U. Y. 51-115
91135

Nicaragua Child Survival VIII Project
Managua, District 6/Tipitapa
Knowledge and Practice Baseline Survey

Author: Lisa Filoramo, M.S.P.H. and Rachel Hogue, M.P.H.

Contract Number: FAO-0500-A-00-2029-00
Project Number: 938-0500
Project Title: Nicaragua Child Survival VIII Project
Contractor's Name: World Relief Corporation
AID Project Office: FHA/PVC/CSH, Jaime Henriquez
Publication Date: April 19, 1993

MANAGUA, DISTRICT 6/TIPITAPA
BASELINE SURVEY (FY 93)

KNOWLEDGE AND PRACTICE SURVEY

WORLD RELIEF NICARAGUA

FEBRUARY, 1993

Rachel Hogue, MPH
Child Survival Project Coordinator, WRC/Nicaragua

and

Lisa Filoramo, MSPH
Child Survival Administrative Coordinator, WRC/Headquarters

A.

ACKNOWLEDGEMENTS

Special thanks to Dr. Alberto Araica, Child Survival Program Director, WRC/Nicaragua and Aminta Ferrufino, Education Specialist for the training and supervision of project staff. In addition, we thank Kevin Sanderson, Country Director, Chris Hogue, Administrator/Accountant and Jorge Ruiz, Regional Office Administrator of WRC/Nicaragua for their administrative support. We are also grateful to Development Associates and MINSA for their participation in the training, supervision and analysis of the survey data.

We also extend thanks to the Central American Mission (CAM) for providing the facilities for the training sessions and to the Assemblies of God for providing the facilities for the manual tabulation of the data.

The effort given by the area coordinators and health promoters who performed the interviews over a 5-day period is much appreciated. Their eager participation during this baseline survey will have impact on the health of children in this region for years to come.

TABLE OF CONTENTS

EXECUTIVE SUMMARY iv

I. INTRODUCTION 1

A. Background Information 1
B. Objectives of the Baseline Survey 1
C. Schedule of Activities 2

II. METHODOLOGY 3

A. The Questionnaire 3
B. Determination of Sample Size 3
C. Selection of the Sample 4
D. Training of Supervisors and Interviewers 5
E. The Interviews 5
F. Method of Data Analysis 6

III. SURVEY RESULTS 7

IV. DISCUSSION AND RECOMMENDATIONS 23

V. FEEDBACK SESSIONS 27

VI. SURVEY COSTS 28

VII. BIBLIOGRAPHY 28

APPENDIX A Questionnaire (English)

APPENDIX B Questionnaire (Spanish)

APPENDIX C Sampling Frame

C

EXECUTIVE SUMMARY

The baseline Knowledge and Practice Survey (K&P) was carried out in the Tipitapa and Managua areas of Nicaragua from February 11-23, 1993 to assess baseline levels of the knowledge and practice of mothers of children 0-23 months. This information will be used to set objectives and determine target populations for the WRC/Nicaragua Child Survival Project.

The survey followed the WHO "30 cluster" model. The initial questionnaire developed by the PVO Child Survival Support Program (PVO CSSP) at Johns Hopkins University was adapted to the field through consultation with the Adventist Development and Relief Agency (ADRA) Nicaragua, Project Hope and WRC Honduras CS projects. The survey was finalized through discussion with WRC Nicaragua field staff and a pilot test in Managua, Nicaragua.

Major findings include:

- Breastfeeding: Only 51.5% of mothers in Tipitapa and 49.8% in Managua were breastfeeding their children at the time of the survey. Bottlemilk is being given to 86.9% of the children in Tipitapa and 87.8 of the children in Managua and exclusive breastfeeding of children 0-3 months is 2.1% in Tipitapa and 2.0% in Managua.

- Diarrheal Disease Management: Of those children who had diarrhea in the last two weeks, only 52% in Tipitapa and 42.9% in Managua were treated with ORS, cereal based solutions, or the home-made sugar-salt solution and the use of antidiarrheal medications or antibiotics was high at 83.3% in Tipitapa and 76.5% in Managua. In addition, use of home fluids was 4.2 in Tipitapa and 5.9% in Managua and only 10.5% in Tipitapa and 14.3% in Managua knew to give fluids quickly or in abundance, while only 12% in Tipitapa and 18.4 in Managua knew at least one sign of dehydration.

- Vaccination Coverage: The percent of children 12-23 months who were fully immunized was only 13.6% in Tipitapa and 51.8% in Managua of those who had cards and the drop-out rate for Tipitapa was 38.6% and 19.8% in Managua.

D

- Birth Spacing: The modern contraceptive prevalence rate was 45.5% in Tipitapa and 54% in Managua, while 80.6% of the mothers interviewed in Tipitapa and 84.4% in Managua were not pregnant and did not want another child in the next two years.

- Vitamin A: Only 4.6% of the mothers in Tipitapa and 5.9% in Managua knew that Vitamin A prevents night blindness and 78.1% of mothers in Tipitapa and 79.3% in Managua did not know which foods contain Vitamin A.

- Malaria Control: Thirty-five percent of mothers in Tipitapa and 32% in Managua were not using any method of malaria prevention. Knowledge of fever as a sign of malaria was high at 81% in Tipitapa and 77% in Managua.

I. INTRODUCTION

A. Background Information

The project area in Managua is part of District VI which is in the SILAIS Oriental (Local Integrated Health Attention System). The two sections of the project area Silvia Ferrufino and Villa Venezuela. The population the project will be working with in Silvia Ferrufino is 46,750 and the population in Villa Venezuela is 47,876 totaling 94,626. 90% of this population is urban and is highly industrial.

The health structure in Villa Venezuela is composed of 2 health centers with no beds and 10 medical posts. Silvia Ferrufino also o has 2 health centers with no beds and 13 medical posts. The infant mortality rate for Silvia Ferrufino is 18.85 and 13.6% in Villa Venezuela[1]. 10.8% of deaths are caused by diarrhea and 3.2% by ALRI/pneumonia.

The project area in Tipitapa is also in SILAIS Oriental. Tipitapa has a population of 76,410[2] and is located on the northern outskirts of Managua and borders also with Lake Xolotlan. Sixty-seven percent of the population is urban and 33% is rural. Tipitapa has a territorial expansion of 1,000 km^2. The economy of the area is based on cattle raising, industry and agro-industry. The major industries are the production of cotton and sugar. However, the unemployment rate is 60%. The area is therefore marked by significant poverty.

Tipitapa contains 1 health center with beds, 6 medical posts in the urban areas, and 4 medical posts and 2 health posts in the rural areas. The infant mortality rate for Tipitapa is 30.0%[3]. Deaths caused by diarrhea, neonatal causes and ALRI account for 46.9% of the total causes.

B. Objectives of the Baseline Survey

The purpose of this survey was to provide a baseline assessment of the knowledge and practice of mothers in the intervention area for immunization, nutrition, growth monitoring, diarrheal disease control, vitamin A, ALRI/pneumonia, maternal health, malaria control and income generation. In addition this information will be used to set objectives and determine populations to be targeted by the WRC Nicaragua Child Survival VIII Project.

C. Schedule of Activities

January	WRC staff laid the groundwork for the survey. This included: developing the first draft of the survey, listing all the communities and their respective populations for the area surveyed, hiring promoters for the project area who would also serve as supervisors and interviewers, communication and coordination with the survey trainer, setting up budgets for training expenses, purchasing supplies for the interviewers, and obtaining the training site and planning food and accommodations for all those involved.
Feb. 1	15 trial interviews done to test translation of questionnaire in Managua community.
Feb. 8-10 trainers	Final review of the survey with the survey and establishment of the training schedule.
Feb. 11	Training of Supervisors
Feb. 12	Training of Interviewers and Supervisors
Feb. 13	Pilot test of the questionnaire
Feb. 14	Final revisions and reproduction of the questionnaire
Feb. 15-17	Data collection in Tipitapa/Data entry into computer
Feb. 18-19	Data collection in Managua/Data entry into computer
Feb. 22-23	Manual tabulation of Tipitapa data
Feb. 24	Feedback of Tipitapa data to WRN staff
Feb. 25-26	Computer analysis of findings
April	Feedback to the Ministry of Health, AID, and community
April - May	Feedback to WRN health promoters and community

II. METHODOLOGY

A. The Questionnaire

The preliminary questionnaire was first developed at PVO CSSP/Johns Hopkins based on the objectives of the project. Discussions were held with WRC headquarters and Johns Hopkins' staff to develop the first draft of the questionnaire to be used at the field level. The questionnaire was translated to Spanish and revised with input from ADRA, Project Hope Nicaragua, WR Honduras and discussions with project staff, then was field tested. Final changes were made and a pilot test was conducted on the last day of training.

The questionnaire was designed to be administered to mothers of children under 24 months of age and was composed of 49 questions. Questions 1-3 dealt with demographic data. Questions 4-5 covered income generation activities. Questions 6-10 covered infant feeding (knowledge and practice) and 12 and 13 covered Vitamin A knowledge. Questions 13-22 dealt with diarrheal disease control (knowledge and practice). Questions 23-27 covered respiratory infections (knowledge and practice). Questions 28 and 29 dealt with the control of malaria. Questions 30 and 31 collected information on growth monitoring. Questions 32-37 covered immunization coverage and knowledge, and questions 38-49 dealt with maternal care activities: prenatal care, family planning, delivery assistance and nutrition during pregnancy.

A sample of the questionnaire is shown in Appendix A.

B. Determination of Sample Size

Sample size was calculated using the following formula:

$$n=z^2(pq)/d^2$$

where **n** = sample size; **z** = statistical certainty chosen; **p** = estimated prevalence/coverage rate; **q** = 1 - p; and **d** = degree of precision.

The **p** value was defined by the coverage rate that requires the largest sample size (p = 0.5). The margin of error or **d** value was set at 0.1. The statistical certainty chosen was 95% (**z** = 1.96). The resulting sample size needed (n) was determined to be:

$$n = (1.96 \times 1.96)(.5 \times .5)/(.1 \times .1)$$
$$n = (3.84)(.25)/.01$$
$$n = 96$$

In order to compensate for bias which enters the survey from interviewing persons in clusters (rather than randomly selecting 96

persons), the sample size of 96 should be doubled. However, experience has shown that a minimum sample of 210 (7 per cluster) should be used with the given values of **p, d and z**[4]. To further eliminate bias and to take into account possible non-respondents, the sample size of 240 was chosen (8 per cluster).

Ninety-five percent Confidence Limits for some of the survey results were calculated using the following formula:

$$p \pm z[\text{square root of } (pq/n)]$$

where **p** = proportion of survey population; **z** = statistical certainty (for 95%, **z** = 1.96); **q** = 1 - p; and **n** = sample size.

EXAMPLE: If the proportion of children in the survey who were immunized with measles vaccine is 61% and **n** = 240:

$$95\% \text{ confidence limit} = .61 \pm \text{square root of } [(.61 \times .39)/240]$$

$$= .61 \pm .06 = .55 - .67$$

In other words, we are 95% sure that the actual proportion of children in the survey region who have measles vaccine is between 55% and 67%.

C. Selection of the Sample

The 30 cluster methodology was used, based on "probability proportionate to size", taking a community as a cluster site. The list of communities, with their respective population sizes was used to draw the sample. The sampling interval was calculated by dividing the total population by 30, then using a random number as a starting point 30 clusters were chosen by adding the sampling interval to select subsequent clusters. The sampling frame is shown in Appendix C.

The starting point for each cluster was determined in the following manner for small communities in rural areas: the center of the community was located and a random direction was selected. The first household encountered in the randomly chosen direction was the starting point. The second and subsequent households were the ones which were nearest to the previous household.

The starting point in urban communities was determined by first subdividing each community into section of approximately 400 households. Each section was numbered and the numbers written on a piece of paper, then the number of clusters to be selected were picked randomly out of a hat. The team of interviewers went to the center of the section and a random direction was selected. The first household encountered in the randomly chosen direction was

the starting point. The second and subsequent households were the ones which were nearest to the previous household.

In each cluster, 8 mothers were interviewed. In cases where the mother was not available at the time of the interview, the interview team moved on to the next household. In the case where there were two children under 24 months, the mother was questioned on the younger child. If two mothers of children under 24 months lived in the same household, the names of both were written on papers and one picked randomly.

D. Training of Supervisors and Interviewers

The WRC Nicaragua staff had selected 5 supervisors and 11 interviewers prior to the training. Three days of training were given to the supervisors and interviewers by Dr. Alberto Araica, the WRC Nicaragua CS Director and Aminta Ferrufino, WRC Nicaragua Education Specialist. The trainers also acted as coordinators during data collection.

During the first day of training, supervisors were trained on the following: a) purpose of the survey, b) selection of sample size, c) starting point methodology, d) data collection methodology, e) role plays, f) review of the questionnaire, g) role of the supervisor and h) interviewing techniques.

The second day of training both supervisors and interviewers were included. The subjects covered were: a) purpose of the investigation, b) starting point methodology, c) role plays, d) detailed review of the questionnaire, e) roles of supervisor and interviewer, and f) interviewing techniques.

On the morning of the third day of training, a pilot test of the survey questionnaire was conducted in a community of Managua which was an area near but not in the project area with similar demographic characteristics. Each interviewer conducted three interviews for the pilot test. Following the pilot test, a debriefing session was held to deal with any questions that had arisen, to make any final changes to the questionnaire and to re-emphasize important points in preparation for data gathering the following day.

E. The Interviews

Two baseline surveys were conducted, one in Managua, District 6 and one in Tipitapa. The data collection was conducted over 5 days and 240 mothers in each project area (480 total) with children under two were interviewed. The average interview was completed in 20 to 30 minutes. It was discovered that a large percentage of the mothers worked at nearby factories and were therefore not present

to be interviewed. This may have caused a bias in the actual percentages of women working.

Consideration was given to the fact that many people were usually present in the home when the interview was given. In order to avoid others from interfering and influencing the mother's answers, mothers were asked if they could be questioned in private.

In order to ensure that the interviewers were conducting the interviews correctly, the supervisors were present at one interview each day.

F. Method of Data Analysis

Data analysis was performed in two different ways: through hand tabulation and with use of the computer. The hand tabulation allowed all of the field staff involved in the survey to understand completely all of the steps in the survey process. The computer was used to perform a more refined data analysis with cross tabulations.

The hand tabulation was performed by nine pairs of the supervisors and interviewers who conducted the survey. The questionnaires were divided into 8 folders of 26 and 1 folder of 32 which were passed to each group, who tabulated four questions at a time. The WRC headquarters Administrative Coordinator and the WRC Nicaragua CS management team supervised this process.

The computerized data entry was carried out on one computer by bilingual data entry personnel who were trained by the CS Program Advisor. EPI INFO 5.1b was used for the analysis, and frequencies and cross tabulations were performed.

III. SURVEY RESULTS

The following results are from both surveys done in Tipitapa and Managua. Included are the answers given for each of the 49 questions. Three questionnaires were removed from each of the surveyed areas due to answers that were left blank. Therefore, the number of surveys analyzed in each area was n=237.

Demographic Data

1. Ages of the mothers were as follows (two mothers in Tipitapa and one in Managua did not give their age and were not included in the following table):

	Tipitapa			Managua		
Agemother	freq	Percent	Cum. %	freq	Percent	Cum. %
15	0	0.0	0.0	4	1.7	1.7
16	2	0.9	0.9	7	3.0	4.7
17	10	4.3	5.1	8	3.4	8.1
18	13	5.5	10.6	18	7.6	15.7
19	16	6.8	17.4	11	4.7	20.3
20	18	7.7	25.1	13	5.5	25.8
21	14	6.0	31.1	16	6.8	32.6
22	19	8.1	39.1	19	8.1	40.7
23	13	5.5	44.7	19	8.1	48.7
24	18	7.7	52.3	8	3.4	52.1
25	11	4.7	57.0	16	6.8	58.9
26	6	2.6	59.6	11	4.7	63.6
27	14	6.0	65.5	15	6.4	69.9
28	9	3.8	69.4	18	7.6	77.5
29	10	4.3	73.6	6	2.5	80.1
30	5	2.1	75.7	11	4.7	84.7
31	7	3.0	78.7	1	0.4	85.2
32	6	2.6	81.3	11	4.7	89.8
33	4	1.7	83.0	6	2.5	92.4
34	5	2.1	85.1	1	0.4	92.8
35	4	1.7	86.8	3	1.3	94.1
36	6	2.6	89.4	3	1.3	95.3
37	6	2.6	91.9	2	0.8	96.2
38	8	3.4	95.3	4	1.7	97.9
39	1	0.4	95.7	0	0.0	97.9
40	6	2.6	98.3	3	1.3	99.2
42	1	0.4	98.7	1	0.4	99.6
43	2	0.9	99.6	0	0.0	99.6
45	1	0.4	100.0	1	0.4	100.0
Total	235		100.0	236		100.0

Sum=	6089.00	Sum=	5844.00
Mean=	25.91	Mean=	24.76
Standard deviation=	6.73	Standard deviation=	5.91

The mean age of mothers in the survey was 26 for Tipitapa and 25 for Managua. Mothers considered high risk for birth are those <18 and >35 or 18.3% for Tipitapa and 14.0% for Managua.

2. Ages of the children surveyed were as follows:

	Tipitapa			Managua		
Agechild	freq	percent	Cum. %	freq	percent	Cum. %
0	11	4.6	4.6	8	3.4	3.4
1	12	5.1	9.7	13	5.5	8.9
2	16	6.8	16.5	17	7.2	16.0
3	9	3.8	20.3	12	5.1	21.1
4	14	5.9	37.6	15	6.3	27.4
5	13	5.5	31.6	9	3.8	31.2
6	14	5.9	37.6	10	4.2	35.4
7	10	4.2	41.8	12	5.1	40.1
8	8	3.4	45.1	12	5.1	45.6
9	8	3.4	48.5	5	2.1	47.7
10	5	2.1	50.6	4	1.7	49.4
11	14	5.9	56.5	8	3.4	52.7
12	9	3.8	60.3	11	4.6	57.4
13	18	7.6	67.9	11	4.6	62.0
14	11	4.6	72.6	13	5.5	67.5
15	12	5.1	77.6	12	5.1	72.6
16	5	2.1	79.7	10	4.2	76.8
17	5	2.1	81.9	11	4.6	81.4
18	10	4.2	86.1	8	3.4	84.8
19	5	2.1	88.2	10	4.2	89.0
20	9	3.8	92.0	6	2.5	91.6
21	2	0.8	92.8	8	3.4	94.9
22	9	3.8	96.6	9	3.8	98.7
23	8	3.4	100.0	3	1.3	100.0
Total	237		100.0	237		100.0

The mean age of children in the survey was 10.2 months in Tipitapa and 10.4 years in Managua. There were 134 (56.5%) children 0–11 months in Tipitapa and 125 (52.7%) in Managua.

3. Literacy: A total of 111 (46.8%) of the mothers in Tipitapa and 85 (35.9%) in Managua replied that they had a primary education and could read. Sixty–two (26.2%) in Tipitapa and 115 (48.5%) had a secondary education or higher. Thus, the literacy rate of the sample was 73.0% in Tipitapa and 84.4% in Managua while the percent of mothers who were illiterate in Tipitapa was 27.0% and 15.6% in Managua.

Income Generation

4. Do you do any "income generating" work? n=237
(multiple answers possible)

	Tipitapa		Managua	
	n	%	n	%
a. nothing	171	72.2	191	80.6
b. seamstress	4	1.7	3	1.3
c. selling agriculture products	0	0.0	1	0.4
d. selling foods (bread, nacatamales, vaho, etc.)	22	9.3	9	3.8
e. making handcrafts	0	0.0	1	0.4
f. maid	12	5.0	10	4.2
g. selling clothes (new or used)	5	2.0	2	0.8
h. salaried worker	14	5.9	10	4.2
i. other	10	4.2	11	4.2

5. When you work or are away from the house, who takes care of your child? n=237
(multiple answers possible)

	Tipitapa		Managua	
	n	%	n	%
a. child goes with mother	40	16.9	52	21.9
b. husband/companion	11	4.6	15	6.3
c. older siblings	52	21.9	32	13.5
d. relatives	109	46.0	132	55.7
e. neighbors/friends	18	7.6	10	4.2
f. maid	11	4.6	6	2.5
g. day care center	0	0.0	4	1.7
h. other	1	0.4	2	0.8

Breastfeeding/Infant Feeding

Feeding practices for each age group, by type of food given were as follows:

Age group: 1=0-3 months; 2=4-6 months; 3=7-9 months; 4=10-12 months; 5=13-15 months; 6=16-18 months; 7=19-21 months; 8=22-23 months.

Tipitapa Survey								
Food Group	1	2	3	4	5	6	7	8
	%	%	%	%	%	%	%	%
Breastfeed	77	73	69	46	27	25	44	6
Water, Teas, Coffee, Soup	83	98	100	100	100	100	100	100
Bottlefeeding	88	88	92	86	90	95	69	77
Atoles/Pures	33	78	73	43	76	65	44	53
Fruits, Juices	56	88	92	93	85	90	88	100
Vitamin A	21	54	69	71	78	85	88	94
GLV's	2	0	8	11	0	0	6	0
Meat or fish	0	27	69	86	85	80	81	100
Beans, nuts	17	68	73	93	95	90	94	94
Eggs, Cheese, Cream	10	59	81	89	100	100	100	100
Add sugar or honey	79	98	96	96	98	100	94	100
Add oil	21	56	81	96	100	100	100	100

Breastfeeding/Infant Feeding

Feeding practices for each age group, by type of food given were as follows:

Age group: 1=0-3 months; 2=4-6 months; 3=7-9 months; 4=10-12 months; 5=13-15 months; 6=16-18 months; 7=19-21 months; 8=22-23 months.

Managua, District 6								
Food Group	1	2	3	4	5	6	7	8
	%	%	%	%	%	%	%	%
Breastfeed	80	59	52	61	25	35	38	8
Water, Tea, Coffee, Soup	88	97	100	100	100	100	100	100
Bottlefeeding	86	88	90	87	94	86	79	92
Atoles/Pures	26	85	90	78	72	76	67	75
Fruits, Juices	64	91	97	91	97	100	100	100
Vitamin A	30	85	86	91	89	93	96	100
GLV's	0	3	3	4	6	3	4	0
Meat or Fish	6	47	55	83	83	86	96	92
Beans, nuts	12	62	93	96	86	97	96	92
Eggs, Cheese, Cream	4	74	83	100	94	93	100	100
Add sugar or honey	72	85	93	96	94	100	96	92
Add oil	20	74	83	96	94	100	92	100

Breastfeeding/Nutrition

6. Are you breastfeeding (name of child)? n=237

	Tipitapa		Managua	
	n	%	n	%
1. yes	122	51.5	118	49.8
2. no	115	48.5	119	50.2

7. Have you ever breastfed (name of child)? n=115 (Tipitapa) n=119 (Managua)

	Tipitapa		Managua	
	n	%	n	%
1. yes	93	80.9	99	83.2
2. no	22	19.1	20	16.8

8. After the delivery, when did you breastfeed (name of child) for the first time?
n=215 (Tipitapa) n=217 (Managua)

	Tipitapa		Managua	
	n	%	n	%
1. during the first hour after delivery	109	50.7	121	55.8
2. from 1 to 8 hours after delivery	28	13.0	24	11.1
3. more than 8 hours after delivery	76	35.3	67	30.9
4. does not remember	2	0.9	5	2.3

Thus, 63.7% of the mothers in Tipitapa and 66.9% in Managua started breastfeeding in the first 8 hours after the delivery, while 35.3% in Tipitapa and 30.9% in Managua first breastfed their children more than 8 hours after delivery.

The sample size for question 9 is equal to 237. Only the yes responses are shown below. The proportions given are in relation to an n of 237.

9. a. Are you giving (name of child) water, teas, coffee or soups?

	Tipitapa		Managua	
	n	%	n	%
yes	228	96.2	230	97.0

b. Are you giving (name of child) milk in a bottle or glass?

	n	%	n	%
yes	206	86.9	208	87.8

c. Are you giving (name of child) atoles or pures?

	n	%	n	%
yes	139	58.6	159	67.1

d. Are you giving (name of child) fruits or juices?

	n	%	n	%
yes	197	83.1	212	89.5

e. Are you giving (name of child) carrots, squash, mangoes or papaya?

	n	%	n	%
yes	149	62.9	184	77.6

f. Are you giving (name of child) dark green leaves like the beet, quelite, yuca or radish leaf?

	n	%	n	%
yes	7	3.0	7	3.0

g. Are you giving (name of child) meat or fish?

	n	%	n	%
yes	134	56.5	143	60.3

h. Are you giving (name of child) beans or nuts like peanuts?

	n	%	n	%
yes	169	71.3	169	71.3

i. Are you giving (name of child) eggs, cheese, or cream?

	n	%	n	%
yes	169	71.3	171	72.2

j. Are you adding sugar or honey to (name of child)'s food?

	n	%	n	%
yes	222	93.7	211	89.0

k. Are you adding oil or lard to (name of child)'s food?

	n	%	n	%
yes	175	73.8	178	75.1

The frequency of exclusive breastfeeding of children 0–3 months was:

Tipitapa				Managua			
exclusivbf	freq	Percent	Cum. %	exclusivbf	freq	Percent	Cum.
yes	1	2.1	2.1	yes	1	2.0	2.0
no	47	97.9	100.0	no	49	98.0	100.0
Total	48		100.0	Total	50	100.0%	100.0

10. When should a mother start adding foods to breastfeeding? n=237

	Tipitapa		Managua	
	n	%	n	%
1. start adding earlier than 4 months	148	62.4	160	67.5
2. start adding between 4 and 6 months	56	23.6	51	21.5
3. start adding at 6 months or later	28	11.8	21	8.9
4. doesn't know	5	2.1	5	2.1

11. Which vitamin contains Vitamin A to prevent "night blindness"? n=237

	Tipitapa		Managua	
	n	%	n	%
1. Vitamin A	11	4.6	14	5.9
2. Doesn't know or other	226	95.4	223	94.1

12. Which foods contain Vitamin A to prevent "night blindness"? n=237 (multiple answers possible)

	Tipitapa		Managua	
	n	%	n	%
1. doesn't know	185	78.1	188	79.3
2. green leafy vegetables	2	0.8	2	0.8
3. yellow fruits or vegetables	30	12.7	40	16.9
4. liver, small fish, meat	23	9.7	11	4.6
5. breastmilk	1	0.4	1	0.4
6. egg yolks	4	1.7	2	0.8

Diarrheal Diseases

13. Has (name of child) had diarrea during the last two weeks? n=237

	Tipitapa		Managua	
	n	%	n	%
1. yes	50	21.1	35	14.8

For Tipitapa 95% C.L. = .16 – .26 and for Managua 95% C.L. = .10 – .20

14. During (name of child's) diarrhea, did you breastfeed...
n=50 (Tipitapa) n=35 (Managua)

	Tipitapa		Managua	
	n	%	n	%
1. more than usual	6	12.0	7	20.0
2. same as usual	15	30.0	13	37.1
3. less than usual	5	10.0	1	2.9
4. stopped completely	4	8.0	1	2.9
5. child not breastfed	2	4.0	1	2.9
6. no longer breastfed	18	36.0	12	34.3

15. During (name of child's) diarrhea, did you provide (name of child) with fluids other than breastmilk? n=50 (Tipitapa) n=35 (Managua)

	Tipitapa		Managua	
	n	%	n	%
1. more than usual	14	28.0	14	40.0
2. same as usual	17	34.0	13	37.1
3. less than usual	15	30.0	5	14.3
4. stopped completely	3	6.0	1	2.9
5. exclusively breastfeeding	1	2.0	2	5.7

16. During (name of child's) diarrhea, did you provide (name of child) with solid/semisolid foods? n=50 (Tipitapa) n=35 (Managua)

	Tipitapa		Managua	
	n	%	n	%
1. more than usual	5	10.0	2	5.7
2. same as usual	14	28.0	17	48.6
3. less than usual	18	36.0	9	25.7
4. stopped completely	3	6.0	1	2.9
5. exclusively breastfeeding	4	8.0	2	5.7
6. bottlefed or liquids only	6	12.0	4	11.4

17. When (name of child) had diarrhea, what treatments did you use? (multiple responses possible) n=50 (Tipitapa) n=35 (Managua)

	Tipitapa		Managua	
	n	%	n	%
1. nothing	2	4.0	1	2.9
2. ORS	23	46.0	13	37.1
3. sugar–salt solution	3	6.0	1	2.9
4. cereal–based solutions (atoles)	0	0.0	1	2.9
5. liquids	2	4.0	2	5.7
6. anti–diarrheal medicines	40	80.0	26	74.3
7. other	2	4.0	2	5.7

18. When (name of child) had diarrhea, did you seek advice or treatment for the diarrhea? n=50 (Tipitapa) n=35 (Managua)

	Tipitapa		Managua	
	n	%	n	%
1. yes	23	46.0	23	65.7
2. no	27	54.0	12	34.3

19. From whom did you seek advice or treatment for the diarrhea of (name of child)? (multiple answers possible) n=23

	Tipitapa		Managua	
	n	%	n	%
a. general hospital	0	0.0	3	13.0
b. health center/health post	10	43.5	10	43.5
c. private clinic/doctor	1	4.3	2	8.7
d. pharmacy	2	8.7	0	0.0
e. health volunteer	0	0.0	0	0.0
f. traditional healer	0	0.0	1	4.3
g. traditional birth attendant	1	4.3	0	0.0
h. relatives or friends	12	52.2	8	34.8
i. other	0	0.0	0	0.0

20. What signs or symptoms would cause you to seek advice or treatment for (name of child's) diarrhea? (multiple answers possible) n=237

	Tipitapa		Managua	
	n	%	n	%
a. doesn't know	37	15.6	36	15.2
b. vomiting	75	31.6	75	31.6
c. fever	65	27.4	48	20.3
d. dry mouth, sunken eyes, decreased urination (dehydration)	24	10.1	37	15.6
e. sunken fontanelle	3	1.3	5	2.1
f. diarrea of prolonged duration (at least 14 days)	117	49.4	122	51.5
g. blood in stool	5	2.1	2	0.8
h. loss of appetite	35	14.8	25	10.5
i. weakness	17	7.1	18	7.6
j. other	44	18.6	43	18.1

21. What are the most important actions you should take if (name of child) has diarrhea? (multiple answers possible) n=237

	Tipitapa		Managua	
	n	%	n	%
a. doesn't know	7	3.0	4	1.7
b. initiate fluids quickly	22	9.3	30	12.7
c. give the child more to drink than usual	3	1.3	4	1.7
d. prepare and administer ORT	162	68.4	175	73.8
e. give the child smaller, more frequent feeds	3	1.3	7	3.0
f. take the child to the general hospital/health center	113	47.7	133	56.1
g. give the child more food than usual when recuperating from diarrhea for catch up growth	1	0.4	0	0.0
h. withhold liquids	1	0.4	2	0.8
i. withhold foods	5	2.1	2	0.8
j. other	93	39.2	47	19.8

22. What are important actions a mother should take when a child is recovering from diarrhea? (multiple answers possible) n=237

	Tipitapa		Managua	
	n	%	n	%
a. doesn't know	35	14.8	47	19.8
b. give the child smaller, more frequent feeds	53	22.4	39	16.5
c. give the child more foods than usual	29	12.2	28	11.8
d. give the child foods with high caloric content	8	3.4	4	1.7
e. give the child less quantity of food	31	13.1	40	16.9
f. other	128	54.0	111	46.8

Respiratory Illness

23. Has (name of child) been ill with cough or difficult breathing in the last two weeks? n=237

	Tipitapa		Managua	
	n	%	n	%
1. yes	103	43.5	97	40.9

24. Has (name of child) experienced rapid and difficult breathing when ill? n=103 (Tipitapa) n=97 (Managua)

	Tipitapa		Managua	
	n	%	n	%
1. yes	73	70.9	70	72.2

The children who had the signs/symptoms listed in questions 23 and 24 will be considered to have acute lower respiratory infections. Thus, out of the total sample (237), 73 or 30.8% of the children in Tipitapa and 70 or 29.5% in Managua in the survey had lower respiratory infections in the last two weeks. The 95% C.L. for this proportion in Tipitapa is .25 – .37 and in Managua is .24 – .36.

25. Did you seek advice or treatment for (name of child) when ill with respiratory problems? n=73 (Tipitapa) n=70 (Managua)

	Tipitapa		Managua	
	n	%	n	%
1. yes	51	69.9	45	64.3

26. From whom did you seek advice or treatment for (name of child) when ill with these respiratory problems? n=51 (Tipitapa) n=45 (Managua) (multiple answers possible)

	Tipitapa		Managua	
	n	%	n	%
a. general hospital	5	9.8	3	6.7
b. health center/health post	17	33.3	23	51.1
c. private clinic/doctor	5	9.8	9	20.0
d. pharmacy	4	7.8	0	0.0
e. health volunteer	0	0.0	0	0.0
f. traditional healer	0	0.0	0	0.0
g. traditional birth attendant	0	0.0	0	0.0
h. relatives or friends	28	54.9	11	24.4
i. other	1	2.0	0	0.0

27. What are the signs and symptoms of respiratory infection that would cause you to take (name of child) to a health facility? (multiple answers possible) n=237

	Tipitapa		Managua	
	n	%	n	%
a. doesn't know	41	17.3	44	18.6
b. rapid or agitated breathing	109	46.0	111	46.8
c. chest indrawing	10	4.2	9	3.8
d. loss of appetite	14	5.9	11	4.6
e. fever	55	23.2	56	23.6
f. cough	92	38.8	82	34.6
g. other	65	27.4	45	19.0

Malaria Control

28. What are you doing to prevent getting malaria? (multiple answers possible) n=237

	Tipitapa		Managua	
	n	%	n	%
a. nothing	82	34.6	76	32.1
b. bednets	68	28.7	69	29.1
c. mosquitoe coils or repellent	48	20.3	49	20.7
d. drain swamps and water collection areas	55	23.2	64	27.0
e. taking anti–malarial medication	22	9.3	6	2.5
f. fumigating	5	2.1	18	7.6
g. other	25	10.5	22	9.3

A cross tabulation was done for mothers using at least one of the three methods of malaria prevention which will be promoted by the CSP (bed–nets, drainage of water collection sites, malaria prophylaxis). The results were as follows: Tipitapa 121 (51.1%) and Managua 123 (51.9%).

29. What signs of symptoms of malaria would cause you to go to the health center? (multiple answers possible) n=237

	Tipitapa		Managua	
	n	%	n	%
a. doesn't know	30	12.7	48	20.3
b. fever	193	81.4	182	76.8
c. chills	74	31.2	71	30.0
d. headache	52	21.9	51	21.5
e. delirium	8	3.3	4	1.7
f. vomiting	42	17.7	34	14.3
g. pallor	23	9.7	11	4.6
h. weakness	38	16.0	15	6.3
i. other	59	24.9	30	12.7

Of the other responses , 31 (31.1%) of mothers in Tipitapa and 15 (6.3%) in Managua replied body pain or bone pain.

Growth Monitoring

30. Does (name of child have a growth monitoring card? n=237

	Tipitapa		Managua	
	n	%	n	%
1. yes	158	66.7	90	38.0
2. no, lost it	31	13.1	54	22.8
3. no, never had one	48	20.3	93	39.2

31. Children who have been weighed in the last three months? (according to the growth card) n=158 (Tipitapa) n=90 (Managua)

	Tipitapa		Managua	
	n	%	n	%
1. yes	58	36.7	41	45.6

Immunizations

32. Has (name of child) ever received any immunizations? n=237

	Tipitapa		Managua	
	n	%	n	%
1. yes	217	91.6	222	93.7
2. no	18	7.6	15	6.3
3. doesn't know	2	0.8	0	0.0

33. At what age should (name of child) receive the measles vaccine? n=237

	Tipitapa			Managua		
Months	freq	percent	Cum. %	freq	percent	Cum. %
0	1	0.4	0.4	2	0.8	0.8
1	9	3.8	4.2	9	3.8	4.6
2	10	4.2	8.4	2	0.8	5.5
3	8	3.4	11.8	7	3.0	8.4
4	5	2.1	13.9	5	2.1	10.5
5	2	0.8	14.8	1	0.4	11.0
6	6	2.5	17.3	7	3.0	13.9
7	0	0.0	17.3	1	0.4	14.3
8	3	1.3	18.6	7	3.0	17.3
9	94	39.7	58.2	117	49.4	66.7
10	0	0.0	58.2	2	0.8	67.5
11	1	0.4	58.6	0	0.0	67.5
12	17	7.2	65.8	17	7.2	74.7
13	1	0.4	66.2	1	0.4	75.1
14	1	0.4	66.7	0	0.0	75.1
18	1	0.4	67.1	0	0.0	75.1
24	6	2.5	69.6	1	0.4	75.5
48	1	0.4	70.0	1	0.4	75.9
60	2	0.8	70.9	0	0.0	75.9
1200	1	0.4	71.3	0	0.0	75.9
99 (doesn't know)	68	28.7	100.0	57	24.1	100.0
Total	237		100.0	237		100.0

34. Do you have an immunization card for (name of child)? n=237

	Tipitapa		Managua	
	n	%	n	%
1. yes	103	43.5	163	68.8
2. lost the immunization card but has the growth monitoring card with the immunization dates written on it	34	14.3	23	9.7
3. no, lost it	49	20.7	30	12.7
4. no, never had one	51	21.5	21	8.9

35. Immunization coverages for children 12–23 months are as follows:
n=103 (Tipitapa) n=112 (Managua)

	Tipitapa		Managua	
	n	%	n	%
BCG	24	23.3	84	75.0
DPT1	44	42.7	86	76.8
DPT2	33	32.0	83	74.1
DPT3	27	26.2	69	61.6
OPV1	47	45.6	87	77.7
OPV2	37	35.9	85	75.9
OPV3	29	28.2	76	67.9
MEASLES	37	35.9	71	63.4
Fully Immunized	14	13.6	58	51.8
Dropout Rate (DPT1–DPT3/DPT1)		38.6		19.8

36. Can you tell me the main reason why a pregnant woman needs to be vaccinated against tetanus? n=237

	Tipitapa		Managua	
	n	%	n	%
1. to protect mother and child against tetanus	68	28.7	74	31.2
2. to protect only the mother against tetanus	42	17.7	45	19.0
3. to protect only the child against tetanus	49	20.7	43	18.1
4. other or doesn't know	78	32.9	75	31.6

37. How many vaccines against tetanus does a pregnant woman need to protect the newborn from tetanus? n=237

	Tipitapa		Managua	
	n	%	n	%
1. one	27	11.4	37	15.6
2. two	57	24.1	57	24.1
3. more than two	83	35.0	74	31.2
4. none	2	0.8	1	0.4
5. doesn't know	68	28.7	68	28.7

Maternal Care

38. When you were pregnant with (name of child) did you visit a health center (clinic or hospital) or see a TBA for prenatal care? n=237

	Tipitapa		Managua	
	n	%	n	%
1. yes	181	76.4	187	78.9

39. Do you have a prenatal care card? n=237

	Tipitapa		Managua	
	n	%	n	%
1. yes	85	35.9	98	41.4
2. no, lost it	82	34.6	81	34.2
3. never had one	70	29.5	58	24.5

40. Look at the prenatal care card and record the number of TT vaccinations in the space below: n=85 (Tipitapa) n=98 (Managua)

	Tipitapa		Managua	
	n	%	n	%
1. one	15	17.6	14	14.3
2. two or more	53	62.4	55	56.1
3. none	17	20.0	29	29.6

41. Look at the card and record the number of prenatal visits she had. n=85 (Tipitapa) n=98 (Managua)

	Tipitapa		Managua	
	n	%	n	%
1. one	16	18.8	13	13.3
2. two or more	68	80.0	83	84.7
3. none	1	1.2	2	2.0

42. Are you pregnant now? n=237

	Tipitapa		Managua	
	n	%	n	%
1. yes	18	7.6	12	5.1
2. no	219	92.4	225	94.9

43. Do you want another child in the next two years? n=219 (Tipitapa) n=225 (Managua)

	Tipitapa		Managua	
	n	%	n	%
1. yes	28	12.8	25	11.1
2. no	183	83.6	190	84.4
3. doesn't know	8	3.7	10	4.4

44. Are you or your husband using a method to not get pregnant? n=191 (Tipitapa) n=200 (Managua)

	Tipitapa		Managua	
	n	%	n	%
1. yes	109	57.1	117	58.5

45. What is the primary method that you or your husband are using now to avoid getting pregnant? n=109 (Tipitapa) n=117 (Managua)

	Tipitapa		Managua	
	n	%	n	%
1. tubal ligation	17	15.6	21	17.9
2. vasectomy	0	0.0	0	0.0
3. injections	6	5.5	3	2.6
4. pills	25	22.9	33	28.2
5. IUD	33	30.3	47	40.2
6. barrier method/diaphragm	0	0.0	0	0.0
7. condom	6	5.5	4	3.4
8. foam/gel	0	0.0	0	0.0
9. exclusive breastfeeding	10	9.2	4	3.4
10. rhythm	2	1.8	0	0.0
11. abstinence	8	7.3	4	3.4
12. withdrawal	1	0.9	1	0.9
13. other	1	0.9	0	0.0

46. At how many months of pregnancy should a woman go to a health center or TBA? n=237

	Tipitapa		Managua	
	n	%	n	%
1. doesn't know	10	4.2	4	1.7
2. first trimester, 1–3 months	216	91.1	221	93.2
3. middle trimester, 4–6 months	8	3.4	11	4.6
4. last trimester, 7–9 months	2	0.8	0	0.0
5. at the time of delivery	0	0.0	0	0.0
6. no need to see the health worker	1	0.4	1	0.4
7. other	0	0.0	0	0.0

47. What foods are good for a pregnant woman to eat to prevent a woman from becoming pale and weak? (multiple answers possible) n=237

	Tipitapa		Managua	
	n	%	n	%
a. doesn't know	94	39.7	85	35.9
b. vegetables rich in iron like beet, yuca or radish leaves	16	6.8	19	8.0
c. meat, fish, eggs	67	28.3	57	24.1
d. other	115	48.5	121	51.1

48. During your pregnancy with (name of child) was the amount of food you ate... n=237

	Tipitapa		Managua	
	n	%	n	%
1. more than usual	111	46.8	105	44.3
2. same as usual	77	32.5	90	38.0
3. less than usual	49	20.7	41	17.3
4. doesn't know	0	0.0	1	0.4

49. At the delivery of (name of child), who tied and cut the cord? n=237

	Tipitapa		Managua	
	n	%	n	%
1. yourself	2	0.8	1	0.4
2. family member	11	4.6	4	1.7
3. traditional birth attendant	54	22.8	41	17.3
4. health professional (physician or nurse)	170	71.7	191	80.6
5. doesn't know	0	0.0	0	0.0
6. other	0	0.0	0	0.0

IV. DISCUSSION AND RECOMMENDATIONS

Age Distribution

Determining the exact ages for both mothers and their children did not seem to be a problem in this project area. Birth registration is required for many official documents and is recorded on the vaccination, growth monitoring and prenatal care cards.

Mothers ages fell primarily between the ages of 17 and 30 (Tipitapa, 75%; Managua, 80%) with a mean of 26 in Tipitapa and 25 in Managua. Mothers who would presently be considered high risk for childbirth (<18 or >35) were 18% of the mothers surveyed in Tipitapa and 14% of the mothers in Managua, District 6. There were 134 (57%) children 0-11 months in Tipitapa and 125 (53%) in Managua. The number of children 12-23 months was 103 (44%) in Tipitapa and 112 (47%) in Managua. The mean age of children was 10 months in Tipitapa and 11 months in Managua. The fact that a lower percentage of children 12-23 months are represented by the survey may be due to the fact that when there were two children in the home under two years, the younger of the two children was systematically selected.

Education/Income Generation

The results show that 27.0% of the women interviewed are illiterate in Tipitapa and 16% in Managua while 73% in Tipitapa and 84% have some level of literacy respectively. This means that promotion of the health messages should be done through the use of both written materials and non-formal participatory techniques. Posters may be used which contain simple wording for the percentage that are literate, but will also need to contain graphics to relay the message to those who are not.

Twenty-eight percent of mothers interviewed in Tipitapa and 19% in Managua work. However, it was discovered that many women were working at the nearby factories during the time of the interviews and thus were not included in this sample. Therefore, it is suspected that the actual percent of mothers who work is much higher. The most common types of work in both areas were selling prepared foods (Tipitapa, 35%; Managua, 20%), salaried (Tipitapa, 21%, Managua, 22%) and maids (Tipitapa, 18%; Managua, 22%).

Sixty-eight percent of the children in Tipitapa and 69% in Managua are cared for by relatives or older siblings when the mother is away from the home. This means that health messages should be addressed to other family members as well as the mother.

Breastfeeding/Infant Feeding Practices

Although at some point 91% of the mothers in Tipitapa and 92% of the mothers in Managua had breastfed their children, only 52% in Tipitapa and 50% in Managua were breastfeeding their children at the time of the survey. The tables on pages 10 and 11 show that breastfeeding levels steadily decline as the children age. Consequently, health messages given by project staff should emphasize the continuance of breastfeeding until the child is two years of age.

In addition, the importance of exclusive breastfeeding until four months will need to be a priority health message for both Tipitapa and Managua, as only 2% of mothers in each area exclusively breastfeed their children 0-3 months. Another problem area is that 35% in Tipitapa and 31% in Managua do not breastfeed within the first 8 hours after birth. This may be the reason why so few exclusively breastfeed. One possible reason why they may not be breastfeeding immediately after birth may be that they discard the colostrum considering it to be "dirty milk". These issues will need to researched further, possibly through focus groups, to determine why breastfeeding is so low in this area.

The project staff also identified the need to emphasize the need to exclusively breastfeed children less 0-3 months, but to encourage giving fruit juices and semi-solids beginning at 4-6 months since 62% of the mothers in Tipitapa and 68% in Managua believe they should begin giving foods before 4 months. Only 24% in Tipitapa and 22% in Managua knew that they should begin adding supplemental foods between 4-6 months. Special emphasis will also be made to discourage women from bottlefeeding. Bottlefeeding percentages seem to remain constant within the first two years (88% to 77% in Tipitapa and 86% to 92% in Managua) while breastfeeding percentages decrease remarkably (77% to 6% in Tipitapa and 80% to 8% in Managua) as the child ages with only 26% in Tipitapa and 29% in Managua breastfeeding from 13-23 months.

Vitamin A

Increasing the knowledge of Vitamin A rich-foods will need to be another priority health message as only 5% of women in Tipitapa and 6% of women in Managua know that Vitamin A prevents "night blindness" and as only 22% in Tipitapa and 21% in Managua know at least one food that contains Vitamin A. There is also evidence that only a small percentage are actually giving Vitamin A rich foods to their children [i.e. green leafy vegetables (3% both areas), breastmilk (52% Tipitapa, 50% Managua), mangoes, carrots, squash or papaya (63% Tipitapa, 78% Managua)]. Since less than 12% in Tipitapa and 7% in Managua in all the age groups were being fed some type of green leafy vegetables, there is evidence that either these are not readily available in this region or people do not know of their nutritional value. A greater emphasis will be placed

on giving other types of Vitamin A rich foods that are more culturally accepted and locally available such as eggs, mangoes, squash, carrots and papaya.

Diarrheal Disease

Twenty-one percent of the mothers interviewed in Tipitapa and 15% in Managua reported that their children had diarrhea in the previous two weeks. Of the children that had diarrhea 80% in Tipitapa and 74% in Managua are being given some type of medication. Only 22% in Tipitapa and 43% in Managua sought treatment at the hospital, health center, or private doctor. Since only 9% in Tipitapa and 0% in Managua sought treatment from a pharmacy, we can conclude that the health staff in hospitals and health centers are prescribing medicines. Encouraging doctors and other health professionals to promote ORS rather than medications should be a focus of the project.

Another aspect of the CDD intervention that will need to be addressed is in the amount of ORS fluids given a child when he has diarrhea. Only 46% in Tipitapa and 37% in Managua gave ORS to their children with diarrhea. In addition, only 42% in Tipitapa and 57% in Managua gave breastmilk in a greater or equal amount and 36% in Tipitapa and 17% in Managua are giving less additional fluids or none at all. This in combination with the fact that only 10% of mothers in Tipitapa and 16% in Managua knew the signs of dehydration puts the child with diarrhea at great risk of dehydration in these areas. Emphasis will also be placed on giving the child smaller, more frequent feeds and more fluids while the child has diarrhea and during the recovery stage since very few knew to feed the child smaller more frequent feeds during and after diarrhea.

Respiratory Illness

Thirty-one percent of the children surveyed in Tipitapa and 30% in Managua had acute lower respiratory infections in the last two weeks. Of these children, 37% of their mothers in Tipitapa and 50% in Managua sought advice from a hospital, health clinic or doctor. The project staff considered this to be a low percentage and will seek to encourage more of the women to go. More education is needed to teach the signs and symptoms as only 46% in Tipitapa and 47% in Managua knew rapid respiration as a symptom of pneumonia.

Malaria Control

Sixty-five percent of the population in Tipitapa and 68% in Managua stated they are doing something to protect themselves from malaria. Of these 51% of mothers in Tipitapa and 52% of mothers in Managua use at least one of the following methods which will be promoted by the CSP: bed-nets, water collection drainage or malaria prophylaxis.

Many mothers in both areas knew that fever was a sign of malaria. Emphasis will therefore be placed on teaching the women to go to a health center, hospital, or doctor when a child has fever.

Growth Monitoring

Of the 67% in Tipitapa and 38% in Managua that reported having a growth monitoring card, 37% in Tipitapa and 46% in Managua were weighed in the last 3 months. This is 25% of the total population surveyed in Tipitapa and 17% in Managua. In Managua there seemed to be a particular problem with 62% of the mothers reporting never having a growth card or losing it. The health information system set up in this project should therefore place special emphasis on tracking these children and educating the mothers on the importance of attending growth monitoring sessions and keeping the growth chart.

Immunizations

Ninety-two percent of mothers in Tipitapa and 94% in Managua reported that their children had at least one immunization, though the fully immunized percentage for children 12-23 months was only 14% in Tipitapa and 52% in Managua. Immunization coverage rates as reported by MINSA for the Tipitapa region are not currently available but the survey showed the following rates: BCG-23%, DPT3-26%, OPV3-28% and measles-36%. The low coverage rates may be due in part to the new "CLAP" reporting system which does not leave room on the cards to record the day the vaccination was given and in many cases only "ya" (done) was written in the space. In those cases the "ya" was not accounted for. The difference may also be in the 57% that lost their cards who may have received immunizations.

The immunization coverage rates as reported by MINSA in the Managua region are as follows: BCG-68%, DPT3-42%, OPV3-61%, and measles-38% (MINSA, 1993). The survey results showed: BCG-75%, DPT3-62%, OPV3-68%, and Measles-63%. Though the survey coverages proved to be much higher than the reported MINSA rates, project staff still feel like they are low and will seek to determine the causes. Compared to national statistics[5] (BCG-75%; DPT, 71%; OPV, 83% and measles, 54%), both Tipitapa and Managua were quite a bit lower.

Though the individual coverages tended to be somewhat consistent, the fully immunized percentage for children 12-23 months in Tipitapa was only 14% and 52% in Managua with a drop-out rate of 39% in Tipitapa and 20% in Managua. This reveals a high number of defaulters which could be due to a lack of access to immunizations or a lack of proper follow-up. Strategies to deal with these issues will be developed as the project unfolds.

Though the MINSA norm states that the measles vaccine be given at nine months, only 40% in Tipitapa and 49% in Managua answered this

correctly. This demonstrates a need for a health message specifically about proper timing on the measles and possibly other vaccines.

Maternal Care

Though MINSA gives all women a separate prenatal care card for each pregnancy, the survey showed that only 36% had them in Tipitapa and 41% in Managua and that 35% in Tipitapa and 34% in Managua had lost theirs. Of those that had cards, 62% in Tipitapa and 56% in Managua were fully immunized. Only 59% in Tipitapa and 55% in Managua knew that a pregnant woman needs two or more tetanus toxoid injections to protect the newborn from tetanus. More education, therefore, needs to be done emphasizing the importance of women receiving TT and in the importance of retaining the prenatal care card.

The results showed that a high percentage visited a health center or TBA for prenatal care (76% in Tipitapa and 79% in Managua) and 80% in Tipitapa and 85% of those who had prenatal care cards in Managua received at least two prenatal care visits. A high number also knew to go to a health center during the first trimester (91% in Tipitapa and 93% in Managua).

Although prenatal care coverage was fairly good in the project area, the educational program will need to focus on educating mothers on the quantity and types of foods they need to consume during pregnancy. Forty percent of the mothers in Tipitapa and 36% in Managua said they didn't know what foods are good for a pregnant woman to eat to prevent anemia. Only 47% in Tipitapa and 44% in Managua ate more than usual, while 19% in Tipitapa and 17% in Managua ate less than usual during their pregnancy. The MINSA health message will need to be reinforced to ensure that women get proper nutrition during their pregnancy.

Of the 81% in Tipitapa and 84% in Managua that were not pregnant and did not want to have another child in the next two years, only 46% in Tipitapa and 54% in Managua were using a modern family planning method. Although this rate is quite a bit higher than the national average from 1980-1992 of 27%,[6] the baseline figures still demonstrate that approximately half of those in both areas who were not pregnant and did not want another child in the next two years were not using a modern method. The project must focus on motivating these mothers to use modern methods of birth spacing and improving their access to supplies.

V. FEEDBACK SESSIONS

An initial feedback session was held on February 24 with the area coordinators and promoters to discuss the results of the manual tabulation done in Tipitapa. Further discussions were held with

World Relief Nicaragua managerial staff upon the completion of the analysis during the week of March 1-5.

A feedback session will be held in April 12, 1993 with the staff from Development Associates, Inc. (a management unit for the A.I.D. PVO co-financing project) to discuss the methodology and results of the baseline.

Feedback sessions for the director of the MINSA SILAIS and with regional MINSA personnel will be held in April.

The health promoters second training session will also include a more extensive review of the results and discussion will be held with them as to the implications. The results will then be presented at meetings with the community health committees.

VI. SURVEY COSTS

Travel	169.00
Facility rental	58.33
Supervisor and interviewer salaries	1,983.00
Paper/production costs	200.00
Supplies	17.77
Headquarters advisor costs	943.30
TOTAL	3,371.40

VII. BIBLIOGRAPHY

1. Ministerio de Salud, SILAIS Oriental-Managua, Plan de Salud 1992-1993. 1991.

2. Centro de Investigacion y Estudios de la Salud (C.I.E.S.) Caracterizacion del Municipio de Tipitapa, 1991.

3. Ministerio de Salud, SILAIS Oriental-Managua, Plan de Salud 1992-1993, 1991.

4. Henderson, R.H. & Sundaresan, T. "Cluster Sampling to Assess Immunization Coverage: A Review of Experience with a Simplified Sampling Method." Bulletin of the World Health Organization. 1982; 60 (2):253-260.

5. Grant, J. State of the World's Children, UNICEF, Oxford University Press, 1993.

6. Ibid.

APPENDIX A

Area___Cluster#___Q#___

Baseline Survey, 1993
Knowledge and Practice Study
Child Survival Project
World Relief/Nicaragua

The following questions are to be addressed to mothers with children less than two years (less than 24 months).

Interview date_/_/93 Reschedule interview_/_/93
dd/mm **dd/mm**

Interviewer name_____
Supervisor_____

1. Name of mother_____ Age (years)___

2. Name and age of the child under two years old_____
Birth date _/_/_ Age in months____
dd/mm/aa
Community_____
Address_____

Mother's Education/Occupation

3. What was the highest educational level you attained?
1. none ___
2. primary and does not read ___
3. primary and reads ___
4. secondary or higher ___

4. Do you do any work that brings in an income?
(multiple answers possible).
a. none ___ **(go to 7)**
b. sewing ___
c. selling agricultural products ___
d. selling prepared foods (bread, nacatamales, vaho, etc.) ___
e. handicrafts ___
f. maid ___
g. selling clothes (new or used) ___
h. salaried worker ___
i. other (specify)_____ ___

5. Who cares for **(name of child)** while you work or are away from home? **(multiple answers possible)**
   a. mother takes child with her ___
   b. husband/partner ___
   c. older children ___
   d. relatives ___
   e. neighbors/friends ___
   f. maid ___
   g. nursery ___
   h. other (specify)_____ ___

Breastfeeding/Infant Feeding

6. Are you breastfeeding **(name of child)**?
   a. yes ___ **(go to 8)**
   b. no ___

7. Have you ever breast-fed **(name of child)**?
   a. yes ___
   b. no ___ **(go to 9)**

8. After the delivery, when did you breast-feed **(name of child)** for the first time?
   1. during the first hour after delivery ___
   2. from 1 to 8 hours after delivery ___
   3. more than 8 hours after delivery ___
   4. do not remember ___

9. a. Are you giving **(name of child)** water, teas, coffee or broths?
      1. yes ___
      2. no ___
      3. don't know ___

   b. Are you giving **(name of child)** milk in a bottle or glass?
      1. yes ___
      2. no ___
      3. don't know ___

   c. Are you giving **(name of child)** semisolid foods such as atoles or pures?
      1. yes ___
      2. no ___
      3. don't know ___

   d. Are you giving **(name of child)** fruits or juices?
      1. yes ___
      2. no ___
      3. don't know ___

e. Are you giving (name of child) carrots, squash, mangos or papaya?
   1. yes ___
   2. no ___
   3. don't know ___

f. Are you giving (name of child) green leafy vegetables such as beet, quelite, yucca or radish leaves?
   1. yes ___
   2. no ___
   3. don't know ___

g. Are you giving (name of child) meat or fish?
   1. yes ___
   2. no ___
   3. don't know ___

h. Are you giving (name of child) beans or nuts such as peanuts?
   1. yes ___
   2. no ___
   3. don't know ___

i. Are you giving (name of child) eggs, cheese or cream?
   1. yes ___
   2. no ___
   3. don't know ___

j. Are you adding sugar or honey to (name of child's) meals?
   1. yes ___
   2. no ___
   3. don't know ___

k. Are you adding oil, butter or fat (lard) to (name of child's) meals?
   1. yes ___
   2. no ___
   3. don't know ___

10. When should a mother start adding foods to breastfeeding?
   1. start adding earlier than 4 months ___
   2. start adding between 4 and 6 months ___
   3. start adding 6 months or later ___
   4. doesn't know ___

11. Which vitamin helps you prevent "night blindness"?
   a. Vitamin A ___
   b. don't know or other ___

12. Which foods contain vitamin A to prevent "night blindness"? **(multiple answers possible)**
   a. doesn't know or other ___
   b. green leafy vegetables ___
   c. yellow or orange fruits or vegetables ___
   d. liver/small fish/meat ___
   e. breastmilk ___
   f. egg yolks ___

Diarrheal Diseases

13. Has **(name of child)** had diarrhea during the last two weeks?
   a. yes ___
   b. no ___ **(go to 20)**
   c. don't know ___ **(go to 20)**

14. During **(name of child's)** diarrhea, did you breastfeed **(read the choices to the mother)**
   1. more than usual ___
   2. same as usual ___
   3. less than usual ___
   4. stopped completely ___
   5. child has never been breastfed ___
   6. child is no longer breastfed ___

15. During **(name of child's)** diarrhea, did you provide **(name of child)** with fluids other than breastmilk **(read the choices to the mother)**.....
   1. more than usual ___
   2. same as usual ___
   3. less than usual ___
   4. stopped completely ___
   5. exclusively breastfeeding ___

16. During **(name of child's)** diarrhea, did you provide **(name of child)** with solid/semisolid foods **(read the choices to the mother)**.....
   1. more than usual ___
   2. same as usual ___
   3. less than usual ___
   4. stopped completely ___
   5. exclusively breastfeeding ___
   6. bottle or liquids exclusively ___

17. When **(name of child)** had diarrhea, what treatments did you use? **(multiple responses possible)**

a. nothing ___
b. ORS ___
c. sugar-salt solution ___
d. cereal-based ORT ___
e. liquids, teas or other fluids ___
f. anti-diarrheal medicines or antibiotics ___
g. other (specify) ___

18. When **(name of child)** had diarrhea, did you seek advice or treatment for the diarrhea?

a. yes ___
b. no ___ **(go to 20)**

19. From whom did you seek advice or treatment for the diarrhea of **(name of child)**? **(If the mother answers "doctor", find out where she went or to which doctor she went.) (multiple answers possible)**

a. general hospital ___
b. health center/health post ___
c. private clinic/doctor ___
d. pharmacy ___
e. volunteer health worker (URO) ___
f. traditional healer ___
g. traditional birth attendant ___
h. relatives or friends ___
i. other (specify)_____ ___

20. What signs/symptoms would cause you to seek advice or treatment for **(name of child's)** diarrhea?

a. doesn't know ___
b. vomiting ___
c. fever ___
d. dry mouth, sunken eyes, decreased urination (dehydration) ___
e. sunken fontanelle ___
f. diarrhea of prolonged duration (at least 14 days) ___
g. blood in stool ___
h. loss of appetite ___
i. weakness ___
j. other (specify)_____ ___

21. What are the most important actions you should take if **(name of child)** has diarrhea?
   a. doesn't know ___
   b. initiate fluids quickly ___
   c. give the child more to drink than usual ___
   d. prepare and administer ORT ___
   e. give the child smaller, more frequent feedings ___
   f. take the child to the general hospital/health center ___
   g. give the child more food than usual when recuperating from diarrhea for catch up growth ___
   h. withhold liquids ___
   i. withhold foods ___
   j. other (specify)_____ ___

22. What are important actions a mother should take when a child is recovering from diarrhea? **(multiple answers possible)**
   a. doesn't know ___
   b. give the child smaller, more frequent feedings ___
   c. give the child more foods than usual ___
   d. give the child foods with high caloric content ___
   e. give the child less quantity of food ___
   f. other (specify)_____ ___

Respiratory Illness

23. Has **(name of child)** been ill with cough or difficult breathing in the last two weeks?
   a. yes ___
   b. no ___ **(go to 27)**

24. Has **(name of child)** experienced rapid and difficult breathing when ill?
   a. yes ___
   b. no ___ **(go to 27)**
   c. don't know ___ **(go to 27)**

25. Did you seek advice or treatment for **(name of child)** when ill with cough or difficulty in breathing?
   a. yes ___
   b. no ___ **(go to 27)**

26. From whom did you seek advice or treatment for **(name of child)** when ill with these respiratory problems? **(multiple answers possible)(If the mother answers doctor, ask where she went or to which doctor she went.)**

a. general hospital ___
b. health center/health post ___
c. private clinic/doctor ___
d. pharmacy ___
e. volunteer health worker ___
f. traditional healer ___
g. traditional birth attendant ___
h. relatives or friends ___
i. other (specify)_____ ___

27. What are the signs/symptoms of respiratory infection that would cause you to take **(name of child)** to a health facility? **(multiple answers possible)**

a. doesn't know ___
b. rapid or agitated breathing ___
c. chest indrawing ___
d. loss of appetite ___
e. fever ___
f. cough ___
g. other (specify)_____ ___

Malaria Control

28. What are you doing to prevent getting malaria? **(multiple answers possible)**

a. nothing ___
b. bednet ___
c. mosquito coils or repellant ___
d. drain swamps and water collection areas ___
e. taking anti-malarial medication ___
f. fumigate ___
g. other (specify)_____ ___

29. What signs or symptoms of malaria would cause you to go to the health center? **(multiple answers possible)**

a. doesn't know ___
b. fever ___
c. chills ___
d. headache ___
e. delirium ___
f. vomiting ___
g. pallor ___
h. weakness ___
i. other (specify)_____ ___

Growth Monitoring

30. Does **(name of child)** have a growth monitoring card?
    1. yes ___ **(must see card)**
    2. no, lost it ___ **(go to 32)**
    3. no, never had one ___ **(go to 32)**

31. Look at the growth monitoring card of the child and record the following:
    Has the child been weighed in the last three months?
    a. yes ___
    b. no ___

Immunizations

32. Has **(name of child)** ever received any immunizations?
    1. yes ___
    2. no ___
    3. don't know ___

33. At what age should **(name of child)** receive measles vaccine?
    a. specify in months ___ **(#)**
    b. don't know ___ **(99)**

34. Do you have an immunization card for **(name of child)**?
    1. yes ___ **(must see card)**
    2. lost immunization card, but have growth card with immunization dates marked ___ **(must see card)**
    3. no, lost it ___ **(go to 36)**
    4. no, never had one ___ **(go to 36)**

35. Look at the immunization card and write down the dates of the immunizations in the spaces below.

		Day/Month/Year
BCG		_____
Polio	1st	_____
	2nd	_____
	3rd	_____
	4th	_____
	5th	_____
DPT	1st	_____
	2nd	_____
	3rd	_____
Measles		_____

36. Can you tell me the main reason why a pregnant woman needs to be vaccinated with tetanus toxoid vaccine?
   1. to protect both mother/newborn against tetanus ___
   2. to protect only the woman against tetanus ___
   3. to protect only the baby against tetanus ___
   4. doesn't know or other ___

37. How many tetanus toxoid injections does a pregnant woman need to protect the newborn from tetanus?
   1. one ___
   2. two ___
   3. more than two ___
   4. none ___
   5. doesn't know ___

Maternal Care

38. When you were pregnant with **(name of child)** did you visit a health center (clinic or hospital) or see a TBA for prenatal care?
   a. yes ___
   b. no ___

39. Do you have a prenatal care card?
   1. yes ___
   2. no, lost it ___ **(go to 42)**
   3. no, never had one ___ **(go to 42)**

40. Look at the prenatal care card and record the number of TT vaccinations in the space below:
   1. one ___
   2. two or more ___
   3. none ___

41. Look at the prenatal care card and record the number of prenatal visits the mother had.
   1. one ___
   2. two ___
   3. none ___

42. Are you pregnant now?
   1. yes ___ **(go to 46)**
   2. no ___
   3. don't know ___

43. Do you want another child in the next two years?
1. yes __ **(go to 46)**
2. no __
3. doesn't know __

44. Are you or your husband using a method to avoid/postpone getting pregnant?
a. yes __
b. no __ **(go to 46)**

45. What is the main method that you or your husband is using to avoid getting pregnant?
1. tubal ligation __
2. vasectomy __
3. injections __
4. pills __
5. IUD method __
6. diaphragm __
7. condom __
8. foam/gel __
9. exclusive breastfeeding __
10. rhythm __
11. abstinence __
12. withdrawal __
13. other (specify)_____ __

46. How soon after a woman knows she is pregnant should she go to a health center or see a TBA?
1. don't know __
2. first trimester, 1-3 months __
3. middle of pregnancy, 4-6 months __
4. last trimester, 7-9 months __
5. at the time of delivery __
6. no need to see the health worker __
7. other (specify)_____ __

47. What foods are good for a pregnant woman to eat to prevent pregnancy anemia? **(multiple answers possible)**
a. doesn't know __
b. vegetables rich in iron like beet, yucca or radish leaves __
c. meat, fish, eggs __
d. other (specify) _____ __

48. During your pregnancy with **(name of child)** was the amount of food you ate...
   1. more than usual ___
   2. same as usual ___
   3. less than usual ___
   4. doesn't know ___

49. At the delivery of **(name of child)**, who tied and cut the cord?
   1. yourself ___
   2. family member ___
   3. traditional birth attendant ___
   4. health professional (physician or nurse) ___
   5. doesn't know ___
   6. other (specify)_____ ___

BEST AVAILABLE COPY

APPENDIX B

Area_____ Cong.#_____Cues.#_____

Investigación de Base, 1993
Estudio Sobre Conocimientos y Prácticas
Proyecto de Sobrevivencia Infantil
Auxilio Mundial/Nicaragua

Las siguientes preguntas son para las madres de niños menores de dos años. (menores de 24 meses)

Fecha entrevista__/02/93 (dd/mm) Re-entrevista__/02/93. (dd/mm)
Nombre del entrevistador _____
Supervisor _____

1. Nombre de la madre _____ Edad (años) _____

2. Nombre y edad del niño menor de 2 años _____

   Fecha de nacimiento __/__/__ (dd/mm/aa) Edad en meses _____

   Comunidad o Barrio_____

   Dirección_____

Educación/Ocupación de la madre

3. ¿Hasta qué grado llegó?
   1. ninguno ___
   2. primaria y no lee ___
   3. primaria y sí lee ___
   4. secundaria o más ___

4. ¿Realiza Ud. trabajos que le producen dinero? (puede marcar más de una respuesta).
   a. ninguno ___
   b. costurera ___
   c. vendiendo productos agrícolas ___
   d. vendiendo alimentos (pan, nacatamales, vaho, etc.) ___
   e. hace artesanias ___
   f. empleada doméstica ___
   g. vende ropa (nueva o usada) ___
   h. trabajador asalariado ___
   i. otro (especifique) _____ ___

BEST AVAILABLE COPY

5. Cuando trabaja o esta fuera de la casa, ¿quién cuida de (nombre del niño)? (puede marcar más de una respuesta).
   a. el niño va con la mamá ___
   b. el esposo/compañero ___
   c. hermanos mayores ___
   d. parientes ___
   e. vecinos/amigos ___
   f. la empleada ___
   g. guardería ___
   h. otro (especifique) _____ ___

Lactancia Materna/Nutricion

6. ¿Está dándole pecho a (nombre del niño)?
   a. sí ___ (pase a la 8)
   b. no ___

7. ¿Le ha dado pecho a (nombre del niño) anteriormente?
   a. sí ___
   b. no ___ (pase a la 9)

8. Después del parto, cuándo le dio pecho por primera vez a (nombre del niño)?
   1. durante la primera hora después del parto ___
   2. durante las primeras 8 horas después del parto ___
   3. más de 8 horas después del parto ___
   4. no se acuerda ___

9. a. ¿Le está dando agua, tés, café o sopas a (nombre del niño)?
   1. sí ___
   2. no ___
   3. no sabe ___

   b. ¿Le está dando leche en pacha o vaso a (nombre del niño)?
   1. sí ___
   2. no ___
   3. no sabe ___

   c. ¿Le está dando atoles o purés a (nombre del niño)?
   1. sí ___
   2. no ___
   3. no sabe ___

   d. ¿Le está dando frutas o jugos a (nombre del niño)?
   1. sí ___
   2. no ___
   3. no sabe ___

BEST AVAILABLE COPY

e. ¿Le está dando zanahorias, ayote, mangos o papaya a (nombre del niño)?
   1. sí ___
   2. no ___
   3. no sabe ___

f. ¿Le está dando hojas verde oscuro como la hoja de remolacha, de quelite, de yuca o de rábano a (nombre del niño)?
   1. sí ___
   2. no ___
   3. no sabe ___

g. ¿Le está dando carne o pescado a (nombre del niño)?
   1. sí ___
   2. no ___
   3. no sabe ___

h. ¿Le está dando frijoles o nueces como el maní a (nombre del niño)?
   1. sí ___
   2. no ___
   3. no sabe ___

i. ¿Le está dando huevos, cuajada o crema a (nombre del niño)?
   1. sí ___
   2. no ___
   3. no sabe ___

j. ¿Le está añadiendo azúcar o miel a los alimentos de (nombre del niño)?
   1. sí ___
   2. no ___
   3. no sabe ___

k. ¿Le está añadiendo aceite, mantequilla o manteca a los alimentos de (nombre del niño)?
   1. sí ___
   2. no ___
   3. no sabe ___

10. ¿Cuándo debería empezar la madre a dar otros alimentos, además de su pecho?
   1. empezar antes de los 4 meses ___
   2. empezar de los 4 a 6 meses ___
   3. empezar a los 6 meses o después ___
   4. no sabe ___

BEST AVAILABLE COPY

11. ¿Qué vitamina le ayuda a prevenir la "ceguera nocturna"?
   a. Vitamina A ___
   b. no sabe u otro ___

12. ¿Qué comidas contienen Vitamina A para prevenir la "ceguera nocturna"? (puede marcar más de una respuesta)
   a. no sabe u otro ___
   b. hojas de color verde-oscuro ___
   c. vegetales o frutas de pulpa amarilla o anaranjado intenso ___
   d. hígado, pescado pequeño, carne ___
   e. leche materna ___
   f. yemas de huevo ___

Enfermedades Diarréicas

13. ¿Ha tenido (nombre del niño) diarrea en las dos últimas semanas?
   a. sí ___
   b. no ___ (pase a la 20)
   c. no sabe ___ (pase a la 20)

14. Durante la diarrea de (nombre del niño), ¿le dió pecho,... (lea las opciones a la madre)
   1. más de lo que normalmente le da ___
   2. igual a lo que normalmente le da ___
   3. menos de lo que normalmente le da ___
   4. dejó de darle completamente ___
   5. nunca le ha dado pecho ___
   6. ya no recibía pecho ___

15. Durante la diarrea de (nombre del niño), ¿le dió líquidos, además de la leche materna.... (lea las opciones a la madre)
   1. más de lo que normalmente le da ___
   2. igual a lo que normalmente le da ___
   3. menos de lo que normalmente le da ___
   4. dejó de darle completamente ___
   5. pecho exclusivamente ___

16. Durante la diarrea de (nombre del niño), ¿le dió alimentos sólidos o alimentos blandos.... (lea las opciones a la madre)
   1. más de lo que normalmente le da ___
   2. igual a lo que normalmente le da ___
   3. menos de lo que normalmente le da ___
   4. dejó de darle completamente ___
   5. pecho exclusivamente ___
   6. pacha o líquidos exclusivamente ___

BEST AVAILABLE COPY

17. Cuando (nombre del niño) tuvo diarrea, ¿qué tratamiento le dió? (puede marcar más de una respuesta)
   a. nada ___
   b. sobres de rehidratación oral ___
   c. solución de agua y sal (suero casero) ___
   d. soluciones a base de cereales (atoles) ___
   e. líquidos, tés o cocimientos caseros ___
   f. medicinas antidiarréicas o antibióticos ___
   g. otro (especifique) _____ ___

18. Cuando (nombre del niño) tuvo diarrea, ¿pidió consejo o ayuda?
   a. sí ___
   b. no ___ (pase a la 20)

19. ¿De quién recibió el consejo o ayuda para la diarrea de (nombre del niño)? (Si la madre contesta "doctor", averigüe dónde fue o a cuál doctor fue) (puede marcar más de una respuesta).
   a. hospital general ___
   b. centro de salud/puesto de salud ___
   c. médico/clínica particular ___
   d. farmacia ___
   e. trabajador voluntario de salud (brigadista) ___
   f. curandero ___
   g. partera ___
   h. parientes y amigos ___
   i. otro (especifique) _____ ___

20. ¿Qué signos de gravedad harían que busque ayuda para la diarrea de (nombre del niño)? (puede marcar mas de una respuesta)
   a. no sabe ___
   b. vómitos ___
   c. fiebre ___
   d. boca seca, ojos hundidos, orina poco (deshidratación) ___
   e. mollera hundida ___
   f. diarrea prolongada (más de 14 días) ___
   g. sangre en las heces ___
   h. pérdida del apetito ___
   i. débil o cansado ___
   j. otros (especifique) _____ ___

BEST AVAILABLE COPY

21

21. Si (nombre del niño) tuviera diarrea, ¿cuales son las acciones más importantes que usted debería hacer? (puede marcar mas de una respuesta)
   a. no sabe
   b. iniciar líquidos rápidamente ___
   c. darle de tomar al niño más de lo que usted normalmente le da ___
   d. preparar y administrar las sales de de rehidratación oral ___
   e. darle al niño comidas pequeñas más frecuentes ___
   f. llevar al niño a un hospital general o centro de salud ___
   g. darle al niño más comida de lo normal cuando el niño este mejorando de la diarrea para reponer el crecimiento perdido ___
   h. detener los liquidos ___
   i. detener los alimentos ___
   j. otro (especifique) _____ ___

22. ¿Qué debe hacer una madre cuando su niño está recuperándose de una diarrea? (puede marcar más de una respuesta)
   a. no sabe ___
   b. dar alimentos con más frecuencia y en menor cantidad ___
   c. más alimentos de lo que normalmente le da ___
   d. alimentos con alto contenido calórico ___
   e. dar menor cantidad de alimentos ___
   f. otros (especifique) _____ ___

Infecciones Respiratorias Agudas

23. ¿Ha estado (nombre del niño) enfermo con tos o dificultad para respirar en las últimas dos semanas?
   a. sí ___
   b. no ___ (pase a la 27)

24. ¿Respiraba rápido o respiraba como cansado, cuando estuvo enfermo (nombre del niño)?
   a. sí ___
   b. no ___ (pase a la 27)
   c. no sabe ___ (pase a la 27)

25. ¿Ha pedido Ud. consejo o ayuda para (nombre del niño) cuando ha estado enfermo con tos y dificultad para respirar?
   a. sí ___
   b. no ___ (pase a la 27)

BEST AVAILABLE COPY

26. ¿De quién recibió consejo o ayuda para (nombre del niño), cuando estuvo con tos y dificultad para respirar? (puede marcar más de una respuesta; si la madre contesta "doctor" averigüe dónde fue o a cuál doctor fue)

a. hospital general ___
b. centro de salud/puesto de salud ___
c. médico/clínica particular ___
d. farmacia ___
e. trabajador voluntario de salud (brigadista) ___
f. curandero ___
g. partera ___
h. parientes y amigos ___
i. otro (especifique) _____ ___

27. ¿Cuáles son las señales y síntomas de infección respiratoria que le haría llevar a (nombre del niño) a un centro de salud? (puede marcar más de una respuesta)

a. no sabe ___
b. respiración rápida y agitada ___
c. retracciones intercostales ___
d. pérdida del apetito ___
e. fiebre ___
f. tos ___
g. otro (especifique) _____ ___

Control de Malaria

28. ¿Qué está haciendo Ud. para que no les de malaria o paludismo a su familia? (Puede marcar más de una respuesta).

a. nada ___
b. mosquiteros ___
c. Plagatox u otro repelente ___
d. desaguar charcos o pantanos u otras colecciones de agua ___
e. tomando pastillas profilácticas ___
f. fumigar ___
g. otro (especifique) _____ ___

29. ¿Qué señales o síntomas de malaria o paludismo le harian acudir a un centro de salud? (puede marcar más de una respuesta)

a. no sabe ___
b. fiebre ___
c. escalofrios ___
d. dolor de cabeza ___
e. confusion mental ___
f. vómitos ___
g. palidez ___
h. decaimiento ___
i. otro (especifique) _____ ___

BEST AVAILABLE COPY

Control de Crecimiento

30. ¿Tiene (nombre del niño) su tarjeta de control de peso? (pida que se lo muestre)
    1. sí ___ (pida que se la muestra)
    2. no, perdió la tarjeta ___ (pase a la 32)
    3. no, nunca tuvo tarjeta ___ (pase a la 32)

31. Mire la tarjeta del niño y registre la siguiente información: ¿ha sido pesado el niño en los últimos 3 meses?
    a. sí ___
    b. no ___

Inmunizaciones

32. ¿Ha recibido alguna vacuna (nombre del niño)?
    1. sí ___
    2. no ___
    3. no sabe ___

33. A qué edad (nombre del niño) debería recibir la vacuna contra el sarampión?
    a. especifique en meses ___ (#)
    b. no sabe ___ (99)

34. ¿Tiene Ud. la tarjeta de vacunación de (nombre del niño)?
    1. sí ___ (pida que se lo muestre)
    2. perdió la tarjeta de vacunación pero tiene la tarjeta de control de peso con las vacunas apuntadas ___ (pida que se lo muestre)
    3. no, perdió la tarjeta de vacunación ___ (pase a la 36)
    4. no, nunca tuvo uno ___ (pase a la 36)

35. Mire la tarjeta de vacunación y registre las fechas de las inmunizaciones en el espacio correspondiente:

		Día/Mes/Año
BCG		___/___/___
Antipolio	1a.	___/___/___
	2a.	___/___/___
	3a.	___/___/___
	4a.	___/___/___
	5a.	___/___/___
DPT	1a	___/___/___
	2a	___/___/___
	3a	___/___/___
Sarampión		___/___/___

36. ¿Puede decirme la razón principal porque una mujer embarazada necesita ser vacunada contra el tétanos?
   1. para proteger madre y niño contra el tétanos ___
   2. para proteger sólo a la mujer contra el tétanos ___
   3. para proteger sólo al niño contra el tétanos ___
   4. otro o no sabe ___

37. ¿Cuántas vacunas contra el tétanos debe recibir una mujer embarazada, para proteger al recien nacido?
   1. una ___
   2. dos ___
   3. más de dos ___
   4. ninguna ___
   5. no sabe ___

Salud Materna

38. Cuando Ud. estaba embarazada de **(nombre del niño)**, ¿visitó algún centro de salud (clínica u hospital) o una partera para su control del embarazo?
   a. sí ___
   b. no ___

39. ¿Tiene usted una tarjeta de control de embarazo de **(nombre del niño)**?
   1. sí ___ **(pida que se la muestra)**
   2. no, se le perdió ___ **(pase a la 42)**
   3. no, nunca tuvo uno ___ **(pase a la 42)**

40. Mire la tarjeta de control prenatal y anote el número de vacunas de TT en el espacio abajo:
   1. uno ___
   2. dos o más ___
   3. ninguno ___

41. Mire la tarjeta y anote cuántas visitas de control prenatal ha hecho.
   1. uno ___
   2. dos o mas ___
   3. ninguno ___

42. ¿Está Ud. embarazada ahora?
   a. sí ___ **(pase a la 46)**
   b. no o no sabe ___

43. ¿Quisiera Ud. tener otro hijo en los próximos dos años?
   1. sí ___ **(pase a la 46)**
   2. no ___
   3. no sabe ___

BEST AVAILABLE COPY

44. ¿Está Ud. o su esposo usando algún método para no salir embarazada ahora?
   a. sí ___
   b. no ___ (pase a la 46)

45. ¿Cuál es el método principal que Ud. o su esposo, están usando ahora para que no salga embarazada?
   1. operación de la mujer ___
   2. operación del hombre ___
   3. inyecciones ___
   4. pastillas anticonceptivas ___
   5. dispositivo intra-uterino (DIU, espiral, T de cobre, ASA) ___
   6. diafragma ___
   7. condones ___
   8. espumas o gel ___
   9. lactancia materna exclusiva ___
   10. método del ritmo ___
   11. abstinencia ___
   12. coito interrumpido ___
   13. otros (especifique)_____ ___

46. ¿A partir de cuántos meses de embarazo, debe ir una mujer a un centro o puesto de salud o a una partera?
   1. no sabe ___
   2. al primer trimestre, 1-3 meses ___
   3. a la mitad del embarazo, 4-6 meses ___
   4. al último trimestre, 7-9 meses ___
   5. a la hora del parto ___
   6. no necesita ir ___
   7. otro (especifique) _____ ___

47. ¿Qué alimentos debería comer una mujer, para evitar la anemia durante el embarazo? (puede marcar más de una respuesta)
   a. no sabe ___
   b. vegetales ricos en hierro como la hoja de remolacha, de yuca o de rábano ___
   c. carne, pescado, huevos ___
   d. otro (especifique) _____ ___

48. ¿Durante el embarazo de (nombre del niño), la cantidad de alimentos que Ud. comió fueron..... (lea las opciones 1,2 y 3 a la madre)
   1. más de lo que normalmente come? ___
   2. igual a lo que normalmente come? ___
   3. menos de lo que normalmente come? ___
   4. no sabe ___

49. ¿Cuando nació (nombre del niño), quién cortó el ombligo?
   1. ella misma ___
   2. un miembro de la familia ___
   3. partera/matrona ___
   4. personal de salud (médico o enfermera) ___
   5. no sabe
   6. otro (especifique) _____ ___

BEST AVAILABLE COPY

APPENDIX C

WORLD RELIEF NICARAGUA/AUXILIO MUNDIAL
PROGRAMA SOBREVIVENCIA INFANTIL
LISTADO DE BARRIOS Y POBLACIONES – MANAGUA

Región	Area	Barrios/Comarcas	Población	Acumulativo	Selección
Managua	Silvia Ferrufino	La Primavera	12091	12091	1,2,3,4
		Jose Dolores Estrada	8272	20363	5,6
		Jorge Cassaly	2068	22431	7
		Waspan Norte	1922	24353	8
		Camilo Chamorro	14000	38353	9,10,11,12
		Sebastian Segura	1745	40098	13
		El Rodeo	2000	42098	
		Monte Fresco	2000	44098	14
		Los Chaguites	1252	45350	
		San Cristobal	1400	46750	15
		TOTAL	46750		
	Villa Venezuela	Sabana Grande	4677	51427	16
		El Candil	502	51929	
		Manuel Fernandez	4872	56801	17,18
		Camino del Rio	366	57167	
		Ernesto Peres B.	376	57543	
		Arlen Siu	1503	59046	19
		Villa Libertad	10558	69604	20,21,22
		Anexo Villa Libertad	1904	71508	23
		Villa Venezuela	23118	94626	24,25,26,27
		TOTAL	47876		28,29,30

Sampling Interval = 94,626/30 = 3,154

Rancom Number = 1,523

BEST AVAILABL

LISTADO DE BARRIOS Y POBLACIONES – MANAGUA

Región	Area	Barrios/Comarcas	Población	Acumulativo	Selección
Managua	Tipitapa	Zambrano	2422	2422	1
		San Benito	6515	8937	2, 3, 4
		Maderas	4346	13283	5, 6
		Banderas	8448	21731	7, 8, 9
		Mesas de Asicayas	3146	24877	10
		Francisco Rojas	3500	28377	11, 12
		Juan Castro	5875	34252	13, 14
		Roberto Vargas	5450	39702	15, 16
		Noel Morales 4	4200	43902	17, 18
		Noel Morales 5	5640	49542	19, 20
		Orente Centeno	9050	58592	21, 22, 23
		Yuris Ordoñez	8543	67135	24, 25, 26, 27
		A.C. Sandino	5150	72285	28, 29
		Ciudadela Timal	4125	76410	30
		TOTAL	76410		

Sampling Interval = 76,410/30 = 2,547

Random Number = 316

BEST AVAILABLE COPY