Mass Media and Health Practices

14

IMPLEMENTATION

RESULTS OF HONDURAS

FIELD INVESTIGATION

ACADEMY FOR EDUCATIONAL DEVELOPMENT, INC.
1414 TWENTY-SECOND STREET, N.W., WASHINGTON, D.C 20037
TELEPHONE: (202) 862-1900

MASS MEDIA & HEALTH PRACTICES

PROJECT IMPLEMENTATION

Academy for Educational Development, Inc.

Sponsored by the Office of Health and Office of Education
Development Support Bureau
UNITED STATES AGENCY FOR INTERNATIONAL DEVELOPMENT

Document # **14**

RESULTS OF HONDURAS FIELD INVESTIGATION

Principal Authors

Ms. Elizabeth Booth
Dr. Reynaldo Pareja
Mr. W. Core Smith

Project Director

Dr. William A. Smith

November 1980

CONTENTS

INTRODUCTION

This document is one of a series of reports prepared by the Academy for Educational Development under its Mass Media and Health Practices Project Contract with the Agency for International Development. It represents the results of a one year field investigation in Honduras.

Document #1	Scope of Work - Technical Proposal
Document #2	Contract Scope of Work
Document #3	Semiannual Report No. 1
Document #4	Project Agreement with Honduras
Document #5	Semiannual Report No. 2
Document #6	Honduras Target Region Selection Process
Document #7	Semiannual Report No. 3
Document #8	Principal Health Considerations
Document #9	Developmental Investigation Protocol
Document #10	Institutional Review Board
Document #11	Honduras Regional Background Paper
Document #12	Description of Field Investigation Activity: Honduras
Document #13	Communication and Development
Document #14	Results of Honduras Field Investigation
Document #15	Implementation Plan: Honduras

SUMMARY

The developmental investigation showed that rural mothers/grandmothers play the principal child care role during illness. Siblings did not play as critical a role as expected during illness. Fathers were involved, but in many cases, mothers felt at liberty to diagnose, prescribe remedies, and seek outside help without the father's permission. In the face of overt opposition from fathers, mothers would often lose confidence in these areas.

Diarrhea was clearly seen as a major problem, particularly after appetite loss and general physical activity declined. Most mothers knew that severe diarrhea could kill. Rural mothers generally proved keen observers of diarrhea states and were perfectly capable of distinguishing mild, moderate, and severe cases of diarrhea. In their terms, mild diarrhea is associated with the number and consistency of stools, moderate with loss of appetite and activity, and severe with a depressed physical state, skin texture and dryness. Factors such as vomiting were particularly worrisome. Diarrhea was often seen as both an illness in itself, and the result of some other illness. Treatment was often related to perceived cause. If it was thought, for example, that empacho (a local description of general stomach upset) caused diarrhea, than a sobador (masseuse) was used. If breastmilk was thought to be the cause, breastfeeding was stopped. If parasites were involved, medication was sought. Mothers

generally tried to treat the diarrhea at home and only sought medical help as it became clear that the child was becoming more seriously ill. Many mothers would wait until very late in the episode before seeking medical help.

The large number of diarrheal remedies, many including commonly available antibiotics, coupled with the mother's expressed skepticism about their effectiveness, leads us to believe that diarrhea is probably a disease so common and so difficult to affect, that mothers see their control over it to be limited. In essence they may be looking for a remedy that works, and at the same time, be prepared to accept a remedy that doesn't do all they hope for.

Rural health concepts proved to be highly influenced by modern medical practices. There was a clear preference for shots over pills, pills over liquids, and commercial medicines over herbal teas. The association of sophistication with effectiveness seemed apparent in most mother's responses to questioning.

Rural mothers can generally recite the basic concepts of personal hygiene, water boiling, and germ theory. Germ theory is integrated with traditional beliefs related to spirits over which mothers feel they have limited power. The integration of modern and traditional beliefs is expressed in terms of animalitos (tiny, visible animals which have different names such as worms, parasites, etc.). It is not clear that rural people feel they have reliable control over these animalitos.

Mothers related the rainy season to the diarrhea season, but did not seem to have any widespread explanation for the two occurring together. Bad water was mentioned as a frequent reason for illness.

Breastfeeding was widely practiced, but supplemental bottle feeding was also common, particularly after three months. Bottle feeding is more common in urban areas but is penetrating rural areas as well. Many mothers clearly recognized the benefits of breastmilk and stated with great confidence that "breast is best." But these same mothers were using supplemental bottle feeding and, when asked why, reluctantly indicated that convenience was their principal motivation. Honduran women do not generally carry their children on their backs, and consequently, spend a great deal of their day holding small children in their arms. This presents a serious inconvenience, and the opportunity to put the child down with a bottle is enticing.

The expected extent of purging behavior did not show up in the investigation. Caveat taboos against breastfeeding during mild to moderate bouts of diarrhea were not widely expressed. Vomiting was a common motivation to stop feeding and local doctors do recommend fasting and withdrawal of breastmilk during bouts of diarrhea.

Most mothers simply did not believe interviewers when told that a child should consume a liter of solution a day. Many were not open to the suggestion. It seemed simply impossible to them.

Sources of contamination were widespread and numerous. Efforts to find a single key cause were futile without being able to consider major infrastructural changes like water supply, functional latrines, and refrigeration. Priority attention was given to analyzing food preparation and feeding practices. The highest potential sources of bacterial contamination seem to be water, watery cereals, teas, tortillas, and possibly beans--although beans are not given in large quantities to small children. Handwashing among mothers was relatively common. Some mothers wash their hands as often as 10 to 15 times a morning. Frequent hand washing is generally within the context of making tortillas which consumes most of the morning and is interrupted by changing children, cleaning up, etc. Handwashing is actually hand rinsing in a pot of water which is infrequently changed.

Storage of weaning foods for several hours and even up to three days is common. Reheating is not a common practice. Constraints to widespread reheating include fuel costs and additional time required. This was clearly demonstrated in the dissonance between the widely accepted importance of boiling water and the very limited water boiling practice found in rural homes.

Indeed the concept of regular compliance may be an important issue. Rural people do not appear to give importance to specific degrees of compliance. If they breastfeed once a day, but bottle feed four or five times, for example, they feel they "breastfeed regularly." If they give a medicine once a day which should be given three times a day, they say they are "giving the medicine." Compliance with lengthy ORT administration instructions may be difficult, not only because the administration is tedious and time-consuming but also because mothers may define a much lower level of regularity as compliance and genuinely feel they are complying.

Radio ownership seems to include about 60 percent of the rural families. It is possible, however, that as many as 20 percent of these radios are not working. Most rural homes do not listen to radio all day. The cost of batteries and involvement in other activities mitigates against radio as a constant companion. Evenings and early mornings seem common listening times; regular news broadcasts are reported as the most popular radio programs. Attention to radio during listening times is high. People do seem to comprehend the programs that they listen to.

Graphic materials are scarce. Calendars are popular, but this is because they are given away free as commercial promotion.

The health system is very hierarchical. Lower levels tend to mimic higher levels. Any treatment suggested for rural clinics which is not practiced in central facilities is considered second class medicine, and the word quickly spreads to the patients.

Health facilities are not highly regarded by the rural people. Common complaints include that centers are often closed and that they lack medicines. Kaolin is widespread and highly promoted by the medical community. Its basic purpose seems to be satisfying the patient's need to stop, or firm-up the consistency of stools. The kaolin being used contains niomicin which is known to cause diarrhea and is definitely counter-indicated in most cases.

Auxiliary nurses are overburdened and generally do not see themselves as health educators. They resist this role in most cases and generally do very poor jobs of teaching or explaining to mothers.

The primary health care worker (guardiane) program is suffering from high desertion rates and poor support. MOH midwives are more stable largely because they are able to charge for their services. But midwives are not regarded as credible sources of information about diarrheal treatment.

The generalizations provided here represent conclusions drawn from the initial pre-program research. Stanford will be conducting a baseline study which will explore several of these areas in more depth. For the moment, this is the best information available to us.

SECTION I.

BACKGROUND OF THE DEVELOPMENTAL INVESTIGATION

A. PROJECT BACKGROUND

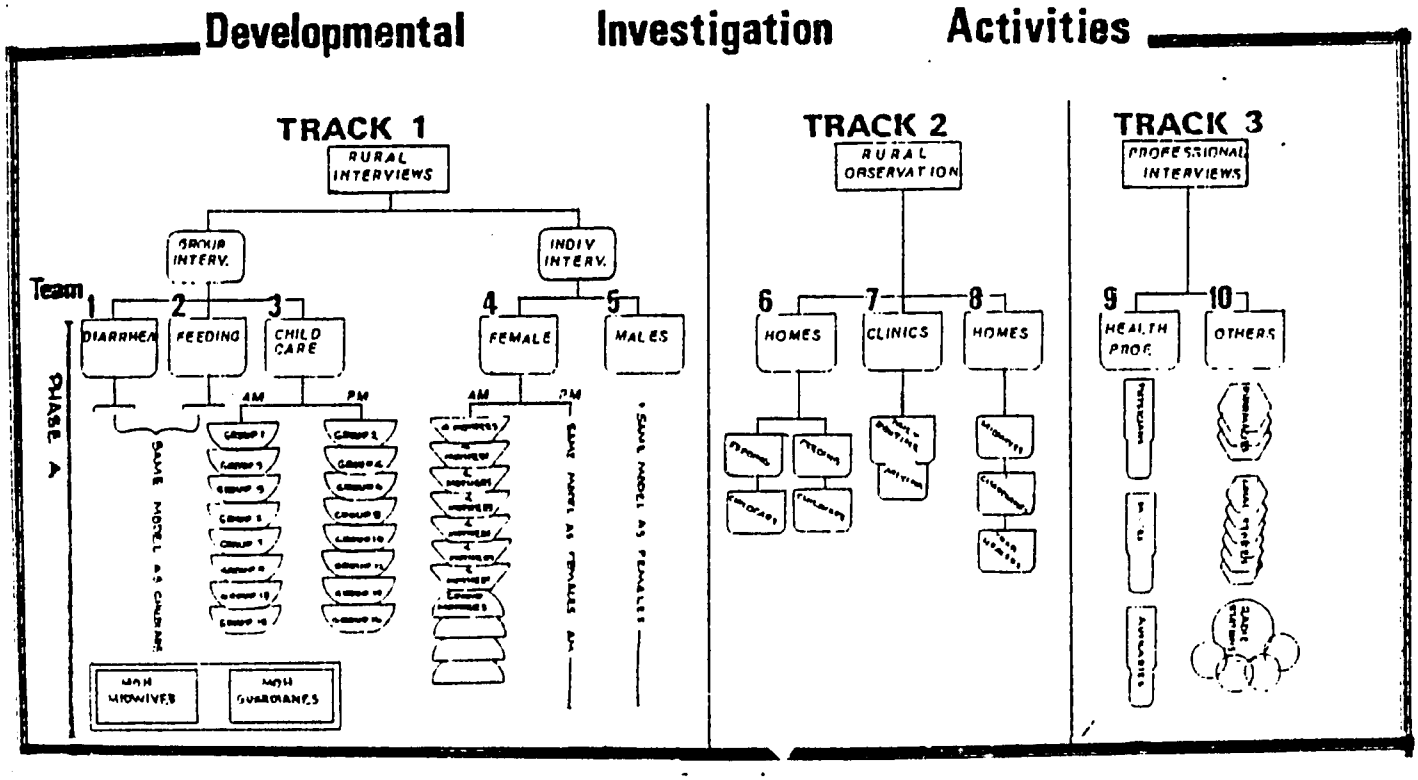
On September 30, 1978, the Academy for Educational Development was contracted by the United States Agency for International Development to implement a five-year mass communication project. The project seeks to develop a methodology for the application of mass communication to the prevention and treatment of acute infant diarrhea in rural areas of two developing countries. The long-term development goal of the project is to strengthen the health education of two cooperating Ministries of Health. The project is divided into four sequential phases: Phase One - a developmental investigation of the problem; Phase Two - a public education campaign using radio, graphic material, and face-to-face support; Phase Three - analysis of project results; and Phase Four - dissemination of those results to the world community of development communication professionals. Stanford University was contracted to evaluate the project, which is a joint effort of the Office of Education and Office of Health within the AID Development Support Bureau.

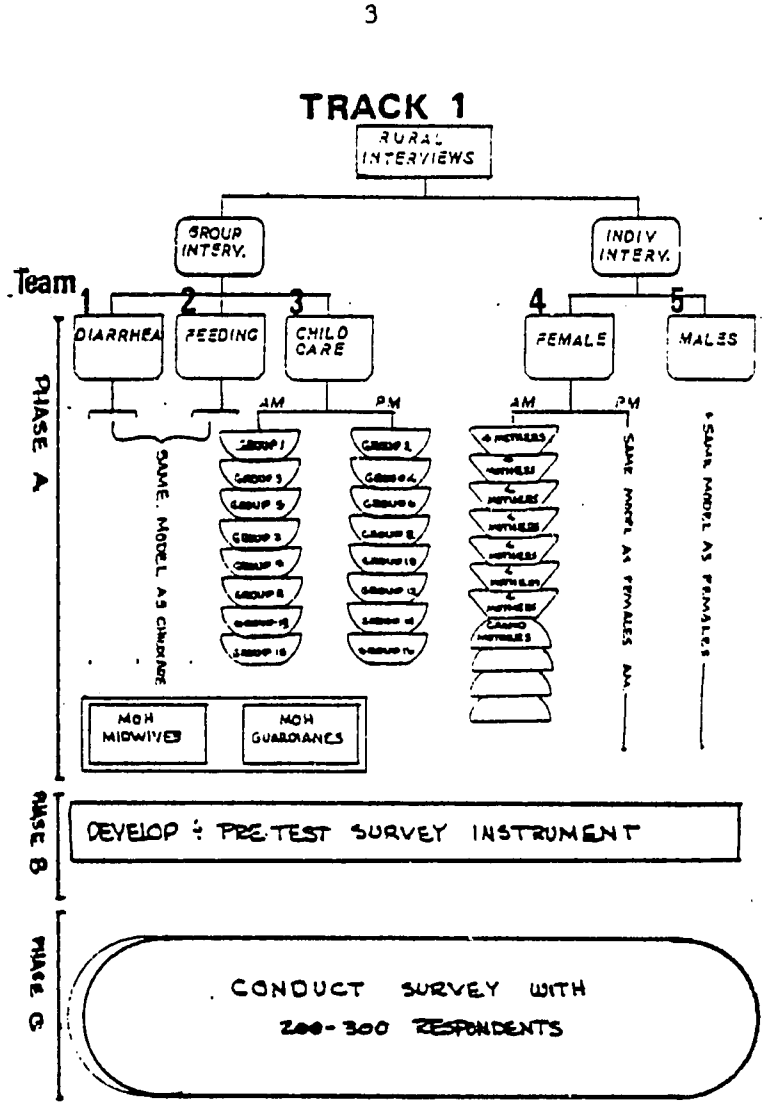
B. SUMMARY OF INVESTIGATION METHODOLOGY

The MM&HP Program must make operational decisions on a variety of health and instructional issues related to infant diarrhea within the specific cultural context of Honduras. To make these decisions, a six-month pre-program research activity, referred to as the Developmental Investigation, collected information from rural mothers and other child caretakers; from health personnel both modern and traditional; from rural community leaders and commercial representatives; and from media broadcasters and producers.

This information explored (a) current diarrhea related beliefs and practices, (b) potential distribution systems for information and materials, (c) media usage habits, and (d) indigenous leadership structures. It used open ended questions directed at small groups and selected individuals as well as direct observation and an empirical survey instrument.

The Developmental Investigation was divided into three research tracks conducted simultaneously. Each track had an independent group of data collectors trained to meet the specific needs of that track. Track One collected information on the attitudes and knowledge of those members of village society who come in direct contact with the sick child. Track Two used individuals selected from the same general group, but focused on observing and recording critical behaviors such as food preparation, mixing skills, and self-medication practices. Track Three shifted focus away from village caretakers to a broad range of individuals who influence the delivery of specific treatment components as well as the actions of village caretakers.





1. Track One

The principle concern of Track One was the attitudes and knowledge of those individuals within a rural community who most affect the sick child. This group included parents, grandparents, and opinion leaders. Special emphasis was given to families who had children under five-years of age, and who had children actually ill with diarrhea.

Because the focus of Track One was the attitudes and knowledge of a largely illiterate audience, the instruments relied on verbal interviews. The interviews in all phases are pre-structured, but those in Phase A relied more heavily on probing and open-ended questioning, while emphasis in Phase C relied on codable responses. Supplemental materials such as visual protocols to stimulate probing responses in small groups were developed. These included a set of visuals of sick children.

Interviewers were trained in practice sessions and worked in pairs so that one member of the pair could observe and provide feedback to the other. Pairs regularly reversed roles so that both became experienced interviewers.

Information was collected around three broad areas: diarrhea understanding, feeding, and child care. Specific investigation activities were keyed to pre-established issues and represent areas which the Academy feels were critical priorities.

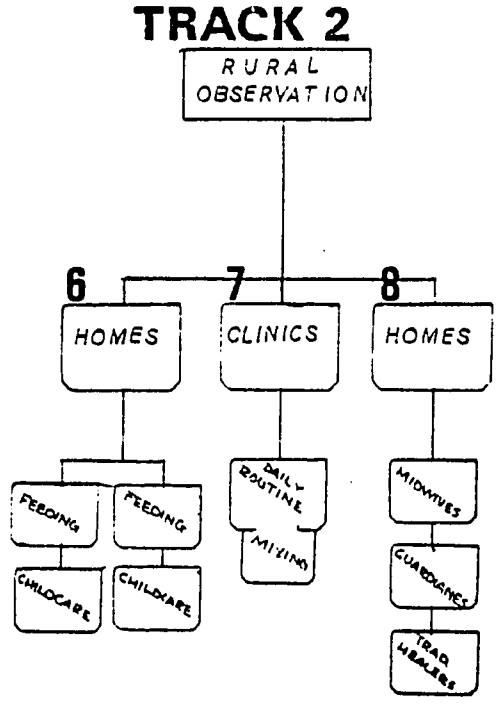
2. Track Two

Because Track One relied entirely on reported attitudes and knowledge and only by extension on behavior, Track Two sought to collect direct observational information on six critical areas. These areas were as follows:

- Feeding practices.
- Child care during diarrhea.
- Health clinic routine.
- Solution mixing; ability of mothers, parteras, and guardianes.
- Daily routine of midwives.
- Daily routine of guardianes and traditional healers.

To collect this information, three teams of two individuals each (teams six, seven, and eight) were formed.

The graph on the next page indicates how the team's activity was distributed.



Team members did not administer a questionnaire, but did use an observation guide to select and later record important activities. In the case of solution mixing, team seven, after working for two days at a health clinic, asked mothers on the third and forth days to prepare a pre-packaged OR solution.

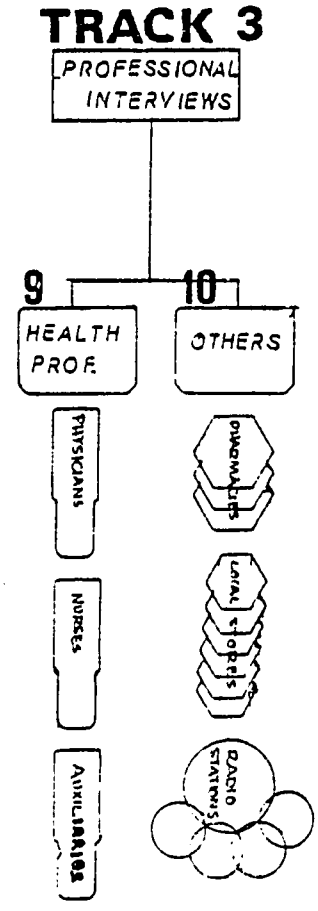
Interviewers were identified from groups of anthropology students, with some experience in rural areas. These were local nationals familiar with language and able to establish rapport quickly with rural people. Teams six and eight worked individually. Team seven worked together alternating management and observational roles.

Information collected in Track Two was analyzed in group sessions conducted regularly during the investigation as well as in written reports prepared weekly by the interview teams. The reports were structured around answers to specific questions identified in the instrument section of this protocol.

In addition to an Observation Guide, each interviewer had a series of critical probing questions to be used in each setting. These duplicated earlier questions asked in Track One and provided additional input to the process. Observed and reported behaviors were clearly separated on the tabulation sheets.

3. Track Three

In addition to village-level individuals directly affected by the MM&HP Project, there are a number of support roles, ranging from physicians to local radio station operators who influence the effectiveness of the program. These individuals tend to have a different interview mentality, and for this reason a separate interview track was designed for them. Track three used structured, open-ended questionnaires administered by two teams of interviewers (teams nine and ten). Each team was composed of two individuals, but each team member worked independently. Team nine focused on MOH physicians, private pediatricians, nurses, and auxiliary nurses. Team ten interviewed pharmacists and representatives of the media community, principally radio station operators. The following graph represents how interviews were distributed.



The university students and project staff who were used as interviewers met regularly with their team counterparts to compare observations and tabulate results. The complete results of Track 1 and the rural observation of Team 6 from Track II are included here. The remainder of Track II: Team 7's observation of health clinics and Team 8's of the homes of health care workers, as well as all of Track 3, are still being tabulated and are not included in this report.

The following summary of finding has been divided into qualitative and quantative results. The first corresponds to the response from group members and direct observation, while the second includes a summarized description of the individual interviews conducted in Track 1; Teams 4 and 5.

SECTION II.

QUALITATIVE DATA

A. TREATMENT

1. General Childcare

All interviews confirm that mothers are the principal caretakers of children. The mother watches the child, keeps it clean and is responsible for feeding. Although other family members may assist, the mother supervises all care. Sharing responsibility for the child increases somewhat after the child passes its first birthday.

a. Infants

Childcare for infants differs from childcare for small children. In an attempt to determine the distinction between the two, group probes asked mothers to define tierno (infant). Responses varied, with the full category extending from time of birth to age four. Within this range, four answer-clusters were most common:

- up to one-year (largest response)
- up to six-months
- up to three-years
- up to two-years

Six-months and one-year are generally the times of change in the way that a tierno is handled, fed and cared for. Other focus group probes defined tierno as a young child in need of more care because he is weaker than older children; "a tierno needs special cleaning, food, medicines, and love."

b. Toddlers

In general, focus group interviews concluded that a toddler (nino) can be defined as a child who can speak, eat by himself, interrupt, is active, and basically stronger than an infant. The definition of a niño by age is diverse as the definition of a tierno. Answers ranged from six-months to fourteen-years, however four clusters appeared most frequently:

- one-year to twelve-years
- one-year to seven-years
- one-year to five-years
- three-years to twelve-years

As with tiernos, mothers cited themselves as the principal caretakers. The secondary caretaker was the schoolteacher. As third choice, the grandmother and the father were identified. When the mother is busy, older siblings are first in line to care for the child, followed by grandmothers with no third mention made. Instead, mothers said the child was left to himself.

2. Diagnosing Illness

Mothers are familiar with the symptoms of diarrhea and can unhesitatingly identify a sick child. During focus group interviews, mothers were asked to identify the photograph of a healthy child from among photographs of children who were both moderately and severely dehydrated. All but one mother successfully selected the photograph of the healthy child. Mothers explained that the child was healthy because he was fat or had a "full body." Most of the mothers also commented on the child's happy look although the child in the photograph was not smiling.

a. Identifying diarrhea by name

In the same sessions, mothers were asked to identify the illness of the dehydrated children in the photographs. The most common response was diarrhea or diarrhea and vomiting. Only one group of mothers made no mention of diarrhea. Malnutrition and worms were also mentioned. The symptoms of diarrhea identified in the photographs included the child's being thin, malnutrition, bloated stomach, and wrinkled skin.

Diarrhea is the most common children's disease. Other diseases commonly mentioned are vomiting, malaria, and fever.* Malaria is not widespread throughout the country and seems to be confined to a single region.

Thirty-three local names were identified for diarrhea during the focus group interviews. The most common names included obradera, pitturia, corre que te alcanzo, curso, curseria, and cagason.

b. Recognizing general symptoms of diarrhea

Mothers in both focus group and observation determined that their infants were sick with diarrhea when there was an increased number of stools, lack of appetite, and crying. Mothers in the focus group interviews also mentioned the color and consistency of the stool.**

Mothers determined that toddlers were sick by observing the stools and loss of appetite. Field observers noted that small children spend most of

---

* It is important to note that mothers consider vomiting and fever to be diseases rather than symptoms of a disease.

** Diarrheic stool is liquid, greenish-colored and fetid. Observation of seven homes with children under five years old noted that only one of the seven children had mucus in the stool during episodes.

their time outside without any supervision by the mother. Under these conditions, mothers said the children will tell them when they have diarrhea.

Observers recorded that the average number of stools per day for a child who had been sick for 3.5 days, was six. Infants under one-year-old generally had more stools than did older children.

Focus group probes questioned mothers as to whether they had noticed changes in the child's skin, eyes, and mouth during episodes of diarrhea. All of the mothers had noticed those changes and described 15 changes in the eyes, in particular sunken eyes; 10 changes in the mouth, particularly pale mouth and dry lips; and 13 skin changes, particularly wrinkled skin. However, mothers do not necessarily draw the connection between these symptoms and water loss or dehydration. Mothers used some 27 different terms to describe dehydration. The most common were demacrado (emaciated), desnutrido (malnourished), and grave (seriously ill). Other words indicated pale, weak, anemic, or severely ill. Two mothers in one site mentioned the comparable word for dehydrated, no other responses indicated an acknowledgment of water loss or dehydration.

Additional symptoms described by observers included distended stomachs and fever, which was recorded for one of seven children only on the first day of observation.

c. Dehydration

Half of the mothers in focus group interviews claimed to have heard the word for dehydration. However, most did not know the meaning of the word. Many mothers believed it meant malnourished (thin, scrawny, without appetite) or weak. One group of women in a more urban village did understand the meaning. They explained dehydration as "loss of water, loss of liquid, loss of weight and body." Other mothers who understood the term said a child who is dry, a child with very wrinkled skin, or a child who looks like the photo (of the dehydrated child). The group probes support that mothers understand the basic concepts of dehydration but very few recognize the term itself.

Geography (mountain/valley), population size, and access appear to have little impact on the understanding of dehydration. The most important variable appears to be the proximity of a health center. Focus group members from sites with no health center had not heard the word dehydration. All of the groups who demonstrated some familiarity with the term were from sites without a health center. Health personnel are apparently using the word without always explaining its meaning in terms that the mother can understand. Interestingly, MOH community workers in sites without a health center also claimed to know the word but could not explain its meaning.

Although mothers may not understand the terminology, they do understand some basic concepts of dehydration. The response to the photo-selection

indicates that mothers recognized that the dehydrated child was seriously ill. Moreover, most of the mothers felt that the child's condition was caused by diarrhea or vomiting.

Group probes indicate that mothers have little knowledge of how to treat or alleviate the symptoms of dehydration. Almost all mothers understood that a child needs water during diarrheal episodes.* They know that diarrhea causes thirst. Many explained that children lose water during diarrhea which must then be replaced. However, even these mothers did not understand how much water a child is capable of drinking and needs to drink. Only a few mothers believed that an infant (tierno) could drink a liter of water in 24 hours. Mothers did believe that a niño could drink a liter of water in that period of time.

When questioned as to how much liquid they believed a tierno and a niño could drink, the mothers in focus group responded:

- Tierno: More than 3/4 of the mothers believe a tierno can drink no more than a half a liter in a day. A small group believed the infant could drink an entire liter while another group, slightly less in number, defended only 1/4 of the liter.

- Niño: 3/4 of the mothers said that infants will drink a liter or more in a day. A small group defended 1/2 liter and still fewer mothers said less than half a liter.

The question was further broken down to find how much liquid the tierno and niño could ingest in one hour.**

- Tierno: the first response was a cluster of answers which determined the amount as four, two, one and three ounces, in that sequence. A second cluster, with far fewer answers, placed that amount at 1/4 of a liter and half an ounce.

- Niño: Most mothers agreed that a child will drink 1/2 liter in an hour followed by those that said a child will drink 1/4 of a liter.

Mothers believe that an intake of 1/2 liter per day is an infant's limit. A child is believed to be able to consume more than one liter per day. These are disturbing results, particularly when considering the administration of oral rehydration solution. Mothers must be taught that a child with diarrhea loses large quantities of body fluid that must be replenished. They must also understand that the children, and particularly infants are capable of drinking much more than the amounts expressed, both in an hour and in a day.

---

* Two mothers said a child should not drink water because water increases the diarrhea.

** Without being asked, mothers responded with the ounce measurement. It was difficult for them to determine what, for example, 1/4 of a liter meant in terms of ounces. The answers here are reported just as they are given.

Both the group probes and observation suggest that mothers do not relate severity to the amount of fluid replacement required. Late treatment of diarrhea, and purges--both of which are common--further complicate dehydration.

3. Causes of Diarrhea

In focus group interviews the mothers most often attributed diarrhea to worms, improperly prepared food or bottles, the wrong food, and unboiled water. Mothers also make a strong distinction between healthy and unhealthy foods and which foods among these can cause diarrhea.

Group probes and observation of mother's beliefs on the causes of diarrhea were used to analyze the dichotomy between scientific and traditional health conceptions and those variables which affect this dichotomy. Each focus group gave several answers when asked the causes of diarrhea, some of which were scientific and some traditional. On the basis of their answers, the groups were classified into three categories.*

- Those who gave mainly traditional answers.
- Those who gave mainly scientific answers.
- Those who gave both.

An analysis of this classification illustrates the transition from traditional to scientific conceptualization which is occurring in Honduras. Less than half, but still most of the groups, were traditional, slightly less gave both types of answers and a small number gave only scientific answers. Not surprisingly, physical isolation was the variable with the greatest affect on health conceptualization. Those sites with easy access gave scientific or both types of answers while the sites with difficult access gave mainly traditional answers. Population, health area, presence of a community health worker, or even the presence of a health center did not affect the traditional/scientific conceptualization of the target audience.

The question was reanalyzed in terms of sites where groups mentioned unboiled water as a cause of diarrhea to confirm the unexpected results of the first analysis. Once more, access seemed to be the variable which most affected the question. Many more of the sites with easy access mentioned boiling water compared to a small number of groups, and usually only individuals within those groups, which mentioned the behavior in sites with difficult access.

---

* The categories "scientific and traditional" respond to the source of information rather than its inherent validity. If a reported cause, like worms, has been promoted by the professional health community, than it is classified as scientific. Worms, however, are not likely to cause diarrhea, so "scientific" here does not always mean the correct answer.

One important traditional belief was uncovered when nurses in the Oral Rehydration Room at the Materno Infantil reported that mothers were hesitant to force their children to drink the oral rehydration solution when the children refused it. After questioning, mothers indicated that a lack of appetite is one of the symptoms of empacho (local description of general stomach upset). The symptoms of empacho are lack of appetite, accompanied by gas, fever, headache, knots behind the ears and arms, one eye becoming smaller than the other, and constipation. Some mothers indicated that diarrhea could also be involved.

A child with empacho is taken to a sobador (a traditional healer) who diagnoses the disease and prescribes the remedy by massaging or feeling the pluse of the child. The treatment of empacho involves purging. Mothers believe that purging "opens the appetite" and therefore, are purging when the symptoms of diarrhea are diagnosed as empacho.

a. Worms

There is a general belief that everyone has worms. Normally, the worms are stable in the stomach but various things, such as eating too much fruit, or in one site--the rainy seasons, cause the worms to "turn over" and begin moving about the body. This movement causes diarrhea. Treatments are used to make the worms return to their natural positions in the stomach so that they can then be purged with a second treatment.

The symptoms which indicate that a child has diarrhea caused by worms are bloated stomach, stomach ache, cold feet, dark circles under the eyes, sleeping with eyes opened, the grinding of teeth, and waking suddenly and uncontrollably in the middle of the night. Diarrheic children who are suffering from worms lose control and become confused. The mothers described advanced cases where the child has convulsions, worms come out of the child's nose and mouth, and the child dies.

b. Foods

When asked if there were foods which could make an infant ill, all of the mothers replied affirmatively listing 21 foods, among them: frijoles, which cause diarrhea and belching; fruits which cause diarrhea, malaria, stomach ache, and unusual stool; cow's milk; fried rice; and potatoes. There is an indication that mothers feel that fried foods in general are hard for infants to digest and cause illness.

Mothers were also asked about mixtures of food that might be harmful to infants. Most agreed that cow's milk mixed with various foods can make an infant ill. Milk with an acidic fruit is said to cause vomiting. Some mothers mentioned that milk with banana, flour, chocolate, eggs, meat or soup could ruin the stomach or cause vomiting and/or diarrhea.

Mothers mentioned 31 foods which their older children disliked, by far the most commonly mentioned were rice and spaghetti. Many mothers explained

that rice gave the children diarrhea because it was too cold or too heavy. Some mothers said it was especially bad for a child when he had worms. Generally, mothers felt that the older children could eat almost anything that an adult could unless they were already sick or becoming sick. Mothers also stressed the importance of a child's eating on time or eating too much at one time.

c. Hot and cold foods

A distinction is made between hot and cold foods by the mothers; mothers believed that an infant's internal body temperature is lower than that of an adult. Breastmilk is thought to have a warming affect on the infant. As the infant grows older, his internal body temperature stabilizes. However, the body temperature still drops during the day. Thus, mothers talked about certain foods, such as eggs which shouldn't be given late in the day. Cold foods are those foods which can cause diarrhea, stomach aches, and respiratory problems in a child. Cold foods should not be eaten when a child is sick because they aggravate the illness. Mothers consider more foods to be cold than hot. During focus group interviews, 38 foods were listed as cold, however 13 of these were only listed as cold by one group, and five by only two groups.

The mothers were asked in particular to classify those foods which would be critical to the success of the MM&HP: salt, lemon, lemonade, banana, and oils.* Almost all of the groups agreed that salt, sugar, lemonade, and banana were cold foods. There was some difference of opinion about vegetable oils and lard. The majority of mothers felt that vegetable oil is cold but a significant number classified it as hot. Slightly more than half of the groups classified lard as hot. There was a general indication that, hot or cold, vegetable oil was the easiest oil for children to digest. The groups were equally divided about whether frijoles should be considered hot or cold. The most frequently mentioned cold foods were fruits such as pineapple and avocado, milk, and butter.

---

* If administration of vegetable oils after a bout of diarrhea is selected as a potential behavior, a qualitative survey must further research the feasibility of adoption.

d. Seasonal

Mothers recognize that the seasons of the year affect health. Most mothers indicated that the rainy months of April through August were the months of most diarrhea episodes. June through August is sometimes called the "month of the sick ones" or the "critical time."* The women also noted an increase in diarrhea in November and December, occasionally October was also mentioned. These periods correlate with the MOH statistics for critical periods of diarrhea.

4. Childcare During Diarrheal Episodes

Most mothers in the target area work in the home, most of the fathers are agriculture workers. Two of a group of seven homes observed had no male parent present. The diarrheal child was the concern of the child's mother in most of the families.** This concern was evident both in group probes and during field observation.

It is difficult to analyze whether a mother changes her work schedule to care for the diarrhetic child as observers were only present in the home during episodes of illness. However, the observers felt that more than half of the mothers did change their work schedule, usually stopping their chores to provide special attention to the child.

Group discussions and observations on the various treatments for diarrhea indicate that mothers are not secure with the treatments that they know. Mothers express particular worries about diarrhea and vomiting. Mothers do treat diarrhea in their homes and believe their treatments are sometimes effective. Half of the mothers observed, administered some sort of treatment to their sick child. Mothers were also observed talking to their own mothers or neighbors about the child's symptoms. Advice given on treatment was usually followed.

Children less than 1 1/2-years-old received much attention when they were sick; mothers responded immediately to infant's cries. The mothers were less patient with the children over two-years old sometimes letting them cry or sending them off with older children.

---

* The rainy season in Honduras corresponds with the "hungry season." The corn has been planted but not yet harvested, and last year's supply is limited. "Everything is expensive, foods are scarce, and the children don't eat on time."

** In one family, with no male parent present, the mother expressed no concern for her sick infant explaining that she had no time to worry about the child's illness because she had to worry about feeding all of her five children.

a. Deciding when to give treatment

Mothers were asked what signs indicate to them that their children need treatment. The most commonly mentioned symptoms were number of stools and lack of appetite. Consistency, character, and color of the stool were also common, as was crying.

1) Recognizing the severity of the illness

Focus group interviews established that mothers do make a distinction as to the severity of diarrhea. Two terms commonly identify severe cases: desinteria and basilar. The precise definition of these terms, particularly whether they include blood in the stool, varied. Although mothers do make a distinction in severity, their criteria for what constitutes a severe case is generally lax; frequently severe cases are not perceived as serious enough to receive treatment.

The limited time and inexperience of the observers did not allow in-depth understanding of the perceived levels of severity. The age of the child was not requisite in determining the danger of the case, nor was the number of stools; one child with nine stools per day was not treated, another child with four was. The number of days was significant in that none of the mothers treated their children before the child had had diarrhea for three days. Moreover, one child who had diarrhea for nine days--with up to seven stools per day, was never treated.

Recognition of severity is an important behavioral component which can only be ascertained by further study. However the following generalizations can be made from the observation:

- Diarrhea is considered a normal occurence in a young child's life
- Appropriate treatment is generally only considered necessary when the diarrhea is perceived to be abnormal.

2) Diarrhea and vomiting

Diarrhea with vomiting is the disease which worries mothers most. The mothers explained that diarrhea with vomiting kills a child quickly, "you don't have time to take them to the health center; diarrhea and vomiting kill in only a moment." Mothers emphasized that their concerns were compounded because there is no known remedy for this most feared disease.

Special foods and medicines are given to the child with diarrhea and vomiting. Twenty-nine aguitas (teas) were mentioned by the mothers. Cinammon tea was always mentioned, also common was agua de manzanilla. Teas are thought to have a calming affect on the stomach which will stop the vomiting. Many women said that teas nourish the child.

Commercial medicines mentioned included Alka Seltzer --alone, with Coca-Cola, and with Terramiacine--bottled oral rehydration solution (available in some villages in the Region), and the anti-spasmodic from the health center. Children are sometimes sent to the sobador (masseuse), who will treat the child for sunken fontanel. The mothers describe how the sobador holds the child upside down while patting the bottom of the feet. The sobador also sucks on the top of the skull with his mouth and/or pushes up on the roof of the child's mouth.

b. Feeding during diarrheal episodes

Group probes indicate that mothers understand that children with diarrhea need to eat during episodes to prevent malnourishment and weakness. Observation concurs that they are feeding during episodes. Observation did not witness a situation in which children refused to eat. They therefore asked each mother what she would do if her child was ill. Some mothers said they would purge the child or take him to the health center. In general, mothers continued feeding children solid foods, breastmilk, and powdered and cow's milk during episodes.*

1) Feeding infants

a) Breastmilk

Mothers generally feel that breastmilk is the healthiest substance for a sick infant. Group probes and observation confirm that mothers breastfeed during episodes. In focus group interviews, mothers explained that they should breastfeed when the child has diarrhea and that breastmilk is the only thing their infants will eat. The mothers who said they did not breastfeed when the child was ill explained that doctors prohibited feeding. A few mothers said they never breastfed their children.

However, mothers agreed that breastmilk can cause illness depending on the health of the mother. The mothers listed twelve types of illness including the mothers being agitada, or physically hot, nervous, worried, angry, or frightened which can cause diarrhea, vomiting, or fever in the infant. It is also believed that a mother who breastfeeds after eating certain foods (e.g., avocado), while pregnant, or if the mother breastfeeds too long after the child is first hungry--can cause illness. None of those observed, including the mother who stopped feeding her child solid foods, stopped breastfeeding during diarrheal episodes. The small number of mothers who did give non-breastmilk explained that there is nothing else, or they can't afford to give anything to the child.

---

* This data is somewhat contradictory as mothers also indicated that milk, other than breastmilk, might be harmful and should be discontinued during diarrhea. Observation supported the discontinuance of powdered and cow's milk. Additionally, supplemental feeding and solid foods may be discontinued when diarrhea is perceived as particularly serious.

Most mothers did not alter the diets of their sick children dramatically. Children continued eating solid foods and non-breast milks during episodes. One mother limited her infant who had been eating semi-solids, powdered milk, and breastmilk to only breastmilk supplemented by rice water. She explained that rice wate_ was the best food for diarrhea.

b) General feeding

Team six, in observing feeding patterns, sought healthy children to compare normal feeding patterns with the feeding patterns of unhealthy children. Three of the eight children reported as healthy by their mothers actually were suffering from diarrhea at the time of observation. Much of the general feeding information for healthy children was based on the group probes by necessity.

Beliefs about the foods that are good for children during diarrheal episodes vary greatly. Several mothers said they did not know which foods were good and gave the child whatever was available. During focus group interviews, 34 foods and drinks were mentioned, including:

- Liquids: five types of juice, six aguitas, commercial bottled oral solution, sodas, eleven types of soup, and six types of mush.
- Solids: cheese, eggs, rice, and tortillas.

The single most commonly mentioned items were rice water, frijole soup, tortillas and cuajada (cheese). Four of the focus groups mentioned the oral rehydration solution.

The response to these questions reiterates the belief in the need to feed diarrheic children. Mothers regarded the foods as replenishing and often used the terms "light" or "soft" to describe them. Many mothers added that the reasons they gave particular foods during episodes was because they were poor and there was nothing else to give.

The mothers were also queried on which foods not to give a sick child. All mothers mentioned meat. Additionally, nearly all of the mothers listed frijoles--although not frijole soup. Many mentioned milk, eggs, avocado, and oil or fried foods. There is some indication that mothers prefer to fry foods, particularly frijoles for their infants. The undesireable foods are thought to aggravate illness, often the term "heavy" is used to describe them.

c) Feeding toddlers and mothers

Mothers agree that older children should eat during diarrheic episodes. Many groups indicated that older children, like their younger siblings, should avoid meat and frijoles while ill.

Mothers will eat during their own diarrheal episodes. Those few who do not explain that they lose their appetite when they have diarrhea. The women who do eat said they eat everything; "whatever we can obtain." Some women said they, like their children, would not eat meat and frijoles when they have diarrhea. One group explained, "the foods that cause diarrhea arent't available here anyway."

c. Medicines and remedies

Mothers depend on a wide variety of treatments for diarrhea depending on what is perceived to be the cause of the illness. During the identification of the photo series, mothers were asked what should be done to help the child who appeared to be very ill. The two most common responses were to take the child to the MOH clinic for worm treatment and give the child medicines; both home prepared and commercial. The observed treatment did not support answers given during the group probe; mothers were applying commercial remedies (antibiotics and purges) and those herbal remedies which were available in their own communities. Only a few mothers obtained treatments from the health centers, and usually only after the diarrhea had lasted for several days without responding to home remedies. Group probes and observation both indicate that although mother's accept the dangers of diarrhea, it is so ordinary that treatment is often ignored.

1) Home remedies

Four out of seven mothers administered treatment to their sick child during observation. Treatment seemed to be most related to economic status and success with some influence provided by the proximity of a health clinic. The three mothers who did not treat their children, even with local herbs, lived in the poorest and most remote sites. Children who received treatment usually had a large number of stools. The child's age was generally less significant than the mother's general level of preoccupation about the illness, as a stimulus for providing treatment.

Group probes and field observation concur that mothers are already mixing a variety of treatments in the home. These treatments were both commercial and non-commercial, often the two are mixed or used in sequence to treat the same episode.

a) Commercial

Antibiotics, and other commercial remedies, are the most common treatments given. All of the mothers who treated their children during observation provided some type of commercial remedy. One of the mothers who did not treat her child during observation reported giving a commercial remedy during the previous episode. Two mothers residing in areas near a health center obtained their remedies from the health center. Others purchased remedies at local stores. Mothers commonly keep remedies in their homes.

Remedies in the form of pills are dissolved in water and spoonfed, as are liquid remedies such as kaolin. Mothers indicated that they expected the diarrhea to stop after treatment. In all but one situation, where the child was also purged, the number of stools had decreased by the third day of observation.

Twenty-one commercial remedies were mentioned, ranging from antibiotics to laxatives and antacids. Terramiacin was the most frequently cited, followed by Sulfabismuth, Estomalito (an anti-diarrhetic), Agromiacin, Enterobioformo, and Phillips Milk of Magnesia. Commercial remedies used to treat worms included Padra and Lombrisaca. During group probes, mothers reported purchasing these remedies in local pulperias (stores). The mothers learned of the various remedies from others in the community, particularly their own mothers or neighbor women. Many individuals also said they learned about the remedies from the auxiliar and from the radio.

Purging with commercial remedies followed regular administration of commercial remedies as the most common remedy. Two of the children were purged during the observation; one with commercial laxative and the second with a commercial deworming medicine. Three mothers said they had purged their child during the last episode of diarrhea. The purges were administered with a spoon.*

b. Non-commercial

The list of non-commercial remedies, including aguitas, plasters, and unctions is even more lengthy and complex than the commercial remedies. Most often the non-commercial remedies are composed of natural ingredients; mixtures of herbs, fruits, grasses and barks either cultivated by mothers in garden plots or found growing wild in the fields around the community. These remedies are often prepared by steaming or boiling the ingredients and administered as a liquid. the amount of liquids given are not adequate to compensate for dehydration, often the solutions are spooned in small amounts or mixed with foods or other remedies; the total of which does not surpass 1/2 cup per day.

Forty-nine aguitas were mentioned throughout the field survey as treatments for diarrhea. Many were mentioned by only one or two mothers. The most common aguitas mentioned were agua de cinammon, agua de manzanilla, and agua de hoja blanca. The women listed 21 aguitas which were specifically used to treat worms. The most common being agua de pazote. Many of the herbal remedies included lemon among the ingredients.

A closer look at the aguitas shows that the presence of health centers and general access of the community has an effect on the balance between traditional and scientific treatments. The list of aguitas and the number of mothers administering them was greater in sites without a health center, although mothers in sites with health centers also reported using aguitas. Health area, presence of community health workers, population, and geography did not have a measurable affect on the use of traditional remedies.

Analysis of diarrheic treatment illustrates the general trend of the population toward scientific health beliefts. All of the mothers in focus group reported using commercial (scientific) remedies. However, the continued widespread use of aguitas (traditional) demonstrates that traditional treatments are still the norm.

---

*In the case of the medicine used to purge worms, the number of stools increased from one to four in 24 hours. In the case of the laxative (10 month old child, dosage of ½ tablet) the observer did not see an increase in stools.

With continuing diarrhea compounded by fever, the mother will sometimes apply a herbal plaster to the child's stomach, head, pulse points and at the bottem of the feet. The exact placement of the plasters differs from site to site. Mothers named 18 mixtures for these treatments. The most common was comprised of egg, apazote, sour orange, essence of coronado, and Florida Water. Plaster's are believed to restore strength depleted by the diarrhea.

A few women also discussed unctions prepared in the home and massaged into the child's body. Again, the application points varied from site to site. After the unction is applied, the children are wrapped in blankets to encourage perspiration. Unctions are used to treat diarrhea, vomiting, and worms. The most common unction involved rubbing turpentine on the child's head, pulse points, stomach, and fontanel.

Mothers claim to have learned about the non-commercial remedies through the older generation of women in their village, "they left us this as our inheritance" Women in the community will exchange the herbs which are used to complete the different mixtures. Commercial ingredients such as alcohol, Florida Water, turpentine and guaro (a local rum) are purchased at the local store. Generally, the ingredients used reflect whatever is available in the community.

c. Administration

Despite the wide variety of remedies, mothers are following a standard process in the treatment, with some variation depending on the type or cause of diarrhea. Home treatment with commercial and non-commercial remedies is attempted first. Depending on the perceived cause of the illness, this stage of treatment may be accompanied by a visit to the sobador or curandero who would prescribe additional locally available remedies.

If this first stage of treatment is ineffective, the child is taken to the health center, then if the child's condition continues to worsen, the mother will attempt to take him to a private doctor or to the hospital. "If the child doesn't get better after I take him to the sobador and purge him, I take him to the health center. If that medicine doesn't help, I hurry to take him to a doctor for an examination."

Observation indicates that mothers are waiting at least three days to begin treatment, some mothers never treat their sick children. Group probes and observation indicate that mothers know that medicines must be correctly administered to be effective. Mothers also understand what a 24-hour period is. However, the hour of a medicine's administration is frequently conjectured and there are indications that many mothers will determine that a prolonged administration is too complicated and not worth implementing. Mothers agree that a sleeping child should be awakened to administer medicines.* Many mothers mentioned that doctors had told them to give medicines at particular times.

*Interestingly, almost the same mothers said they would not wake their child for feeding, explaining that sleep is nourishing and that the sleeping child allows the mother to continue her work uninterrupted.

d. Evaluating the success of treatments

The mother's believe a diarrheal treatment is working successfully when the number of stools decreases. This measurement of success does not require that the stools stop completely. The women also expect increased appetite, and that children begin to play and be happy again. This correlates with the mother's descriptions of signs indicating when the child needs treatment.

2. Treatment outside of the home

The observation teams found it difficult to distinguish a mother's motivation to seek out-of-home treatments. When asked directly, mothers responded with a variety of answers, the most common being that the symptoms become more serious.

As stated earlier, mothers first seek help from the other women in the community, particularly their own mothers, and the older women. Although mothers reported that they take their children to the health centers when the child is ill this behavior was not observed and can be regarded as an exaggeration of the actual response.

Mothers claimed that they are responsible for making the critical decisions on when to seek outside help for their sick children. Mothers also claimed responsibility for decisions about the purchase of medicines. The mother regards this as part of her broader function of child care, explaining that the father is seldom at home during the day and should be responsible only for providing funds for whatever purchase is necessary. Observation indicated that whenever money was required, fathers were consulted. One mother with a child who had been sick for 22 days was unable to take her child to the health center because the father was away and could not supply money for the journey.

Many more mothers indicated that the father, or both parents together, made the decision when the child was taken to a hospital. Some mothers felt that they could make the decision alone in an emergency if they had the funds. The father's role in treatment increases relative to the cost. Other family members may become involved if treatment, or a trip to a medical site, requires a loan. Sometimes the father and older children will help carry a sick child to the health center.

3. Suero oral

a. Familiarity with suero oral

Half of the mothers in the focus group interviews claimed to have heard of suero oral. Of those, only a few could recite the formula, and none, including community health workers, remembered the formula correctly. In sites with a health center, all or most of the women had heard of suero. In those sites without a health center only one or two persons, often MOH workers, were familiar with the term. Even though some of the mothers have heard about suero oral in the health centers, they have not been motivated to use it. A few had used oral rehydration solution. The group probes indicated that most of those who had tried it, sampled commercially prepared bottled oral rehydration solution instead of the simple sugar-salt solution. Even those who had tried the simple suero casero, were not enthusiastic and did not mention suero as a recent treatment.

Closer analysis was made of the mothers who had used oral rehydration solution. In general, the mothers who had earlier understood the term dehydration and recognized that a child needed water during diarrhea, were the same women who had used oral rehydration solution. Both focus group interviews which were held in Ojojona, a large town close to the capital, reported data showing that the women were relatively sophisticated in their health concepts and had used oral rehydration solution. Other mothers who showed some understanding of the solution were from villages within the influence-radius of the CESAMOS*. This indicates that doctors are prescribing the solution. Although doctors see few mothers, their opinions and recommendations are important.

b. Home preparation of suero casero

Although mothers were unfamiliar with the recipe and application of suero casero, most felt the combination would be helpful to their sick children. Only one mother said that she had no faith in a sugar-salt-lemon combination as a diarrhea remedy.

This positive attitude may have been a reflection of what the mothers thought the interviewers wanted to hear. The data was obtained from a yes/no answer. However, the variety and quantity of reasons cited by mothers as to why the solution could be good for diarrhea indicate that they genuinely believe the solution would be beneficial. The most commonly cited reason was that the lemon is good for illness, also that children need water when they have diarrhea, the solution would be good for children's stomaches, that suero is nutritious, and that the solution contained needed vitamins and minerals.

Having confirmed that mothers had no aversion to the foumula, the field survey team set out to find whether the typical home was equipped with the ingredients needed to prepare the solution.

- Ingredients

  * Sugar

Eight observed homes contained granulated sugar. The only home which lacked sugar was the poorest home observed. Almost all of the mothers in group interview reported daily use of sugar. Some mothers reported using dulce, a hard brown sugar. A few women said they used both. A spoon is used to measure the sugar which is an additive to sweeten coffee, milk and juices. Sugar costs U.S. $ .20 per pound. Generally sugar is always available and purchased weekly. Dulce is broken off in chunks and used to sweeten coffee or milk. Dulce is less expensive than sugar at a cost of U.S. $ .30 a pound. A pound of dulce will generally last twice as long as the same amount of sugar.

  * Salt

Salt was present in all homes observed and all mothers in group probes reported using salt daily. Most mothers used their fingers to measure salt. Only one mother was observed using a teaspoon. Salt is used to flavor tortillas, mantequilla, cheese, rice, frijoles, eggs and meat. Some families provide salt for their animals. Only one mother mentioned a medicinal use; a salt bath for allergies. The average cost is U.S. $ .15 per bag. Salt is purchased weekly and always available.

---

*Health center with a doctor.

b. Feeding patterns for diarrhea prevention

In the cited behaviors for prevention, proper feeding, food preparation and nourishment rank second only to hygiene in the mother's appraisal of proper health maintenance.

1. Mother's belief in breastmilk

Honduran women breastfeed their infants, those mothers who did not breastfeed explained that they had no milk. In the homes observed, the trend was to nurse until six-months, whereupon bottle feeding with cow or powdered milk either supplements or replaces breast. Focus group data supported this finding. All four of the infants under six-months old were breastfed during observation, while only one of the infants between six-months and one-year was nursed without supplements. The oldest infant observed breastfeeding without supplements was nine-months old.

All mothers agreed that breast was the best milk. Many said that breastfed children grow more quickly and are healthier and stronger. Some mothers believe that breastmilk is a protection from illness; breastmilk is "la sangre de la madre", the blood of the mother, which is passed on and gives strength to the child. Many mothers indicated that they favored breastmilk because they couldn't afford anything else.

Mothers continue breastfeeding during an infant's illness. Mothers reported breastfeeding even when they themselves are ill. When probed about what they would do if they were very ill and unable to breastfeed, mothers mentioned 19 foods that would be given instead to the infants, cow and canned milk were most often mentioned.

Most mothers said they begin feeding other foods when the infant is six months old. Weaning foods are generally taken from the family pot. These foods are often stored for more than one hour and not reheated. Weaning foods which are probable sources of contamination are frijol soup, tortillas, cow's milk, cheese and powdered milk.

2. Food preparation and storage

Many foods are boiled before they are eaten which would reduce the threat of their serving as sources of contamination. However, other foods are not boiled and most foods are stored without proper covering after preparation, and re-served without being reheated. The observers found a total of 16 foods that were stored in the homes of the Region for more than one hour, including: frijoles, tortillas, bread, cheese and cow's milk.

- Frijoles are a major potential source of contamination. In the homes observed they were stored from four hours to three days. In five of the eight homes, the frijoles were not reheated before eating; even after three days of storage.

- Tortillas could also be a major source of contamination. Tortillas are normally prepared in the morning and stored up to 10 hours without being reheated. Most mothers do cover the tortillas after they are prepared, but during prepara-

tion the dough is uncovered and flies are common. The problem of mothers contaminating the dough while completing other household chores has been mentioned earlier. It is questionable whether the short cooking time destroys all of the bacteria.

- Cow's milk is usually purchased or brought to the home in the morning and left uncovered all day.

- Cuajada, cheese, is also stored -- sometimes for several days, without a covering or a lid.

- Rice may also be a source of contamination, however, rice was eaten immediately after its preparation in 50% of the homes observed.

The observers also found 16 foods, mostly fruits, which the family peeled -- the hands, fruit and/or knife were rarely washed. When washing did occur it was merely rinsing in contaminated water. Ten utensils were observed in the feeding of infants less than 18-months old, 39 utensils were used for the family in general. The only utensil which was found in every home was a comal, a flat skillet used to make tortillas. Other common utensils included:

- In seven homes: plates, large spoons, ollas, and knives.

- In six homes: huacales (gourds used to drink water) and sartenes (small frying pan).

- In five homes: forks and apaste (large clay pot used to store water).

The utensils were washed in every home. They were consistently washed with the cleanest water available, and in six of the nine homes observed the utensils were washed with soap. Baby bottles were sometimes washed with boiling water.

A common practice for washing dishes and utensils is to rinse them immediately before eating so that they are wet with contaminated water while being used.

3. General meal patterns of the family

Most families eat at a table in the kitchen. The families that did not eat in this style (3 of the 9) ate in various parts of the house with a plate or bowl held over their knees. Frequently small children ate on the floor.

In most of the homes, the mother distributes the food. In two homes the grandmother also distributed foods. The serving utensil for meals is usually an unwashed spoon. The observers found that in all families with infants less than 1½ years old the mothers assisted the infant in eating. However, in 2 of the 3 families with children from 1½ to 2-years old, the mother did not help the child. Only one of the two children from 2 to 3 was helped by the mother and the one child observed who was three was not helped at all.

During focus group interviews, mothers were presented with a hypothetical situation: if your husband comes home from work tired and hungry, who do you serve first, your husband or your children? Almost all of the mothers said they would feed the children first explaining that children must be fed when they are first hungry or they will become ill. As the children become older their

stomachs become stronger. Similarly, mothers said they would feed the infant before feeding the older children, "We have to feed the infant first because his stomach can't stand being empty." In general, it is believed that children must be fed when they are first hungry or they will become ill, and that infants and children should not be given too much food at one time or they will become ill.

4. Foods found in households of the region

The families have a limited variation in foods with an average of 15 foods, not including condiments, in each of the homes observed. The smallest variety recorded was nine foods found in the poorest home visited. Household staples include tortillas, coffee, sugar, vegetable oils, eggs frijoles, rice, cuajada, cow's milk, and seasonal fruits. This selection may amplify somewhat after the harvest.

Most food is brought into the home through a cash purchase. Six of the 11 most common foods were purchased.* Even frijoles were purchased in 3 of the 8 homes observed. Foods which may be produced by the families include corn for the tortillas (produced by 7 of the 9 families), eggs, fruits, and a few vegetables.** The teams saw no direct trading but did see some gift-giving, especially between family members. This sort of gift-giving may be reciprocated during the year and probably occurs on a larger scale during the harvest season.

Taking into consideration that there may be foods that were unavailable during the field visit, the general pattern of feeding for children is as follows:

- Up to six-months: breastfed.
- Six-months to one-year: breastfed and fed a selection of foods from the family pot.
- One-year old: whatever the family ate.
- After two-years old: the child eats exactly like an adult.

The exception is that children less than 1½ did not receive as many treats such as soda, popsicles, and cheese curls as did their older siblings. Some young children were not given certain fruits such as avocado. Refried frijoles were withheld from children until they were 2½ or 3-years old.

a. Special foods for the tierno/infant

Focus group interviews found 29 foods which are given to tiernos. The most frequently mentioned were potato, tortilla, pataste (a squash like vegetable) and frijole soup. Most mothers said they give the foods once a day although

---

*Rice, coffee, salt, sugar, cheese and vegetable oil.

**The field investigation was carried out during the "hungry season" when the crops have been planted but nothing has been harvested and last year's supplies are largely depleted.

many mothers said two or three times a day. In general, the responses indicate that there is no strict schedule for feeding and that frequently the mother merely gives the tierno a portion of what she herself is eating. Infant foods are prepared in liquid forms whenever possible. Eggs are soft boiled or cooked in soup and fried. Fruit is served as a juice with boiled water or cut up into small pieces, mashed, and pureed. Frijoles and rice are fixed with soup. Rice is often stewed with milk. The critical foods are those given to children from six months old which could be a source of contamination for the previously breastfed infant susceptible to all new sources of bacteria. These foods include tortilla, cow's milk, cheese, vegetable oil, salt, and sugar. Frijole soup, eggs and bread were given to half of the children. Other foods given include coffee, kool-aid, hard candy, chicken, powdered milk and sugar water.

b. Special foods for the toddler

The common foods for niños mentioned by mothers in the focus group probes numbered over 25. Most frequently mentioned were rice, eggs, and frijoles. Cheese, tortillas and meat were also frequently mentioned.

Almost all of the mothers said they sometimes gave sweets and fruits to their niños, including bread, popsicles, churros (cheese curls), hard candy, and soft drinks. Mothers explained that these foods are not given daily as the foods are too expensive. Other mothers mentioned that the treats were not always available. In those cases they may have been referring to fruits rather than commercial sweets. The mothers explained that the children liked these foods because they thought that they tasted better. Others said that children are gluttons and always hungry, still others because the food was sweet.

c. Water sources, use, and potential contamination

Most of the observed families obtained their drinking water from gravity-flow water systems and running faucets. One of the nine observed families their drinking water directly from a well. Most families store their drinking water in clay or metal pots after drawing it from the faucets, only one family took their drinking water directly from the faucet. Three of the eight families did not cover the water pot during storage. The water was usually taken from the pot with the same utensil with which it was consumed.

The cleanest water available is used for drinking. Still, this water is contaminated and should be boiled. Water boiling has been a repeated educational message of the MOH but still is not common behavior. Less than half of the families boiled their water. Only one family always boiled the water, one family sometimes boiled it, and one mother boiled water for her small children, both of whom were less than two-years old. All three of the families who boiled their water resided in towns with a health center. There is some indication that mothers are more likely to boil water for their small children than for the entire family. Observers identified unboiled water as the most evident source of contamination and stressed that it was used in the preparation or many foods and drinks.

Water is also brought to the home for washing dishes, bathing infants, cleaning the house and sometimes laundering clothes, depending on how far away the source is. Bathing of the older children and adults, as well as most laundering is performed at the river. Almost all of the families took their water for other than drinking from the same source as the drinking water.

* Lemon

  Lemons are generally available and are already used by mothers in feeding their infants. All of the mothers said that they believed their children would like lemonade, they were not asked whether the lemonade was already being given. Many mothers indicated that the juice should be diluted with water and sugar before being given to infants.

* Banana

  Banana, which is being discussed as a possible source of potassium for diarrheic children, is already a popular children's food. Mothers reported feeding their children banana frequently. It is eaten raw, roasted, mashed, grated and mixed with milk. Some parts of the Region do not produce bananas and they are imported from the capital.

- Utensils

All Honduran households have an olla, a porcelain pot suitable for boiling water. Seven of the nine homes observed had more than one olla. Additional vessels are used to store water.

Observers found that few mothers actually measure liquids. Most cooking is performed by filling the pot to a certain line rather than using another utensil to measure. The only observed measuring was in the preparation of powdered milk, recorded in two homes.

Five of the nine homes observed had a liter measure. They included a Pepsi bottle (3 homes), guaro bottle (2 homes), and a bottle of commercial rehydration solution (1 home). There is no detectable pattern in terms of economic status, geography, access, or population to determine which families had a liter bottle.

The most common measurement in rural villages is the soda, beer or guaro bottle. Baby bottles were also present in eight out of nine homes observed, however only one mother mentioned a baby bottle when asked what she used to measure liquids. Although the MM&HP does not want to encourage bottle feeding, we must take this into consideration as an alternative method to measure the liquid for oral rehydration solution.

As the exact measurement of ingredients is critical, a standard measurement for the sugar and salt must also be identified. Spoons are found in all homes. The most common, the cuchara, varies in size from a tablespoon to a small ladle. Only three of the nine homes had teaspoons, or apertif spoons; both are called chucharaditas.

Spoons and drinking utensils will be needed to administer the solution. Every home had some sort of drinking utensil, be it a gourd, glass, or cup to be used to administer the solution to older children.

B. PREVENTION

1. General Childcare

a. Infants

When mothers were asked what was needed for a tierno to grow healthy and strong, the primary response was to keep him clean: bathing, cleaning his face, hands, fingernails and changing his clothes. After hygiene, a broad category of feeding was advocated: good nourishment, correctly cooked foods, and cleaning the feeding bottles. The mothers also listed medication in which the principal elements were vitamins and vaccinations. Breastfeeding was mentioned by only a small number of mothers, this could be interpreted as an example of a behavior so common that is not appreciated specifically for its health value.

Later, the same mothers were asked what can be done to prevent an infant from getting sick. Personal hygiene was again the first behavior advocated. As in the previous response, good nourishment was mentioned second. Likewise, the third response was medication; vaccination and medical control. The fourth answer, "boiling water" is odd as it had been barely mentioned in the previous list. Apparently, boiling water is regarded as a treatment rather than a prevention. A fifth behavior, protecting the tierno from mosquitoes and flies, was also commonly given. Almost as frequent was preventing the tierno from handling dirt or eating dirt.

Next, the mothers were asked which of these behaviors were the most difficult to complete. The question irritated those being interviewed. The behaviors were their daily responsibilities, not doing them was an admonition of negligence, of being a poor mother. Some mothers refused to answer the question altogether. Others answered with an evident lack of accuracy. In observation, the majority of mothers said that none of the behaviors was difficult to perform. During group probes some mothers admitted that good nourishment was not possible because of the general lack of food in the region. Lack of medicines was also mentioned. Mother's went on to explain that insufficient funds prevented them from carrying out all of these beneficial behaviors.

Mothers were equally reluctant to admit that they ever forgot to complete the preventive behaviors. Those that did answer, confessed that proper food preparation and administering the food on time were the most frequently forgotten. Covering food and baby bottles, keeping the child clean, and proper preparation of baby bottles were also suggested as behaviors not carried out.

b. Toddlers

As with the tierno, the majority of mothers agreed that the best thing for a niño to grow healthy and strong is to keep him clean. This includes bathing, cutting fingernails, and regularly changing dirty clothes. This behavior is not necessarily practiced; the majority of children two years and older observed were visibly dirty.

An equally high number of mothers agreed that medicines (vitamines included) were the best thing for a child to grow healthy and strong. Good nourishment was also widely mentioned.

After this third behavior, the concensus of response dropped dramatically. The fourth behavior mentioned was "having the child exercise so he will be strong for work." Another was mixing the proper food preparation with fruits and vegetables for nourishment. Other answers in this second cluster included preventing the child from eating dirt or getting dirty, and preventing the child from hurting himself when he went out to play.

A third and further diminished cluster of behaviors included regular medical check-ups, boiling water, and vaccinations.

Prevention behaviors also follow the pattern of answers given for the tierno. The most common answer was hygiene. Second, a cluster of varied behaviors receiving roughly the same number of answers: properly prepared food, vaccination, and curiously, boiled water. A third cluster of behaviors cited nearly as often included: advising children not to touch dirt and feces, administering medicine, and periodical check-ups at the centro de salud.

A fourth cluster of less cited behaviors included: keeping children from eating spoiled fruits, washing fruits before eating, cutting fingernails, and changing wet and dirty clothes.

Focus group interviews asked which of the behaviors were difficult to carry out. Again, the mothers were irritated. The most common answer was that none of the behaviors was difficult. Mothers that did answer the question cited proper food and medicine as difficult, followed by boiling water.

Mothers were also asked which of the behaviors were easy to forget. Many mothers said none, an almost equally large number listed washing children's hands and boiling water as behaviors frequently forgotten. A less cited cluster included finding medicine, vaccinations, and covering food and utensils.

2. Prevention Behaviors for Diarrhea

Mothers understand the basic prevention behaviors, and, with the exception of low priorities placed on breastfeeding and boiling water, ranked those behaviors in a manner that is compatible with the project needs. Generally, the greatest priority is placed on personal hygiene and proper eating. A further breakdown of prevention behaviors is presented here.

a. Hygiene for diarrhea prevention

Mothers agreed on the benefits of handwashing. More than half of the focus groups explained that dirt carries "microbes". Mothers went on to explain that they touch many things so that their hands get dirty; dity hands

should not handle food as they can cause disease.

Beliefs on the proper time for handwashing are varied. The focus group with the most detailed response concluded that hands should be washed when food is prepared. The group also offered, "when you get up in the morning, throughout the day, and before eating." Other mothers stated that hands should be washed when you touch dirty things, when one goes to the bathroom, and when feeding babies. However, as hypothesized and confirmed by observation; handwashing is sporadic and even rare.

- Use of soap

All of the groups volunteered that hands should be washed with soap. However, mothers admitted that few people use soap. The general feeling is that soap is too expensive. Observation confirmed that handwashing with soap almost nevers occurs. Soap is used for washing clothes and dishes and occasionally for bathing.

- Handwashing without soap

Handwashing, although a major thrust of the MOH educational programs for many years is still not common practice. Mothers were reluctant to admit that people do not wash their hands.* Most answered nebulously, saying "some do and other's don't." The few that did answer said basically, "there are people who like to be dirty, people are careless, or sometimes they forget to wash themselves."

The handwashing that was observed was heavily influenced by the presence of the MOH observer. In one family, both mother and children washed their hands although without soap. The mother pointedly commented that she always washed her hands because the MOH public service announcements told her to.

The only regular handwashing occurs when the mother prepares tortillas. Constant rinsing of the hands prevents the tortilla dough from sticking. However, the mother may use the same water while performing other tasks for example, changing the diaper of a diarrheal infant, thereby contaminating her hands, the water and the tortilla. The older siblings also do not wash their hands, this is important as they often distribute between-meal snacks to the younger children. The most infrequent handwashing was of children less than one-year old.

Although the sample is very small, it is interesting to note that the two mothers observed to always wash their hands lived in sites with a health center. The families in which the children never washed their hands lived in sites with no health center.

Observers noted that mothers also neglected to wash their breasts before nursing infants. Generally, younger children are bathed with the assistance of the mother or the older children. There may be a taboo against bathing children during episodes of diarrhea, but quite possibly the taboo is simply a general sanction against frequent bathing. In the families observed, only one of the children without diarrhea was bathed. That child went to the river and bathed herself.

---

* Generally, mothers were reluctant to provide answers of any sort which passed judgement on other mothers, their friends, or neighbors.

d. Exposure to fecal material in the home

The smallest children, those under 13 months old, were observed defecating within the house. Older children defecated just outside the home on the patio. The oldest child observed, who was 3½, would walk further away from the house to defecate. Once the child reaches the age of 1½ he would usually not be assisted during defecation.

Four of the children observed wore diapers consisting of a simple piece of cloth. Two of the children were naked during the day and the oldest child observed wore shorts. The children in diapers were changed on an average of five times a day during episodes of diarrhea. The number of changes depended on the number of stools, however, the team observed that frequently the mother did not have time to change the child as soon as he was soiled. Changing the child followed the pattern of general childcare. The mother was frequently helped with this task. Fathers, older siblings, and female relatives were all observed changing a child, even during episodes of diarrhea. Soiled diapers are placed where other children can touch them, on the bed for example, and are a major potential source of contamination.

C. AFFECTING COMMUNITY BELIEFS AND BEHAVIORS

Teams 2 and 3 probed the mothers during focus group interviews to determine who was regarded with respect in the community. Particular aspects of daily life were targeted for questions as to who provided opinion leadership; for example, in agricultural work, legal matters, etc, to determine if rural leadership was generalized to a few individuals or segmented by specialization. Additionally, some information was drawn from Team 3's focus group interviews on general childcare practices which elicited mother's opinions on favorable means of publicizing new treatments.

1. Leadership opinion in rural areas of the region

a. Most respected person in the community

The mothers chose the alcalde auxiliar as the most respected member of the community. This choice as followed closely by the schoolteachers. The answers then drop off somewhat for the third choice, the old people. Next, comes a tie between the patronato (local community group organized for a specific task, e.g. the building of a well, the school, etc.) and the military authorities (including the local police officer, the sergeant and the cabo cantonal). In fifth place there is a cluster of answers with about the same number of respondents made up of the auxiliar de enfermeria & the guardian de salud. The remaining answers were mentioned infrequently. The three most common in this last group include the priest, well known farmers in the locality, and wealthy persons.

The primary choices are basically authority figures. With the exception of the older people, all those mentioned are officials of some larger institution. Another conclusion which can be drawn from the list is that the variety of answers given and the clustered groupings indicated that there is no one single community leader. It is more accurate to speak of the leader in whatever special area one wishes to address.

MOH personnel are not highly placed on this list. The community health centers and local health workers do not have as great an impact on the community as may have been hoped. Their community involvement is largely limited to direct health care.

b. Who provides agricultural leadership

Mothers identified a government agency, Recursos Naturales, to answer problems involving agriculture. The agency was mentioned both by name, and by acknowledgement of its representatives. The second most cited group was, once again, the elderly. The third answer is that there is no one to ask for advice and therefore a person keeps to himself. Additional answers mentioned neighbors and other campesinos.

c. Leadership in home construction and improvement

The mothers chose carpenters, masons, or "the people who construct houses" as their leaders in home construction and improvement. As in the previous question, the person was identified strictly by expertise. Previously, chosen opinion leaders were not mentioned--including the elderly. These answers suggest that in concrete areas, technical expertise counts more than community interaction or history.

d. Who would be the person to go to with legal problems

The alcalde auxiliar represents the highest civil authority in the aldea, and is perceived as such by the community. Respect for authority is so ingrained in the campesino that the alcalde auxiliar is naturally the first choice of the mothers for legal problems. The second choice was military authorities followed by a cluster of answers including friends or persons with influence to help, for example the president of the patronato. The third cluster also emphasized those with legal expertise, judges, and lawyers.

e. Leadership in health problems

The second and third choices of the mothers tend to support the conclusions drawn from the earlier answers which indicate that occupational expertise is the most important criteria for leadership; mother's choices for health leadership were the auxiliar de enfermeria and the doctor. However, their first ch included other mothers, their women friends, and their neighbors.

Observation and individual interviews confirmed what the group interviews disclosed; mothers follow a basic pattern of treatment, no matter what or how severe is the sickness. The pattern is normally initiated with a personal diagnosis of the child's symptoms. The illness is first treated with familiar remedies. If these do not make the child better, relatives, friends and neighbors -- basically other mothers, are asked for their advice. If their suggestions are not effective mothers will proceed to advanced stages of treatment: e.g. visits to the local healer, then the auxiliar, and finally the doctor.

Successive alternatives included the guardian de salud, elderly people, and the health center. The pulperia and the curandera are also mentioned. Traditional healers such as the sobador, the midwife, and "the person that injects"

were also mentioned occasionally. Also mentioned were other health personnel such as the SNEM representatives and the health promotors.

The overall data here favors the traditional health system --that being other mothers and home remedies--as the means of resolving health problems. Those choices are augmented by MOH services. The auxiliar is recognized as the most important of the health personnel, followed by the guardian, and the health center (which actually refers back to the auxiliar, as the health center would not function if she was not present.)

The guardianes' role is recognized by many mothers who reported frequently consulting them for minor ailments. In the few communities where oral packages have been left on a trial basis without much instruction as to preparation and administration, the guardianes report having a satisfactory demand for the packets.

2. Publicizing new treatments

Most mothers mentioned radio, in particular the stations HRN, Centro, Paraiso, Oriental, Satelite, Moderna and America as the best means of publicizing a new health treatment in the Region. The guardian de salud was also frequently mentioned, however, this may have been because the interviewers identified themselves as MOH personnel. The pulperias were often mentioned as a good source of information. Less often mentioned were the alcalde auxiliar, "the lady that injects", the school director, the auxiliar, and the opinion leaders.

The women were questioned on where they would publicize their own remedies if they wanted everyone in the community to know about them. The answers were almost equally divided betwen the pulperia and the MOH guardian. One group also mentioned the partera who was present during the group interview. Guardians were present in two of the groups that mentioned them as information conduits. Participants in the group were also frequently mentioned as the best persons to explain a new remedy: including the owner of the pulperia, the guardian, and the midwife.

3. Behavioral reinforcement of the mothers

All favorite activities reported by the mothers involved household chores. In descending order, the activies included: making tortillas, cleaning the house, cooking, ironing, and taking care of the children and taking care of themselves. Activities like going for a ride, taking a trip, or giving or going to a party were never mentioned by these women. The mother's world is her house and her everyday chores; free time, hobbies, and leisure moments are a rarity. Pleasure apparently is derived from completing one's chores in a successful manner. The image of the good mother as one who does her everyday chores as best as she can is possibly the most powerful reinforcement available.

A second question asked the mothers what things made them feel good? The answers were chiefly concentrated in a single cluster pertaining to health: having good health, a healthy family, no one sick, etc. The second most-common answer was having enough food in the house.

D. ANALYSIS OF MASS MEDIA PATTERNS

Radio as a mass medium is best fitted to the needs of the MM&HP. Radio is

more popular,more widely used, and more influential than visual or print materials. However, there are a number of problems inherent in its use. Foremost among these is that the number of households with a radio set is not as high as had been hoped by Project planners. Mothers in focus group sessions reported the following:

- Of the 267 households, 117 (43.8%) did not have a radio.
- 150 (56.2%) reported having one radio set or more.
- Some of these sets were either out of order, had no batteries, or were regularly removed from the house by the father or another household member: 132 sets (49.4%), both functioned and remained at home.

The figures from the observation are less favorable. Just as in the focus group interviews, more than half of the 16 families had a radio set. However, of those 9 radio sets, only 5 were functioning and constantly remained in the home. The other 4 radios were out of order, without batteries, or had been taken from the house.

Print material is neither as widely present nor as widely consumed as radio. None of the households observed regularly received a newspaper or magazine. The most common print materials observed were calendars, religious stamps, and books. The latter were given by the Ministry of Education and were essentially educational Fotonovelas were a rarity. The group interviews showed that only 6% of the mothers owned a fotonovela. An additional 2% owned a cartoon novela. The observation team did not report seeing either type of novela. This does not mean that the mothers were disinterested in the fotonovelas. On the contrary, mothers in group interviews treated them with great care, obviously regarding them as valuable. Given the choice of a fotonovela, or a cartoon novela, 90% of the mothers in group probe selected the fotonovela. If possible, the mothers, said they would like to have both types.

1. When do mothers listen to the radio

The group interviews disclosed that more than half of the mothers listen to the radio each day. Favorite listening hours vary, but several clusters can be detected:

- Morning:

  * 6:00 - 7:00AM was the largest cluster.

  * Next was a cluster receiving approximately the same number of answers· 7:00 - 8:00AM, 9:00 - 10:00AM, 8:00 - 9:00AM, in that sequence.

  * A third cluster of answers fills the remaining morning hours, 11:00 - 12:00AM and 5:00 - 6:00AM, in that sequence.

---

*Observation contradicts the self-reported data; most listened-to hours were 8:00 - 9:00AM, 9:00 - 10:00AM, and 10:00 - 11:00AM.

- Afternoon

* A first cluster is made up of early afternoon hours; 12:00 - 1:00PM, followed by 2:00 - 3:00PM.

* A second cluster of answers comprised the early and mid-afternoon; 3:00 - 4:00PM, 1:00 - 2:00PM, and 4:00 - 5:00PM, in that sequence.

* A third cluster, with a greatly reduced listening audience, 5:00 - 6:00PM, 6:00 - 7:00PM, and 7:00 - 8:00PM, in that sequence.

Apparently, the most popular listening hour is from 6:00 - 7:00AM. Unfortunately, this finding was not possible to verify through observation as observers arrived after 7:00AM.

In general, the mothers of the group interviews preferred the morning hours through 10:00AM. This selection was confirmed by observation which showed that 7:00 - 9:00AM, and particularly 8:00 - 9:00AM, were heavily listened-to. The last hour of the morning, 11:00 - 12:00AM appears to be the least listened-to among the early hours. By this time the mother has finished her household chores and awaits the return of her children from school.

In the afternoon, the top listening hours were 12:00 - 1:00PM and 2:00 - 3:00PM. Remaining times were considerably less popular.

One time slot which had been targeted as an excellent hour, 4:00 - 5:00AM did not have a wide audience because although the campesino wakes up that early, children do not rise until 6:00AM and the radio is not used until the children awake.

2. Favorite radio stations

The favorite radio station cited by focus group probes was HRN. This selection was confirmed by observation teams. A one day record of radio listening, by half-hour intervals, indicated the most popular stations. HRN and Radio Satelite had the largest audience.

Radio America was the second most popular station for the mothers in group probes, observation however ranked Radio America tenth. This discrepancy is hard to explain, especially as the other ranking was very similar to that of the focus group probes.

In third place, mothers selected Radio Centro, followed by Radio Satelite. Satelite ranked before Centro in observation. The popularity of the stations drops off dramatically with the selection of the fifth and sixth stations: Radio Paraiso and Oriental. Observation ranks Radio Oriental in fifth place, while Pariso is not even mentioned. Both of these are local radio stations, located in only in Area 1 of the Region.

Favorite stations were confirmed in a second question asking mothers to identify the preferred radio stations of their neighbors. Radio Satelite was mentioned most often, otherwise the ranking is basically the same: HRN, America, Centro and Paraiso.

3. Favorite Radio Format and Programs

Mother's selection of their favorite radio format coincides with the radio stations which air those types of programs. A large number of mothers chose news as their favorite type of program. HRN has the most frequent and thorough news cast. HRN has sought a national reputation as the station with the best news coverage. Local stations without the resources to produce their own news programs affiliate with HRN and retransmit HRN's news.

An additional question asked mothers to name their favorite program. The most popular program was "El Reportero Fisgon" (HRN), followed by, "Los Barberos" (Radio America), and "HRN News". Apparently, the mothers in focus group enjoy both news and news satire. Direct observation yielded different results; there the news format was ranked below musical programming. This discrepancy cannot be overlooked as, once again, mothers may have been concerned with providing the 'correct' answer rather than the accurate answer.

Mothers in the group probes cited soap operas as their second favorite format. This choice was supported by answers given on their favorite series. After the mention of news programs mothers mentioned: "Una Flor del Pantano," "Doroteo Catacumbas Carcanal," and "Los Dos Gemelos" -- a soap opera, a humorous satire program, and a second soap opera. The names of additional soap operas were found throughout the list of favorite series. Observation confirmed that mothers selected soap operas after the news and music.

Musical programs were the third choice of the mothers for favored format. This is a slight deviation from the third choice for favorite programs where satires were cited as the third choice followed closely by musical programs. The ranking was close, which invites the conclusion that both formats deserve consideration in the design of a broadcast plan.

A final question to determine the programming preference asked mothers whether they talked with others about the programs they hear. Almost half of the mothers responded affirmatively and expressed the same basic ranking system for those programs which had been discussed: news, soap operas and humorous satire programs.

4. Radio's impact

A series of questions was designed to determine radio's efficacy as an information vehicle. The questions dealt with the capacity of the mothers to retain information, their belief in radio's credibility, and whether they had learned anything from the radio.

To test information retention, mothers were asked to identify a list of products by brand name. The most frequent answers clustered around soaps, non-prescription medicines, particularly the laxatives Alka-Seltzer and estomal, batteries, milk and coffee. It should be emphasized that the brand names of medicines were frequently remembered by the mothers.

The mothers were then asked to identify the malaria and dengue public announcements which had been aired by the MOH earlier in the year on a national network. Well over half of the mothers reported having heard such announcements. Their descriptions of the announcements were compared to the original script to determine the reliability of the answer. Only a few of the answers were not relevant to the original.

The mothers during focus group probes were articulate in responding to questions on radio's credibility. Half of the mothers replied that sometimes the radio could be believed and at other times it could not. The number of un-qualified "yes" answers was high. The mothers were then asked what can be believed. The most frequent answer was "health advice". Second in popularity was information about medicines. News and social announcements were placed third.

Well over half of the mothers reported that they had learned from the radio. Their answers were supported by an identification of what had been learned. Heading the list, with a large number of answers, were songs, followed by "advice to the fathers", and cooking recipes. Many mothers mentioned the literacy campaign which had been conducted by the previous military government. Health information received seventh mention. Vocabulary was also mentioned in learning what had taken place from the radio. Many of the words concerned with diarrhea prevention and treatment are broadly interpreted. A more standardized vocabulary could be transmitted through the use of radio.

SECTION III.

QUANTITATIVE DATA

The materials presented here represent selected summary data from the individual interviews conducted under Track One of the developmental investigation. The interviews took the form of a survey involving 64 mothers, 67 fathers, and 22 grandmothers for a total of 153 rural people. Interviews with mothers and grandmothers were conducted by women, usually in the homes of those being interviewed. The fathers were interviewed by men, most often in the fields during a work break. With a few exceptions, the data from these individual interviews concurs with the findings from the focus group interviews and the direct observation.

Total Sample:	64 mothers
	67 fathers
	22 grandmothers
Total:	153 rural people

1. What are the characteristics of a healthy child?

   Color, active, happy, & appetite. The first three were mentioned overwhelmingly.

2. What is the most dangerous disease in your community?

   46 percent mentioned diarrhea. Polio was also mentioned by a significant number of people.

3. What are the principal reasons children get sick?

   Explanations were overwhelmingly modern: water, food, malnutrition, insects, hygiene, & weakness. (in this sequence)

4. How can you tell when a child is sick?

   Sad = 132; pale = 93; appetite = 43 (Number of times mentioned)

5. How do you know when an infant or child has diarrhea?

Infants	Children
Number of stools	Number of stools
Consistency of stools	Consistency of stools
Color of stools	Color of stools
	Child tells
	Pain

6. What number of stools indicate that a child has diarrhea?

   Three or more in close sequence was mentioned by a large majority of people.

7. What do you feel causes diarrhea?

There was an almost equal distribution of scientific and traditional answers.
Most traditional answers involved eating a certain food.
Very few people gave no answers at all, indicating that people have some explanations.
Specific answers often mentioned include:

Water	56	Food preparation	15
Hygiene	21	Some particular food	62
Worms	40	Flies	19

8. Do you know a good treatment for diarrhea?

Yes = 72 percent No = 28 percent

Remedy	Always Works	Sometimes Works	Rarely Works	Did Not Mention
Antibiotics	25	46	6	77
Antacids	15	34	5	54
Purges	7	5	3	15
Herbs	12	16	2	30
Antidiarrhetics	6	6	2	14
Sulfa	6	17	1	24

9. What did you give your child the last time s/he had diarrhea?

Remedy	How many mentioned it?	Where they learned about it?
Antibiotics	40	Friends and neighbors
Antacids	31	Friends and neighbors
Purges	12	Several friends
Antidiarrhetics	38	Medical community
Herbs	14	Friends, traditional healers grandmothers
Sulfa	11	Friends, traditional healers, grandmothers
Other	33	Friends and neighbors/medical

10. Do you believe that purges help cure diarrhea?

Yes = 56 percent No = 42 percent

11. What do you think is the best purge?

Philips/Laxol/Oils (in this sequence)

12. Does anyone in the community know how to cure diarrhea?

Yes = 30 percent No = 70 percent

13. Of those who said yes, who did they mention?

Curandero
(Very few responses for the partera.)

14. Where would you go if you had a sick child?

Medical facility

15. Do you think diarrhea is a serious disease?

Yes = 91 percent No = 9 percent

16. What kind of harm can it cause?

77 percent = can kill
12 percent = makes child weak, malnourished

17. What can you do to prevent your child from getting diarrhea?

Boil water	70
Wash hands	31
Cook/wash food	27
Other hygiene related answers	34

18. What do you think is the best food for children?

Milk, eggs, meat, & rice. (in this sequence)
The best milk is cow - 45 percent; breast - 31 percent; and powdered - 9 percent.

19. What foods do you think are bad for children?

There are no bad foods	23
Beans	86
Beef and pork	47
Fruit	30
Milk	42

20. What do you think a child should eat during diarrhea?

The first answer given was

Cheese	31	Eggs	12
Milk	32	Atoles	17
Soup	23	Tortilla	7

21. Do you breastfeed your child when s/he has diarrhea?

Yes = 61 percent No = 18 percent

22. What are foods which makes a child worst when s/he has diarrhea?

No foods are harmful	12	Eggs	23
Beans	68	Fruit	31
Milk	58	Meat	69

23. Do you breastfeed your child?

Yes = 65 percent No = 20 percent

24. What age should you begin to give solid food to children?

0 - 5	43
6 - 11	54
12 - 18	46

25. What were the most commonly mentioned weaning foods?

Beans	43	Eggs	30
Soup	25	Rice	26
Milk	30	Cheese	25

26. When the mother is not available who takes care of the child?

Grandmother and older siblings.

27. Who takes care of a sick child?

Mother

28. Who in the family decides if medicines are bought?

Father = 44 percent Mother = 36 percent

29. Do you ever prepare medicines at home?

Yes = 46 percent No = 53 percent

30. What medicines do you prepare?

Herbal 35.9 percent
Mixed commercial medicines 6 percent (these are the first answers given)

31. Have you gone to the health center this year?

Yes = 88 percent (40 percent of the total said they went for diarrhea-related problems)
No = 11 percent

32. Where would you go for health care if you had sufficient money?

Private doctor	56
Materno Infantil	50
Pharmacy	18
Health center	11

33. Do you own a radio?

	(Of the mothers alone:)
Yes = 60 percent	Yes = 58 percent
No = 40 percent	No = 42 percent

34. Do you ever listen to "spots"?

    Majority said yes

35. Have you heard the dengue or malaria spot?

    Majority said no, and of those who said yes, only a few could remember anything about the spot.

36. Do you believe what you hear on the radio?

    Yes = 85 percent

37. Do you ever talk to friends or neighbors about what you hear on the radio?

    Yes = 50 percent No = 50 percent

38. Who decides what radio station is listened to?

    Mothers not asked this question.
    Fathers said fathers.

39. Do women listen to radio?

    Yes = 58 percent No = 6

40. Who would you ask for advice on a health problem?

Fathers	27
Friends and neighbors	24