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APPLIED COMMUNICATION TECHNOLOGY
PLAN FOR FURTHER ANALYSIS OF THE
DATA SETS FROM HONDURAS AND THE GAMBIA

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PLAN FOR FURTHER ANALYSIS OF THE
DATA SETS FROM HONDURAS AND THE GAMBIA

I. INTRODUCTION

In 1978, the United States Agency for International Development (AID) initiated a project (#931-1018) to apply state-of-the-art knowledge about communications and social marketing to selected child survival practices. The Academy for Educational Development was contracted by AID to implement the project under the name Mass Media and Health Practices (MMHP). Simultaneously, the Institute for Communication Research at Stanford University was contracted to evaluate the project.

From 1978 to 1985, the project developed a methodology for conducting public health education in developing countries to effectively reach large numbers of people and applied it in six project sites--Honduras, The Gambia, Ecuador, Peru, Swaziland, and Indonesia. The methodology integrates communications (particularly radio and graphic print materials) and social marketing with traditional channels of health education, training, and product distribution. It relies on the systematic development, testing, and monitoring of communication strategies, messages, and products to bring about positive changes in health behavior. The original country programs all focused on the promotion of oral rehydration therapy (ORT) and other key objectives of national diarrheal disease control efforts.

In September 1985, AID extended the project under a new name--Communication for Child Survival or HEALTHCOM. The Academy was contracted to administer HEALTHCOM for an additional five-year period and the Project's mandate was broadened to include additional countries and a range of other child survival technologies in addition to ORT. The Academy has subcontracted four institutions to assist with project implementation and evaluation--The Annenberg School of Communications at the University of Pennsylvania, Applied Communication Technology, Needham Porter Novelli, and PIACT/PATH. The project continues to be jointly managed by the Office of Education and Office of Health in AID's Bureau for Science and Technology.

HEALTHCOM's original work in Honduras and The Gambia focused primarily on ORT and the control of diarrhea among those most at risk, children under the age of five. Using mass media, combined with health worker training and simple print materials, rural women were taught what oral rehydration therapy is, how they could use it at home, and how to monitor their children's progress during episodes of diarrhea. Special emphasis was also given to feeding advice in an effort to break the vicious cycle of diarrhea and malnutrition.

Under the Stanford University evaluations of these efforts, large data sets were established through longitudinal studies conducted in both countries. The studies followed panels of families in each country for several years to measure the impact of the educational interventions on knowledge, practices, and health status.

This document sets out a plan for further analysis of these data by HEALTHCOM subcontractor Applied Communication Technology (ACT), which has been assigned responsibility for maintaining these data sets and continuing analysis of them. In the following sections ACT discusses:

- the questions to be addressed in further analysis,
- the products we will produce from this work,
- the strategy we propose to follow, and
- current activities in the analysis.

II. CONCEPTUAL STRUCTURE OF THE ANALYSES - - QUESTIONS FOR STUDY

The data will support a very wide variety of analyses about a program of this type and its impact. One of the first activities under the HEALTHCOM contract was to identify as many of these analyses and questions as possible through review of the final reports from Honduras and The Gambia, examination of the questionnaires, and, particularly important, consultation with communication and health experts. From these activities, ACT developed a long list of possible research questions in two major areas: questions about the campaign and questions about the effects of the interventions on health and nutrition (see Appendix A for this list).

The next step was to narrow down the list to one of a more manageable size and one that reflected the questions that are the most important and the most timely. ACT had a list of priorities for analysis; however, it was felt that input was needed from a much broader base of interest and expertise. For this reason, the list of possible questions was disseminated to others working in oral rehydration therapy (ORT) (physicians, health educators, and researchers). These individuals were asked to note the question areas and specific questions that they considered of greatest importance. These responses were compiled and a second list of high priority research questions was developed. A list of the individuals providing input is in Appendix B.

A. Priority Ranking of Research Questions

The question areas, in descending order of priority (marked by the largest number of people) are:

- 1) Maintenance of Knowledge and Behavior
- 2) Oral Rehydration Adoption and Use
- 3) Questions about the Model of Project Impact
- 4) Implications of ORS Use

- 5) Channels and Sources of Information
- 6) Audience and Context Characteristics
- 7) Feeding/Nutrition
- 8) Mortality

Within the larger areas, specific areas were also ranked according to the number of individuals who identified them as priorities. These are presented below in descending order of importance. Those questions which were marked by five or more people are identified with an asterisk.

The lists of questions were originally compiled without consideration as to whether the data bases could answer each and every question. We felt it was important not to put limits on people's thinking about what issues were most important to them. Even if it is not possible to answer some questions with the data base currently available, we may be able to include these questions in the resurveys.

After the research questions were generated, we made an assessment of how easily and how well each question could be answered with our data. We looked at relevance of the data (how well the questions in the interviews measured the constructs we were trying to measure) and quality of the data (e.g., whether there were data collection or coding errors, or whether there are enough responses over time to make an analysis effort worthwhile).

We used a scale to rank the likelihood of obtaining useful returns for the effort of examining each question. This is based on our knowledge of the data bases at this time. As we do more analyses, we will learn more about the variables. This scale goes from 1 to 3, 1 indicating that the question is only weakly worth pursuing because of problems with relevance and/or data quality and 3 indicating that the question is very worth pursuing. There is also a category "0," which indicates that we have no data to answer the question.

We have noted the preliminary rating of each question in brackets at the end of the question. Because of some differences between the two data sets, we have rated the questions separately for Honduras (H) and The Gambia (G).

B. Detailed Research Questions

1) Maintenance of Knowledge and Behavior

What is the pattern of ORS use over time?

*Is there sustained use of ORS and sustained feeding practice change?

Did mothers try ORS and then continue to use it for all cases, did they try and stop, did they try it and then use it for only some cases after first trial? [H-3, G-3]

What was the pattern of feeding behavior maintenance? What factors influence maintenance of feeding behavior (e.g., SES, season)? [H-2, G-2]

*Which mothers maintained behavior change?

What are the differences between mothers who only try ORS as compared to those who show sustained use? [H-3, G-3]

How long will mothers continue to use ORS even though it doesn't do what they expect (stop diarrhea)? [H-0, G-3]

Was there sustained knowledge of ORS and feeding instructions? What is the pattern of learning and forgetting? [H-2, G-3]

How does this relate to the intensity of the campaign to exposure? [H-2, G-3]

How fast did mothers start to forget? [H-2, G-3]

For whom does forgetting occur? Are mothers who have used ORS less likely to forget than mothers who have not used it? mothers who have used ORS more than once? mothers with higher levels of knowledge? [H-2, G-3]

How do social networks and social support influence adoption and maintenance of practice? Did sustained behavior cluster in groups? [H-1, G-2]

2) ORS Adoption and Performance

*What factors predict adoption of ORS (e.g., characteristics of the episode, the child, the mother, or the household)? [H-3, G-3]

*Accuracy and appropriateness of use.

What mistakes are mothers making in mixing and administering? [H-3, G-3]

Did mothers learn how to mix and administer ORS correctly? [H-3, G-3]

Are they mixing ORS in such a way that the solution is efficacious? What are the results of the analyses of the WSS solutions collected from Gambian mothers? [H-2, G-3]

Are mothers administering ORS correctly? How much are they giving? [H-2, G-2]

Are mothers seeking correct treatments? Are mothers choosing to give ORS when appropriate and going to the clinic when they should? [H-1, G-1]

At what point are mothers seeking treatment at the clinic? [H-1, G-1]

*What was the pattern of adoption of ORS? Did mothers try it and then stop, or did they try and continue to use it? [H-3, G-3]

*Did mothers use ORS for some cases and not for others? What are the characteristics of cases treated with ORS? with other treatments? Examples: child's age, sex, severity of the episode. [H-3, G-3]

Were the cases most in need of treatment with ORS given ORS? [H-1, G-1]

What is the set of actions or sequence of actions taken by mothers in response to diarrhea (e.g., use of ORS packets, home ORS, other liquids, feeding)? [H-2, G-2]

What is the impact of this type of intervention on other types of behavior?

Is ORS unique because it is a cost-less or low-cost innovation? Is the relationship between knowledge and practice different for ORS as opposed to

feeding or an innovation that requires more resources? [H-2, G-2]

How do the ORS use data from Honduras and The Gambia compare to results from other programs in other countries? How do they compare to the results of health education programs on other topics (e.g., feeding, breastfeeding, sanitation)? [literature]

3) Questions about the Model of Project Impact

The evaluation was predicated on a linear model of project impact that hypothesized the following chain of events:

Access to Communication Channels

Exposure to Campaign Messages

Learning of Campaign Content

Behavior Changes by Mothers

Health Status Changes in Children

Did the process really following these stages in a linear fashion, or is there evidence that the pattern was one of jumped stages or of recursive processes? [H-3, G-3]

Under what conditions does a mother turn her knowledge about ORS or feeding into practice? [H-2, G-3]

What is relationship between knowledge and attitudes and behavior change? [H-2, G-3]

What is the link between knowledge and behavior?

Do mothers who know change their behavior?

What triggers behavior change?

What is the pattern of relationships between successive steps? [H-2, G-3]

Is there a minimal threshold that must be achieved at each level in order for the next stage to show any change at all?

Does exposure lead to knowledge and behavior change (exposure to radio, to health workers, to Red Flag Workers, and to print)? [H-3, G-3]

How did contact with the locally-trained workers (Red Flag volunteers) influence the relationship? Did they make a difference? Did they provide a safety net?

4) Implications of ORS Use

What is the relationship between ORS use and nutritional status or growth? [H-2, G-2]

Did the nutritional status of children given ORS decline less than that of children not given ORS?

Did this occur for all children or only for those in families with certain characteristics (e.g., high SES)?

How does use of WSS or SSS compare to use of packets? use of other fluids? Is SSS better than soups or teas in preventing dehydration? What are the outcomes of home use of ORS? [H-1, G-1]

Oral rehydration therapy includes feeding as well as use of rehydration solutions. Do we see any evidence supporting Jon Rohde's view of laminating effects? Is the health status of children given both ORS and proper feeding better than those given neither or only one of these treatments? [H-2, G-2]

5) Questions about Channels Used in the Intervention and Sources of Information

*Did the channels used in the intervention (radio, interpersonal, and print) serve different functions? [H-2, G-3]

Did mothers who had mixing flyers maintain their knowledge longer than mothers without flyers?

Were mothers able to learn complicated skills from radio alone?

What was the role of each channel?

Did exposure to a specific channel have a greater effect on learning, behavior, or health status than another channel? [H-2, G-2]

What were mother's sources of information for special types of knowledge or behavior change? How did information diffuse? [H-2, G-2]

What is the relationship between exposure to each channel (or to a combination of channels) and knowledge or behavior? Is it linear? Does it reach a ceiling? [H-2, G-3]

Do the channels work together and, if so, how? Do they work together in an integrated way? Is there a minimum necessary combination of channels for effectiveness? [H-2, G-3]

6) Audience and Context Characteristics

Did the project have the same effects for all mothers in Honduras and The Gambia, or were there differential effects? [H-3, G-3]

Were all mothers equally influenced by the campaign messages? [H-3, G-3]

*What are the characteristics of:

those exposed;

those who learned;

those who changed their behavior;

those who didn't learn or change? (What are nonusers doing? Who are they?) [H-3, G-3]

What factors influence maintenance of knowledge and behavior? Who is adopting and then maintaining behavior? What are the characteristics of those who forget? [H-3, G-3]

Are mothers who know more about ORS or feeding more likely to adopt these practices? Are they more likely to continue them? Will mothers with minimal knowledge try a new practice and then stop?

What contextual characteristics help or constrain learning and behavior change? [H-3, G-3]

Does availability of ORS ingredients or foods constrain a mother's learning or practice? What is the effect of availability of ORS supplies (ingredients for WSS, distribution of packets)? [H-2, G-3]

Do the characteristics of the village make a difference? Do economic or time resources in the family influence adoption of ORS, feeding, or preventive behavior? [H-3, G-3]

7) Questions about Feeding/Nutrition

Did the pattern of feeding change over the course of the campaign? Was this related to the campaign? [H-2, G-2]

How did changes in feeding relate to diarrheal episodes and morbidity? [H-2, G-2]

What factors are important in changes in feeding practices? [H-2, G-2]

Who is doing what?

Who is learning?

Who is adopting and continuing new practices?

How do economic and demographic factors influence learning and practice?

Who breastfeeds and bottlefeeds?

Why did mothers in The Gambia maintain their loyalty to paps for feeding children during diarrhea? [G-0]

Did children of mothers who reported breastfeeding have fewer bouts of diarrhea or less severe cases? [H-2, G-2]

Did bottlefed children have more cases of diarrhea? [H-2, G-2]

Bottlefeeding in Honduran urban areas may be used as a supplement to other feeding of young children during diarrhea? Do we see a substitution of breast or bottle by solid foods or other liquids during episodes or are mothers still feeding milk and supplementing it with other foods and liquids? [H-2]

8) Mortality

Was there a change in mortality due to diarrhea during the interventions? [H-3, G-0] In the three years since the end of the intervention?

Can we use the pregnancy history data from The Gambia to assess diarrheal mortality rates? What can we do in the resurvey?

How can we better assess mortality rates from death registries in Honduras?

III. OPERATIONAL STRUCTURE OF THE ANALYSIS

A. Strategy for Choosing Research Issues

The basic objectives of the continued analysis are to refine our understanding of the entire intervention, to prepare analyses of issues that are of particular interest to specific groups, and to disseminate that information to a broad audience. Fulfilling these objectives will require the involvement of individuals from many disciplines as active participants in the analysis and presentation of information.

The involvement of many players has already proven quite successful in helping define research questions, and making choices about the first issues to pursue in the continued analysis. It has generated activity on five reports (described later) that will be of wide interest.

The nature of analysis and of working with diverse groups requires that flexibility be maintained to pursue promising dissemination opportunities. We will continue to work with professionals from outside the project in the development of additional analysis efforts. The interaction with them and the selection from among the opportunities will be guided by the prioritized list of questions presented above.

B. Products from the Analysis

The products of the continuing activity will be ten technical documents reporting the results of further analyses of the two data bases. These reports will be submitted at the rate of two per fiscal year. They will be prepared initially in a structure and format suitable for publication; they will subsequently be revised (if necessary) and submitted as conference papers or articles to peer-review journals.

It is impossible to guarantee that the submissions for publication or presentation at a conference will be accepted. At a minimum, however, the technical reports will be suitable for broader circulation.

The development of the research plan to date has generated several analyses that are of sufficiently high importance and interest that they can be identified as the first five of the technical papers. In keeping with the strategy of involving other

researchers, we have begun activity with several scholars in preparing the analysis. These papers are proposed as the first five of the required analyses under this part of the subcontract.

1. Maintenance of Knowledge

Judith McDivitt worked with Paul Touchette of the University of California-Irvine and Leslie Snyder of Stanford University on analyses examining the patterns of learning and forgetting in Honduras and The Gambia. This research looked at knowledge and use over time. The products expected to be produced will be a conference paper (presented at the ICA Conference in May 1986), a pamphlet about ORS maintenance (to be submitted to AED in July 1986), and an article to be submitted to a peer-review journal (expected completion date: December 1986).

Judith McDivitt and Paul Touchette will continue examining issues in the maintenance of ORS knowledge and use during the summer of 1986. These analyses are expected to be reported at the American Psychological Association Conference in September 1986.

2. ORS Adoption and Performance

Dennis Foote and Judith McDivitt have discussed with Reynaldo Martorell of Stanford University analyses to examine the factors predicting ORS use (characteristics of the child, mother, diarrheal bout, and household). This research will hypothesize a model of adoption and then test this model.

Data sets to be used in this analysis were prepared in May 1986. The analyses are expected to take place during the fall of 1986 with completion of a journal article expected in the winter of 1986. This depends on Dr. Martorell's schedule.

3. Model of Project Impact

ACT staff are working with John Farley and Rajeev Batra of the Columbia University Business School on a study of the relationship between exposure to PROCOSI and Litrosol adoption and the influence of contextual factors (such as SES) on this relationship. This work builds on a model they have been testing in other contexts. Refinement and merging of data sets is planned for June and

July 1986, after which the analysis will start. Expected completion of a journal article: winter 1986.

4. Audience and Context Characteristics

Dennis Foote, Judith McDivitt, and Douglas Storey have prepared an initial analysis examining users and nonusers to develop a user profile for Honduras, for use by AED in planning new HEALTHCOM activities. The results have been compiled in an interim report submitted to AED in June 1986. These analyses will be expanded at a later date and also performed for The Gambia.

These activities will result in a technical report and a conference or journal article. This work is expected to take place in FY 87 or 88.

5. Channels Used in the Interventions

Judith McDivitt plans to expand upon previous analyses of data from The Gambia examining the relationship between exposure and knowledge. The results suggest that radio can act as a substitute source of information for mothers without interpersonal sources of information. This needs to be examined in more detail in The Gambia and also analyzed for Honduras. This work is scheduled to begin in FY 87 or 88 and to result in a conference paper and/or journal article.

6. ORT: ORS and Feeding Practices

Judith McDivitt will work with Mark Rasmuson to develop a paper reporting analyses of the Honduran and Gambian feeding data for a panel on ORT at the American Public Health Association Conference on September 30, 1986

In addition to these six papers, we propose to continue developing collaborations with other professionals. As additional opportunities for collaboration are identified, they will be submitted to AED for review and approval as products of the continuing analysis.

APPENDICES

APPENDIX B

LIST OF INDIVIDUALS PROVIDING INPUT IN SETTING PRIORITIES FOR ANALYSIS

Robert Black, The Johns Hopkins University
Clifford Block, USAID
Elizabeth Booth, AED
Elayne Clift, AED
Richard Feachem, London School of Hygiene and Tropical Medicine
Dennis Foote, ACT
Deborah Helitzer-Allen, AED
Robert Hornik, University of Pennsylvania
Carl Kendall, USAID
Judith McDivitt, ACT
Jeffrey McDowell, University of Pennsylvania
Reynaldo Martorell, Stanford University
Anthony Meyer, USAID
Nancy Newton, PIACT/PATH
Chloe O'Gara, USAID
Mark Rasmuson, AED
Pamela Sankar, University of Pennsylvania
Donald Shepard, Harvard University
William Smith, AED
Diane Urban, AED

QUESTIONS FOR FURTHER STUDY:
A WORKING OUTLINE FOR GENERATING
A COMPREHENSIVE ANALYSIS PLAN FOR THE
MASS MEDIA AND HEALTH PRACTICES
EVALUATION DATA BASES
(Second Version Incorporating
Questions from December Meeting)

QUESTIONS ABOUT THE CAMPAIGN

- Process Questions
- Maintenance of Knowledge and Behavior Change
- Audience and Context Characteristics
- Mothers' Beliefs Relevant to the Campaign
- Channels Used in the Intervention
- Intensity and Other Characteristics of the Campaign
- The Role of Research in the Effectiveness of the Campaign
- Cost of the Intervention

QUESTIONS ABOUT INTERVENTION EFFECTS ON HEALTH AND NUTRITION

- ORS Adoption and Performance
- Implications of ORS Use
- Feeding/Nutrition
- Sanitation
- Immunization
- Morbidity
- Mortality

QUESTIONS ABOUT THE EVALUATION METHODOLOGY

SUGGESTIONS FOR THE RESURVEYS

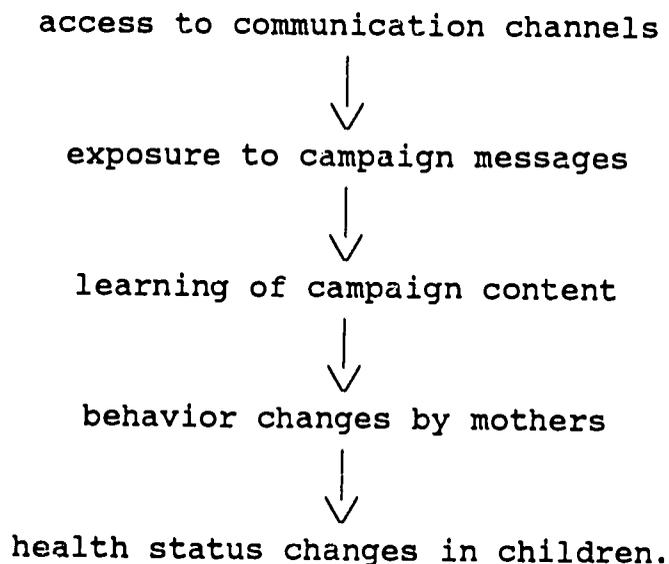
- Mortality
- Health Providers
- Observational Corroboration

QUESTIONS ABOUT THE CAMPAIGN

Process Questions

Commentary:

The evaluation was predicated on a linear model of project impact that hypothesized the following chain of events:



Possible Questions:

Did the process actually follow these stages in a linear fashion, or is there evidence that the pattern was one of jumped stages or of recursive processes?

What is the pattern of relationships between successive steps?

Is there a minimal threshold that must be achieved at each level in order for the next stage to show any change at all? Is the relationship linear for the successive amounts of change at the next level? over the entire range? over a part of the range?

At what point does the marginal gain at the next level start to decline in spite of constant inputs at the prior level?

What is the relationship between knowledge and attitudes and behavior change?

What is the link between knowledge and behavior?

Do mothers who know change their behavior?

What triggers behavior change?

Under what conditions does a mother turn her knowledge about ORS or feeding into practice?

What can we understand about behavior and attitude change as covered in the psychological and communications literature on attitudes and behavior?

Do attitude or knowledge change need to precede behavior change?

What can we add to the diffusion of innovations literature?

How many mothers learned directly from the campaign rather than from neighbors or other local interpersonal sources?

Was there a two-step flow of information to mothers?

How do the characteristics of what the mother has to learn influence her behavior (e.g., characteristics such as complexity of what has to be learned, having to learn proportions for WSS rather than just to mix a packet in a liter of water)? Compare the knowledge and behavior relationship for packet versus home-mix WSS.

Does exposure lead to knowledge and behavior change (exposure to radio, to health workers, to Red Flag workers, and to print)?

How did contact with the locally-trained workers (Red Flag volunteers) influence the relationship? Did they make a difference? Did they provide a safety net?

What is the impact of this type of intervention on other types of behavior?

Is ORS unique because it is a cost-less or low-cost innovation? Is the relationship between knowledge and practice different for ORS as opposed to feeding or an innovation that requires more resources?

Maintenance of Behavior

Commentary:

One of the difficulties in health education campaigns is maintenance of new knowledge or behavior change over time. It is important that mothers continue to use ORS and to feed properly during diarrhea, rather than just trying the new practices once or twice.

Possible Questions:

Was there sustained knowledge of ORS and feeding instructions? What is the pattern of learning and forgetting?

How does this relate to the intensity of the campaign? to exposure?

How fast did mothers start to forget?

For whom does forgetting occur? Are mothers who have used ORS less likely to forget than mothers who have not used it? mothers who have used ORS more than once? mothers with higher levels of knowledge?

Is there sustained use of ORS and sustained feeding practice change?

Did mothers try ORS and then continue to use it for all cases, did they try it and stop, did they try it and then use it for only some cases after first trial?

What was the pattern of feeding behavior maintenance? What factors influence maintenance of feeding behavior (e.g., SES, season)?

Which mothers maintained behavior change?

What are the differences between mothers who only try ORS as compared to those who show sustained use?

How long will mothers continue to use ORS even though it doesn't do what they expect (stop diarrhea)?

How much effort do implementors have to put in to get any effect? to get a sustained effect? At what point can messages be reduced or stopped?

How do social networks and social support influence adoption and maintenance of practice? Did sustained behavior cluster in groups?

Audience and Context Characteristics

Commentary:

It is typical in development projects that strong effects related to socio-economic and demographic characteristics of the audience are found. One set of claims made about the use of communication projects is that they tend to be more egalitarian, because access to communication is more evenly distributed in the population than is wealth or access to resources.

Possible Questions:

Did the project have the same effects for all mothers in Honduras and The Gambia or were there differential effects?

Were all mothers equally influenced by the campaign messages?

What are the characteristics of:

those exposed?

those who learned?

those who changed their behavior?

those who didn't learn or change? (What are nonusers doing? Who are they?)

What are the characteristics of early adopters, late adopters, nonadopters?

Do different audience characteristics interact with exposure to different channels?

Is health-worker contact more important for mothers of low SES than mothers of high SES?

Do mothers who are literate learn from the print materials more easily or quickly than mothers who are not literate?

What factors influence maintenance of knowledge and behavior?

Who is adopting and then maintaining behavior? What are the characteristics of those who forget?

Are mothers who know more about ORS or feeding more likely to adopt these practices? Are they more likely to continue them? Will mothers with minimal knowledge try a new practice and then stop?

What contextual characteristics help or constrain learning and behavior change?

Does availability of ORS ingredients or foods constrain a mother's learning or practice? What is the effect of availability of ORS supplies (ingredients for WSS, distribution of packets)?

Does access to a health center make a difference?
Does availability of water in the village influence a mother's adoption of preventive measures?
Do the characteristics of the village make a difference?
Do economic or time resources in the family influence adoption of ORS, feeding, or preventive behavior?

For feeding, who is doing what?

Who is learning?

Who is adopting and continuing new practices?

How do economic and demographic factors influence learning and practice?

Who breastfeeds and who bottlefeeds?

Mothers' Beliefs Relevant to the Campaign

Commentary:

Mothers' beliefs influence how they react to campaign messages.

Possible Questions:

What else can we learn from the data about mothers' problems in learning about dehydration? How do their beliefs about the function of ORS influence their behavior?

How can we convince mothers of the benefits of ORT?

What do mothers perceive as the benefits of ORT?

What do the mothers think about ORT? What do users think?

What are the semantics or the mothers' definitions of an episode (symptoms, age specificity, mothers' expectations)?

Recourse to care. What were mothers used to doing for diarrhea before the intervention?

Follow-up on product satisfaction. What do mothers find satisfactory about ORS? What gratification do continuing users get?

Channels used in the Intervention

Commentary:

Different channels were expected to fulfill different functions. Radio was expected to give information, legitimize, teach new skills, and reach people unreachable by other means. Print materials were expected to complement the basic information and provide a permanent source of information. Interpersonal

training was expected to provide in-depth amplification.

Possible Questions:

Campaign and health planners want to choose between the three channels. What can we say about this? Was it necessary to use all three channels, or is there any evidence that a smaller subset could have accomplished the same results?

Did the channels, in fact, serve different functions?

Did mothers who had mixing flyers maintain their knowledge longer than mothers without flyers?

Were mothers able to learn complicated skills from radio alone?

Under what circumstances can one channel serve the same function as another?

How do they work together? Do they work together in an integrated way? Is there a minimum necessary combination of channels for effectiveness?

Did exposure to a specific channel have a greater effect on learning, behavior, or health status than another channel?

What was the role of the other channels (besides radio) in Honduras?

What was the role of print materials? In Honduras, what was the role of the flyer versus the packet label?

What is the relationship between exposure to each channel (or to a combination of channels) and knowledge or behavior? Is it linear? Does it reach a ceiling?

Intensity and Other Characteristics of the Campaign

Commentary:

The Honduras and Gambia final reports show greater increases in knowledge and practice during times of intensive broadcasting and less steep increases or declines when messages stopped or were reduced.

Possible Questions:

What level of campaign intensity is required:

- to teach mothers?
- to maintain knowledge levels?
- to bring about behavior change?
- to maintain this change?

At what point does intensity of campaign efforts lead to diminishing returns? At what point can messages stop without leading to decreases in knowledge or practice?

How soon after cessation of messages does a drop in knowledge or practice occur?

How often do people have to be given reminders?

How much actual exposure to the campaign messages is required for changes in knowledge? in behavior? in health status?

How do the specific messages or elements of the campaign relate to knowledge and practice? More analysis should be done matching what was done during the intervention and what resulted.

What was the impact of specific spots?
Is the quality of the materials used related to their effectiveness?
Who is responding to which messages?

What is the relationship between messages and feeding practices?

The Role of Research in the Effectiveness of the Campaign

Commentary:

The project stressed the role of pre-program and formative research and extensive pretesting of messages.

Possible Questions:

Did monitoring and formative evaluation help increase the impact of the intervention?

What effect did monitoring every six months have in Honduras?

Did monitoring of the distribution channels have an effect?

What level of pre-program research is needed to design an effective intervention?

How much pretesting of materials is necessary?

Cost

Commentary:

An important issue in whether other countries will adopt the methodology used in the MMHP projects is the cost of such an intervention.

Possible Questions:

How much will an ORT campaign cost? Issue of overall cost versus cost-effectiveness.

How can we address the issue of recurrent costs?

QUESTIONS ABOUT INTERVENTION EFFECTS ON HEALTH AND NUTRITION

ORS Adoption and Performance

Commentary:

The most important objective of the interventions was the introduction of the use of ORS by rural mothers. The specifics of the adoption pattern and the degree of accuracy of the performance of these mothers can provide guidance for the design of other programs.

Possible Questions:

What was the pattern of adoption of ORS? Did mothers try it and then stop, or did they try it and continue to use it?

What factors predict adoption of ORS (e.g., characteristics of the episode, the child, the mother, or the household)?

Did mothers use ORS for some cases and not for others? What are the characteristics of cases treated with ORS? with other treatments? Examples: child's age, sex, severity of the episode.

Were the cases most in need of treatment with ORS given ORS?

What are the characteristics of mothers who adopted ORS for their children (SES, education, age, contact with health worker)?

Were characteristics of the child related to ORS use for the child (e.g., were less healthy or more malnourished children given different treatments than healthier, better nourished

children)?

Is there a seasonal pattern of ORS use? What are the relationships between this and other factors (such as types of diarrhea, mother's work load in different seasons)?

Did mothers learn how to mix and administer ORS correctly?

Are they mixing ORS in such a way that the solution is efficacious? What are the results of the analysis of the WSS solutions collected from Gambian mothers?

Are mothers administering ORS correctly? How much are they giving?

What mistakes are mothers making in mixing and administering?

Are mothers seeking correct treatments? Are mothers choosing to give ORS when appropriate and going to the clinic when they should?

At what point are mothers seeking treatment at the clinic?

What across-country comparisons (Gambia-Honduras) can be made?

Implications of ORS Use

Commentary:

During the work in Honduras and The Gambia, we found an overall decline in the nutritional status of children, probably due to the worsening economic situation in both countries.

Possible Questions:

What is the relationship between ORS use and nutritional status?

Did the nutritional status of children given ORS decline less than that of children not given ORS?

Did this occur for all children or only for those in families with certain characteristics (e.g., high SES)?

Is there a difference in level of health status between children whose mothers used ORS and knew how to make it versus those whose mothers used ORS but didn't know how to make it?

What is the relationship between change in feeding practice and nutritional status?

Do we see any evidence supporting Jon Rohde's view of laminating effects? Is the health status of children given both ORS and proper feeding better than those given neither or only one of

these treatments?

Feeding/Nutrition

Commentary:

A secondary objective of the interventions was to change the feeding and breastfeeding behaviors of the rural mothers. The experiences and results of this project have much to say to others about the methods and payoffs for inducing these changes.

Possible Questions:

Did the pattern of feeding change over the course of the campaign?

How did this relate to diarrheal episodes and morbidity?

Do feeding practices or change in them cluster by group?

How do feeding practices differ by age of the child? How did mothers respond to feeding messages for children of different ages?

Are there differences in feeding practices or response to the campaigns by SES?

Why did mothers in The Gambia maintain their loyalty to paps during diarrhea?

Did children of mothers who reported breastfeeding have fewer bouts of diarrhea or less severe cases?

Did bottlefed children have more cases of diarrhea?

Did children whose mothers adopted correct feeding practices show less decrease in health status than those whose mothers did not?

Suggestion: Look at feeding as a part of ORT rather than focusing so much on ORS. What is the pattern of ORT adoption?

Is there a difference in the evolution of a diarrheal bout (e.g., severity, duration) between children who are breastfed versus those who are bottlefed during the bout?

Is feeding during diarrhea associated with the severity or other characteristics of the episode?

Is there an association between giving the child liquids and the severity or other characteristics of the bout?

Bottlefeeding in Honduran urban areas may be used as a supplement

to other feeding of young children during diarrhea. Do we see a substitution of breast or bottle by solid foods or other liquids during episodes or are mothers still feeding milk and supplementing it with other foods and liquids?

What is the availability of bottles, cow's milk, powdered milk?

Sanitation

Commentary:

There is some evidence that personal and environmental sanitation changes will influence the prevalence and characteristics of diarrhea. For this reason, sanitation objectives were included in the interventions.

Possible Questions:

Did the children of mothers who reported preventive measures (hand washing, disposal of feces) have fewer bouts of diarrhea?

Do children who live in compounds with more sanitary facilities (latrines, etc.) show lower levels of diarrheal illness or other illnesses?

Immunization

Commentary:

Immunization is undertaken by developing countries in part because of the expectation that it will reduce morbidity and enhance growth. While immunization was not an objective of the main interventions, data was collected on immunization of some of the sample children.

Possible Questions:

Do these data provide any insight into the overall morbidity levels of children who are immunized compared to those who are not?

Can any family or situational characteristics be identified that impede or promote the likelihood of immunization?

Can a relationship be identified between nutritional status or growth and immunization?

Morbidity

Commentary:

The introduction of oral rehydration therapy is not expected to alter the levels of morbidity; however, the patterns of morbidity certainly bear identifiable relationships to other factors in the environment.

Possible Questions:

What do our data show about the relationship between gastrointestinal infection and growth?

What family or contextual factors are related to incidence or severity of diarrheal disease (e.g., housing, water supply, family education)?

What are the seasonal patterns in severity and incidence of diarrhea?

Mortality

Commentary:

The measurement of mortality and of changes in mortality proved to be one of the most difficult parts of the evaluation. This experience should provide useful lessons for future work.

Possible Questions:

Was there a change in mortality due to diarrhea during the intervention? In the three years since the end of the intervention?

What are realistic expectations for achieving changes in mortality? morbidity? health status?

What methods can be used to study mortality?

How can we better assess mortality rates from death registries?

QUESTIONS ABOUT THE EVALUATION METHODOLOGY

Commentary:

The primary method used in the evaluation of the interventions was repeated surveys of a large sample of mothers, supplemented by observations of behavior.

Questions:

- What is the credibility of survey results?
How can we know what mothers are actually doing rather than what they say they are doing?
What are health workers actually doing?
How can we measure the accuracy of the fieldworkers' assessments of the severity of an episode?
- How valid are the measures we have used in the analyses? Suggestion: test the validity of the measures.
- How can panel data influence program direction?
- Are there other measurement techniques that could be used?

SUGGESTIONS FOR THE RESURVEYS

Commentary:

Some of the discussion during the HEALTHCOM meeting centered around what questions had not been asked during the MMHP surveys and what kinds of data were not available.

Suggestions:

Mortality

Look into using country-wide mortality statistics (look at the methods used in the Egypt project)

Collect more information on women's pregnancy history and relate them to the data collected during the intervention.

Collect mortality figures from hospital rehydration wards.

Health Providers

Do a survey of health workers and physicians.

What are people in the medical community thinking and doing?

Do health workers use ORS? Do they recommend it to mothers?

What was the effect of training on health workers?

What is the level of packet availability and use in Gambian clinics?

Observational Corroboration

Find ways to corroborate self-reported behavior, such as observing mothers.

APPENDIX B

LIST OF INDIVIDUALS PROVIDING INPUT IN SETTING PRIORITIES FOR ANALYSIS

Robert Black, The Johns Hopkins University
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Elizabeth Booth, AED
Elayne Clift, AED
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Carl Kendall, USAID
Judith McDivitt, ACT
Jeffrey McDowell, University of Pennsylvania
Reynaldo Martorell, Stanford University
Anthony Meyer, USAID
Nancy Newton, PIACT/PATH
Chloe O'Gara, USAID
Mark Rasmuson, AED
Pamela Sankar, University of Pennsylvania
Donald Shepard, Harvard University
William Smith, AED
Diane Urban, AED