

INTERNATIONAL MEDICAL CORPS



**HUDDOR DISTRICT
BAKOOL REGION
HEALTH AND NUTRITION SURVEY
17/7/00 TO 26/7/00**

IMC SOMALIA PROGRAM

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Executive Summary

Survey Objectives

The Bakool region survey was conducted to establish baseline information for new program goals set in the April 1, 2000 to March 31, 2001 grant period.

Methodology

A two-stage cluster design was used for sampling in the Huddor District survey. Households with mothers of children under 5 years old were surveyed. The sample size for EPI and KAP information was 210, and the sample size for anthropometric assessment was 900.

Results

Demographics

- 94% permanent residents
- 58.4% farmers
- mean household size 6.5
- mean number of children under 5 = 1.9

Disease Prevention Knowledge

61 % of mothers were aware of at least one vaccine preventable disease
20 % named at least one effective method for cholera prevention
92 % knew at least one form of malaria prevention

Maternal Health

- 98.6% delivered last child at home
- 86.3 % mothers delivered their last child with an untrained TBA
- 58.6% mothers have had 5 or more pregnancies

	Antenatal	Postnatal
Received care	5.1 %	5.2 %
Received 2 or more consultations by trained TBA/midwife	3.3 %	3.8 %
Ferrous folic tablets	5.7 %	4.7 %
Vitamin A		3.7 %
Received 2 doses of TT	9.3 % (report) 0.5 % (card)	

EPI Coverage

	Mother's Report	Confirmed with Card	Confirmed with Scar
DPT3	3.2 %	0.3 %	
OPV3	5.1 %	0.3 %	
Measles	14.6 %	7.3 %	
BCG	9.1 %	12.5 %	18.5 %

Child Morbidity/Mortality

- 22.7 % of children had diarrhea in the past two weeks
- 67.2 % of children had a respiratory infection in the past two weeks
- Under 5 mortality calculated to be 71.8/1000/year
- Malaria and diarrhea are the leading causes of mortality

Feeding Practices

- 31 % of children were exclusively breastfed for the first six months after birth
- 31.5 % of children between 7 and 24 months do not have breast milk in their diet

Child Nutrition

In children 6 – 59 months:

	Global	Severe
W/H Z-score and/or oedema	12.6 %	2.5 %
W/H % of median and/or oedema	8.2 %	1.3 %

Discussion

IMC has proposed the implementation of PHC services in an effort to mitigate common and preventable illnesses such as malnutrition, outbreaks of vaccine-preventable diseases, locally endemic diseases, maternal health crises, and hygiene-related illnesses – all causes of morbidity and mortality in this community. Through health education, training, guidance, supervision, medical supplies and community management of common health issues, IMC strives to empower the community to assume responsibility for the health of their residents and to have a positive impact on the health status of this population.

Introduction

After the ousting of Mohamed Siad Barre in January 1991, Somalia plunged into a costly civil war. Hundreds of thousands of Somalis were forced to flee their homes, and civil unrest, compounded with a severe drought and famine, caused the deaths of tens of thousands of Somalis. Regions and districts throughout Somalia remain under the control of various faction leaders, resulting in unofficial mini-states, which lack the resources, services, and infrastructure that come with economic, political, and military stability.

Central Somalia remains in a precarious condition as a result of continued civil unrest and periodic environmental disasters. A collapsed socio-economic infrastructure that cannot adequately address chronic food insecurity and communicable disease epidemics characterize the magnitude of the complex emergency in this region. Water and sanitation in both urban and rural areas are compromised, and yearly outbreaks of cholera in centers of population have become the norm. The health infrastructure in central Somalia consists of unregulated private pharmacies which are often staffed by unqualified personnel. The potential for incorrect diagnoses, treatment and follow-up may lead to negative consequences in terms of drug resistance and morbidity/mortality. The dependence for health care on such a system is unacceptable at best.

Bakool Region, estimated at 26,300 square kilometers, is located in central Somalia. Ethiopia is located on Bakool's northern border and three other Somali regions border it: Bay to the south, Gedo to the west, and Hiraaan to the east. The landscape is characterized as semi-arid savanna acacia bush land. There is no river flowing through the region, resulting in massive migrations of nomadic populations during dry seasons. The residents are primarily engaged in farming and cattle raising. Bakool's population is estimated at 280,000 with approximately 56,000 children under five years of age. The estimate for Huddor district is approximately 80,000, calculated from the NIDs polio campaign conducted in October and November 1999.

Since 1995, access to Bakool Region has been constrained due to chronic insecurity, and therefore, little information is available on baseline health indicators. The population's mostly nomadic lifestyle has resulted in limited contact with international NGO's. Bakool Region is particularly vulnerable to natural disasters such as drought and flooding. These disasters exacerbate the negative health consequences on an already vulnerable population.

IMC Huddor District

A fundamental principle of PHC is ensuring the universal accessibility of essential health care to individuals in the community. During the current grant period, the IMC Huddor program proposed establishing health posts at the village level to provide primary curative, preventive, and promotive health care to the population. A MCH based in Huddor Town will serve both urban residents and patients from the district health-post referral network. EPI services will be provided to urban, rural and nomadic populations residing in this district. Vulnerable groups, specifically children under five years of age and pregnant and lactating women, will receive particular consideration in service provision. The ultimate goal is the development of communities towards committed participation and ownership of the health services initially established by IMC.

The April 1, 2000 to March 31, 2001 grant period set several minimum standard goals for Bakool Region that were measured at baseline in this survey. Targets for El Barde District are higher reflecting IMC's longer and more continuous presence in this district:

End of program targets (%)	El Barde	Rabdure	Huddor
Pregnant women receive at least 2 antenatal consultations by trained TBA/midwife	70	40	40
Deliveries in project area attended by trained TBA/midwife	60	40	40
Lactating women in project area receive at least 2 postnatal consultations from trained TBA/midwife	30	30	30
Children <5 participate in growth monitoring activities	30	30	--
Children between 6 months and 6 years receive at least 2 doses of Vitamin A per year	60	40	40
Children with diarrhea receive ORT	40	40	--
Children <5 fully vaccinated for DPT3, OPV3, Measles, BCG	50	50	50
Pregnant women receive at least 2 doses of TT	40	40	40

Survey Objectives

The Huddor District survey was conducted to assess the existing level of health and nutrition among the villages that will be supported by IMC services.

- Determine the level of malnutrition in Huddor District by screening the weight for height measurement and oedema for children between 6 – 59 months or 65 – 110 cm.
- Evaluate child feeding practices
- Assess disease prevention knowledge, attitudes, practice (KAP) and access to care
- Maternal care including micronutrient supplementation
- Estimate EPI coverage

Methodology

A two-stage cluster design was used for sample selection in Huddor District. The primary sampling unit was the village, and the 30 villages or clusters were selected randomly based on population estimates. Population estimates were available from a NIDs polio campaign survey undertaken in 1999, and maps for the area were obtained from local authorities. The cluster interval was calculated by dividing the total cumulative population under the age of 5 by the number of clusters. A random number between one and the cluster interval was selected by using a random number table. The first cluster in our sample included this random number. The second cluster was obtained by adding the cluster interval to the random number. Subsequent clusters were selected systematically by adding the cluster interval number to the previous number. Villages with larger populations were likely to be

assigned more than one cluster whereas villages with populations less than the cluster interval may have none.

The secondary sampling unit was children under the age of 5 years or between 65cm – 110 cm as children in this age group are considered to be particularly vulnerable to malnutrition. Within the clusters, one member of the team and the village chief went to the geographic center of the village and spun a pencil to determine the direction in which to proceed. All the homes in the indicated direction to the outer perimeter of the village were counted and numbered accordingly. A random number between 1 and the number of households counted determined the first house to be surveyed. Subsequently, nearby households in this direction were visited until 7 surveys were completed. Mothers of children under 5 years were interviewed to gather EPI, health knowledge and healthcare access data. All children less than 5 years old in these households were screened until anthropometric data were obtained for 30 children in each cluster. If any mother or child was absent, an effort was made to return to these homes later in the day. Finally, if the limit of the section was reached before completing the cluster, the team returned to the center of the village and selected another direction.

Questionnaire

The questionnaire utilized was a modified version of the 1999 Belet Weyne Villages survey. The 2000 – 2001 IMC-Somalia Bakool Region operation plan was reviewed and health indicators were included in formulating the questions. Modification of the questionnaire resulted from the collaborative efforts of the Huddor District PHC staff and the Somalia Field Coordinator in Nairobi and later reviewed by representatives of UNICEF Somalia. The questionnaire was finalized after field testing by the survey teams.

Sample Size

The sample size is the number of individuals to be included in the survey to “represent” the population of interest. The sample size required is calculated with the following factors:

t = parameter related to precision (1.96 for an error risk of 5%)
p* = expected prevalence of malnutrition in the population
q = 1 – p, expected proportion of children not presenting malnutrition
d = maximum tolerable error
DE = design effect of cluster sampling
N = sample size

$$N = \frac{(DE)(t^2)p \times q}{d^2} = \frac{2 (1.96)^2(.5)(.5)}{(.05)^2} = 768$$

* Here, we have estimated the prevalence at 50 % which is conservative and elicits the largest sample size.

The final sample size of 900 was obtained because it was the nearest sample size to 768 that can be divided into 30 clusters evenly. 30 clusters of 30 children were measured and weighed to obtain the minimum sample size for anthropometric assessments using two-stage cluster sampling.

The minimum sample size for EPI surveys is widely accepted to be 210, and this number was derived similarly with $d = 0.1$.

Enumerators and data collection

The survey was conducted between 17/7/00 – 26/7/00. A total of 900 children were screened for weight and height, and 210 mothers were interviewed for EPI and health knowledge data. A community-based approach to data collection was employed by integrating village committees and community health workers in all activities. The survey was conducted by 3 teams, each consisting of 3 community health workers, a village elder, an IMC supervisor, and a UNICEF counterpart. IMC Huddor coordinated the three day training and fieldwork activities.

Prior to the data collection, village elders and IMC representatives traveled to the selected villages for community mobilization. The purpose of the survey was described, and collaboration was requested from the community leaders. It became apparent that the survey period coincided with harvest season in this region. Consequently, many communities labor on their farms during the day. After consulting with the village chiefs, it was agreed that these communities would remain in their homes on a scheduled day to ensure participation of all the residents.

Age: Estimated with the help of a local calendar of events (Appendix 3). In the event that age could not be ascertained with this method, only children between the heights of 65 and 110 cm were included in the anthropometric survey.

Weight: Children were weighed using a 25 kg Salter scale with a precision of 100 g.

Height: Children less than 85 cm in height were measured lying down using a height board (with a precision of 0.1cm), and children equal to or greater than 85 cm were measured standing.

Oedema: Only children presenting bilateral oedema on the lower limbs were recorded as having nutritional oedema.

Activities

Enumerators, supervisors and community elders were trained for three days on survey design, anthropometric measurements, questionnaire administration, and interview techniques. The questionnaire and techniques were pre-tested by each survey team in Madax Waarabe village. The survey was conducted in each cluster with the supervision of at least one expatriate and UNICEF counterpart per team. A debriefing attended by all IMC and UNICEF survey supervisors was held after each day of data collection to discuss observations and concerns.

Indicators and guidelines used

The “gold standard” in anthropometric assessments is weight-for-length/height which assesses wasting or the failure to gain weight. Estimates of malnutrition were calculated

using the internationally accepted National Center for Health Statistics as a reference. Expression of Z-scores, also referred to as standard deviation units, is considered the most appropriate index to quantify wasting in a population during emergency situations where acute forms of malnutrition are the predominant pattern. Z-scores have true statistical meaning and allow for inter-study comparisons.

$$\text{Z-score} = \frac{(\text{individual's value}) - (\text{median reference value})}{\text{Standard deviation of reference population}}$$

Guidelines for the results expressed in Z-scores:

Severe acute malnutrition is defined by W/H < -3 SD and/or oedema

Global acute malnutrition is defined by W/H < -2 SD and/or oedema

The percentage of the median is commonly used to identify eligible children for feeding programs.

Guidelines for the results expressed in percentage of the reference median:

Severe acute malnutrition is defined by W/H < 70% and/or oedema

Global acute malnutrition is defined by W/H < 80% and/or oedema

Regardless of weight and height measurements, presence of oedema in children was an automatic indicator of severe malnutrition.

The data processing and analysis were completed in Huddor using EPI-Info 6.0. The calculation and analysis of the anthropometrical indications were carried out using the EPINUT program.

Limitations

Data gathered from a sample of a population provide only an estimate of what the results would be if measurements were made on the entire population. Whenever a sample is drawn, there is a risk that it may not be truly representative and therefore yield data that do not reflect the true situation. When sampling in areas that lack precise population data, selection bias may occur during the survey design. Data obtained only from health services, or from the most accessible villages are unlikely to be representative of the population as a whole, and these approaches contribute to selection bias.

The two-stage cluster sampling technique described here adequately ensures representativeness through randomization in selection and elimination of selection bias. The sampling strategy and the methods of analysis recognize and compensate for the fact that there may be some inaccuracy and allows for a range of values within which the actual rate in the entire population almost certainly lies. In addition, the potential for selection bias was reduced at the field level. The community mobilization ensured that most village members were in their homes on the appointed dates, and every effort was made to return to the homes of absentees.

It is possible for interviewer bias to occur when enumerators gather information differentially. However, only 3 enumerator teams were used which leads to a more consistent method of data collection, thereby minimizing bias. The pre-test for the survey teams in Madax Warabe reinforced uniform data collection methods.

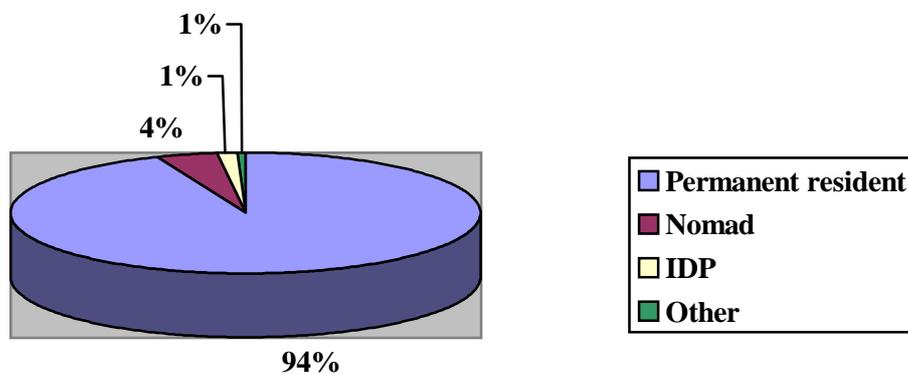
The survey design served to minimize recall bias by addressing only the most recent occurrence of disease or pregnancy. Furthermore, the questionnaire was restricted to closed-ended questions and standardized responses.

Finally, age reporting may pose a challenge in communities without vital registration systems. Reporting for the youngest ages (<2 years old) tend to be more accurate due to shorter span of recall required from the mother. As children grow older, their ages are rounded to the nearest year rather than to the nearest month. Two methods were employed to reduce this reporting error. A local calendar was provided to assist in verifying reported ages of children. Children's ages were also verified by height. Children from 70 – 85 cm were considered to be between 12 and 23 months old. Children 65 – 110 cm were considered to be 6 months to 5 years old. The height verification was only employed as a rough estimate because it is also prone to introduce error as not all children fit into the stated height/age category.

Results

Demographics

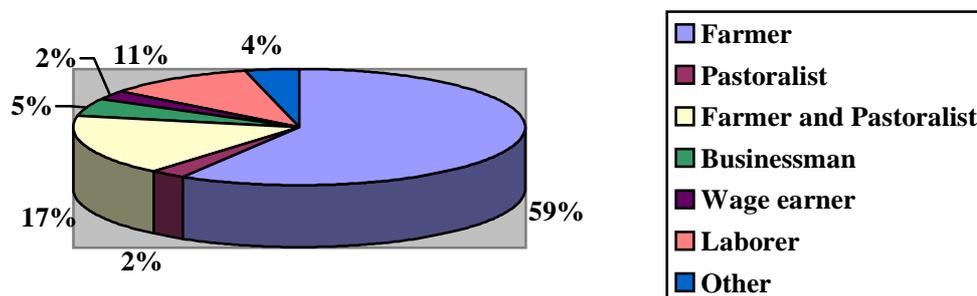
Figure 1. Residence Status



94 % of households surveyed were permanent residents of Huddor district. The mean household size was 6.5 persons, and the median was 6 persons. The mean number of children under 5 years old was 1.9 children, and the median 2 children per household.

The primary occupation among households interviewed was farming (59%) with a significant proportion of respondents engaged in both farming and cattle raising (17%). Others identified themselves as laborers (11%).

Figure 2. Primary Occupation



Disease Prevention Knowledge

Almost 40 % of the respondents could not name one disease preventable by vaccines. A large proportion of mothers (59%) proposed alternative cholera prevention methods that are considered ineffective. Recitation of the Koran and prayer were cited most often, and these methods were not included in the index of disease prevention knowledge. Knowledge of malaria prevention was more accurate, and approximately 86 % of mothers could name 1 or 2 modes of prevention.

EPI Coverage

The vaccination coverage rates were obtained mostly from mother's reports as very few respondents had available children's immunization cards to confirm vaccination reports. Immunization coverage rates are presented in Table 3.

Table 1. Child Vaccinations

Vaccination	Confirmed by Card (%)	Mother's Report (%)	Confirmed by Scar (%)
DPT1	10.4	14.2	
DPT2	0.3	4.8	
DPT3	0.3	3.2	
OPV at BIRTH	0	0	
OPV1	9.2	17.2	
OPV2	0.9	9.6	
OPV3	0.3	5.1	
Measles	7.3	14.6	
BCG	9.1	12.5	18.5

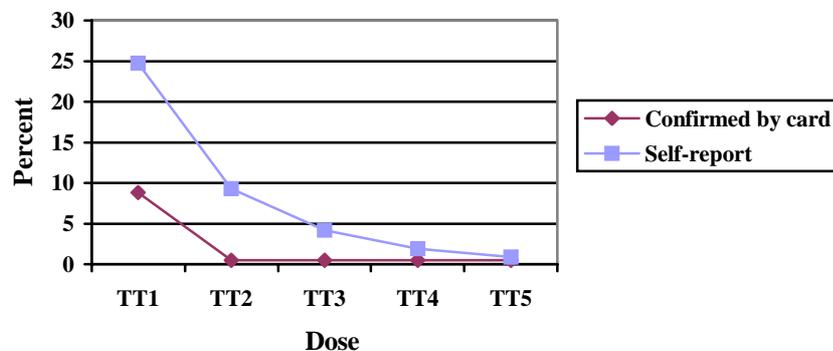
Child Vitamin A Supplementation

16.5% of surveyed mothers reported that their child had received one Vitamin A dose and 8 % had a dated card to confirm this report. 7.6% of the mothers reported a second dose and 1% was confirmed with a dated card.

Maternal Health

Coverage rates for Tetanus Toxoid (TT) vaccinations were low with 1 dose at 24.7% by self report. The proportion of women who received 2 doses of TT was 9.3 %. Rates for subsequent doses declined consistently to 1% for the 5th dose. The percentage of women who had cards to confirm at least 2 tetanus vaccines was even lower (0.5 % overall) than rates from self-reports.

Figure 3. Mother Tetanus Toxoid Coverage



Most mothers surveyed did not receive antenatal care for the most recent pregnancy. Among the 5.1 % who received antenatal care, a midwife or doctor most often provided the services. Also, 78 % (or 7) of these women received repeated consultations. In total, only 3.3 % of mothers received 2 or more consultations from a trained TBA, midwife, or doctor. The timing of antenatal care was measured, and it was observed that very few women (9 %) received antenatal care during the first trimester. Instead, the majority of women received consultations during their final trimester of pregnancy.

Iron supplementation for pregnant mothers was measured by asking whether mothers received ferrous folic packs during their most recent pregnancy. Approximately 5.7 % of those surveyed reported receiving these tablets during pregnancy. The postpartum rate for iron supplementation was lower at 4.7 %. A small proportion of mothers (3.7 %) received Vitamin A after their last delivery.

98.6 % of women surveyed delivered their most recent child in the home, and 86.3% of the deliveries were attended by untrained traditional birth attendants.

3.8 % of mothers received 2 or more postnatal consultations from a trained TBA, midwife, or doctor.

In order to assess the risk for maternal mortality, mothers were surveyed regarding the total number of pregnancies. Among all mothers, 58.6 % have had 5 or more pregnancies. Of 220 mothers surveyed, 97.7 % of the most recent pregnancy was a live birth.

Child Morbidity

Measures of child morbidity were limited to cases of diarrhea and respiratory infections during the two weeks prior to the interview date. The overall prevalence of diarrhea among children surveyed was 22.7 %, and the rates were highest (26.9 %) in the 13 – 24 month age group. The 49 - 59 month group experienced the lowest prevalence (6.4 %) of diarrhea.

Respiratory infection rates were found to be high (67.2 %), with a range from 6.1 % among 0 - 6 month old children to 24.7 % in the 13 - 24 month group.

Child Mortality

The mortality rate for children under 5 years old was measured by asking whether a family experienced a child death during the last 12 months. The number of under 5 child deaths was divided by the sum of surviving and deceased children of the mothers interviewed. The figure of 71.8 is expressed as per 1000 children per year.

In the event of a death, the cause of death was also recorded. Malaria (35.5 %) and diarrhea (16.1 %) contribute to the greatest number of deaths.

Child Feeding Practices

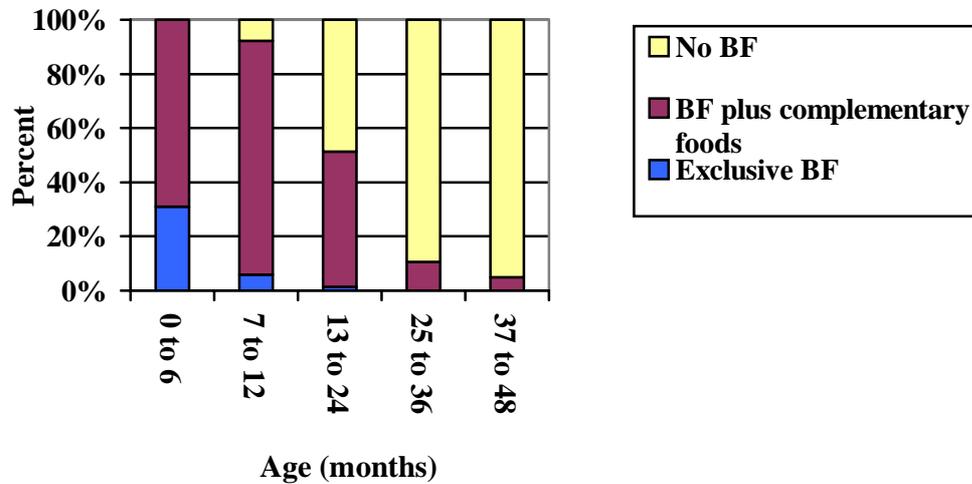
Colostrum was given to 98.3 % of children. However, 85.8% of mothers waited until the second or third day after parity to give colostrum. These mothers were asked the reason for waiting. 39.8% responded that it was due to traditional beliefs whereas most mothers reported that there was “no milk.”

Child feeding practices recommended by WHO/UNICEF are:

- Exclusive breastfeeding from birth to 4-6 months
- Continued breastfeeding through 24 months
- Introduction of complementary foods at 6 months

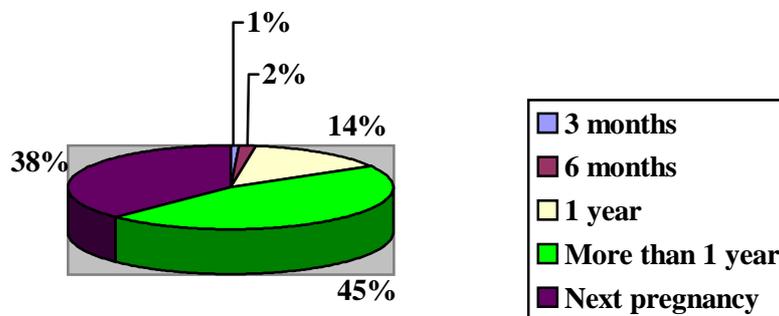
The rate of exclusive breastfeeding (EBF) among children up to 6 months of age was 31.0 %. EBF was continued for 5.8 % of children in the 7 – 12 month age group. 31.5 % of children between 7 and 24 months did not have breast milk included in their diet. Among children over 24 months, 6.0 % still received breast milk. The transition from EBF to introducing complementary foods was acceptable, with a gradual period of weaning.

Figure 4. Child Feeding Practices



Similarly, Figure 5. presents the prevalent time periods for breastfeeding. The majority of mothers surveyed breastfeed for more than 1 year, and the next subset of mothers continue to breastfeed until the next pregnancy.

Figure 5. Duration of breastfeeding



Feeding frequency was highest (42.1 %) at 3 times per day, and only a third of mothers fed their children 5 or more times per day. Among children less than 24 months old, 63.8 % were fed 5 or more times per day.

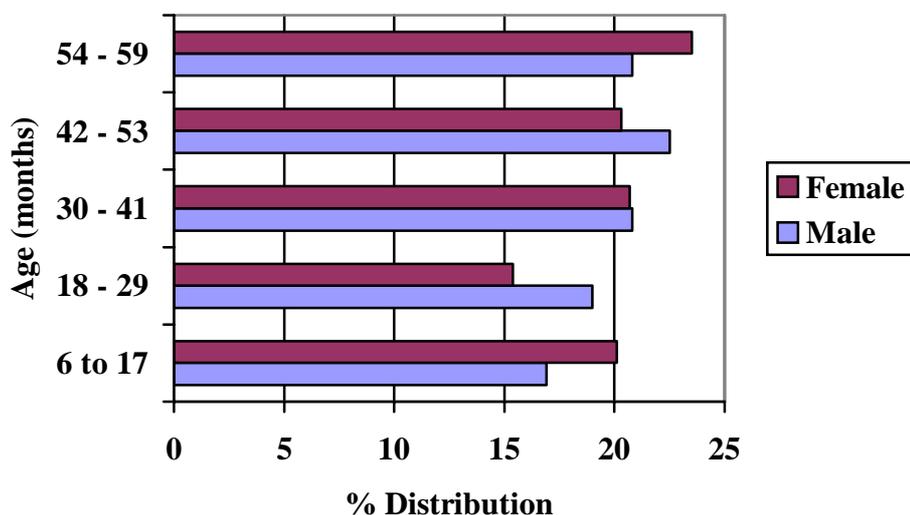
Mothers stopped breastfeeding (46.5 %) and provided less food to 57.1 % of children with diarrhea.

Child Nutrition

Many ages are misreported with age biasing towards the full years (i.e. the child is 1 year if she is in fact 10 months). In an effort to distribute evenly the peaks usually seen at these

values, the age classes reported here are centered around the months representing full years: 12 months (6-17 months), 24 (18-29), 36 (30-41), and 48 (42-53) months. The age and sex distribution for the survey sample reflects that all groups are equally represented, and hence, no selection bias has occurred.

Figure 6. Distribution according to age and sex, children 6-59 months, Huddor District, 2000



Age	Male		Female		Total	
	N	%	N	%	N	%
6 – 17 months	73	16.9	93	19.9	166	18.4
18 – 29 months	82	19.0	72	15.4	154	17.1
30 – 41 months	90	20.8	97	20.7	187	20.8
42 – 53 months	97	22.5	95	20.3	192	21.3
54 – 59 months	90	20.8	111	23.7	201	22.4
Total	432	100.0	468	100.0	900	100.0

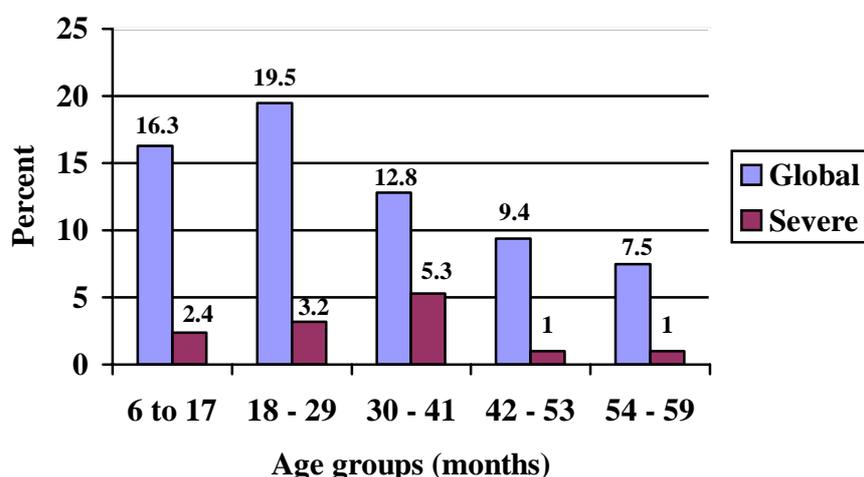
Table 2. Nutritional status by weight/height indicators

	Global	Severe
W/H Z-score	12.6 %	2.5 %
W/H % of median	8.2 %	1.3 %

Table 3. Distribution according to weight/height index in Z-scores or presence of oedema by age groups.

Age	<-3 Z-scores		≥-3 & <-2 Z-scores		>-2 Z-scores		Oedema	
	N	%	N	%	N	%	N	%
6 – 17 months	4	33.3	23	25.2	139	17.7		
18 – 29 months	1	8.3	25	27.5	124	15.7	4	36.4
30 – 41 months	4	33.3	14	15.4	163	20.7	6	54.5
42 – 53 months	1	8.3	16	17.6	174	22.2	1	9.1
54 – 59 months	2	16.8	13	14.3	186	23.7		
Total	12	100.0	91	100.0	786	100.0	11	100.0
6 – 59 months		1.3 %		10.1 %		87.4 %		1.2 %

Figure 7. Prevalence of malnutrition by age groups.



Global acute malnutrition was found in 12.6 %. 1.2 % of children surveyed were reported to have oedema, and these children were classified as severely malnourished. Children in the younger age group (6 – 59 months) made up a greater proportion of those with global malnutrition (17.8 %). Severe malnutrition in the survey population was similarly prevalent in both the 6 – 29 and 30 – 59 month age groups. A slightly greater proportion of males presented with global (14.1 %) and severe (2.8 %) malnutrition. Of the girls, 11.3 % had global malnutrition and 1.3 % had severe malnutrition. Expressed as a percentage of the median, the prevalence of moderate malnutrition is 8.2 % and severe malnutrition at 1.3 %. When compared to the reference curve, the distribution of weight for height index expressed as Z-scores is shifted to the left. This illustrates that the nutritional status of the children in Huddor District is lower than that of the reference population. The younger age group appears to be more vulnerable as there is greater prevalence of global malnutrition.

Table 4. Distribution according to age and sex.

Age (months)	Sex				Total N
	Male		Female		
	N	%	N	%	
6 – 29	155	48.4	165	51.6	320
30 - 59	277	47.8	303	52.2	580
Total	432		468		900

Table 5. Distribution according to W/H Z-scores or presence of oedema by sex.

Sex	Z-score						Oedema	
	≥ -2		≥ -3 & < -2		< -3		N	%
	N	%	N	%	N	%		
Male	371	47.2	49	53.8	7	58.3	5	45.4
Female	415	52.8	42	46.2	5	41.7	6	54.6
Total	786	100.0	91	100.0	12	100.0	11	100.0

Table 6. Distribution according to W/H Z-scores or presence of oedema by age groups.

Age (months)	Z-score						Oedema	
	≥ -2		≥ -3 & < -2		< -3		N	%
	N	%	N	%	N	%		
6 - 29	263	33.5	48	52.7	5	41.7	4	36.4
30 - 59	523	66.5	43	47.3	7	58.3	7	63.6
6 - 59	786	100.0	91	100.0	12	100.0	11	100.0

Table 7. Distribution according to nutritional status and age.

Age	Global acute malnutrition	
	Proportion	95% Confidence Interval
6 – 29 months	17.8 %	14.3 % to 21.3 %
30 - 59 months	9.8 %	7.1 % to 12.5 %

Table 8. Distribution according to nutritional status and age.

Age	Severe acute malnutrition	
	Proportion	95% Confidence Interval
6 – 29 months	2.8 %	2.0 % to 3.6 %
30 - 59 months	2.4 %	1.7 % to 3.1 %

Table 9. Distribution according to W/H % of median by sex.

% of median	Sex					
	Male		Female		Both	
	N	%	N	%	N	%
< 80 %	34	7.9	39	8.4	73	8.2
< 70 %	6	1.4	6	1.3	12	1.3

Discussion

These low coverage rates are commensurate with virtually nonexistent PHC services for Bakool Region in the past five years. The baseline coverage for most indicators in Huddor district is less than 15 %. Rates exceeding 15 % can be attributed to antenatal care provided by UNICEF in 1999, as well as recent EPI activity by IMC and UNICEF.

Most of the survey population is not familiar with appropriate methods of preventing disease. Approximately 40 % of mothers could not name one vaccine preventable disease. Knowledge of malaria prevention was more relevant. A large proportion of mothers rely on prayer and recitation of the Koran to prevent cholera. Many respondents cited treatments such as ORS as preventive measures against cholera. Responses to these questions indicated that health education should also emphasize the difference between effective methods of prevention and curative methods.

The program goal for the proportion of mothers who receive antenatal care is 70% in Huddor District. At present, a very small proportion (5.1%) reported an antenatal consultation from either trained or untrained staff for their most recent pregnancy. UNICEF provided some maternal health services in 1999 prior to their program withdrawal from Huddor. It is possible that the mothers who had access to antenatal care consulted with a doctor or trained midwife from UNICEF. Optimally, antenatal care is initiated during the first trimester of pregnancy, but this small percentage of women was provided consultations in their last trimester.

A similar proportion of mothers (5.7 %) received iron supplementation during their most recent pregnancy. It seems apparent that these mothers may have received their ferrous folic packs during the antenatal consultations.

Women of childbearing age (15-45 years) have been identified as a segment of the population requiring special health care provisions. A lack of hygienic delivery conditions or cutting the umbilical cord with dirty instruments increase the likelihood of tetanus infection in both the mothers and neonates. Vaccinating pregnant women with Tetanus Toxoid (TT) protects both the mothers and unborn children against this infection. At the time of survey, only 9.3 % received 2 doses (self-report), and 0.5 % confirmed receiving 2 doses with a card.

IMC has proposed program targets of having women up to 40 days post partum to receive at least 2 Vitamin A doses in order to increase the Vitamin A stores protecting both her and her child through lactation. 3.7 % of mothers reported receiving the recommended 2 doses after their last delivery. Also, 2 doses per year of Vitamin A will be distributed to children between 6 months and 6 years. 7.6 % of children received 2 doses as reported by mothers, and 1 % was confirmed by card.

In assessing maternal mortality, the number of pregnancies was recorded because of the correlation between parity (especially after the fourth birth) and risk of mortality. More than half of the mothers surveyed had 5 or more pregnancies. Age of pregnancy and birth interval were not evaluated in this survey although these factors have also been identified as risks contributing to maternal mortality.

A major preventive aspect of PHC is providing protection against the six vaccine-preventable diseases: tuberculosis, diphtheria, pertussis, tetanus, polio and measles. Considering the relatively scattered population in Somalia and frequent interruption of services due to unpredictable security, all unvaccinated children under 5 years of age are included for EPI. IMC began its EPI services for Huddor Town in May 2000, and UNICEF provided vaccines in Huddor Town in the past year. Approximately 10% of children surveyed (confirmed with card) have received the first round of vaccines. Subsequent doses could not be confirmed, and EPI teams should highlight to mothers the importance of retaining vaccination cards.

The reported child morbidity rates were 67.2 % for acute respiratory illness and 22.7 % for diarrhea during the two weeks prior to the survey. Unhygienic food preparation due in part to polluted water may explain the high prevalence of diarrhea. Children in the younger age group (6 – 29) had a greater proportion of diarrhea cases (62.5 %). These children are expected to have comparatively higher rates of diarrhea because they have begun to eat complementary foods. The complementary foods commonly introduce gastrointestinal contaminants for the first time. Further, children in this age group begin to crawl and have a tendency to put any number of foreign objects in their mouths. In contrast, the incidence of respiratory illness was distributed approximately equally for both young and old age groups (46.6 % and 53.4 %, respectively). There is little vegetation in this region to hold the soil in place, and the climate during the survey period was dry and windy. Constant exposure to dust may contribute to already deteriorating health resulting from disease and poor nutrition.

The data for Huddor District indicate that 12.6 % of 900 children screened were moderately or severely malnourished with oedema. This estimate is 10.1 % lower than the level of malnutrition found by UNICEF in their nutrition survey for Huddor Town in September 1999. Notably, the proportion of severely malnourished children is 2.5 % in this district, whereas an estimate of 5.7 % was reported for Huddor Town. This difference may be attributed to both humanitarian efforts and natural circumstances in the past year. WFP has resumed food distribution in this region, and the region has sustained an extended period of stability and security. Moreover, there have been no environmental crises – resulting in favorable harvests.

Children between 6 and 29 months appear to be the more vulnerable group with a greater prevalence of global acute malnutrition (17.8 % vs. 9.8 % for the older group). The rates for severe malnutrition are similar for both age groups. A slight difference exists between malnutrition rates for boys and girls.

An analysis of child feeding practices may provide insight to the malnutrition and morbidity rates found in this district. 85.8 % of mothers waited until the second or third day after parity to begin breastfeeding, thereby reducing the full potential for receiving maternal antibodies. Then, only 31 % of infants less than 6 months were exclusively breastfed, and 31 % of children between 7 and 24 months did not even receive breast milk. These breastfeeding practices may correspond to the high rates of global malnutrition and the prevalence of

diarrhea (62.5 %) observed for 6 – 29 month old children. In addition, mothers stopped breastfeeding (46.5 %) and provided less food to 57.1 % of children with diarrhea. Premature introduction of weaning foods or withholding breast milk entirely may deprive these children of the full nutritional and immunological benefits of breast milk.

The rates for severe malnutrition were highest in the 30 – 41 month age group, and the rates may stem from these problematic breastfeeding practices, but it is likely that these children also suffer from illnesses that exacerbate their nutritional status.

Global malnutrition rate of 12.6 % is considered serious, and selective supplementary feeding of the malnourished is of high priority. IMC has planned to integrate a nutrition program in the MCH activities, and it will serve to respond to both seasonal nutritional crises and general prevalence of malnutrition. Education efforts should address the necessity of prompt and exclusive breastfeeding in the first 6 months, timely introduction of complementary foods, and increased feeding to children with diarrhea. Considering that breastfeeding as a means of contraception is certainly fallible, alternate family planning methods should be emphasized so that infants less than 6 months of age can receive breastmilk for the recommended duration. In the coming year, accurate and complete growth monitoring will play a crucial role in assessing changes in nutritional status.

Primary health services have the potential to mitigate common and preventable illnesses such as malnutrition, outbreaks of vaccine-preventable diseases, locally endemic diseases, maternal health crises, and hygiene-related illnesses – all causes of morbidity and mortality in this community. Through training, guidance, supervision, medical supplies and community management of common health issues, IMC strives to have a positive impact on the health status of this population. To this end, IMC will focus on establishing and strengthening community-based structures in an effort to empower the community to assume responsibility for the health of their residents and ensure continued care during periods of migration and insecurity.

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