

## Examining Ethnomedical Diagnoses and Treatment Choices for Diarrheal Disorders in Lubumbashi Swahili

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This article examines the basis of ethnomedical classification of diarrheal disease among the Swahili speaking population of Lubumbashi, Zaire and the association of specific diagnoses with treatments given. Results from two research methods are reported: group interviews and large sample surveys. A series of group interviews with mothers of small children provided information about how they commonly diagnose illnesses related to childhood diarrheal disease as well as which symptoms, causes, and treatments they associate with those illnesses. Data from the interviews were used to formulate questions about the diagnosis of illness and treatments given for recent cases of diarrhea. A baseline and a follow-up survey provided information about the symptoms associated with reported episodes of illness and about the treatments given at home. The results provide evidence that ethnomedical diagnoses are based on observed symptoms, that they affect how and why oral rehydration therapy (ORT) is used or not used for diarrhea, and that the terms chosen by survey researchers to ask about diarrhea and ORT may affect survey results in predictable and systematic ways.

*Key words:* ethnomedical diagnosis, symptoms, diarrhea, qualitative research, survey research

This article presents a method for the ethnographic study of ethnomedical knowledge and the form and use of such knowledge about childhood diarrheal disorders among women of Lubumbashi, Zaire. I examine evidence of how women classify illnesses related to diarrheal disorders and how their diagnoses of childhood diarrhea affect the treatments they give at home from a qualitative and a quantitative perspective. I present evidence supporting the contention that these diagnoses are based largely on observed symptoms, that etiology does not play a major role in this classification, and that home treatments vary according to the ethnomedical diagnosis.

Besides the introductory remarks which situate this research within the anthropological literature, the text consists of four major sections. I first describe a research method based on group interviews designed to study knowledge related to the diagnosis of illness and common treatments. Next, I illustrate that method by presenting the results of an ethnomedical study of the diagnosis and treatment of

diarrheal disorders among Swahili speakers of Lubumbashi, Zaire. Third, I present survey data about the association of ethnomedical diagnoses with symptoms recalled and home treatments reported for recent episodes of diarrhea. Finally, I conclude with the implications of the findings for ethnomedical research and for oral rehydration therapy (ORT) promotion.

Both the group interviews and the surveys were undertaken within the context of the evaluation of the HealthCom<sup>1</sup> project, a health communication project financed by the United States Agency for International Development (USAID) and administered by the Academy of Educational Development. In Zaire, HealthCom provided technical assistance from 1988 to 1990 to health care personnel in Lubumbashi in order to promote the use of oral rehydration therapy for diarrheal disorders and increase immunization coverage among children. The ethnomedical study (group interviews) aimed to provide the project with information that could be used in the development of messages to mothers about how to treat diarrhea before the project began its interventions, and to serve as a basis for formulating certain questions on the survey questionnaire. The baseline and follow-up surveys were conducted to evaluate changes in treatment patterns in view of a planned intervention to increase the use of ORT in Lubumbashi.

#### Ethnomedical Knowledge of Diarrheal Disorders

Many studies of the classification of diarrheal disorders have become available in the past ten years, thanks in part to the willingness of donors such as the World Health Organization (WHO), UNICEF, and USAID to fund research on knowledge of diarrhea and the use of ORT. Most of these studies were conducted with an applied objective, namely, to give health care planners an outline of local knowledge and practice so they could better tailor their program to local contexts. While anthropologists have long been interested in local knowledge of illness, research designed to obtain information for developing pragmatic applications for public health policy is a recent focus for most anthropologists (Coreil and Mull 1990).

The published accounts of the management of diarrheal disorders display a common orientation around two questions: what treatments do people give for childhood diarrhea and, what factors determine treatment choices? The studies usually contain at least some information on local perceptions of diarrhea, since it is thought those perceptions may influence treatment patterns. The studies vary widely in the amount of detail reported concerning classification and whether they present "types of diarrhea" or complete folk taxonomies (cf., Lozoff, Kamath, and Feldman, 1975; Kendall, Foote, and Martorell, 1984; de Zoysa et al. 1984; Green 1985; McKee 1987). Studies done in part to obtain information useful for ORT promotion tend to devote more attention to perceptions of diarrhea than those which focused only on treatments (Green 1968; Bentley 1988; Mull and Mull 1988; Chowdhury and Vaughan 1988; Coreil and Genece 1988; Scrimshaw and Hurtado 1988; Martinez and Saucedo 1991).

The literature on diarrheal disorders has clearly demonstrated that ethnomedical categories differ from those of biomedicine, and suggests that local perceptions

be considered in the process of designing ORT messages.<sup>2</sup> But studies have seldom attempted to show how ethnomedical knowledge (local perceptions of diarrhea) is generated or how such knowledge relates to treatment actions, in part because of the assumptions about what information is relevant. Several of these assumptions are noted by Carl Kendall (1990) in his review of anthropological research on diarrheal disease. Kendall points out that these studies have implicitly adopted a biomedical definition of diarrhea, and that researchers themselves classify diarrheal episodes as simple or complicated. The simple versus complex contrast is significant because the more complicated ones are less likely to be taken to biomedical practitioners. While such a conception of what is relevant may be appropriate for descriptions of biomedical patterns of disease, and can be useful in assessing the implications of ethnographic research, it is not appropriate for studies of ethnomedical knowledge to adopt biomedical definitions of disease entities as the starting point for research.

Another assumption of biomedical origin in these studies is the priority given to causality in explaining treatment actions. Anthropologists have ascribed a key role to etiology in both diagnosis (classification) and treatment actions (Lieban 1977; Foster and Anderson 1978). This emphasis may well be a legacy of an earlier biomedical model of uni-causality of disease, of some anthropological research which focused on beliefs related to disease, and of the way information about causes is collected. In any case, etiology is commonly used as a basis for classification (cf., Scrimshaw and Hurtado 1988). For instance, Kendall (1990:180) cites evidence from Honduras, El Salvador, and Haiti suggesting that the "named entities," or types of diarrhea, are identified through their cause. The case of Honduras appears particularly striking, as the list of diarrheal illnesses includes the following: *caida de mollera*, *empacho*, *lombrices*, and *ojo* [sunken fontanelle, indigestion, worms, evil eye]. To an outsider unfamiliar with these concepts and their actual referents in episodes of illness, it appears that cause is crucial in identifying the illness. It is possible that examining the symptoms that lead to individuals' diagnoses would provide a different picture.

Two other limitations of this literature should be noted: one, it is unclear that ethnomedical lexemes related to diarrhea are necessarily "types of diarrhea," for they may be locally considered as separate illnesses which happen to have loose stools as one symptom (e.g., measles and malaria); two, such studies do not provide information about how people decide what kind of illness they are observing. Mark Nichter (1989) has clearly summarized the shifts in anthropological research from ethnoscience and ethnosemantics to more complex models of cognition and classification. In fact, ethnomedical classifications interest us today not only for what they might tell us about the logic or organization of cultural knowledge, but also for how much they increase our understanding of how people recognize illness and decide on appropriate treatment. One way to begin considering this question is to examine the relationships between signs/symptoms and diagnoses in the context of actual episodes of diarrheal disorders.

In addition to the numerous studies of knowledge and practices related to diarrhea recently published, involvement of anthropologists in public health projects has facilitated the development of more methods to rapidly collect ethno-

graphic data and more ways to make the results of ethnographic research accessible to the medical and development communities (van Willigen et al. 1989). Several manuals and guides for conducting health-related ethnographic research have been published (Scrimshaw and Hurtado 1987; Bentley et al. 1988; Herman and Bentley 1992). The research method presented here shares some elements with these guides, but it has a more narrow focus: it elicits information about ethnomedical knowledge of illness and treatment options while examining the association of symptoms to various diagnoses. Furthermore, it was developed more as a tool to discover the relations among elements of knowledge than as a way to conduct rapid assessments.

## A METHOD FOR THE STUDY OF ETHNOMEDICAL KNOWLEDGE

### General Approach

The study in Lubumbashi was based on a research method I first developed for a primary health care project seeking information about the knowledge of childhood illnesses in three languages of southern Mauritania: Hassaniya, Ffulde, and Soninke.<sup>3</sup> The information was to be used to train village health workers and in the formulation of questions for a community survey concerning the treatment of childhood illnesses. Two months were allocated for the collection and analysis of information. The same methodology was later used to study kinds of diarrheal disorders for the HealthCom project in the Hausa, Nupe, and Gwari languages of Niger State, Nigeria.

This research method permits the researcher to discover the ethnomedical classification of childhood illnesses, to determine how symptoms are grouped for making diagnoses, and to identify conceptions of the population regarding possible causes and preferred treatments. The analysis provides some idea of the degree to which knowledge of specific illnesses is shared and points to logical relationships among symptoms, causes, and treatments. Since the discovery of the local and operational taxonomy of illnesses and the identifying symptoms and associated treatments is critical, the initial questions are asked without using classificatory terms from another (i.e., biomedical) ethnomedical system to avoid cuing the respondents about ways of structuring knowledge of illness. The following steps guide the collection and analysis of the data:

- ✓ 1. interview small groups of individuals;
- ✓ 2. follow a cumulative progression of questioning from general to specific;
- ✓ 3. choose illnesses of special interest for more detailed questioning on symptoms, causes and treatments associated with those illnesses;
- ✓ 4. organize the information about those illnesses according to group responses by illness into a tabular form to allow for easy comparison;
- ✓ 5. write an interpretation of the results summarizing the knowledge about symptoms, treatments, and causes.

While this research strategy can be used to examine any domain of knowledge of

should be interviewed. For example, since the study in Lubumbashi examined common childhood illnesses, we sought persons with recent experience with those illnesses; only mothers and caretakers of small children were interviewed.

### Small Group Interviews

Interviewing small groups of three to five people offers several advantages over interviewing individuals or larger groups. Persons interviewed individually occasionally have very little to say, whereas a group interview with three or four people nearly guarantees there will be some response. Group interviews also permit the researcher to tap the knowledge of more individuals than could be obtained with individual interviews, even though in the end, the process yields a sample of group (not individual) responses (cf., Weller and Romney 1988). Assembling larger groups for questioning would include the knowledge of even more individuals, but since not everyone can participate equally, one reaches an upper limit on full participants.

It is generally accepted that in groups relatively homogeneous with regard to age, gender, and social status, individuals will feel more free to participate than in heterogeneous groups, since those with higher status tend to dominate the discussion.<sup>4</sup> Careful consideration of this factor when choosing group members facilitates the equal participation of everyone. All responses and observations are noted in order to obtain an overall impression of the knowledge of each participant and in order to establish the range of knowledge within groups for subsequent comparison with those of other groups responding to the same questions. Experience from other research sites has shown that one can easily conduct four or five group interviews per day, and that about 45 minutes is the average time that a group's interest remains steady.

### Progression of Question Types

The questions follow a progression both within each group discussion and throughout the overall period of the research. Group sessions begin with general questions about childhood illnesses—eliciting a list of childhood illnesses—before moving to more detailed questions about specific illnesses. The researcher then uses that list of illnesses as elements for more detailed questions. For example, if the researcher is seeking knowledge about illnesses related to diarrhea among children, the initial, general questions center on childhood illnesses. Once a list of 15 or 20 illnesses is obtained, those of greatest interest should be selected for questions about symptoms, causes, and treatments.

The amount of time devoted to general versus detailed questions over the course of data collection also follows a progression. As more groups are interviewed and the information obtained contains fewer new elements, questions should focus more on the illnesses of greatest interest to the researchers. Typically, after interviewing twelve to fifteen groups, few new illnesses will be named.

involve age, developmental phase, dominant symptom, etiology, family context), it is important to vary the formulation of questions about illness. In addition to asking for names of childhood illnesses questions can be asked about illnesses that affect those who have not yet been weaned, or those who are only a few months old, or those who are too young to walk. In some cases the same symptoms will lead to differing diagnoses depending on the age of the child. For example, in interviews in Soninke villages in Mauritania, two diarrheal disorders were identified by the same symptoms but were different because one affects only infants a few months old, while the other may strike children up to two years of age. Illnesses distinguished by criteria specific to age or developmental phase (teething, walking, speaking) are easily missed if the questions are always phrased in the most general terms.

#### Identifying Illnesses for Detailed Questioning

In choosing the illnesses for detailed questions—those most likely to fall into the domain of the research—the symptoms mentioned serve as the best indicators for identifying them. If the research ultimately addresses acute respiratory infections, for example, one looks for illnesses characterized by coughs, fever, and rapid breathing. If the research focuses on diarrheal disorders, the principal indicators will be loose and frequent stools. Once a short list of perhaps seven or eight relevant illnesses is identified, the pattern of questioning can shift to the items on that list, but the open-ended nature of the questioning is retained. While it is still important to ask a few general questions about childhood illness in each group, one can ask directly about specific illnesses identified by previous groups and still avoid introducing new elements to the questioning process. That allows for the collection of detailed data about those illnesses from a larger number of groups than would be possible if the initial questioning strategy were exclusively followed.

The average time spent interviewing one group allows for asking detailed questions about only three or four illnesses, since ten to fifteen minutes are required to cover each illness in detail. Therefore, the information obtained from each group about symptoms, causes, and treatments will not normally cover all the illnesses on the list. This process is illustrated by an example from the Lubumbashi study. When asked what childhood illnesses they saw from time to time, the first few groups interviewed mentioned *kuhara* and *lukunga*, among others. We knew from casual conversations with mothers that one Swahili term for diarrhea was *kuhara*, and that some people considered *lukunga* a serious childhood illness. Both illnesses were often identified in the first few groups as common childhood illnesses, but since nothing was known about the pattern of symptoms associated with them, it was unclear what sort of illness *lukunga* might be. Eventually we asked how one knows when a child suffers from *lukunga*, or what are the symptoms associated with that illness. The responses often contained references to frequent stools and loose stools as well as to making a clacking noise in the mouth (sign of extreme thirst). That information suggested that *lukunga* was one of the illnesses to select for more detailed questioning.

#### Creation of Analytic Tables

This strategy of data collection produces notes on the responses from each group to the general and detailed questions about the most pertinent illnesses from many but not all groups. For the Lubumbashi study, the data from each group were classified according to the six illnesses related to diarrheal disorders. The responses are presented in parallel columns with one column for symptoms, one for causes, and a third for treatments (see Appendix). For instance, the general term for ordinary diarrhea in Swahili is *kuhara*. The responses for all the groups who were asked about *kuhara* were laid out sequentially in columns with horizontal lines separating the responses of each group. Summarizing the data collected into tables in this manner permits the researcher to compare both what all the groups said about the illnesses in question, and what each specific group stated about the symptoms, causes, and treatments of each illness.

#### Interpretation of the Results

The results of the analysis in the analytic tables are read in two ways: vertically and horizontally. A horizontal reading gives the responses of each group to the symptoms, causes, and treatments of an illness. For example, the first page of the Appendix shows the responses regarding *kuhara* of seven separate groups.

A horizontal reading shows the associations made by each group between specific symptoms and treatments chosen. For example, most groups asked about *lukunga* mentioned a sunken fontanelle as a symptom. Most groups also mentioned the illness should be treated with a medicine made by preparing a mixture of palm oil, ashes and salt to be rubbed onto the fontanelle and the palate. This shows that the identifying symptoms for this illness are the sunken fontanelle and the irritated palate, the symptoms singled out for treatment. For *kilonda ntumbo*, characterized by frequent stools, stools containing undigested material or blood, and irritation around the anus, most groups cited the use of a suppository as treatment. It appears that mothers treat the irritated anus rather than loose or frequent stools.

A vertical reading of the tables provides a measure of the degree to which all the groups cited the same symptoms, causes, and treatments. For example, it is assumed that if most groups cite the same symptoms, the knowledge of that illness is more widely shared than if the symptoms mentioned vary widely. Each column is read separately in order to make that judgment. This reading also provides a sense of the range of symptoms, causes, and treatments known to the population. For the study in Lubumbashi, almost all groups gave the same answers about symptoms and treatments for *lukunga*, permitting us to say that this illness is well recognized by mothers in Lubumbashi. In the earlier study in Mauritania, the consistency of responses to these questions about measles showed that the illness was well known, while the variety of symptoms cited for what biomedicine diagnoses as schistosomiasis led us to conclude that this illness was not widely recognized.

## DIARRHEAL DISORDERS IN LUBUMBASHI: ETHNOMEDICAL RESULTS

## Illnesses Diagnosed

The women interviewed in Lubumbashi identified a large number of childhood illnesses in general and six illnesses characterized by loose and frequent stools in the Swahili spoken in Lubumbashi. The six illnesses chosen for detailed questioning were: *maladi ya kuhara* (or simply *kuhara*), *lukunga*, *kilonda ntumbo*, *kasumbi*, *buse*, and *kantembele*. Yet such a list raises as many questions as it answers. Are these illnesses readily recognized by large numbers of people? If so, on what basis? Are they related to each other in any way? Do they overlap, or are they situated at different levels of generality? What features distinguish one from another.

Thirty-nine groups of women were interviewed and their responses organized into analytic tables. An examination of these tables provides some answers to these questions, for they show us the extent to which certain symptoms cluster around a particular illness. The same interpretation can be used with treatments and causes. These data are presented in the Appendix.

## Symptoms

The responses obtained about symptoms for *kuhara*, *kilonda ntumbo* and *lukunga* are shown in Table I which includes all symptoms mentioned more than twice. The numbers next to the symptoms indicate the number of groups who spontaneously mentioned that symptom for the illness, while the numbers at the bottom indicate how many groups were interviewed about that illness specifically.

In addition, for *kasumbi*, 17 of 20 groups mentioned frequent stools, and all mentioned a rash or festering sores on the buttocks. Only five groups were interviewed about *buse* specifically and their responses are given in the Appendix. For *kantembele* all eleven groups mentioned diarrhea while ten of eleven mentioned fever (usually high fever), and ten of eleven mentioned a cough or a cold.

The symptoms which characterize these six illnesses differ markedly in the

frequency of their citation. *Kuhara* displays the common symptoms of ordinary diarrhea along with its effect on energy and appetite. Weakness and listlessness were combined in the table. The respondents also mentioned that there are different kinds of *kuhara* associated with developmental stages (teething, beginning to walk, weaning), but they are all part of the same illness.

*Kilonda ntumbo* is also characterized by frequent stools, but most of the other symptoms concern stool content and the irritated anus. Since a variety of pathogens could cause such symptoms, including viral and bacterial agents, biomedical diagnosis for this illness would vary. Most often, however, it would be diagnosed biomedically as dysentery or amebiasis.

The symptoms associated with *lukunga*, on the other hand, are the classic ones of dehydration, with all but one group mentioning both a sunken fontanelle and a clacking tongue. A clacking tongue refers to a sucking sound made by children when extremely thirsty. The symptom of an irritated palate was sometimes described as a white line on the palate, sometimes as bumps on the palate. The symptoms correspond closely to those described by Mull and Mull (1988) for an illness called *sutt* in Sind province of southern Pakistan. Margarita Kay (1993) has recently provided an overview of the history and occurrence of illnesses related to fallen fontanelle throughout the world.

*Kasumbi*, a word of Baluba origin but familiar to Swahili speakers, appears to be diarrhea with diaper rash, given the symptoms and the fact it is caused by leaving a child in clothes damp with urine. *Buse* appears somewhat more ambiguous, with a mention of frequent and watery stools, but also the signs of malnutrition. The likely gloss for most cases of *buse* is kwashiorkor (or sometimes marasmus), a serious illness. The causes of *buse* are behavioral, namely, maternal neglect and abrupt weaning.

Finally, *kantembele* displays all the symptoms of measles, including fever, cough, colds, reddened eyes and mouth, and a rash. Mothers included this illness as related to diarrhea because it is often accompanied by frequent stools. In this case we would say that the loose and frequent stools are symptoms of an illness characterized by other serious symptoms that must be treated (fever, cough, skin eruptions, etc.). Further evidence for this illness comes from the fact that some groups mentioned *rougeole* (measles in French) as an illness characterized by diarrhea. Since a number of mothers mentioned the French term, nine groups were asked about symptoms, causes, and treatments. The answers given corresponded exactly to those given for *kantembele*.

While the numbers and the ranking of the symptoms help highlight the contrastive nature of the cluster of symptoms associated with each illness, it is also important to examine the actual lists given by each group. This contrast suggests they may be considered as separate and unrelated illnesses by the women interviewed.

## Treatments Recommended

Table II summarizes the two or three most frequent responses to questions about treatments recommended for each of the three main illnesses. I say "recommended

TABLE I. Symptoms reported by illness and ranked by frequency.

<i>Kuhara</i>		<i>Kilonda ntumbo</i>		<i>Lukunga</i>	
frequent stools	20	frequent stools	20	tongue clacking	24
weakness	19	undig. matter in stools	16	sunken fontanelle	24
watery stools	18	blood in stools	14	irritated palate	23
loss of appetite	12	rash on buttocks	11	watery stools	16
thirst	12	fever	9	vomiting	11
fever	11	loss of appetite	8	dry mouth	4
dehydration	8	red anus	7	frequent stools	3
vomiting	3	enlarged anus	6	green stools	3
crying	3	fibrous material in stools	4		
	24 groups		22 groups		25 groups



TABLE II. Treatments recommended by illness and ranked by frequency.

Kuhara		Kilonda ntumbo		Lukunga	
SSS	21	tomato leaves as suppository	17	burn leaves or trash, mix with	
rice water	21	sit in water with mango		salt and palm oil, put on	
carrot juice	12	bark in it	16	palate and on fontanelle	24
guava leaves in water	9	Vicks on anus	10	burned fish head may	
				replace leaves	14
	24 groups		22 groups		25 groups

treatments" since women were asked "what people do" for these illnesses, not what they have done or will do.

It seems clear that the treatments differ dramatically from one illness to another. Most of the treatments recommended for kuhara were liquids (sugar-salt solution, rice water, carrot juice) to drink. Both sugar-salt solution and rice water have been promoted as a treatment for diarrhea in some parts of the city for years. Six groups also mentioned giving worm medicine for kuhara.

The treatments mentioned for kilonda ntumbo are all directed at the irritated anus, which suggests that this is an indicating symptom for the diagnosis. The term literally means "a wound at the anus," and while women may not think of this literal meaning when using the term, women clearly consider this symptom key in the diagnosis. The treatments vary from suppositories of Vicks or tomato leaves, sitting in a basin of water mixed with mango tree bark, or a medicine made of ashes and palm oil to rub on the anus. None of the 22 groups questioned about this illness mentioned sugar-salt solution or rice water as a remedy for the illness, further evidence that these illnesses are considered separate rather than as variations of diarrhea.

For lukunga, the treatment addresses the irritated palate and the sunken fontanelle only. These treatments differ dramatically from the rest, for almost all groups described a traditional remedy made of palm oil, ashes, and locally made salt that one rubs on the sunken fontanelle and on the palate. The substances used for the ashes varied somewhat, but generally were banana leaves, roots of a vegetable, or the head of a fish. Among the 25 groups interviewed about lukunga, only one failed to mention this treatment, and only four mentioned sugar-salt solution as a possible treatment to give at home.

The recommended treatment for kasumbi is the application of an herbal medicine made of a powder mixed with palm oil onto the sores or the rash. The powder may be ashes or red clay. The treatments for buse included medicinal plants that were not identified. Only five groups were asked about this illness. Four of the five groups said the child should be given vitamins, and three groups suggested taking the child from the mother. This suggestion appears linked to the behavioral cause.

The treatments identified do not constitute evidence of what is actually done, but rather of what is known about treatment options. Data on actual behavior could be obtained either through observations of episodes of illness or survey data derived from reported treatments given. The fact that each illness has a distinct treatment

pattern supports the hypothesis that each one is considered as a separate illness unrelated to the others discussed.

#### Possible Causes

Responses about possible causes of these illnesses presented a more varied picture than for symptoms or treatments. This is hardly surprising, since symptoms are observed and the treatments are suggested from experience, while possible causes are located outside direct empirical observation. During the interviews, women displayed uncertainty about possible causes—unlike their responses to questions about symptoms and treatments. This, along with the wide range in causes cited, suggests people are less certain about etiology of these illnesses than about symptoms or treatments.

Four types of causes were frequently proposed for kuhara: 1) bad food, too much food, bottle-feeding, or dirty water (germs); 2) intestinal worms; 3) behavior typical of a stage of development (teething, weaning, first steps); 4) worries, negligence and anxiety of the mother. Several groups also mentioned other illnesses as possible causes: kantembele, lukunga and kilonda ntumbo. The fact that 14 of 24 groups mentioned bottle-feeding or poorly prepared milk, and that 11 of 24 groups mentioned worries of the mother, suggests that many mothers associate kuhara with problems of breastfeeding and weaning as well as with bad food and water.

With one exception, all groups indicated kilonda ntumbo was caused by eating excessively sweet food. Examples cited included porridge, candy, tea, and soft drinks. Respondents also mentioned as causes were eating raw manioc (cassava) or green mangos.

Unlike other illnesses, few causes were given for lukunga; four groups said they knew of no causes. Several groups mentioned that a child could be born with the illness, that it could be provoked by bottle-feeding, or by the loss of water in the body. Most women simply did not know what caused the illness.

Similarly, little was known about what might cause kasumbi. Among the 20 groups asked about this illness, five mentioned that it may be caused by leaving the child too long in clothes damp with urine. Others stated that they did not know the cause.

Some mothers indicated that the illness known as buse may be caused by the negligence of a mother toward her child or by a pregnancy coming too soon after an earlier child, that is, when a mother becomes pregnant while still nursing. In biomedical terms these are causes of malnutrition, which the mothers seemed to understand. This illness strikes children at the age of weaning when they eat poorly.

Kantembele is considered contagious. All eleven groups interviewed stated that it was a contagious illness per se or that it could be brought by the wind. Citing the wind as a cause is consistent with knowledge that the illness is contagious. One group mentioned that a child may get measles if not vaccinated. The causal relation of wind and measles has also been identified among the Kamba of Kenya (Maina-Ahlberg 1979).

The analytical tables show a logical relation between the causes of these illnesses and the possible treatments for buse, since two actions suggested are to give vitamins or take the child from the mother. Such logical relationships between cause and possible treatments are difficult to identify for the other illnesses. The treatments recommended for the other illnesses relate more closely to symptoms than to causes.

### Ethnomedical Results and Survey Design

The ethnomedical study uncovered evidence that six different illnesses characterized by frequent and watery stools are generally known to Swahili-speaking women. If these are truly the terms with which women think and talk about diarrhea and related phenomena, how might such information be used in a survey seeking information about the management of diarrheal episodes?

These results were available for use in the formulation of questions for the baseline survey. Persons translating the questionnaire from French to Swahili first translated *diarrhée* as *maladi ya kuhara*. We anticipated that if the survey were to ask only about *kuhara*, most cases of diarrhea that would be reported by mothers would be cases with that diagnosis, thereby missing many cases with alternative diagnoses. We therefore chose to ask specifically about each of the five illnesses by name in our initial questioning about cases of illness to report (we did not ask about *kantembele*). The two surveys, therefore, produced data about the occurrence, symptoms recalled, and treatments given for each of the five illnesses.

### DIARRHEAL DISORDERS: SURVEY METHODS AND RESULTS

#### Data Collection

As part of the evaluation of the HealthCom project in Lubumbashi, two large sample surveys (baseline and follow-up) were conducted in 1989 and 1990 among mothers of young children to collect data on how they treated diarrhea and on the vaccination status of their children. The project emphasized the training of health care personnel in face-to-face health education strategies concerning diarrheal disease and immunizations. In addition to providing evidence about the program's effect, survey results yielded information about knowledge and behavior useful for more general health promotion, including reasons for choosing health services, the treatments for diarrhea most often given at home, the levels of knowledge about mixing sugar-salt solution, and the association between ethnomedical diagnoses and treatment choice.

The sample for both surveys was chosen with demographic statistics obtained from the city of Lubumbashi which gave the total population by geographic zone, by neighborhood and by cells (*zone, quartier, cellule*). A cluster sampling strategy was used to select the sample. Seventy-five clusters (*cellules*) were chosen randomly and fifteen women—mothers of children less than three years old—were interviewed in each cluster. The households selected were randomly distributed

within the clusters. The sample size for the first survey, conducted in March 1989, was 1125, while the sample for the follow-up survey in October 1990 was 1153. The same clusters were chosen for both surveys except for ten clusters transferred from one administrative zone to another.<sup>5</sup>

Interviews were conducted in Swahili by women who spent two weeks correcting the formulation of questions into Lubumbashi Swahili and practicing using the questionnaire. Although Swahili is widely spoken throughout eastern Zaire, including Shaba province, Lubumbashi Swahili is but one of numerous dialectical variations. The survey questionnaire focused mainly on the treatment of episodes of diarrhea and on the immunization status of children. Also included were extensive questions about symptoms of the last case of diarrhea, feeding during illness, and knowledge and experience with sugar-salt solution and packaged oral rehydration salts.

#### Variables

The series of questions about symptoms observed and treatments given for diarrheal disorders asked about what was done at home as well as away from home in an open and unprompted manner. Since the ethnographic research had identified five illnesses glossed as diarrheal disorders in Lubumbashi Swahili, we asked specifically if their child had had one of those illnesses. The sequence of questioning (English translation) was the following:

We have some other questions to ask about illnesses such as *maladi ya kuhara*, *lukunga*, *buse*, *kasumbi*, and *kilonda ntumbo*.

1. Do any of these children have *maladi ya kuhara* or any other of these illnesses today? Which child? (if they say no, then continue. . .)
2. Among the children we have mentioned, have any of them had *maladi ya kuhara* or any other of these illnesses in recent days? (for those saying yes, continue. . .)
3. What were the symptoms of illness that you noticed when the child had diarrhea?
4. What type of illness was it? Was it *lukunga*, or *buse*, or *kilonda ntumbo*, *maladi ya kuhara*, *kasumbi*, or something else?  
.....
5. Did you give the child anything for the illness or did the diarrhea stop by itself?
6. Did you do anything at home to treat the child for diarrhea?
7. What did you give the child?
8. Did you go anywhere to get advice or treatment?
9. Where did you go?
10. What advice or treatment were you given?

Between question four and five, six questions were asked about symptoms and severity in a prompted fashion. Questions five through ten provide information about reported treatments given at home and outside the home.

#### SURVEY FINDINGS

Three types of survey results are presented here: evidence about the frequency of illnesses reported in the two surveys; evidence about the association of symptoms

with each illness; and evidence about treatments given. Data regarding these three questions are presented for cases reported as either current or that had occurred within two weeks of the interview date, which we call "recent cases." We do not report information about cases that occurred longer ago because self-report data regarding actions more than two weeks in the past have been shown to have biases related to problems of recall (Ross and Vaughan 1986).

The five types of illness occurred with roughly the same frequency in the two surveys and are shown in Table III. Some variation in the percentages could be expected, since the two surveys were conducted in different seasons (March in 1989, October in 1990). One way to explain the similarity in frequencies is that mothers make these diagnoses based on symptoms observed, and that roughly the same proportions of clusters of symptoms were recalled in the two surveys. The evidence supports the suggestion that these illnesses are considered as distinct illnesses.

If one were to judge the relative importance of the illnesses by their frequencies alone, three are far more important than the rest. About 90% of the reported cases of diarrheal disorder in 1989 and 1990 were kuhara, kilonda ntumbo, or lukunga, with the rest of the diagnoses divided among buse, kasumbi, "other," and "I don't know." Although buse is extremely important because of its seriousness, it was a relatively rare diagnosis (3% and 2% of cases reported).

#### Diagnoses and Symptoms

Each mother was asked to name, in a format that permitted multiple answers, the symptoms she observed when her child was ill. In the analysis of survey data about symptoms we seek to determine if the associations of specific symptoms mentioned spontaneously are distributed randomly by diagnosis, or if one or two symptoms act as main indicators of a diagnosis. Tables IVa and IVb present the frequencies with which nine symptoms were mentioned without prompting, classified according to the diagnosis for the three principal illnesses. Frequencies for buse and kasumbi are not reported since there were so few cases. While respondents could give more than one symptom, the majority gave only one.

TABLE III. Frequency distribution of diagnoses by survey.

Diagnosis	1989	1990
<i>Kuhara</i>	38.3%	45.5%
<i>Kilonda ntumbo</i>	34.7%	34.0%
<i>Lukunga</i>	16.4%	12.1%
<i>Kasumbi</i>	2.9%	1.7%
<i>Buse</i>	2.9%	2.1%
Other	3.4%	3.9%
Don't Know	1.4%	.7%
	100%; n = 444	100%; n = 536

The distribution of the symptoms by diagnosis is nearly the same for both surveys, indicating that mothers must be observing at least some symptoms in making their diagnoses. In addition, each illness has one or two marker symptoms that distinguish it from the other two. For kuhara it is naming both frequent stools and watery stools. For kilonda ntumbo, it is frequent stools and mucus in the stool. And for lukunga, it is making a clacking sound in the mouth, as well as frequent stools. In Table IVb a sunken fontanelle was cited for 17% of cases of lukunga compared to 2% of kuhara and 1% of kilonda ntumbo.

Mothers were also asked explicitly if any of the following symptoms were observed: blood in the stool, mucus in the stool, vomiting, or a sunken fontanelle. Since the symptoms were actually mentioned and the respondent was expected to say "yes" or "no," these percentages are far higher than those resulting from unprompted mentioning. The responses for 1989 and 1990 are presented in Tables Va and Vb.

The two tables display essentially the same pattern: both the overall ratios of the symptoms across illnesses (horizontal read) and symptoms within each illness (vertical read) of the percentages are similar. Each table shows the same distributions of symptoms among the three illnesses: for fever, there is no difference among the three; blood in the stool is mentioned nearly three times as often for kilonda ntumbo as for either of the other two; vomiting is mentioned about twice as often for lukunga as for either of the other two; sunken fontanelle is mentioned ten times as often for lukunga as for the other two illnesses.

Both sets of tables about symptoms (IVa and b and Va and b) point to the same conclusion, namely, that observation of symptoms plays a major role in the diagnosis of these diarrheal disorders. If part of mothers' responses to diarrheal disorders involves observation of symptoms to make diagnoses, could that information be useful in the design of interventions to improve the management of episodes of diarrhea? If the ethnomedical diagnoses in Swahili were found to be associated with types of treatments given, the results could be useful in planning an intervention.

TABLE IVa. Symptoms (unprompted) associated with diagnoses: 1989.

	<i>Kuhara</i>	<i>Kilonda ntumbo</i>	<i>Lukunga</i>
Frequent stools	47.6	43.5	38.4
Watery stools	52.4	18.2	31.5
Weakness	16.5	8.4	6.8
Mucus in stool	8.8	33.8	11.0
Fever	12.9	14.9	2.7
Vomiting	5.3	1.3	13.7
Blood in stool	.6	6.5	0
Clacking sound	.6	0	45.2
Sunken fontanelle*	NA	NA	NA
	n = 170	n = 154	n = 73

\*This was not a pre-coded answer in 1989



TABLE IVb. Symptoms (unprompted) associated with diagnoses: 1990.

	Kuhara	Kilonda ntumbo	Lukunga
Frequent stools	47.5	41.8	36.9
Watery stools	47.5	21.4	21.5
Weakness	13.9	14.3	7.7
Mucus in stool	11.9	43.4	3.1
Fever	11.9	15.9	12.3
Vomiting	5.3	2.7	10.8
Blood in stool	1.2	7.1	1.5
Clacking sound	2.5	2.2	46.2
Sunken fontanelle	1.6	1.1	16.9
	n = 244	n = 182	n = 65

### Treatments Given at Home

Health services in Lubumbashi have promoted the use of three fluids for oral rehydration: rice water, the sugar-salt solution, and oral rehydration salts (packets). The promotion of fluids in 1989 was sporadic and limited to certain health centers in two or three of the five health zones of the city. Two types of packets could be found for sale in pharmacies and in markets: a UNICEF packet for mixing in one liter of water with instructions in French, and a packet made in Zambia to be mixed with 200 milliliters of water with instructions in English.

Bivariate analyses were conducted to measure the associations between the type of diarrheal disorder and treatments given. Two questions about treatment actions were asked: 1) did the sick child receive any treatment at all, and 2) what kind of treatment was given at home? In both surveys, a slightly higher percentage of the cases of kuhara received treatment than either of the other two frequent illnesses. In 1989, 81% of cases of kuhara were treated, 70% of cases of lukunga were treated and 69% of cases of kilonda ntumbo. In 1990 those percentages were respectively 85%, 67%, and 66%.

The contrasts in treatment patterns become clearer when we examine what was given at home. Tables VIa and VIb show the proportion of recent cases in each survey that were given different treatments at home for the three main types of illness. Only one answer was recorded for each case. The most significant aspect of

TABLE Va. Symptoms reported by diagnosis in prompted questions: 1989.

	Kuhara	Kilonda ntumbo	Lukunga
Blood in stool	14.1	35.1	13.7
Fever	51.2	57.8	56.2
Vomiting	27.6	18.2	50.7
Sunken fontanelle	12.9	3.9	65.2
	n = 170	n = 154	n = 73

TABLE Vb. Symptoms reported by diagnosis in prompted questions: 1990.

	Kuhara	Kilonda ntumbo	Lukunga
Blood in stool	10.7	30.2	10.8
Fever	46.7	46.2	33.8
Vomiting	24.2	18.1	40.0
Sunken fontanelle	11.9	6.0	64.6
	n = 244	n = 182	n = 65

the tables lies in the comparison of the proportions of cases given some form of ORT for each illness. In the 1989 survey, 52.1% of cases of kuhara were given ORT, 8.3% of cases of kilonda ntumbo, and 13.7% of cases of lukunga. In other words, four times as many cases of kuhara were given ORT than lukunga, and six times as many as for kilonda ntumbo. The same proportion of all three illnesses were treated with some form of pharmaceutical drug (modern medicine). About half of all cases of lukunga and of kilonda ntumbo were given some form of herbal medicine, while only 13% of cases of kuhara were given herbal medicine.

The same pattern of giving ORT was found in the 1990 survey. The treatments for buse and kasumbi are not given in the tables because there were so few cases. In 1989, four out of nine cases of buse and one out of ten cases of kasumbi received ORT. In 1990 three out of ten cases of buse and one out of six cases of kasumbi received ORT.

The contrast in treatment patterns is more clearly visible when the results of the two surveys are combined and only the three main treatments are shown, as in Table VII. The use of ORT appears highly associated with the diagnosis given. Logistic regression was used to estimate the probability that ORT would be given to cases of each illness. Setting the use of ORT as the dependent variable, and using only the five diagnoses in the formula, the odds ratio obtained for kuhara was 3.49 (C.I. 2.64–4.61), for kilonda ntumbo was 0.48 (C.I. 0.35–0.67), and for lukunga was 0.60 (C.I. 0.48–0.75). Following the same procedure with herbal medicine, since it also appears associated with diagnosis, the odds ratio for kuhara was 0.33

TABLE VIa. Home treatments by diagnosis: 1989.

	Kuhara	Kilonda ntumbo	Lukunga
SSS	29.6%	4.1%	11.4%
Rice water	14.3%	1.7%	2.3%
ORS	8.2%	2.5%	0%
Modern medicine	27.4%	27.3%	29.5%
Herbal medicine	13.3%	47.9%	50.0%
Other	6.1%	16.5%	6.8%
	n = 98	n = 121	n = 44

TABLE VIb. Home treatments by diagnosis: 1990.

	<i>Kuhara</i>	<i>Kilonda ntumbo</i>	<i>Lukunga</i>
SSS	32.4%	9.4%	10.2%
Rice water	12.2%	4.3%	4.1%
ORS	3.6%	1.4%	0%
Modern medicine	27.3%	26.6%	14.3%
Herbal medicine	18.0%	44.6%	57.1%
Other	6.5%	12.9%	14.3%
	n = 139	n = 139	n = 49

(C.I. 0.25–0.44), for *kilonda ntumbo* was 1.50 (C.I. 1.18–1.91), and for *lukunga* was 2.01 (C.I. 1.48–2.72).

While the relationship between a diagnosis of *kuhara* and giving ORT is the strongest, one also finds a relationship between giving herbal medicine and diagnoses of both *kilonda ntumbo* and *lukunga*, with the latter showing a higher association. No such association was found between giving modern medicine and diagnosis.

The survey data do not contain further details on the nature of the herbal medicines used, but the group interviews with mothers provided some details on the herbal medicines that mothers knew and recommended. That data suggested that the primary reason herbal medicine is used for both *lukunga* and *kilonda ntumbo* is to address their main symptoms. For *lukunga* the symptoms are a sunken fontanelle and an abnormal palate, which requires the application on both places a mixture of palm oil, ashes, and indigenous salt. For *kilonda ntumbo*, one of the symptoms is an irritated anus, and locally made salves and suppositories are recommended.

It is highly probable, though it cannot be shown, that the main reason for giving ORT for cases of *kuhara* is that ORT has been promoted for diarrhea off and on for some years, and since *kuhara* is considered ordinary diarrhea, the promotional messages were understood to apply mainly to *kuhara*. About 10% of cases of

TABLE VII. Home treatments by ethnomedical diagnosis: combined results of both surveys.

	N	ORT	Herbal medicine	Modern medicine
<i>Kuhara</i>	237	49.8% OR = 3.49	16.0% OR = 0.33	27.4%
<i>Kilonda ntumbo</i>	260	11.9% OR = 0.48	46.2% OR = 1.50	26.9%
<i>Lukunga</i>	93	12.9% OR = 0.60	53.8% OR = 2.01	21.5%

*kilonda ntumbo* in both surveys were given emetics. One case of *kuhara* also received an emetic.

## CONCLUSION

Having available both ethnographic and survey data about diarrheal disorders and treatments invites reflection on the sort of questions each method can best answer. The results also provide an opportunity to comment on the study of the classification of illnesses, on the relation of diagnoses and causes to treatment actions, on implications for survey design, and implications for ORT promotion in health communication.

The terms elicited relating to diarrhea in Swahili form part of the common currency of discourse about the experience of childhood illness as expressed by women in Lubumbashi. These are not the terms of experts or specialists, but of lay people, and as such are likely to be part of everyday conversation, closer in level of specialization to flu and to grippe in English rather than to influenza. Early research on local names of diseases considered names as taxa, elements of folk taxonomies, which displayed certain formal semantic contrasts with other elements (Kay 1971). These illness lexemes in Swahili do not necessarily have those properties and should be considered as forming an adapting classification rather than a fixed taxonomy of illness. The term *kasumbi* was borrowed from Tshiluba, widely spoken in northern Shaba and in Kasai, while the term *lukunga*, with about the same meaning as in Swahili, is known in a number of languages spoken in Kasai and Bandundu provinces hundreds of miles to the west. *Kantembele* was borrowed from Bemba, a language widely spoken to the east of Lubumbashi.

The significance of these illness lexemes is not revealed by simply contrasting them with one another, but by also examining the clusters of symptoms identified with them, making them more than denotative labels of particular illnesses. This is brought out in the patterns of symptoms associated with the three most frequent illnesses as reported in Table I for the ethnographic study and in Tables IVa, IVb, Va, and Vb for the survey data. Symptoms are not randomly distributed by diagnosis. However, analyses of the relationship with both the most commonly reported symptoms (unprompted) and treatment choices, and the three main prompted ones (blood in stool, vomiting, fever) and treatment choices, did not reveal any associations that were statistically significant.

The close relationship between treatment choices and ethnomedical diagnoses may seem surprising, given the numerous ethnographic studies showing an association between cause and treatment choice. However, the analytic tables reveal a remarkable consistency in the treatments suggested for each diagnosis, and clear contrasts among the six illnesses. Response about causes were also fairly consistent, although the causes of *kuhara* ranged widely and those of *lukunga* and *kasumbi* were often unknown. *Buse* differs from the other five illnesses in that its cause may directly influence both the diagnosis and treatment choices. One group mentioned premature pregnancy as a symptom, while three groups did not mention loose or frequent stools at all. Behavioral factors appear involved in ways not evident for the other illnesses.<sup>6</sup>

The survey data contain no information about causes, but do indicate that one-half of the cases of kuhara were given some form of ORT. These cases of kuhara were four times as likely to receive ORT as were cases of either lukunga or kilonda ntumbo, which were three times as likely to have received some form of herbal medicine than were cases of kuhara. Nearly the same proportion (22%–27%) of all three illnesses were given some form of modern medicine.

There are two aspects of decision-making relevant to public health which neither the ethnographic nor the survey data can fully address: the process of changing diagnoses within an episode of illness, and the influence of social and demographic factors. It is important to note the dynamic nature of such classifications and to recognize the contextual and situated nature of their usage. Diagnoses can be expected to change if symptoms change or if the patient does not respond to treatment (Kunstadter 1975). It is likely, for instance, that a diagnosis of kuhara could become lukunga if the child becomes dehydrated. They may also change over time as new illnesses are recognized or new treatments offered. Only actual observations of the search for appropriate therapy in specific episodes or the narrative dimension obtained through frequent (weekly) household visits can provide evidence about changes in diagnoses.

The results reported have implications for the design of surveys related to the treatment of diarrhea and ORT promotion. As described earlier, the terms for diarrheal disorders in Swahili identified in group interviews were used directly in the survey questionnaire. By asking specifically about a series of illnesses known to involve loose stools, we changed the nature of the basic initial question to one far more inclusive. This change may explain the high percentage (39% and 46%) of recent cases of diarrheal disorders reported by mothers, percentages substantially higher than in research sites of similar surveys with similar questions in Africa and Asia which addressed diarrhea in general rather than specific illnesses. Had we asked only about diarrhea per se, we would most likely have missed about half the episodes of diarrhea reported and would have found far higher rates of ORT use. We say most likely, for we do not have comparative evidence from a survey in Lubumbashi that asked the main question in this fashion. Knowing that the translation of diarrh e is glossed as kuhara, however, suggests that most of the cases of lukunga and of kilonda ntumbo would not be reported within such a framework.

The usage of local terms related to diarrheal disorders underscores the crucial importance of careful pretesting in the development of questionnaires for estimating the prevalence of diarrhea and the use of ORT and other treatments (cf., Kendall 1990). We can speculate that in contexts where the majority of the population uses health services and where most people are familiar with the more common terms used by health care workers, we would expect that a question about diarrhea using only a single term would yield information about the majority of episodes of diarrhea. However, in a context where the public is relatively unfamiliar with biomedical language and concepts, this approach in surveys may fail to identify important types of diarrheal disorders and will most likely produce a distorted picture of ORT use. In such contexts we would expect a survey to greatly overestimate the use of ORT, since surveys are likely to use in their questionnaire whatever term has been used by the health service. Thus the reported use

rates will be valid for those illnesses only and will not include diarrheal disorders with other diagnoses. A combination of group interviewing and careful pre-testing can provide some indication of how questions should be formulated.

Finally, what do such results imply for ORT promotion through health education? In order to affect the management of diarrheal disorders, any intervention program in Lubumbashi may choose to recognize the reality of these illnesses and advocate giving fluids as part of their treatment. One could make a case for considering buse as more of a nutritional disorder, given its seriousness, and thus suggest other treatments. However, if ORT promotion campaigns wish to build on local knowledge, that should be the point of departure, not the ending point. In Lubumbashi, messages written in French and translated into Swahili will speak of kuhara, and not the other illnesses, simply because their starting point is biomedical knowledge of diarrhea, not local knowledge of diarrheal disorders. A woman hearing about kuhara at the health center or on the radio will make the natural association to what she knows about kuhara, and will consider giving sugar-salt solution or rice water or another fluid the next time her child suffers from that illness.

The experience of the Bangladesh Rural Advancement Committee (BRAC) shows what may happen when local diagnostic terms are ignored. Beginning in 1980 BRAC used trained volunteers to go from house to house teaching about diarrhea and sugar-salt solution, so that by 1986 more than seven million households had been visited. A study in 1984 found that sugar-salt solution use was low in rural areas in part because women thought sugar-salt solution was meant for cases of daeria,<sup>7</sup> and not for other types of diarrheal disorders (Chowdhury and Vaughan 1988).

Finding an appropriate means to promote ORT is not, however, simply a question of identifying and using the right local terms. The pattern of treatments frequently given for these illnesses is also relevant. For example, it appears that in Lubumbashi, few people make a connection between kuhara (ordinary diarrhea) and lukunga. While we may advocate the use of ORT for both illnesses, mothers' response to such a message may not be the same for kuhara as for lukunga, since current treatment patterns differ so markedly.

The critical point is not that certain terms be used in messages, though that does make a difference, but rather that the use of ORT for diarrhea be examined in the light of the logic of treatment actions available from the mother's perspective. Far too often ORT programs, with specific messages to diffuse and important knowledge to communicate, assume that only elements related to their program are relevant to understanding treatment choices. Thus we find evaluations of ORT programs which examine women's knowledge of oral rehydration therapy, fluid use, and the preparation of a solution in order to estimate knowledge and use of ORT (cf., Kenya et al. 1990). Programs that use such a definition of relevance run the risk of missing major factors involved in the decision to use ORT or not for diarrheal disorders.

Above all, these data show the importance of using emic categories in the collection and the analysis of ethnomedical knowledge. If we are to better understand how decisions about treatment are made, analyses should use terms familiar to the mothers who make those decisions. The data also suggest that the translating

of the phenomena under study into biomedical language be delayed, and that the researcher do more with emic illness categories before they are cast in biomedical terms. The results indicate that if programs for improving the management of diarrhea can find ways of taking emic categories more seriously, they can improve both their data collection and their delivery of services.

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## NOTES

1. HealthCom is a health and communication project financed by the United States Agency for International Development (USAID) and administered by the Academy for Educational Development (AED) of Washington, D.C. The project seeks to improve the capacities of Ministries of Health to conduct health education. The research presented here was undertaken as part of the evaluation research directed by the Center for International, Health and Development Communication (CIHDC), which has a contract with AED for conducting summative evaluations of HealthCom projects as well as formative research upon request. The views expressed here are solely those of the author and may differ from those of sponsoring agencies. I would like to thank the medical authorities of the city of Lubumbashi and the personnel of the HealthCom project for their interest, support, and encouragement.
2. For substantial reviews of this literature, see Nichter 1989 and Kendall 1990.
3. A report on this research is available in French. Yoder, PS, 1985. *Enquête ethnomédicale dans le Trarza et le Guidimaka*. American Public Health Association & USAID Mission, Mauritania.
4. For a useful overview of these principles, see Morgan (1988). However, these small group interviews are conducted with both objectives and group dynamics that are far different from focus groups.
5. Ten clusters were removed from Katuba zone and ten more randomly chosen with Ruashi zone in order to have more interviews in Ruashi where HealthCom had trained health workers. The population of these two zones are essentially the same with respect to wealth, education, access to radio and television, and access to government services.
6. Boerma and Baya (1990) have described a childhood illness called chirwa among the Mijikenda of coastal Kenya which sounds just like buse. Dorothy Mull (1991) has described an illness diagnosed in Urdu as sukhay ki bimari in Karachi which has some of the same symptoms as buse. However, Pakistani mothers' statements about causes linked it to ritual impurity and the spiritual world. This suggests the two illnesses are considered in quite different terms.
7. Daeria appears to be a borrowed word from English, but it usually refers to cholera. Thus when people were taught to prepare SSS for daeria, SSS was not often used, since cholera cases were relatively few.

## APPENDIX: Symptoms, causes and treatments of illnesses.

Kuhara		
Symptoms	Causes	Treatments
1 frequent stools; vomiting; fever; no appetite; loss of water; crying; rash on buttocks	teething; poorly prepared bottle; intestinal worms; diarrhea from walking; eating dirt (ground); <i>lukunga</i>	SSS; rice water; carrot juice; guava juice
2 frequent stools; watery stools; general weakness; intense thirst	bad food; teething; intestinal worms; bottle feeding; eating dirt (ground)	go to health center; SSS and ORS; terramycin; rice water; carrot juice
3 very frequent stools; no appetite; listlessness; crying; thirsty	non boiled water; bad food; poorly prepared milk; eating many different kinds of food; intestinal worms	rice water; SSS
4 very frequent stools; listlessness; loss of appetite; getting thin	bad food; poorly prepared milk; dirty water; <i>samaki ya duoza</i> ; germs	rice water; SSS; carrot juice
5 very frequent stools; tiredness; intense thirst; fever; watery stools	teething; intestinal worms; germs; bottle feeding; negligence, worries	rice water; guava juice; carrot juice
6 very frequent stools; weakness; watery stools; fever	food poisoning; water from a well; bottle feeding; intestinal worms; teething; germs; worries, negligence	rice water; carrot juice; white clay; charcoal in water; worm medicine; SSS at dispensary
7 frequent stools; dehydration; swollen eyes; intense thirst; weakness; loss of appetite	teething; walking; pregnancy; dirty water; intestinal worms; poorly prepared food	SSS; rice water; worm medicine
8 frequent stools; watery stools; general weakness; loss of appetite; intense thirst	dirty water; intestinal worms; poorly prepared food; poorly prepared milk	SSS; rice water; carrot juice; worm medicine; ORS
9 frequent stools; watery stools; listlessness; dehydration	intestinal worms; bad food eaten by the mother; greens: <i>sombe</i> and <i>lengalenga</i>	put Vicks on anus; suppository of tomato leaves; suppository of ice cube; sit in basin of water with mango bark in it
10 frequent and watery stools; containing; undigested matter; stools containing worms; fever; little appetite; child falls down easily	greens such as <i>sombe</i> and <i>lengalenga</i> when it's hot; teething; intestinal worms; negligence and worries	SSS; rice water; anti-diarrheals; charcoal powder in water; solution of guava leaves in water
11 watery stools; listlessness; sunken fontanelle	eating adult food for the first time; poorly prepared porridge; teething; weaning; negligence, worries; intestinal worms	SSS; rice water; charcoal powder in water; boiling guava leaves in water; traditional medicine

Kuhara		
Symptoms	Causes	Treatments
12 constant watery stools; stool with undigested matter; stool with intestinal worms; high fever; loss of appetite; falling down	greens such as <i>sombe</i> and <i>lengalenga</i> in hot season; teething; intestinal worms; hitting child on buttocks; negligence and worries	SSS; anti-diarrheals; rice water; powdered charcoal in water; solution of boiled guava leaves in water
13 watery stools; listlessness; dehydration; very frequent stools; vomiting; constant thirst	poorly prepared bottle; milk that does not agree with the child; heat; dirty water; severe malaria; dirty hands; intestinal worms; eating dirt (ground); learning to walk; the mother often eating <i>sombe</i> or meat	SSS; anti-biotics; rice water; carrot juice; charcoal; white clay (kaolin)
14 listlessness; watery stools; high fever with a cough	poorly prepared porridge; spoiled food; food poorly prepared; intestinal worms; teething; worrying	SSS; white clay (kaolin); cassava flour in water; boil guava leaves in water with a little salt and drink it; vitamins
15 frequent stools; watery stools; listlessness; getting thin; sometimes a fever	teething; intestinal worms; poorly prepared food; crawling on the ground; measles; <i>lukunga</i>	SSS; rice water; lots of pure water; cassava flour in water; pounded charcoal in water; guava leaves in water with a little salt
16 very frequent stools; watery stools; listlessness; stools with undigested matter; constant crying; bad smelling stools; loss of appetite	eating absolutely anything; bottle feeding; dirty water; teething; taking the first steps; no breast feeding; worries	SSS; rice water; charcoal in water; white clay; take child from parents; traditional medicine
17 watery stools; listlessness; loss of appetite; fever; abdominal pain	dirty water; bottle feeding; teething; intestinal worms; abrupt weaning; food poisoning	rice water; carrot juice; boiling guava leaves in water; at dispensary they give worm medicines
18 watery stools; listlessness; intense thirst	eating too many different kinds of foods; teething; weaning; poorly prepared foods; taking the first steps; intestinal worms	rice water; SSS; boiling guava leaves in water; cassava flour in water; white clay; charcoal in water
19 very frequent stools; listlessness; loss of appetite; dehydration; eating absolutely anything; watery stools	eating bad food; bottle feeding; drinking non-potable water; intestinal worms; measles; teething; weaning; taking the first steps; worries; <i>lukunga</i>	ORS; SSS; rice water; carrot juice; white clay; mango bark in water

Kuhara		
Symptoms	Causes	Treatments
20 very frequent stools; watery stools; loss of appetite; intense thirst; dehydration	intestinal worms; dirty food; eating too many; kinds of food; eating beans or greens; worries, negligence; bottle feeding; <i>kilonda ntumbo</i> ; <i>lukunga</i> ; <i>kasumbi</i>	rice water; SSS; carrot juice; white clay; worm medicine; Néokal
21 very frequent stools; listlessness; loss of appetite; intense thirst; dehydration; fever	teething; eating many kinds of foods; ; worries, negligence; bottle feeding; <i>lukunga</i> ; measles; intestinal worms; hot weather; taking the first steps; eating greens: <i>lengalenga</i> , <i>sombe</i> , <i>matembele</i>	rice water; carrot juice; SSS; white clay; charcoal in water; ORS; guava leaves in water
22 constipation; frequent stools; watery stools; fever; weakness; intense thirst; dehydration	food poisoning; dirty water; teething; intestinal worms; germs; eating dirt (ground); bottle feeding; worries, negligence of child; when weaning	SSS; enema of guava leaves in water; ORS; going to dispensary
23 frequent stools; watery stools; weakness; intense thirst; vomiting; fever	bottle feeding; food poisoning; teething; intestinal worms; germs; dirty water; worries and negligence	SS; worm medicine; rice water; charcoal in water; white clay; guava leaves in water
24 very frequent stools; tiredness; watery stools; intense thirst		SS; rice water; carrot juice; worm medicine
Kilonda Ntumbo		
Symptoms	Causes	Treatments
1 fever; stools with undigested food; watery stools; very frequent stools	food that is too sweet; fruit that is not ripe	put Vicks on anus; put banana leaves and palm oil on anus
2 rash on buttocks; very frequent stools; anus becomes enlarged	eating foods that are too sweet; ex. porridge, sweetened drinks, tea	put Vicks on anus; suppository of tomato leaves
3 rash on buttocks; frequent stools; anus becomes enlarged; stools with undigested matter; stools containing fibrous matter	food that is too sweet; suckers (candy); mangos that are not ripe	put Vicks on anus; sit in basin of water containing mango bark
4 frequent stools; stools with undigested matter; stools containing fibrous matter; anus becomes reddened		different suppositories: Vicks, tomato leaves, <i>nkatu</i> (pepper) mixed with palm oil



Kilonda Ntumbo		
Symptoms	Causes	Treatments
5 reddened anus; fever; blood in stool; frequent stools	food that is too sweet; green mangos; uncooked cassava	suppository of tomato leaves; sit in basin of water containing mango bark
6 frequent stools; blood in stools; reddened anus; stools with undigested matter; stools containing filaments	eating food that is too sweet; ex. tea, porridge; doughnuts that are very sweet	suppository of tomato leaves; sit in basin of water containing mango bark; drink a solution of mango bark in water; suppository of <i>Perdolan</i>
7 frequent stools; blood in stools; reddened anus; loss of appetite; stools with undigested matter	intestinal worms	put Vicks on anus; suppository of tomato leaves; suppository of ice cube; sit in basin of water containing mango bark
8 loss of appetite; stools with undigested matter; stools with fibrous material; soft stools blood in stools	food that is too sweet; corn flour	suppository of tomato leaves; sit in basin of cold water; suppository of menthox; enema with cold water
9 stools with undigested matter; bumps in the mouth; loss of appetite; frequent stools; blood in stools; white worms in stools	eating unripe mangos; food that is too sweet; uncooked food	suppository of tomato leaves; suppository of <i>kilwa benyi</i> ; sit in basin of water containing mango bark; palm oil; enema with very cold water; sitting in basin of cold water
10 frequent stools; stools with undigested matter; rash on buttocks; loss of appetite; child does not play; fever; blood in stool	food that is too sweet; often eating greens such as <i>sombe</i> , <i>lengalenga</i> , or <i>matembele</i> ; mother eating these greens	suppository of tomato leaves; suppository of <i>lwenyi</i> leaves; put Vicks on anus; put ashes mixed with palm oil into anus
11 fever; cough; loss of appetite; frequent stools; blood in stools; worms in stools; stools with undigested matter	germs; very sweet foods; very frequent stools; the anus is irritated by acidic foods	put Vicks on anus; suppository of tomato leaves; Apply to anus a mixture of burned banana leaves and palm oil; sit in basin of water containing mango bark; anti-biotics from dispensary
12 stools with undigested matter; rash on buttocks; reddened anus; blood in stools; frequent stools; enlarged anus	very sweet food such as tea; unripe mangos; raw cassava	enema with mango bark or leaves of <i>kilulu nkuni</i> ; suppository of tomato leaves; sit in basin of water containing mango bark; suppository of burned banana leaves and palm oil

Kilonda Ntumbo		
Symptoms	Causes	Treatments
13 frequent stools; rash on buttocks; blood in stools; stools with undigested matter; worms in stools	foods that are too sweet such as porridge or tea	suppository of tomato leaves or mango bark; put Vicks on anus; sit in basin of water containing mango bark
14 watery stools constantly; stools with undigested matter; rash on buttocks; blood in stools; enlarged anus; little sores on anus	foods that are too sweet such as cookies or porridge; mother eating too much sugar	suppository of tomato leaves or of <i>kilulu nkundja</i> ; sit in basin of water containing mango bark
15 frequent stools; stools with undigested matter; fever; sores on the anus; enlarged anus	foods that are too sweet; letting child crawl without any clothes	suppository of tomato leaves; suppository of burned banana bark; sit in basin of water containing mango bark
16 fever; a cold; a cough; frequent stools; loss of appetite; rash on buttocks; difficulty in sitting down; tongue all white	germs; food that is too sweet; unripe mangos	suppository of tomato leaves; suppository of burned banana bark or of <i>lwenyi</i> ; sit in basin of water containing mango bark or <i>ndimba</i> ; enema with mango bark
17 cough; fever; rash on buttocks; frequent stools; loss of appetite; stools with undigested matter; blood in stools	food that is too sweet; unripe mangos	suppository of tomato leaves; suppository of <i>lwenyi</i> ; enema with <i>kilulu nkundja</i> ; sit in basin of water containing mango bark
18 very frequent stools; loss of appetite; stools with undigested matter; fever particularly at night; blood in stools; very itchy buttocks	germs; raw cassava; food that is too sweet	suppository of tomato leaves or of <i>kilubwa lwenyi</i> ; sit in basin of water containing mango bark or permanganate; enema with red tea; massage of body with cassava leaves or pounded peanuts
19 frequent stools; reddened anus; blood in stools; loss of appetite; high fever; difficulty in sitting down	germs; food that is too sweet, such as porridge, candy, papaya, tea	suppository of tomato leaves or of <i>kilubwa lwenyi</i> ; put Vicks on anus; sit in basin of water containing mango bark
20 rash on buttocks; frequent stools; stools with undigested matter; stools with mucus	food that is too sweet; unripe mangos; raw cassava	put Vicks on anus; put mixture of burned banana bark and palm oil on anus; sit in basin of water containing mango bark

Kilonda Ntumbo		
Symptoms	Causes	Treatments
21 frequent stools; stools with mucus; reddened anus; rash on buttocks; very itchy buttocks	unripe fruit; food that is too sweet	sit in basin of water containing mango bark; apply to anus a mixture of ashes from burned banana bark and palm oil
22 rash on buttocks; enlarged anus; blood in stools; frequent stools	food that is too sweet; unripe fruit	
Lukunga		
Symptoms	Causes	Treatments
1 very frequent stools; clacking of the tongue; vomiting; sunken fontanelle; spots/bumps on palate	if a mother eats fish called <i>kabambale</i> or <i>mulonge</i> , she may give birth to a child with <i>lukunga</i>	any plant picked up at a crossroads can be burned and mixed with palm oil and local salt and applied to palate
2 frequent stools; clacking of the tongue; split in the palate; sunken fontanelle; green stools	a child can be born with it; bottle feeding a child	apply to palate a mixture of palm oil and local salt; burn the head of <i>mulonge</i> fish and mix with palm oil and local salt to apply to palate; apply a mixture of burned banana bark, palm oil and local salt to palate
3 clacking tongue; intense thirst; sunken fontanelle; spots/bumps on palate	sorcery	Burn some trash from the market, mix with palm oil and local salt to apply to palate
4 watery stools; sunken fontanelle; sunken palate; spots/bumps on palate; clacking of the tongue	some children are born with it	Apply a mixture of burned banana bark, palm oil and local salt to palate; apply to palate a mixture of Vicks and local salt
5 clacking tongue; vomiting; watery stools; no fever; child cannot nurse; sunken fontanelle; split in palate	poor bottle feeding; a hard nipple will irritate the palate	apply to palate and to fontanelle a mixture of Vicks and local salt; apply to palate and to fontanelle a mixture of eggplant roots with local salt and palm oil; Or use the bark of sugar cane and the head of the <i>kabambale</i> fish instead of eggplant

Lukunga		
Symptoms	Causes	Treatments
6 sunken fontanelle; watery stools; sunken palate; white spots/bumps on palate; vomiting; clacking tongue	a natural illness; a child can be born with the illness; a hard nipple of a bottle	apply to palate and to fontanelle a mixture of burned eggplant roots with palm oil and local salt; or use the bark of banana and the head of the <i>kabambale</i> fish instead of eggplant; no treatment at dispensary
7 clacking tongue; split palate; sunken fontanelle; a line on the forehead; watery stools; a dry mouth	heat from the sun; not enough water in the body	Burn some trash from the market, mix with palm oil and local salt to apply to palate
8 clacking tongue; watery stools; sunken fontanelle; split palate; spots/bumps on the palate; vomiting	dehydration	apply to palate and fontanelle; a mixture of palm oil and local salt; apply a mixture of burned banana bark, palm oil and local salt to palate and to fontanelle; apply to palate a mixture of Vicks and local salt
9 watery stools and vomiting; green stools; clacking tongue; sunken fontanelle; a red split/band on palate	unknown	burn some beans, peanuts and the head of a <i>kabambale</i> fish, then mix the ashes with palm oil and local salt and apply to palate and fontanelle
10 a white line on the palate; child does not nurse well; clacking tongue; sunken fontanelle; watery stools; a dry mouth	unknown	have child drink egg yolks; different substances can be burned and mixed with local salt and palm oil to be applied to fontanelle and palate; these may be: banana bark, or banana bark with corn and benas, or trash from the market
11 clacking tongue; watery stools; sunken palate; spots/bumps on the palate; dehydration	bottle feeding	ashes mixed with local salt and palm oil to be applied to palate and fontanelle; burn the head of a <i>kabambale</i> fish, then mix the ashes with palm oil and local salt and apply to palate and fontanelle

Lukungu		
Symptoms	Causes	Treatments
12 frequent stools; green stools; sunken fontanelle; vomiting	a child can be born with it	burn the head of a <i>kabambale</i> fish along with corn, beans and cassava, then mix the ashes with palm oil and local salt and apply to fontanelle; may also be done with the skin of a monkey
13 vomiting; watery stools; clacking tongue; sunken fontanelle; sunken palate	very watery stools; dehydration; child may be born with it; other causes are unknown	apply Vicks on palate; SSS; give rice water for the diarrhea; take child to dispensary, for other illness may be found
14 watery stools; clacking tongue; sunken fontanelle; vomiting; a white line on the palate	bottle feeding; bad wind (sorcery); some children are born with it	burn the head of a <i>kabambale</i> fish along with roots of <i>nyanya</i> plant, then mix the ashes with palm oil and local salt and apply to fontanelle and to palate; Burn some beans gathered up from the market, mix with palm oil and local salt to apply to palate
15 sunken fontanelle; watery stools; sunken palate; vomiting; getting thin; clacking tongue	unknown; when the diarrhea gets serious there is little water left in the body	give SSS; several things can be applied to the palate and the fontanelle: Vicks mixed with local salt; the head of <i>mulonge</i> fish burned and mixed with palm oil and local salt; cassava flour and roasted beans mixed with local salt and palm oil
16 watery stools; clacking tongue; sunken fontanelle; vomiting; a dry mouth; a white line on the palate	unknown; dehydration; a child may be born with it	several things can be mixed with local salt and palm oil and applied to the palate and fontanelle: burned bark from banana tree; burned monkey skin and <i>lwenyi</i>
17 clacking tongue; sunken fontanelle; watery stools; sunken palate	unknown	several things can be mixed with local salt and palm oil and applied to the palate and fontanelle: Vicks; burned bark from banana tree; head of <i>kabambale</i> fish and stems from <i>nyanya</i> plant

Lukungu		
Symptoms	Causes	Treatments
18 watery stools; clacking tongue; spots/bumps on palate; sunken fontanelle; a dry mouth	mother walking or eating in the street while pregnant; eating <i>kabambale</i> while pregnant	cassava tubers and the head of <i>kabambale</i> fish burned and mixed with palm oil and local salt and applied to palate and fontanelle; ashes mixed with local salt and palm oil and applied to palate and fontanelle; Vicks and palm oil applied to palate and fontanelle
19 clacking tongue; watery stools; sunken fontanelle; getting thin; sunken palate; spots/bumps on the palate; green stools	bottle feeding; loss of water in the body; A hard nipple on bottle	several things can be mixed with palm oil and local salt and applied to the palate and fontanelle: Vicks; burned head of the <i>kabambale</i> fish; burned corn stalks
20 spots/bumps on palate; watery stools; sunken fontanelle; clacking tongue; constant crying	illness of the market; a child can be born with it; a pregnant woman who crushes the head of the <i>kabambale</i> fish	burn banana tree bark and mix with palm oil and local salt; use ashes instead of banana bark: apply to palate and fontanelle
21 white spots/bumps on palate; clacking tongue; watery stools; vomiting; sunken fontanelle	loss of water in the body; diarrhea; a child may be born with it	the head of <i>kabambale</i> fish burned and mixed with palm oil and local salt and applied to palate and fontanelle; the burned banana tree bark can be used rather than the fish head; SSS and ORS
22 watery stools; sunken fontanelle; vomiting; clacking tongue; spots/bumps on the palate; weakness; nape of the neck has sunken in	bottle feeding	burn banana tree bark and mix with palm oil and local salt; garlic or onions mixed with Vicks and local salt; both applied to palate and fontanelle
23 clacking tongue; sunken fontanelle; sunken palate; intense thirst	a child can be born with it	burn trash picked up at the market or the head of the <i>kabambale</i> fish, mix with local salt and palm oil and apply to palate and fontanelle
24 sunken fontanelle; clacking tongue; red spots/bumps on palate; intense thirst	a child may be born with it	burn bark from banana tree or the head of the <i>kabambale</i> fish, or trash from the market, mix with local salt and palm oil and apply to palate and fontanelle

Lukunga		
Symptoms	Causes	Treatments
25 very frequent stools; clacking tongue; spots/bumps on the palate; sunken fontanelle	an illness picked up in the street	burn anything found in the street, mix the ashes with palm oil and local salt, and apply to palate and fontanelle
Kasumbi		
Symptoms	Causes	Treatments
1 rash on buttocks; frequent stools; little spots on buttocks; watery stools; constant crying	unknown	roasted & pounded peanuts applied to sores; pounded red clay mixed with palm oil applied to anus
2 frequent stools; reddened buttocks; sores on buttocks	illness that comes from other people; unknown cause	traditional medicine; boil the red roots of <i>lengalenga</i> , mix with palm oil, and apply to sores; lemon juice on sores; sit in basin of water containing mango bark
3 very frequent stools; reddish groin area; festering sores on buttocks; loss of appetite; constant crying	unknown	apply a mixture of ashes from burned cloth or from burned banana bark and palm oil to sores
4 reddish groin area; frequent stools; festering sores on buttocks; rash on buttocks	unknown	put red ashes on sores; put powder on sores
5 rash on buttocks; very frequent stools; loss of weight; festering sores on buttocks	illness begins in the belly; cause unknown	power and Penatin oil on sores; apply to sores a mixture of burned <i>lwenyi</i> roots mixed with palm oil and local salt
6 genital rash; very frequent stools; festering sores	unknown	apply powder from traditional medicine on sores; no medicine from dispensary; unsure of treatment
7 festering sores on buttocks; rash on buttocks; very frequent stools; constant crying; uncontrolled urinating	leaving the child lie a long time with clothes wet with urine	crush a plant called <i>dihukahuka</i> (Tshiluba) and extract a liquid to put on sores
8 rash on buttocks; reddened groin area with sores; very frequent stools	leaving the child lie a long time with clothes wet with urine; illness comes from Kasai	have child drink solution of red <i>lengalenga</i> in water with local salt; apply to sores the burned outer layers of wild onions

Kasumbi		
Symptoms	Causes	Treatments
9 rash on buttocks; frequent stools; reddened groin area; sores on anus and buttocks	unknown	peel the <i>dihukahuka</i> plant and apply liquid to sores; apply a mixture of powder and red clay to sores
10 sores on buttocks; frequent stools; fever; watery stools; constant crying; reddened groin area; loss of appetite	bad wind; undoing the string that holds vegetables from the market by hand instead of cutting them	apply burned stems of cassava mixed with palm oil on sores; apply a mixture of burned outer layers of wild onions and palm oil on sores
11 reddened groin area; rash on buttocks; loss of appetite; constant crying	unknown; children that are three to twelve months old suffer from this illness	apply a powder mixed with palm oil to sores
12 rash on buttocks; reddened groin area; festering sores; frequent stools	unknown; sometimes it comes from white insects	crush leaves of <i>dihukahuka</i> and apply the liquid to sores
13 frequent stools; festering sores on anus and buttocks; reddened groin; constant crying	unknown; an African illness that comes from Kasai	traditional medicine, mothers do not know the name in Swahili; at health center, nurses give SSS and antibiotics
14 frequent stools; constant crying; reddened groin area; festering sores on buttocks	leaving the child lie too long in clothes wet with urine	apply palm oil to sores; apply red clay powder to sores
15 reddened groin and anus area; festering sores on buttocks	leaving the child lie too long in clothes set with urine	apply red clay powder to sores
16 frequent stools; rash on buttocks; stools with undigested matter; reddened groin area; festering sores	the illness comes from Kasai	traditional medicine several different powders
17 rash on buttocks; frequent stools; constant crying; reddened groin area; sores on buttocks	the illness comes from Kasai	apply a mixture of burned <i>dihukahuka</i> leaves and palm oil to sores
18 very frequent stools; reddened groin area; festering sores; crying	the illness comes from Kasai	apply palm oil or Penatin to sores; apply boa oil to sores
19 getting thin; frequent stools; reddened groin area; festering sores	unknown; the illness comes from Kasai	apply red powder from clay bricks to sores
20 reddened groin area; watery stools; festering sores; rash on buttocks	unknown	traditional medicine

<i>Buse</i>		
Symptoms	Causes	Treatments
1 weakness; paleness; the body changes; reddish hair; loss of weight; loss of appetite	worrying; negligence; a mother abandoning her child; stopping breast feeding	traditional medicine; take the child from its parents; vitamins from dispensary
2 pregnancy that comes too soon; sadness in child; a dry mouth	abrupt weaning; poorly digested food	traditional plants; take the child from its parents
3 very frequent stools; listlessness; constant crying; loss of appetite; child looks like it has kwashiorkor	pregnancy that comes too soon; jealousy; worrying; neglecting a child	vitamins; traditional medicine; take the child from its parents
4 getting thin; loss of appetite; watery stools; cough; fever; listlessness; paleness	pregnancy that comes too soon; neglecting a child, such as not breast feeding	only traditional medicine; at dispensary, they give vitamins and anti-diarrheals
5 frequent stools; fever; listlessness; crying; loss of appetite; paleness	pregnancy that comes too soon; neglecting a child, worrying; not breast feeding	vitamins; traditional medicine
<i>Kantembele</i>		
Symptoms	Causes	Treatments
1 fever; reddened mouth; diarrhea; cough; cold	comes from the wind; contagious; usually comes in seventh and eighth month, the dry season, known as the "time of <i>kantembele</i> "	enema with red tea; drink orange soda; enema with salt water; at dispensary they give other medicines for the diarrhea
2 high fever for at least three days; sometimes loose stools; sores in the mouth; red eyes; cough; cold; pimples on the skin	child gets it if it has not been vaccinated; comes from the wind (contagious); all children get measles growing up	if the rash has not appeared, give orange soda to drink or put a paste of mashed up peanuts on skin to bring out rash; if there is no diarrhea, give an enema of tea or of marijuana; one can also treat the cold and the cough
3 diarrhea; fever; cough; reddened eyes; loss of appetite; small sores in the throat	comes from the wind; you get it from the neighbors; the illness that just comes, but we are not sure why	drink lemon juice or orange soda; enema with tea; we used to scratch the rash but not any more, the nurses discourage it
4 reddish eyes and mouth; sores in the mouth; cold; a cough sometimes; high fever; rash over whole body; constant crying; sometimes diarrhea	bad wind; virus	vaccination at nine months; medicines for the fever and cough; medicines for the eyes; enema with red tea or with marijuana

<i>Kantembele</i>		
Symptoms	Causes	Treatments
5 high fever; cough; diarrhea; a cold; reddened eyes and mouth; rash on body; crying	bad wind; virus	enema with red tea or with <i>kilulu nkundja</i> ; if rash has not yet appeared, give orange soda to drink
6 teary eyes, red eyes; high fever; cold; cough; diarrhea; reddened mouth; loss of appetite; sores in the throat	comes with the wind; it's a contagious illness	enema with <i>ngaingai</i> , or with roots of wild onions, or red tea or orange soda; at dispensary they give lots of medicines for the cough, the fever and the cold
7 high fever; cold; red eyes; sores in the mouth; diarrhea; rash around the neck	comes from the wind (it is contagious); an illness all children get; it is common during the dry season	enema with red tea; drinking orange soda; rubbing salt on the body
8 reddened eyes and mouth; constant crying; high fever; diarrhea; difficulty in eating	an illness from the wind (contagious)	no real treatment for measles (sic); one treats the fever and diarrhea that comes with it; one can give vitamins and treat the sores in the mouth; one can also give an enema from red tea, or water from <i>ngaingai</i> , or <i>kilulu nkundja</i>
9 very high fever; reddened eyes; cough; cold; rash all over the body; diarrhea	a contagious illness; it comes from peoples' hands; it comes from the wind	enema with red tea or with wild onions
10 reddened eyes and mouth; high fever, +40; cold; cough; diarrhea	a contagious illness; comes from the wind	enema with red tea; one can also rub a a paste of pounded cassava leaves or pounded peanuts on the skin
11 cough; diarrhea; reddened eyes and mouth; sores in the mouth; rash all over the body	a contagious illness; comes from the wind	enema with red tea; give orange soda to drink; give an egg yolk to drink

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