Medical Anthropology, Vol. 12, pp. 419–441
Reprints available directly from the publisher
Photocopying permitted by license only

INCAP Publication PCI/007

Colors, Humors and Evil Eye: Indigenous Classification and Treatment of Childhood Diarrhea in Highland Guatemala

Elizabeth Burleigh, Carmen Dardano, and Jose Ramiro Cruz

Focal group interviews on indigenous perceptions and reported management of childhood diarrhea were conducted in 1987–88 in Guatemala as a part of a prospective epidemiological field study of chronic diarrhea. Six cognitive schemata were identified, each with specific causes, a linked progression of concepts, symptoms, signs, and diagnostic characteristics. Nearly all were related to the humoral theory of disease, including the concept of evil eye. Diarrheal disease was conceptualized in the village as a set of processes which could be either "hot" or "cold" rather than as an unchanging single-symptom entity occupying only one spot on the humoral continuum. Clarification of the temporal relationship between concepts was found to be essential to the understanding of these indigenously-defined schemata. Stool color reflecting humoral theory was the primary concept used in household-level diagnosis. Reported behavior associated with these cognitive schemata (traditional treatments, pharmaceutical and dietary management) showed remarkable constancy, and adhered for the most part to the humoral concept of equilibrium. These included the use of oral rehydration solutions (ORS) and liquids. The applied importance of humoral theory to home-based use of ORS is discussed briefly as is the indigenous definition of dehydration.

INTRODUCTION

Diarrheal disease is the principal cause of death among Guatemalan children under five years of age. According to recent estimates, nearly eleven thousand children under five years of age die in Guatemala each year from diarrheal diseases alone (Burleigh 1987). The seriousness of this problem has led international health organizations to join together in an effort to reduce childhood mortality from diarrhea and dehydration.

One aspect of this effort is research into the causes of diarrhea and the impact specific variables have on the duration of diarrheal episodes. Three research projects on these topics were recently conducted by the Nutrition Institute for Central America and Panama (INCAP), based in Guatemala.

The largest of these projects was a three-year epidemiological field study of chronic diarrhea in the rural central highland village of Santa Maria de Jesus, Sacatepequez. The study population consisted of index children under three years of age. At the beginning of the project a survey instrument was used to collect baseline data from each index child's family on household type, family composi-

ELIZABETH BURLEIGH, Nutrition Institute for Central America and Panama (INCAP), Calzada Roosevelt, Zona 11 - Apartado Postal 1188, Guatemala City, Guatemala, is an applied medical anthropologist who has done work on malnutrition and diarrheal disease in Central America. CARMEN DARDANO and JOSE RAMIRO CRUZ are also affiliated with INCAP.

tion, educational status, occupation and source of water. During the study, data was collected on each child's diarrhea morbidity pattern, treatment and associated pathogens, diet and anthropometrics.

This article presents the results of qualitative focal group research on the indigenous classification and treatment of diarrheal disease in Santa Maria de Jesus, conducted in the preliminary stages of the larger research project. Individual interviews were also conducted in order to validate focal group results. The comparison of these results is in manuscript form and is currently undergoing peer review within INCAP. Both of these studies were conducted in order to inform the survey instrument and provide a rich, detailed ethnographic framework for interpretation of the quantitative data collected.

STUDY DESIGN AND METHODS

Twenty-seven village women were selected using a non-probability quota sampling design which divided the women into five focal groups (of 5–6 women) based on number of children, age cohorts and use of traditional and/or Western medicine. These variables were controlled in order to lower barriers to communication and facilitate interaction during the interviews.

In order to avoid important sources of moderator bias, group interviews were conducted by Cakchiquel bilingual (Cakchiquel/Spanish) female interviewers in both languages using a semi-structured, open-ended interview guide designed to answer the following questions:

1. What is the definition of diarrhea in the village?
2. Is there an indigenous cognitive system for childhood diarrhea? Detail was collected on perceived causation, the temporal relationships among concepts, and the signs and symptoms used in household-level diagnosis or identification of a particular cause and schema.
3. What traditional and pharmaceutical treatments are used for diarrhea?
4. What foods are prescribed or proscribed during episodes of childhood diarrhea?

An open-ended instrument was used in order not to impose limits on response patterns (Romney, Weller, and Batchelder 1986:330) which might be the result of researcher bias. The elicitation procedure used to define the domain was the free listing task (Weller and Romney 1988). Thus, categories (including humoral classifications) were not pre-defined by the instrument, but were only followed-up after first being mentioned by respondents. A copy of the instrument is included as an annex to this report. Information gathered during group interviews was recorded manually in Spanish by a bilingual interviewer and recorded on audio cassette. Analysis was based on a detailed analysis of the Spanish-Cakchiquel audio tapes.

The information provided by all groups was aggregated during analysis. Due to the open-ended and group nature of the interviews, the data could not be considered quantitatively. Instead, it was analyzed and is presented here by content and association. The concepts identified by the women were first grouped according to their relationship to each other. In other words, a particular concept (feeling of anger) was associated with another concept (the generation of "heat" in the body). These concepts were each in turn associated with another (the occurrence of yellow

diarrhea), and so on. This stage in the analysis allowed us to identify sets of critical nodes or points which were associated with each other from the initial conceptual forest. However, this study found concepts not only to be related to each other and to diarrhea, but to be *related in time*. Thus, one was said to temporally preceed the occurrence of others. The second stage in analysis, therefore, involved identifying the direction of this conceptual flow. The temporal relationship between concepts proved to be essential to an understanding of the indigenous schemata presented here.

These schemata encompass nearly all of the responses recorded from all of the focal groups. Although no one woman identified all concepts and temporal associations of each cognitive schema, when taken as a whole the responses resulted in the six schemata presented here. For example, some women made the conceptual and temporal association between anger and "heat," saying that anger is a cause of and preceeds the generation of "heat." Others said that anger causes and preceeds the occurrence of yellow diarrhea, while still others said that "heat" causes and preceeds yellow diarrhea. None of these statements contradicts the others. Instead, each statement describes a different phase in the development of the *process* which is "hot" diarrhea. When all three of these statements are considered to be valid and are taken as a whole, anger can be seen to cause the generation of "heat" in the body which in turn results in the occurrence of yellow diarrhea. Those few responses which did not fit the six schemata are also noted in the text.

Equal weight was given to the responses of all informants as the "competence" of any one individual (Romney, Weller, and Batchelder 1986:316) as a specialist or non-specialist was unknown. The results of this study may be said to reflect the popular sector of the village health care system (Kleinman 1980). Current work in cognition considers consensual data such as this as a reflection of shared cultural knowledge (Romney, Weller, and Batchelder 1986; Weller 1984a).

RESULTS

The Village-level Definition of Diarrhea

At the onset of this research project there was some concern among anthropologists that there might be under-reporting of diarrhea among study children due to a cultural difference in the definition of diarrhea between study families and Western researchers. According to the women interviewed, a healthy child excretes non-liquid waste one to four times in a 24-hour period. A child is considered to have diarrhea when waste is liquid or semi-liquid in consistency and occurs *a cada rato* or every little while, ranging from five to twenty times in a 24-hour period. This definition differs slightly from the World Health Organization definition of three or more semi-liquid or liquid stools in a 24-hour period. Some under-reporting of diarrhea among children, then, may occur for those children having four-stool "normal" diarrhea.

Diarrhea was referred to as *asientos* (diarrhea) in Spanish, and *niqo* (*niqaxo*) *ru pan* (stomachache) in Cakchiquel. Certain phrases were commonly used when describing the consistency of diarrhea: waste was described as "coming out in the same

form as it was eaten," as "just like *mixtamal* water" (the water the corn is soaked in to make tortillas), and "just like opening a water faucet." Symptoms associated with diarrhea included frequent crying and complaining, tiredness, stomachaches, loss of appetite, fever and vomiting, palor and dehydration or *seco* (dryness).

Cognitive Schemata for Childhood Diarrhea

The process of eliciting the women's perceptions of the types of childhood diarrhea in the village was fascinating as the first question was frequently answered with a list of colors, an answer not expected by the interviewer and initially rejected as not answering the question:

Tape 1, Group 1:

Interviewer: "How many types or how many forms of diarrhea are known here in Santa Maria?"

First respondent: "Well, the first kind is white. The second is yellow. The third is . . ."

Interviewer: "Um, this is the color of the diarrhea. No. How many kinds . . . because many people say 'Ah, this is diarrhea from evil eye.' I don't know if you have heard of this. This is what I want to know: how many types or what are the forms of diarrhea here?

Second respondent: "There are three forms. One is when the food eaten comes out the way it went in. The other is pure yellow."

Interviewer: "Yes, this is the color of the diarrhea. But what I want to know is: what are the different kinds, or what are the different forms?"

Second Respondent: "The color depends on the types of sickness they have."

This reference to colors was an essential semantic clue to the cognitive structures underlying perception of diarrheal disease in the village, though its diagnostic significance became clear only later in the interview process.

Continued probing led to an initial list of seventeen perceived types of diarrhea: green, yellow, white, red, cough, "infection," *peste*, evil eye, dysentery, fever, food, "indigestion," "inflammation," dentition, "cold," "heat," and worms. When detail was elicited about each of these, however, many were found to be *concepts linked in progression* or otherwise *associated with others* rather than causal in themselves. For instance, the color of the stool was found to be indicative of diarrhea from "heat" or "cold;" cough and "infection" were found to occur during the development of most types of diarrhea; *peste* was found to be another term for dysentery, which was a stage of diarrhea caused by "heat" or "cold;" food was found to be not only a cause of diarrhea itself but also related to "heat" or "cold;" and worms were found to be a cause of diarrhea some of the time but primarily a stage in the progress of diarrhea due to other causes.

With ongoing analysis of the data and clarification of the temporal associations between concepts, a cognitive structure for childhood diarrheal disease in Santa Maria de Jesus slowly began to emerge. This structure involved *six principal schemata (by cause)*. Respondents provided detailed information on the causes, the stages of development, diagnostic characteristics and treatment for each. In each of these schema, specific causal factors related to the weather, emotions, behavior, diet,

physical development or inter-personal relationships are believed to share some quality. When this quality is introduced into the child's body it sets in motion a particular sequence of linked events. For most diarrheas, this causal quality was related to "heat" or "cold."

Before presenting each of these cognitive schema, it is important to first have a brief understanding of village-level perceptions of the physiology of a well child. In the well individual, digestion is performed by worms which live in a small ball or sack in the "stomach" (located in the lower abdomen). Having worms in the stomach is not a cause of diarrhea or illness in itself but rather a normal condition essential to good health. A similar belief has been reported in Honduras (Kendall, Foote, and Martorell 1984) and in Sri Lanka where these "food worms" are believed to not only perform digestion but also to balance body humors (Nichter 1988).

The six cognitive schemata for diarrheal disease in Santa Maria de Jesus, their causes, progression and defining symptoms are described in Figure 1. The first three, diarrhea from "heat," diarrhea from "cold," and diarrhea from "indigestion/ inflammation" have in common their disturbing effect on the worms normally in their sack:

1. Diarrhea caused by "heat"

One kind of childhood diarrhea is caused when an excessive amount of "heat" has been introduced into the body. This "hot" diarrhea is commonly due to the following factors: infants are all considered to be "hot" at birth, however an infant may have diarrhea if his mother has eaten a prenatal diet which was *too* "hot" (too much chile, alcohol, sugar or sweets, fruit or coffee), felt "hot" emotions, or became too hot (especially if exposed too much to the sun); "heat" can also be transferred to an infant after birth from these same factors through her mother's breastmilk; a child may get too hot from playing in the sun, working too hard, or being carried too much *a tuto* in a shawl on his mother's back; "heat" is also introduced into the

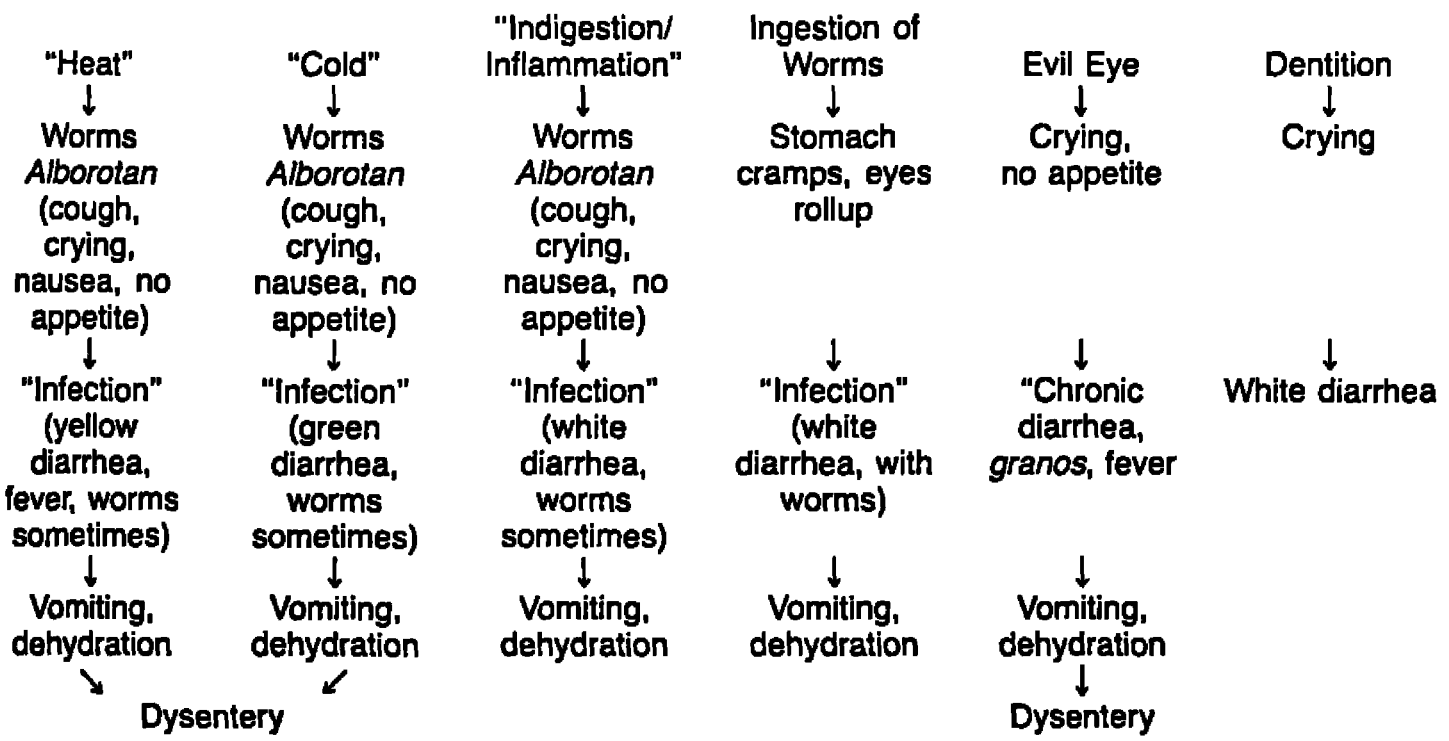

Figure 1. The six indigenously defined types of childhood diarrhea, their cauess, progressesion of linked conceptual stages and diagnostic indicators. Santa Maria de Jesus, Guatemala.

child's body if he has been given a "hot" medicine or injection, is not given enough water to drink, has eaten too much during the evening meal, or has eaten excessive amounts of foods considered to be "hot."

The introduction of excessive "heat" into the child's body causes the worms in the sack to *alborotar*, or become agitated, which in turn results in a dry cough, crying, nausea and loss of appetite. This is followed by a stage in the progression of the illness called "infection," during which time characteristically *yellow diarrhea* appears. The child's stomach is said to be burning hot to the touch. Soon after, the heat in his stomach may "climb up" to his head causing night sweats and fever, making it difficult for him to sleep. His feet and knees are cold. If they are very agitated, some of the worms may fall from the sack and come out in the diarrhea.

If not treated, mucus will appear in the yellow diarrhea, which will eventually turn red with blood, becoming dysentery or *peste*. The child may begin vomiting and become pallid and *seco*, or dehydrated. Although not as frequently mentioned, several women said that "hot" or yellow diarrhea may also become green diarrhea if not treated effectively in eight to ten days.

"Hot" diarrhea is considered to be the most common type of diarrhea in Santa Maria de Jesus and is also considered to be one of the two kinds (with evil eye) most potentially fatal to children.

2. Diarrhea caused by "cold"

Another type of childhood diarrhea is caused when excessive "cold" is introduced into the body. This most commonly occurs in the following ways: the child may contract "cold" from contact with the ground (not wearing shoes or sandals, sleeping on the ground, living in houses with dirt floors), from drinking cold water or milk, bathing in cold water too often, or playing out in the rain. Ingestion of "cold" foods (some kinds of beans, fruit, or broths) is also a cause of "cold" diarrhea. "Cold" may also be transferred to an infant through lactation if his mother absorbs "cold" in these ways.

As with "hot" diarrhea, introduction of excessive "cold" into the body will cause the worms in the stomach sack to become agitated, or *alborotar*, resulting initially in a dry cough, loss of appetite, nausea and crying. The next stage in this illness is "infection" with *green diarrhea*, the principal diagnostic characteristic of "cold" diarrhea. As with "hot" diarrhea, the worms may become so agitated that they fall out of the sack in the stomach and can be found in the diarrhea. If not treated, vomiting may ensue and the child may become "dry." Fever may also occur; however, this is rare.

Unlike "hot" diarrhea, "cold" diarrhea rarely results in dysentery (with blood and mucus), and is not considered to be as common or as potentially fatal to children.

3. Diarrhea caused by "indigestion" or "inflammation"

The third type of childhood diarrhea causing agitation to the stomach worms is the result of a child having eaten food that is poorly prepared, not served on time or eaten in excess. This differs from the food-related "hot" and "cold" diarrheas above in that the focus here is on the irregular preparation of food, serving schedule or amount consumed rather than the humoral quality of the food (although some women felt that "heat" was generated in the child's body if too much food was consumed).

which in turn causes a dry cough, nausea, loss of appetite and crying. The next stage of the illness is, as in "hot" and "cold" diarrhea, called "infection," in this instance characterized by diarrhea which is described as *white and frothy*. If the worms have become very agitated, they may also be evident in this type of diarrhea. If not treated, the child may begin vomiting and become "dry," or dehydrated.

Diarrhea from "indigestion" or "inflammation" rarely becomes dysentery (with blood and mucus), however, and is considered to be less dangerous to children than either "hot" or "cold" diarrhea.

The remaining three childhood diarrheas in Santa Maria de Jesus are also described in Figure 1. None of these have an effect on the worms in the stomach sack.

4. Diarrhea from ingestion of worms

Childhood diarrhea may also be caused by ingesting worms. This happens most commonly when food (especially fruit) is not washed before it is eaten, or when children eat food with dirty hands, inhale dust carrying worms, ingest "microbes," or drink from bottles which have not been protected from flies.

When worms have been ingested, the worms in the stomach sack are apparently not affected, but the resulting diarrhea is *watery and white* and the child's eyes roll up in her head. Her stomach makes rumbling noises (the worms "speak") and she cries out when her stomach aches. At night the child will toss and turn and be unable to sleep as the worms move inside her. She will vomit worms, worms will be present in her stool and may come out of her nose or mouth. If not treated this type of diarrhea may cause the child to become "dry," or dehydrated; however, diarrhea from the ingestion of worms is not considered to be as dangerous as other types of diarrhea. Dysentery was not associated with this type of diarrhea.

5. Diarrhea from evil eye

Children, particularly those under one year of age, are also susceptible to diarrhea caused by evil eye. Evil eye is caused by the gaze of a pregnant or menstruating woman (especially if she has not been eating enough or has not eaten yet that day), a person who has a hangover, or one who has just come in sweating and hot from work in the fields or elsewhere. Evil eye can also be caused if a child is very attractive and is admired by a woman who is not his mother. These behaviors and conditions were said by some to be "hot" (alcohol, envy, pregnancy and menstruation, lack of food are all "hot") and generate "heat" in the child's body.

Childhood diarrhea from evil eye begins with crying and loss of appetite (including rejection of breastmilk—not mentioned as a problem with other types of diarrhea). The *diarrhea is of no particular color*. (One woman said it may be yellow, perhaps because it is associated with "heat.") Instead, the principal diagnostic sign is an *itchy rash or bumps* (*granos*) over the entire body of the child, including the face and hands. These appear, dry up, then reappear. There may be intermittent fever. Vomiting and dehydration are also associated with diarrhea from evil eye. These may be followed by dysentery.

Although not as common as "hot" diarrhea, diarrhea from evil eye is considered to be just as potentially fatal to young children in Santa Maria de Jesus. It is a diarrhea of long duration (six months to a year) and the rash rarely goes away.

6. Diarrhea from dentition

Children may also have diarrhea when their teeth are erupting from their gums. In this case there is some crying and irritability, but no vomiting or loss of appetite.

Diarrhea caused by dentition is also *white*. It is not considered to be dangerous to the child and will go away without treatment.

Transformation of One Type of Diarrhea to Another

The transformation of one type or stage of diarrhea to another has been noted in Swaziland where green diarrhea may later become yellow, and the mildest form of diarrhea (characterized by crystalline [white?] stools), may later become (green) if it persists (Green 1985). In North India, one sign of increasing severity in diarrhea is the change in the color of the stool from yellow to green (Bentley 1988) This same yellow-to-green transformation was noted in these interviews by several women. Dysentery, or red diarrhea, was also said to occur during the late stages of many of the six schemata but primarily during yellow or "hot" diarrhea. Two reasons were given for this progression: that no cure was given or found in time, and that too much "hot" medicine was given. Another study conducted in Guatemala found a cause of dysentery to be neglect of other "less dangerous" forms of diarrhea (Scrimshaw and Hurtado 1988).

Treatment of Diarrhea

Once the cause of the diarrhea is identified, the child may be treated using traditional methods and pharmaceuticals. Traditional remedies used in the treatment of indigenously classified diarrheal disease are presented in Table I, and pharmaceuticals are presented in Table II.

Although they are more properly conceptual stages in the progression of various types of diarrheal disease (with the type of diarrhea left undefined) rather than causal in themselves, due to the broad nature of women's responses about treatment, "infection," dysentery, and worms are included in both tables along with five of the six major schemata for diarrhea in the village. The detailed responses on treatment related to the stages of an illness rather than by schemata alone may reflect the use of *different treatments during different phases* of a diarrheal episode. Diarrhea caused by "ingestion of worms" was not specifically discussed in the interviews and so is not included here except as it may relate to the stage "worms." The classification of treatments along the humoral continuum was not directly requested during interviews; however, in some cases humoral qualitites were provided by respondents. Classifications given are noted in the text.

1. Traditional treatments

Distinct traditional treatments were associated with specific types of diarrheal disease. Treatments given for "hot" diarrhea are not those given for diarrhea due to "cold" or evil eye, nor are those given for evil eye the same as those given for diarrhea due to "cold." Treatments also appear to conform to the humoral system's use of opposites. Although the humoral classification of treatments was not specifically requested during these interviews, women spontaneously provided humoral information on some traditional methods of treatment; diarrhea caused by "heat" is treated by two types of liquid thought to be cool or *fresco* (teas or "waters" made

from rose hips or cebada) and Coca-cola; while diarrhea caused by "cold" is treated by an infusion of camomile thought to be "hot," body massages with marjoram and rubbing alcohol or *aguardiente* and a drink of alcohol, also categorized as "hot."

It was also interesting to find that liquids comprise the majority (nearly three quarters) of treatments for diarrhea from "heat" or "cold," infections, worms and dysentery. These include infusions, "waters" or teas made from wild, cultivated and purchased substances. The only exceptions are herbs or leaves and liquor or garlic and cigars which are rubbed on the body of the child in the treatment of "cold" diarrhea or to "keep the worms from climbing" or "bring the worms together." The only nonliquid treatment for dysentery is the practice of tying the child's stomach with a cloth belt to keep it from "falling."

Traditional treatment of diarrhea from evil eye, on the other hand, involves very little preparation of liquid remedies and more magical practices, including bathing the child with herb water and throwing the water out, passing an egg (with pins, herbs in it) or a live duck over the child and throwing it away (to take away the "heat" of the evil eye), and placing pins or lemons in a cross.

2. Pharmaceutical treatments

As with traditional remedies, this study found no sharing of pharmaceutical treatments between "hot" and "cold" diarrhea. The first five pharmaceuticals In Table II (a sulfa drug, two aspirins, an antiparasitic, a mixture of pills called a *potente* from one of the village healers), and oral rehydration solution were mentioned specifically for use with the most serious type of diarrhea—diarrhea due to "heat." Four of these were also mentioned in the treatment of "hot" diarrhea during the stages which include dysentery and worms. Only one pharmaceutical (an antidiarrhetic and antibiotic) was mentioned specifically in conjunction with "cold" diarrhea. This same medicine was the only one mentioned for use with diarrhea from dentition, perhaps also considered to be a "cold" condition. Although this study did not request information from village women about the humoral nature of these pharmaceuticals, the "hot"/"cold" classification of Western medicine in our experience is widespread in the highlands of Guatemala. The treatment of each type of diarrhea in Santa Maria de Jesus with specific pharmaceuticals may be related to their humoral classification on the village level.

The rest of the pharmaceuticals mentioned by the women were not listed in reference to any specific schema for diarrhea but rather in relation to stages in the progress of some schemata. Milk of Magnesia, an antibiotic-antiparasitic, and an aspirin are used during the "infection" stage, while an antacid-purgative, and an antidiarrhetic-antiparasitic-antibiotic, were mentioned as treatment for "infection" stage associated with dysentery. The last five pharmaceuticals listed in Table II are given as treatment for "infection" with worms and dysentery.

No pharmaceutical is reportedly given for cases of childhood diarrhea diagnosed as due to evil eye or to "indigestion/inflammation."

Pharmaceuticals were commonly given together during treatment. Those most frequently combined were two antibiotics (Agromicina and Santomicina), an antiparasitic-antibiotic (Cumalito) and a sulfa drug (Sulfadiacina).

3. Oral rehydration solutions

The majority of women responding to questions about ORS said they had heard of oral rehydration salts, either in their liquid or powder form. Most also said they

TABLE I. Traditional remedies for indigenously defined schemata and stages of childhood diarrhea. Santa Maria de Jesus, Sacatepequez, Guatemala.

	Schemata					Stages of diarrhea		
Remedies	"heat"	"cold"	"indigestion/ inflammation"	evil eye	dentition	"infection"	worms	dysentery
Rose hips tea	×							×
Cebada water	×						×	×
Coca-cola	×							
Majoram + alcohol rub		×						
Alcohol rub and liquor		×					×	
Camomile tea		×				×	×	
Colocha tea						×		
Macuy tea						×	×	
Epazote tea						×	×	
3 mint tea						×	×	
Altamisa tea						×		×
Malva tea						×	×	×
Rice water							×	×
Jenjen tea							×	×
Yellow corn water							×	
Anise liquor							×	
Punta de durazno tea							×	
Cigar							×	
Liquor in a leaf							×	
Salvasanta tea							×	
Geranium tea							×	
Chocolate							×	
Garlic			×				×	

TABLE I. (*Continued*).

	Schemata					Stages of diarrhea		
Remedies	"heat"	"cold"	"indigestion/ inflammation"	evil eye	dentition	"infection"	worms	dysentery
Stomach belt								×
Coconut water/tea								×
Pericon tea								×
Chile				×				
Rosemary				×				
Limestone				×				
Egg stuck with pins				×				
Pins in a cross				×				
Ruda				×				
Tinta morada				×				
Chilke				×				
Basil				×				
Lemons in a cross under child's bed				×				
Duck passed over child and thrown into water				×				
Other substances passed over child and thrown in street, water, valley				×				
Newborn's placenta passed over child's body				×				

TABLE II. Pharmaceuticals reportedly used in the treatment of indigenously defined schemata and stages of childhood diarrhea. Santa Maria de Jesus, Sacatepequez, Guatemala.

	Schemata					Stages of diarrhea		
Remedies	"heat"	"cold"	"indigestion/ inflammation"	evil eye	dentition	"infection"	worms	dysentery
Yodoclorina (ad + ap)	×							
Potente (unknown)	×					×	×	
Alka Seltzer (as)	×					×	×	×
Sulfadiacine (ab)	×					×	×	×
Rebetina (as)	×					×	×	×
Kaodekin (ab + ad)		×			×			
Milk of Magnesia (aa + p)						×		
Estomalito (ab + ap)						×		
Vitapirena (as)						×		
Bentogel (ad + ap + ab)						×		×
Sal Andrews (aa + p)						×		×
Enteroguanil (ap + ad)						×	×	×
Sal de Uvas (aa)						×	×	×
Santomicina (ab)						×	×	×
Agromicina (ab)						×	×	×
Cumalito (ad + ap)								
Oral rehydration solution	×					×	×	×

Classifications: (according to a survey of village pharmaceuticals conducted through the project)
ab = antibiotic
ad = antidiarrhetic
ap = antiparasitic
as = aspirin
aa = antacid
p = purgative

had tried salts in some form at least once in the treatment of childhood diarrhea. As noted in Table II, women mentioned using salts particularly in the treatment of diarrhea caused by "heat," and especially with "infection" (most often associated with "heat"), worms or dysentery.

In spite of these high rates of knowledge and at least one-time use of salts, however, some controversy about ORS was evident during the interviews. Some felt salts were bad when there was an "infection" because they did not stop the diarrhea. These women had tried salts once, but had changed to Milk of Magnesia because it gave them better results (stopped the diarrhea). Those who had used and liked salts said they preferred the liquid solution to the powder as they felt the liquid was cooler or more *fresco* and so a better treatment for diarrhea caused by "heat." The liquid solution was said to restore a child's appetite and strength and reduce diarrheal episodes more effectively than the powder. Salts were reportedly mixed with Enteroguanil (an antidiarrhetic-antiparasitic) by some, and were considered to be most effective if an injection was given to the child at the same time.

Dietary Patterns Associated with Childhood Diarrhea

Those foods which may be given to children with diarrhea without harmful effects are shown in Table III. Those considered harmful are presented in Table IV. As in the previous tables, although "infection," worms and dysentery are more properly stages in the progress of a particular schema rather than causes of diarrhea, they are included here due to the broad nature of the responses given by the women's groups and may reflect *changes in diet related to stages in the progression of diarrheal episodes*.

Children with diarrhea caused by "heat" are given special foods which included meat broths, and sources of calories especially toasted for the sick child (corn, tortillas). Fruit considered to be "hot" (oranges, pineapples) are restricted in the diet. Children with diarrhea caused by "cold" are given eggs, meat broths and some calorie sources, including toasted bread. No foods were reported as especially restricted.

During the "infection" stage (undefined cause), bean broth and beef are considered to be good for the child as are some wild, cultivated or purchased vegetables and fruits (*macuy*, cooked tomato, potatoes, winter squash, cooked apples, green squash and bananas), and sources of calories, especially if toasted or browned. Whole beans are restricted, as are beef broth and Incaparina, wild herbs including *chipilin* and *San Nicolas*, uncooked apples, oranges, pineapples and peaches. Fresh corn is also restricted, as is rice, *atole* of maize, oil or lard, and *tamales* or *chuchitos*.

Children with worms (undefined cause) are reportedly given beef broth and beef, and many kinds of wild, purchased or cultivated vegetables and fruits, including some restricted during an "infection"(*macuy*, *bledo*, *chipilin*, *cilantro*, cooked tomatoes, potatoes, winter squash, cooked apples, and onions). Toasted tortillas and bread are also reportedly given, as are noodles. As with "infection," whole beans are restricted along with oranges, pineapples, peaches, oil and lard. Eggs, fish, limes, avocados, and cherries are also listed as restricted. Only a few foods (bean broth, plums, and rice) are a source of confusion, given by some women and restricted by others when a child has worms.

TABLE III. Foods reportedly prescribed for episodes of indigenously defined schemata and stages of childhood diarrhea. Santa Maria de Jesus, Sacatepequez, Guatemala.

	Schemata					Stages of diarrhea		
Remedies	"heat"	"cold"	"indigestion/inflammation"	evil eye	dentition	"infection"	worms	dysentery
Breast milk	×	×	×	×	×	×	×	×
Protein sources								
Egg		×			×			
Bean broth						×	×	
Beef						×	×	
Meat broths	×	×			×		×	
Fruits/vegetables								
Macuy						×	×	
Bledo							×	
Chipilin							×	
Cilantro							×	
Tomato (cooked)						×	×	
Potatoes						×	×	
Winter squash						×	×	
Apples (cooked)						×	×	
Green squash						×		
Bananas						×		
Onions							×	
Plums							×	×
Calorie sources								
Corn (toasted)	×					×		
Tortillas (toasted)	×		×			×	×	
Noodles	×					×	×	×
Bread (toasted)		×	×			×	×	×
Rice							×	×
Atole (maize)		×	×					
Other								
Cinnamon	×					×		
Coffee (no sugar)								×

TABLE IV. Foods reportedly restricted during episodes of indigenously defined schemata and stages of childhood diarrhea. Santa Maria de Jesus, Sacatepequez, Guatemala.

	Schemata					Stages of diarrhea		
Remedies	"heat"	"cold"	"indigestion/inflammation"	evil eye	dentition	"infection"	worms	dysentery
Protein sources								
Egg							×	
Whole beans						×	×	×
Bean broth							×	
Beef broth						×		
Incaparina						×		
Peanuts			×					
Fish							×	
Fruits/vegetables								
Macuy								×
Bledo								×
Chipilin						×		
San Nicolas						×		
Apples (raw)						×		×
Plums							×	
Oranges	×		×			×	×	×
Pineapples	×					×	×	
Jocotes								×
Limes							×	×
Peaches						×	×	×
Avocados							×	×
Nisperos								×
Chile								×
Cherries								×
All fruit			×				×	
Calorie sources								
Corn (fresh)						×		×
Rice						×	×	
Atole (maize)						×		
Oil/lard			×			×	×	×
Tamales/chuchitos						×		
Other								
Sugar; sugarcane								×

Those foods listed as good for a child with dysentery (undefined cause) are also, for the most part, those considered to be good for a child with worms. These include plums, noodles, toasted bread and rice. Coffee without sugar is also given. Whole beans are restricted with dysentery, as with "infection" and worms. *Macuy*, *bledo*, raw apples, oranges, *jocotes*, limes, peaches, avocados, *nisperos*, chile and cherries are also restricted, along with rice, oil or lard, and sugar or sugarcane.

Foods good for other kinds and stages of diarrhea are also given for diarrhea from "indigestion/inflammation," including toasted tortillas or bread. *Atole* (maize) is also given. Peanuts are the only food restricted.

In contrast to the lengthy dietary information given for other types and stages of diarrhea, no foods were mentioned as particularly good for children with diarrhea from evil eye. As with most types of diarrhea, oil or lard and oranges are restricted ("all fruit" was also mentioned).

Eggs and meat broths are considered to be good for diarrhea from dentition, as for "cold" diarrhea; however, no foods are restricted in the diet.

This list of foods is interesting because of the coherence and lack of contradiction in the dietary prescriptions and restrictions considered appropriate for each indigenously-defined schema for diarrhea. With only three exceptions (bean broth, rice and plums, said by some to be good and by others to be restricted when a child has worms), foods restricted for a particular schema were not also listed as given, nor were foods given for a particular schema listed as restricted. Furthermore, foods given for "hot" diarrhea were not considered to be good for "cold." The exception was the category of "broths," which was not defined during interviews as beef, chicken or some other. In another Cakchiquel village in the Central Highlands of Guatemala, varieties of meat range from very "hot" (beef) to very "cold" (pork), differences which may explain this apparent contradiction (Burleigh 1986). Nor were foods restricted with "hot" diarrhea considered to be restricted for "cold."

Although some recent studies have discussed the importance of the child's behavior in determining dietary patterns, most studies to date have stressed the caretaker's role in the child's dietary intake, analyzing food beliefs and restrictions without taking the child's demand into account. In contrast, village women in this study stressed the child's demand as a major factor influencing his diet. When questioned about the child's diet, women said they initially offer all family foods to the child though some foods are considered to be better for children with diarrhea than others. It is primarily the child, however, who decides what to eat or whether to eat at all. During many episodes of diarrhea, children are too sick to eat (the worms don't want to eat) and will reject any food offered to them. Often the only food the child (and the worms) will accept is breastmilk. The worms were said to get worse if the breastmilk is taken away. In some extreme cases even the breast is rejected. Fortunately, women reported no dietary restrictions involving breastmilk with any type or stage of diarrhea.

A final finding associated with diet during diarrhea was the special preparation of foods for the sick child. Foods (bread, tortilla, and corn) are reportedly browned for the sick child, while fruit is cooked rather than eaten raw, and special broths are prepared from herbs or meat.

DISCUSSION

The Humoral Theory and Its Extension to Evil Eye

The origins of the "hot"-"cold" theory are currently under discussion; however, imbalances in "heat" or "cold" have been documented throughout Latin America as indigenously-defined causes of illness (Foster 1987). This study indicates that the humoral system forms the basis for two of the six major cognitive schemata for childhood diarrhea in Santa Maria de Jesus. It also appears to be an underlying construct which extends to at least three of the other four indigenous categories of diarrhea causation: evil eye was said to be caused by "heat;" there is some indication that diarrhea from dentition (white) may be "cold" as the treatment and dietary patterns for the two kinds of diarrhea are the same; and "indigestion/inflammation" (white), perhaps another term for *empacho* (Foster 1987), was also related in this study to "heat." Ingestion of worms was the only one of the six causes of childhood diarrhea not in some way related by village women to "heat" or "cold." It has been suggested that this apparent discrepancy is due to the recent introduction of the germ concept of disease into highland villages by Western medicine (Hurtado 1988).

It is of particular interest that childhood diarrhea is classified not as "hot" or "cold" in Santa Maria de Jesus, but may be either. Each of these types of diarrhea has its own causes, progression, signs and symptoms, treatments, dietary management and probable severity with "hot" diarrhea considered to be the most potentially fatal. Similar dual humoral classification systems for diarrhea have also been reported in China (Anderson 1987), Sri Lanka (Nichter 1988), Nepal (Stapleton 1989), North India (Bentley 1988; Real et al. 1982), Africa (Green 1985; De Zoysa et al. 1984), and Pakistan (Mull and Mull 1988).

Several other studies conducted among Quiche and Cakchiquel populations in Guatemala have also mentioned "hot" or "cold" factors as causes of diarrhea (Tedlock 1987; Scrimshaw and Hurtado 1988), yet none has outlined a dual system as clearly as the responses given by the women in this study. The existence of both "hot" and "cold" diarrhea in Santa Maria de Jesus has important implications in the formulation of cognitive models for Guatemala. It is possible that some of the lack of agreement about diarrhea classifications and dietary management among studies in Guatemala is due at least in part to the expectation on the part of researchers that diarrhea is either hot or cold. This study suggests that diarrhea in Guatemala is not a single-symptom entity which may be classified in a single spot on the "hot"-"cold" continuum, but rather a set of processes whose "hotness" or "coldness" may vary. A recent article by Tedlock (1987) has discussed the problem of researcher bias and humoral inquiry in depth.

The relationship of evil eye to the humoral system is also of interest. In a recent article, Foster (1987) dismisses similar findings from lowland South America relating the humoral theory to shamanistic concepts (soul loss and "cold;" the "injection of forces by a malevolent agent—evil eye—and "heat") (Colson and Armellada 1983) as unique, possibly aberrant, and "very different from beliefs and practices described in the rest of Latin America." However, the relationship of "heat" to evil eye

has also been documented in Momostenango, Guatemala (where "heat" causesevil eye which is then considered to be a "cold" illness (Tedlock 1987), and among Mitla Zapotec of the Valley of Oaxaca (Messer 1987). The "hot" quality of evil eye was also reported in Guatemala by Weller (1984b:971) whose research showed a strong association between "cold" treatments and evil eye. The results of these interviews from Santa Maria de Jesus in Guatemala provide another example in which the humoral theory in Latin America is related to a shamanistic concept.

The Importance of the Temporal Relationship between Concepts in the Understanding of Schemata

This study found an understanding of the direction of conceptual flow and the temporal relationships between concepts to be key factors in the construction of indigenous schemata. Childhood diarrhea was conceptualized in the village as a process with stages rather than a static entity. Therefore, specific treatments and dietary management varied not only according to the type of diarrhea but also according to stages in the development of that type. This, too, has important implications for the theoretical understanding of disease in Guatemala. Some of the lack of agreement among studies as to the causes and management of childhood diarrhea may also be due to a failure to take process and the temporal association of concepts into account. Thus, diarrhea may be said to be due to either "heat" or "infection," whereas when the temporal relationship of these concepts to each other is clarified, "infection" is shown to be a stage in the process of several schema including that type of diarrhea whose primary cause is "heat."

Color in Diagnosis

Stool color is the primary diagnostic sign for most types of childhood diarrhea in Santa Maria de Jesus. It is used to identify its particular cognitive schema and has subsequent impact on the course of treatment and dietary management of that episode. On this primary level, the stool is defined as yellow, green, white, red or of no color. Yellow indicates that the diarrhea is "hot" and green means "cold." White may be worms, "inflammation/indigestion" or teething, depending upon the consistency of the white diarrhea or the presence of erupting teeth; while diarrhea of no particular color when combined with a skin rash may indicate evil eye. Red stools are most often associated with a late stage of "hot" diarrhea or evil eye, though they may also occur in late stages of "cold" diarrheal episodes (and other types, though this is much rarer).

The diagnostic process on the popular level, then, involves identification of a series of signs. Unlike other studies which have found illnesses to be defined at the primary level by external or internal locus of cause (Young 1978) or by "ownership" (Tedlock 1987), the diagnostic process described by the women of Santa Maria leads to the identification of the diarrhea according to the schemata described above, irrespective of external or internal locus of cause. Diarrhea due to "heat," for example, may be due to factors which are either internal or external to the individual.

It is interesting to note that these specific colors are mentioned frequently in the literature on diarrheal disease not only in Latin America but throughout the world. Although not all agree, in a remarkable number of instances, yellow and red are considered to be "hot," while green and white are "cold." In the European humoral system yellow bile or choler is "hot," phlegm (green, white?) is "cold" and blood is considered to be "hot" (Foster 1987). Chinese humoral medicine also classifies yellow with "heat" and "cooling" with green and white (Anderson 1987). In Momostenango, Guatemala, yellow sores are associated with "heat" and white sores with "cold" (Tedlock 1987), while in Peru the two major types of diarrhea are described as green or yellow (Straus, Bentley, and de la Pena n.d.). In another study from Guatemala, white diarrhea was also associated with an excess of "cold," and green was associated with a fallen fontanel. A Costa Rican study found white also to be associated with "cold," red to be associated with "heat," green to be either *quebrantamiento* or *gastro* and yellow to be indicative of virus or *gastro*, while a study from Nicaragua found teething to be associated with yellow or white diarrhea and indigestion to be associated with yellow (Scrimshaw and Hurtado 1988). In South India, "continuous green diarrhea" is believed to be pollution-related and not responsive to Western medicine (Lizoff, Kaiman, and Feldman 1975) A study conducted in Bangladesh (Green 1986) found green or yellow diarrhea to be classified as a type. In Sri Lanka, green diarrhea is thought to be due to factors which have caused breast milk to be too "cool" (Nichter 1988). In Swaziland, teething is associated with yellow diarrhea and green diarrhea is considered to be serious (Green 1985). In Haiti, white diarrhea is diagnostic of diarrhea due to the supernatural (Coreil 1988). In Pakistan, green diarrhea is considered to be due to "cold" (although in this case diagnosis is not made on the basis of color) (Mull and Mull 1988). In North India, green, yellow and bloody diarrhea are the most commonly listed types (Bentley 1988).

It is also interesting to note the frequency with 'hot" diarrhea is associated with dysentery (blood) and severity, while "cold" diarrhea is considered to be chronic and less severe. In Momostenango, Guatemala, dysentery is considered to be "fiery hot" since red blood comes out (Tedlock 1987) and folk practitioners label illnesses without "owners" which are less threatening "white" (cold), and those with "owners" which are more severe "yellow" (hot). In Sri Lanka, "hot" diarrhea is also associated with dysentery and is a cause for alarm (Nichter 1988) and in Swaziland diarrhea from "heat" is among those considered to be the most serious (Green 1985). In Nicaragua, "heat" is also associated with diarrhea with blood and is considered to be very dangerous (Scrimshaw and Hurtado 1988). In Bangladesh, green diarrhea caused by "cold" factors is called "continuous" (Green 1986) while in South India, green diarrhea is associated with diarrhea without acute dehydration (Lozoff, Kamath, and Feldman 1975).

Oral Rehydration in the Context of Humoral Diarrhea

The essential role played by "heat" and "cold" in both the definition and treatment of childhood diarrhea has important implications for health projects promoting the use of oral rehydration therapy and may explain at least some of the high

knowledge/low use rates reported for ORS in Latin America (Burleigh 1987). Studies in cognition have shown that people construct mental structures based on the experience of their senses. Any new experience introduced into their lives is classified in terms of these structures (Freeman, Romney, and Freeman 1987:313). Thus, as pharmaceuticals have been classified into the humoral system which forms the basis of the cognitive schemata for diarrheal disease in childhood, so may oral rehydration salts become classified. The placement of ORS on the "hot"-"cold" continuum may then determine the way it is used. Women will consider ORS to be inappropriate or appropriate in the treatment of specific types of diarrhea according to this indigenous system.

According to this study, the humoral classification of ORS in Santa Maria varies according to the form in which it is available. Oral rehydration solution in liquid form (Pedialyte) is considered to be *fresco* or cool, and therefore good for the treatment of "hot" diarrhea. ORS in dry form is considered by some to be "hotter' than the liquid solution and therefore not as good for "hot" diarrhea.

As the opinion of a specialist about a particular treatment has been found to influence popular use of that treatment (Garro 1986:352), three traditional curers from Santa Maria de Jesus were also interviewed on their beliefs about ORS in dry form. Most felt that it was neither "hot" nor "cold" and therefore good for all types of diarrhea. However, one *curandera* was strongly opposed to the use of oral rehydration salts in dry form as she considered them to be extremely "hot" and therefore dangerous to children if used to treat "hot" diarrhea.

The lack of agreement in the popular sector as well as among specialists about the humoral quality of ORS in dry form may reflect their recent introduction into the village. This possibly temporary period of uncertainty about the classification of ORS has important implications for programming in Child Survival. Given the humoral basis of the cognitive structure which underlies much of the indigenous concept of diarrheal disease in Santa Maria de Jesus, it is imperative that projects designed to increase use of salts stress their *neutral* humoral classification and their applicability to all types of diarrhea, whether "hot" or "cold."

Another possible barrier to the use of ORS identified in this study was the belief among women that ORS should stop diarrhea. Women reported not using ORS again if it did not. For this reason, projects designed to promote the home-based use of ORS also need to explain that ORS is for the prevention and treatment of dehydration which may occur during diarrheal episodes and will not stop the diarrhea itself. Fortunately, this study indicated that women know what dehydration is. The Spanish term used widely in Santa Maria de Jesus to identify dehydration is *seco*. It is a physical condition related to certain schemata of diarrheal disease. Thus, the apparent misunderstanding about the goal of oral rehydration may be corrected in Santa Maria de Jesus through the proper use of the term *seco* in mass media and other educational approaches concerning oral rehydration.

Fortunately, this study showed the use of liquids to be common in the treatment of nearly all types of diarrhea (except evil eye). This indigenous use of oral rehydration in its broadest sense should also be reinforced by projects aimed at reducing deaths from dehydration. The use of liquids in the home treatment of diarrhea in Guatemala has also been noted by Scrimshaw and Hurtado (1988). According to

that study, observations showed that the quantities of these liquids given may be up to several cups a day.

ACKNOWLEDGMENTS

This research was funded by a grant from USAID's Regional Office for Central American Programs and INCAP's Project 670/F30. The authors would like to express their gratitude to the women of Santa Maria de Jesus for their patience, and to Licda. Maria del Carmen, field supervisor, and the Project field team for their excellent field work. We are also indebted to Elena Hurtado, INCAP anthropologist, and Alfred Bartlett, INCAP epidemiologist from Johns Hopkins University, for their helpful reviews and comments on an earlier draft of this report. The current version was improved by the thoughtful comments of three anonymous reviewers whose time and effort are also greatly appreciated.

REFERENCES CITED

Anderson, E. N., Jr.
1987 Why is Humoral Medicine so Popular? Social Science and Medicine 25(4):331–337.

Bentley, M. D.
1988 The Household Management of Childhood Diarrhea in Rural North India. Social Science and Medicine 27:75–85.

Bentley, M. E., G. H. Pelot, W. L. Straus, D. A. Schumann, C. Adegbola, E. de la Pena, A. Oni Gbolahan, K. H. Brown, and S. L. Huffman
1988 Rapid Ethnographic Assessment Applications in a Diarrhea Management Program. Social Science and Medicine 27(1):107–116.

Burleigh, E.
1986 The Pattern of Childhood Malnutrition in San Jose Poaquil, Guatemala. Microfilm. University of California, Los Angeles.
1987 Child Survival Baseline, 1985 for Central America and Panama. Guatemala City, Guatemala: INCAP/ROCAP.

Burleigh, E., C. Dardano, M. C. Stuart, and J. R. Cruz
1989 Identifying Confluence in Cognition: A Comparison of Focal Group and Individual Interview Methods on the Subject of Childhood Diarrheal Disease. Ms.

Colson, A. B., and C. de Armellada
1983 An Amerindian Derivation for Latin American Creole Illnesses and Their Treatment. Social Science and Medicine 17:1229–1248.

Coreil, J.
1988 Innovation among Haitian Healers: The Adoption of Oral Rehydration Therapy. Human Organization 47(1):48–57

Coreil, J., and E. Genece
1988 Adoption of Oral Rehydration Therapy among Haitian Mothers. Social Science and Medicine 27(1):87–96.

De Zoysa, I., D. Carson, R. Feachem, B. Kirkwood, E. Lindsay-Smith, and R. Loewenson
1984 Perceptions of Childhood Diarrhoea and Its Treatment in Rural Zimbabwe. (1984) Tropical Geographical Medicine 35:151–156.

Foster, G. M.
1987 On the Origin of Humoral Medicine in Latin America. Medical Anthropology Quarterly 1(4)335–393.

Freeman, L. C., A. K. Romney, and S. C. Freeman
1987 Cognitive Structure and Informant Accuracy. American Anthropologist 89:310–325.

Garro, L. C.
1986 Intracultural Variation in Folk Medical Knowledge: A Comparison Between Curers and Non-curers. American Anthropologist 88(2):351–370.

Green, E. C.
1985 Traditional Healers, Mothers and Childhood Diarrheal Disease in Swaziland: The Interface of Anthropology and Health Education. Social Science and Medicine 20(3):277–285.
1986 Diarrhea and the Social Marketing of Oral Rehydration Salts in Bangladesh. Social Science and Medicine 23(4):357–366.

Hurtado, E.
1988 Personal communication.

INCAP
1984 Health-seeking Behavior of Families, San Miguel, Sacatepequez, Guatemala. Guatemala City, Guatemala: INCAP.
1987 Informe final de la investigación antropológica sobre la utilización del servicio oficial de salud en el municipio de Santa Maria de Jesus, departamento de Sacatepequez, Guatemala. Guatemala City, Guatemala: INCAP.

Kendall, C., D. Foote, and R. Martorell
1984 Ethnomedicine and Oral Rehydration Therapy: A Case Study of Ethnomedical Investigation and Program Planning. Social Science and Medicine 19(3):253–260.

Kleinman, A.
1980 Patients and Healers in the Context of Culture: An Exploration of the Borderland between Anthropology, Medicine and Psychiatry. Berkeley: University of California Press.

Lozoff, B., K. Kamath, and R. Feldman
1975 Infection and Disease in South Indian Families: Beliefs about Childhood Diarrhea. Human Organization 34:353–358.

Manderson, L.
1987 Hot-Cold Food and Medical Theories: Overview and Introduction. Social Science and Medicine 25(4):329–330.

Messer, E.
1987 The Hot and Cold in Mesoamerican Indigenous and Hispanicized Thought. Social Science and Medicine 25(4)339–346.

Mull, D. J., and D. S. Mull
1988 Mother's Concepts of Childhood Diarrhea in Rural Pakistan: What ORT Program Planners Should Know. Social Science and Medicine 27(1):53–67.

Nations, K. M., and L. A. Rebhun
1988 Mystification of a Simple Solution: Oral Rehydration Therapy in Northeast Brazil. Social Science and Medicine 27(1)25–38.

Nichter, M.
1988 From *Aralu* to ORS: Sinhalese Perceptions of Digestion, Diarrhea, and Dehydration. Social Science and Medicine 27(1):39–52.

Real, M., V. Kumar, M. Nanda, and K. Vanaja
1982 Beliefs and Practices of Urban Mothers Regarding "Hot" and "Cold" Foods in Childhood Illnesses. Annals of Tropical Pediatrics 2:93–96.

Romney, A. K., S. C. Weller, and W. H. Batchelder
1986 Culture as Consensus: A Theory of Culture and Informant Accuracy. American Anthropologist 88:313–338.

Scrimshaw, S. C. M., and E. Hurtado
1988 Anthropological Involvement in the Central American Diarrheal Disease Control Project. Social Science and Medicine 27(1):97–105.

Stapleton, M. C.
1989 Diarrheal Diseases: Perceptions and Practices in Nepal. Social Science and Medicine 28(6): 593–604.

Straus, W., M. Bentley, and M. de la Pena
n.d. Pediatric Diarrhea and Nutrition—Observations from the Peruvian Sierra. Unpublished manuscript. Johns Hopkins University.

Tedlock, B.
1987 An Interpretive Solution to the Problem of Humoral Medicine in Latin America. Social Science and Medicine 24(12):1069–1083.

Weiss, M. G.
1988 Cultural Models of Diarrheal Illness: Conceptual Framework and Review. Social Science and Medicine 27:5–16.
Weller, S. C.
1984a Consistency and Consensus among Informants: Disease Concepts in a Rural Mexican Village. American Anthropologist 86:966–975.
1984b Cross-Cultural Concepts of Illness: Variation and Validation. American Anthropologist 86: 341–350.
Weller, S. C., and A. K. Romney
1988 Systematic Data Collection. Pp. 9–29. Newbury Park, CA: Sage.
Young, J. C.
1978 Illness Categories and Action Strategies in a Tarascan Town. American Ethnologist 5:81–97.

ANNEX

GUIA DE PREGUNTAS

Vamos hablar acerca de diarrea y es muy importante para nosotros conocer sus opiniones. Todas sus respuestas nos interesan y son importantes. Aquí no van haber preguntas buenas o malas, todas son importantes y queremos escuchar sus respuestas.

1. ¿Cómo es la diarrea y cómo es lo que ensucian? (Qué olor tiene? qué consistencia tiene? hay moco o sangre? con qué frecuencia ensucian?)
2. ¿Cuántos tipos de diarrea hay? ¿Cuál es la más frecuente? ¿Cuál es la más peligrosa? (Hay varios tipos de diarrea)
3. ¿Qué causa ese tipo de diarrea?
4. ¿Cómo comienzan? (síntomas: fiebre, dolor de estómago, vómitos, tipos de las heces, no quiere comer)
5. ¿Qué remedios utilizan? (Señalar modernos y tradicionales)
6. ¿Hay comidas que les hacen mal cuando tiene esa diarrea? (Le quitan el pecho? señalar cuáles alimentos les quitan)
7. ¿Qué comidas le dan cuando teinen esa diarrea? (Incluyendo líquidos, señalar cuáles les dan especialmente?)
8. ¿Sabe usted qué es el suero oral o las sales de rehidratación oral?