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MINISTRY OF HEALTH
MANAGEMENT SCIENCES FOR HEALTH
KABUL, AFGHANISTAN

تیم منجمنت
وزارت صحیه
کابل - افغانستان

Preliminary Report:

A Village-Level Health
Survey in Afghanistan

July 8, 1975

A NON-PROFIT INSTITUTION

ONE BROADWAY, CAMBRIDGE, MASSACHUSETTS 02142

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A

Introduction

This report summarizes the findings of a health survey carried out in five areas of the Parwan/Kapisa Province from January 3 to April 16, 1975. A more detailed report is in preparation and will be forthcoming by August 1.

Preliminary Findings of Afghan Village Health Survey

- I. Introduction to the Sample Population
 - A. Number of Respondents by Geographical Area.
 - B. Total number of households and individuals; average size of household.
 - C. Characteristics of Respondents, by age and sex
- II. Age/sex characteristics of sample population
 - A. Sex ratios
 - B. Age distribution
 - C. Age distribution - Comparison with Other Asian Countries
 - D. Age Sex Ratio
- III. Indicators of Fertility and Child Survival
 - A. Average number of living children, children died, and live births for all respondents.
 - B. The above (A) for women with completed fertility.
 - C. Number of Additional Children Desired by Age of Respondent.
- IV. Mortality and Morbidity indicators
 - A. Child deaths
 - B. Deaths in Total Population in Preceding Year
 - C. Illnesses associated with total deaths since Ide Ghanband
 - D. Description of illnesses reported since last Ide Ramazan
- V. Perceptions of Health needs and problems
 - A. Most serious illnesses
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 - C. Utilization
- VI. Utilization of Health Services
 - A. Treatment sought for all deaths in previous year
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- VII. Health Expenditures
 - A. Estimated annual health expenditures
 - B. Ranking of Health Expenditures by service
 - C. Total expenditures for all medicines
 - D. Mean aggregated annual health expenditures
 - E. Expected health expenditure by service
 - F. Health expenditure as percentage of total household income.
- VIII. Nutrition and Child Rearing Practices
 - A. Child Feeding Practices
 - B. Results of Arm Circumference Measurements

Appendix A - Questionnaire

Appendix B - Use of Arm Circumference to Detect Malnutrition

I. INTRODUCTION TO THE SAMPLE POPULATION

A. Number of Respondents by Geographical Area

Bolaghyn (Subcenter)	100	16.3%
Jamal Agha (BHC)	205	33.5%
Majrab (BHC)	144	23.5%
Bagram (BHC)	87	14.2%
Ghorban (BHC)	76	12.4%

B. Total Number Individuals	3695
Total Households	612
Average Number Persons per Household	6.03

C. Characteristics of Respondents

1. Average age of Respondent	34.8 years
2. Male Respondents	190 -- 177 Heads of Household
Female Respondents	422 -- 396 Wives of Heads
Total	612

II. AGE/SEX CHARACTERISTICS OF SAMPLE POPULATION

A. Sex Ratios

Total Population:	1.077 males to 1.00 Females
0-14 years:	0.989 males to 1.00 Females
50+ years:	1.543 males to 1.00 Females

B. Age Distribution

	<u>0-4</u>	<u>5-14</u>	<u>15-44</u>	<u>45-64</u>	<u>65+</u>
M	17.4%	30.3%	38.4%	11.3%	2.6%
F	19.1%	32.9%	39.2%	7.2%	1.6%
Total	18.2%	31.6%	38.7%	9.2%	2.1%

49.8% of Total population 0-14
 11.3% of total population 45+
 M - 13.9%
 F - 8.8%

C. Age Distribution: Comparison with other Asian Countries¹

	Date of Census	0-14	15-24	25-34	35-49	50- 69 ⁶⁴	65+	Dependency* Ratio
Afghanistan (MSH Survey)	1975	49.8	16.3	13.1	12.0	6.6	2.1	155.3
Iran	1956	42.2	15.4	15.3	14.4	8.7	4.0	119.7
Iraq	1957	44.9	14.2	13.4	13.3	9.1	5.1	137.7
Kuwait	1957	31.3	21.7	22.2	15.4	6.4	3.0	74.9
Turkey	1960	41.3	16.7	15.7	12.9	9.9	3.7	113.9
Pakistan	1961	44.5	15.9	14.2	13.8		11.6	--

* Dependency ratio defined here as:
$$\frac{\overset{0-14}{(0-20)} + (65+)}{(21-64)}$$

Males	13.9%	45+
Females	8.8%	45+

51.9

48.0

D. Age/Sex Ratio

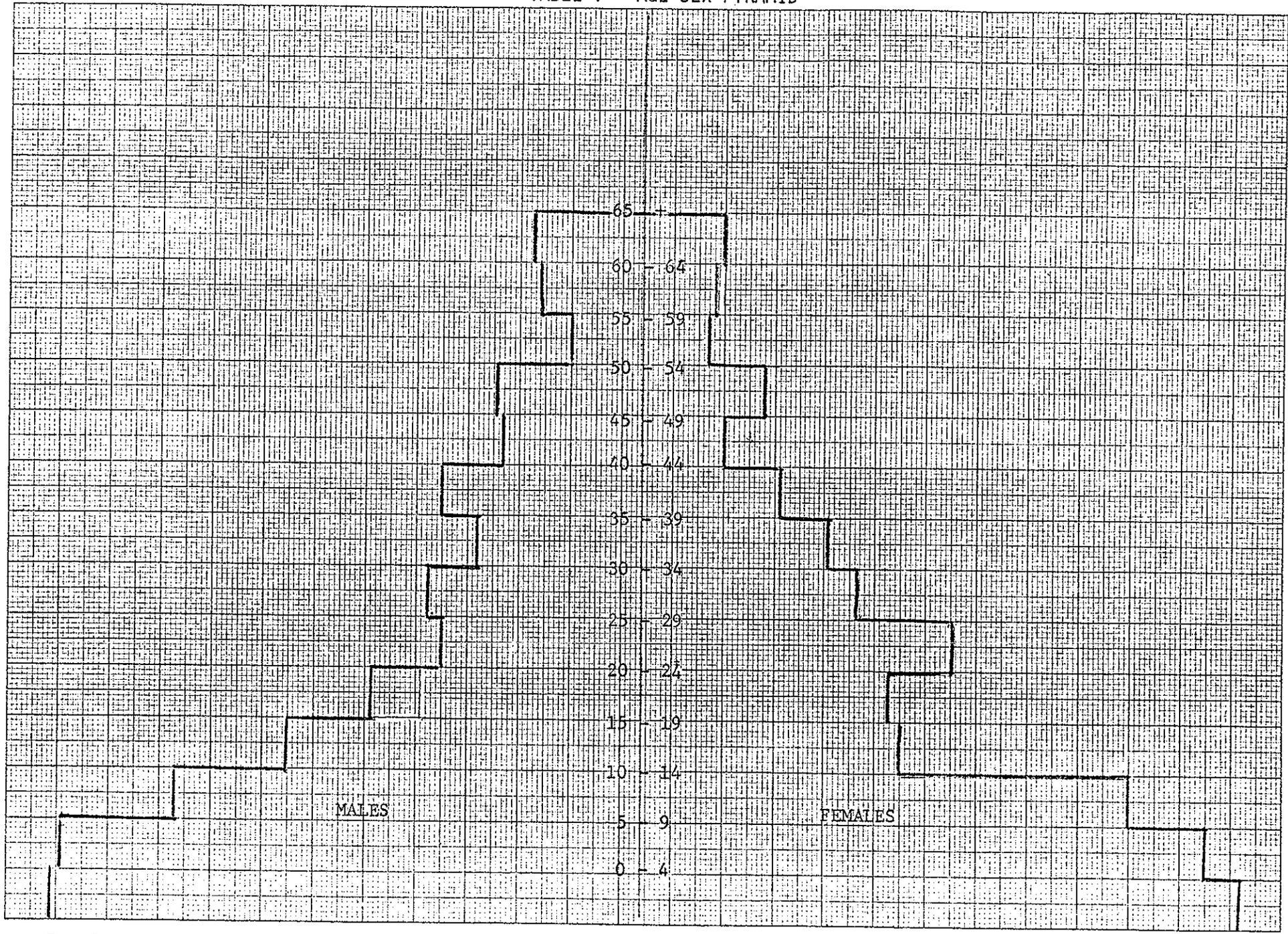
<u>Males</u>		<u>Females</u>
49	over 65	30
48	60-64	23
28	55-59	21
71	50-54	53
68	45-49	31
104	40-44	64
85	35-39	92
109	30-34	111
97	25-29	167
147	20-24	128
194	15-19	133
257	10-14	272
325	5-9	315
<u>334</u>	0-4	<u>339</u>
1916	3695	1779

See Table 1 - Age/Sex Pyramid

¹From Principles of Demography, p. 158., Donald J. Brogue

TABLE 1 - AGE SEX PYRAMID

20



350 300 270 240 210 180 150 120 90 60 30 0 30 60 90 120 150 180 210 240 270 300 330

Summary - Demographic Characteristics of Sample Population

Average Household size - 6.03

Young population - almost 50% under 15

High Dependency Ratio

Females with significantly lower survival rate than males after age 44.

III. INDICATORS OF FERTILITY AND CHILD SURVIVAL

A. For all respondents: Female

Average number of Living Children	3.78
Average number of Children Died	1.45
Average number of Live Births	5.23

B. For all women with completed fertility (age 45%)

Average number of Living Children	3.85
Average number of Children Died	2.07
Average number of Live Births	5.92

C. Number of Additional Children Desired by Age of Respondent ^{Female} (~~Females~~)

Age (years)	# additional children desired: frequency and row per cent				
	1-2	3-4	5+	no more	God's Will
15-24	16 (32%)	11 (22%)	2 (4%)	3 (6%)	17 (35%)
25-34	22 (13%)	11 (7%)	4 (2.4%)	44 (27%)	81 (50%)
35-44	11 (18%)	5 (8%)	1 (1.6%)	30 (48%)	15 (24%)

IV. MORTALITY AND MORBIDITY INDICATORS

A. Child Deaths - (Respondent Recall)

(N = 785)

1. Illnesses associated with child death:

Diarrhea	25.8%	} 60.6%
Measles	17.7	
Pneumonia	17.1	
Small Pox	8.8	
Jinns (Diarrhea)	7.4	
Cough	6.4	
Other	16.8%	

2. Breakdown of Child Deaths under 5 years.

(N = 789)

<u>Age (years)</u>	<u>Number</u>	<u>% of Total Deaths Under 5 years</u>
0-1	236	31%
1-2	212	28%
2-3	163	21%
3-4	106	14%
4-5	49	6%

B. Deaths in Total Population in Preceding Year

1. Total Deaths Reported Since Last Ide Ghorband

85

Estimated Crude Death Rate

$$\frac{85}{3.695} \times \frac{365}{365 + \frac{114}{2}} = 20.14/1000$$

Adjustment for
Time Period of
Interviewing
(Interviewing
1/4-6/16)

Cautionary Note: Due to the problem of sample selection and adjustment for period of interviewing, this figure does not represent an exact crude death rate and should not be used as such.

2. Age Breakdown of Deaths Since Last Ide Ghorband

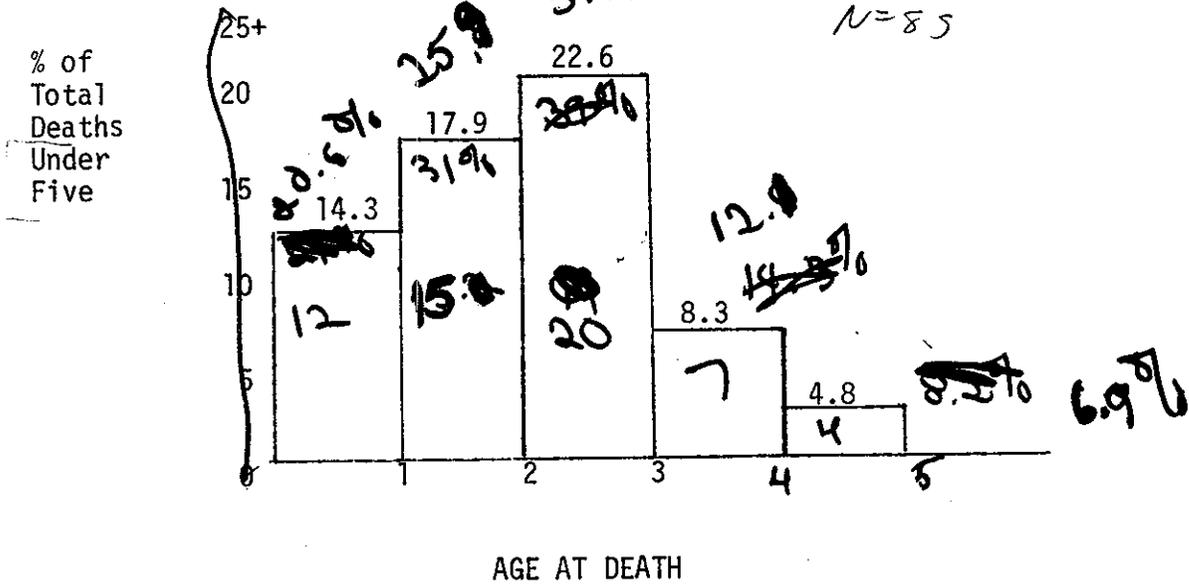
Deaths under 5 - 58 (68%)

Deaths over 5 - 27 (32%)

3. Relative Percentages of All Deaths Under Five by Age

(N = 58)

N = 85



V. PERCEPTIONS OF HEALTH NEEDS AND PROBLEMS

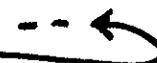
A. Most serious Illness - ranked by order of importance (Refer to Question 9)
all three mentions combined.

Pneumonia	19.9%
Diarrhea/Dysentery	16.3%
Measles	11.0%
Bad Cough	9.6%
T.B.	8.6%
Typhus	6.2%
Colds	5.7%
Rheumatism	4.4%

81.7%

Low mentions:

Women's diseases	0.2%
Eye problems	0.3%

B. Most Needed Health Improvements (Refer to Question 10) 

~~C.~~ Ranked by order of importance; all three mentions combined

Medicine	32.4%
Doctor	25.6%
Hospital	24.3%

2. ~~Least Mentioned~~

Low Mentions:

Family planning	0.2%
Health education	0.4%

15% of respondents mentioned roads or transportation as one of their three responses.

C. Utilization and Attitudes toward Existing Health Services

1. Does a Dai assist in deliveries?

No -	69.2
Yes -	30.8

2. If Dai does not assist in delivery, who does?

Woman in household	83.6%
Woman from another household	11.8%
Auxiliary Nurse Midwife	2.3%
Hospital in Kabul	6.7%

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

Total Number = 295

Yes	8.1%
No	91.9%

4. Do you know a hakim?

No	94.2%
Yes	5.8%

5. Do you know someone who can give injections?

No	22.4%
Yes	70.5%
Unknown	7.1%

6. Who is it that gives injections?

Doctor	25.6%
Nurse	2.5%
At BHC	51.6%
Individual	4.8%
Compounder	12.2%
Pharmacy	1.8%

7. Do you purchase traditional medicines?

No	63.6%
Yes	24.1%
Unknown	12.3%

8. Do you purchase modern medicines?

No	63.6%
Yes	24.1%
Unknown	12.3%

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

BHC	60.5%
Hospital - Kabul	11.5%
Hospital - Charikar	4.6%
Other	4.3%
Private Doctor	3.4%
Pharmacies	2.6%
In village	0.3%
Don't know	12.8%

10. What do you think of the quality of the medicines and services at the Basic Health Center?

Very good	9.1%
Good	34.8%
Fair (Intermediate)	35.6%
Poor	20.5%
Very poor	0

11. What do you think of the way that patients are treated by the people who work at the Basic Health Center?

Favorable reply	70.0%
Unfavorable reply	28.5%
Unknown	1.5%

F. Health Expenditures as Percentage of Total Household Income 6.75%

Estimated Annual Health Expenditure 918 = 6.75%

*Annual Household Income 13,600 Afs.

*1971 Estimates for 254 farmers in Parwan and Ghazi Provinces in "The Afghan Farmer: A Report of a Survey" by Gordon C. Whiting and Rufus B. Hughes. Robert R. Nather Associates, Washington, D.C.

VIII. NUTRITION AND CHILD REARING PRACTICES
(Males did not respond to this set of questions)

A. Child Feeding Practices

1. a) How long should a boy baby be breast fed?

Average length - 24 months

b) How long should a girl baby be breast fed?

Average length - 29.6 months

The difference in duration of breast feeding by sex is attributable to cultural factors. In the area studied, it is believed that girls receive fewer household resources than males and the longer breast feeding of girls is one way that this inequity can be partially ameliorated.

2. At ~~what~~ age do you begin to feed your child solid foods in addition to your milk?
(N = 422)

Average age - 15 months

Most frequent reply - 12 months

3. What are the first solid foods that you give to a baby?

Don't know	48.4%	32.6
Rice	25.3%	17.1
Bread/tea	22.4%	15.1
Cow's milk	12.4%	8.3
Fruits	11.6%	8
Cookies	10.2%	6.9

← TOM

check.

other 6.4
soup/Veg 5.9
milkprod 4.0

Least mentioned food:

Eggs 1.0%

N = 595

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

Average Reply (Months)

Soft meat	33.7
Eggs	27.4
Bread	15.1
Tea	13.7
Vegetables	16.5
Fruits	15.5

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

Never	72.4%
Seldom	9.7%
Occasionally	13.3%
Often	4.7%

(N=445)

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

Twice	0.4%
Three times	21.3%
Four times	5.6%
Five times	4.6%
When hungry	67.8%

(N=426)

7. In your household, how are children fed when they are approximately two years old?

Own bowl - separate from family	45.5%
Own bowl - with family	45.5%
From family bowl	9.0%

8. When your child gets diarrhea, what is the best treatment?

Capsule	102	→ 162	30.4%
Medicine, Doctor of Hospital	126	126	23.6%
Anise or Ajman seeds	120	120	22.5%
Other	75	75	14.1%
Peppina - Patina	39	39	7.3%
Cibadol	5	5	0.9%
Yogurt	3	3	.6%
Egg	1	1	.2%
Total			100.0%

(Mint)

B. Results of Arm Circumference Measurement

<u>Code</u>	<u>Age (in years)</u>				<u>Total</u>
	<u>1</u>	<u>2</u>	<u>3</u>	<u>4</u>	
Green (over 13.5 cm)	20	14	25	25	84
Yellow (12.5-13.5 cm)	15	12	8	9	44
Red (under 12.5 cm)	11	10	1	0	22
	46	36	34	34	150

	<u>Red</u>	<u>Yellow</u>	<u>Green</u>
Age 1	24%	33%	43%
Age 2	28%	33%	39%
Age 3	2%	24%	74%
Age 4	0%	26%	74%
<i>Adjusted</i> Mean	2%	28%	55%

Check

Key: Green - normal
 Yellow - possible mild malnutrition
 Red - malnourished

(See appendix B for use of arm circumference measurements in identifying malnutrition.)

RELATIVE ECONOMIC STATUS OF HOUSEHOLDS

A. Assessment of Interviewers

- | | |
|------------------------|-------|
| 1. Extremely poor | 6.2% |
| 2. Poorer than average | 37.6% |
| 3. Average | 45.1% |
| 4. Above average | 8.3% |
| 5. Extremely wealthy | 2.8% |

B. Number Rooms per Household

1. Room - 25.0%	1. Room - 25.0%
2. Rooms - 31.0%	2. Rooms - 31.0%
3. Rooms - 20.9%	3. Rooms - 20.9%
4. Rooms - 13.1%	4. Rooms - 13.1%
5. or more Rooms - 4.6%	5. or more Rooms - 4.6%

APPENDIX A
Questionnaire

MINISTRY OF PUBLIC HEALTH
HOUSEHOLD QUESTIONNAIRE - FEMALES
VILLAGE HEALTH SURVEY

Household Number	Village Number	Malaria Number	Interviewer
□□□□	□	□□□□□	□

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.

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					

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



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 or local)					
11. Private Doctor (In Kabul)					

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? _____

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



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? _____



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. Alright?

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

_____ Months

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)

END OF QUESTIONS

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 B

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

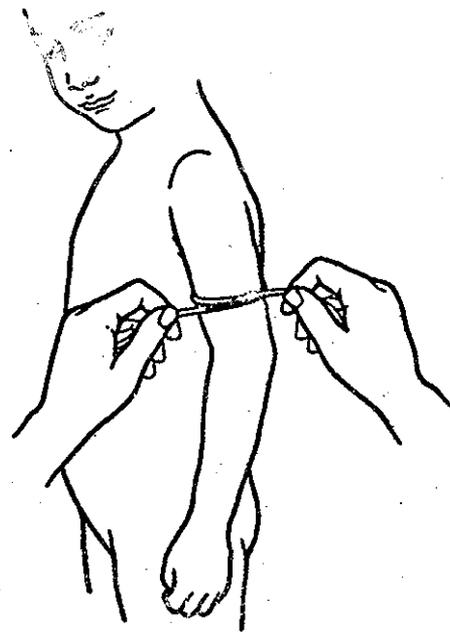


Fig. 2—Cord in use.

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.

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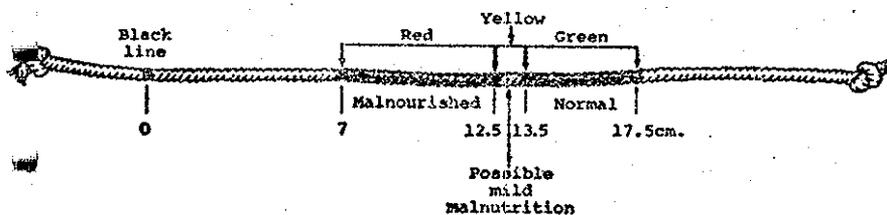


Fig. 1—Three-coloured cord.

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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 $\frac{1}{2}$ inch strips with scissors or a guillotine. About 50 can be made from one large X-ray film