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**Communication for Child Survival**

**HEALTHCOM Project**

**Final Report**

**Part II**

Report of the Evaluation Activities carried out by the  
Center for International, Health and Development Communication  
Annenberg School for Communication  
University of Pennsylvania

March 1991



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Office of Health and Office of Education  
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University of Pennsylvania, Applied Communications Technology, Needham Porter Novelli, and PATH

## CONTENTS

INTRODUCTION .....	1
CENTRAL JAVA .....	3
Evaluation Activities .....	3
Evaluation Results .....	4
ECUADOR .....	10
Evaluation Activities .....	11
Evaluation Results .....	12
Results of the Diarrheal Disease Program .....	14
Institutional Development .....	15
GUATEMALA .....	18
Evaluation Activities .....	18
Baseline Evaluation Results .....	18
JORDAN .....	20
Evaluation activities .....	20
Evaluation Results .....	21
LESOTHO .....	26
Evaluation Activities .....	26
Evaluation Results .....	27
Results for Immunization .....	29
Institutional Development .....	29
NIGERIA .....	31
Evaluation Activities .....	31
Baseline Evaluation Results .....	32
PAPUA NEW GUINEA .....	33
Evaluation Activities .....	33
Evaluation Results .....	33
PHILIPPINES .....	35
Evaluation Activities .....	35
Evaluation Results .....	36
WEST JAVA .....	46
Evaluation Activities .....	46
Evaluation Results .....	47
ZAIRE .....	52
Evaluation Activities .....	52
Evaluation Results .....	53

<b>SUPPORT FOR WORLD HEALTH ORGANIZATION ACTIVITIES</b> .....	57
Brazil (1989) .....	57
Ethiopia (1990) .....	57
Guatemala (1990) .....	57
Pakistan (1990) .....	58
Philippines (1988-1990) .....	58
<b>MINIMAL EVALUATION SITES</b> .....	60
Malawi .....	60
Mexico .....	60
Paraguay .....	60
Peru .....	61
Swaziland .....	61
<b>APPENDIX</b> .....	62
<b>ENDNOTES</b> .....	66

## INTRODUCTION

The Health Communication for Child Survival (HEALTHCOM) project was carried out from 1985 through 1990 to assist developing countries in promoting the widespread use of effective child survival strategies. The program worked with national and local governments in 17 countries using a research-based public health education methodology to change health behavior related to treatment of diarrhea (particularly use of oral rehydration therapy), immunization, breastfeeding, family planning, and Vitamin A supplementation. The activities in each country included conducting pre-program research, developing and testing of communication strategies using various mixes of mass media and interpersonal channels, implementing the communication activities, and monitoring and evaluation.<sup>1</sup> HEALTHCOM was sponsored by the Office of Health and the Office of Education within the Bureau for Science and Technology of the U.S. Agency for International Development (USAID) and was administered by the Academy for Educational Development (AED).

In 1985, the Center for International, Health and Development Communication (CIHDC) at the Annenberg School for Communication, University of Pennsylvania, was subcontracted by AED to carry out summative evaluation activities in HEALTHCOM project sites.<sup>2</sup> The major goals of the evaluations were to assess the impact of the interventions on health knowledge and behavior, to provide research-based information to guide decisions about the interventions and about policy, and to examine institutionalization of the HEALTHCOM methodology. Another major activity was to assist in the diffusion of research findings and of information about the HEALTHCOM methodology.

During the course of the HEALTHCOM project, CIHDC designed and implemented impact evaluations in Central Java, Ecuador, Jordan, Lesotho, the Philippines, West Java, and Zaire. In these sites at least two (and often more) surveys were carried out with large samples of mothers or caretakers of young children. In Lesotho, the Philippines, West Java, and Zaire, health providers were also surveyed. Other evaluation activities included narrative interviews with health department and project staff about the history and institutionalization of the project methodology and collection of archival materials. CIHDC staff also provided assistance in the design and implementation of formative evaluation activities in four sites and gave presentations and training sessions on evaluation methods in-country as requested.

In Guatemala and Nigeria, baseline surveys were carried out and findings reported, but evaluation activities were terminated before post-intervention data were collected. A small narrative case study was carried out in Papua New Guinea, and CIHDC participated in minimal evaluation activities in Malawi, Mexico and Paraguay. CIHDC also completed the final reports of earlier research by the Mass Media for Health Practices project in Peru and Swaziland.

From 1988 through 1990, CIHDC through HEALTHCOM collaborated with the World Health Organization on research activities related to correct case management of diarrhea, breastfeeding, and acceptability of oral rehydration solutions. These activities were implemented in Brazil, Ethiopia, Guatemala, Pakistan, and the Philippines.

Analysis and reporting activities were a major part of CIHDC activities under this contract. After collecting baseline data, the staff sent formal or informal reports of the findings to HEALTHCOM for use in developing the intervention programs; after all data collection was complete, a final report was prepared for each major site. Other dissemination activities included the production of ten Field Notes; over 30 presentations, papers, and articles; and two Special Reports (see the Appendix, which also lists the final evaluation reports).

The following sections summarize the major evaluation activities and findings for each site -- Central Java, Ecuador, Guatemala, Jordan, Lesotho, Nigeria, Papua New Guinea, the Philippines, West Java, and Zaire. These sections are followed by descriptions of the activities carried out in collaboration with the World Health Organization and evaluation activities in sites where minimal evaluation took place -- Malawi, Mexico, Paraguay, Peru, and Swaziland.

## CENTRAL JAVA<sup>3</sup>

The HEALTHCOM activities in Central Java were part of a larger USAID-funded project called ROVITA (Rehidrasi Oral dan Vitamin A), which was a cooperative effort of the Department of Health, Diponegoro University, and Helen Keller International. The primary objectives of the program in Central Java were to increase Vitamin A capsule coverage of children between one and five years old during twice-yearly capsule distribution months and to increase mothers' use of oral rehydration therapy during their children's cases of diarrhea. The communication activities included training health workers and volunteers, and developing and disseminating of training manuals, radio spots, and banners displayed in prominent places in the villages.

### EVALUATION ACTIVITIES

The evaluation of the communication activities in Central Java was a cooperative effort by the CIHDC staff, the ROVITA and HEALTHCOM staffs in Central Java, and Survey Research Indonesia, a market research firm based in Jakarta. CIHDC staff made four trips to Central Java to help plan and carry out the evaluation activities (surveys and narrative interviews with project staff) and to report on current findings. CIHDC had major responsibility for analyzing data, producing a number of interim reports to provide early feedback and to help in planning future phases of the program, and completing a final evaluation report.

The design for the impact evaluation consisted of two surveys in one of two experimental regencies (Demak) and in a control regency (Rembang). The first survey was carried out in October 1988 (after one round of Vitamin A capsule activities) and a second survey in October 1989 (after three Vitamin A distribution months). Since true baseline data could not be collected prior to the Vitamin A capsule distribution in August 1988, a control regency was chosen to allow a tentative assessment of the effects of the earlier Vitamin A activities in the intervention regency. Vitamin A capsule distribution and related communication activities continued beyond the original contract, and a third survey was conducted by ROVITA in October 1990. Thus, these findings should be viewed as interim results in an ongoing program.

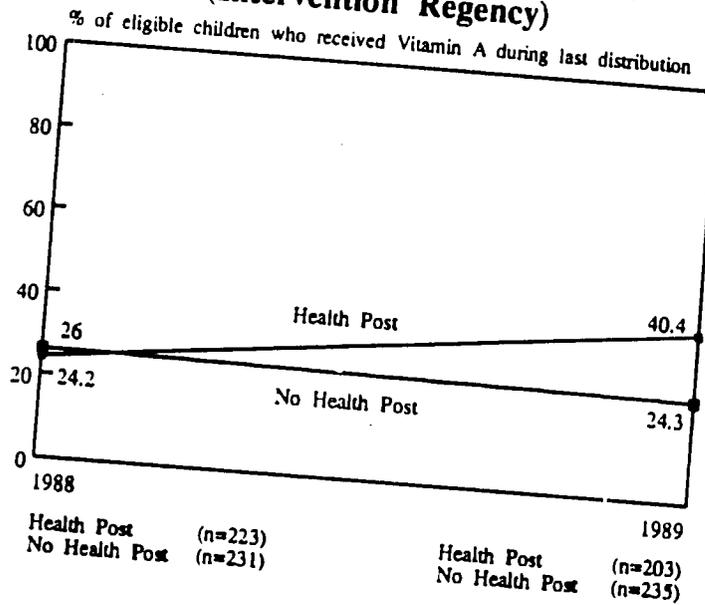
The sampling strategy was designed to yield a systematic random sample for each survey of approximately 800 mothers with children below the age of five from 50 geographic clusters. The mothers were interviewed in Javanese or Indonesian by Survey Research Indonesia staff using a questionnaire that covered knowledge and practices concerning diarrheal diseases and Vitamin A capsules, background characteristics of the mother and her household, mass media exposure, access and exposure to the health services, and exposure to the project messages. In 1988, a total of 799 mothers were interviewed and in 1989, 791 interviews were completed.

## EVALUATION RESULTS

### Results for Vitamin A Capsules

**Vitamin A Capsule Coverage.** Vitamin A capsule coverage of eligible children (those between one and five years old) increased significantly (from 24.2% to 40.4%) in intervention communities in which there was a monthly health post, the primary location where Vitamin A capsules were distributed (see Figure 1).<sup>4</sup> There was no change in intervention communities without a health post or in the control area. Together, these findings provide evidence that the program had a positive impact on Vitamin A capsule coverage in communities with a health post.

**Figure 1**  
**Vitamin A Coverage in Communities**  
**With and Without a Health Post**  
**(Intervention Regency)**



The increase in coverage cannot be attributed to exposure to the mass media components of the campaign. Overall, access and exposure to the radio messages and banners was low and did not increase during the year of intervention activities. In addition, there was little significant change in mothers' knowledge about Vitamin A capsules — where and when to get them, the ages at which children should get them, and whether only healthy or only sick children should be given a them.

Vitamin A capsule coverage was significantly higher among children whose mothers had more exposure to the health system. Among mothers who had ever been to a health post, those who attended more regularly were more likely to have received a Vitamin A capsule for their child. However, overall contact with health workers did not change during the year; thus we cannot conclude that the increase in coverage was due to

**an increase in health post attendance.** In fact, the low use of the health posts (in 1989, only 26% of mothers reported attending the health post within the previous two months) was a barrier to increasing Vitamin A capsule coverage.

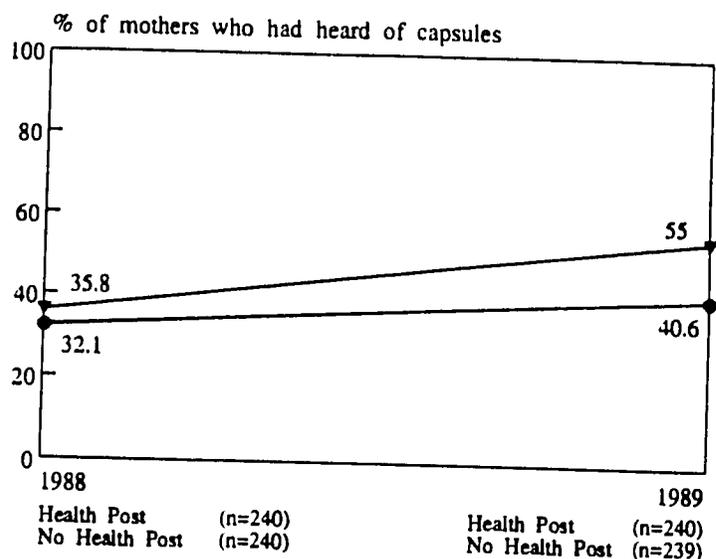
Low use of the health posts was partly a function of lack of access (having no post in one's community) or lack of information about where the post was and what day and time it was open. In general, a health post is held at a temporary location in the community one morning a month. When asked how they would know about the location and timing of the health post, the majority of mothers said they expected to hear from the village staff or over the loudspeaker.

By far the highest proportion of Vitamin A capsule coverage was among children living within five minutes of a health post located in their community (53% coverage). Children living more than five minutes from the nearest health post (whether in their community or not) and those living in a community without a health post had lower coverage levels (approximately 25% and 32%, respectively). The loudspeakers and the individuals publicizing the opening of the monthly health post may have reached only mothers within a limited radius of the post. It is also possible that the staff did not cross over the boundaries of a neighboring community to inform mothers of the presence of the health post.

There was some indication that the Vitamin A capsule distribution system improved between 1988 and 1989, which may have accounted for some of the increase in coverage. A larger proportion of mothers who went to the health post during the distribution month in 1989 reported receiving a Vitamin A capsule than in 1988. In addition, more mothers reported receiving Vitamin A capsules at home from a volunteer in 1989.

***Awareness of Vitamin A Capsules.*** Awareness of the term "kapsul Vitamin A" increased significantly among mothers in the intervention regency, from 34% in 1988 to 47.8% in 1989. The increase in awareness occurred primarily in communities with a health post (see Figure 2).

**Figure 2**  
**Awareness of the Term "Kapsul Vitamin A"**  
**in Intervention Regency Communities**  
**With and Without a Health Post**



Exposure to the radio messages and having seen the Vitamin A banner were significantly associated with mothers having heard the term "kapsul Vitamin A." Exposure to interpersonal sources (immunization of children and regular attendance at the health post) was also significantly associated with awareness, but having a health post in the community was not.

**Conclusions.** Overall, the study found that a major constraint to increasing Vitamin A capsule coverage in Central Java was access — both to services and to information.

Capsules are available only one morning a month and only at health posts or from health volunteers. Increasing the number of distribution points and/or increasing the number of days Vitamin A capsules are available would help to increase overall coverage of eligible children in the province.

Radio, visual materials and health workers can play a role in increasing awareness of Vitamin A capsules. However, the impact of these channels will be limited by their reach: none of them was used by a majority of the mothers that can best reach the largest number of women. To further increase program impact, it is important to explore the use of other channels that will be able to provide mothers with specific information about the time and location of the Vitamin A capsule distribution in their local area.

## Results for Oral Rehydration Therapy

The Oral Rehydration Therapy (ORT) activities in Central Java were carried out in three stages. In the first phase, mothers were told to give their children more fluids during diarrhea. In the second and third phases, continued feeding and use of Oral Rehydration Solution (ORS) were added. Because the second phase was still underway in October 1989, the survey in 1989 focused on mothers' behavior and knowledge related to giving fluids during diarrhea.

**ORT Behavior and Knowledge.** The percentage of mothers who reported giving their children with diarrhea more than usual to drink increased from 39% in 1988 to 56% in 1989 in the intervention regency (see Table 1). However, a significant increase was also seen in the control regency, and the difference in responses between the two regencies at each time point was not statistically significant. This suggests that the increase in correct behavior was due to factors other than the ROVITA diarrhea campaigns.

	<i>Intervention Regency</i>		<i>Control Regency</i>	
	<i>1988</i>	<i>1989</i>	<i>1988</i>	<i>1989</i>
Gave child more to drink during last case	38.9% (n=370)	55.5%* (n=401)	44.7% (n=244)	58.8%* (n=258)
Said child with diarrhea should be given more to drink	45.0% (n=480)	60.3%* (n=479)	46.7% (n=319)	63.8%* (n=312)
*Difference between 1988 and 1989 significant at $p < .05$ .				

There was a significant increase in knowledge about giving liquids during diarrhea between 1988 and 1989, but again in both the intervention and the control regencies. On the whole, knowledge about the danger of diarrhea and the need for liquids was quite high by 1989. Approximately 80% of mothers in both regencies said diarrhea was dangerous for young children, and around 60% said children need more to drink during diarrhea.

**Campaign Exposure.** Overall, only a small proportion of the mothers in the intervention regency seemed to have been exposed to radio messages about diarrhea. There was a significant (but small) increase in having heard messages about diarrhea at all (from 18% to 26%) and having heard messages in the last two weeks (from 4 to 12%), during which the second -phase feeding messages were being broadcast. Eight percent of the mothers in the intervention regency were able to name the child featured in the radio spots.

Although mothers in the intervention area showed evidence of some exposure to the campaign broadcasts, on the whole, the radio exposure figures are similar for mothers in both intervention and control regencies. The most frequently heard radio messages for both samples were about Oralit (the ORS promoted in Indonesia), not about giving more to drink or continuing foods (the most recent ROVITA messages). The data suggest that in both regencies other information besides that provided by ROVITA was broadcast during this time.

Mothers in the intervention and control areas also had similar levels of exposure to interpersonal channels and reported hearing similar information from health workers. The majority of mothers who had heard about diarrhea from a health worker (at a health center or a health post) remembered hearing about Oralit (ORS) or water/sugar/salt solution (SSS), not about drinks in general. This may be because health workers stressed Oralit more, or because mothers were more likely to remember the name of a special mixture than an injunction to give more of everyday drinks.

*Conclusions.* Although there were significant increases in giving more liquids during diarrhea and in knowledge about diarrhea among mothers in the intervention regency between 1988 and 1989, we cannot conclude that these increases were the result of ROVITA activities. Similar increases were also seen in the control regency. There is slight evidence that the ROVITA campaigns spilled over into the control area. However, the findings suggest more strongly that other educational or promotional activities were taking place in Central Java in addition to the ROVITA mass media messages and training.

### **Institutional Development**

The HEALTHCOM methodology includes pre-program research to understand the audience and context, strategy development and planning, strategy and message testing, integrated use of multiple channels, monitoring, and evaluation. On the whole, the members of the ROVITA team had learned the concepts and skills necessary to apply the methodology in future activities. In particular, they had adopted the methodology's orientation toward the audience, the need for strategy development, and the importance of pretesting. Some team members were applying parts of the methodology in their other work. Original research (pre-program research, monitoring, and evaluation) was considered important, but a luxury that might not be affordable in the future. Overall, the methodology was considered by the Indonesian participants to be expensive and labor-intensive, and team members envisioned scaling back in future applications of the methodology. HEALTHCOM may want to focus some attention on where the methodology can be scaled back and where it must be followed more strictly.

Although the methodology had been accepted and used by the individual team members, it had not been incorporated into the routine of either the health department or Diponegoro University at the time the interviews for this assessment were conducted. ROVITA was a semi-autonomous entity with strong links to the health department and university bureaucracies. This allowed the project to carry out its activities

more efficiently and with greater cooperation among the different groups, but it also made the project activities "special" and limited full participation in all phases of the methodology primarily to the project team members. Team members discussed two constraints to use of the methodology in the future. First, lower-level staff in the health department (particularly the health educators at the regency level) lack understanding of the methodology and the skills to use it. Second, at the national level, there is a lack of understanding of and commitment to social marketing, particularly in terms of providing the time and money to carry out the different activities. Since these interviews were carried out in early 1990, there have been signs of greater commitment at the national level. The national Department of Health committed time and donor funds to applying the health communication approach to combat Vitamin A deficiency in all of Central Java, and then nationally.

## ECUADOR<sup>5</sup>

The project in Ecuador, PREMI (Plan de Reduccion de Enfermedad y Muerte Infantil), was a milestone in the HEALTHCOM program and, indeed, in child survival efforts worldwide. It was a sustained national program focusing on four major child survival technologies (immunization, diarrhea, growth monitoring, and breastfeeding). It married the technologies of social marketing to both the mobilization strategies of UNICEF and to the strategies for routine maintenance of health practices. It brought together the Ministry of Health with the National Institute of the Child and Family (INNFA), to realize its goals. It put a great emphasis on research about the programs clients and about the functioning of the health system as the basis for its programming.

PREMI was directed through the Ministry of Health and INNFA, a non-profit, semi-autonomous government agency directed personally by the First Lady of Ecuador, Doña Eugenia Cordovez de Febres Cordero. INNFA provided child and family services, especially to less privileged sectors of the population. Detailed planning for PREMI mobilizations was carried out by a technical commission made up of the PREMI coordinators at INNFA, the Ministries of Health and Education, and USAID. A national executive committee, presided over by the First Lady, approved guidelines, strategies, and plans prepared by the commission. It was made up of high-level operational representatives of INNFA; the Ministries of Health, Education, Social Welfare, and Defense; and representatives of Congress, the National Bishops' Conference, the medical schools and the media. Donor agencies USAID, UNICEF, and the Pan American Health Organization were also represented.

PREMI promoted complete immunizations and appropriate diarrheal disease treatment, including the use of ORS packets and, to a lesser extent, growth monitoring and breastfeeding, between October 1985 and June 1988. A major feature of its activities was *jornadas* (vaccination days) when children were to be vaccinated and, often, could receive ORS packets and be weighed. This complemented continuous promotion on child survival themes during the rest of the period, through both the health system and the mass media.

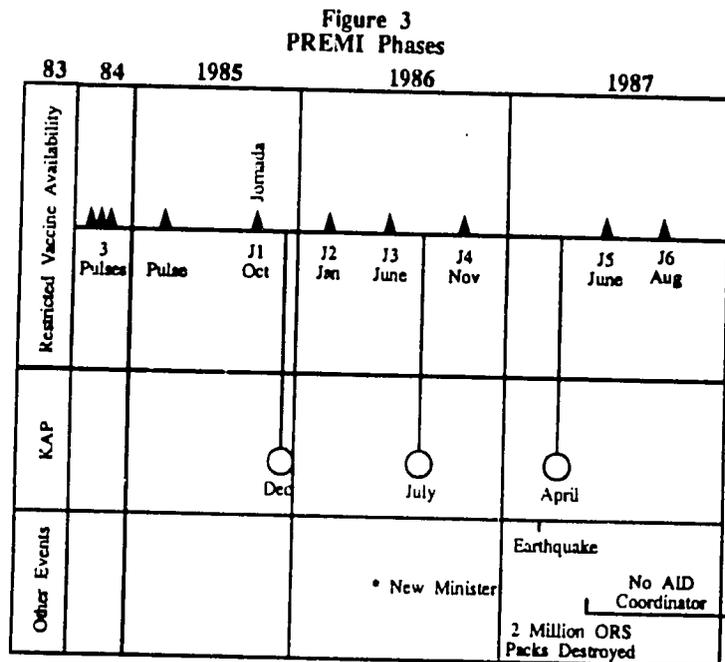
Communication was a central feature of PREMI's social marketing methodology. Messages about the PREMI campaign were carried on mass media of all types as well as through interpersonal channels. The Department of Communication and Social Marketing of INNFA prepared and distributed various materials, and new promotional materials for the campaign were continuously produced. For each *jornada* there were new materials, and between *jornadas* support materials were put into circulation. The materials produced fell into several categories: those to promote a specific date or activity, such as a *jornada* or a contest; educational materials for mass distribution; and support materials for interpersonal promotion and educational activities.

## EVALUATION ACTIVITIES

As part of PREMI, HEALTHCOM in Ecuador sought to affect immunization rates, diarrheal disease treatment, breastfeeding, and growth monitoring. The communication activities included radio and television campaigns and other formats to support ongoing programs and vaccination days. On vaccination days there were supporting social mobilizations, and throughout the PREMI period there were efforts to increase supplies of ORS packets, vaccination services, new health cards and other supportive activities. There were also efforts to retrain some health workers and other health personnel.

Evaluation activities supported under HEALTHCOM focused on the effects of the communication activities but complemented other research and evaluation undertaken under other USAID funding. The research was directed by a resident CIHDC staff member who both supervised the summative evaluation activities and served as continuing advisor to the PREMI program and its communication component, interpreting survey research results and designing and implementing formative research activities.

Among the many research activities undertaken by CIHDC and others were sample surveys of the knowledge, attitudes and practices of caretakers; in-depth interviews of mothers; interviews with health workers and pharmacists and a study of diarrhea morbidity and mortality. The schedule of the major caretaker surveys and major PREMI activities is displayed in Figure 3.



Most of the analysis reported here relied on caretaker surveys done in July 1986 and April 1987. The July study included 2,702 and the April study 1,400 caretakers. Each caretaker was asked for vaccination cards for each of her children under the age of five. The samples were gathered through two-stage cluster

procedures based on the national census sampling frame, with census areas chosen in proportion to population and caretakers randomly sampled within census areas. The entire country was represented, except for the lightly populated Eastern Region.

While all three surveys were designed to represent the population of Ecuadorian caretakers of children less than five years old, the first survey was less successful and used a substantially different instrument than the second and third surveys. The second and third surveys were the primary sources for most evaluation results.

## **EVALUATION RESULTS**

PREMI had some striking successes and some failures. Its obvious successes were in realizing a massive education and promotion effort, in sharply increasing immunization rates, and, probably, in moderately increasing use of ORS. Its failures were in falling short of somewhat unrealistic goals (particularly in diarrheal treatment) and, of greater moment, in producing little long-term change in child survival efforts by the Ministry of Health.

### **Results for Immunization**

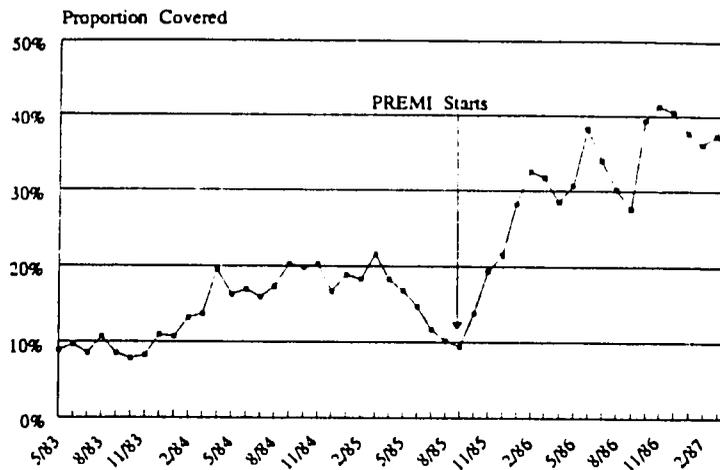
The PREMI immunization program involved seven focused vaccination campaigns (*jornadas*) between October 1985 and May 1988. *Jornadas* were preceded to varying degrees by mass communication promotion encouraging participation (just before each *jornada*); social mobilization at the local level by Ministry of Health staff and members of other governmental and non-governmental institutions; and, to ease access to vaccination, the organization of special immunization sites in addition to the normal health facilities.

The evaluation addressed three issues. First, did the PREMI program affect immunization rates? Second, were its effects equitably distributed across the socioeconomic spectrum? Third, what was the process through which PREMI's communication activities affected vaccination behavior?

***Immunization rates.*** The answer to the first question was yes, although not to the degree sought. The original objective of the immunization program was to increase coverage of children under one year old from 48% to 80%. That objective was not met, in part because it assumed an unrealistic level of baseline coverage.

Before the start of PREMI, the 12 month complete coverage rate (relying on dated, card evidence) was around 15% for children who reached their first birthday. The comparable proportion was 35% for children who reached their first birthday 11 months or more after the initiation of PREMI (see Figure 4).

**Figure 4**  
**Complete Coverage at 12 Months by Birthdate (N=1501)**



Both of those numbers, however, understate the true coverage rates because they relied on dated, card evidence. A best-picture estimate of April 1987 concurrent coverage (including self-report as well as card data) put 12-month complete coverage at 43%. Thus the card-based, dated estimate (35%) was about two-thirds of the best-picture estimate. If we make a similar correction for the pre-PREMI estimates, the best-picture shift would be from 20% to 43% coverage of children under one year old.

Coverage of children under one year old is the ideal criterion because it captures on-time behavior. However, an alternative, community-reported standard is 12- to 23-month-old coverage. For children 12 to 23 months old in April 1987, the combined estimate for coverage was 66%.

In addition, by April 1987, even most of those left incompletely covered at 18 months were on their way to complete coverage by approximately two years of age. Of children over 27 months old, 80% to 90% were completely covered.

Overall, PREMI led to a major increase in coverage. All estimates suggested that complete coverage doubled and that coverage was achieved at an increasingly early age.

**Equity of Impact.** The second question, about equity of effects, also deserves a positive answer. Prior immunization programs had left poorer Ecuadorans with a much lower rate of coverage than better-off Ecuadorans. This changed with the introduction of PREMI. The substantial increases of PREMI were shared at least equally among social groups and possibly were relatively larger among the worse-off groups. The poorer groups continued to have substantially lower vaccination rates than better-off groups, but, they did not lose ground as overall rates increased, and they possibly gained somewhat.

**Process of Behavioral Effects.** The third question about the process of effects requires the most complex answer. The evidence is a mix of comparisons over time and cross-sectional analysis, did not provide the definitive answers that might have come from quasi-experimental data. Nonetheless, the data were consistent with all three of the proposed paths through which the PREMI communication program might have affected its audience:

1. Individuals were exposed to PREMI messages, learned new information from that exposure, and turned that knowledge into better vaccination practice.
2. Communities with greater levels of exposure to PREMI messages also had higher aggregate levels of knowledge about vaccination. And, at least for individuals with less knowledge about vaccination, community knowledge replaced individual vaccination knowledge in producing better practice.
3. Community level of practice predicted individual level of practice, over and above the effects of individual characteristics like education, wealth, knowledge of vaccination and individual exposure to PREMI messages. Indeed, community average behavior was the single best predictor of individual behavior.

We were unable to sort out the influences on community behavior because many community characteristics (including average education, wealth, vaccination knowledge and exposure to PREMI messages) were highly intercorrelated. Thus the data were consistent with an argument that PREMI influenced individual behavior both because it taught individuals and because it changed the climate in the community as a whole.

#### **RESULTS OF THE DIARRHEAL DISEASE PROGRAM**

PREMI produced an increase in ORS use from around 5% to around 20% of all cases of diarrhea. This increase occurred in the context of sharp increases in ORS awareness, trial, and knowledge about how to mix it. By 18 months into the PREMI program, virtually everyone was aware of ORS, 60% had tried it, and nearly 80% could prepare it accurately (of the 95% of those who said they knew how to prepare it).

There was substantial evidence that PREMI efforts were responsible for the sharp increases in use as well as in knowledge. A major force was the distribution of packets at vaccination *jornadas*, but other efforts, including mass media promotion and actions of health clinics, also mattered.

ORS was used more readily in more serious cases. For example, 15% of children whose cases lasted one day were given ORS, which was half the rate (30%) for children whose cases had lasted four or more days. Nonetheless, many cases described as being substantially serious were not given ORS. There were two major constraints on higher use of ORS.

First, about 30% of all cases were said to have been treated at a clinic. Only about one-third of those cases were given ORS. If all cases brought to the clinic had been given ORS, the ORS use rate for the whole sample would have been nearly 35% instead of 22%.

Second, nearly 60% of all cases were treated at home, and about one-quarter of them used ORS. However, almost all caretakers who used ORS had obtained it either from a clinic (presumably on a previous visit) or from a PREMI *jornada*. With the end of PREMI *jornadas* and their free distribution of packets, and with the apparently inconsistent distribution of ORS through clinics, one can only assume that home use of ORS was likely to decline further after April 1987. Lack of easy access to ORS packets for home use was a sure constraint on its increased use. This constraint likely exacerbated the apparent social inequity in ORS use. While the level of prior trial of ORS was about equal across social groups, last-case use was highest among the most advantaged class (33% vs. 18%).

To some extent home use of ORS was supplemented by other forms of ORT, including various teas. However, one-half of home treaters were not using any form of ORT.

The PREMI program's efforts in promoting improved treatment of diarrheal disease were a success; they greatly increased the stock of information and experience with ORS in the Ecuadoran population, and they increased overall use from 5% to 20%. On the other hand, PREMI's efforts may have fallen short in that they did not create stable change in the practices of the health facility personnel or establish adequate access to ORS packets on a permanent basis for home use. The promotion side of the PREMI program was an outstanding success; the attempt to modify the infrastructure of treatment and of distribution was not.

#### **INSTITUTIONAL DEVELOPMENT**

How well did this novel mix of social marketing and traditional Ministry of Health procedures work from an institutional perspective? Some elements of the mix worked, although the mismatch between these two approaches limited other success. The two-pronged institutional structure that allowed the two approaches to operate undermined their integration and thus institutionalization of the PREMI activities.

Massive mobilizations integrated the actions of INNFA and of the Ministry of Health: the mass media and other forms of promotion and the vaccination and ORS packet delivery worked together over several *jornadas*. For all the disappointment associated with later failures to match promotion with service delivery, there was a great deal of successful coordination.

The major area where PREMI fell short of realistic goals due to a mismatch between INNFA and the Ministry of Health was in achieving only a 20% rate of ORS use. Earlier we pointed to two major concerns: evidence that only one-third of the cases taken to the clinics were given ORS, and the failure to establish any stable mechanism for supplying ORS packets for the many cases treated at home. There was a substantial

mismatch between INNFA's aggressive social marketing of ORS and the Ministry of Health's adaptation of its diarrheal disease policies and practices. While distribution of packets at *jornadas* and heavy and effective mass media promotion produced quite high levels of awareness, mixing knowledge and trial, the Ministry practices at clinics and policies for continued use of ORS outside the clinic differed.

When we turn to the issue of long-term institutionalization of this social marketing capacity, the institutional tensions loom much larger. Essentially the social marketing effort was entirely located in INNFA; it received both the funds and the technical advice to support this area. Although those activities were run within the broad PREMI framework and reflected many joint meetings with Ministry of Health personnel, operationally they were carried out in isolation. Also, it was generally believed that the entire social marketing approach, with its heavy emphasis on mass media promotion was ideologically alien to many Ministry personnel, particularly in the health education department. This department historically had emphasized smaller scale community-level promotion efforts; their failure to be incorporated into, or be funded by, or obtain any credit for, the social marketing efforts of PREMI did little to win them over.

A major goal in the institutionalization process was the integration of social marketing into the Ministry of Health. This plan never materialized. In the third year of the program, INNFA decided to reduce its involvement with PREMI. This decision, made at a time of pressure in the Ministry of Health to take leadership, was logical but it destroyed the possible link between INNFA and the Ministry of Health for the transition.

What would have happened if the entire PREMI program had been housed in the Ministry of Health and the First Lady and INNFA had not been involved? Would the communication program still have been effective? Would it have been better integrated with ongoing Ministry service delivery? Might its perspectives and some of its actions have continued to be part of the routine Ministry of Health operating system? Or, would the dynamic and novel efforts have been swallowed by the Ministry's traditional bureaucracy, which only would have sacrificed the successes documented here?

The things that made INNFA's promotion effort work -- its autonomy, its ability to act in ways not customary in traditional ministries, its focus and single-mindedness, its affiliation with the First Lady -- were also the things that got in the way of its integration with the Ministry of Health. It is not clear that the goal of institutionalization could have been accomplished without sacrificing the goal of having an effect.

Thus it is easy in retrospect to lament the institutional division between INNFA and the Ministry of Health. Nonetheless, PREMI did accomplish a great deal, even with its two-headed organizational structure.

As this story of PREMI and its communication effort ends, we repeat the need to balance, on the one hand, failure to develop social marketing and communication capacity for the long term and speculation that it might have been done better some other way, with a recognition of substantial successes during its years of operation. The potential for public health communication seems clearly documented, even if the ways of permanently institutionalizing are not.

## **GUATEMALA<sup>6</sup>**

The primary objectives of the HEALTHCOM program in Guatemala were to increase knowledge of and demand for immunization and oral rehydration services among caretakers of children under the age of five and to improve the delivery of such services by Ministry of Health personnel. The HEALTHCOM project worked toward meeting these goals in collaboration with the Promotion Unit of the Ministry.

### **EVALUATION ACTIVITIES**

The role of CIHDC was to provide technical assistance in designing and supervising the summative evaluation of the immunization and ORT activities and, in cooperation with the Ministry of Health staff, carrying out the analysis of the data. CIHDC staff made nine trips to Guatemala to design and plan research activities, develop sampling strategies, train Ministry of Health personnel in evaluation, analysis and reporting techniques, and review research findings. In 1987, Ministry and HEALTHCOM personnel came to Philadelphia to review the findings of the baseline survey, particularly those with implications for the design of the intervention. After this meeting a baseline report was written that focused on recommendations for the communication program. In 1990, CIHDC staff developed the design for a new baseline and follow-up study to evaluate a newly planned ORS promotion program. In collaboration with the Ministry of Health and the Institute for Nutrition in Central America and Panama (INCAP), a new questionnaire was developed and training of interviewers was completed. This survey was cancelled at the request of the USAID Mission just before it was to go to the field.

The design of the evaluation was comprised of pre and post surveys of caretakers of children under five. CIHDC worked with INCAP, the Primary Technologies for Health (PRITECH) project, and the Ministry of Health to design a baseline survey, which was carried out by INCAP in February and March 1987. The questionnaire covered treatment of the last case of diarrhea, knowledge about diarrhea and treatment options, communication channels, immunization, and background characteristics.

The sample for the baseline survey was selected to provide a representative sample of all 22 departments of the country and included a two-stage sampling procedure using random and cluster sampling procedures. The sample included 9,187 mothers or caretakers of children under five years old.

### **BASELINE EVALUATION RESULTS**

#### **Results for Communication Channels**

Radio had by far the largest reach of any communication channel in Guatemala, reaching three-fifths of the population on a daily basis, and was determined to be an appropriate channel for reaching the target audience. Almost all listeners preferred and listened to Spanish-language stations. People mentioned

listening to many different radio stations at many times of the day and to many different types of programs. Because of this, it was recommended that radio broadcasts be frequent and distributed over a range of stations and programs.

A large proportion of the population was not in contact with clinic personnel (one-third had been to a clinic in the last month and half in the last six months). However, clinics were used by a substantial portion of the poorest groups and were the major source of ORS packets. Clinic staff were recommended as only one channel in a multi-channel effort. Local health volunteers were not active in the great majority of communities. Midwives were present in most communities, but contact with them was infrequent.

### **Results for Oral Rehydration Therapy**

Approximately half the respondents recognized the ORS packet, but few used ORS. Nine percent of all last cases were reportedly treated with ORS. Mothers who took their children for treatment reported that they were rarely told to use ORS. Twenty-nine percent of last cases taken to the government medical system, 16% of those taken to private physicians, and 4% of those taken to pharmacies were given ORS. These findings suggested the need for a major effort to legitimize ORS among health professionals and to encourage pharmacies to market it.

### **Results for Immunization**

The baseline survey found reasonably high coverage rates for DPT, polio and measles (75% to 85% of children by their second birthday). However, children were not getting immunized on time (according to the World Health Organization recommendations). There was some evidence that the high vaccination levels were the residual results of intensive vaccination days held in 1986 and that routine immunization services were not covering children adequately. It was recommended that the Ministry of Health develop an approach combining routine service with regular heavy mass media promotion and mobilization. This might encourage participation in regular vaccinations while not overloading the health system.

## JORDAN<sup>7</sup>

The HEALTHCOM project in Jordan was implemented by the Noor al Hussein Foundation (NHF), a non-governmental organization linked to the queen of Jordan, in collaboration with AED and a number of public and private institutions in Jordan. The project was on a smaller scale than other HEALTHCOM projects (e.g., in Ecuador, Indonesia, or Lesotho), reflecting a lower level of funding (through buy-ins) by the USAID Mission and other institutions in Jordan. As such, it provides an interesting look at what can be accomplished with limited local funding and technical assistance.

The project addressed child spacing, early initiation of breastfeeding and waiting until the child's fourth month to supplement breastfeeding. In October 1988, HEALTHCOM and the Ministry of Health sponsored a national seminar on breastfeeding for health and other professionals. Radio and television messages on breastfeeding were developed and broadcast from March to May 1989, and again in March and April 1990. Television spots were developed on child spacing but were never aired because of the sensitive nature of the topic.

### EVALUATION ACTIVITIES

The impact evaluation activities in Jordan were carried out by an evaluation specialist at the NHF. The role of CIHDC was to provide technical assistance when requested. CIHDC staff made three trips to Jordan to assist in planning and carrying out survey activities and to interview project staff and people from collaborating institutions about the history and process of the project. In addition, NHF staff made two trips to Philadelphia to work with CIHDC researchers to design the evaluation and analysis plans and to develop a plan for monitoring the communication activities. The CIHDC staff produced three reports related to HEALTHCOM in Jordan: two reports of baseline findings, and a final narrative case study report that focused primarily on institutional issues.

The impact evaluation design consisted of two surveys -- one before (1988) and one after (1990) the communication activities. In addition, the baseline survey was supplemented with more informal, open-ended interviews with a small sample of women from the same geographic areas. The women were interviewed in Arabic using a questionnaire that covered knowledge, attitudes and practices related to breastfeeding and child spacing, sources of information, media use, demographic characteristics, and exposure to the campaign.

The goal of the sampling procedure was to obtain representative samples of approximately 1,000 women 35 years old or younger who currently had a child two years old or younger. This was the group for which messages about breastfeeding and child spacing would be most relevant. The sampling methods included cluster and random sampling techniques. In 1988, 930 women were interviewed (and another 33 were interviewed in depth), in 1990, 966 women were interviewed.

## **EVALUATION RESULTS**

The primary objectives of the project in Jordan were to carry out a successful health communication campaign and to institutionalize the ability to use the HEALTHCOM methodology to carry out health education in Jordan. This evaluation showed that the project generally succeeded in its first goal, but showed less success in its goals related to institutionalization.

The project staff developed a high-quality, effective communication program following the recommended methodology, despite administrative and technical delays that effectively shortened a 24-month project to 15 months. Strategy and message development were based on formative research and also on the results of the evaluation baseline. Campaign spots were pretested and revised. After the start of the campaign, the stations were monitored to ensure spots were being broadcast and a study was carried out to monitor mothers' exposure to and understanding of the campaign messages. A second evaluation survey was carried out after the end of the campaign.

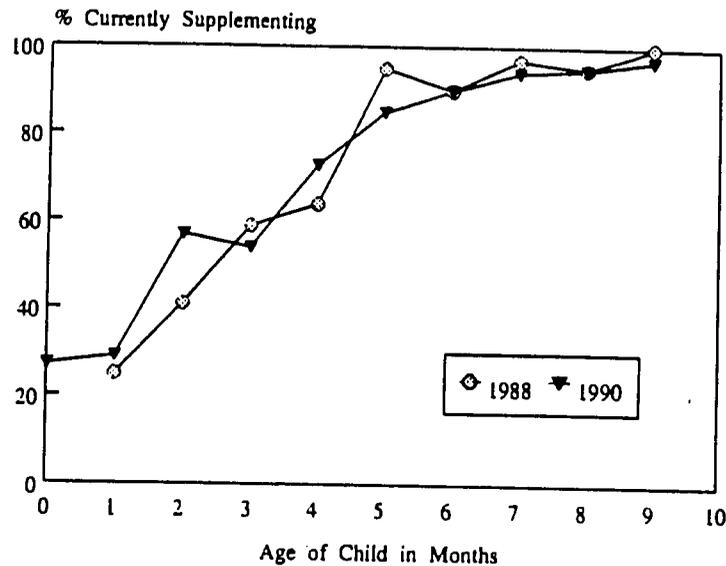
The breastfeeding campaign focused on initiation and supplementation. Mass media messages and the breastfeeding seminar promoted initiation of breastfeeding within six hours of the child's birth and delaying supplementation of breastfeeding until the child reached four months of age.

### **Results for Breastfeeding**

Initiation of breastfeeding within six hours after birth increased significantly during the campaign, but only among mothers who gave birth in a public hospital (from 43% to 69%) or at home (from 42% to 67%). Among mothers giving birth in a private hospital, initiation within the first six hours increased only slightly (from 17% to 25%). Knowledge about correct breastfeeding initiation increased to very high levels. After the mass media campaigns, correct responses to all four questions measuring knowledge about initiation and colostrum increased from 41% to 71%.

Two measures of supplementation behavior showed different results. Comparing the exclusive breastfeeding status of children of different ages in 1988 and 1990 showed essentially no change in mothers' supplementation behavior (see Figure 5). Large proportions of mothers were still giving supplements to children one to three months old. However, when mothers who were already supplementing were asked at what age they had started doing so, 60% of mothers in 1990, compared to 47% in 1988, said they had started supplementing at four months or later. These responses may be exaggeratedly high; mothers may have reported what they knew to be correct behavior rather than what they actually did. The increase in reported supplementation behavior was accompanied by large increases in mothers' knowledge about supplementation of breastfeeding.

**Figure 5**  
**Breastfeeding Supplementation**  
**(% Supplementing at Different Ages)**



Exposure to the mass media campaign was high. Ninety-four percent of the mothers said they had heard the song played in the radio and television spots and, of these women, 79% correctly recalled the picture shown along with the song. Eighty-nine percent of mothers said they had seen short messages on Jordan TV about breastfeeding and 69% reported having heard short messages on Radio Jordan in which a woman doctor answered questions about breastfeeding.

### **Results for Child Spacing**

No impact evaluation results are available for the child-spacing campaign, because the materials developed were never broadcast. From the start, there were difficulties with child spacing as a topic. At the time, Jordan had no national family planning policy and there was some resistance to the topic at the top levels of the Ministry of Health. Child spacing was also generally controversial, and the topic received a certain amount of negative press during the project. As an institution linked to the queen, the NHF was very careful about promoting politically or culturally sensitive activities.

One lesson to be learned from this experience is the importance of local participation in the choice of topics to be addressed. Child spacing seems to have been chosen primarily by the USAID Mission and AED who found it an appropriate topic, but the local participants (NHF and the Ministry of Health) had other priorities and felt that child spacing was too controversial.

Baseline data on knowledge and behavior related to child spacing were collected in 1988. Fifty-seven percent of the mothers in the sample had a last-birth interval of less than two years (the minimum recommended space). Forty percent claimed to be using a method to space pregnancies at the time of the interview and another 16% said they had used a method in the past. Twenty-nine percent of the women were currently using modern contraceptive methods. Fear of side effects and lack of a husband's approval of child spacing were significantly negatively related to use of any child spacing method. Lack of knowledge about where to go for child-spacing information or services was not a likely explanation for low use of contraceptives.

The women surveyed generally had a positive attitudes toward child spacing. The majority wanted to space their children two or more years apart (34%) or wanted no more children (43%).

The data suggested that there was need for child-spacing services and information in Jordan. The women generally had positive attitudes to spacing children, but were not using any child-spacing method. Besides fear of side effects and lack of husband's approval for child spacing, a third constraint at the time of the baseline survey that was addressed during the course of the two years by another USAID-sponsored project, was the relative lack of public child-spacing services.

### **Institutional Development**

The two primary goals for institutionalization in Jordan were to train the staff at the NHF and at collaborating institutions in the HEALTHCOM methodology and to ensure the continued use of the methodology for health communication in Jordan.

*Training in the HEALTHCOM Methodology.* The major strategies for teaching people the methodology were to provide on-the-job training through implementing a health communication campaign and to carry out formal training sessions or workshops. Technical assistance was provided on a continuing basis by the resident advisor, with ongoing specialized assistance in message development and production from the Center for Development Communication in Egypt and in evaluation from CIHDC. The primary beneficiaries of on-the-job training were the project staff at the NHF and the media production team (primarily in production skills).

Due to its limited budget, the HEALTHCOM project planned a small formal training component, relying primarily on hands-on training to teach the methodology, supplemented by short workshops on specific topics. The formal training activities conducted were five workshops on parts of the methodology, a national seminar on breastfeeding, and special sessions to train focus group leaders. As it became apparent that more training was expected and needed, USAID and AED committed more funds and technical assistance to formal training activities in the second year of the project.

The project was partially successful in reaching its goal of teaching individuals from a number of organizations how to use the HEALTHCOM methodology. Parts of the methodology -- pretesting, use of focus groups, and some formative research for decision-making -- have been learned and adopted by various project participants. However, only two individuals (project staff at the NHF) have a clear sense of the methodology as a whole and are capable of following most of the steps. If both these individuals leave the NHF (one already has), the institution will no longer have the capacity to carry out communication projects that follow the methodology. This is a continuing problem in the institutionalization of new methodologies throughout the world.

One constraint to institutionalization of the methodology in Jordan was time. What had been conceived as a 24-month project became a 15-month activity. This created pressure to finish the communication materials rather than allowing HEALTHCOM staff to take the time necessary to fully involve the other members of the team in the day-to-day activities or teach them through experience.

A second constraint was insufficient formal training relative to the needs of the personnel and organizations involved. Although the project expected learning to take place primarily through on-the-job training, formal training was a priority among the participants.

On the whole, the evidence suggests the need for careful attention at the beginning of such a project to what resources already to support project activities (specifically in terms of skills related to the methodology) and where and for whom training is required. In addition, the time required for formal and informal training must be included in the budget and the schedule. In recommending improvements for future projects of this type, the majority of Jordanian participants suggested making a greater investment in training and incorporating training activities into the project plans earlier and in a more systematic way.

*Development of a Health Communication Team.* The training strategy gathered a team of people to work together to learn and implement the methodology. This team included representatives from different institutions involved in health education and promotion: the NHF, the Ministry of Health, universities, other governmental and non-governmental organizations, and public and private sector producers. One of the roles of the NHF was to develop and coordinate this team.

Overall, the project did not succeed in developing a lasting, coordinated health communication team. Although communication and research activities were generally a cooperative effort, the level of coordination was not as high as the U.S. and Jordanian participants had expected. In particular, the Ministry of Health was expected to be a major collaborator. When interviewed in 1990, the NHF staff tended to view participants from the Ministry and other organizations in a supporting project role, rather than as active and equal collaborators. Members of most of the participating institutions had expected to be more fully involved than proved to be the case.

Perhaps the largest constraint to creating an effective team was the tension between developing a good campaign and coordinating with others in a limited time frame. The project staff was burdened by the need to complete high-quality communication activities within relatively short time frames.

One question asked of the project participants was whether the project should have been located at the NHF, a non-governmental organization, or at the Ministry of Health, as is more common in such projects. The majority discussed this question in terms of the goals of the project.

The NHF was seen as better able to meet the goal of creating a health communication campaign based on the methodology within the short time frame of the project. Participants cited the NHF's greater flexibility and its ability to cut through bureaucratic red tape as a result of its prestige and location outside the general government bureaucracy. However, participants almost unanimously agreed that the project should have been located at the Ministry of Health in order to ensure greater continuity and sustainability in the future, the second major goal of the project. The strengths of the Ministry were in its experience and authority in health matters and in its mandate to carry out health education. The HEALTHCOM project objectives more closely matched the ongoing goals and responsibilities of the Ministry than those of the NHF. In addition, the Ministry's network of hospitals and health centers could have added a complementary interpersonal component to the campaigns.

Again, there is the tension between accomplishing the project activities on time and institutionalizing the methodology. Ensuring a sustainable program that can and will use the HEALTHCOM methodology requires time -- time to train individuals in the methodology and time to work through the steps of the methodology with them so they gain experience and self-confidence -- and may necessitate in a simpler campaign of lower technical quality. The competing demands of HEALTHCOM's two goals -- producing an effective communication activity (one that brings about change in knowledge and behavior in the target audience) and institutionalization or continuity -- need to be carefully considered in planning, funding, and implementing similar projects in the future.

## LESOTHO<sup>a</sup>

The objectives of the HEALTHCOM project in Lesotho were to increase the overall capacity of the Health Education Division (HED) of the Ministry of Health to produce quality health education materials, to promote vaccination of children and the use of ORT for diarrhea, and to teach HED staff how to use the HEALTHCOM methodology in health education. Project activities included the training of some HED staff in the HEALTHCOM methodology, in materials production, and in qualitative research; production of training materials for health worker training in ORT and the Expanded Programme on Immunization (EPI); production and distribution of print materials on diarrhea, ORT and EPI; production of a series of radio programs on diarrhea; and the production of teaching modules about ORT, EPI, child spacing and AIDS for primary school teachers.

### EVALUATION ACTIVITIES

The evaluation by the CIHDC staff was conducted in close collaboration with the staff of the HED, one or more of whom was involved in each research activity. These activities included a qualitative study of knowledge of diarrhea and immunizations among women, a survey of knowledge and use of SSS and of ORS packets by village health workers, and two large sample surveys of mothers of children under five years of age. The results of the qualitative survey were presented several times to medical audiences in Lesotho by the Resident Advisor. The survey of village health workers was undertaken at the special request of the heads of the Diarrheal Disease Control Division and Family Health, both concerned about the workers' use of ORS packets. A separate report about the use of SSS and ORS by village health workers was submitted to the Ministry of Health in June 1990.

The evaluation relied heavily upon the results of the two surveys -- baseline (November 1987) and follow-up (March 1990) -- for evidence of changes in the use of ORT for diarrhea and in immunization coverage. Indicators of ORT knowledge and use were the proportion of mothers who knew why SSS and ORS were used, the proportion who knew how to mix SSS, and the proportion who used SSS or ORS for a recent case of diarrhea. Evidence about immunization was the coverage rates for children 12 to 23 months old. Evidence about improved capacity to produce materials and to utilize HEALTHCOM methodology came from a review of project documents and interviews with Ministry of Health and HED staff.

Each survey questioned more than 1,000 women about their knowledge of diarrhea and ORT and about the immunization status of their children. The sample was obtained by randomly selecting forty clusters from a cumulative list of all households in the country and interviewing 25 to 30 women in each cluster. A report of the baseline survey findings was sent to the HED for distribution within the Ministry of Health in April 1988. Subsequently two reports based on the second survey were written and sent to the HED for distribution to Ministry officials: one focusing on the second survey alone was submitted in May 1990, and the final evaluation report was submitted in September 1990.

## EVALUATION RESULTS

### Results for Oral Rehydration Therapy

While there were only slight increases in the proportion of mothers who knew about the effects of SSS and how it should be mixed, there were substantial increases in the percentages of mothers who gave treatment at all, and in those who treated episodes of diarrhea at home. Since the most common home treatment was SSS, these increases resulted in overall increases in the use of ORT. Table 2 and Table 3 summarize these changes for recent cases of diarrhea (cases that occurred less than one month before the interviews).

<b>TABLE 2 TREATMENTS AT HOME AND AT HEALTH FACILITIES</b>		
<i>Treated</i>	<i>1987</i>	<i>1990</i>
At all	58%	75%*
At home	48%	72%*
At health facility	23%	30%
	n=261	n=288
* Difference between 1987 and 1990 significant at $p < .05$ .		

Table 2 show that the proportion of diarrheal episodes that received some sort of treatment increased substantially, from 58% of recent cases in 1987 to 75% in 1990. Thus a higher proportion of women decided to treat episodes of diarrhea in 1990 than in 1987. Most of this change occurred in the proportion of cases treated at home. This change suggests that women were more aware of diarrhea as an illness in need of treatment in 1990 than in 1987 (for the proportion of cases judged as very serious was the same in both surveys).

<b>TABLE 3</b>		
<b>SSS AND ORS USE AT HOME AND ELSEWHERE</b>		
<i>Treatment Given</i>	<i>1987</i>	<i>1990</i>
SSS at home	36%	49% *
ORS at home	1%	9% *
SSS at health fac.	5%	7%
ORS at health fac.	5%	12% *
SSS/ORS anywhere	42%	69% *
	n=261	n=288
* Difference between 1987 and 1990 significant at $p < .05$		

Table 4 shows significant increases in the use of both SSS and ORS packets at home. The crucial figures are those for SSS (very few ORS packets were used). The use of ORS packets by health facilities also increased, from 5% to 12%. Considering only those cases of diarrhea brought to health facilities in 1987, one-third received SSS or ORS, while in 1990 two-thirds were given SSS or ORS packets. Note that the sum of the percentages given SSS and ORS at home and at health facilities adds up to more than the "anywhere" figure, for some cases were treated at home and at a health facility.

The increase in the use of ORT was largely an effect of mothers deciding to treat diarrhea and the fact that mothers who decided to treat at home tended to use ORT. The proportion of cases given SSS does not change from 1987 to 1990 if only cases treated at home are considered.

While it is not possible to identify the exact role HEALTHCOM played, three HEALTHCOM activities may have contributed to these changes. The project assisted in development of a consistent government policy on ORT promotion, produced a series of radio programs about diarrhea, and assisted the HED in producing print materials for the public and for health workers about ORT.

### ***Exposure to Health Messages***

Radio listening is the main channel of mass media available in Lesotho. The country has only one radio station, and the majority of the population listened to it. Between 70% to 75% of women listened to the radio in 1990, and 55% of the entire sample listened every day. These figures on listening are the same as those obtained in 1987.

Women were asked if they listened to the weekly health program broadcast on the radio. In 1990, 39% had heard a health program at least once and 27% had heard it during the past month; in 1987 only 15% had heard a health program during the past month. Knowledge about ORT was found to be positively related to exposure to health messages, with those who listened recently to a health program scoring consistently higher on the knowledge of ORT scale than those that did not. A positive association was also found between exposure to the brochure about diarrhea and mixing of SSS and correct knowledge of SSS.

#### **RESULTS FOR IMMUNIZATION**

Overall immunization rates have been relatively high in Lesotho since 1982, with completed coverage rates as high as 75%. The immunization rates in March 1990 were essentially the same as those in November 1987, with the verbal report of mothers as our source of information, the coverage rates in 1990 varied from 93% for BCG (bacillus Calmette-Guérin) to 79% for measles, with an overall coverage rate of 76%. Using this criterion, the rate for BCG was the same for both surveys and slightly higher for each of the other vaccines in 1990. These differences, however, were not statistically significant.

Coverage figures were far lower if only vaccination cards are the source of information -- for many mothers were unable to show those cards -- but the pattern is the same. In 1987, 66% of the women interviewed were able to show cards, and in 1990 that figure was 65%. Considering only card data, the coverage rates for children from 12 to 23 months old varied from 68% for BCG and 62% for DPT1 to 57% for measles, with an overall completion rate of 53%. The results for 1990 were a bit lower for each vaccine, but none of the differences was statistically significant.

The EPI program showed a clear improvement in the timing of immunizations given. Both BCG and DPT1 were given earlier in 1990 than in 1987, which means that a higher percentage of children received the immunizations on time. There was also less of a drop-off from DPT1 to DPT3 in 1990 than in 1987.

#### **INSTITUTIONAL DEVELOPMENT**

Institutionalization goals in Lesotho were to develop the capacity to conduct effective health education using the HEALTHCOM methodology and to improve the overall impact of the project on the functioning of the HED. The judgment of the degree to which institutionalization occurred is based on a study of project and government records and on interviews with the HED staff and personnel from other Ministry of Health departments.

The HED greatly expanded its staff, its capacity for production, and its overall potential during the time of the project. This could be seen in the improved quantity and quality of print materials. HEALTHCOM contributed to this improvement by participating in the creation of three new staff positions, buying a new computer and printer, buying radio production equipment, and training HED personnel in the use of the new equipment.

Discussions with HED and Ministry of Health personnel showed there was a general awareness of the importance of doing research on current knowledge and practices before developing health messages. There was, however, little evidence of anyone having a complete sense of the HEALTHCOM methodology per se or an overall view of the main elements. If the HED is to profit further from the project, its leadership must emphasize the importance of conducting research about public knowledge and practices related to health as a part of routine message development.

## **NIGERIA<sup>9</sup>**

The major objective of the HEALTHCOM project in Nigeria was to decrease the morbidity and mortality of children under the age five through vaccination and use of oral rehydration therapy to prevent dehydration. In Nigeria, HEALTHCOM supported the communication component of the larger efforts of the Ministry of Health and the USAID-sponsored Combatting Childhood Communicable Disease (CCCD) project.

### **EVALUATION ACTIVITIES**

CIHDC was responsible for summative evaluation activities in the Niger State HEALTHCOM site in Nigeria from 1987 until 1989, when changes in the program precluded continuing evaluation activities. The staff also carried out a number of other activities, including assisting in formative research, implementation planning, and planning of other research activities. CIHDC prepared a baseline report and two Field Notes (on ethnomedical research and on reporting research results.)

CIHDC staff made three trips to Nigeria to work with the Ministry of Health, HEALTHCOM, the CCCD project, the PRITECH (Primary Technologies for Health) project, and UNICEF in planning, implementing and reporting on the evaluation activities. In 1987, a CIHDC staff member worked with Dr. Adewale Oke from the University of Ibadan on an ethnomedical study of women's knowledge and behavior in relation to diarrheal disease and vaccination to provide information for the intervention and for the development of a baseline survey instrument. Three CIHDC staff members and consultants traveled to Nigeria to assist in planning and carrying out the baseline survey in early 1988. CIHDC staff worked with HEALTHCOM and the CCCD project to plan the Zone C Mass Media Workshop and traveled to Nigeria to moderate sessions presenting the results and detailing how to use research results in policy planning.

The design of the evaluation included a before-after survey of mothers of young children in Niger State. The questionnaire covered awareness, knowledge and behavior related to immunization and treatment of diarrhea, media and health service access and exposure; and background characteristics. Only the baseline survey was completed before evaluation activities were terminated.

The baseline sample comprised 1,069 mothers of children under four years of age. The sample was selected using a two-stage cluster random sampling strategy. Mothers were selected from all nine local government areas and Minna Municipality.

## **BASELINE EVALUATION RESULTS**

### **Results for Vaccination**

Overall, the baseline survey found vaccination coverage to be low in Niger State. Among children 12 months old and older, between 23% (card verified) and 38% (card and mother report) were fully vaccinated. A large drop in vaccination coverage was seen as children went through the sequence.

Access to services was found to be a limiting factor in achieving full vaccination coverage of children. Mothers who relied on clinics for vaccination were three times more likely to have their youngest child be appropriately covered than mothers who relied on a mobile team. Dropout rates were higher for children whose mothers relied on mobile teams. Distance from the clinic was also strongly related to full vaccination coverage: among mothers who went to clinics for immunizations, those who lived in a village with a clinic were more likely to have a fully immunized child than those living outside a clinic village.

Most mothers had heard of vaccinations. However, knowledge about the age at which to start a child's vaccinations and about the number of vaccinations a child should receive was low. The majority of mothers knew where to go for vaccination, knew when the clinic vaccination days were, and said they would know ahead of time when the mobile team would arrive.

## **PAPUA NEW GUINEA<sup>10</sup>**

In Papua New Guinea, HEALTHCOM worked primarily in two provinces, focusing on treatment of diarrhea in Central Province during the first year of the project and carrying out nutrition activities in Madang Province in the second year. AED worked with the National Department of Health, the Provincial Health Office for Central Province, and the Health Office for the National Capital District to develop communication messages about treatment of diarrhea, to train health workers in the correct use of ORS packets, to carry out formative and behavioral research, and to create a training video, to use in teaching effective communication skills to health workers.

### **EVALUATION ACTIVITIES**

The HEALTHCOM project in Papua New Guinea received minimal assistance from CIHDC, consonant with its priority among the HEALTHCOM evaluation sites. CIHDC staff collected background information and corresponded with the Resident Advisor about planning an evaluation. They also reviewed the results of a short knowledge, attitudes and practices survey done by First MarketSearch and participated in a meeting to discuss how these results might affect plans for implementation.

In May 1990 a CIHDC staff member traveled to PNG for two weeks to gather information for a narrative case study of the project. She visited the field site at Kenainj and interviewed the project staff and concerned persons in the government and at USAID.

### **EVALUATION RESULTS**

#### **Achievements**

The fullest example of application of the HEALTHCOM methodology was the production of a training video, "Making Things Clear." As of May 1990 it had just begun to be distributed and used, and there was no time to evaluate of its effectiveness. Two years is probably too short a time to complete a first-time social marketing project in a country.

The nutrition segment of the project experimented with a number of interesting approaches (using mid-upper-arm circumference to identify children at risk, and using cooking demonstrations for mothers and designated "helpers"). However, serious thought should be given to the feasibility of implementing them on a wider scale.

## **Focus**

There was some confusion about the area of focus at the beginning of the project. Diarrhea and nutrition were agreed upon, although the Department of Health had expected family planning to be the focus of the project. This may have dampened the Department's interest in the project and thus limited the potential for institutionalization of the HEALTHCOM approach. One constraint for the project was the official policy that women should not be given ORS packets except under exceptional circumstances, thus ruling out social marketing of packets.

## **Institutional Setting**

The relationship between the National Department of Health and the Provincial Health Office is complex, with policy set and expertise located at the National level but implementations decided on and paid for at the Provincial level. The choice of Central Province as the first HEALTHCOM site allowed for the Resident Advisor's effectively having two counterparts, which resolved the dilemma of location. However, given the project's reliance on local funds, the choice of Central Province as the first site was not ideal; its funding problems have been more acute than those in other provinces.

The Resident Advisor's acute awareness of budgetary limitations, arising not only from within the project site but its low priority as a HEALTHCOM project, may have constrained development of approaches that could have been funded by other sources.

## **Institutional Development**

The Resident Advisor's work was greatly appreciated by the Department of Health, which expressed concern at the short length of the project. There is substantial interest in the social marketing approach, and we recommended that support for it should be continued if at all possible (either through the upcoming Child Survival Project or through another project).

## **PHILIPPINES**

In the Philippines, HEALTHCOM collaborated with the Department of Health and the Public Information and Health Education Service. The primary goals were to reduce infant mortality due to diarrhea and vaccine-preventable diseases and to develop the capacity in the Department of Health to plan and manage communication programs. Immunization activities included a pilot intervention in Metro Manila in February 1988 that was expanded to urban areas nationwide in 1990. The interventions included the training of health workers and a large mass media component. The diarrheal disease program promoted Oresol (ORS packets) and am (a home fluid) through the mass media and through training of health workers.

### **EVALUATION ACTIVITIES**

CIHDC was involved extensively in formative and summative evaluation activities related to the HEALTHCOM project in the Philippines. Staff members from CIHDC developed the evaluation designs and questionnaires, assisted in training interviewers, and analyzed and reported on the results. The research was carried out in collaboration with three local research firms: TRENDS, Kabalikat, and Consumer Pulse.

CIHDC prepared four evaluation reports using the data from the Philippines: one on the formative research on diarrheal disease, two reporting the results of the Metro Manila campaign, and a final report on the nationwide urban immunization campaign. As questions on specific topics arose in the course of the project, short documents were prepared on sampling, choices with regards to questionnaire content and structure, selected issues in the design of evaluation studies, and differences between World Health Organization surveys and the HEALTHCOM surveys. These were sent to HEALTHCOM staff in the Philippines, who shared them with staff of the Department of Health.

CIHDC carried out research related to three major HEALTHCOM activities -- diarrheal disease control, the pilot vaccination intervention in Metro Manila, and the expanded national urban vaccination campaign. Because the HEALTHCOM program focused on children in families of low socio-economic status, the samples included only low-income households.

To provide information to develop the diarrheal disease program, CIHDC carried out a formative survey of the knowledge, attitudes, and practices of 1,200 mothers in urban and rural areas of three regions in September 1987. Because communication activities lasted through the 1990 diarrhea season, no summative evaluation of the diarrhea control program was carried out as part of the HEALTHCOM project. However, CIHDC prepared a questionnaire for a pre-post evaluation of the intervention for the Department of Health, along with a memorandum discussing a number of evaluation issues.

Also in September 1987, CIHDC fielded a separate baseline survey of knowledge, attitudes and practices regarding vaccination in Greater Manila and selected cities in the same three regions. In January 1988, Porter Novelli fielded a pre-campaign tracking survey of 600 mothers in Metro Manila. Because of the limited research budget, CIHDC and Porter Novelli collaborated on a survey that both measured the impact of the Metro Manila campaign and served as the mid-campaign tracking survey. The survey, fielded in May 1988, used the same sampling strategy as the January tracking survey and a questionnaire that was a hybrid of the two previously used. In evaluating the impact of the 1988 Metro Manila campaign, CIHDC compared the results of the April survey with those obtained in January. A separate follow-up study of Metro Manila health centers provided information about the effect of the campaign on health provider practices.

To evaluate the national urban vaccination campaign, pre-post mothers' surveys and health center studies were carried out in 10 cities and in Metro Manila in July 1989 and August-September 1990.

## **EVALUATION RESULTS**

### **Formative Research Results for Diarrhea and Oral Rehydration<sup>11</sup>**

***Signs of Diarrhea and Cues for Action.*** In response to a question about signs of serious diarrhea, "sunken eyes" -- the only classic physical sign of dehydration mentioned by more than 5% of respondents -- was mentioned by only 27%, strongly suggesting that none of these signs are appropriate as cues for treatment. Behavioral signs -- weakness, loss of appetite, and playing less or not at all -- were more commonly reported and more sensitive indicators of severity. In particular, we recommended that "weakness" should be seriously considered as a cue for treatment. An additional benefit of using this cue would be the potential for immediate positive feedback when a mother uses Oresol.

***Health Seeking Behavior.*** Respondents sought advice outside the home for only 35% of cases occurring in the month before the survey. Even for children who were perceived as very sick, outside advice was sought for only 75% of cases. Private physicians, clinics and hospitals were the major source of treatment or advice for those who sought advice outside the home, while few respondents (2%) reported pharmacies as a source of treatment or advice for the last episode of diarrhea. Thus, it was judged critical that mothers be informed directly about Oresol. We recommended that serious consideration should be given to involving the private medical sector in the diarrhea campaigns, and suggested that pharmacies were probably not optimal sites for independent introduction of use of Oresol, although they could be distribution points.

***Channels.*** Reported media use in the poor households surveyed was lower than might be expected: 25-54% of urban respondents and 68-82% of rural respondents said they did not watch TV at all; and 11-25% (urban) and 28-34% (rural) did not listen to the radio at all. We judged that radio would be a reasonably powerful medium for reaching the target audience, while TV should clearly be secondary.

***Non-optimal Feeding.*** About 30% of the respondents with breastfeeding children reported stopping breastfeeding during the diarrhea episode. This indicates that the importance of continuing breastfeeding during diarrhea could be an important area for intervention.

### **Vaccination Results from the Metro Manila Campaign<sup>12</sup>**

***Coverage.*** Surveys of mothers undertaken in January and May showed substantial improvement in the level of vaccination among children in Manila, amounting to about a 20% increase in coverage among 12- to 23-month-old children. Information from the surveys and from the health center study indicated that this improvement was largely the result of two factors: first, an improvement in the timeliness of health center attendance for vaccination (more mothers brought their children at appropriate ages); and second, an improvement in health center practice, so that fewer opportunities for vaccination were missed when children came to the health center.

***Improvement in Timeliness.*** We examined the average delay of receiving measles vaccination after becoming eligible (36 weeks of age) in a given week. Between early June 1987 and February 11, 1988 the curve is nearly flat, indicating an average wait of just over 8 weeks, but after February 12, the date the media portion of the campaign started, the curve turns downward, indicating that the waiting time decreased each week. We concluded that the timeliness of measles vaccination began improving just after the media launch; it seems likely that the messages stimulated earlier attendance at health centers.

***Improvement in Knowledge of Need for Measles Vaccination.*** The campaign improved mother's knowledge of their children's need for measles vaccination. Correct knowledge of whether the child had received all vaccinations did not change: in both October and May more than 90% of women with a child who needed more vaccinations already knew that their child needed more. In contrast, knowledge of the specific need for measles vaccination improved between October, when only 49% of women with a child who still needed measles knew that the child needed both more vaccinations in general and named a measles vaccination in particular, and May, when fully 67% of such respondents did so. It seems likely that this improvement was a direct result of the radio and television messages.

***Improvement in Knowledge of When to Get a Measles Vaccination.*** During the baseline period (from October 2 through December 31, 1987), the average number of vaccinations given on each day of the week was fairly constant, between 2 and 5 every day except Sunday. During the campaign period (February 12 through May 12, 1988), the average number of vaccinations given increased for every weekday, but the increase was pronounced for Monday and Tuesday, and very pronounced for Friday, the special vaccination day. During the May survey, 63% of respondents knew that vaccinations were available on Friday.

***Reduction in the Number of Missed Opportunities for Vaccination.*** We examined vaccination coverage for children who needed multiple vaccinations at the time of a health center visit (identified from information on their vaccination cards), identifying the percentage of those who missed getting each type of vaccination in two periods: September through December 1987 (pre-campaign) and February through May 1988 (campaign). Before the campaign these missed opportunities were highest for measles: not only were health center staff reluctant to give more than two vaccinations at a session, but in many health centers measles vaccinations were available only once a month. If a child came for say, polio vaccination on a day when a measles vaccination was not given, that was essentially a missed opportunity. BCG, the other vaccination that was frequently available only once a month, was the second most frequently missed vaccination. During the campaign the percent of missed opportunities for getting the measles vaccination declined substantially and significantly; the missed opportunities for BCG and DPT declined slightly (but not significantly).

Data from the health center study indicated a significant improvement in health center practice with regard to giving measles vaccinations to children needing them. Three health center policy changes probably contributed to this improvement: First, giving measles vaccination at least once a week (on Friday) in every health facility, instead of only once a month, as was common before the campaign; second, relaxing of the wastage allowances, so that health center staff worry less about opening a vial of vaccine for only a few children; and third, heightening the health center staff's awareness of the importance of measles vaccination.

***Caveats.*** These results are impressive for a relatively brief but intensive campaign. Some concerns remain, however. First, while there was substantial improvement in measles coverage, neither that problem nor the problem of overall vaccination coverage has been solved. Among children between 12 and 23 months old, card-verified measles coverage reached 45% and self-reported coverage reached 64%. While these rates are an improvement of about 20% over the pre-campaign rates, there is still some way to go.

Second, among women with children who needed measles vaccination, knowledge of the specific need for that vaccination improved about the same amount -- from 49% in October to 67% in May -- and to about the same level, confirming that about 30% of the population still needs to be reached.

Third, there can be justifiable pride in the improvement in health center practice that produced a decline in missed opportunities to give measles vaccination. However, from both our examination of card data and our observations at health centers, even after the campaign at least 50% of the children who were eligible for measles vaccinations along with other vaccinations at the time of a health center visit did not receive the measles vaccination.

Finally, there is a concern that goes beyond the data. The problem for the Philippines is to obtain long-term improvement and maintenance of a high rate of vaccination. This effort establishes that good results can be achieved over a limited period with an intensive program. What is not yet clear is the level of

resources that will be required to achieve improved results and maintain them over the long run. Hard thinking -- both about how to improve the good results reported here and how to put in place a long-term strategy based on what has been learned in this phase of the program and what will be learned in additional phases -- will be welcome.

### **Vaccination Results from the National Urban Campaign<sup>13</sup>**

The national vaccination communication campaign in the Philippines had three essential elements: focusing on measles as a "hook" to get mothers to bring their children to the health center; emphasizing logistic knowledge in the mass media messages, in particular popularizing a single day of the week as "vaccination day," and giving clear information about the age for measles vaccination; and focusing on urban areas, which had lower vaccination rates than rural areas.

Because of the large number of cities to be covered by the campaign, it was necessary to conduct a number of pre-campaign activities with city and health personnel in different parts of the country. In July and August 1989, area planning conferences were held with Regional Immunization Officers, Provincial Health Officers, City Health Officers, Municipal Health Officers, and City/Municipal Expanded Programme on Immunization Coordinators to give them an overview of the campaign and their roles in the activities, and to address their concerns. In September 1989, meetings were held with the mayors of the campaign cities (who control the city health centers) to obtain their support and cooperation in campaign activities.

Orientation of clinic personnel to the campaign began in February 1990. There were three master "sales conferences," one-day meetings with regional health staff who were informed about the campaign and encouraged to hold similar meetings in their own areas. These meetings were held to reinforce Department of Health policies about vaccinations, prepare clinics for the increased demand and the focus on the Wednesday vaccination day, and gain clinic personnel involvement in the campaign.

The mass media element of the campaign was carried out between March 16 and September 22, 1990. Four television spots and four radio spots were aired, and advertisements reminding people that Wednesday was a free vaccination day at the health centers were printed in newspapers. Other promotional materials included posters, bunting, and welcome streamers for health centers to display, as well as stickers for jeepneys and tricycles, and T-shirts for health center staff.

The communication materials focused on the danger of measles and its complications, and recommended that children from 9 to 12 months of age be taken to the health center for vaccination. They indicated that vaccinations were free, and that they would be available on Wednesdays at health centers.

**Methods.** The evaluation presented here is based on data obtained from two sources: surveys of caretakers of children less than two years old in Metro Manila, Luzon, Mindanao and Visayas; and a study of 60 health centers in the same geographic areas. The first survey was carried out in July and August 1989, before the campaign; the second was carried out in August 1990, near the end of the campaign. Using a structured questionnaire in the relevant local language, interviewers obtained information about the family's socioeconomic status, the child's vaccination status, use of the health care system, the experience the last time the child was taken to be vaccinated, knowledge about vaccination, exposure to media and specific recall of any advertisements about vaccination. The same questionnaire was used for both surveys.

The health center study included three components: structured interviews with staff of 60 health centers; at a subset of 20 centers, observations of 10 children who attended the health center on a day when vaccinations were given; and exit interviews with the adults accompanying the observed children as they left the health center. Health centers were visited during the months that the surveys were undertaken.

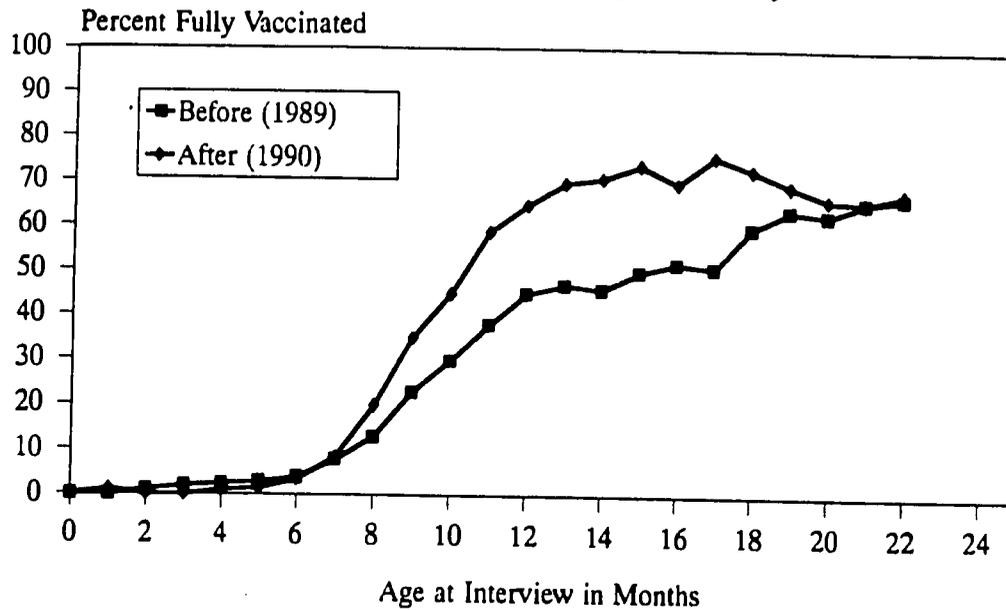
**Effect of the campaign.** Between 1989 and 1990 vaccination coverage improved substantially (see Table 4). The percent of children between 12 and 23 months old with completed vaccinations increased from 54% to 65%. The most striking result, however, is that the main change during this period was an improvement in the timeliness of vaccination, particularly in the proportion of children between 9 and 11 months of age who had received all eight vaccinations (from 32% to 56%). The increase in timeliness is particularly apparent in comparing the age-specific proportions of fully vaccinated children in 1989 and 1990 (see Figure 6). In 1990, about 65% of children were fully vaccinated at 12 months, a level that in 1989 was attained only at about 24 months. Figure 6 shows both a timeliness effect and possibly a cohort effect, with children under 12 months old at the start of the campaign reaching a higher level than older children.

<b>Table 4</b>				
<b>Improvement in Vaccination Coverage between 1989 and 1990</b>				
<b>Surveys according to Different Measures</b>				
<i>Estimator (Claimed and Verified information)</i>	<i>Percent</i>		<i>Rate diff</i>	<i>Rate ratio</i>
	<i>1989</i>	<i>1990</i>		
12-23 month coverage: Proportion of children 12-23 months of age who had all 8 vaccinations	53.6 (n=446)	64.5 (n=461)	10.90	1.20*
Finishing on time: Proportion of children 9-11 months old who had all final vaccinations	32.2 (n=184)	56.2 (n=193)	24.00	1.75*
Mean number of vaccinations	4.32 (n=1200)	5.10 (n=1195)	0.78	1.18*

\* Difference between 1989 and 1990 significant at p<.05.

Figure 6

Percent Fully Vaccinated by Age and Survey



**Mechanism of effect.** There were large increases in knowledge about vaccination among the caretakers of young children between 1989 and 1990, and there is good evidence that the increases, which were associated with the improvement in vaccination practice, were related to exposure to the mass media campaign. There was no evidence of any other programmatic change that could account for the increase in vaccination. Moreover, the available evidence concerning the interaction between health workers and those coming for vaccination suggests that increased health education efforts at health centers could not account for the change in knowledge.

**Knowledge about vaccinations changed.** The surveys conducted in 1989 and 1990 included measurements of 22 items of knowledge about vaccination: 8 measurements specifically about measles vaccination, the focus of the campaign; 14 measurements concerning other vaccinations and vaccination in general.

People knew more about measles after the campaign than before. On every question there was a statistically significant improvement between 1989 and 1990. When baseline correct knowledge was over 80%, the improvements were small, but when baseline knowledge was lower, the improvements were often over 20%. Knowledge about other vaccinations also improved between the two surveys, although not so sharply.

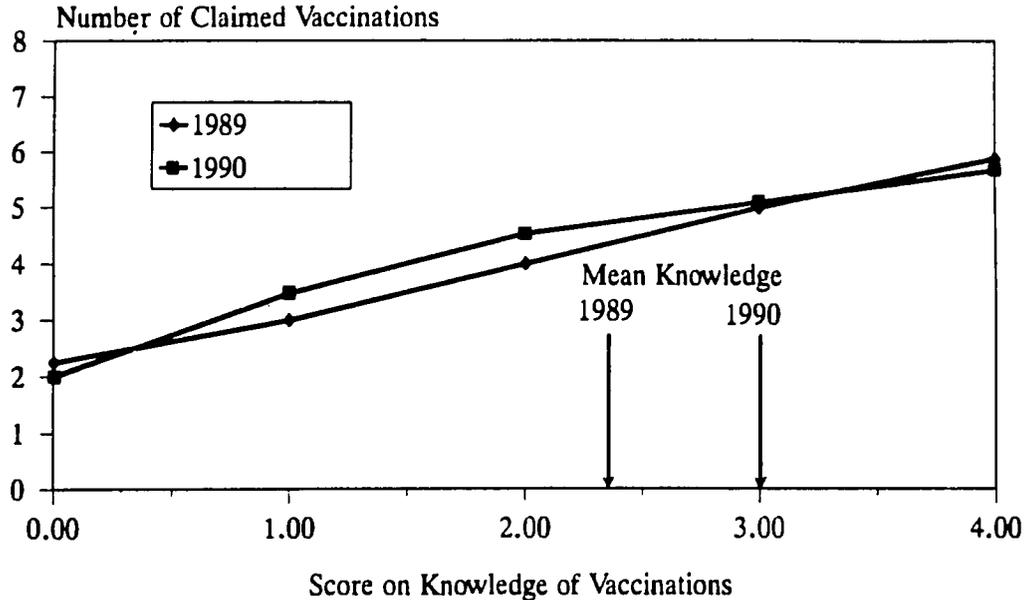
**Vaccination coverage is related to knowledge.** A series of regression analyses using knowledge variables and year of survey to predict vaccination level indicated that a subset of 4 of these 22 knowledge items are particularly important in explaining the influence of the campaign on vaccination practice. They include

three questions about measles and one about all vaccinations; three out of the four are about the timing of vaccinations (see Table 5). Responses to these four knowledge items were summed to create a 0-4 knowledge score. For each correct answer, respondents received one point.

<b>Table 5</b>		
<b>Effects on the Influential Knowledge Questions</b>		
<i>Vaccination Knowledge Questions</i>	<i>1989</i>	<i>1990</i>
"Here is a list of diseases: please tell me against which of these diseases a child can be protected by vaccinations?: (mentions measles)	87.8%	94.5%*
"As far as you know, at what age should a child get vaccination for measles?" (between 38 and 52 weeks)	44.3%	66.6%*
"The best age for a child to get measles vaccination is 3-5 months old." (disagrees)	32.6%	57.5%*
"As far as you know, by what age should a child have all the vaccinations he/she needs" (between 38 and 52 weeks)	65.5%	78.8%*
	(n=1200)	(n=1195)
*Difference between 1989 and 1990 significant at $p < .05$		

Evidence that the campaign worked through knowledge may be seen clearly in Figure 7, which shows the relationships between practice and the knowledge score for respondents to the 1989 and 1990 surveys. Strikingly, the lines are almost identical, indicating that the relationship between knowledge and practice is about the same in both years. However, respondents scored higher on knowledge in 1990, averaging 2.97 correct responses, than in 1989, when the average score was 2.30.

**Figure 7**  
**Number of Claimed Vaccinations by Vaccination Knowledge Scale**  
**(1989 vs 1990)**



In 1989, before the campaign, surveyed children had a mean of 4.32 vaccinations; in 1990 they had a mean of 5.10, an increase of almost 20%. Results of a series of multiple regression analyses show that the gap in vaccination levels between the 1989 and 1990 is essentially explained by knowledge differences between the two samples. Once knowledge is controlled for, no significant difference in vaccination practice between the two samples.

**Knowledge is related to campaign exposure.** There is good evidence also that the changes in knowledge were related to exposure to the mass media campaign. The public communication campaign was well remembered by the survey respondents (see Table 6), including a particularly high proportion who could complete the campaign slogan "Iligtas si baby sa tigdas" ("Protect your baby from measles"). The low number of correct responses given to the same questions in the 1989 survey indicate that these were not random correct guesses.

<b>Table 6</b> <b>Exposure to Media Materials</b>		
<i>Variable</i>	<i>1989</i> <i>Survey</i>	<i>1990</i> <i>Survey</i>
Heard or saw an ad	31%	84%*
Could complete last word of campaign rhyme	13%	72%*
Of those who recalled the ad:		
Agreed that ad said vaccinations were free	68%	94%*
Mentioned that ad said Wednesday was vaccination day	6%	74%*
	(n=1200)	(n=1195)
Average score on 4-point campaign recall scale constructed from the above items	.71	3.03
*Difference between 1989 and 1990 significant at $p < .05$ .		

A measure of recall of campaign messages was created from respondents' replies concerning the items listed in Table 6. A caretaker could receive from 0 to 4 points depending on how many of the items were answered in a way consistent with exposure to the media campaign. Comparison of the campaign message recall score with the level of knowledge both before and after the campaign shows the importance of such exposure in the achievement of higher vaccination knowledge. Unsurprisingly, the exposure measure was unrelated to knowledge in 1989; It was sharply related in 1990.

Evidence that exposure to the mass media campaign was an important influence on knowledge comes from an analysis that aims to explain the gap in knowledge. The difference between the mean knowledge scores of respondents in 1989 (2.3) and 1990 (2.97) is .67, of which almost two-thirds can be explained by the effects of the campaign exposure variables.

**Discussion.** The evidence suggests that the mass media information campaign was largely responsible for the improvement in vaccination coverage. Health center practice was essentially the same during the campaign as in previous years. The rate of missed opportunities for vaccinating children was very slightly worse, as were vaccine supply shortages, and only small changes in health worker interaction with vaccination clients were noted. In contrast, changes in knowledge about measles vaccination, and in particular about the appropriate age for vaccination were substantial.

The campaign's focus on measles, the appropriate age for vaccination and when and where vaccinations would be available translated directly into the messages disseminated in the television and radio spots and incorporated in posters. Designating a particular day for vaccination helps keep costs down, since being able to service many clients on one day reduces wastage and improves efficiency. The change in knowledge about the appropriate age for vaccination relates directly to the major effect of the campaign on timeliness of vaccination.

While improvement in coverage for other vaccines was not as great as that for measles, there was some spillover effect. This is likely due to a heightening of awareness about vaccination generally, rather than the concurrent administration of other needed vaccinations when children came for the measles vaccination, since the average number of vaccinations for children of each age increases well before the 8.5-month age at which they become eligible for the measles vaccination.

This campaign differed from classical "mass campaigns" in a number of important respects. It was a communications campaign in support of routine vaccination services. There was a long planning period, so that vaccine supplies were reasonably adequate for the demand created; health service staff were alerted through the "sales conferences" and their echo meetings; the campaign was centralized, in terms of a unique policy and a universal provision of vaccination on Wednesdays, but local staff were allowed the flexibility of offering vaccination regularly on other days, if local need so required.

Indications that the quality of services provided did not suffer include no increase in waiting times or decrease in the proportion of clients told when to come back, a situation that contrasts markedly with that reported for some mass campaigns.

A number of factors contributed to the success of the campaign. First, this urban sample represents a media-using population. More than 60% claimed to own televisions and 73% claimed to own radios, with more than 50% owning both. The intensive mass media-based promotion campaign clearly found the channels to reach its audience. Second, the high level of public access to mass media was reflected in the expertise available to the Department of Health to develop and produce high-quality radio and television spots. Finally, and most important, the campaign supported a routine system that was ready to serve the increased demand stimulated by the media campaign.

## WEST JAVA<sup>14</sup>

The HEALTHCOM project in West Java had the primary goal of improving correct case management of diarrhea (which, depending on the severity of the case, means continuing breastfeeding, continuing fluids, feeding soft foods, giving ORS, or taking the child to the health center). The program had four target audiences: mothers and caretakers of young children, health volunteers, health workers from the health centers, and retailers of medicines. The communication program included health-worker training sessions and distribution of training materials, radio broadcasts, a mobile film, billboards, newspaper and magazine ads, and special counseling cards developed to help health volunteers diagnose and explain treatment of cases to the mothers. A pilot phase of the program was carried out in 1986, then health-worker training activities were expanded to new areas in 1987. Intensive campaign activities took place in 1989 and 1990.

The program in West Java was conducted by the Health Department under its Directorate General of Communicable Disease Control and its Sub-directorate of Diarrheal Disease Control. Technical assistance for the communication component was provided by the Center for Community Health Education in collaboration with HEALTHCOM.

### EVALUATION ACTIVITIES

CIHDC had primary responsibility for the evaluation of the communication activities in West Java. A major collaborator was Survey Research Indonesia (SRI), which was responsible for sampling and all data collection and entry activities. CIHDC staff made eight trips to West Java to work with HEALTHCOM, Ministry of Health staff members at the national and provincial levels and SRI to design, carry out and report on the evaluation. Three reports were prepared as part of the evaluation: a report of the findings from the evaluation of the pilot phase of the project, a report of the baseline findings from the expanded program, and a final report. CIHDC also provided assistance on qualitative and behavioral studies carried out in West Java.

The overall evaluation design included four rounds of data collection — before and after surveys in the pilot site (June and December 1986) and before and after surveys in the pilot and three expansion areas (March–April 1988 and February–March 1990). Because some communication activities occurred in 1987, the 1988 survey was not a true baseline. Therefore, a comparison area was chosen in order to control for any educational activities that had occurred before the first survey. Data were collected from all four target audiences (mothers, health volunteers, health workers and retailers) in interviews carried out in Sundanese or Indonesian by SRI. All questionnaires included a core set of questions measuring background characteristics, knowledge and behavior related to diarrhea, and exposure to the components of the program applicable to that group.

The samples were selected using a multi-stage approach including cluster and representative sampling procedures. In the evaluation of the pilot phase, equivalent samples of 255 mothers were interviewed before and 377 after the intervention. Data were also collected from small samples of health volunteers, health workers and retailers. In the evaluation of the expanded program, matched primary sampling units were chosen from ten geographic clusters in each of the five survey areas. The baseline samples were chosen from the first sampling unit selected, and the follow-up samples were chosen from the matching sampling unit. One thousand mothers, 118 health volunteers, 51 health workers, and 208 retailers were interviewed for the baseline survey. One thousand mothers, 112 health volunteers, 50 health workers and 207 retailers were interviewed for the follow-up survey.

## **EVALUATION RESULTS**

### **Pilot Phase Results**

*Use of ORS.* Overall, use of Oralit (the ORS promoted in Indonesia) for the last episode of diarrhea did not significantly increase during the campaign. By the end of the intervention, 25% of last episodes had been treated with Oralit. There was, however, a significant increase in reporting treatment with Oralit for children taken to the health center -- from 10% to 29% after the intervention.

*Awareness and Knowledge about Oralit.* Mothers' awareness of Oralit as a treatment for diarrhea was high (91%). The number of mothers who had heard some information about Oralit increased significantly during the program, from 35% to 51%. Knowledge of how to mix Oralit correctly did not change during the six months. There was, however a significant increase in knowledge about how much Oralit should be given in one day, from 1.23 glasses to 1.61 glasses, although mothers continued to give smaller volumes of Oralit than recommended.

*Knowledge among Health Workers and Health Volunteers.* Both paid and volunteer health workers showed a significant increase in knowledge about correct case management of diarrhea after the intervention. On a 7-point scale of knowledge, health workers increased from an average score of 2.0 before training to 4.8 after. Community health volunteers increased their scores from 0.7 before training to 1.8 after.

### **Intensification Phase: Results of Surveys of Mothers**

*Behavior.* Overall, there was no significant change in mothers' behavior in treating and feeding their children during a case of recent diarrhea (episodes in the last two weeks) between 1988 and 1990. In many cases, a large proportion of mothers were already behaving appropriately in 1988.

A majority of mothers reported giving liquids and breast milk and continuing feeding in 1988, and the levels of these practices remained high in 1990. Sixty-five percent to 97% reported giving liquids, 58% to 85% reported giving appropriate foods, and 90% to 95% reported continuing breastfeeding in 1990. Mothers were more likely to report correct behavior for cases of diarrhea they considered serious.

There is room for improvement in that 30% to 40% of mothers who reported less serious cases did not give liquids or appropriate foods. In particular, giving more liquids during diarrhea was quite uncommon among mothers with children considered not sick (approximately 20%) and children considered a little sick (approximately 40%). Mothers may have been waiting for the cue of the child's thirst to give more liquids. They perceived less sick children as not being thirsty.

The frequency of giving Oralit during episodes of diarrhea did not change between 1988 and 1990. Mothers were significantly more likely to report giving Oralit for a very sick child (41% to 54%) than for a child considered a little sick (27%) or not sick (8% to 9%). This may have been appropriate behavior in that most cases of diarrhea do not require ORS and can be treated effectively with liquids available at home.

The most frequent methods of dealing with a recent case of diarrhea in 1990 were to do nothing different than usual (particularly if the child was seen as not being sick) or to give pills obtained over the counter or from health professionals. Thirty-one percent of children considered not sick, 57% of children considered a little sick, and 65% of children considered very sick were given some kind of pill.

***Campaign Reach and Exposure.*** The majority of the mothers in the sample were exposed to at least one of the major channels used in the diarrhea program in West Java between 1988 and 1990. Sixty-one percent of the mothers had either heard the radio messages, seen the counseling cards, or seen the film. Forty-three percent of mothers were exposed to one channel, 16% to two channels, and 1% to all three.

The radio reached the largest proportion of mothers, and exposure to radio messages about diarrhea increased significantly between the two surveys (from 45% to 59% ever having heard messages about diarrhea). Almost 70% of the mothers who had heard radio messages reported hearing messages using the village alarm (one of the main features of the program's messages). Overall, from 27% to 41% of all mothers remembered the messages well enough to identify the alarm bell sound or characters in the spots.

Thirty-nine percent of the mothers reported having visited a health volunteer about a case of diarrhea during the last year, after the new training sessions had taken place. Thirty-four percent of all mothers said they had ever seen the counseling cards, an indication that they could have received special training or instructions from a volunteer about diarrhea.

Mobile films reached a much smaller proportion of the sample. Only 4% of mothers said they had seen a film in which mothers are called together with the village alarm.

Thirty-nine percent of the mothers in the 1990 sample reported no exposure to any the channels used in the campaigns: they had not heard the radio messages, seen the counseling cards, or seen the film. This suggests that more efforts are needed to reach all mothers in West Java with information about the correct treatment of diarrhea.

However, reaching mothers with this information will not be enough to bring about behavior change. Regression analysis of the 1990 data indicated that mothers exposed to the mass media messages and/or the counseling cards were no more likely to have reported giving liquids, foods, or Oralit during their child's last case of diarrhea than those with no exposure to these channels. This suggests that other factors need to be addressed before mothers will turn information into behavior.

**Knowledge.** There was a significant increase in awareness and knowledge about Oralit and about diarrhea during the program and there is evidence that this change can be attributed to the communication activities (specifically radio messages, counseling cards, and health workers).

Knowledge of how to mix Oralit correctly increased significantly, from 31% to 41% of all mothers (those who didn't mix were categorized as responding incorrectly). Among those who had made the solution previously or who said they knew how to mix, correct mixing increased from 39% to 48%. There was a large increase in using the entire packet of salts to make the solution (from 64% to 80%) and a smaller increase in using an acceptable volume of liquid (from 48% to 56%).

Eighty percent of the mothers who made the solution mixed it with an acceptable concentration of sodium (30 to 120 millimoles of sodium per liter). Seventeen percent made solutions with high or even hypertonic concentrations of sodium. This was primarily the result of using too little water with an entire packet of the salts. The danger of the high sodium concentrations may be reduced because most mothers gave other liquids to the child in addition to Oralit.

However, correct mixing of Oralit and, especially, more accurate measurement of the water needs more improvement. Although the mothers who mixed the solution generally used a 200 ml glass to mix the solution, they often did not fill it to the top (perhaps because they did not want to spill the mixture or because they were not accustomed to completely filling a glass to give liquids to a child).

On the whole, the mothers interviewed in 1990 had quite high levels knowledge about the danger of diarrhea and the need for liquids. Eighty-three percent believed that diarrhea was dangerous for young children, and 56% believed a child could die from diarrhea. A large majority (78%) said children should be given more to drink during diarrhea.

Regression analysis controlling for other possible explanations reveals that mothers with greater exposure to the communication channels used by the program (radio, health workers and volunteers, and counseling cards) had significantly higher knowledge about Oralit and diarrhea in general. Overall, demographic characteristics and exposure to the program channels explained 31% of the variance in knowledge. Radio exposure accounted for the largest proportion of variance explained by the program channels (5% over and above that explained by demographics).

### **Intensification Phase: Results for Local Health Volunteers**

Local health volunteers were the second major audience for the communication activities in West Java. The primary objectives of the activities for volunteers were to increase knowledge and behavior in the correct diagnosis and treatment of diarrhea through special training sessions and printed materials. Volunteers were expected to act as resources for mothers -- giving advice and assistance and providing Oralit packets -- and to actively attempt to teach mothers about treatment of diarrhea.

**Knowledge.** Overall, in 1988, volunteers already had high levels of awareness of the need for liquids and Oralit for all types of diarrhea, and these levels remained high or improved between the surveys. Knowledge about continued feeding and breastfeeding for milder cases of diarrhea increased significantly. However, volunteer knowledge about feeding children during diarrhea could be improved, particularly knowledge about the need for continued breastfeeding during all cases of diarrhea. By 1990, only 43% of volunteers said children with mild diarrhea needed breast milk, 23% said children with moderate diarrhea should continue to be breastfed, and 12% said children with serious diarrhea needed breast milk.

These increases in knowledge during diarrhea can be partially attributed to the special training program. For mild and moderate cases, specially trained volunteers were significantly more likely to know a child should continue to be fed. However, there was no significant difference between the trained and untrained volunteers in knowledge of the need for continued breastfeeding.

Knowledge of how to mix Oralit correctly increased significantly between the two surveys, from 71% in 1988 to 87% in 1990, reflecting improvement in using the correct volume of liquid.

**Behavior.** It was not possible to assess whether the volunteers had treated the cases correctly according to the case management system, because most of them did not name the type of diarrhea according to the official policy. In both the before and after surveys, less than 30% of the volunteers labeled the case as beginning diarrhea, diarrhea with weakness, diarrhea with vomiting or cholera, or dysentery. This suggests that the volunteers have not adopted the case management strategy in its entirety.

Significant increases were seen in the number of volunteers who reported giving or recommending liquids, food and Oralit during the last case of diarrhea treated. In 1988, 27% of the volunteers who had been consulted about a case of diarrhea reported giving or recommending Oralit for the last case, compared to 100% in 1990. In 1988, 9% of volunteers gave or recommended more to drink, compared to 42% in 1990. Four percent of the volunteers in 1988 reported giving or recommending soft food or continued breastfeeding (depending on the age of the child), compared to 33% in 1990. The volunteers seem to have adopted Oralit more readily than the other recommended treatments for diarrhea.

There was no significant change in the frequency of referring cases of diarrhea that were considered serious or that were labeled as diarrhea with vomiting. Although the majority of volunteers knew that serious cases should be referred, actual referring of serious cases continued to be quite low.

Overall, we found that volunteers trained under the new system reported more correct behavior in treatment of the last case brought to them than those without the new training. For the last case of diarrhea, significantly more of the specially trained volunteers than the others gave or advised mothers to give the child more to drink (51% compared to 15%), and gave or advised mothers to give the child soft food or to continue breastfeeding (42% compared to 9%). All volunteers in 1990 reported giving or recommending Oralit for the last case brought to them.

The frequency of recommending or giving liquids, soft foods, or continuing breastfeeding were still quite low, even among the specially-trained volunteers. These are topics that need more attention in future training activities.

## **ZAIRE<sup>15</sup>**

The HEALTHCOM project in Zaire sought to introduce health care personnel at the national, regional, and health zone levels to the Information, Education, Communication (IEC) approach to doing health education, and to demonstrate what could be accomplished with this approach in two health zones. Project activities included a number of training workshops for health care personnel and journalists; the development of print materials regarding ORT; immunizations, and AIDS; the preparation of radio spots about immunizations; and the training of community volunteers in Ruashi Health Zone to encourage mothers to bring their children to health centers for immunizations and to use ORT for cases of diarrhea.

The resident advisor for HEALTHCOM was expected to work at a national, regional, and health zone level simultaneously. The resident advisor lived in Lubumbashi, the capital city of Shaba Province, which is divided into five health zones. Most of the project attention and assistance was given to Ruashi Health Zone at the edge of Lubumbashi, the urban zone chosen as the pilot zone. Occasional visits were made to Kinshasa and to the other health zone chosen, Kabongo. Medical personnel from Kabongo were trained in IEC strategies and focus groups on the diagnosis of diarrhea were conducted.

### **EVALUATION ACTIVITIES**

Personnel from CIHDC directed a series of research studies used for both formative and summative evaluation purposes.

With the Resident Advisor, CIHDC staff trained social mobilizers in Lubumbashi in techniques of focus group discussions, using diarrhea and ORT as the content. CIHDC personnel also directed an ethnomedical study of the diagnosis and symptoms of diarrheal disorders of children in Swahili; conducted a baseline survey of knowledge and practices related to diarrhea and immunizations in the city of Lubumbashi; organized (with someone from AED) an observation study for health centers in Ruashi Health Zone; conducted a follow-up survey on diarrhea and immunizations; and directed a qualitative study of the activities of community volunteers in Ruashi Health Zone.

Since there was no office of health education or personnel trained in health education and communication in Lubumbashi, training a team of persons in focus group techniques provided a core group that the project could involve in a variety of ways: to conduct focus groups, to train to produce radio spots, or to pretest health education materials.

The ethnomedical study was designed to provide material for message development about the use of ORT for diarrhea. The study showed that women talk about five different types of diarrhea in Lubumbashi, and it was decided to address all five in health education messages. Results of the ethnomedical study were presented to medical officials in Lubumbashi in February 1989.

A large sample baseline survey of what mothers know and do about diarrhea and immunizations was conducted in March 1989 in Lubumbashi and the follow-up was done in October 1990. More than 1,100 women were interviewed in Swahili in each survey in 75 clusters chosen at random from population statistics. In October 1989, the results of the survey, both for the entire city and by health zone, were presented to city medical officials in a day-long seminar.

A study involving the observation of health talks in Ruashi Health Zone was designed with AED staff in October 1989 in order to obtain information about the performance of nurses doing health education before and after their training. HEALTHCOM organized two training workshops for nurses and others who were about to do health talks so that all health care personnel in Ruashi Health Zone would have this training. Results of those observations showed that after training the content of the messages improved but not the overall performance. Each of the trainees was given a written performance evaluation in July 1990.

A study of the community volunteers in Ruashi Health Zone was completed in November 1990. The project trained 37 women to encourage mothers to bring their children to health centers for vaccinations and to use some form of ORT for diarrhea. All but one of these women were interviewed with an open-ended questionnaire in Swahili that elicited information about their daily routines, their activities as volunteers, their ambitions, and their supervision.

## **EVALUATION RESULTS**

### **Lubumbashi: Immunizations**

Immunization coverage for the city of Lubumbashi increased slightly (about 3%) for each vaccine from 1989 to 1990, based on both vaccination cards only and on card data plus the verbal reports of mothers. The increase was most likely the result of the first two rounds of the Expanded Programme on Immunization (EPI) campaign held in August and September 1990. The HEALTHCOM project conducted the advertising campaign for those special immunization days in August, September and October 1990. Materials and messages included television and radio spots, distribution of 1,000 calendars, and posters and murals for use by health centers. While the 3% difference is not statistically significant, the fact that the same increase was found for each vaccine and for both ways of calculating immunization coverage is reassuring.

The 1990 survey found that about 65% of children nine months and older were completely immunized. This figure is based on calculating coverage of children with cards separately from children without cards. For children with cards, coverage was calculated from the card information only. For those without cards, coverage was calculated from the mothers' verbal report given but allowing for a bias of about 15% upwards.

Since HEALTHCOM developed and distributed EPI materials in support of the special campaign in Lubumbashi, it was thought that exposure to those messages might have been associated with higher levels of coverage. But no association between having heard the radio spots and knowledge of immunizations or immunization status was found. Because only some of the 30 radio spots produced by HEALTHCOM were ever broadcast, and those were heard for two weeks in July and less time in August, the lack of association is hardly surprising.

Overall, the special campaign produced only a small effect in Lubumbashi. This was related, most probably, to the problems of the EPI program with uncertain sources of funds, passive social mobilizers, unhappy staff, and political rumors that discouraged participation. The size of the effect compared to the investment raises questions about the wisdom of the strategy.

### **Lubumbashi: Oral Rehydration Therapy**

HEALTHCOM developed print materials about ORT for distribution throughout the city, trained nurses in Ruashi Health Zone about how to plan and implement discussions about ORT with mothers, and taught community volunteers how to use ORT for diarrhea. However, because few print materials were distributed, it is not surprising that the level of knowledge about SSS in the city of Lubumbashi did not change between the two surveys. The 1990 study showed a small increase in the number of mothers who gave the correct recipe for SSS, but this difference is not statistically significant.

However, in the Ruashi Health Zone the proportion of women who had tried SSS increased significantly. Likewise, in both Ruashi Health Zone and Kampemba health zone, there was a significant increase in the percentage of women able to give the correct recipe for mixing SSS. While we believe that this increase in Ruashi may be due to the interventions of HEALTHCOM, we are unsure of why the same increase occurred in Kampemba.

As for the use of ORT in the city of Lubumbashi, the second survey did not show any change. This is not surprising because there was no special campaign at the city level. There was a significant increase in ORT use at home in the Lubumbashi Health Zone (city center) and the Ruashi Health Zone. This may represent an increase due to project interventions in Ruashi, but we cannot explain why there was also an increase in the Lubumbashi Health Zone.

### **Lubumbashi: Personnel Development**

The HEALTHCOM project worked in Lubumbashi with no local personnel or any infrastructure devoted to health education at the regional level. The Medical Director of the Shaba Province wanted HEALTHCOM assistance to establish an office specializing in IEC activities that could provide communication services to any health project in Shaba. It seemed logical, therefore, to begin with a program that emphasized training of personnel.

In fact, the project did involve many people in training workshops so that in three of the five health zones of the city there are supervisors who are familiar with an IEC approach to health education. Many of these individuals came from Ruashi and Kabongo Health Zones, but others came from various agencies around Lubumbashi. These persons, including many health workers, health educators, and social workers, belong to many different organizations and thus do not often work together. As a result, a number of people with experience in message development and pretesting for health education are scattered throughout the city, with no central organization to bring them together. At the city level, the impact has been on individuals rather than on any office or institution.

### **Ruashi Health Zone: Immunizations**

Project activities within the Ruashi Health Zone related to immunization promotion consisted of training nurses from health centers to improve the quality of their health talks about EPI, training community volunteers to encourage women to attend clinics for children under five on immunization days, and improving the distribution of EPI posters for health centers in Ruashi as well as the city.

There was a slight improvement in the level of knowledge about immunizations in Ruashi Health Zone. On two of the knowledge items, knowing the name of the first vaccine required and knowing the age at which a child should receive the last vaccination, a statistically significant increase was found. This increase could be the result of improved health talks in health centers and the distribution of print materials.

The data show that total immunization coverage increased from 57% to 71% for children nine months and older in Ruashi Health Zone. Ruashi Health Zone responded better to the special EPI campaign of August, September and October than the other health zones. Considering only children with cards, in Ruashi 36% of children nine months and older who had not completed their immunizations were immunized during the campaign. For the city as a whole, about 22% of eligible children with cards were immunized. Since this improvement occurred only in Ruashi Health Zone, where HEALTHCOM trained health care personnel in principles of IEC and immunization, some of that improvement can be attributed to project interventions.

## **Ruashi Health Zone: Training**

Ruashi Health Zone supervisors participated in a number of training exercises designed to teach them how to plan health education strategies and develop messages that reflect an awareness of the current knowledge and practices of their target population. The Chief Medical Officer of Ruashi, HEALTHCOM's de facto counterpart in Shaba, has become a knowledgeable and enthusiastic supporter of health communication and would continue his support in the future if such an opportunity were presented. However, the possible impact of the supervisors' work is limited, because the health zone does not have the resources to support basic follow-up and supervision after training activities.

Almost all of the 28 nurses working at health centers received one week of training in discussing health education issues with mothers about EPI, ORT, and nutrition. Most were observed giving health talks before and after their training. No consistent patterns of improvement were found, although certain individuals gave lessons more accurately and engaged the group more fully in discussions after training. The limited improvement is most likely due to the fact that it takes much more than one week of training to change any form of health service delivery. Changing the way health education is provided requires not only longer-term training, but also time to absorb feedback and supervision.

HEALTHCOM also trained a group of community volunteers (mamans tengeneza) in Ruashi to visit homes and talk about SSS and immunizations. Judging from the enthusiasm of the community volunteers after five months of activity, the project appears to have been successfully initiated. The volunteers expressed great satisfaction at what they had learned from the supervisory staff of the Ruashi Health Zone. The women have clearly been active in talking to their neighbors about the health of children. They all expressed the desire for more training on health issues and some financial assistance.

During the life of the HEALTHCOM project, the Ruashi Health Zone carried out most of the intervention objectives that it programmed in the initial implementation workshop. The proposed training exercises were completed, instructional materials were developed, and the advertising campaign for the EPI program was done. Only the materials were not distributed and assistance to the AIDS campaign was limited to doing focus group discussions. The immunization coverage objective was reached in Ruashi, but not the goal for diarrhea management.

## **SUPPORT FOR WORLD HEALTH ORGANIZATION ACTIVITIES**

From 1988 through 1990, six months of support were provided for research activities of the World Health Organization Program (WHO) for the Control of Diarrheal Diseases (CDD). Most of this time was devoted to support for a new initiative - implementation research. This type of research determines how interventions that are of proven value to prevent or treat childhood diarrhea can be successfully implemented using simple, inexpensive approaches that can be adapted to different socioeconomic, cultural and environmental settings. Priority areas for implementation research are promotion of correct case management in the home and promotion of breastfeeding. Activities that have received at least partial HEALTHCOM support have been carried out in six countries.

### **BRAZIL (1989)**

A CIHDC staff member served as a facilitator at the Workshop on Intervention Studies in Diarrheal Disease Research, which was held in Fortaleza, Brazil, July 3-13, 1989. Major activities were giving presentations on qualitative research methodology and helping individuals to design research strategies.

### **ETHIOPIA (1990)**

With Dr. Tigest Ketsela, a CDD Program Officer, a proposal was developed for a situation analysis to study breastfeeding patterns and maternal behavioral factors associated with early cessation and supplementation of breastfeeding in Addis Ababa. This study will combine qualitative and quantitative techniques; the ultimate objective is to develop a strategy for interventions to improve breastfeeding practices. The proposal was approved by the Ethiopian government in September 1990 and has been funded by WHO. Work on the qualitative phase began in 1991.

### **GUATEMALA (1990)**

A CIHDC consultant worked with Dr. Ruth Elena de Arango, head of the National Commission on Breastfeeding, to develop a three-part research proposal to study the National Commission for the promotion of breastfeeding. This study consists of: (1) an analytic history of the work of the Commission since its constitution in 1979, with particular attention to the structural and strategic factors that have contributed to the success or failure of its efforts to promote breastfeeding; (2) a survey of government and Social Security-funded maternity facilities throughout Guatemala to assess staff knowledge, attitudes and conformity with the regulations and norms concerning promotion of breastfeeding; and (3) an evaluative case study of the La Leche League, which has functioned in Guatemala City for more than ten years, and has recently started an experiment in "growing" new groups in poor neighborhoods. This proposal has been funded by WHO, and work is currently in progress.

## **PAKISTAN (1990)**

CIHDC visited Pakistan to gain a better understanding of the situation there regarding exclusive breastfeeding during the first months of life, to explore ways in which CDD could collaborate with the government and other donors to promote exclusive breastfeeding, and to identify potential areas of implementation research.

As a result of the visit, the consultant recommended that WHO/CDD consider (1) collaboration with other donors to provide technical assistance for formative research to develop messages and strategy for an integrated breastfeeding promotion effort; (2) based on the formative research, development of print materials that could be used by anyone who talks about diarrhea - in diarrhea treatment units, ORT corners, or in outreach efforts - to counsel mothers of young children who are not exclusively breastfeeding; (3) development of training modules for people doing the counseling; (4) a closer look at a functioning lactation management unit (such as the one at Children's Hospital, Islamabad) that might serve as a model for larger-scale curative services-based intervention.

## **PHILIPPINES (1988-1990)**

Technical support has been provided to the Research Institute for Tropical Medicine (Philippine Department of Health) to study the promotion of breastfeeding and improved weaning practices through health education. A short-term consultancy in 1988 centered on development of messages to promote breastfeeding and appropriate weaning; in 1989 three days were spent developing an evaluation of the intervention; and in 1990 an additional three days were devoted to developing the analysis plan.

Partial support was provided by HEALTHCOM for CIHDC to collaborate with the Research Institute for Tropical Medicine to develop a proposal, carry out work and analyze the results of a study comparing the acceptability of three kinds of ORS, one with and without a message that it would help stop diarrhea. The proposal was funded by WHO, and the study was carried out starting in July.

Preliminary results were presented at the Informal Consultative Meeting on Intervention Research on Diarrheal Diseases, held at WHO, December 5 - 8, 1990. This study compared the acceptability of standard glucose-based ORS with precooked rice-based ORS and flavored ORS in a clinic-based home follow-up study. The three treatments were randomized to six health centers by week for a period of eight weeks. For an additional two weeks all health centers gave out rice-based ORS, taking care to emphasize that it would help stop diarrhea. Eligible patients whose caretakers had consented were visited either 24 or 48 hours after their health center visit. Information was obtained about their current status, consumption of liquids and foods in the previous 24 hours, and the caretaker's attitudes about the ORS used.

In terms of amounts of ORS used and stated opinion about selected characteristics of the solutions, there is no clear advantage to either rice-based or flavored solution relative to standard glucose-based solution. There was some tendency for people to use less than the entire packet of rice-based solutions (which are greater in volume than glucose-based solutions) or to use more water with them, but differences due to these tendencies are small relative to the basic amount of variation in measurement of one liter of water. Preliminary analysis of aggregate data indicates that use of rice-based solution did not reduce the amount of food given to children.

## MINIMAL EVALUATION SITES

### MALAWI

HEALTHCOM work in Malawi began in May 1986 and ended in early 1988. Two members of CIHDC, along with a member of the Combatting Childhood Communicable Diseases project, made a trip to Malawi in March 1987 to write the evaluation plan for HEALTHCOM Malawi. It had been assumed that the plan would include two national surveys concerning diarrhea and malaria: a baseline and a follow-up one year later. After several days of discussion it became clear that the project was planning to work on a small scale in one or two districts.

The revised HEALTHCOM project sought to promote ORT for diarrhea and the proper use of chloroquine for fevers (malaria). Working only in Salima district, the project planned to test the effectiveness of using two kinds of volunteers to teach villagers about ORT and chloroquine: traditional birth attendants and other persons chosen by the village health committee. Three groups of ten villages were selected: one with traditional birth attendants, one with regular volunteers, and one control group with no volunteers.

One member of the CIHDC staff remained in Malawi to work with the Health Education Unit of the Ministry of Health to translate a questionnaire already formulated in English into Chichewa. The questionnaire addressed knowledge of diarrhea, use of ORT and knowledge and treatment of malaria. That instrument was pretested in villages in Salima District, then translated back into English. The survey with the instrument was scheduled for February, 1988, but the interventions proposed by HEALTHCOM never received government approval.

### MEXICO

CIHDC carried out minimal evaluation activities related to the HEALTHCOM project in Mexico, primarily acting in an advisory role as requested. CIHDC staff made two trips to Mexico, one to work with the Ministry of Health to outline research strategies for the program, and the second to review data from a national knowledge, attitudes and practices survey about diarrheal disease with the Ministry of Health Epidemiological Directorate. A member of the staff also participated in a seminar on evaluation methodology in Washington.

### PARAGUAY

The Paraguay HEALTHCOM project was one of the sites in which a narrative case study evaluation, rather than a larger survey-based evaluation, was completed. During the first years of the project, CIHDC worked with HEALTHCOM to review a number of evaluation designs and data collection options. In 1988, a CIHDC staff member traveled to Paraguay to assess the feasibility of carrying out a full impact evaluation.

Following a review of the findings of this trip and a meeting with staff members from AED, it was concluded that evaluation surveys would not produce interpretable or useful data to make a good assessment of project impact. Responsibility for the narrative case study evaluation was subcontracted by AED to Applied Communication Technology, who produced a final report. CIHDC staff helped to design this evaluation.

#### **PERU**

CIHDC was responsible for evaluation of any new large-scale HEALTHCOM activities occurring in Peru. Because such activities were not developed, CIHDC evaluation activities were limited to reporting results of the evaluation of the Mass Media and Health Practices project to the USAID Mission in Peru and completing the final report of the evaluation.

#### **SWAZILAND**

CIHDC activities related to HEALTHCOM in Swaziland were limited to completing the final report of intervention activities carried out during the Mass Media and Health Practices project. HEALTHCOM activities in Swaziland did not require a large-scale evaluation effort.

## APPENDIX

### REPORTS AND PRESENTATIONS OF THE HEALTHCOM EVALUATIONS

#### Final Reports

Results from the Evaluation of the HEALTHCOM Project in Central Java: 1988-1989

Results from the Evaluation of the PREMI/HEALTHCOM Project in Ecuador: 1985-1988

The HEALTHCOM Project in Jordan: Final Case Study Evaluation Report

HEALTHCOM in Lesotho: Final Evaluation Report

The HEALTHCOM Project in Papua New Guinea: Final Case Study Evaluation Report

The HEALTHCOM Project in the Philippines: The National Urban Immunization Program: 1989-1990

Evaluation of the HEALTHCOM Project in West Java: Results from Surveys of Mothers and Volunteer Health Workers

Results of the HEALTHCOM Evaluation in Zaire: Lubumbashi, 1988-1990

#### Special Reports

Measuring Use of Oral Rehydration: Conceptual Issues and Evidence from HEALTHCOM Surveys. (September, 1988)

Issues in Evaluation. (March 1991)

#### Field Notes

Immunization Coverage in Niger State. J. McDivitt et al. (October 1988)

Ethnomedical Research for Formative Purposes: An Example from Nigeria. S. Yoder. (May 1989)

Comparison of Key Variables Before and After ORT Intensification in Garut Kabupaten. J. McDowell and Z. Zheng. (August 1988)

Understanding the Diarrhea Problem in the Philippines: Recommendations for Health Communications. S. Zimicki. (December 1988)

Reporting Research Results as Information Exchange: A View from Niger State, Nigeria. S. Yoder. (May 1989)

Guide for Carrying Out In-depth Interviews about Health in Developing Countries. N. Ferencic. (April 1988)

Guatemala Baseline Survey: Basic Tables and Implications for Strategy. R. Hornik et al. (October 1989)

Lesotho Baseline Survey Report: Knowledge and Practices Concerning Diarrhoea and Vaccinations. S. Yoder and K. Wilkins. (April 1988)

Breastfeeding Knowledge and Practices in Jordan: A Summary Report of the Results of the HEALTHCOM Baseline Survey August - September 1988. A. Abulaban et al. (November 1989)

Understanding Mother's Knowledge and Behavior Related to the Treatment of Diarrhea in Young Children in West Java, Indonesia: Recommendations for Health Communication. J. McDivitt and J. McDowell. (July 1989)

### **Other Publications and Papers**

The Knowledge-Behavior Gap in Public Information Campaigns: A Development Communication View. In Information Campaigns C. Salmon (ed.). (SAGE Publications, 1989). R. Hornik.

Channel Effectiveness in Development Communication Programs. In Public Communication Campaigns R. Rice (ed.). (SAGE Publications, 1989). R. Hornik

Research Methods. In Dialogue on Diarrhea. (1989). S. Yoder.

Qualitative Research in Zaire: Training of a Social Mobilization Team in Lubumbashi. S. Yoder.

Broadcast Media Use and Social Structure in Guatemala. N. Morris.

An article on research strategies and ethnomedical diagnosis of diarrheal disorders in Lubumbashi which was accepted for publication in Ecologie humaine. S. Yoder.

Breastfeeding Knowledge and Practices in Jordan: A Summary Report of the Results of the HEALTHCOM Baseline Survey. A. Abulaban, J. McDivitt, K. Wilkins, K. Dusenbury, and F. Goksen-Erelcin.

Understanding Mothers' Knowledge and Behavior Related to the Treatment of Diarrhea in Young Children in West Java, Indonesia: Recommendations for Health Communication. J. McDivitt and J. McDowell.

Child-spacing Knowledge and Practices in Jordan: A Summary Report of the Results of the HEALTHCOM Baseline Survey. J. McDivitt, K. Wilkins, and A. Abulaban.

What are We Learning from the Evaluation of the Communication for Child Survival Project? R. Hornik

### **Presentations**

The Study of Local Diagnosis of Diarrhea: A Neglected Element in the Promotion of ORT (NCIH 1987). S. Yoder.

Communication and Health Literacy: Evaluation of the Peru Program 1984-85 (NCIH 1987). J. McDowell and R. Hornik.

Evaluation of the Effects of Communication Programs on Knowledge and the Use of Oral Rehydration Salts (APHA 1987). R. Hornik.

Cues for Recognition of Diarrhea Severity in the Philippines (APHA Roundtable 1988). S. Zimicki.

Ethnomedical Knowledge and Household Surveys: Implications for Instrument Design (at the International Union for the Scientific Study of Populations, Dakar, Senegal, 1988). S. Yoder.

Training in Qualitative Research Methods (UNICEF Social Mobilization Team, Lubumbashi, Zaire, 1988). S. Yoder.

The Choice of Treatment for Diarrhea in Niger State, Nigeria (APHA 1988). S. Yoder.

Beyond Individual Choice: Community Influence on Child-spacing Behavior in Jordan (APHA 1989). J. McDivitt.

Results of Research Conducted into the ORT Program in West Java (presentation to the Department of Health and USAID/Jakarta, 1989). J. McDivitt.

Evaluation of Health Programs (presentation to the School of Public Health, University of Diponegoro, Semarang, 1989). J. McDivitt.

Cultural Conceptions of Illness and the Measurement of Changes in Morbidity (Health Transition Meeting, 1989). S. Yoder.

Knowledge and Practices Related to Diarrheal Disorders, Oral Rehydration Therapy, and Vaccinations in Lubumbashi, Zaire (presentation to physicians and health officials in Zaire, 1989). S. Yoder.

Ethnomedical Diagnosis and Treatment (AAA, 1989). S. Yoder.

Zaire Baseline (presentation to directors of the EPI program and School of Public Health, in Zaire, 1989). S. Yoder.

What are We Learning from the Evaluation of the Communication for Child Survival Project? (at the Kickoff meeting for HEALTHCOM II at AID/Washington, 1989). R. Hornik.

The Ethnomedical Diagnosis of Diarrheal Disorders and Choice of Treatment in Lubumbashi, Zaire (at the Annual Meeting of the American Anthropological Association in Washington, DC, 1990). S. Yoder.

Presentation of the results of the baseline survey done in Lubumbashi to a group of physicians and researchers in Kinshasa and Lubumbashi (1990). S. Yoder.

What are We Learning from the Evaluation of the Communication for Child Survival Project? (at the International Communication Association conference in May, 1990 in Dublin). R. Hornik.

Talk to the staff of the PRITECH project on current issues in diarrheal disease program evaluation. R. Hornik.

Talk to the staff of the REACH project on evaluation methods and results from immunization campaign evaluations (February 8, 1990). R. Hornik.

Issues in Communication for Diarrheal Disease Control (presentation at the Johns Hopkins/UNICEF/WHO conference on Home Management of Diarrheal Disease on April 15, 1990). R. Hornik with W. Smith and M. Rasmuson

Communication and Child Survival (at the Pediatrics Department of the Albert Einstein Medical Center on April 24, 1990). R. Hornik.

**Fighting Disease through Communication** (at the University of Pennsylvania's 250th anniversary Celebration on May 17, 1990). R. Hornik.

**Beyond Individual Choice: Community Influence on Child Spacing Behavior in Jordan** (at the October 1990 APHA conference in Chicago). J. McDivitt and K. Wilkins.

Lecture at the University of Diponegoro on evaluation methodology (March 1990). J. McDivitt.

Additional analyses of Philippines data for William Smith's presentation at the meeting on "Eliminating neonatal tetanus: Issues and future directions" (January 1990, sponsored by USAID through REACH and MotherCare). S. Zimicki.

Talk at the Harvard School of Public Health in January, 1990, about the vaccination campaign in the Philippines. S. Zimicki.

## ENDNOTES

<sup>1</sup>More information on the HEALTHCOM programs in each country is available in Part I of this final report. The methodology used in the programs is described in: *Communication for Child Survival* by M. Rasmuson R. Seidel, W. Smith, & E. Booth. (Prepared by the Academy for Educational Development, for the U.S. Agency for International Development, June 1988).

<sup>2</sup>Evaluation activities in two HEALTHCOM sites that were part of the earlier USAID-sponsored Mass Media for Health Practices Project continued to be carried out by Applied Communication Technology.

<sup>3</sup>Summary of "Results from the Evaluation of the HEALTHCOM Project in Central Java: 1988-1989" by J. McDivitt & J. McDowell, in collaboration with Satoto & A. Palmer. Prepared by the Center for International, Health and Development Communication, Annenberg School for Communication, University of Pennsylvania, for the Academy for Educational Development and the U.S. Agency for International Development, March 1991.

<sup>4</sup> Half the mothers in the intervention area lived in a community with a health post.

<sup>5</sup>Summary of "Results from the Evaluation of the PREMI/HEALTHCOM Project in Ecuador: 1985-1988" by R. Hornik, E. Contreras-Budge, N. Ferencic, C. Koepke, & N. Morris, in collaboration with M.P. Torres, R. Pareja, & W. Smith. Prepared by the Center for International, Health and Development Communication, Annenberg School for Communication, University of Pennsylvania, for the Academy for Educational Development and the U.S. Agency for International Development, March 1991.

<sup>6</sup>Summary of "Guatemala Baseline Survey: Basic Tables and Implications for Strategy" by R. Hornik, O. Marroquin, N. Morris, J. Romero, K. Wilkins, and S. Zimicki. Prepared by the Center for International, Health and Development Communication, Annenberg School for Communication, University of Pennsylvania, for the Academy for Educational Development and the U.S. Agency for International Development, October 1989.

<sup>7</sup>Summary of "The HEALTHCOM Project in Jordan: Final Case Study Evaluation Report" by J. McDivitt, in collaboration with A. Abulaban. Prepared by the Center for International, Health and Development Communication, Annenberg School for Communication, University of Pennsylvania, for the Academy for Educational Development and the U.S. Agency for International Development, March 1991.

<sup>8</sup>Summary of "HEALTHCOM in Lesotho: Final Evaluation Report" by P. Yoder & Z. Zheng. Prepared by the Center for International, Health and Development Communication, Annenberg School for Communication, University of Pennsylvania, for the Academy for Educational Development and the U.S. Agency for International Development.

<sup>9</sup>Summary of "Immunization Coverage in Niger State: Findings from the HEALTHCOM Baseline Survey Carried Out in February 1988" by J. McDivitt, P. Yoder, & C. Koepke. Prepared by the Center for International, Health, and Development Communication, Annenberg School for Communication, University of Pennsylvania, for the Academy for Educational Development and the U.S. Agency for International Development.

<sup>10</sup>From "The HEALTHCOM Project in Papua New Guinea: Final Case Study Evaluation Report" by S. Zimicki. Prepared by the Center for International, Health and Development Communication, Annenberg School for Communication, University of Pennsylvania, for the Academy for Educational Development and the U.S. Agency for International Development, March 1991.

<sup>11</sup>Summary of "Understanding the Diarrhea Problem in the Philippines: Recommendations for Health Communication" by S. Zimicki. Field note prepared by the Center for International, Health and Development Communication, Annenberg School for Communication, University of Pennsylvania, for the Academy for Educational Development and the U.S. Agency for International Development, 1988.

<sup>12</sup>Summary of "Effect of the 1988 Metro Manila Vaccination Campaign: Results of Large-scale Surveys of Mothers" and "Effect of the 1988 Metro Manila Vaccination Campaign: Evidence from an Observational Study at Health Centers." Prepared by the Center for International, Health and Development Communication, Annenberg School for Communication, University of Pennsylvania, for the Academy for Educational Development and the U.S. Agency for International Development.

<sup>13</sup>Summary of "The HEALTHCOM Project in the Philippines: The National Urban Immunization Program: 1989-1990" by R. Hornik, S. Zimicki, M.B. Lee, J. Hernandez, E. de Guzman, C. Verzosa, M. Dayrit, M. Abad, A. Fausto, M. Pabalan, & M. Bagasao. Prepared by the Center for International, Health and Development Communication, Annenberg School for Communication, University of Pennsylvania, for the Academy for Educational Development and the U.S. Agency for International Development, March 1991.

<sup>14</sup>From "Evaluation of the HEALTHCOM Project in West Java: Results from Surveys of Mothers and Volunteer Health Workers" by J. McDivitt, J. McDowell, & F. Zhou. Prepared by the Center for International, Health and Development Communication, Annenberg School for Communication, University of Pennsylvania, for the Academy for Educational Development and the U.S. Agency for International Development, February 1991.

<sup>15</sup>Summary of "Results of the HEALTHCOM Evaluation in Zaire: Lubumbashi, 1988-1990" by P. Yoder, Z. Zheng, & F. Zhou, in collaboration with N. Rugagi & C. Ngwarsungu. Prepared by the Center for International, Health and Development Communication, Annenberg School for Communication, University of Pennsylvania, for the Academy for Educational Development and the U.S. Agency for International Development, January 1991.