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Maternal Knowledge, Attitudes, and Practices Regarding Childhood Diarrhea and Dehydration In Kingston, Jamaica and Havana, Cuba

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Maternal Knowledge, Attitudes, and Practices Regarding Childhood  
Diarrhea and Dehydration In Kingston, Jamaica and Havana, Cuba

by

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B.A. (University of California, Berkeley) 1996

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## PREFACE

*“Primary health care is essential health care based on practical, scientifically sound and socially acceptable methods and technology made universally accessible to families in the community with their full participation...in the spirit of self-reliance and self-determination.”*

~Declaration of Alma Ata

At the International Conference on Primary Health Care in Alma Ata twenty-two years ago, the World Health Organization (WHO), the United Nations Children’s Fund (UNICEF), and the many nations represented embraced the goal of "Health for All by the Year 2000." The idea they embraced was to shift the traditional medical paradigm of service provision and expensive tertiary care towards the prevention of disease and the promotion of health through the active involvement of the people affected. In the arena of child health, UNICEF chose four key interventions that were intended to fuel a "Child Survival Revolution." These interventions were growth monitoring, oral rehydration therapy (ORT), breastfeeding, and immunizations. Despite the fact that the year 2000 has now rolled around, 3 million children continue to die of diarrhea easily prevented by ORT (WHO, 1998).

Though diarrhea is typically conceptualized as a predominantly biomedical problem, it is intimately linked to social and economic factors. Unsafe water supplies, poor environmental sanitation, malnutrition, and crowding can all lead to an increased incidence of diarrhea. The causal pathway of diarrhea-related mortality, in which diarrhea leads to dehydration which in turn causes death, can be interrupted in a variety of places. At the most basic level, the elimination of poverty and poor living conditions would be a

tremendously efficacious step towards the reduction of deaths associated with diarrheal diseases. Unfortunately, though this approach would probably be the most effective way to eliminate diarrhea-related mortality, it often seems to be an overwhelmingly challenging arena to address and it tends to be considered beyond the scope of public health work.

At a less overarching level, researchers have worked to make progress on a variety of fronts. With a biomedical tactic, investigators developed a vaccine for rotavirus, which is a major cause of acute diarrheal diseases. Despite the initial excitement over the new rotavirus vaccine, it was recently recalled because of its association with intussusception.

For my thesis, I chose to examine the fatal pathway of diarrhea-related deaths from the perspective of a mother living in the developing world with limited access to resources. How can she keep her child from dying of diarrhea? While she may not have immediate control over the socioeconomic conditions in which she and her family live to prevent the diarrhea in the first place, she can still prevent her child from dying from the ensuing dehydration with oral rehydration therapy. In order to do this, she needs to be empowered with the appropriate knowledge and access to the simple materials necessary to save her child's life.

My thesis work started in Kingston, Jamaica where I spent a year doing a quantitative study of the knowledge, attitudes, and practices of mothers concerning childhood diarrhea and dehydration. An offshoot of this work was the production of a health education video made in collaboration with community health aides and parents in Kingston. In carrying out my research in Jamaica, I realized that much valuable information came out of the open-ended questions that mothers were asked. I became very interested in factors that promote and undermine self-reliance in the management of

childhood diarrhea and dehydration. I decided to conduct a parallel study in Cuba utilizing qualitative methods.

Here, I present the findings from my work over the last four years in the Caribbean. The first paper explores the knowledge, attitudes, and practices of mothers regarding childhood diarrhea and dehydration in Kingston, Jamaica. The questionnaire for this study was piloted and developed with focus groups of mothers at Bustamante Hospital for Children (BHC) in Kingston, Jamaica. All data were collected with this instrument<sup>1</sup> administered orally by the author. Participants were recruited from mothers of children less than five-years of age presenting either to the hospital with children with gastroenteritis (GE), at the Oral Rehydration Room, or in the main waiting area where mothers who had brought children in with acute concerns unrelated to gastroenteritis wait. The questionnaire used both open and closed-ended questions to obtain information about maternal attributes, perceptions, and practices. Statistical calculations were done using SPSS. The mean age, level of education, amount of post-school training, and SES status were comparable for mothers in the GE and non-GE groups. This was also true for their access to toilet facilities, the father's presence in the home, and degree of crowding.

The children in the GE group were generally younger than those in the non-GE group. The GE group families were less likely to have convenient access to running water or refrigerators. The mothers in the GE group were more likely to be unemployed and tended to have more children under 5 in the home.

Oral rehydration salts (ORS) had only been used by 8% of the mothers presenting with a child with gastroenteritis, though 76% of the GE mothers said they had heard of

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<sup>1</sup> See appendix for the questionnaires.

ORS before. There was a highly statistically significant difference between the groups in their mean knowledge score, showing that mothers in the GE group knew less about the appropriate management of childhood diarrhea and the prevention and treatment of dehydration than the mothers in the non-GE group. The mean independence score was also lower for the GE group, indicating that they felt less competent in their ability to take care of their child during an episode of gastroenteritis.

Many mothers reported using over-the-counter products other than ORS that are known to be useless in the management of childhood diarrhea. Also of concern was the fact that many mothers restricted their child's nutritional intake during bouts of diarrhea. The findings showed a need to update and enhance educational efforts for parents such that they can participate in preventing and treating dehydration.

The second paper draws on examples from my work in Jamaica and Cuba to explore empowering and disempowering approaches to health promotion, using ORT as a case study. This paper delves into a question that challenges many fields of public health: the connection (or lack thereof) between knowledge and behavior change. Information is a crucial element in empowering people to exercise control over their health. However, information alone is not sufficient to lead to behavior change—one need only consider the innumerable college students who are well aware of the risk to their health that smoking poses who smoke nonetheless. Health-promoting activities require an environment that supports the healthy behavior.

The importance of people having a sense of control over their health in the health promotion process was acknowledged in the Ottawa Charter for Health Promotion adopted in 1986. It stated: "At the heart of the health promotion process is the



empowerment of communities, their ownership and control of their own endeavors and destinies.” The international promotion of oral rehydration therapy (ORT) provides a fascinating case study of some of the successes and failings of health promotion as implemented today. Before ORT, intravenous (IV) fluid therapy was the mainstay of treatment for dehydration. Because IV fluid therapy requires specific medical equipment and must be administered by someone with medical training, it inherently fits into the traditional medical paradigm where the locus of control is in the hands of the health professionals. ORT, on the other hand, is much cheaper and can be prepared and administered in many settings, including at home by family members. In addition, ORT can be used to prevent, not just to treat, dehydration. In many senses, moving from the use of IV fluids to ORT is a prime example of the paradigm shift towards a health promotion model. The second paper presents examples of factors that can undermine or strengthen parents’ self-reliance in the use of oral rehydration. Hopefully, by scrutinizing current health promotion efforts, we can move towards taking full advantage of all the low-cost life-saving methods available.

## MATERNAL KNOWLEDGE, ATTITUDES, AND PRACTICES REGARDING CHILDHOOD DIARRHEA AND DEHYDRATION IN KINGSTON, JAMAICA

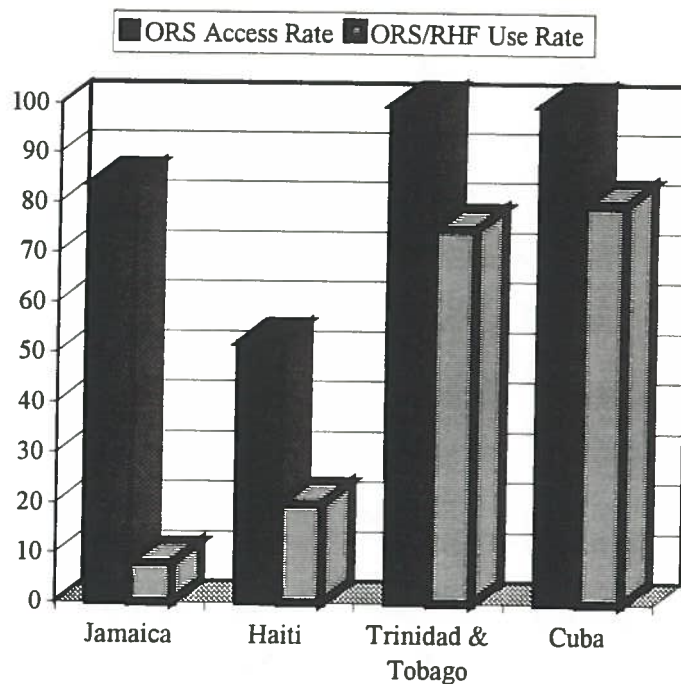
### INTRODUCTION

Twenty years ago, *The Lancet* hailed oral rehydration therapy (ORT) as “potentially the most important medical advance of this century” (Lancet, 1978). ORT has been dubbed “an oasis of hope” and “a miracle of modern medicine” because of its low cost, life-saving nature (Mull, 1984). ORT is a well-established therapy for the prevention and treatment of dehydration due to causes such as diarrhea, vomiting, and fever. ORT entails oral administration of fluid and electrolytes using an appropriate oral rehydration solution (ORS), replacement of ongoing fluid losses with ORS, and frequent feeding of appropriate foods as soon as dehydration is corrected. The therapy was first used on a large scale in 1971 during the Bangladeshi war of independence, when outbreaks of cholera swept through the refugee camps. With the use of ORT, the death rate from diarrhea dropped dramatically from 30% to 1% (Hirschhorn, 1991). ORT is widely credited with having saved the lives of millions of children in the developing world (Grant J, 1989).

Today, an estimated 3 million children under five years of age die annually of diarrhea related dehydration in the developing world (CDD, 1996). In Jamaica, gastroenteritis is the leading cause for hospitalization of infants (PAHO, 1996). Twenty-five percent of deaths in children under 5 are due to acute diarrheal diseases (PAHO, 1996). According to data from the Jamaican Ministry of Health, 33% of children under five presenting at health facilities were dehydrated (Health Information Unit, 1996). While

the ORS access rate<sup>2</sup> is reported as 84%, the ORS/Recommended Home Fluid<sup>3</sup> use rate is only 8%. This use rate is lower than that of many other countries in the Caribbean (See Graph 1). There is also the biggest divergence in terms of use and accessibility in Jamaica.

**Graph 1: Comparative ORS Access Rates and ORS/Recommended Home Fluid Use Rates**



Source: Programme for Control of Diarrhoeal Diseases, WHO, 1994.

Small children with gastroenteritis can get dehydrated very quickly, especially in regions with hot climates. Mothers play a critical role in the effective management of childhood diarrhea by recognizing when their children have diarrhea. They are the ones in a position to start fluid replacement early in the course of the illness to prevent

<sup>2</sup> The ORS access rate is “an estimate of the proportion of the population under age five with reasonable access to a trained provider of oral rehydration salts who receives adequate supplies.” (Health Statistics Report, Jamaica)

<sup>3</sup> The ORS use rate is “an estimate of the proportion of cases of diarrhea in children under five treated with ORS.” (Health Statistics Report, Jamaica, 1996)

dehydration. Ultimately, they are the ones who decide if their child's episode of gastroenteritis warrants a visit to a health facility or if they can take care of their child at home.

The objective of this study was to find out about the knowledge, attitudes, and practices of mothers regarding childhood diarrhea and dehydration in Kingston, Jamaica. Mothers bringing children to the hospital for gastroenteritis and mothers bringing children in with other acute non-gastrointestinal concerns were interviewed to see if there were any differences in their knowledge of ORT or feeling of self-reliance in the management of childhood diarrhea. Because of the relationship between diarrhea and malnutrition, this study also investigated the feeding practices of mothers during episodes of childhood diarrhea. In addition, use of fluid therapy, pharmaceuticals, and folk remedies were investigated. Mothers were asked if there were foods that they tried to give or foods that they withheld during their child's diarrhea, if there were over-the-counter medications other than ORS that they used during diarrhea, and if they continued to breastfeed children who were still nursing during episodes of diarrhea. By gaining a better understanding of factors that influence the use of ORT and the actual health-related behaviors of mothers during childhood diarrhea, we can strive to work in partnership with mothers to reduce the unnecessary morbidity and mortality caused by dehydration.

## *METHODS*

The study protocol was approved by the Ethical Committee of the University of the West Indies and the Ministry of Health of Jamaica. It was conducted in the acute care department of the Bustamante Hospital for Children (BHC) in Kingston, Jamaica during the fourteen-week period between February 1997 and May 1997. Mothers of children under 5 years old were recruited (N=215) and informed consent was given by all subjects before they were enrolled in the study. One group of mothers had come to the hospital with children with gastroenteritis (GE) and they were recruited in the Oral Rehydration Room (N=117). They will be referred to as the GE group. The other group of mothers was recruited in the main waiting area and they had brought children in with acute concerns unrelated to gastroenteritis (N=98). This group will be called the non-GE group. Because the two groups of mothers were recruited in different waiting areas, the interviewer was not blinded to the maternal group status. Convenience sampling was used. All mothers in the waiting areas were invited to participate. The participation rate of mothers approached was over 95%. Most of the 5% of mothers who were not included had agreed to participate, but then got called to see the doctor and did not return to complete the interview after their appointment. The GE mothers tended to spend more time waiting and therefore more of them were able to complete the interview, hence the slight discrepancy in sample size between the two groups.

The data were collected by means of a questionnaire<sup>4</sup> administered by face to face interview by the author. The questionnaire was first piloted at BHC with focus groups of mothers. Modifications were made such that the mothers easily understood all the

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<sup>4</sup> See appendix for the questionnaires.

questions. The first part of the questionnaire asked about maternal age, education, employment status, access to toilet facilities and running water, and demographic information. As a proxy for socioeconomic status (SES), the degree of crowding and access to sanitation services were combined into a SES score<sup>5</sup>. In the second part, there were nine questions to assess knowledge. Based on these questions, each mother received a knowledge score<sup>6</sup>. The more correct answers, the higher the score.

There were five questions on the degree to which the mother felt like she could care on her own for her child during an acute diarrheal episode rather than bringing the child to the hospital. These responses were used to determine her independence score. Those mothers who felt more self-reliant in managing her child's diarrhea received a higher independence score. There were fourteen questions on maternal attitudes. A standard Likert scale was used with the possible responses of "strongly disagree", "disagree", "don't know", "agree", or "strongly agree." There were several questions on maternal practices regarding administration of extra fluids to children with gastroenteritis, use of over-the-counter medications, folk remedies, breast-feeding, and changes in feeding during gastroenteritis. The questionnaires utilized a mix of open and closed-ended questions. Statistical calculations were done using SPSS. Bivariate comparisons were performed with one-way ANOVA and Pearson correlations. Odds ratios are presented with their 95% confidence intervals. Multiple linear regression was used to determine the independent associations between demographic factors and presenting with a child with gastroenteritis or not.

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<sup>5</sup> See appendix for the details of the scoring system.

<sup>6</sup> See appendix for the details of the scoring system.

## *RESULTS*

### *Background Characteristics*

Interviews were completed with 215 mothers of children less than five-years old. Most mothers (59%) were in the age group 21-30 years, with a range of 16 to 65-years-old<sup>7</sup>. The characteristics of the mothers are summarized in Table 1. The mean age, level of education, amount of post-school training, and SES status were comparable for mothers in the GE and non-GE groups. There were no significant differences between the groups in terms of access to toilet facilities, father's presence in the home, or degree of crowding.

The children in the GE group were generally younger (mean 20.8 months) than those in the non-GE group (mean 34.4 months,  $p=0.000$ ). The GE group families were less likely to have convenient access to running water or refrigerators ( $p=0.005$ ). The mothers in the GE group were more likely to be unemployed ( $p=0.020$ ) and tended to have more children under 5 in the home ( $p=0.016$ ). These differences are summarized in Table 2.

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<sup>7</sup> Over 95% of the women were the mothers of the children, however there were a few guardians and grandmothers, accounting for the older women in the sample.



**Table 1: Characteristics of Mothers and Family Living Situations That Did Not Differ Significantly Between the Two Groups**

	Both Groups (N=215) No. (%)	GE Group (N=117) No. (%)	Non-GE Group (N=98) No. (%)
<b>Maternal age (yr)</b> range: 16 to 65			
16-20	35 (16%)	25 (21%)	10 (10%)
21-25	64 (30%)	33 (28%)	31 (32%)
26-30	61 (29%)	31 (27%)	30 (31%)
31-35	24 (11%)	15 (13%)	9 (9%)
>35	31 (14%)	13 (11%)	18 (18%)
<b>Maternal education</b>			
Primary or less	35 (16%)	23 (20%)	12 (12%)
Junior secondary	63 (29%)	35 (30%)	28 (29%)
Secondary	105 (49%)	57 (49%)	48 (49%)
Tertiary	12 (6%)	2 (2%)	10 (10%)
<b>Mean SES status</b> range: 1 to 18	12.9 sd 3.9	12.3 sd 3.8	13.6 sd 3.9
<b>Father living in home</b>			
Yes	92 (43%)	53 (45%)	39 (40%)
No	123 (57%)	64 (55%)	59 (60%)
<b>Toilet facilities</b>			
No toilet facilities/pit	35 (16%)	18 (16%)	17 (17%)
Outside flush toilet	56 (26%)	39 (33%)	17 (17%)
Inside flush toilet	124 (58%)	60 (51%)	64 (66%)
<b>Crowding (people/room)</b>			
<1	31 (14%)	13 (11%)	18 (18%)
1 - 2.0	95 (44%)	50 (43%)	45 (46%)
2.1 - 3	53 (25%)	33 (28%)	20 (21%)
3.1 - 4	20 (9%)	12 (10%)	8 (8%)
> 4.1	16 (8%)	9 (8%)	7 (7%)
<b>Time to reach hospital</b>			
<15 min	30 (16%)	16 (14%)	14 (17%)
15 min -30 min	66 (34%)	40 (36%)	26 (33%)
30 min -1 hr	59 (31%)	36 (32%)	23 (29%)
1 hr - 2 hrs	30 (15%)	16 (14%)	14 (17%)
> 2 hrs	8 (4%)	5 (4%)	3 (4%)

p-values non-significant, One-Way ANOVA



**Table 2: Comparison of Characteristics of Mothers and Family Living Situations That Differ Between the GE Group and the Non-GE Group**

	GE Group (N=117)	Non-GE Group (N=98)
<b>Mean age of child (months)***</b> range: 2 -60	20.8 sd 15.7	34.4 sd 20.9
<b>Water facilities**</b>		
No running water/carry water	15 (13%)	9 (9%)
Spigot in yard	45 (38%)	24 (24%)
Spigot inside	57 (49%)	65 (66%)
<b>Refrigerator *</b>		
Yes	79 (67%)	78 (80%)
No	38 (33%)	20 (20%)
<b>Employment status of mother*</b>		
Not working	78 (67%)	51 (52%)
Part-time	6 (5%)	5 (5%)
Full-time	33 (28%)	41 (42%)
<b>Number of children &lt; 5 at home*</b> range: 1 to 5	1.6 sd 0.7	1.3 sd 0.7

\*p<0.05    \*\* p<0.01    \*\*\*p<0.001, One-Way ANOVA

All of the children in the GE group presented with diarrhea (38%), vomiting (32%), or both (30%). Most of the children (87%) had been ill for less than 7 days before being brought to the hospital, fourteen had been ill for between 7 and 14 days, and one for longer than 14 days. The children in the non-GE group presented with concerns such as asthma, broken arms, dog bites, swallowed coins, rashes, objects stuck in the child's nose, and other non-gastrointestinal concerns.

#### *Mothers' Knowledge and Use of ORS*

While 94% of the mother in the non-GE group had heard of ORS before, only 76% of the GE mothers knew of ORS prior to coming to the hospital ( $p < 0.001$ ). Table 3 summarizes these findings. Of the mothers who already knew of ORS, most of them said they had learned about it at a clinic or hospital (65%). None of the mothers had heard about ORS through the media (television, radio, or newspapers). Before bringing their child to the hospital, 66% of the mothers in the GE group had given their children extra fluids. ORS was used by 8% of them. Juice and tea were given most frequently, followed by breast-milk, formula, water, and coconut water. Coconut water was given as often as ORS. A few mothers reported giving salt and water or Pepsi. Fifty mothers in the GE group (43%) did not know any signs or symptoms of serious diarrhea or dehydration as compared to 28 mothers in the non-GE group (29%).

There was a highly statistically significant difference between the groups in their mean knowledge score, showing that mothers in the GE group knew less about the appropriate management of childhood diarrhea and the prevention and treatment of dehydration than the mothers in the non-GE group. The mean independence score was

also lower for the GE group, indicating that they felt less competent in their ability to take care of their child during an episode of gastroenteritis. The non-GE mothers were more likely to feel like they could prepare rehydration fluid for their child that was just as good as the fluid provided in the hospital.

**Table 3: Mothers' Knowledge and Use of ORS**

	Both Groups (N=215)	GE Group (N=117)	Non-GE Group (N=98)
<b>Had heard of ORS before***</b>	85% sd 0.3	89 (76%) sd 0.4	92 (94%) sd 0.2
<b>How mother learned of ORS</b>			
Health worker	65%		
Relative	17%		
Friend	15%		
Poster	2%		
Other	1%		
<b>Child given extra fluids</b>	NA	77 (66%) sd 0.4	NA
<b>Fluids used<sup>8</sup></b>	NA		NA
Juice		39 (51%)	
Tea		25 (32%)	
Breast-milk		12 (16%)	
Formula		7 (9%)	
Water		7 (9%)	
Coconut water		6 (8%)	
ORS		6 (8%)	
Salt water		3 (4%)	
Pepsi		2 (3%)	
<b>Mean Knowledge Score***</b> possible range: -9 to 9	4.5 sd 2.9	3.7 sd 2.9	5.4 sd 2.5
<b>Mean Independence Score**</b> possible range: 5 to 25	15.9 sd 4.3	15.1 sd 4.2	16.9 sd 4.2

\*p<0.05    \*\* p<0.01    \*\*\*p<0.001, NA = not applicable,  
One-Way ANOVA

<sup>8</sup> Some mothers used more than one fluid so the total is greater than the number of mothers giving extra fluids.

In addition, multiple linear regression showed no evidence that maternal age, maternal education, or socioeconomic status was related to the maternal knowledge score. However, presenting with a child with gastroenteritis was predictive of a low knowledge score ( $p=0.0001$ ). Similarly, maternal age, maternal education, and socioeconomic status were not statistically significant predictors of the independence score. Those mothers presenting with a child with gastroenteritis were significantly less likely to feel self-reliant in managing diarrhea or dehydration ( $p=0.003$ ). These findings are summarized in Tables 4 and 5 below.

**Table 4: Multiple Linear Regression Analysis on Knowledge Score**

Predictors	Standardized Regression Coefficient	r	significance	R <sup>2</sup>
Presenting with gastroenteritis***	0.282	0.294	0.0001	
Maternal age	0.041	0.052	0.554	
Maternal education	0.085	0.103	0.249	
SES	-0.021	0.060	0.773	
				0.093

\* $p<0.05$     \*\*  $p<0.01$     \*\*\* $p<0.001$ , r from Pearson correlation

**Table 5: Multiple Regression Analysis on Independence Score**

Predictors	Standardized Regression Coefficient	r	significance	R <sup>2</sup>
Presenting with gastroenteritis**	0.211	0.204	0.003	
Maternal age	0.038	0.058	0.591	
Maternal education	0.012	0.000	0.875	
SES	-0.078	-0.037	0.290	
				0.048

\* $p<0.05$     \*\*  $p<0.01$     \*\*\* $p<0.001$ , r from Pearson correlation

The significant predictors of presenting with a child with gastroenteritis and dehydration are presented in Table 6. Compared to children that were breast-fed, children that were not breast-fed were more likely to present with diarrhea. Similarly, when a mother had never heard of ORS before, had a low knowledge score, or low independence score, their child was at greater risk for presenting with dehydration from diarrhea.

**Table 6: Predictors of Presenting with a Child with Gastroenteritis/Dehydration**

	Odds Ratio	(95% CI)	p-value
<i>Child not breast-fed**</i>	6.1	(1.3-27.5)	.009
<i>Mom has never heard of ORS***</i>	4.6	(1.8-11.7)	.001
<i>Low knowledge score**</i>	3.7	(1.6-8.8)	.002
<i>Low independence score*</i>	2.3	(1.1-4.9)	.025

\*p<0.05    \*\* p<0.01    \*\*\*p<0.001,  
p-value is Pearson Chi-Square test

### *Mothers' Attitudes Towards ORS and Folk Beliefs*

Overall, 60% of the mothers said they felt it was easy to get packs of ORS. Most mothers (68%) said that their child does not like the taste of ORS. 84% of the mothers agreed that the purpose of ORS is to replace fluids lost in diarrhea or vomiting. However, 76% thought that ORS would stop the diarrhea or vomiting and 36% expected that ORS could prevent diarrhea. These findings are shown in Table 5.

Many Jamaican mothers believe that if a baby swallows his or her saliva during teething—their “teething water”—that this can cause diarrhea. In this study, 70% of the mothers interviewed thought teething water could cause diarrhea. While this belief is not problematic per se, it can be if a mother believes that diarrhea associated with teething is a normal part of growing up for a child that does not require treatment. This belief will be explored further in the discussion below. Over half of the mothers (54%) thought that coconut water, the fluid in immature coconuts, was a better treatment for a child with diarrhea than an over-the-counter medication. Another Jamaican folk belief, which was more prevalent in the past, was to give a child with diarrhea a “washout,” usually in the form of a purgative bush tea (Sobo, 1993). The idea behind this is to try to flush out the child’s system. 9% of the GE mothers and 2% of the non-GE mothers thought that a child with diarrhea should be given a washout.

**Table 7: Maternal Attitudes towards ORS and Folk Beliefs<sup>9</sup>**

No. AGREE (%)	Both Groups (N=215)	GE Group (N=117)	Non-GE Group (N=98)
<b>Attitudes towards ORS</b>			
It's easy to get packs of ORS	130 (73 %)	75 (74 %)	55 (72 %)
My child likes the taste of ORS	41 (22%)	32 (30%)	9 (11%)
ORS is to replace fluids lost in diarrhea/vomiting	180 (91%)	96 (88%)	84 (95%)
ORS is supposed to stop diarrhea/vomiting	163 (84%)	93 (85%)	70 (82%)
ORS can prevent diarrhea	77 (42%)	57 (58%)	20 (23%)
<b>Attitudes towards folk beliefs</b>			
Teething water can cause diarrhea	151 (82%)	78 (79%)	73 (86%)
Coconut water is better for a child with diarrhea than medicine you pick out at the pharmacy other than ORS	116 (62%)	58 (59%)	58 (66%)
You should give a child with diarrhea a washout	13 (6%)	11 (9%)	2 (2%)

### *Mothers' Practices*

The mothers in the non-GE group were more likely to have breast-fed their children as shown in Table 6. Of the GE mothers that did breast-feed, the mean duration of breast-feeding was 6 months (sd 4.5) as compared to 10 months (sd 8.3) for the non-GE mothers. 36% of the GE mothers had given their child a medication such as Pepto-Bismol, Lomotil, or Imodium to try to stop the diarrhea before coming to the hospital. 66% of the mothers in the GE group had given their children extra fluids before coming to the hospital.

Many mothers reported that nutritional practices should be changed when a child has diarrhea. 38% of the mothers said that a child with diarrhea should not be given solid food, 25% said that no food should be given, and 31% said no milk should be given.

<sup>9</sup> For ease of presentation, the mothers' responses have been condensed: "strongly agree" and "agree" are lumped together and "disagree" and "strongly disagree" are too. Those who answered "don't know" were



When asked if a baby with diarrhea that was still nursing should be breast-fed, 20% of the GE group mothers said to stop breast-feeding and 8% of the non-GE group said to stop breast-feeding.

**Table 8: Maternal Practices**

	GE Group No. (%)	Non-GE Group No. (%)
<b>Breast-fed children**</b>	103 (89%)	96 (98%)
<b>Duration of breast-feeding<sup>10</sup> (months)***</b>		
< 3 mo	20 (26%)	9 (12%)
3-6 mo	32 (40%)	19 (25%)
7-9 mo	12 (15%)	18 (23%)
10-12 mo	6 (7%)	12 (15%)
13-24 mo	9 (12%)	16 (21%)
>25 mo	0 (0%)	3 (4%)
<b>Gave child over-the-counter medications<sup>11</sup></b>	42 (36%)	NA
<b>Gave child with diarrhea extra fluids</b>	77 (66%)	NA
<b>Feeding practices during diarrhea</b>		
Do not give solid food	46 (39%)	36 (37%)
Do not give any food	32 (27%)	23 (23%)
Do not give milk	42 (36%)	28 (29%)
Do not give breast-milk	23 (20%)	8 (8%)

\*p<0.05    \*\* p<0.01    \*\*\*p<0.001, One-Way ANOVA

disregarded in calculating the percentages.

<sup>10</sup> Does not include children who were still being breast-fed or children who were never breast-fed.

<sup>11</sup> Question asked about use of OTC treatments for diarrhea/vomiting (other than ORS) bought at the pharmacy.

## *DISCUSSION*

The results of this study showed that Jamaican mothers coming to the hospital with children with gastroenteritis knew significantly less about the prevention and treatment of childhood diarrhea and dehydration than mothers bringing children to the hospital with other acute concerns, independent of their age, educational status, or SES. The GE mothers felt less self-reliant in the use of ORS than the non-GE mothers. As other epidemiological studies have shown, the GE mothers in this study were more likely to be single, unemployed, and to have additional children under five in the home. They were less likely to have convenient access to running water or refrigerators. Clearly, poverty and poor living conditions are mediators of diarrheal diseases. While a mother often does not have immediate control over these economic and social factors that put her child at risk of diarrhea, when it comes to ORT, theoretically she could have a high degree of control over her child's well-being in preventing death from dehydration when she has access to ORS and knows how to use it properly. When mothers do not know about ORS, they may waste their limited resources and time traveling to the hospital, finding caretakers for their other kids while they're gone, only to receive a treatment at the hospital that they could have initiated at home. Ideally, a mother would start fluid replacement in the home and bring a child to the hospital only when her child has signs or symptoms of serious diarrhea or dehydration despite her efforts to rehydrate the child. In this study, 43% of the mothers in the GE group did not know any signs or symptoms of serious diarrhea or dehydration as compared to 29% in the non-GE group. Neglecting the mother's role in the child's health care team incurs costs in terms of the child's health, financial costs to the family, and places more of a burden on the health system.

Since this study only included mothers who had chosen to bring their child to the hospital and since most mothers reported that they had learned about ORS from coming in to a health facility, it is likely that the knowledge of ORS amongst the total population of mothers is even more limited than in this sample. While on one hand, it might seem that mothers that felt self-reliant in managing their child's diarrhea and those with a higher level of knowledge about ORT would be less likely to present to the hospital therefore influencing the sample, other studies in Jamaica have shown that mothers in the community knew less about oral rehydration fluid than those bringing children with diarrhea into health centers and hospital out-patient clinics (MacCormack, 1985).

Since the interviewer was likely to have been perceived as a representative of the medical establishment, it is possible that mothers may have tried to give responses that they thought the interviewer would want to hear, rather than reporting their true thoughts or practices. For example, the use of home remedies for diarrhea have been categorically discouraged in Jamaica, so mothers may have underreported use of them. Another limitation of this study is that mothers bringing in severely dehydrated children in need of intravenous fluids were excluded. Ethically, it did not seem appropriate to demand the attention of the mother while her child was critically ill. One would expect that these mothers would not know very much about the prevention or treatment of dehydration.

Overall, 85% of the mothers had heard of ORS before. 65% of mothers had learned of ORS from coming in to a health facility. Unfortunately, many times, health workers at BCH are overworked and with the huge patient load, they do not have time to counsel mothers on the prevention and treatment of diarrhea or dehydration. A recent study out of South Africa showed that contact with health workers during a period of

admission to the pediatric short-stay facility had no impact on the caretakers' knowledge of gastroenteritis or its management (Mawela, 1996). 32% of the mothers had learned of ORS from friends or relatives. None of the mothers had heard about ORS through the media, though over 90% of the mothers reported they had a TV. This indicates that the mass media could be helpful in the promotion of ORT.

Though 76% of the GE mothers reported that they had heard of ORS and most mothers (60%) felt it was easy to get packs of ORS, only 8% of the mothers bringing in children with gastroenteritis had used ORS before coming to the hospital. Despite the relatively high awareness of ORS, mothers lacked knowledge of the proper use of ORS. Many mothers also had unrealistic expectations of ORS. For example, 76% of the mothers expected that ORS would stop the diarrhea or vomiting when the purpose of ORS is actually just to replace the fluids the child is losing. If the mother's priority is to stop the diarrhea or vomiting, it is understandable that she may feel that ORS is not helping and resort to the use of opiates and antimotility drugs. Of the GE mothers interviewed, 36% reported giving their child an OTC product while only 8% had given ORS. This is worrisome because many studies have shown that OTC medications have no role in the management of pediatric diarrhea (AAP). These mothers should not be wasting their money on useless treatments. Thirty-six percent of the mothers said they thought that ORS could prevent a child from getting diarrhea. This belief could lead to inappropriate use of packets of ORS and further disillusionment with ORS when it does not perform as expected.

Sixty-six percent of the GE mothers reported having given their children extra fluids before coming in to the clinic. This correlates well with the statistic from the

Ministry of Health that a little over a third of all children under five presenting with gastroenteritis were dehydrated. For those children given extra fluids before coming to the hospital, juice was given 51% of the time, followed by tea (32%). While most fluids can be helpful in preventing dehydration, juice and tea are not appropriate fluids for the treatment of dehydration. These drinks have too much sugar and not enough salt to be an appropriate fluid for oral rehydration therapy (Snyder, 1994). Mothers who do not have a lot of money often give their kids “bag juices” bought on the street that are not always prepared hygienically. 8% of the mothers had given their children coconut water. Coconuts are readily available in Jamaica and unlike bag juices, coconut water is sterile as long as care is taken not to contaminate it in the process of opening the coconut. It is a culturally acceptable fluid that could be promoted to prevent dehydration. It was disturbing to learn that 4% of mothers had given their children a mixture of salt and water, presumably intending to make a substitute for “oral rehydration salts” which is popularly abbreviated as “the salts” in Jamaica. This is dangerous because it can lead to hypernatremic dehydration. There has been much debate about the relative merits of teaching mothers to make sugar salt solution for ORT versus using prepackaged ORS. When ORS packets are not easily available and mothers do not know how to mix an appropriate rehydration fluid at home, they are more likely to give their children harmful solutions. This could be prevented by providing mothers with packets of ORS to keep on hand in the home.

The majority of the mothers interviewed (70%) believed that teething water can cause diarrhea. As mentioned above, this can be dangerous if mothers assume that children with diarrhea from teething don't need ORS because the diarrhea is considered a

natural phase of development. While health education efforts in the past have focused on telling mothers that teething water is a folk belief that is not true, it might be more useful to emphasize the management of diarrhea of any cause. Though the etiology of the diarrhea may not be from swallowing the saliva while teething, it seems useful for mothers to be aware that children in this age group are prone to diarrhea. It is plausible that the pain of teething can result in autonomic stimulation leading to diarrhea (Coreil, 1995). Children who are teething are usually being weaned. As they start eating the foods the rest of the family is eating, they may be exposed to new food-borne germs. They are losing the protection of breast milk, which has anti-infective properties. They also tend to start crawling around more at this age and explore their surroundings by putting things in their mouths. Mothers should be taught to give ORS to prevent dehydration when their child has diarrhea, regardless of the cause of the diarrhea.

A folk practice of more concern is giving a child with diarrhea a washout. 9% of the GE mothers said that they felt washouts were a good idea, while 2% of the non-GE mothers agreed with this. Giving a child a purgative in the form of a bush tea may indeed stop the diarrhea, but the ensuing dehydration is likely to kill them. When mothers actually understand that it is the dehydration caused by the diarrhea that is life threatening, they are less likely to believe in giving a washout. As was mentioned above, one limitation of this study is that only mothers living in an urban area who had chosen to come to the hospital were interviewed. Bush teas may be more readily available in rural areas and used more frequently by mothers in rural areas and mothers who choose not to come to the hospital.

Since breast-feeding is known to help protect children from gastroenteritis, it is not surprising that the GE group mothers were less likely to have breast-fed their child. 89% of the GE group children were breast-fed as compared to 98% in the non-GE group. The non-GE mothers breast-fed for an average of 10 months, compared to 6 months for the GE mothers.

Appropriate feeding is a crucial element of ORT (AAP, 1999). In the past, medical professionals thought it was important to “rest the gut” during diarrhea, however this notion has been discredited. Studies have shown that resting gut rapidly atrophies, enzyme levels fall, and absorption worsens (Jeliffe, 1991). Similarly, in the past, guidelines put out by the American Academy of Pediatrics recommended that milk and milk-based products be avoided during diarrhea, however the latest guidelines have reevaluated this advice (AAP, 1999). When there are changes in the recommended practices, it is important that this information be disseminated to caregivers of children at all levels. Especially in a population at risk for malnutrition, it is important to maintain proper feeding practices during diarrhea.

Many of the mothers interviewed spoke of changing nutritional practices when their child had diarrhea. Thirty-eight % of mothers said not to give solid food like yams, rice and peas, and plantains, the staples of the diet. Thirty-one % said not to give milk and 25% said to give no food at all. Of particular concern were the mothers interviewed who had extended the notion of withholding milk to breast-milk. Twenty % of the GE mothers said that you should stop breast-feeding babies that are still being breast-fed when they have diarrhea. This misinformation that is circulating points to an urgent need to educate mothers about healthy feeding practices during diarrhea.



In summary, this study shows that we could be taking advantage of ORT more fully if mothers were truly made partners in its provision. The non-GE mothers, though coming from similarly impoverished backgrounds, had greater awareness of ORS, greater knowledge of the prevention and treatment of diarrhea and dehydration, greater belief in their own self-efficacy in managing their child's diarrhea, and were more empowered to take proactive measures to deal with their child's diarrhea. When mothers really understand what they are doing when they give a child ORS and why, when they know what to expect of the treatment and when to seek help, they will provide the best, most timely, and effective rehydration possible. As members of the health care providing community, we must respect and encourage mothers in their role as the primary caregivers in preventing the unnecessary suffering caused by childhood diarrhea and dehydration.



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APPENDIX

THE UNIVERSITY OF THE WEST INDIES  
DEAN'S OFFICE, FACULTY OF MEDICAL SCIENCES

CABLE AND TELEGRAPH  
"UNIVERSITY"  
PHONE: 92-71620  
EXT: 2322/2323  
92-72556



MONA, KINGSTON  
JAMAICA, W.I.

.....11 April 1997.....

REF.

Ms. Lela Bachrach  
c/o Dr. Meeks Gardner  
Tropical Metabolism Research Unit  
UWI, Mona

Dear Ms. Bachrach,

**Re: Proposal "Knowledge, Attitudes and Practices of caretakers regarding Childhood Diarrhoea in Jamaica"**

I refer to the letter of 7 March 1997 from Dr. Meeks Gardner to the UWI/UHWI Ethical Committee concerning approval of the above proposal by the Committee

The Committee considered your proposal at its meeting on 4 April 1997 and agreed that it reached the required ethical standards.

Yours sincerely,

Professor W.N. Gibbs

/scr



22. Union status

single	common law	married	divorced	widowed	other
1	2	3	4	5	6

23. Did you breastfeed your children? Yes 1 No 0

24. If yes, how long did you breastfeed them for? \_\_\_\_\_

25. What kind of foods did you give the baby when s/he stopped on the breast? \_\_\_\_\_

26. Toilet

a. own inside flush	6	e. own pit	2
b. shared inside flush	5	f. shared pit	1
c. own outside flush	4	g. none	0
d. shared outside flush	3		

27. Water

a. own inside pipe	5	d. shared in yard	2
b. shared inside pipe	4	e. outside yard	1
c. own in yard	3	f. carry water	0

28. Cooking

	Yes	No
Gas/electric stove	1	0
Coal pot/Kerosene oil	1	0

29. Refrigerator	1	0
30. Radio	1	0
31. Television	1	0
32. Cable Television	1	0

33. Number of rooms in household (not counting bathroom/kitchen)? \_\_\_\_\_

**Background in ORT**

1. When was the last time one of your children under five had running belly/diarrhoea?

2. What did you do to help your child get better? \_\_\_\_\_

3. Do you know what the signs of serious running belly/diarrhoea/dehydration are? What are they? How can you tell when the baby's drying up? \_\_\_\_\_

4. Do you know about how many times a day does your youngest child usually go pee? (x) \_\_\_\_\_

a. Would you be worried if s/he looked fine, but only urinated x/2 times in a day?

Yes 1 No 0

- b. If yes, what would you do? \_\_\_\_\_
5. Have you heard of oral rehydration solution before? Yes 1 No 0
6. When did you first hear about oral rehydration? \_\_\_\_\_
7. From where? health worker 1 poster at clinic 2 relative 3 other 4
8. Do you know what is in a packet of oral rehydration salts (ORS)? Yes 1 No 0  
 If yes, what? \_\_\_\_\_  
 a. If you have no ORS, can you just mix table salt and water and give it to your child? Yes 1 No 0
9. Do you know what oral rehydration salts do? Yes 1 No 0  
 If yes, how do they work? \_\_\_\_\_
10. Are there foods that should be given to a child with running belly? \_\_\_\_\_
11. Are there foods that should be avoided? \_\_\_\_\_
12. First time, what would they do to treat running belly in children? Do you know of any home remedies that can be used to treat running belly in children?  
 \_\_\_\_\_  
 \_\_\_\_\_  
 \_\_\_\_\_

### Knowledge

1. Does breastfeeding a child for the first 6 months of life help to prevent diarrhoea?  
 yes 1 no 0 don't know 9
2. Is feeding your baby from a nipple bottle as safe as feeding from a cup and spoon?  
 yes 1 no 0 don't know 9
3. When preparing food or drink for your child, is it okay to use water straight from the pipe?  
 yes 1 no 0 don't know 9

4. To prevent childhood diarrhoea, you should get your child immunized for other diseases?

yes 1                      no 0                      don't know 9

3. When your child has diarrhoea, you should treat him/her yourself by giving some medication to stop the diarrhoea?

true 1                      false 0                      don't know 9

4. When your child has diarrhoea, you should not give him/her solid food?

true 1                      false 0                      don't know 9

5. When your child has diarrhoea, you should stop breastfeeding if the child is still on the breast?

true 1                      false 0                      don't know 9

6. At the first sign of running belly, it's more important to give the child lots of fluids than to bring her/him to the hospital?

true 1                      false 0                      don't know 9

7. Most of the time, running belly in children goes away by itself?

true 1                      false 0                      don't know 9

### Attitudes

1. Having running belly/diarrhoea is a normal part of growing up in a young child?

Strongly Disagree.....Disagree.....Don't Know.....Agree.....Strongly Agree

2. Any child can catch diarrhoea/running belly?

Strongly Disagree.....Disagree.....Don't Know.....Agree.....Strongly Agree

3. At the first sign of running belly, you should take the child to see a doctor?

Strongly Disagree.....Disagree.....Don't Know.....Agree.....Strongly Agree

4. Diarrhoea/running belly is can be caused when teething water turns down?

Strongly Disagree.....Disagree.....Don't Know.....Agree.....Strongly Agree

5. No food should be given to a child with diarrhoea/running belly?

Strongly Disagree.....Disagree.....Don't Know.....Agree.....Strongly Agree

6. **There is a season for diarrhoea/running belly?**

Strongly Disagree.....Disagree.....Don't Know.....Agree.....Strongly Agree

7. **Diarrhoea/running belly is the body's way of flushing out germs or food that is spoiled?**

Strongly Disagree.....Disagree.....Don't Know.....Agree.....Strongly Agree

8. **Fluids mixed at home can be just as good as fluids from the hospital to keep a child from drying up?**

Strongly Disagree.....Disagree.....Don't Know.....Agree.....Strongly Agree

9. **My child gets thirsty when s/he has running belly?**

Strongly Disagree.....Disagree.....Don't Know.....Agree.....Strongly Agree

10. **Children should be given a wash out during diarrhoea/running belly ?**

Strongly Disagree.....Disagree.....Don't Know.....Agree.....Strongly Agree

11. **It is better to give a child with running belly coconut water than medicine bought at a pharmacy?**

Strongly Disagree.....Disagree.....Don't Know.....Agree.....Strongly Agree

12. **My child likes the taste of oral rehydration solution?**

Strongly Disagree.....Disagree.....Don't Know.....Agree.....Strongly Agree

13. **Oral rehydration salts are supposed to stop running belly/vomiting?**

Strongly Disagree.....Disagree.....Don't Know.....Agree.....Strongly Agree

14. **It is easy to get packets of oral rehydration salts to make oral rehydration solution?**

Strongly Disagree.....Disagree.....Don't Know.....Agree.....Strongly Agree

15. **The drink made from packets of oral rehydration salts can keep a child from getting diarrhoea?**

Strongly Disagree.....Disagree.....Don't Know.....Agree.....Strongly Agree

16. **The main reason you give a child oral rehydration salts is to replace what they loose in stools and vomiting?**

Strongly Disagree.....Disagree.....Don't Know.....Agree.....Strongly Agree



*Questionnaire for Use in the Rehydration Room*

*This is a survey on childhood diarrhoea to help the Ministry of Health improve health education material. All of your answers will be kept strictly confidential. You may stop the interview at any point. Thank you!!!*

1. ID Number \_\_\_\_\_ 2. Date \_\_\_\_\_
3. Site \_\_\_\_\_ 4. Interviewer \_\_\_\_\_
5. Child's Name \_\_\_\_\_
6. What is your name? \_\_\_\_\_
7. Gender? Female 1 Male 2
8. What is your relationship to this child?  
 Mother 1 Father 2 Guardian 3 Grandmother 4 Other 5
9. Age on last birthday? \_\_\_\_\_
10. Address \_\_\_\_\_ Kingston \_\_\_\_\_
11. How long did it take you to reach here today? \_\_\_\_\_
12. About how much did it cost to reach here today? \_\_\_\_\_
13. How long do you expect to be here today? \_\_\_\_\_
14. What is hard about being here? \_\_\_\_\_
15. Are you working? not working 0 part-time 1 full-time 2
16. Occupation (when last worked if not working) \_\_\_\_\_
17. Education \_\_\_\_\_ age of leaving school \_\_\_\_\_  
 1 less than grade 5  
 2 completed primary school  
 3 started high school/secondary school  
 4 completed high school/secondary school any exams taken? \_\_\_\_  
 5 college/university  
 6 other \_\_\_\_\_
18. Any training after finishing school? \_\_\_\_\_  
 0 none 1 crafts/sewing 2 clerical/typing 3 other
19. Child's father is  
 a. alive Yes 1 No 0 Don't Know 9  
 b. lives with child Yes 1 No 0
20. Union status  
 single common law married divorced widowed other \_\_\_\_  
 1 2 3 4 5 6
21. Child's Age \_\_\_\_\_ Birthday \_\_\_\_\_



- b. When?
- c. Did you give anything from a pharmacy? What?
3. What was the first thing you did to try and help your child get better?  
(first response/treatment used for child's illness)
4. Do you know what the signs of serious running belly/diarrhoea/dehydration are?  
What are they? How can you tell when the baby's drying up?
5. What made you decide to bring the child to the hospital?
6. About how many times a day does your child usually go pee pee? (x) \_\_\_\_\_  
 a. Would you be worried if s/he looked fine, but only went pee pee x/2 times in a day? Yes 1 No 0  
 b. If yes, what would you do? \_\_\_\_\_
7. Have you heard of oral rehydration solution (special drink your child is having now) before? Yes 1 No 0
8. When did you first hear about oral rehydration salts? \_\_\_\_\_
9. From where? health worker 1 poster at clinic 2 relative 3 other 4
10. Do you know what is in a packet of oral rehydration salts (ORS)? Yes 1 No 0  
 If yes, what? \_\_\_\_\_  
 a. If you have no ORS, can you just mix table salt and water and give it to your child? Yes 1 No 0
11. Do you know what oral rehydration salts do? Yes 1 No 0  
 If yes, how do they work? \_\_\_\_\_
12. Are there foods that should be given to a child with running belly? \_\_\_\_\_
13. Are there foods that should be avoided? \_\_\_\_\_
14. First time, what would they do to treat running belly in children? Do you know of any home remedies that can be used to treat running belly in children?  
 \_\_\_\_\_  
 \_\_\_\_\_  
 \_\_\_\_\_

## Knowledge

1. Does breastfeeding a child for the first 6 months of life help to prevent diarrhoea?

yes 1                  no 0                  don't know 9

2. Is feeding your baby from a nipple bottle as safe as feeding from a cup and spoon?

yes 1                  no 0                  don't know 9

3. When preparing food or drink for your child, is it okay to use water straight from the pipe?

yes 1                  no 0                  don't know 9

4. To prevent childhood diarrhoea, you should get your child immunized for other diseases?

yes 1                  no 0                  don't know 9

5. When your child has diarrhoea, you should treat him/her yourself by giving some medication to stop the diarrhoea?

true 1                  false 0                  don't know 9

6. When your child has diarrhoea, you should not give him/her solid food?

true 1                  false 0                  don't know 9

5. When your child has diarrhoea, you should stop breastfeeding if the child is still on the breast?

true 1                  false 0                  don't know 9

6. At the first sign of running belly, it's more important to give the child lots of fluids than to bring her/him to the hospital?

true 1                  false 0                  don't know 9

7. Most of the time, running belly in children goes away by itself?

true 1                  false 0                  don't know 9

## Attitudes

1. Having running belly/diarrhoea is a normal part of growing up in a young child?

Strongly Disagree.....Disagree.....Don't Know.....Agree.....Strongly Agree

**2. Any child can catch diarrhoea/running belly?**

Strongly Disagree.....Disagree.....Don't Know.....Agree.....Strongly Agree

**3. At the first sign of running belly, you should take the child to see a doctor?**

Strongly Disagree.....Disagree.....Don't Know.....Agree.....Strongly Agree

**4. Diarrhoea/running belly is can be caused when teething water turns down?**

Strongly Disagree.....Disagree.....Don't Know.....Agree.....Strongly Agree

**5. No food should be given to a child with diarrhoea/running belly?**

Strongly Disagree.....Disagree.....Don't Know.....Agree.....Strongly Agree

**6. There is a season for diarrhoea/running belly?**

Strongly Disagree.....Disagree.....Don't Know.....Agree.....Strongly Agree

**7. Diarrhoea/running belly is the body's way of flushing out germs or food that is spoiled?**

Strongly Disagree.....Disagree.....Don't Know.....Agree.....Strongly Agree

**8. Fluids mixed at home can be just as good as fluids from the hospital to keep a child from drying up?**

Strongly Disagree.....Disagree.....Don't Know.....Agree.....Strongly Agree

**9. My child gets thirsty when s/he has running belly?**

Strongly Disagree.....Disagree.....Don't Know.....Agree.....Strongly Agree

**10. Children should be given a wash out during diarrhoea/running belly ?**

Strongly Disagree.....Disagree.....Don't Know.....Agree.....Strongly Agree

**11. It is better to give a child with running belly coconut water than medicine bought at a pharmacy?**

Strongly Disagree.....Disagree.....Don't Know.....Agree.....Strongly Agree

**12. My child likes the taste of oral rehydration solution?**

Strongly Disagree.....Disagree.....Don't Know.....Agree.....Strongly Agree

**13. Oral rehydration salts are supposed to stop running belly/vomiting?**

Strongly Disagree.....Disagree.....Don't Know.....Agree.....Strongly Agree

**14. It is easy to get packets of oral rehydration salts to make oral rehydration solution?**

Strongly Disagree.....Disagree.....Don't Know.....Agree.....Strongly Agree

**15. The drink made from packets of oral rehydration salts can keep a child from getting diarrhoea?**

Strongly Disagree.....Disagree.....Don't Know.....Agree.....Strongly Agree

**17. The main reason you give a child oral rehydration salts is to replace what they loose in stools and vomiting?**

Strongly Disagree.....Disagree.....Don't Know.....Agree.....Strongly Agree

## SCORING

### Knowledge Score

There were 9 questions on knowledge related to management of childhood diarrhea. The possible range of scores was -9 to 9. If a question was answered correctly, 1 point was awarded. For wrong answers, a point was taken away. No points were gained or lost if the parent said they didn't know the answer.

correct answer → +1 pt.  
don't know → 0 pt.  
incorrect answer → -1 pt.

### Independence Score

There were 5 questions on the degree to which a parent felt they could care for an acute diarrheal episode independently rather than bringing a child in to a health facility. A standard Likert scale was used. Those with higher independence scores felt more like they could care for their child with diarrhea on their own rather than needing to bring the child to the hospital. The range was 5 to 25.

### Crowding Score

The number of people per room was categorized into 6 groups, so the range is 1 to 6. The least crowded group got 6 points and the most crowded got 1 point.

least crowded → 6 pts  
most crowded → 1 pt

### Sanitation Score

The sanitation score is the sum of the toilet and water scores. The range is 0 to 6.

own inside flush toilet & own inside pipe for water → 6 pts  
shared inside flush toilet/ own inside pipe for water → 5 pts  
own outside flush toilet/ shared inside pipe for water → 4 pts  
shared outside flush toilet/ own pipe in yard → 3 pts  
own pit/ shared pipe in yard → 2 pts  
shared pit/ outside yard → 1 pts  
no toilet facilities/ carry water → 0 pts

### Socioeconomic Status Score

The sum of the crowding score and the sanitation score was used as a proxy for socioeconomic status. The possible range was 1 to 18, with more points given to families with higher SES.

## **UNDERMINING SELF-RELIANCE IN THE USE OF ORT: ARE WE FINDING A SOLUTION?**

### *Background*

Powerlessness is widely recognized as a risk factor that adversely affects quality of life and health. The importance of people having a sense of control over their health in the health promotion process was acknowledged in the Ottawa Charter for Health Promotion adopted by the first International Conference on Health Promotion in 1986. It stated: "At the heart of this process is the empowerment of communities, their ownership and control of their own endeavors and destinies" [2]. While the traditional medical paradigm has focused on treating sick individuals, the goal of health promotion is to prevent disease and promote positive health at both the individual and community level. Its strategy is to facilitate the behavioral, societal, and environmental changes necessary for health promotion in communities as a whole [3, 4].

The centrality of empowerment in effective health promotion is certainly not a new concept[5]. About thirty years ago, Freire wrote about the enhancement of individuals' "critical consciousness," [6] [7] and their belief in self-efficacy. Awareness and knowledge of the source of problems and their solutions, coupled with personal competency, can lead to proactive actions to deal with problems adversely affecting quality of life.

The international promotion of oral rehydration therapy (ORT) provides a fascinating case study of some of the successes and failings of health promotion as



implemented today. Before ORT, intravenous (IV) fluid therapy was the mainstay of treatment for dehydration. Because IV fluid therapy requires specific medical equipment and must be administered by someone with medical training, it inherently fits into the traditional medical paradigm where the locus of control is in the hands of the health professionals. ORT, on the other hand, is much cheaper and can be prepared and administered in many settings, including at home by family members. In addition, ORT can be used to prevent, not just to treat, dehydration. In many senses, moving from the use of IV fluids to ORT is a prime example of the paradigm shift towards a health promotion model.

ORT use by parents in the home entails behavior change. The relative simplicity of ORT makes it an appealing model to study behavior change in public health. For example, many health promotion efforts have targeted issues such as smoking cessation, practicing safer sex, reducing drug use, or eating in a healthy fashion. Unlike ORT, these types of behaviors have an addictive component that influences behavior change. When the behavior in question directly affects the person in need of changing his or her behavior, it may be harder to make a change. With ORT, it is not the individual at risk that is required to change a behavior; the caretakers of children who may become dehydrated need to change their behavior. Furthermore, children's well being is a primary motive for action for mothers [8] [9].

While many examples of health-related behavior change (such as dietary habits or safer sex practices) are difficult to study because of the tremendous variability amongst practices or the sensitive nature of the information, study of the use of ORT is more straightforward. Either a child was given ORT or s/he was not. The outcome following

ORT administration is easy to study because of its immediate nature in comparison to the development of heart disease after diet modification or lung cancer in relation to smoking or any number of other challenging health issues involving behavior change. Finally, while many health interventions are extremely costly, the cost of ORT is minimal. All of these factors make ORT an interesting model for studying behavior change in public health.

### *Introduction*

I conducted my thesis work in Jamaica and Cuba because, of all the countries in Latin America and the Caribbean, Jamaica has the lowest use rate of ORS (8%) and Cuba has the highest use rate of ORS (80%), despite high ORS access rates in both countries [10]. Though many studies of ORT use have focused on developing countries, it's important to keep in mind that developing countries have been much more proactive about adopting the use of ORT than many developed countries. Focusing on Jamaica and Cuba in this paper is not meant to imply that these countries have been unusually good or bad about taking advantage of ORT.

The impetus for this paper developed out of a finding from the work I did in Jamaica: mothers who presented with a child with diarrhea and dehydration felt less self-reliant in the management of their child's diarrhea, regardless of their actual knowledge of the management of childhood diarrhea and dehydration or their assessment of the severity of their child's illness [11]. This was consistent with the literature I had read talking about powerlessness being linked to disease, and conversely, empowerment being linked to health [12]. Despite the relatively high awareness of ORT (around 80%), this did not translate into a high level of use. Only 8% of mothers coming in with children with diarrhea had given their child oral rehydration fluid. This paper will critique ORT

promotion in Kingston, Jamaica and Havana, Cuba, concentrating on factors that keep parents dependent on the health system for the treatment of childhood diarrhea and dehydration.

### *Findings in Kingston, Jamaica*

Though information alone is not sufficient to lead to behavior change, it is still a crucial element in empowering people to exercise control over their own health (and their children's health) and allowing people to make choices conducive to health. Health promotion requires a supportive environment. There is a sign outside of Bustamante Children's Hospital (BCH) posted prominently to "welcome" parents. It says in big block letters, "PARENTS' DRESS CODE: NO ROLLERS IN HAIR, NO ELABORATE JEWELS, NO BARENESS OF BODY, NO DANCE HALL FASHION." BCH is Jamaica's only public children's hospital and it predominantly serves families from less privileged segments of society. The dress code essentially bans what the average parent coming to the hospital would normally be wearing. It is hot in Jamaica and the vast majority of families coming to BCH do not have air-conditioning, so they tend to wear less clothing. Dance hall fashion is in vogue. This condescending placard sets the tone for a parent's visit to BCH. It frames the interaction at the hospital more in the traditional medical paradigm of expert and dependent rather than as partners in the more collaborative approach of the health promotion paradigm.

When a parent presents with a child with diarrhea or vomiting, they are sent to the oral rehydration room. There they sit on benches surrounded by other parents with children with gastroenteritis until a community health aide registers them and gives them premixed ORS to give to their child. They are not shown how to mix the ORS. Nobody

explains what the ORS is or how it works. There are usually ten to thirty children being rehydrated in the small room, with one or two community health aides to attend to them. This set-up makes it very difficult for the community health aides to take the time to counsel parents about diarrhea prevention or teach them about rehydration such that parents can initiate rehydration themselves the next time the child gets diarrhea, only coming to the hospital if the problem persists or there are signs that it is a serious episode. This sets up a self-perpetuating cycle. The more overburdened the community health aides are, the less time they have to inform parents about managing childhood diarrhea, the more likely the parents are to need to come in to the hospital the next time because they don't know what to do, which increases the community health aides' patient load further. When community health aides feel overburdened, they do not encourage parents to ask questions. Though parents do spoon rehydration fluid to their children in the rehydration room, behavior change without insight into the process is likely to lead to only temporary change. This problem is not unique to Jamaica. A recent study out of South Africa showed that contact with health workers during a period of admission to the pediatric short-stay facility had absolutely no impact on the caretakers' knowledge of gastroenteritis or its management [13].

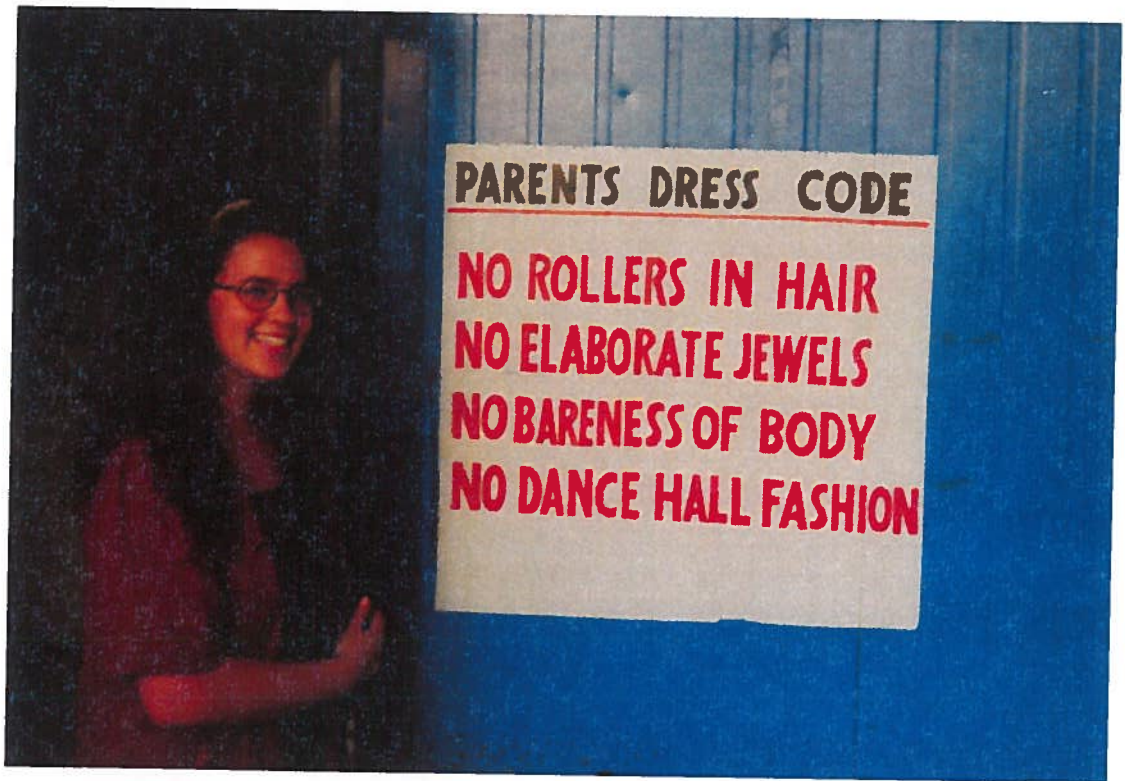


Photo 1: The sign welcoming parents to Bustamante Hospital for Children

Parents are not sent home with packets of ORS to keep on hand at home. While packets used to be distributed for free, in the past ten years, they have been sold for about \$1 US per packet. This is a significant amount of money for many low-income families in Kingston, especially considering that one episode of diarrhea may require several packets of ORS for adequate rehydration. Some parents may come to the hospital simply to get rehydration fluid for free. This is less than ideal because it keeps parents dependent on the hospital and leaves children at risk of getting more dehydrated during the bus ride to the hospital in the heat. Community health aides get frustrated when young mothers, wearing the latest fancy Nike shoes or sporting finger nails with rhinestones embedded in them from an expensive manicure, come in with malnourished, dehydrated children to get free ORS. Community health aides may treat parents disrespectfully and in return, parents often have disrespectful attitudes towards them.

Theoretically, in primary health care, community health aides are supposed to be powerful agents of change with a very important role [14]. However, in practice, community health aides have been relegated to the most subservient position in the health hierarchy at BCH. Aside from the huge patient load, they are expected to keep the rehydration room clean, which is not an easy task when it is full of children vomiting and passing loose stools. The community health aides have to mix up vats of rehydration fluid. When there are odd jobs that doctors need done, they often call on the community health aides who are expected to drop whatever they are doing to go do it. When placed in this relatively disempowered position, community health aides tend to do things to assert their authority. For example, on more than one occasion I observed mothers asking community



health aides about the composition of the powder in the packets of ORS. Rather than telling the mothers it was sugar and salt, words that they would understand, the community health aides replied that the packets contained electrolytes. Though using a big word may have served to validate the community health aide's professional status, it kept the mothers uninformed. Some community health aides justified the mystification of ORS saying that moms would not use it if they knew it was just sugar, salt and water, not some mysterious medication. This type of mystification prevents mothers from having true ownership of ORT, and reinforces the impression that the community health aide has some occult, powerful knowledge.

The packets themselves contribute to the process of mystification and medicalization by listing the ingredients by their chemical names rather than their common names—*sodium chloride* for table salt, *sodium bicarbonate* for baking soda, and *glucose* for simple sugar. Even the title of ORS—"oral rehydration salts"—is confusing for parents since the main ingredient is sugar. This mouthful invariably gets abbreviated to "the salt," which can lead to problems. I spoke to a number of mothers who had heard that the appropriate treatment for childhood diarrhea was "the salt," so they had given their children salt and water. This is very dangerous because the salt solution can draw more water out of the body into the gut resulting in even more fluid loss and increased risk of death from dehydration. Other mothers had given their children Epsom salts, a laxative, sold in packets that look like ORS, but are cheaper. The combination of a residual belief in the folk practice of giving children with diarrhea a "washout," a cathartic purge to "clean out the belly," along with a lack of understanding of the basic mechanism by which ORS works, makes some mothers choice of Epsom salts unsurprising. Still

other mothers had given their children coconut water supplemented with syrup (a sugar solution) or with salt or sometimes with both. Use of inappropriate substitutions for ORS calls into question why parents are not taught to make sugar-salt solution on their own at home since prepackaged ORS is not always readily available.

Many of the community health aides acknowledged that mothers often do try and mix up rehydration fluids from ingredients at home. Towards the end of my time in Jamaica, several community health aides, some parents, and I got together to make a health education video on the prevention and treatment of diarrhea and dehydration. Though we all agreed that face-to-face counseling would be a preferred way to get information across and answer the parents questions, the thought was that a video could at least be a first step in dispelling some of the misinformation circulating. Parents spend hours sitting at BCH waiting to be seen, giving their kids rehydration fluid, and waiting at the pharmacy. Since many of the mothers are not that comfortable with reading, a video playing in the waiting area seemed like a good way to reach them. The community health aides were really excited about the project. They decided what topics should be covered in the video. They got a dub poet to do some drumming and verses in patois to make it more lively, with impromptu question and answer sessions with parents who had actually come into the hospital with children with diarrhea. They created a scene with a mother mixing up sugar-salt solution at home to the sound of Bob Marley's song "Stir It Up." After reviewing the video carefully and several rounds of editing, the video was sent to the Jamaican Ministry of Health for final approval. The response was very positive—they loved the music, the drumming, the true-to-life Q&A session—however, they said that the part about mixing sugar-salt solution needed to be omitted from the final version in order



for the video to be shown at BCH. They cited one article from the *Lancet* from 1981 that said that mothers sometimes got the composition of oral solutions for rehydration wrong [15]. The community health aides argued that mothers do try to make substitutions when they cannot get packets of ORS and that we might as well teach them how to make it properly. As one older community health aide commented, if Jamaican mothers can make ackee and salt fish (the national dish of Jamaica) they should easily be able to make ORS. (Ackee grows on trees and is poisonous if not prepared properly.) Though the community health aides are the ones that deal with parents on a day-to-day basis, they still had to defer to those higher up in the hierarchy in producing this video. This experience really drove home what a subservient role community health aides play and how their extensive experience is devalued.

There has been a tremendous amount of debate about use of ORS packets versus home fluids. If packets of ORS were widely available at no cost to parents, the Ministry of Health's policy against sugar-salt solution might make sense. Unfortunately, that is not the situation today. It is a top-down policy that undermines parents' self-reliance. By systematically denying parents information on sugar-salt solution, parents are kept dependent on the health system. While the packets of ORS may be safer since because of their scientifically formulated contents are precisely measured and controlled, their supply is outside of the parents' control. One approach might be to print the recipe for sugar-salt solution on the back of packets such that if parents run out, they can mix some on their own. Parents could be warned that sugar-salt solution can be dangerous if it is mixed improperly. The choice would be left up to them. If they were stuck in a situation in

which the hospital or clinic was a long bus ride away or they did not have the cash for the packets of ORS, there would be another alternative.

Other countries have promoted homemade solutions using a special two-headed spoon made specifically to measure the sugar and salt necessary for oral rehydration [16] and these spoons are currently available from Teaching Aides at Low Cost. In certain countries in Africa, mothers were taught how to make sugar-salt solution in the home using a commonly available bottle and its cap as the measuring device [17].

The Ministry of Health in Jamaica cites the increasing economic difficulties and diminished funding for health programs as the reasons why the cost of ORS packets is so high. On a policy level it seems unnecessary for Jamaica to be importing packets of ORS from European pharmaceutical companies as the main ingredient in these packets is sugar and Jamaica has been a sugar-producing island since the 19<sup>th</sup> century. It is also perplexing that in developed countries, where the water supply tends to be safer, premixed rehydration fluids like Pedialyte are often used, while in the developing world where water is often not safe, ORS packets that need to be mixed with water are often used. Since time is of the essence in rehydrating small children with diarrhea, there may not be time to boil water and let it cool before making rehydration fluid.

It is important to scrutinize who is setting the agenda in health promotion efforts. People are unlikely to feel empowered when they are not setting their own priorities for addressing problems [2]. I found it interesting that during the year I was working in Jamaica, the only Ministry of Health sponsored work on diarrheal diseases had to do with travelers' diarrhea in resorts [18]. The economy is becoming increasingly dependent on tourism. As for many parents living in Kingston, childhood diarrhea ranks relatively low

on their list of concerns until immediately faced by it. Communities of disempowered people are often too preoccupied with their struggle against other imminent threats to engage themselves with preventive health [8]. The increasingly prevalent gun violence in Kingston, the dwindling purchasing power of the Jamaican dollar, and unemployment make issues surrounding ORT seem like a minor drop in the bucket.

These stumbling blocks in health promotion do not only apply to ORT. Many of the same issues arise, such as in the arena of breastfeeding. BCH has subscribed to the Baby-friendly Hospital Initiative launched by WHO and UNICEF in 1991 to encourage exclusive breastfeeding for the first six months. When hospitals comply with all the criteria outlined by the initiative, they may undergo an external assessment by trained professional assessors. If the team finds the hospital in compliance with their requirements, the hospital is designated a Baby-friendly Hospital and receives a “Certificate of Commitment.” BCH’s status as a Baby-friendly Hospital is a source of pride for the hospital. A section of the health education video we made was dedicated to breastfeeding since breastfed infants are less likely to suffer from diarrhea. In one of the question and answer sessions in the video, a mother had asked what she could do to keep her baby from getting diarrhea. The community health aide said that breastfeeding can ward off infections. She then went on to say, “We, the ladies in the blue, we go around from area to area. If we see a mommy with a bottle, we take away the bottle. So your friends might say, ‘Watch de lady deh, she a-go tek away yer bockle.’<sup>12</sup> We DO IT! Absolutely no bottles in this hospital.” She does not explain all the reasons why breastfeeding is good for babies. She presents herself and other community health aides

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<sup>12</sup> She switched to patois at this point saying, “Watch the lady there, she’s going to take away your bottle.”

more as police figures in blue uniforms than health workers who would be sympathetic to a mother facing economic hardships who had to bottle feed while she was at work or a mother with HIV who had chosen not to breastfeed. This example highlights how different approaches to health promotion can be empowering or disempowering.

McKnight [19] and Coleman [20] advocate a *resource mobilization* strategy for empowerment. They contend that communities have untapped resources for social action, namely social capital, which must be mobilized for the solution of local problems. At BCH, there are many of the mothers who come in are unemployed. It seems like they could be recruited to act as community health promoters [21], whether educating their peers about ORT or organizing against the violence tearing apart many neighborhoods in Kingston. Another untapped resource for health promotion in Jamaica is the media [22]. In the study I did in Jamaica, more families had televisions than running water. Though the Jamaican Broadcasting Corporation occasionally runs public service announcements, nobody has tried to incorporate health education messages into soap operas or other widely watched programs on TV.



Photo 2: *“We, the ladies in the blue...”*  
A community health aide at  
Bustamante Hospital for Children

### *Findings in Havana, Cuba*

Cuba's Diarrheal Disease Control Program has employed many different media to promote the use of ORS and their efforts and successes have been written up in the Bulletin of the Pan American Health Organization [23]. From 1962 to the late 1980s, they used murals painted on external walls, announcements on the radio, and features in women's magazines. However, in more recent years since the "special period" as they refer to it began—that being the time since the collapse of the USSR and the loss of the Soviet Union's support to Cuba-- funds have been extremely limited. In interviews with Dr. Raúl Riverón Corteguera, the head of the Diarrheal Disease Control Program, he stated that they would like to continue their prevention campaigns, but they have to rely on primary care doctors to educate parents about ORT. It is a sore spot for him that the murals on the wall facing the Pediatric Hospital of Centro Habana where he works are visibly faded and parts of the wall are disintegrating.

One of the reasons I was excited to study ORT use in Cuba was that I had heard so much about Cuba's prioritization of primary health care and especially child health. I knew that the management of many childhood illnesses would be adversely affected by the current economic situation and the embargo, which makes it hard to get a hold of antibiotics and other medications. I naively thought that ORS, being low-cost and producible on a local level, would be exempt from these difficulties. In fact, I expected that the Cuban Ministry of Health would be taking all possible measures to keep costs down, perhaps even teaching parents how to use home fluids to rehydrate their children



Surprisingly, what I found was essentially the opposite situation. Since most Cuban families in Habana live within walking distance of a family doctor or polyclinic and medical care is free, all of the mothers I interviewed<sup>13</sup> said that their first response to an episode of childhood diarrhea would be to go to the doctor. This makes sense because there is no disincentive to bringing the child in. It seemed that the easy access to care was making mothers less self-reliant. Unlike in Jamaica, all of the mothers interviewed had heard of ORS before. However, they did not know the sign or symptoms of dehydration and they did not know about home fluids that could be used for rehydration. Why should they know these things if they can just go to the doctor whenever necessary?

The concern is that families are left vulnerable when they do not know anything about oral rehydration. If a cholera epidemic were to sweep through Cuba, many people would be vulnerable to devastating dehydration. If there were a sociopolitical change such that access to medical care was reduced, families would be vulnerable. Currently, it is easy to obtain packets of ORS. All the pharmacies I visited had them in stock and were charging on 40 *centavos* for them, essentially giving them out for free. However, if the shortages of gas and power were to get so severe that the prepackaged ORS could no longer be distributed throughout the island, people would be at risk. When I asked Dr. Riverón Corteguera how the Diarrheal Disease Control Program had decided not to promote home made sugar-salt solution he dismissed the idea saying, “Cubans like everything sweet. They would add too much sugar and make the dehydration worse.”

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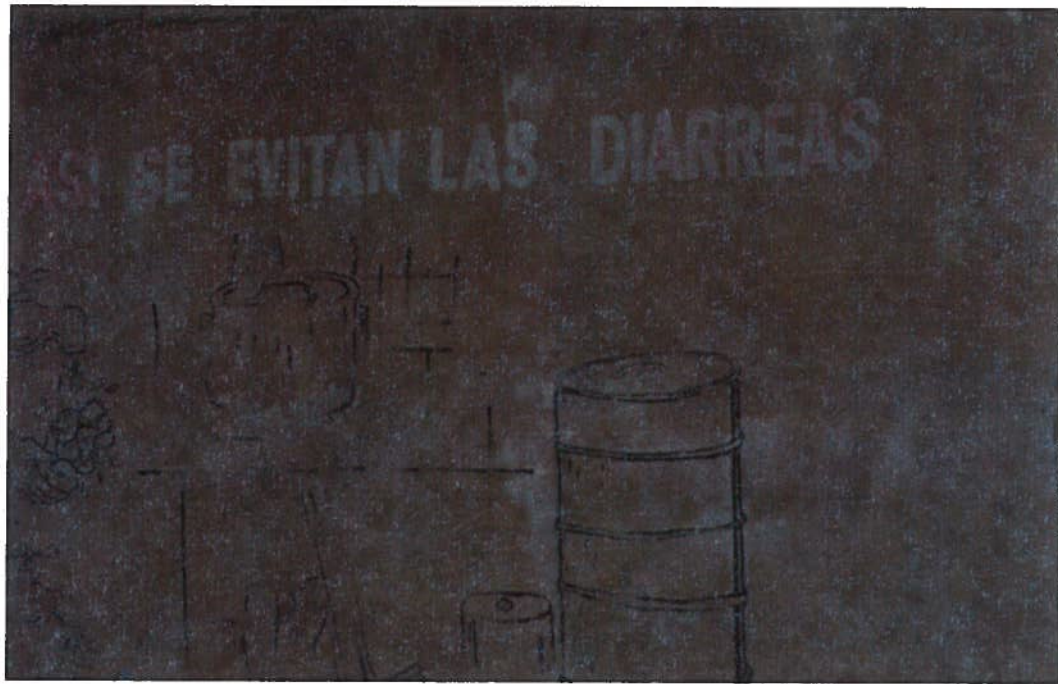
<sup>13</sup> Semi-structured interviews were carried out by my research assistant and I with seventeen mothers based on the same questionnaire (see appendix) on the knowledge, attitudes, and practices of mothers towards ORT that I had used in Jamaica. The mothers were recruited at the pediatric hospital of Centra Habana, at day care centers, at the Malecón (the walkway by the sea where people hang out), in certain office buildings, and on the bus.



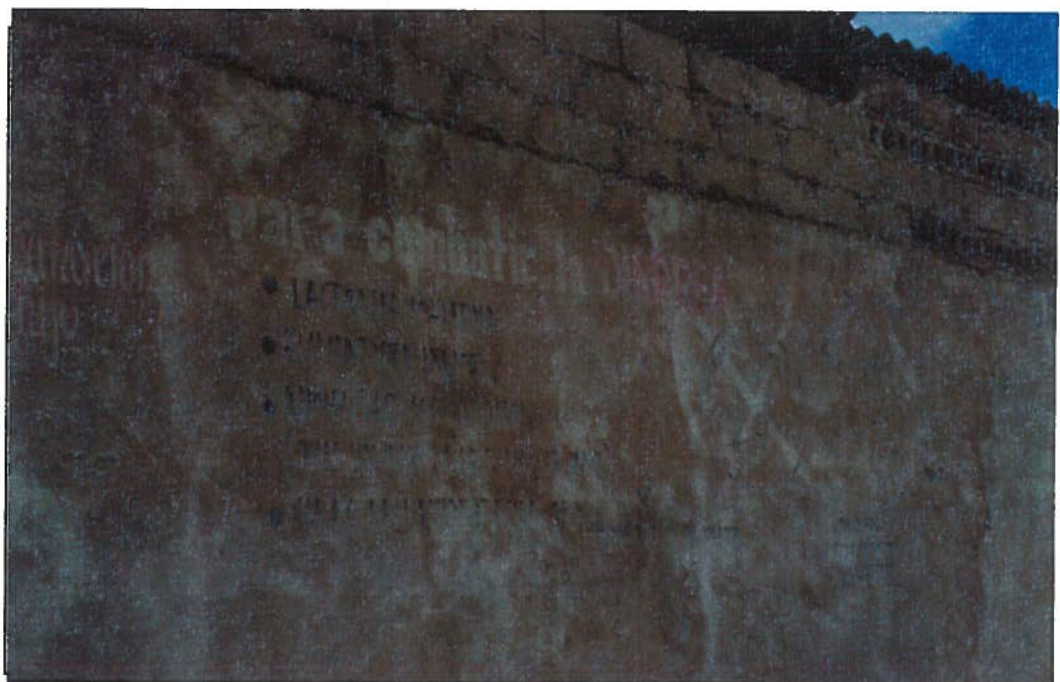
Photos 3 & 4: Pediatric Hospital of Centro Habana







Photos 5 & 6: Faded messages on diarrheal disease control on the wall facing the pediatric hospital





**Photo 7: Parents waiting to be seen at the pediatric hospital**

Keeping people dependent on the health system takes a toll on doctors, many of whom already feel overworked. A pediatrician, Dr. Solar commented: "The more time we spend dealing with acute diarrheal diseases, the less time we have for preventive activities." Unfortunately, the rate of diarrheal diseases has been going up in Cuba since the "special period" began. The statistics from the Cuban Ministry of Public Health reflect this. In 1989, the rate of mortality from acute diarrheal diseases was 2.7 / 100,000, while in 1994, it was 6.7 / 100,000. Similarly, the rate of total medical consultations for acute diarrheal diseases was 84.5 / 100,000 in 1989, whereas in 1993-1995 it had risen to 92.1 / 100,000. Dr. Riverón Corteguera was quick to point out that one episode of diarrhea can generate many visits. However, medical care has been free for almost forty years now. Why would parents all of a sudden be utilizing services more? It seems likely that there are simply more cases of diarrhea these days.

What accounts for the changing epidemiological picture of diarrheal diseases in Cuba? In order to prevent diarrheal diseases in a population, adequate water supplies, sanitation services, and good hygiene practices are critical. Since the "special period" began in 1989, there have been increasing problems with the water supply. Many of the women we interviewed reported that they only had running water on alternating days. Other women said that they would like to have been able to boil their water, but when the gas tank ran out, they were not able to. One nurse who lived in Centro Habana and worked at a day care center in Vedado said she would bring her families' laundry to work because she did not have water at home to do the wash. She reported that since the start of the "special period" there have been serious shortages of soap and disinfectants. There are also problems with garbage collection, worsening environmental sanitation. Due to



food shortages, some families have taken to keeping animals in city apartments for food. This unhygienic situation can also increase the rate of diarrheal diseases.

The U.S. embargo against Cuba exacerbates many of the problems Cuba is currently facing. Many of the medical school faculty members I spoke with talked about the impact of the embargo on a clean water supply. Dr. Lourdes Albo Puente said that chlorine deficits were leading to increases in water borne diseases causing diarrhea such as Shigella and Hepatitis A. Dr. Delfina López Armas commented that the original water supply system that was installed in Cuba was based on the U.S. model. She said that in order to repair leaks, there are certain parts needed that are under patent in the U.S., making it very difficult for Cuba to get a hold of them to maintain their water supply system. The current patchwork of American and Soviet pipes does not work optimally. In addition, the general shortages in energy make pumping water harder.

These power shortages affect diarrhea and dehydration in another way. Based on the literature I reviewed before going to Cuba, I was under the impression that the Cuban pharmaceutical industry produces packets of ORS and distributes them throughout the country, unlike other Caribbean neighbors such as Jamaica and the Dominican Republic [23]. According to Dr. Odalys Rodríguez, UNICEF's director of health programs in Cuba, UNICEF had collaborated with the Cuban government to build an ORS manufacturing plant in Cuba. However, since the "special period" began, the factory has since been shut down. It was not clear whether this was due to the increasingly prevalent power shortages or lack of the raw materials for the packaging. Cuba now relies on donations of ORS from Mexico and Spain.



Photos 8 & 9: Increasing problems with environmental sanitation and maintenance in Havana, Cuba in 1999





Photos 10: Disintegrating building in Havana, Cuba in 1999



While in Jamaica, about 36% of the mothers had given their children over-the-counter medications for diarrhea such as Pepto-Bismol, Lomotil, or Imodium which have been shown to be useless for managing childhood diarrhea and dehydration. Ironically, thanks to the embargo, there is no such problem in Cuba. However, because of the embargo and the economic difficulties Cuba is facing, there is increasing use of *medicina verde* (literally green medicine or herbal medicine). With the loosening of restrictions on small private enterprise, there are more and more *herberos* selling herbs from their homes. These market forces may increase the use of remedies for diarrhea that have not been shown to be effective. Though all the mothers I interviewed said that they would take their child to the doctor when the child had diarrhea, many mentioned that they had friends who would give children with diarrhea boiled guava leaves or chamomile tea. Even some of the government-sponsored pharmacies stocked their otherwise bare shelves with herbal treatments, like tincture of chamomile advertised as an antidiarrheal agent. This demonstrates the degree to which national and international policy can impact health-related behavior.



Photos 11 & 12: An *herbero* selling medicinal herbs from his home





Photos 13 & 14: Empty formularies



Photo 15 : Government pharmacy selling *manzanilla*-- chamomile-- as an antidiarrheal agent.

## *Conclusion*

Health promotion is intimately linked to economic, social, and political situations in which people live, making it a very complicated arena. It is my hope that this potpourri of examples from my experiences in Jamaica and Cuba will shed some light on the many different factors that can undermine parents' self-reliance in using oral rehydration therapy. If we do not scrutinize our health promotion efforts, we are unlikely to be able to make the changes that will allow us to move towards taking full advantage of ORT in the future. Much of the morbidity and mortality from diarrhea around the world is preventable by a simple solution—so let's use it!

We should also remember to evaluate the progress we have made in health promotion efforts and acknowledge our limitations. It is important to keep in mind that addressing upstream issues and structural problems may ultimately eliminate more suffering. In the case of childhood diarrhea, improving safe water supplies, insuring that all children have access to sufficient nutritious food, and an environment conducive to good health is crucial. Ideally, ORT would fall into the background as a band aid solution, only necessary when all else has failed.

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APPENDIX

COMMITTEE FOR PROTECTION  
OF HUMAN SUBJECTS  
THE A & E BUILDING #1340  
BERKELEY, CALIFORNIA 94720-1340

(510) 642-7461 • FAX: (510) 643-6272  
e-mail: [subjects@uclink.berkeley.edu](mailto:subjects@uclink.berkeley.edu)

May 11, 1999

Lela Bachrach  
2528 LeConte Avenue  
Berkeley, CA 94709-1143

RE: "Knowledge, Attitudes and Practices of Cuban Parents Regarding Childhood Diarrhea and Dehydration" - Graduate Research - Health and Medical Sciences

Dear Ms. Bachrach:

Thank you for sending your revised materials relating to the protocol referred to above. They satisfy the conditions in our letter to you of April 19, 1999, and we are pleased to grant full approval.

The number of this approval is 99-4-28. Please refer to this number in all future correspondence.

The expiration date is May 6, 2000. Approximately six weeks before the expiration date, we will send you a continuation/renewal request form. Please fill out the form and return it to the Committee according to the instructions.

Please note that even though the Committee has approved your project, you must bring promptly to our attention any changes in the design or conduct of your research that affect human subjects.

Please use the consent materials reviewed by the Committee; the expiration date of the Committee's review of this form is noted in the bottom right hand corner. Please copy and use this stamped consent form for the coming year, and destroy any unsigned, out of date consent forms in your file.

If you have any questions about this matter, please contact the CPHS staff at 642-7461; FAX 643-6272; E-mail: [subjects@uclink.berkeley.edu](mailto:subjects@uclink.berkeley.edu).

Sincerely,

Henry E. Brady  
Professor of Political Science & Public Policy  
Chair, CPHS

HEB:nan

Attachment

Cc: Professor Paul Newacheck  
Graduate Assistant  
Graduate Division (SID #11485720)

*Protocol Submitted to CPHS*

**Knowledge, Attitudes, and Practices of Cuban Parents  
Regarding Childhood Diarrhea and Dehydration**

**Nature and Purpose**

This is a study of the knowledge, attitudes and practices (KAP) of Cuban parents concerning childhood diarrhea and dehydration in Cuba. It is designed to provide insight into how Cuba has achieved such a dramatic decrease in morbidity and mortality from childhood diarrhea. The results of this project will be compared with the findings of a similar study conducted in Kingston, Jamaica during 1996-1997. Hopefully, Cuba's unique approach to ORT will provide other countries with some pointers on cost-effective methods to reduce the unnecessary deaths of children from diarrhea and dehydration.

**Subjects**

Parents bringing in children less than five years old will be recruited in the waiting rooms of health centers. Twenty-five of them will be bringing in children with acute diarrheal disease (N=25) and twenty-five of the parents will be bringing in children with non-gastrointestinal concerns (N=25). The parents recruited will be over eighteen years old.

**Recruitment**

Parents will be recruited in the waiting rooms of participating polyclinics after approval is received from the director of the polyclinic and the appropriate Cuban officials.

**Procedures**

If the parent consents to participate, semi-structured interviews will be conducted by researcher (Lela Bachrach) for 15-20 minutes and they will be tape recorded. The interview will be terminated when it is the parents' turn to have their child be seen by the physician.

**Benefits**

The benefits of this research will be on a societal level rather than to the individual subjects. It should be helpful in designing and implementing effective health education strategies for the prevention of the deaths of children from diarrhea-related dehydration. If Cuba's Diarrheal Disease Control Program has been as successful as it appears to have been based on statistics from the Pan American Health Organization, this research could provide the Cuban Ministry of Health with some favorable publicity.

### **Risks**

Some people may be uncomfortable talking about childhood diarrhea. If a parent seems ill at ease with the subject matter, the interview will be terminated.

### **Confidentiality**

All information collected, including tape recordings, during the research will be kept in a locked file. The key to the code of names of individual subjects will be kept in a separate locked file. No individuals will be identified in any publication.

### **Informed Consent**

When parents are approached in the waiting rooms, the nature of the project will be explained to them and they will be given the informed consent letter which is attached.

### **Financial Aspects**

Subjects will not be paid for participating.

### **Written Materials**

The semi-structured interviews will be based on questions from structured interviews conducted in Kingston, Jamaica from a similar project in 1996-1997. Please see attached questionnaires.

### **Clearances**

I have applied for a license from the U.S. Department of Treasury to travel to Cuba legally as an academic researcher. I will seek permission from the Cuban government to carry out this research before I start conducting interviews.

### **Contact Information**

If you have questions or comments, please feel free to contact me by....

telephone: (510) 666-8964  
fax: (510) 643-8771  
e-mail: lela@socrates.berkeley.edu  
mail: Lela Bachrach  
2528 Le Conte Ave.  
Berkeley, CA 94709-1143



UNIVERSITY OF CALIFORNIA, BERKELEY

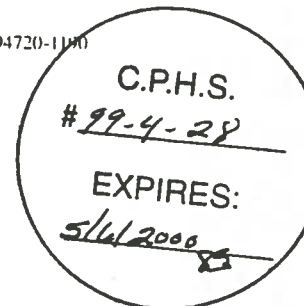
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DIVISION OF HEALTH AND MEDICAL SCIENCES  
SCHOOL OF PUBLIC HEALTH

570 UNIVERSITY HALL  
BERKELEY, CALIFORNIA 94720-1100  
TELEPHONE: (510) 642-5479  
FAX: (510) 643-8771



My name is Lela Bachrach. I am a medical student in the University of California at Berkeley and University of California at San Francisco Joint Medical Program in the United States of America.

I would like you to take part in my research on what Cuban parents know about childhood diarrhea and dehydration (when a child loses too much fluid) and what is done to take care of kids when they are sick. If you agree to take part in the research, I will ask to interview you here in the clinic waiting room if that is easy for you. I hope we can talk for about 15-20 minutes. Some of my questions may be of a personal nature, however I do not expect any risks or discomforts other than those arising from talking about childhood diarrhea. Hopefully, this research will help us understand how best to teach parents what to do for kids with diarrhea.

All that you tell me during the research will be kept confidential. If you agree to this interview, I would like to tape record our talk. I will store the tapes and my notes in a locked place. I will not use your name or identifying information in any reports of my research. You are welcome to review what I write to make sure that you are comfortable that no one could identify you from it. When this research is completed, I will dispose of my notes and the tapes in a secure fashion.

Your participation in this research is voluntary. Whether or not you decide to participate in this study will in no way change the care your child receives in this clinic today. You are free to refuse to take part, and you may refuse to answer any questions. You may stop the interview at any time.

If you have any further questions about this research, you can call me collect, Lela Bachrach, at (510) 666-8964.

Sincerely,

*Lela Bachrach*

Lela Bachrach

I have read this consent form and agree to take part in this research.

\_\_\_\_\_  
Signature

\_\_\_\_\_  
Date

I agree to have my interview tape-recorded.

\_\_\_\_\_  
Signature

\_\_\_\_\_  
Date



DIVISION OF HEALTH AND MEDICAL SCIENCES  
SCHOOL OF PUBLIC HEALTH

570 UNIVERSITY HALL  
BERKELEY, CALIFORNIA 94720-1190  
TELEPHONE: (510) 642-5479  
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julio, 1999

Mi nombre es Lela Bachrach y soy una estudiante de medicina en el programa combinado entre la Universidad de California en Berkeley y la Universidad de California en San Francisco Joint Medical Program en los Estados Unidos. Este cuestionario es parte de un estudio para mi tesis. Este estudio es diseñado para conocer más sobre los conocimientos, actitudes, y prácticas de padres. Esta información va a mejorar la atención medica al crear más conocimiento y sensibilidad en los doctores, enfermeras y otro personal de salud. Esto posiblemente ayudara a los profesionales a crear programas de educación para padres sobre este tema.

Aunque Usted no recibirá algún beneficio personal, los resultados posiblemente sean para mejorar el cuidado de niños al hacer la comunidad médica más alerta a las actitudes de la gente. Contestando las preguntas le llevara aproximadamente media hora de su tiempo. Usted no tiene que contestar todas las preguntas si no desea. En cualquier momento, usted puede decidir no continuar con la entrevista.

La información será usada para enseñanza y estudio. Si usted contesta las preguntas será prueba de su consentimiento y participación voluntaria. La entrevistadora mantendrá toda la información confidencialmente.

Si Usted cree que le causara algún daño, no tiene que participar. Si desea conocer más detalles sobre este estudio, por favor llame al 30-2196 hasta el 15 de julio, después puede llamar para cobrar en los Estados Unidos, a la Universidad de California en Berkeley al departamento de Health and Medical Sciences al (510) 643-5486.

¡Gracias por su participación!

Sinceramente,

*Lela Bachrach*

Lela Bachrach

He leído esta página y doy mi consentimiento a participar en esta encuesta.

\_\_\_\_\_  
Firma

\_\_\_\_\_  
Fecha

Esta entrevista puede ser grabado.

\_\_\_\_\_  
Firma

\_\_\_\_\_  
Fecha

*Questionnaire in Spanish*

**Cuestionario Sobre la Diarrea y la Deshidratación**

1. Número de identificación \_\_\_\_\_ Fecha \_\_\_\_\_
2. Lugar de la entrevista \_\_\_\_\_ Entrevistador(a) \_\_\_\_\_
3. ¿Cuál es su nombre? \_\_\_\_\_
4. ¿Tiene hijos por debajo de los cinco años?                      sí                      no
5. ¿Edades de los niños? \_\_\_\_\_
6. ¿Sexo?                                              femenino                      masculino
7. ¿Cuántos años tiene? (edad en su último cumpleaños) \_\_\_\_\_
8. ¿Está soltera?    en pareja/libre unión?    casada?    divorciada?    viuda?    otro?
9. Dirección \_\_\_\_\_
10. ¿Está trabajando?                      sin trabajo                      medio día                      todo el día
11. Ocupación (cuando tuvo su último empleo) \_\_\_\_\_
12. Educación: ¿Qué nivel de escolaridad tiene Usted? ¿Hasta qué grado estudió? \_\_\_\_\_  
Edad en que dejó la escuela \_\_\_\_\_

*En el hospital:*

- 
1. ¿Cuál es su relación con el niño?    madre                      padre                      tutor                      abuelo(a)                      otro
  2. Nombre del hijo \_\_\_\_\_
  3. Edad del niño \_\_\_\_\_                      Fecha de nacimiento \_\_\_\_\_
  4. ¿Sexo del niño?                      niña                      niño
  5. ¿Cuántos días ha estado el niño con vómitos? \_\_\_\_\_ ¿diarreas? \_\_\_\_\_ ¿fiebre? \_\_\_\_\_
  6. ¿Qué ha tomado el niño hoy? \_\_\_\_\_







sí no no lo sé

7. Cuándo su niño tiene diarrea y esta siendo amamantado, ¿debe dejar de amamantarlo?

sí no no lo sé

8. A los primeros síntomas de diarrea, ¿es más importante dar al niño mucho líquido o llevarlo al hospital?

sí no no lo sé

9. ¿La mayoría de las veces la diarrea desaparece por si misma?

cierto falso no lo sé

### Actitudes

1. ¿Tener diarrea es algo habitual en el crecimiento del niño?

en total desacuerdo \_\_\_ desacuerdo \_\_\_ no sé \_\_\_ de acuerdo \_\_\_ de total acuerdo

2. ¿Cualquier niño puede tener diarrea?

en total desacuerdo \_\_\_ desacuerdo \_\_\_ no sé \_\_\_ de acuerdo \_\_\_ de total acuerdo

3. A los primeros síntomas de diarrea, ¿debe llevar el niño al médico o puede cuidarlo Ud. misma?

en total desacuerdo \_\_\_ desacuerdo \_\_\_ no sé \_\_\_ de acuerdo \_\_\_ de total acuerdo

4. ¿Debe dejar de alimentar a un niño con diarrea?

en total desacuerdo \_\_\_ desacuerdo \_\_\_ no sé \_\_\_ de acuerdo \_\_\_ de total acuerdo

5. ¿Existen temporadas específicas para la diarrea?

en total desacuerdo \_\_\_ desacuerdo \_\_\_ no sé \_\_\_ de acuerdo \_\_\_ de total acuerdo

6. ¿La diarrea es el sistema que tiene el cuerpo para eliminar los gérmenes o comida en mal estado?

en total desacuerdo \_\_\_ desacuerdo \_\_\_ no sé \_\_\_ de acuerdo \_\_\_ de total acuerdo



7. ¿Los líquidos elaborados en casa pueden ser tan buenos como los del hospital para prevenir la deshidratación?

en total desacuerdo \_\_\_ desacuerdo \_\_\_ no sé \_\_\_ de acuerdo \_\_\_ de total acuerdo

8. ¿Debería el niño tomar laxantes durante la diarrea?

en total desacuerdo \_\_\_ desacuerdo \_\_\_ no sé \_\_\_ de acuerdo \_\_\_ de total acuerdo

9. ¿Es preferible darle a un niño con diarrea remedios caseros o medicamento de la farmacia?

en total desacuerdo \_\_\_ desacuerdo \_\_\_ no sé \_\_\_ de acuerdo \_\_\_ de total acuerdo

10. ¿Le gusta a su hijo el sabor de las sales de rehidratación?

en total desacuerdo \_\_\_ desacuerdo \_\_\_ no sé \_\_\_ de acuerdo \_\_\_ de total acuerdo

11. ¿Se supone que las sales de rehidratación cura la diarrea o los vómitos?

en total desacuerdo \_\_\_ desacuerdo \_\_\_ no sé \_\_\_ de acuerdo \_\_\_ de total acuerdo

12. ¿Le resulta fácil conseguir sobres de sales de rehidratación?

en total desacuerdo \_\_\_ desacuerdo \_\_\_ no sé \_\_\_ de acuerdo \_\_\_ de total acuerdo

13. ¿Puede las sales de rehidratación prevenir la diarrea en los niños?

en total desacuerdo \_\_\_ desacuerdo \_\_\_ no sé \_\_\_ de acuerdo \_\_\_ de total acuerdo

14. ¿La principal razón para dar a los niños las sales de rehidratación es para reemplazar los fluidos que ha perdido durante los vómitos y la diarrea?

en total desacuerdo \_\_\_ desacuerdo \_\_\_ no sé \_\_\_ de acuerdo \_\_\_ de total acuerdo



DEPARTMENT OF THE TREASURY  
WASHINGTON, D.C. 20220

Cuban Assets Control Regulations

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To: **Lela Rose Bachrach**  
2528 Le Conte Avenue  
Berkeley, California 94709

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\*\*\*\*\*SEE REVERSE\*\*\*\*\*

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Issued by direction and on behalf of the Secretary of the Treasury:

OFFICE OF FOREIGN ASSETS CONTROL

By *Steven I. Pinter* 5/4/99  
Steven I. Pinter, Chief of Licensing

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