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**EXAMINING ETHNOMEDICAL DIAGNOSES
AND TREATMENT CHOICES FOR DIARRHEAL DISORDERS
IN LUBUMBASHI SWAHILI**

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ABSTRACT

This paper 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 for asking questions about diarrheal and ORT may affect survey results in predictable and systematic ways.

INTRODUCTION

This paper 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 diarrhea 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 symptoms of illness observed, that etiology does not play a major role in this classification, and that the home treatments given 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 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 HealthCom¹ project, a health communication project financed by the United States Agency for International Development (USAID) and administered by the

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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 (ORT) for diarrheal disorders and increase immunization coverage among children. The specific objective of the ethnomedical study (group interviews) was to provide the project with information that could be used in the development of messages for 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

A great 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, this designing of research to obtain information for developing pragmatic applications for public health policy is a recent focus for most anthropologists (Coreil & Mull 1990).

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The published accounts of the management of diarrheal disorders display a common orientation around two questions: what treatments do people give for childhood diarrhea? 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 et al 1975; Kendall et al 1984; de Zoysa et al 1984; Green 1985; McKee 1987). Studies that were 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 1986; Mull & Mull 1988; Bentley 1986; Chowdhury & Vaughan 1988; Coreil & Genece 1988; Scrimshaw & Hurtado 1988; Martinez & 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.² But studies have not often 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 in his review of anthropological research on diarrheal disease (Kendall 1990). Kendall points out that these studies have implicitly adopted a biomedical definition of diarrhea, and that researchers themselves create categories of simple versus complicated types of diarrhea

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as a way of classifying episodes. The simple versus complex contrast is given significance because the more complicated ones are those most likely not 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 & 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 are collected. In any case, etiology is commonly used as a basis for classification (cf. Scrimshaw & Hurtado 1988). For instance, Kendall cites evidence from Honduras, El Salvador and Haiti suggesting that the "named entities," or types of diarrhea, are identified through their cause (Kendall 1990). The case of Honduras appears particularly striking, as the list of diarrheal illnesses include the following: *caida de mollera*, *empacho*, *lombrices*, and *ojo*. [sunken fontanelle, indigestion, worms, evil eye] (ibid:180). To an outsider unfamiliar with these concepts and their actual referents in episodes of illness, it would appear that cause is crucial in identifying the

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illness. It is at least possible that examining the symptoms individuals perceive that leads them to such 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 (ex. measles and malaria); two, such studies do not provide information about how people decide what kind of illness they are observing. Mark Nichter has clearly summarized the shifts in anthropological research from ethnoscience and ethnosemantics to more complex models of cognition and classification (Nichter 1989). 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 rapid methods for collection of ethnographic 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 or guides for conducting health-related ethnographic research have been published (Scrimshaw & Hurtado 1987; Bentley et al 1988; Herman & Bentley 1992). The research method presented here shares some

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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.³ The information was to be used in the training of village health workers and in the formulation of questions for a community survey concerning 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 are shared and points to logical relationships among symptoms, causes,

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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 systems 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 illness, the domain chosen will determine what kinds of groups of individuals should be interviewed. For example, since the study in Lubumbashi examined common childhood illnesses, and we sought persons with recent experience with those illnesses, only mothers and caretakers of small children were interviewed.

Small group interviews

Interviewing small groups (three to five) of persons offers several advantages over individual interviews or those of larger groups. If persons are chosen to be interviewed individually, some will have very little to say, whereas asking questions of a group of three or four persons nearly guarantees there will be some response. Having several people in a group also permits 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 & 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 the number of 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.⁴ Careful consideration of these factors in the choice of 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 in order to establish the range of knowledge within groups for subsequent comparison with those of other groups responding to the same questions. Experience in a number of 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 asked follow a progression at both the level of each group discussion and at the level of the overall period of the research. Within each group session one begins 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 and

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general questions will ask about childhood illnesses. Once a list of 15 or 20 illnesses is obtained, those that appear to involve the domain of greatest interest can be selected and questions can be asked 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, for as more groups are interviewed and the information obtained contains fewer new elements, questions can be focused more frequently on the illnesses of greatest interest to the researchers. In the research projects to date, after interviewing twelve to fifteen groups, relatively few new illnesses have been obtained when asking for illness names.

Since the criteria for classifying illnesses is unknown at the outset (might involve age, developmental phase, dominant symptom, etiology, family context) it is important to vary how questions about illness are formulated. In addition to asking for names of childhood illnesses in general, 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 period spent interviewing one group allows for asking detailed questions about three or four illnesses only, 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 always 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* to be

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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 began asking 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 about the responses of 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 interviewed were classified according to the six illnesses found to be related to diarrheal disorders. The responses were 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 to compare 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 and/or blood, and irritation around the anus, most groups cited the use of a suppository as treatment. It appears that mothers sought to 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

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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 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. These six illnesses chosen for detailed questioning are the following: *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 that are 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 X from Y?

A total of 39 groups of women were interviewed and their responses organized into analytic tables. An examination of these tables provides some evidence about these questions, for they allow us to see to what extent certain symptoms cluster around a particular illness or not. The same can be done with treatments and causes. That data is presented in the Appendix.

Symptoms

The responses obtained in asking about symptoms for *kuhara*, *kilonda ntumbo* and *lukunga* are shown in Table 1 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.

[Table 1]

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 Appendix A. 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 persons interviewed 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 likely 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 for an illness called *sutt* in Sind province of southern Pakistan (Mull & Mull 1988). Margarita Kay has recently provided an overview of the history and occurrence of illnesses related to fallen fontanelle throughout the world (Kay 1993).

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 most 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

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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

Just as was done for symptoms, Table 2 summarizes the two or three most frequent responses to questions about treatments recommended for each of the three main illnesses. I say "recommended treatments" since women were asked "what people do" for these illnesses, not what they have done or will do.

[Table 2]

It seems clear that the treatments differ dramatically from one illness to another. Most of the treatments recommended for *kuhara* were liquids (SSS, rice water, carrot juice) to drink. Both SSS 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 numbo* 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

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using the term (does the mention of chicken pox conjure up images of poultry?), women clearly consider this symptom to be 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 SSS or rice water as a remedy for the illness, further evidence that these illnesses are considered as separate illnesses 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 it was 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 SSS 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 and/or the rash. The powder may be ashes or red clay. For treating *buse* the treatments given were 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.

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The treatments identified do not constitute evidence in themselves 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 which may not be related 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. In the process of questioning, women displayed signs of uncertainty (hesitation, hemming and hawing, saying "I don't know") in responding to possible causes but not to questions about symptoms and treatments. This, along with the wide range in causes cited, suggests people are more uncertain 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

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mother, suggests that many mothers associate *kuhara* with problems of breast feeding and weaning as well as with bad food and water.

The cause of *kilonda ntumbo* appeared clear to almost everyone, for with only one exception, all groups declared it was caused by eating food that was too sweet. Examples cited included porridge, candy, tea and soft drinks. Also mentioned as causes were eating raw manioc (cassava) or green mangos.

Reaction to questions about the causes of *lukunga* was quite different from other illnesses in that few causes were given, and 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. The majority of the women simply did not know what caused the illness.

Very 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. The others all stated that they did not know the possible causes.

Some mothers stated 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 also seemed to understand. This illness strikes children at the age of weaning when they eat poorly.

Kantembele is considered as an illness one gets from others. All 11 groups interviewed stated that it was a contagious illness per se or that it was brought by the wind.

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Citing the wind as a cause is likely an indication of knowledge that the illness is contagious. One group mentioned that a child may get measles if it is not vaccinated. The causal relation of wind and measles has also been identified among the Kamba of Kenya (Maina-Ahlberg 1979).

A reading of the analytical tables shows 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. For these other illnesses, the treatments recommended 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

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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 program impact, 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 the water-sugar-salt solution (SSS), 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.

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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 one.⁵

Interviews were conducted in Swahili by women who spent two weeks finalizing 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 SSS and ORS (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?

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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 & Vaughan 1986).

The five types of illness occurred with roughly the same frequency in the two surveys and are shown in Table 3. 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 this 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 the symptoms she observed when the child was ill in a format that permitted multiple answers. 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 may act as main indicators of a diagnosis. Tables 4A and 4B 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.

[tables 4A and 4B]

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 diagnosis. In addition, each illness has one or two marker symptoms that distinguish it

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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 4B 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 5A and 5B.

[tables 5A and 5B]

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* than 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 (4A/4B & 5A/5B) 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 diarrhea disorders involves observation of

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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 diagnosis in Swahili were found to be associated with types of treatments given, the results could be useful in planning an intervention.

Treatments Given at Home

Health services in Lubumbashi have promoted the use of three fluids for oral rehydration: rice water, the sugar/salt solution (SSS), and oral rehydration salts (ORS 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 ml. 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: did the sick child receive any treatment at all, and 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 6A and 6B show the proportion of recent cases in each survey that were

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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 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.

[tables 6A and 6B]

The same pattern of giving ORT was found in the 1990 survey as for the 1989 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 for *buse* it was three out of ten cases and for *kasumbi*, one out of six 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 7. 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 kind of 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*

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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 (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). [Table 7]

While the relationship between a diagnosis of *kuhara* and giving ORT is the strongest, one also find 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 main reason for the high rate of the use of herbal medicine for both *lukunga* and *kilonda ntumbo* is that both are characterized by one or two main symptoms, and the herbal medicines were given to address those symptoms. For *lukunga* the symptoms are a sunken fontanelle and an abnormal palate, and that requires the application on both places of 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 to cases of *kuhara* is that ORT has been promoted for diarrhea off and on for some years, and since *kuhara* is considered as ordinary diarrhea, the promotional messages were

understood to apply mainly to *kuhara*. About 10% of cases of *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 persons, 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

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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 1 for the ethnographic study and in tables 4A, 4B, 5A and 5B 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. Responses about causes were also fairly consistent, although the causes of *kuhara* ranged widely and those of *lukunga* and *kasumbi* were often unknown. *Buse* seems different from the other five illnesses in that cause may be directly involved in 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 to be involved in ways not evident for the other illnesses.⁶

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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 or 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 take note of 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 earlier described, 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

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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 asked about diarrhea in general rather than about 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 *diarrhée* 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

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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 SSS or rice water or another fluids 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 SSS, so that by 1986 more than seven million households had been visited. A study in 1984 found that SSS

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use was low in rural areas in part because women thought SSS was meant for cases of *daeria*,⁷ and not for other types of diarrheal disorders (Chowdhury & 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 less 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 had best use terms familiar to the mothers who make

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those decisions. It suggests, among other things, that the translating of the phenomena under study into biomedical language be delayed, 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, David 1988. *Focus Groups*. Newbury Park: Sage Publications. 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 within 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 no. often used, since cholera cases were relatively few.

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TABLE 1					
Symptoms Reported by Illness and Ranked by Frequency					
<i>Kuhara</i>		<i>Kilonda numbo</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 2					
Treatments Recommended by Illness and Ranked by Frequency					
<i>Kuhara</i>		<i>Kilonda numbo</i>		<i>Lukunga</i>	
SSS	21	tomato leaves as		burn leaves or trash, mix	
rice water.....	21	suppository.....	17	with salt and palm oil, put	
carrot juice.....	12	sit in water with		on palate and on	
guava leaves in water....	9	mango bark in it.....	16	fontanelle.....	24
		Vicks on anus.....	10	burned fish head	
				may replace leave.....	14
24 groups		22 groups		25 groups	

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TABLE 3		
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

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Table 4A			
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

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Table 4B			
Symptoms (unprompted) associated with diagnoses: 1990			
	<i>kuhara</i>	<i>kilonda ntumbo</i>	<i>lukunga</i>
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

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Table 5A			
Symptoms reported by diagnosis in prompted questions: 1989			
	<i>kuhara</i>	<i>kilonda ntumbo</i>	<i>lukunga</i>
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 5B			
Symptoms reported by diagnosis in prompted questions: 1990			
	<i>kuhara</i>	<i>kilonda ntumbo</i>	<i>lukunga</i>
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

TABLE 6A
Home treatments by diagnosis: 1989

	<i>kuhara</i>	<i>kilonda ntumbo</i>	<i>lukunga</i>
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 6B
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

TABLE 7				
Home treatments by ethnomedical diagnosis: combined results of both surveys				
	N	ORT	Herbal Medicine	Modern Medicine
Kuhara	237	49.8% OR=3.49	16.0% OR=0.33	27.4%
Kilonda ntumbo	260	11.9% OR=0.48	46.2% OR=1.50	26.9%
Lukunga	93	12.9% OR=0.60	53.8% OR=2.01	21.5%

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

KUHARA			
	SYMPTOMS	CAUSES	TREATMENTS
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
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)

KUHARA			
	SYMPTOMS	CAUSES	TREATMENTS
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; 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; measles;</i> intestinal worms; hot weather; taking the first steps; eating greens: <i>lengalenga,</i> <i>sombe, 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	SSS worm medicine rice water charcoal in water white clay guava leaves in water
24	very frequent stools tiredness watery stools intense thirst		SSS 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>nkaru</i> (pepper) mixed with palm oil;
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 Perdolan
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 mentholex; enema with cold water

KILONDA NTUMBO			
	SYMPTOMS	CAUSES	TREATMENTS
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, lengalenga, or 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;
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;

KILONDA NTUMBO			
	SYMPTOMS	CAUSES	TREATMENTS
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
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

LUKUNGA			
	SYMPTOMS	CAUSES	TREATMENTS
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, the 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 beans, 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

LUKUNGA			
	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>

LUKUNGA			
	SYMPTOMS	CAUSES	TREATMENTS
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
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

LUKUNGA			
	SYMPTOMS	CAUSES	TREATMENTS
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>kubambale</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
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	powder 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>dihuka-huka</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	TREATMENT
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 centers, nurses give SSS and anti-biotics
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 wet 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

KASUMBI			
	SYMPTOMS	CAUSES	TREATMENTS
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

BUSE			
	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;

KANTEMBELE			
	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, for 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
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 wold onions, or red tea or orange soda; at dispensary they give lots of medicines for the cough, the fever and the cold

KANTEMBELE			
	SYMPTOMS	CAUSES	TREATMENTS
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 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