. Name _____ Location _____

2. Don't know any hakimjis

15. When someone in your household must receive an injection of medicine, who in your village can give it?

1. _____

2. Don't know

16. When you need to buy medicines for persons in your households where do you buy them?

16a. Traditional Medicines - Name of Place _____

Location _____

16b. Modern Medicines - Name of Place _____

Location _____

17. In general, where do you think that you get the best care when you are sick?

- | | |
|--------------------------|--|
| <input type="checkbox"/> | 1. In the village from Hakims and others |
| <input type="checkbox"/> | 2. Pharmacies |
| <input type="checkbox"/> | 3. Basic Health Centers |
| <input type="checkbox"/> | 4. Private Doctors |
| <input type="checkbox"/> | 5. Hospital in Charikar |
| <input type="checkbox"/> | 6. Hospital in Kabul |
| <input type="checkbox"/> | 7. Other |
| <input type="checkbox"/> | 8. Don't Know |

18a. Has anyone in your household ever gone to a Basic Health Center?

1. Yes

2. No

IF YES

18b. Which one?

18c. What do you think of the quality of the medicines and services of the Basic Health Center?

- 1. Very Good
- 2. Good
- 3. Fair
- 4. Poor
- 5. Very Poor

18d. What do you think of the way that patients are treated by the people who work at the basic health center? _____

IF NO

18e. Why has no one in your household ever used the basic health center?

19. What is your best estimate of the total amount of money which your household spent on health services in the last year. Since last Ide Gorbon. Don't forget to include all expenses, including transportation costs, for all services used including hakims, mullahs, dais, doctors and all medicines which you had to buy. (Think a minute before answering)

_____ Afs

Now we would like to ask a few questions about bringing up children. All right?

20a. How long should a boy baby be breast fed?

Months

114

20b. How long should a girl baby be breast fed?

_____ Months

21. At what age do you begin to feed your child solid foods in addition to your milk?

_____ Months

22. What are the first solid foods that should be given to a baby?

1. _____
2. _____
3. _____

23. At what age can the following foods be fed to a baby?

- | | | |
|---------------|-------|--------|
| 1. Soft Meats | _____ | Months |
| 2. Eggs | _____ | Months |
| 3. Bread | _____ | Months |
| 4. Tea | _____ | Months |
| 5. Fruits | _____ | Months |
| 6. Vegetables | _____ | Months |

24. How often do you buy milk powder for your babies?

- | | |
|--------------------------|-----------------|
| <input type="checkbox"/> | 1. Never |
| <input type="checkbox"/> | 2. Seldom |
| <input type="checkbox"/> | 3. Occasionally |
| <input type="checkbox"/> | 4. Often |
| <input type="checkbox"/> | 5. Other _____ |

25. How often a day do you feed a child when he is about 2 years old?

- 1. Twice
- 2. Three Times
- 3. Four Times
- 4. Five Times
- 5. Whenever hungry
- 6. Other

26. In your household how are children fed when they are approximately 2 years old?

- 1. From their own bowls, separate from the rest of the family
- 2. From their own bowls, together with the rest of the family
- 3. From a family bowl
- 4. Other _____

27a. When your child gets diarrhea what is the best thing to do for him?

b. What are the proper foods to feed a child with diarrhea?

- 1. _____
- 2. _____
- 3. _____

28. How many more children would you like to have? (Record exact response)

Interviewer:

29. In your opinion how would you judge the economic standard of this household in relation to others in the village?

1. Extremely poor
2. Poorer than average
3. Average
4. Above average
5. Extremely wealthy
6. Don't Know

30. How many rooms does this household live in? (not including kitchen, storeroom)

_____ Rooms

Interviewer's Signature _____

Supervisor's Signature _____

APPENDIX 2

List of Hot and Cold Foods from CINAM study, 1973*

Hot Foods

chicken
male goat
male sheep
camel (less than 6 mos. old)
sheep milk
long grain rice
green lentils
spinach
onions
chives
garlic
peppers
wheat
bread
sesame oil
fat of "hot" animals
black tea
well water
dried fruits
walnuts, almonds
red raisins
melons

Cold Foods

beef
female goat
female sheep
camel (over 6 mos.)
cow's milk
goat's milk
small grain rice
potatoes
carrots
tomatoes
pumpkin
cucumber
radishes
lettuce
pickles
fat of "cold" animals
yogurt
green tea
river water
fresh fruits
green raisins
watermelons

Body Type by Temperature

Infants - Always hot (boys and girls)

Women - Always hot (even in old age)

Men - Hot until 40 after which they become lukewarm;
old men are always cold

* Services for Children Within Regional Development Zones
Volume II, Page II - 144 (from Sansiz Village, Jawzjan Province)

Appendix 3

MEASURING MALNUTRITION

SIR,—Protein-energy malnutrition is a widespread health problem of infants and young children in the developing world, and a valid and simple method of assessing their nutritional status is needed. A simple growth chart for all children has many advantages¹ but unfortunately such charts and reliable scales are not available in all health centres, nor will the precise age of many children in developing areas be known. Moderate or severe malnutrition can of course be detected by eye, but milder degrees of malnutrition or growth failure are easily missed.^{2,3} Biochemical tests are expensive and unsuitable for population screening. The use of various anthropometric measurements has been investigated. These include "weight-for-age", using the Harvard Standards⁴ and the following ratios: "weight/height"⁵; "the height/weight index"⁶; arm circumference/head circumference⁷; and arm circumference/height, as in the "Quac Stick"⁸. Measuring the mid-upper-arm circumference is simple and practical in the hands of auxiliary workers.^{9,10} One of us (A.S.) has studied a group of 777 children attending clinics and also a group of malnourished children in Iraq, whose precise age was recorded and from whom standard anthropometric measurements were obtained so that the various ratios could be calculated. From this study we conclude that a simple arm-circumference measurement has advantages over any other single measurement, or any ratio of two measurements. This conclusion was reached by comparing these ratios with their weight-for-age⁴ which, despite its imperfections, is widely accepted as the most practical nutritional standard. Fortunately, in the age-group in which malnutrition is most common, between the first and fifth birthdays, the arm circumference is nearly constant,¹¹ and the same measurement can therefore be used throughout this age period.

Figures have less meaning for auxiliaries in the developing world than for health personnel in industrial societies. We therefore suggest the use of a three-coloured cord to measure the arm circumference. The cord must be regularly checked against a ruler in case it shrinks, and perhaps non-stretch plastic strip may prove more suitable if available. Red, yellow, and green have universal significance, thanks to the ubiquitous traffic lights.

The piece of cord (fig. 1) is placed around the middle of the extended relaxed upper arm (fig. 2). The children are divided into three groups according to their arm circumference, as shown in the accompanying table.

This simple method has several uses. In the clinical situation, where simple weight charts are not yet available, it is a quick and reliable means of identifying the ill-nourished children. Even where weight charts are in use, it may help to indicate on the weight chart that a child falls into the yellow or red group. In the circumstances of a famine it may be used for assessing and monitoring the

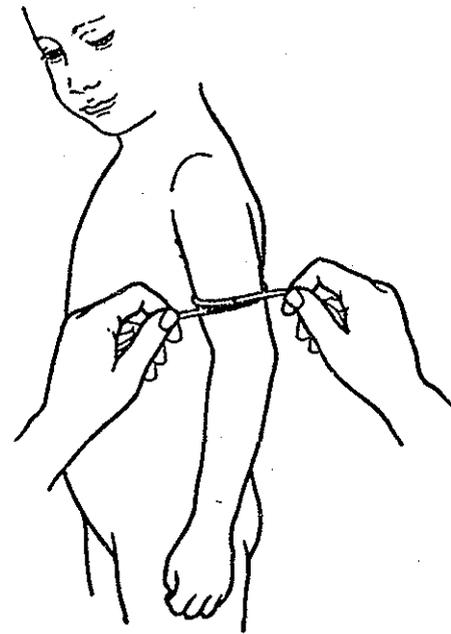


Fig. 2—Cord in use.

COLOUR OF CORD RELATED TO ARM CIRCUMFERENCE

Colour of cord	Arm circumference measured (cm.)	% standard arm circumference	Result with malnourished children and with 777 "normal" Iraqi children
Red	Under 12.5	< 75	All children with clinical signs of severe malnutrition fell into this group. There were no children whose weight exceeded the 80% weight-for-age Harvard standard.
Yellow	12.5-13.5	76-85	Some of these children had mild malnutrition but no child with clinical signs of severe malnutrition fell into this group.
Green	Over 13.5	> 85	Most of these children are normal. Only 2.6% had weights below the 80% weight-for-age Harvard standard.

nutrition of a community and identifying those children who need extra feeding.

Specimen lengths of the cord and a description of how they may be produced are available on request from Teaching Aids at Low Cost (TALC), Institute of Child Health, 30 Guilford Street, London WC1N 1EH.

University of Baghdad,
Institute of Child Health,
30 Guilford Street,
London WC1N 1EH.

ADNAN SHAKIR.

DAVID MORLEY.

1. Morley, D. C. *Pædiatric Priorities in the Developing World*. London, 1973.
2. McLaren, D. S., Kanawati, A. A. *Trans. R. Soc. trop. Med. Hyg.* 1970, 64, 754.
3. Shakir, A., Demarchi, M., El-Milli, N. *Lancet*, 1972, ii, 143.
4. Jelliffe, D. B. *Wld Hlth Org. Mon. Ser.* 1966, no. 53.
5. Rao, V. K., Singh, D. *Am. J. clin. Nutr.* 1970, 23, 83.
6. Dugdale, A. E. *ibid.* 1971, 24, 174.
7. Kanawati, A. A., McLaren, D. S. *Nature*, 1970, 228, 573.
8. Arnold, R. J. *rop. Pediat.* 1969, 13, 243.
9. Jelliffe, D. B., Jelliffe, E. F. P. *Am. J. clin. Nutr.* 1971, 24, 1377.
10. King, M., King, F., Morley, D. C., Burgess, H. J. L., Burgess, A. P. *Nutrition in Developing Countries*. Nairobi, 1973.
11. Burgess, H. J. L., Burgess, A. P. *J. trop. Pediat.* 1969, 13, 189.

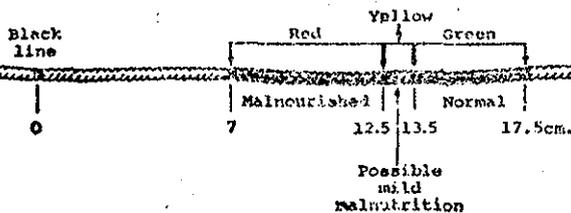


Fig. 1—Three-coloured cord.

Further experience has suggested that a strip of X-ray film is cheaper and better. Scratch the film with a sharp point and colour with a spirit felt pen, not quite up to the scratch line. Cut the film into 1/4 inch strips with scissors or a quillotine. About 50 can be made from one large X-ray film

- 1 -

Appendix 4 - Summaries of Interviews with Sources of Health Care -
Traditional and Modern

Introduction

In the following sections summaries for interviews with various practitioners, traditional and modern, are presented. The information included in this section is selective. For the sake of readability and brevity only those sections of the interviews which are salient to issues discussed in this report have been included. All efforts have been made, however, to avoid alteration of either the spirit or the context of the interview in the necessary condensation process.

Summaries included are:

1. A Pharmacy Owner - Near a BHC
2. A Compounder in a Pharmacy
3. Customers in a Pharmacy
4. A Mullah/Hakim - A Middle Sized Bazaar
5. Hakim - Charikar, the old bazaar
6. Hakim - Panshir Valley
7. Hakim - Kabul
8. Bonesetter - Charikar
9. Bonesetter - Najrab,
10. Bonesetter - Bagram
11. Dai - Ghorband
12. Dai - Bagram
13. Dai - Bagram
14. Dai - Jama'i Agha

Interviewee- A Pharmacy Owner

Location Near A BHC

Interviewer KD

Mohamad Ghulam, age 42, is the owner of one pharmacy of two pharmacies in the bazaar adjacent to a basic health center. His pharmacy is small, but very well stocked. There is a room off the shop which is apparently used for giving injections and treating sick people.

KD: (Following introduction). Do you own this pharmacy yourself?

MG: Yes. I am the only owner.

KD: Are you the compounder yourself?

MG: No. Actually to be honest I am not a compounder. I have a compounder who I pay 2000 Afs a month just to use his license. He stays in the house and I just pay him. I have actually been trained as a nurse, but can't find work with the government right now.

KD: Have you ever worked as a nurse?

MG: Oh, yes, I worked for twelve years--until I got in a fight with a doctor and lost my job...

KD: When people just come into your shop and ask for medicine, do you help them?

MG: I treat what I can. I know how to treat many illnesses. If I can't treat it myself I refer the person to a doctor who can.

KD: How do you decide which illness you will treat?

MG: I know that some medicines are more dangerous than others and I just treat those that are safe.

KD: Do you give injections?

MG: Oh, yes...

KD: In your opinion, what are the most serious illnesses of people in this area?

MG: In children it is diarrhea and dysentary. Probably about 40% of the children who die have this.

KD: What do you give for this?

MG: Mostly sulfaguanadine and tetracycline syrup.

Interviewee: Compounder in a
Pharmacy

Location: A Pharmacy in a small
town

Interviewer: KD

Abdul Rashid, 51, is the compounder in the only pharmacy in a small town which serves as the business, government and social center of numerous villages in the Kohistan valley. His shop was well-stocked, clean, and quite busy during the time observed.

KD: (Following introduction). What do people in the village do when they are sick?

AR: First they go to a mullah for a tawiz (amulet). Next they will go to a hakim and finally they will go to a modern doctor for a prescription.

KD: Do they come to you then?

AR: Yes, they come to me. But often they cannot afford to buy all the medicines they need...usually they only want to buy a portion of what they need. To my thinking, it is better if they buy none rather than only a few. People think that the pharmacies should be free like hospitals.

KD: How far do people come from for medicines?

AR: Most come from nearby but a few come from far away.

KD: What do the people do when they live in villages that are too far away to reach the pharmacy?

AR: Some of those areas have dokkans that sell medicines.

KD: Where do they get the medicines that they sell?

AR: They get their supplies from Kabul, or often they buy smuggled drugs.

KD: In general, do you think that these dokkans are helpful?

AR: No.

KD: Are they harmful?

AR: Yes.

KD: What should these people do then?

AR: Their only help is the basic health center or a village health worker.

KD: How did you learn about a village health worker?

AR: I worked with a rural development project before that was trying to introduce them.

KD: Were they successful?

AR: No.

KD: Why not?

AR: Mostly economic reasons. Also a lack of facilities and education.

KD: What do you mean by economic reasons?

AR: People are too poor. They think that the government should supply drugs.

KD: What kind of training do you think is necessary for a village health worker?

AR: A ninth to tenth grade grader could learn what he needs in about 6 months.

KD: What should they be taught?

AR: They could learn how to use some basic drugs that are not dangerous.

KD: What about a village pharmacy (concept explained).

AR: Good idea!

KD: What do you think are some of the simple, not toxic drugs that could be sold by a village pharmacy?

AR: Sulfaquinine, sulfathiazole, aspirin, festal (pepsin), vitamin C, Entroviaform, Quinine, Calcium, vitamins, skin lotions and ointments

127

AR:

(Cont'd.) (penicillin, streptomycin, chloramphenicol).

KD: Do you think that either a village health worker or a village pharmacist could give injections?

AR: They could do the mechanics of the injection but six months training is not enough to understand the effects of drugs. Even I don't give injections anymore because I have learned their dangers.

KD: How would a village health worker or village pharmacy get the drugs it would use?

AR: That would be a problem.

KD: Would your pharmacy be willing to act as a supplier to these people?

AR: If it were within the law. Also, we are losing money as it is, and could not afford to sell to them without some profit.

125

Interviewees: Customers in
a Pharmacy

Location: Pharmacy in a Small Town

Interviewer: KD

One useful way to gain information about individuals' actions when ill is to observe their actual behavior. The following are interviews with persons who came to a pharmacy for medications during the time that we were talking with the compounder.

An old man of perhaps 80 years:

KD: Could you tell me what is the matter with you?

Old man: I just don't feel well. I'm weak, dizzy, and can hardly walk.

KD: Where did you get this prescription?

Old man: From the doctor over at -----(near the pharmacy).

KD: Where do you live?

Old man: At Saidi Dosht Village (about 20 miles away).

KD: How did you get here?

Old man: By bus.

KD: Why did you come to this doctor?

Old man: Someone I know said he was good.

KD: How many other doctors have you gone to before him?

Old man (Reaches into his vest, brings out 12 other prescriptions from as many different doctors.)

KD: How long a period do these cover?

Old man: About the last six months. I have more at home.

KD: How much did you pay for each of these prescriptions?

Old man: About the same as today. (On that day he had paid 200 Afs for a brandname penicillin, injectable vitamin B12, and a vitamin B complex syrup.)

KD: About how much does it cost each time your visit a doctor?

Old man: 20 Afs.

KD: You must spend a lot of money on your health.

Old man: Yes, but I am an old man and I am sick. What am I to do?

KD: I see you are tiring, but could we ask you a few more questions?

Old man: I would like to help but I am too dizzy from all the medicines I have been taking and can't. If you come to my village I would be glad to talk to you all day. But look at me...you can see, I can barely stand up I am so dizzy.

KD: Thanks for your help. We will come and visit you.

A young man with a child:

KD: What is the matter with the child?

YM: She has an earache and a chill and a temperature.

KD: Did you go to the doctor?

YM: Yes, the one across the way (near the pharmacy).

KD: What drugs did you get?

YM: (Shows prescription for a brandname injectable penicillin, a brandname tetracycline and "Bactrim", a combination of two other antibiotics.)

KD: Who will give the medicine to the child in the village?

12/7

YM: There is a compounder there who gives injections.

(At this point, the transaction was finishing. The man was charged 167 Afs for his medicines.

YM: (To Pharmacist). This pharmacy is a robbery! I wish your drugstore would have to go away.

In the midst of our conversation with the compounder, during which he was describing to us that he never sells drugs to anyone without a prescription, a 10-year-old girl enters the store and places 12 Afs on the counter:

Girl: Give me 6 tetracycline.

Pharm.: Sorry, I can't.

Girl: O.K., then, make it penicillin.

Interviewee: A Mullah/Hakim

Location: A middle-sized bazaar

Interviewer: KD

Mullah Hassan Jan, age about 65, rents a very small shop in one of the bazaars on the road between Charikar and Kabul. The only visible sign of his profession is a few bottles and tin cans containing liquids, herbs and ointments. During our interview (which was accompanied by a physician from MOPH) there was a client in the shop.

KD: (Following introduction). How did you learn your profession?

MHJ: Many, many years ago I went to Jalalabad to study with a famous hakim there.

KD: Have you been practicing ever since?

MHJ: Yes, but mostly just in my village (located about 1 mile from the bazaar). I opened this shop in the bazaar only a year ago.

KD: How is your business?

MHJ: Better than ever, now that I have this shop.

KD: Are you able to treat most illness?

MHJ: Oh, yes, I can treat most illnesses...

KD: What do you do for children with diarrhea?

MHJ: I have some herbs that I give them and I also give them a chalk mixture.

KD: How much would you charge for this?

MHJ: About 5 Afs, which would include enough medicine for 3 treatments.

KD: What do you think is better, your medicine or the medicine which you get from doctors or pharmacies.

MHJ: Well, a lot of people come to me...

KD

MHJ: While you are here could you have a look at my patient?

KD: What is wrong with him?

MHJ: Asthma.

KD: Can't you treat that?

MHJ: Oh, yes, I have some medicine. But I just thought that it might help if you look at him too.

Interviewee: Hakim

Location: Charikar, the old bazaar

Interviewer: EL

Introduction:

This hakim was located in a little lane, about 300 yards from the main road in a rather big shop, filled with tins, jars, bags, etc. The hakim was a 60-65 year old bespectacled gentleman, who sat under the sandali with his son on one side and a friend opposite him. Although we were accompanied by Dr. Abdul Hai, and clearly stated that we came from the Ministry he appeared completely at ease, and answered all questions readily.

He was no doubt of Afghan stock and the scene was one that could have been seen almost identical a hundred or more years ago.

1. How many years as hakim? 30
2. How learned? Father was hakim, he was his apprentice and took over at his death. Also learned from other hakims and from books.
3. Did he study the books? yes
4. What kind of books? Foreign books in Farsi, Arabic . He showed us a medical dictionary/textbook and one handwritten book.

Comments: He had about 15-20 books. They looked old and used but it was not possible to find year of printing. One showed had tables describing signs and symptoms; and treatment, but nothing about cause.

5. Did he use books regularly as reference? First used experience, sometimes checked books and for rare symptoms consulted books till he found a solution.
6. Do books tell how to make medicine? yes
7. Is he training an apprentice? yes, his son
8. How many years son in training? 10 years now.

Comment: My impression is that the son will work with his father till he dies and then take over. Incidentally the hakim told that a second son had graduated from medical school and now worked as a doctor.

9. Most common complaints of patients: recently, grippe (influenza/ bronchitis) post partum, mothers have problems, get weak after delivery.
10. Treats all kinds of diseases, or specialist? just some
11. What most commonly treated? Eye infection, piles (4 kinds) constipation, diarrhea.
12. What diseases hard to treat? (long time, difficult cure) TB
13. What do for TB? Different medicine for different types (e.g. spitting blood)

Comments: (9,10,11,12,13) It was difficult to get a handle on what were most common complaints and what he did not see. I think he was reluctant to admit if he treated all complaints. But the above answers lead you to think that perhaps they should be allowed to have drugs like: aspirin
eye ointment
GE-Solution
Iron-Vitamin Tablets

14. If patient does not improve? send to hospital
15. Classification of hakims? We asked if there were different types of hakims.
1st, 2nd, 3rd. This hakim was 3rd level and would refer to a no. 2, who in turn will refer to no. 1.

Comment: We later learned that some 10-20 years ago, the Ministry gave an oral exam for hakims and graded them in these three categories.

16. Where get medicine from? Used to come from India, and some from Kandahar. There was a big store in Kabul, selling herbal medicines, it burned two months ago. Medicines now hard to get hold of.

17. Makes drugs himself and from what? Compounds from different medicines according to recipes in his books.

18. How many types of medicines in stock? about 2,000 items

Comment: Seemed reasonable from his shop display.

19. Does he mix for each new patient: some already premixed

20. Selling modern drugs? no, not allowed to

132

21. Interested in adding modern drugs? Yes.
22. Buys modern drugs for self and family? Yes.
23. For what disease? typhoid
24. Does not have drugs for typhoid? Yes, but resort to modern drugs for complications.
25. Diseases, he will not treat? Yes, like lungs and liver (some types of liver disease)
26. How many patients a day? 1 - 6. There are 7 hakims in Charikar, 3 of which are Indian sheiks (i.e. Afghan sheiks)
27. Is there cooperation or competition. There isn't any competition.
28. Treats sexual disorders? Treats those wanting children against religion to do family planning.
29. What do people pay? Charges for the medicine. If it cures, people return and pay for the cure.
30. Most expensive medicine? 1 pound for 2,000 afs. 1/8 of a pound is is a cure for infertility. Name: (luboub - i - kabir) was a black pleasant smelling powder, stored in a container made from the umbilicus of an animal.
31. If patient gets worse or dies, does family complain. Yes, if worse, asks for new medicine.
32. Do people respect him and his services? Ask customers.

Interviewee: Hakim

Location: Bazarak, Panjshir Valley

Interviewer: EL

Introduction:

We travelled through Panjshir Valley and asked at virtually all bazaars about the existence of Dais, Hakims and other traditional healers.

The answer was consistantly negative. Most said that there used to be many years ago, but now all sick people went to hospital or basic health center. Deliveries were taken care of within the family.

We had to go almost to the end of the valley before we found one. The owner of the Bazarak sub center knew a person who lived 15-20 km. further up the valley, and who was known as a famous mullah/hakim, to whom people from other valleys would come. Late in the evening we got him in by car from his home.

He was very cooperative but apparently not completely at ease. At the end of the interview he asked to be driven home since his family thought, when we asked him to come, that he had been taken away by the government.

1. Does he take care of people's illnesses? There are two types of illnesses: 1) psychic/spirit
2) body sickness.
He deals with: 1) and send others (if they come to him) to the hospital
2. How long treating patients? 25 years
3. How got started? He first found a book 25 years ago, which explained how to give amulets, and based on this he started to issue amulets for other diseases he found a book 15 years ago on "Greek" medicine which goes beyond amulets and he also started to send patients to doctors.
4. How found books? Two bought in Kabul
5. In what Language? Farsi
6. He studied? Yes.
7. How uses books? To diagnose diseases.
8. What is most common complaints? Infertility (both male and female) also coughing and chest pain.
9. What do for infertility? Sends to doctor.

He said he saw some women with shaking (cramps or sickness) and issues amulets which helps.

134

10. Does he see babies with seizures, stiffness shortly after birth?

Yes. Two types: 1) mental
2) physical, i.e. meningitis

Sends 2 to doctor

We tried to explain "neonatal" tetanus to him (name: jinn gerifiegi?) he said he saw a few cases, gives amulets and it helps, since few die.

11. Which disease most difficult to treat? Eye and lung diseases.
Sees few with eye problems, and has no cure for them.

12. Does he see schizophrenia? Saw one case in last three years (explained to him)

13. How treat? Sends to doctor, gives nothing.

14. Does he give out/sell medicines? No.

15. Buys or makes medicine? No, afraid since not familiar with medicine, afraid of losing a life.

16. How far do patients come from? From the valley, but not from outside. Panjshir valley.

17. Does he visit people at home? Goes for serious cases, he decides whether serious cases can make it to Kabul.

18. How many patients/day? 5-6 or 2-3, mainly men.

19. Do people respect him for his services, etc.? Everybody respects him, he thinks.

20. Interested to learn more about diseases/modern medicine? No, too old. not interested. (said he was 55 years old)

21. What compensation? Gives him 5-6 afs. Gives respect. Most ever received? 20-30 afs.

22. What causes Jinn Gereftagi (tetanus)? Starts from fear, lasts 1-2 years.

23. What causes cough? 4-5 different types according to his books.
Most common cause: grippe
common cold
eating greasy and sour food.

24. Training anyone? No.
25. Anybody else in Panjshir Valley who treats diseases? (i.e. delivery? no, others. No dais, it is considered a shameful profession
26. Why shameful? He himself considers it good, but people think it is bad
27. Why do they think so? "Could not come up with a clear answer"
28. Do many children die in childbirth? Not many but some mothers die.
29. "Explained about VHW" Good idea? Yes, good, but only school graduates can do this.
30. Who could be trained in his village? Noone
31. Could school teachers do it? Yes, if they get education for health.
32. What does he think about Panjshir (Rokka) BHC? Only good for the people living near, but good treatment for the people there.
33. Why do people leave Panjshir Valley? No work, no land
34. Too many people? Yes, and little land
35. Why is this? Families too big.
36. Optimal family size? 12, big families better than small. But small family less trouble.
37. What do barbers do? 1) circumcision? yes
2) cupping? no, not since 25 years he has never been, but according to his books it can be used against haematomas.
3) blood letting? no.
38. What's in amulets? Koranic sayings. Different parts of the Koran for different things. Uses a symptom chart to find sections of the Koran for amultes.

EL:ss
3/30/75

Interviewee: A Hakim

Location: Kabul

Interviewer: KD

Javid Singh is a 60-year-old Hindu who practices classical Unanaic medicine. His shop with its well-stocked shelves of medicines prepared in liquor bottles, is located at the intersection of two busy streets in the old part of the city.

KD: (Following introduction). How did you come to learn your profession?

JS: It has been in our family for 10 generations.

KD: How did you yourself learn?

JS: My father, Dewanand Singh, was a very famous hakim in Jelalabad. I learned from him by watching him and being his student for a number of years.

KD: How about you? Are you teaching anyone else?

JS: Yes. I have two students. One is my son.

KD: Can you treat most illnesses?

JS: Yes, I can even treat leprosy if it is not too advanced. People have even come to me from Europe for treatment.

KD: Were you able to help them?

JS: Oh, yes. I can even cure syphilis.

KD: What kind of medicine do you give?

JS: I give them some medicine to eat. It cures even the most advanced cases.

KD: In the villages in the rural areas can you find hakims?

JS: There are some. But most of them do not know much.

KD: How do these hakims learn their trade?

JS: Many of the smaller hakims come to me for treatments and advice.

KD: Do you think these hakims are very helpful?

JS: Probably not too much.

KD: Do you think your children will take over your business?

JS: If they want. Right now two of my sons are studying medicine at Kabul University.

(Arrangements were made to meet Javid Singh for further discussions on the following Friday. He failed to appear at the designated meeting place.)

Interviewee: Bonesetter

Place: Charikar

Palawan, age approximately 90-100, was interviewed in his home in Charikar in the company of his son and grandson, age 12. He had been mentioned to us by people in villages about 50 miles away as the person that they went to when someone broke a bone or had a dislocation.

KD: (Following introduction). How did you become a bone setter?

P: When I was young I was a champion wrestler (Palawan).

When we would wrestle we would always break our bones or get dislocations. So I just learned out of necessity.

KD: Have you been practicing ever since?

P: Yes. For a couple of years I went to study under a famous bone setter in Pakistan, but since then I have been here.

KD: About how many patients do you have a week?

P: It depends. Sometimes none; sometimes five. It all depends.

KD: What do you do for a broken bone?

P: I look at it, feel it and find out what kind of a break it is and then I pull it back into place. Then I take some egg and put it on it and wrap it with bandage. In 3 or 4 weeks the bone should be healed.

KD: Do you ever have any bones that don't heal right?

P: Not usually, but sometimes with some very old people it is more difficult.

KD: I have heard stories that if a bone doesn't heal right you can soften it and reset it by tying a fish on the bone for three days.

P: That's what some people do. But it is not good. I don't use a fish. I make a solution with grapes that I put on. It works better. Then I can easily reset the bone.

KD: How much do you charge to set a bone?

P: I don't charge anything. It is not right to charge if a person has a broken bone and you are the only one that can help. If they want to give me something, that's fine, but I don't charge.

KD: What kinds of things do people give you?

P: Sometimes a chicken or some wheat. Sometimes money....5 Afs maybe 100 Afs if they are wealthy.

KD: Have you trained anyone else to do bone setting?
Will your son or your grandson take over your job, for instance?

P: No, no.

Son: I know everything you need to know to set bones but I just don't have the heart.

KD: What do you mean?

Son: I could stand to pull broken bones and see people scream. You have to be very strong and I just couldn't do it.

KD: What about your grandson, is he learning?

P: No. I just want him to be a wrestler.

KD: Well, who do you think will set bones when you can't do it?

P: I don't know. I really don't know.

Interviewee: Bonesetter

Location: Najrab, small settlement
near BHC

Interviewer: EL

The bonesetter was a 55-60 year old, very talkative gentleman, who referred to himself as a kuchi. The interview took place outside his compound and as more people gathered, he started a p.r. propaganda for his skills. It was difficult to get direct answers, since he constantly went off on a description of his excellent clinical results.

1. How long in practice? 5-6 years
2. How did he learn: from repairing fractures on cattle, referred to himself as a shepherd.
3. Did he consult with other bonsetters? no, never. But several patients came after unsuccessful treatment by other bonesetters. Had treated a fractured pelvis. The patient had fallen from a tree in Panjshir valley, then gone to Kabul but finally found cure in Najrab.
4. How many patients per month? 1-2
5. Most common fractures? Wrist and fracture and dislocation of elbow.
6. What fractures treated: All types. He said that so far he had been able to set all fractures.
7. Demonstration: Simulated fracture of the wrist: he had one person pulling on the upper part of the arm, the elbow flexed and he then pulled on my hand with his left hand, while pressing on the proximal fragment very hard with his right thumb, at the same time rotating the hand medially.

Comment: In my opinion this would set the typical fracture of radius, although he used less traction, but on the other hand he used more direct pressure on the fractured proximal part than we normally do.

Dislocation of Shoulder: He used a method very similar to the hippocrates method used in most emergency rooms.

Other Fractures: He knew about several other fractures. He did manipulate fracture of the neck of the femur by traction and rotation, but did not use long time traction and immobilization.

Healing time: Wrist fracture: heals in 35 days (as us)

Transverse or compound fracture of lower leg 2 months
(very short)

Do you treat other conditions: Yes. Muscular pains. Only by local massage used no drugs. Uses local herbs as well as fish applied to skin to soften bone and tissue.

Which fracture most difficult to heal or set? Collar bone. (Strange, since we consider most of these very easy)

Would he like to know more, like learning from M.D.? Categorical NO, since he said he knew how to handle all types of fractures and noone had ever left his house "paralysed or blind".

He offered several times that I could spend a month with him and learn the tricks of the trade. He was not impressed when I told him that I knew about bonesetting, but only repeated that he would be happy to take me on as an apprentice.

Fee or compensation: Would never ask, some people would give 1-2 afs, most ever received: 10 afs. Sometimes even fed people, who left without pay. Did his service to people in the spirit of God.

Training anyone: No

Other work: Farmer, shepherd

Impression:

This man, no doubt, was the local bonesetter. I am convinced that he could successfully set most of the fractures, which can be set by external manipulation.

He was extremely self-confident, bragging and talked a lot. The many people gathering may have served as a control that most of the answers given conformed to his practice of the art.

I don't think this person engaged in many dangerous procedures.

He would certainly not participate in anything which resembled a government training program.

Interestingly enough this bonesetter, who claimed to be completely self-taught, used methods very close to current practice, some of which dates back to the days of the good old greek masters.

EL:ss
3/16/75

117

Interviewee: Bonesetter

Location: Bagram

Interviewer: EL

The interview took place outside the village pharmacy. The compounder had found the bonesetter, and he readily answered all questions, in spite of an increasing crowd. He was a fine gentleman of about 60 years, with fine soft hands, although he claimed to be a farmer.

- 1) How long in practice? 10-15 years
- 2) Learned the trade from whom? Self taught. Had a fractured wrist, and saw how it was set, then started on his own.
- 3) Discussed with other bonesetters? Yes a few times
- 4) How many patients per month? 2-3
- 5) What other work: Farmer and Cattle
- 6) Where does he perform treatment? Goes to home of patient
- 7) Does he have equipment ready? No, makes a splint on the spot
- 8) Technical questions:
 - a. How diagnose fracture? organ becomes limp, position of arm/leg.
 - b. How diagnose sprain? feels by palpation
 - c. are some fractures more difficult to set? no, all the same, but some more complex (bone coming out)
 - d. How to treat these? pull and let go back
 - e. Which fractures most common? hands
 - f. How treat fracture of neck and femur (fracture demonstrated)?
Said he knew about them, but I don't think he understood.
 - g. How long to heal fractured wrist: 1 month
 - h. How long to heal fractured lower leg: 40 days
 - i. Does he give medicine to speed healing? No drugs, but prescribes a soup of cow legs/
possible. *meat* to be eaten as often as possible.

MB

j. Demonstration of fractured wrist: With the elbow flexed, and an assistant applying traction on the upper arm, the bonesetter pulled quite hard with his left hand on the fingers. He then pressed very hard with his right thumb on the upper fragment, and combined traction with medial rotation.

(I am convinced that this would set most classical wrist fractures to a good functional result)

k. What do if no heal or healed in wrong position? Would refracture and set again if the patient agreed.

9. Does he treat other conditions? sprains, muscular pains. Uses no drugs, but gives local massage.

10. Dislocation of joints: Gives strong massage to put back in place, then ties.

a. how treat dislocated shoulder? Cannot be done!

(I showed him a simple method, and he appeared very interested)

11. If unable to set a fracture? Refer to Kabul.

12. How much do people pay? No standard fee, optional.

13. How far do people come from? The general vicinity.

14. Would he like to learn more? Of course.

15. From a hospital expert, who would come? Why not.

16. Does he use fish in setting? Yes, boils fish without bones and then ties to fractured spot to make bones soft. Also uses vaseline for the same purpose.

17. What kind of pain killer used? Nothing.

18. Would he prefer plaster of paris over home-made splints? Yes.

19. I then asked him, if he had any questions for me. He asked for advice about how to set fractures of the elbow, since they had a tendency to become calcified (stiff).

This was a good question, since many fractures of the elbow are very difficult to set.

144

Impression

There is no doubt that this was the local bonsetter, that he had considerable experience in his field and my impression was that he could set a number of common fractures with good results. At his age, I don't think he could learn much more, perhaps he should only be instructed to refer the compound fractures to hospitals.

145

Interviewee: Dai

Location: Gharband BHC

Interviewer: EL

The dai came to the bhc for a medical complaint. She was interviewed during 30 min.

Age 35 years (looked 45). Married, III gravida, I living child, a girl) had lost 2 daughters childhood.

Education: Illiterate

Years of practice as dai: 10 - 15 years.

Professional Experience: Started by helping relatives and later friends, never learned from other dais, or never even met one.

Catchment Area: In her village there are 150 families and she takes care of all deliveries.

No. Deliveries: She said about 30/month (seems high, but she said that she virtually worked day and night). Later she said she had had 600 - 700 deliveries totally (seems quite likely, since she was familiar with quite a few rare complications and rare presentation).

Motivation: To be of help to other people and also to make a living.

Fee: She had no standard fee, and would not ask for money, but if offered would accept it (but this was rare) mostly she received an invitation to eat, or she was given a dress or a shirt. Asked, she said the finest "bachshish" ever received was a red shawl.

Techniques & Knowledge: Can identify twins before delivery. (feel it). Can determine position, and do external version if not right position.

Can determine when child is to be delivered (during labor)
Can find out if child is dead intrauterine (says it is then felt all over, but if alive, felt as a firm round thing).

Management of Difficulty Cases: If she expects difficult delivery, she will refer to Kabul (the last came home dead). If delivery does not proceed normally, she will call mullah. He will give something to tie around thigh, and also write something from the Koran. She said that is often helped and mentioned that it was psychological, since the patient believed in it.

Position During Delivery: The dai said that the mothers could decide themselves, but almost all delivered squatting.

I asked her about some common complications and her management.

Prolonged Labor: She understood what I meant, and told that she would hold the patient under her armpits and shake her strongly up and down and that used to help.

Breech: She had had 4-5 breech presentations. She considered them easy. Said they delivered themselves. None had died. (We/ in our wisdom/ think the delivery of the head should be assisted).

She also said she had delivered a child where the middle of the back came first, and the child lived. (Never heard about such a thing).

Retained Placenta: Knew about it; and did as follow:

1. Tied a cloth tightly above the upper part of uterus. (To prevent it from being pushed upwards) and then massaged uterus and pressed downward then they normally came.

2. If it did not come would make a hot package of straw and apply over uterus.

3. If unsuccessful would apply hot oil to stump of cord.

Post Partum Bleeding: She said she knew it, but could do little about it. She would buy a drug from the pharmacy "calmor", which was effective.

Asphyxia Neonate Serum:

1. Would sprinkle baby with cold water if no reaching.

2

2. Would put child in bath with hot water.

Neonatal Mortality: She had had 4 antenatal deaths but no post-partum deaths!! (seems unlikely, better result than Sweden).

Who is a fault in case of neonatal death? GOD!

Status in Community: Greatly respected. People like her and all children called her grand-mother.

Interest in Further Training: Not interested in anything, felt she knew enough, and particularly any training outside her village was out of the question. She had a lot to do at home, many deliveries and nobody could take care of the deliveries.

12/1

Impression: Clean, in chaudri, appeared intelligent, decisive, selfconscious. Proud of her work. Judged on her own data "Competent".

I would rather have her deliver my wife than the BHC doctor.

Interviewee - Dai

Location - Bagram

Interviewer - EL

Age - 40 - 45, married twice and now widowed. 8 pregnancies, 5 living children.

Education - Illiterate

Years Practice as Dai - 7

Professional Experience - Learned by working for 2 years with an old lady who was a dai.

Catchment Area - In her village there are 87 households for which she handles most deliveries.

No. Deliveries - She averaged 15 deliveries a month and has had experience with about 300 deliveries in total.

Fee - Payment usually received, in kind or from 10 - 100 Afs.

Techniques and Knowledge - Determines by looking and palpation if delivery will be normal. Does nothing for normal delivery. Cuts cord with scissors or razor blade and then applies cotton. Oils child shortly after birth. Visits mother for four consecutive days after delivery.

Management of Difficult Cases - Refers mother to doctor.

Position During Delivery - Gives no instructions, most lie down.

Breech Presentation - Gives massage but does not pull, sees about 5 cases per year.

Retained Placenta - Massages the uterus from the top downwards. Does not pull for fear cord will break. Sees a few cases a year.

Post Partum Bleeding - Sends all cases to doctor. Also gives massage of uterus and a herbal "humlai" _____ around the waist.

Transverse Lie - Turns the child by external version.

Interested in Further Training - She thinks she needs to learn more but could give of her time for training only if paid to do it.

149

Interviewee - Dai

Location Bagram

Interviewer EL

Age - unknown, probably 60 - 65. Widowed. 12 pregnancies, 4 living children

Education - Illiterate

Years of Practice as Dai - 10 - 12

Professional Experience - Started by working with her mother for 20 years and has never consulted with other dais.

Catchment Area - In her village there are 87 households and she takes care of most deliveries.

No. Deliveries - She averaged from 10 - 15 births per month, assisting in 200 - 300 deliveries totally.

Motivation - Began out of an interest in helping people; after she became a widow, to support herself.

Fee - Payment was optional, but averaged between 50 - 400 Afs.

Techniques and Knowledge - Can determine position and do external version if not in right position. Cut cord with scissors and applies cotton. Does not pull if delivery normal. Washes child after delivery and visits a few times the following week. Washes mother on 6th day.

Management of Difficult Cases - She refers difficult cases to doctor/hospital.

Position During Delivery - She instructs mothers to sit on a bench or something high.

Breech - She has had over 20 breech positions. She starts with massage. She assists delivery of head by putting her fingers in the baby's mouth and helping it out. She found deliveries of head to be difficult.

Retained Placenta - She had never seen such a case.

Post Partum Bleeding - She sends mother to doctor. She knew of no medicine for this and asked if we had some.

Transverse Lie - She does external version to put child in proper position; she had encountered nearly 50 such cases.

Post Partum Fever with Abdominal Pains and Foul Discharge - Sends for doctor.

Status in Community - Most families respect her.

Interested in Further Training - Admitted she needed to learn more but unwilling to give of her own time for training, even if paid.

Interviewee - Dai

Location - Jamal Agha

Interviewer - EL

Age - 40 - 50 years. Presently married. 9 pregnancies, 3 living children.

Education - Illiterate

Years Practice as Dai - 18 - 20

Professional Experience - Learned by working with her mother-in-law,
a famous dai, for 1½ years.

Catchment Area - In her village there are ___ households and she takes
care of all deliveries.

No. Deliveries - She averaged from 10 - 20 births per month, assisting
in 100 - 300 births totally.

Fee - Payment generally given, averaging between 40 - 100 Afs.

Techniques and Knowledge - She determines position by palpation. Does
not assist normal delivery. Cuts cord with knife and applies cotton.
Washes and oils child after birth. Briefly visits mother and
child the next week.

Management of Difficult Cases - Generally refers mother to hospital in
Kabul.

Position During Delivery - She instructs mothers to squat. 2 - 3 other
women will hold and support the patient.

Breech Presentation - She sends to hospital (has only seen 1 case)

Retained Placenta - Gives massage but does not pull on cord. Sees about
2 such cases per year.

Post Partum Bleeding - Feeds mother oil with eggs. Sees a few cases each
year.

Transverse Lie - Does nothing, refers patient to hospital.

Status in Community - Well respected.

Interested in Further Training - She did not think she needed to learn more and felt she was too old for training, even if paid.

THE LANCET

Oral Glucose/Electrolyte Therapy for Acute Diarrhoea

AMONG refugees from East Pakistan in 1971 the case/fatality ratio for cholera and cholera-like diseases was 30%. Intravenous fluids were scarce and so were personnel trained in their use. One camp therefore opted for rehydration by mouth with a glucose/electrolyte mixture, reserving intravenous fluids for patients in shock; all those strong enough to drink were urged continuously to take as much of the oral fluid as they could. "Patients took the oral solution avidly when they were dehydrated . . . ; although vomiting was common, most patients retained enough oral salt solution to maintain hydration."¹ Nearly 4000 patients presented within 8 weeks at this treatment centre, two-fifths under age five. 135 died (half of them before intravenous fluids could be started), making a fatality-rate of 3%—not much worse than that in well-established treatment centres.

These impressive results crowned the work of many clinicians and biophysicists over several decades. In 1949 DARROW² suggested that an orally administered electrolyte solution containing glucose could supplement parenteral therapy of infant diarrhoea. In 1953 CHATTERJEE³ treated 186 patients with mild cholera solely with a salt and glucose solution. To these workers, and to the physiologists who first studied the stimulatory effect of glucose on intestinal ion transport,⁴ this simple sugar was merely nutritive. But soon it was discovered that sodium transport and glucose transport are coupled in the small intestine, so that glucose accelerates the absorption of solute and water⁵⁻¹⁰; and PHILLIPS, in

1964, suggested that this phenomenon would allow oral replacement of fluid losses in cholera.¹¹ The coupled absorption of glucose and sodium takes place despite massive secretion of fluid by the intestine in cholera,^{12,13} and, as PHILLIPS had predicted, a practical treatment regimen using glucose/electrolyte solutions by mouth was devised which reduced by 80% the volume of intravenous fluids otherwise required.^{14,15} Oral glucose/electrolyte solutions were soon being used successfully in other diarrhoeal diseases, in children as well as adults.¹⁶⁻¹⁸ Patients of all ages, strong enough to drink, will voluntarily, often avidly, ingest the volume of glucose/electrolyte solution appropriate for both rehydration and maintenance.^{1,19} Thus the fluids can be administered by family members and non-professionals as well as by health workers. The solution need not be sterile and the components may be obtained even from local bazaars. A course of therapy costs pennies.

Much clinical experience has been gained in the use of the glucose/electrolyte oral solutions:

Patients in shock or too weak to drink require intravenous fluids to correct their total deficit (usually 10% of body-weight). With isotonic polyelectrolyte fluids rehydration may be accomplished in 2-4 hours; most of these patients can then be given oral fluids to replace continuing stool loss. Those not in shock who are strong enough to drink at the outset nearly always can be rehydrated with oral fluids alone. Volume depletion (up to 8% of body-weight), acidosis (pH as low as 7.15), and moderate hyponatraemia and hypernatraemia (serum-sodium 119 or 168 meq. per litre) have been corrected this way.^{13,19}

Vomiting is probably caused by acidosis and volume depletion, which are corrected in severely dehydrated patients by intravenous therapy, and in those not in shock and able to drink by oral therapy. Vomiting may last for a few hours, but the volume is generally small compared to volumes of stool output and oral intake, and can be replaced by continued drinking.¹ Perhaps 5% of patients^{18,20} vomit persistently (almost always because of continued volume and electrolyte depletion); they require intravenous therapy for several hours longer.

1. Mshalanabis, D., Choudhuri, A. B., Bogchi, N. C., Bhattacharya, A. K., Simpson, T. W. *Johns Hopkins med. J.* 1973, 132, 197.
2. Darrow, D. C., Pratt, E. L., Flett, J., Jr., Gamble, A. H., Wiese, F. *Pediatrics*, 1949, 3, 129.
3. Chatterjee, H. N. *Lancet*, 1953, ii, 1063.
4. Fisher, R. B. *J. Physiol.* 1955, 130, 655.
5. Riklis, E., Quastel, J. H. *Can. J. Biochem. Physiol.* 1958, 36, 347.
6. Curran, P. F. *J. gen. Physiol.* 1960, 43, 1137.
7. Csaky, T. Z., Thale, M. *J. Physiol.* 1960, 151, 59.
8. Crane, R. K. *Fedn Proc.* 1962, 21, 891.
9. Schull, H. P., Clifton, J. A. *Nature*, 1963, 199, 1264.
10. Schultz, S. G., Zalusky, R. *J. gen. Physiol.* 1964, 47, 1043.

11. Phillips, R. A. *Fedn Proc.* 1964, 23, 705.
12. Hirschhorn, N., Kinzie, J. L., Sachar, D. B., Northrup, R. S., Taylor, J. O., Ahmad, S. Z., Phillips, R. A. *New Engl. J. Med.* 1968, 279, 176.
13. Pierce, N. B., Banwell, J. G., Mitra, R. C., Caranasos, G. J., Keimowitz, R. I., Mondal, A., Manji, P. M. *Gastroenterology*, 1968, 55, 333.
14. Nalin, D. R., Cash, R. A., Islam, R., Molla, M., Phillips, R. A. *Lancet*, 1968, ii, 370.
15. Cash, R. A., Nalin, D. R., Rochat, R., Reller, L. B., Haque, Z. A., Rahman, A. S. M. *Am. J. trop. Med. Hyg.* 1970, 19, 653.
16. Sack, R. B., Cassells, J., Mitra, R., Merritt, C., Butler, T., Thomas, J., Jacobs, B., Chaudhuri, A., Mondal, A. *Bull. Wild Hlth Org.* 1970, 43, 351.
17. Nalin, D. R., Cash, R. A. *Trans. R. Soc. trop. Med. Hyg.* 1970, 64, 769.
18. Hirschhorn, N., Cash, R. A., Woodward, W. E., Spivey, G. H. *Lancet*, 1972, ii, 15.
19. Hirschhorn, N., McCarthy, B. J., Ranney, B., Hirschhorn, M. A., Woodward, S. T., Lacapa, A., Cash, R. A., Woodward, W. E. *J. Pediatr.* 1973, 83, 562.
20. Mshalanabis, D., Sack, R. B., Jacobs, B., Mondal, A., Thomas, J. *J. trop. Pediatr. envir. Child Hlth*, 1974, 20, 82.

The volume of oral fluids required, and which can be ingested, seems surprisingly large to people accustomed to allowing but a few cautious sips of fluid to patients with diarrhoea. In one series²¹ small children, visibly dehydrated but not in shock, voluntarily drank an average of 22 ml. per kg. body-weight per hour (range 10-46 ml.) over a 3-12-hour rehydration period; over a 2½-day period the average was 11 ml. per kg. per hour. (A conscientious mother can work wonders. One teaspoon given to a child every minute provides approximately 200-300 ml. per hour.) Adults are commonly given 750-1000 ml. per hour for several hours until balance measurements can be used to adjust the requirements.¹⁵ In better-equipped centres, a nasogastric tube can provide fluid while the patient rests.

Oral fluid therapy increases gross stool output in cholera by about a third over that of patients receiving intravenous fluids alone.^{16,21} The important measurement, however, is net fluid balance, which is nearly always positive—more fluid absorbed than lost—on oral therapy.

Serious intolerance to glucose is seen in about 5% of patients in hospital with acute diarrhoea,¹⁹ and may be suspected when stool volume matches or exceeds oral intake while dehydration persists. The cause and management of this condition are complex.¹⁹

The oral fluids used by various investigators have contained, in mmol per litre, sodium (80-120), potassium (10-25), bicarbonate (28-48), chloride (56-97), and glucose (110-140). Addition of glycine somewhat reduces gross stool output.²² LANGMUIR²³ has urged that a single oral fluid should be made widely available to treat all diarrhoea in all age-groups. Radical as this may sound to hospital-based practitioners, the raw realities of supply and preparation in underdeveloped areas demand a single fluid; experience with both a single intravenous fluid²⁴ and a single oral fluid^{1,25} shows that this approach is safe and effective. An "ideal" oral fluid, based on published experience, might contain, in mmol per litre, Na⁺ 90, K⁺ 20, HCO₃⁻ 30, Cl⁻ 80, glucose 110 (this corresponds in g. per litre to sodium chloride 3.5, sodium bicarbonate 2.5, potassium chloride 1.5, and glucose 20.0) with a measured osmolarity of about 320 mosmoles per litre^{16,21} and an electrolyte content of 220 mosmoles per litre. With ad-libitum intake of this fluid, both adults and children can replace volume and electrolyte losses and also obtain enough water to replace evaporative loss. Comparable solutions have been used successfully in a number of countries affected by cholera as well as on several American Indian

reservations.²⁵ Glucose, however, is not readily available in all countries, and the extent to which sucrose can enhance salt and water absorption must be investigated. Theoretically, the close spatial relationship between membrane sites of sucrose hydrolysis and monosaccharide transport²⁷ should be advantageous either through specific coupling of glucose and sodium transport or by solvent drag after absorption of solute. Perhaps the limiting factor will be sucrose malabsorption, often seen in acute diarrhoea.²⁸

Proponents of any new therapy have grand visions of its benefit to mankind, and those favouring oral glucose/electrolyte therapy for diarrhoea are no exception. RONDE²⁹ has suggested that oral therapy can be a powerful tool in family planning, by dramatically reducing child mortality—often caused by diarrhoea—with a subsequent increase in birth intervals and reduced birth-rate. HIRSCHHORN and DENNY³⁰ hypothesise that oral fluid therapy can substantially reduce malnutrition by rapidly restoring well-being and appetite in children during and after each bout of diarrhoea. If so, it will be easier to teach parents to continue feeding their children during the illness. These visions demand validation. The greatest difficulty will be in getting the glucose and electrolytes to where they are most needed—at the level of home and village. It should be relatively easy for a major pharmaceutical firm to mass-produce packets of glucose and electrolytes, perhaps subsidised by national or international agencies, to be stocked for nations susceptible to outbreaks of diarrhoea and made available through health centres and in the bazaars (the usual research into packaging, storage, marketing, cost, acceptance, and so forth is needed). It is hoped that the results of biophysical, medical, and managerial research can be combined to alleviate, on a large scale, the ill-effects of diarrhoeal disease.

21. Pierce, N. F., Sack, R. B., Mitra, R. C., Banwell, J. G., Brigham, K. L., Fedson, D. S., Mendal, A. *Ann. intern. Med.* 1969, 70, 1173.
22. Nalin, D. R., Cash, R. A., Rahman, M., Yunus, M. *Gut*, 1970, 11, 768.
23. Langmuir, A. D. Fourth Harry Dowling Lecture, Abraham Lincoln School of Medicine, University of Illinois, Oct. 10, 1974.
24. Lindenbaum, J., Akbar, R., Gordon, R. S., Jr., Greenough, W. B., III, Hirschhorn, N., Islam, M. R. *Lancet*, 1966, i, 1066.
25. Nalin, D., Cash, R. A., Rahman, M. *Bull. Wild Hlth Org.* 1970, 43, 361.

158

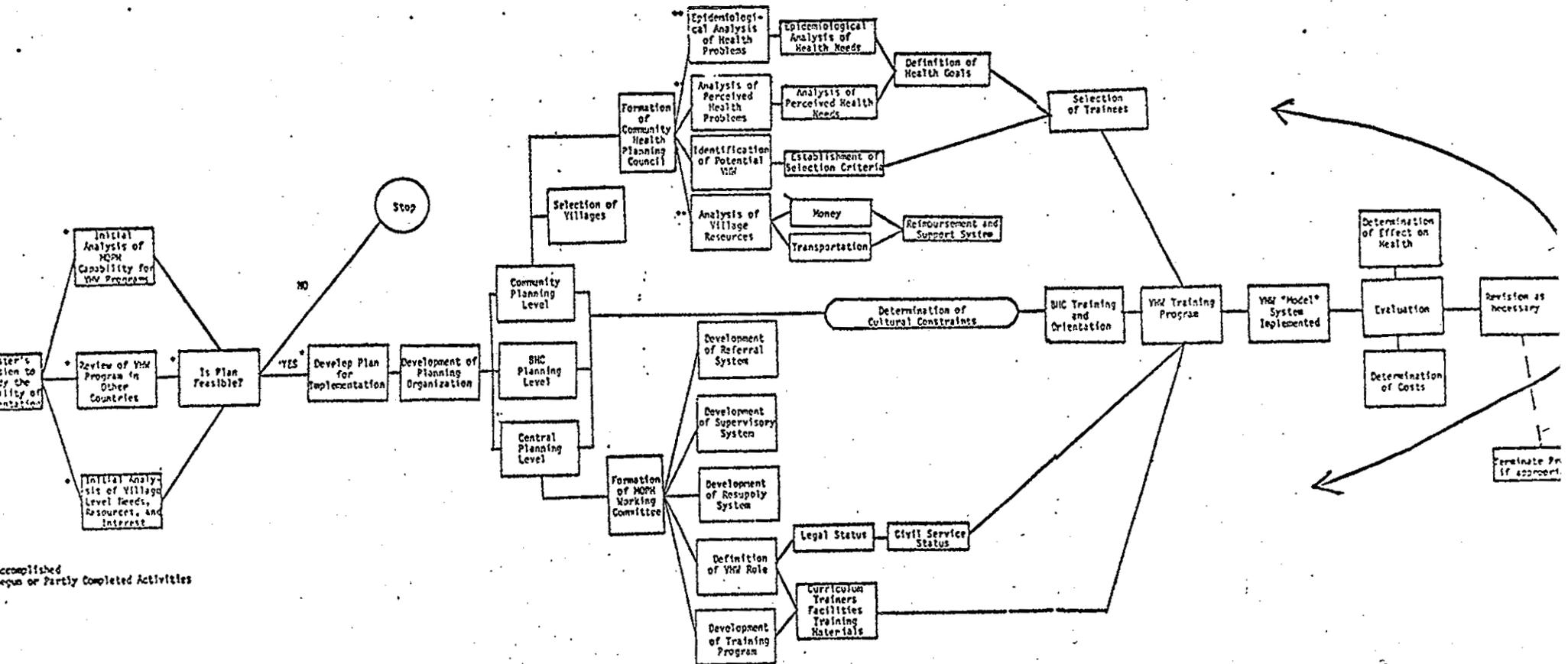
Appendix 6 - Steps Necessary to Implement a Village Health Program

The process of developing and planning a program to provide health services at the village level is not a simple one. As the sample flow chart which follows indicates, there are many individual actions which must be taken in order to reach an objective - in this case, the placement of a trained village health worker.

The example presented is not intended to be a blueprint of "how to implement a village health worker program." Instead it is presented with the intention of conveying the notion that a complex problem requires careful planning. By breaking a project down into all of the activities which it encompasses, the planner is better prepared to meet his goals and to evaluate his progress along the way - and perhaps to avoid the disasters which befall even the best of programs when not properly planned.

APPENDIX 6

FLOW CHART OF STEPS NECESSARY TO IMPLEMENT VILLAGE HEALTH PROGRAMS



accomplished
equal or partly completed activities

Medical Alliance

IS THE CHINESE "BAREFOOT DOCTOR" EXPORTABLE TO RURAL IRAN?

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SINCE the late 1960s a great deal of information has accumulated concerning the "peasant" or "barefoot" doctors of China.¹ Most of this information has originated from foreign observers who have visited a number of rural health workers throughout China and recorded their impressions. Relatively scant information has been provided by the Chinese themselves, and this has consisted mostly of data regarding the numbers which have so far been trained. Certain features characteristic of the barefoot doctor system have emerged:

(1) The barefoot doctor is chosen by his production team according to his proven willingness to "serve the people" in a totally unselfish way. Intelligence and energy are also important criteria, but level of formal education (beyond a certain literacy) plays no part in the selection process.^{1,2}

(2) Training of the barefoot doctor closely combines theory and practice, so that short didactic periods are followed by practical experience in the village. In this way the barefoot doctor is continually applying new information to specific village problems. Training takes place entirely in the rural areas, with constant supervision by physicians and nurses.^{1,2}

(3) The barefoot doctor continues his normal occupation (usually that of a rice cultivator) while performing his medical and public-health tasks. He is given no salary or a nominal one, but is often reimbursed by the production team for his time away from cultivation.^{1,2}

(4) The Chinese programme emphasises disease prevention and health education as the primary function of the barefoot doctor. Screening all patients and treating only those with minor problems is also an essential component of their job.^{1,2}

(5) Continuing education and constant supervision (often by telephone) are of paramount importance in maintaining standards of quality in their job performance. Flexibility is maintained in both the training and the job description of the barefoot doctor. The instructional manual for barefoot doctors differs from region to region, depending on the relative importance of different diseases in each region. Also the length of training, salary, and level of skill attained can vary from commune to commune according to the various needs and resources of the commune.^{1,2}

(6) The most remarked upon and the unique feature of the system is the ideological zeal shown by the barefoot doctor. Seemingly, total devotion to the health of his or her production team, without thought of personal material gain, has been observed frequently throughout China.^{1,2}

The reasons the Chinese have had to rely on barefoot doctors for health-care delivery to rural areas are precisely the same as those prompting other developing countries to train rural health workers. Throughout the developing world the greater part of the population is rural, living in scattered villages.

The few physicians who have not migrated to wealthier countries prefer to live in large cities, where social and educational opportunities for their families are much better than in rural areas.³ Health care for the rural majority must rely on some kind of auxiliary health worker, since the alternative of producing large numbers of physicians and creating viable working conditions for them in rural areas would be prohibitively expensive, if it were, indeed, possible.⁴

A question that has repeatedly arisen in the minds of foreign observers is, To what extent is the Chinese barefoot-doctor concept exportable to other countries? Some observers have noted that the barefoot doctors are not very different from paramedical workers already on the job in other countries.⁵ But most recent visitors to China have been struck by the incredible enthusiasm and ideological zeal of the barefoot doctor—something which they had never observed in other countries.

Obviously, the barefoot doctor must be seen in the entire context of Chinese culture and recent Chinese history. He could never be "exported" without the supporting institutional and social structures being exported with him. If the barefoot doctor fervently and sincerely desires to "serve the people", it is because of the cultural context of his commune (and the reinforcement of his attitude) rather than a chromosomal uniqueness on his part.

IDEOLOGICAL AND CULTURAL DIFFERENCES BETWEEN IRAN AND CHINA

For the past year we in Iran have been most interested in exploring this question of the "exportability" of the Chinese barefoot doctor. At Pahlavi University in Shiraz we have been training health workers very similar to the barefoot doctor and have encountered cultural and political dynamics which we never expected and which differ strikingly from the Chinese experience.

The department of community medicine at Pahlavi University School of Medicine, Shiraz, Iran, has been training two kinds of health workers for rural Iran. One of these is the village health worker (v.h.w.), a man or woman chosen from a village and trained for 6 months in basic preventive and curative health care. The other type of health worker is the middle-level health worker (M.L.H.W.), who is trained for 2-4 years and becomes the eventual supervisor and teacher of the v.h.w.

A major share of rural health care in Iran is at present provided by the Health Corps. Physicians who have completed internship must serve 18 months in the Health Corps in a rural area as part of their military service. The Health Corps station at Kavar, 55 km. south of Shiraz, was chosen as the training centre for the first group of v.h.w.s. The Health Corps station at Kavar was staffed by one M.D. and two aides (both high-school graduates) and served as the only source of modern medical care for about fifty surrounding villages with a total population of more than 20,000.

An important principle of recruitment from the beginning was that the villagers should as much as possible choose their own health worker. This turned out to be extremely difficult in practice. We visited

each of about forty villages surrounding Kavar, and in every instance we met with the village headman or the head of the village council. We asked their opinion regarding which literate person in their village would make a good v.h.w. We soon discovered that, in many instances, as soon as the village headman realised that this v.h.w. was potentially an important person, the son or brother of the village headman (or even the headman himself) was chosen. There seemed to be no more democratic alternative available; given a free choice the village power structure almost invariably chose one of its own members, or a close relative.

Another cultural barrier to recruitment soon became apparent. We were interested in selecting women, for two reasons. Firstly, women play an essential part in maternal and child health and family planning, particularly in a culture where men are proscribed from participation in the delivery of babies. Secondly, since this was a pilot project, we wanted as great a variety of health workers as possible (including such variables as age, status in the village, education, and sex) in order to find out what kind of person makes the best health worker in an Iranian village. It soon became obvious that we would have a hard time in recruiting village women—the reason being simply that the brothers and husbands and fathers of the few literate village women were not going to let them out of the village for training, and hence out of their control. Eventually, however, we were able to recruit 4 women out of a total of 16 volunteers.

Already at the stage of recruitment, then, we see major differences between the Iranian and Chinese experience. In Iran, despite considerable changes in village social structure since the Land Reform of 1962–66, there is great difficulty in having the village use any criteria other than a person's blood-relationship to the élite, in the choosing of a barefoot doctor. Also, the "liberation" of Iranian women has been limited so far mostly to cities; the village women are still objects controlled by their menfolk.

It is difficult to compare the Chinese and Iranian selection procedures for barefoot doctors. The Chinese stress collective decision-making and emphasise the importance of personal qualities—particularly unselfishness, dedication to the welfare of the group, and ideological acceptability. Our method in Iran stressed decision-making by the pre-existing élite, who demonstrated loyalty to close relatives. One cannot easily generalise from this limited experience. Iranians are a highly individualistic people with a limited history of cooperative enterprise, whereas the Chinese have a long history of close cooperation (such as in irrigation works) made imperative by the intense crowding in the great river valleys.^{5,7}

The training of our v.h.w.s also introduced a number of unexpected difficulties. For one thing, the "integration of theory and practice" proved to be no easy matter. The Iranian educational system emphasises memorisation, and our v.h.w.s devoured the 260-page "textbook" we had prepared for them. We had expected them to absorb the material in 5 months; instead they memorised the entire text in

5 weeks. The "practical work" that they particularly favoured was curative medicine, in the course of which they actually made diagnoses and prescribed drugs. The "preventive" and educational aspect of their work (which we always stressed was of crucial importance) elicited less enthusiasm. The question raised by their avidity for memorisation was this: Should written, memorisable material be presented at all? For us the evidence indicated that having some material to digest made them very comfortable, since it was compatible with their previous school experience and it generated self-confidence. This material should be limited, however, since the emphasis in training is on practical skills applicable to the village environment, and these skills must be acquired primarily by field experience.

It was when the v.h.w.s completed their 6-month training course and returned to their respective villages that the differences between the Chinese and Iranian cultural context became obvious.

One of the v.h.w.s was the brother of the village headman, but there existed in his village a rival faction with a rival headman. The rival faction insisted that the v.h.w. would poison them by giving the wrong drugs in the wrong dosages. The v.h.w. became so infuriated by this accusation that we felt it likely that he would in fact do something similar to what he was accused of.*

A second village was likewise split by two factions that could not agree on the v.h.w. The candidate belonged to the majority faction, but the minority faction was politically powerful. Chinese villages must also have factions (perhaps manifested by ideological differences masking more personal division), but there are no reports of such strife in Chinese villages over the appointment of a barefoot doctor. The intense individualism of Iranian village leaders renders any effective village collective decision-making or even consensus almost impossible.

It is too soon to be sure, but apparently the v.h.w.s who returned to their own villages were less well received, on the whole, than the v.h.w.s going to villages where they had never lived. Of the 16 v.h.w.s trained in our first group, 8 were in each category. Those with the greatest difficulty in becoming accepted are those who are well known to the village and who belong to a faction (or, at any rate, to a family) with recognisable intrinsic vices and virtues. Chinese barefoot doctors are believed always to return to their own communities. No information is available concerning any consequent psychological dislocations in these villages.

Many additional problems confront the v.h.w. when he works in an Iranian village, and many of these are either unique to Iran or rare in the Chinese village.

They can be divided into the following categories:

- A. Problems associated with folk-medical assumptions of villagers. These include, for instance, the widespread belief that only injections (rather than tablets, syrups, or capsules) are effective—and the more painful the better. Another assumption is the belief in the dichotomy of foods and drugs into "hot" and "cold"

* Finally, when faced with the prospect of having no v.h.w. in their village, the rival faction gave a written promise to the Health Corps station in Kavar that they would cooperate with the v.h.w. and cease their accusations; the v.h.w. is now working in the village with cooperation from all parties involved.

—a historical legacy of the Greek humoral theory and the Hippocratic-Galenic tradition.⁸

Problems associated with the organisation and delivery of health care in rural Iran. These problems relate to the vacuum in rural health care, particularly the paucity of physicians for referral or supervision.

C. Problems associated with village social structure. The difficulties with rival factions are in this category. Also, personality characteristics of the v.H.W. (such as the desire to move up from village to city, and concern with status, particularly the accoutrements of the physician, such as white coat, stethoscope, and hypodermic syringes) are important factors influencing his or her effectiveness.

CONCLUSION

On the basis of our limited experience in Iran, we believe that the Chinese barefoot doctor is not easily transplantable to Iranian soil, and that auxiliary

training in Iran must take into account the realities of the rural situation. There is a great deal of latent idealism and energy in the young Iranian villager. That idealism can be tapped in certain individuals, but until villages can achieve more consensus and stability the fantasy of the Iranian barefoot doctor will not become reality.

This work is supported by a grant from the International Development Research Centre, Ottawa, Ontario, Canada.

REFERENCES

1. Sidel, V. W. *New Engl. J. Med.* 1972, 286, 1292.
2. Sidel, V. W. *Int. J. Hlth Serv.* 1972, 2, 385.
3. Ronaghy, H. A., Cahill, K., Baker, T. D. *J. Am. med. Ass.* 1974, 227, 538.
4. Ronaghy, H. A., Solter, S. L. *Lancet*, 1973, ii, 427.
5. Gringras, G., Geckie, D. A. *Can. med. Ass. J.* 1973, 109, 150A.
6. Horn, J. *Away With All Pests*. New York, 1972.
7. Pickowicz, P. G. in *Modern China and Traditional Chinese Medicine* (edited by G. B. Ruse); p. 124. Springfield, Illinois, 1973.
8. Livingston, R. B., Mahloudji, M. *Pak. med. J.* 1970, 3, 38 (abstr.)

Appendix 8--Estimates of Mortality
and Fertility

1. Crude Birth Rate and General Fertility Rate

- a. We used household histories in order to estimate the crude birth rate for the sample population according to the following formula:

$$\text{CBR} = \frac{\{(\# \text{ living children, 0-11 months}) + 1/2(\# \text{ children, age 12 months}) + (\text{recalled infant deaths in past year})\} \times (365/423)}{(\text{Sample size})}$$

$$= \frac{151 + 32 + 12}{3696} = 43/1000$$

This method may underestimate the sample's crude birth rate, for infants who die immediately after birth are often not reported as live births. Nearly one third of all children aged one year or less had a reported age of 12 months. In the absence of reliable information concerning how accurately the respondents reported the ages of their children, we regarded half of these children as being under 12 months in age and the other half as being one year or older. If we exclude all of these children from our estimate, we arrive at a crude birth rate of 38/1000.

We have included in our estimate a time adjustment factor in order to allow for an interval of about three months between the time at which interviews were conducted in the first group of villages and the completion of the survey in the latter half of the villages. The time factor, equal to 365 days / (365 days + 114/2 days), adjusts the reporting period for the latter group of villages down to one year, for their responses encompassed a period of one year plus 114 days.

- b. The sample population had an estimated general fertility rate, defined as number of live births / number of women aged 15-44, of 243 births per thousand. This estimate uses the same definition of number of live births and the same time adjustment factor as above. If all children with a reported age of 12 months are excluded from the number of live births, the general fertility becomes 201 births per thousand.

2. Infant Mortality Rate

We obtained two estimates of infant mortality rates, one based upon recalled infant deaths in the last year and the other upon women's total reproductive histories:

- a.
$$\frac{(\text{Total recalled infant deaths (age under 1 yr.) in past year}) \times (365/423)}{(\text{Total \# living children under 1 yr.}) + (\text{recalled infant deaths in past year})}$$
$$= \frac{12 \times 365/423}{151 + 12} = 63.5/1000$$

This estimate is probably low because of underreporting of infant deaths and lacks reliability since the sample size is so small.

b.
$$\frac{\text{All recalled infant deaths to date}}{(\text{total \# living children}) + (\text{all recalled infant deaths to date})} =$$

$$928 / 3552 = 261 / 1000$$

This estimate in reality indicates child mortality rather than infant mortality, for mothers responding to this question in the survey probably included deaths of all their children without regard to age.

The above two estimates probably represent lower and upper bounds upon infant mortality in the population surveyed. On the basis of these limits as well as the results of the WHO/MOPH survey, infant mortality in the sample population is probably in the neighborhood of 150-200/ 1000.¹

3. Comparison of Infant Mortality and Crude Birth Rates with other Asian Countries²

	Infant Mortality Rate	Crude Birth Rate
Parwan/Kapisa, Afg. (MSH survey)	150-200	43
Iran	139	45.3
Iraq	99	48.1
Turkey	119	39.4
Pakistan	147	47.4
India	139	39.9
Indonesia	125	42.9
Thailand	65	43.4

¹ Preliminary Report on Infant and Early Childhood Mortality Survey in Greater Kabul (September, 1974), WHO/ MOPH.

² from 1975 World Population Data Sheet of the Population Reference Bureau, Inc.