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BASICS
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Abstract
The Expert Consultation on High Impact PVO Child Survival Programs sought to identify the elements of successful child survival projects operated by U.S. PVOs and other NGOs worldwide, and to recommend to the child survival community how those lessons could be used in the design and implementation of child survival activities in the future. Twenty-four papers were selected following a worldwide call for abstracts. The papers addressed the effectiveness, sustainability and spread of PVO child survival programs that used different strategies, including integration of services, partnering with government, participatory community strategies, operations research, management by information and perinatal focus. This volume presents the complete text of the papers presented at the meeting. Volume 1 is a Summary Report containing the conclusions and recommendations reached at the meeting along with the history and process of the consultation, meeting attendees, and abstracts of the papers.

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Introduction

For decades private voluntary organizations (PVOs) have implemented successful child health and survival programs throughout the world. This experience shows that the barriers to child health and survival are complex and varied from one community to the next. Effective and sustainable solutions are likewise varied. Effective child survival happens when there is a locally appropriate combination of technology, communication, and management-based data. There is no single "magic bullet" to keep all our children alive and healthy.

The full impact of programs is determined by a combination of their effectiveness at the community level, their sustainability, and their spread (coverage). The challenge ahead is for PVOs and the broader child survival community to share the many effective solutions that have been found at the community level, and to learn more about how to sustain program effects over time and to expand coverage to a larger population. These are the major conclusions of the Expert Consultation on High Impact PVO Child Survival Programs.

Held on June 21-24, 1998 in Washington, D.C., the Expert Consultation was sponsored by the CORE Group, the BASICS project, USAID's Office of Health and Nutrition (USAID/G/PHN/HN) and USAID's Office of Private and Voluntary Cooperation (USAID/BHR/PVC). The 55 participants, all with expertise in child health and survival, included 35 representatives of 15 private voluntary organizations (PVOs) and others from USAID, universities, UNICEF and other organizations working in child survival,.

The meeting was designed to: (1) identify and document the strategies, approaches and results of the most successful PVO child survival projects; and (2) analyze common elements in the most successful PVO projects and extract lessons that can be used to improve PVO and government-operated programs. In preparation for this meeting, the planning committee distributed a worldwide call for abstracts on successful PVO projects. The committee selected 24 papers from among the responses to be presented at the meeting. This volume presents the full text of those papers. A companion report entitled *Summary Report: High Impact PVO Child Survival Programs, Volume 1* presents the conclusions and recommendations reached at the June meeting, along with a history of the process of the consultation, a list of meeting attendees, and other summary information. Many excellent PVO programs were not submitted in response to the worldwide call for abstracts, and therefore the 24 selected papers form a representative subset of a larger group of successful and informative PVO child survival programs.

During the planning phase, the planning committee identified three major factors that determine the level of public health impact of child survival interventions:

> **Effectiveness**: the extent to which a program reduces child mortality, morbidity, malnutrition or other key survival threatening conditions in a small population;
> **Sustainability**: activities or their results that continue over a long period of time; and
> **Spread (coverage)**: includes both scale-up of programs and diffusion of benefits by other means; in other words, the number of people who benefit from the program and its influence.

Public health impact is a combination of these three factors, as reflected by the formula:

Impact = Effectiveness X Sustainability X Coverage

Many PVO programs excelled in one or two of the factors. Therefore, the Expert Consultation was organized to identify the lessons for each factor separately, as well as in concert.

PVOs have used different strategies to achieve success in each of the three different impact factors. For example, a focus on perinatal deaths has been an important component in several programs that achieved high effectiveness, but has not by itself been of special importance for achieving sustainability or spread. Community participation appears to be the key to sustainability in many programs, and is also a strategy used to achieve effectiveness at the community level. Partnering with the ministry of health and documentation of results through operations research and community-based information systems are strategies that have been used to increase coverage. In fact, the consultation identified six strategies used by many of the successful PVO programs:

- **Integration**: integrated multifaceted development across all health programs and beyond health;
- **Partnering**: close collaboration with the MOH, other PVOs, private sector, and other agencies;
- **Community**: community participation and empowerment (e.g. use of volunteers or capacity-building);
- **Information**: information for management to detect and diagnose problems, provide feedback, and conduct situational analysis;
- **Operations research**: problem-focused operations research; and
- **Perinatal/neonatal focus**: special attention during pregnancy and the first month of life to prevent infant deaths and stillbirths.

The Expert Consultation analyzed the contribution of these six strategies to each of the three impact factors, and drew conclusions about elements of the strategies and the conditions of their application which made them successful. An extensive list of these conclusions and recommendations is reported in Volume 1.

Each of the presented papers provides important lessons about several of the impact factors and strategies. In preparation for the June meeting, a table was prepared showing the impact factors and strategies where the lessons of each paper seemed to be the strongest. A summary of the table is provided below as a guide for the reader.

PAPERS by Author	IMPACT FACTORS			STRATEGIES						
	Effect-iveness	Sustain	Spread	Integrate	Partner-ship	Commu nity	Operation Research	Infor-mation	Peri-Natal	Other
Aubel, et al	.	X	.	.	X	X	.	.	.	.
Canahauti, et al	.	X	X	.	X	X	.	.	X	.
Clemmons & Clouibaly	.	X	X	.	.	X	.	X	X	.
Findley, et al	X	X	.	X	.	X	.	.	.	.
Gonzales, et al	.	.	X	.	.	.	.	X	.	.
Islam, et al	X	.	.	X	X	X	.	X	.	.
Kouletio, et al	.	.	.	.	.	X	X	X	.	.
Linggawijaya & Robinson	.	.	X	.	X	.	X	X	.	.
Mathur & Pulikkal	.	X	.	X	.	.	.	.	X	.
Maza	.	X	.	.	.	X	.	.	.	.
Muller	X	.	X	.	.	.	.	.	X	.
O'Rourke, et al	X	X	.	.	X	X	.	X	X	.
Pasion	.	X	X	.	X	X	X	.	X	.
Robinson, et al	.	.	X	.	X	.	X	.	.	.
Saha & Chander	X	.	X	.	.	.	.	X	X	.
Schroeder & Marsh	X	.	.	.	.	.	X	.	.	.
Shanklin	X	.	.	X	.	.	.	X	X	.
Shanklin & Robison	.	X	.	.	X	.	.	X	.	.
Sternin, et al	X	.	X	X	X	X	X	X	X	.
Tam (Dominican Rep.)	X	.	.	.	.	.	X	X	.	.
Tam (Latin America)	.	X	X	.	.	.	.	.	.	.
Vollmer & Valadez	.	.	.	.	.	X	X	.	.	.
Vor der Bruegge	X	X	.	X	X	.	.	.	X	.
Wind	.	.	.	.	.	.	.	.	.	X
Wubneh	.	X	.	.	.	X	X	.	.	.

Stretching the Limits of Health Interventions in Burkina Faso[1,2]

Sally Findley,[3] Ahmed Zayan,[4] Maria Kere,[5] Youssof Kone,[6] Gaston Sogbo[7]

Abstract

An evaluation of the Save the Children/U.S. child survival program in Sapone, Burkina Faso found that in the 18 program villages infant mortality rate dropped from 139 deaths per thousand live births in 1993 to 70 in 1996, while child mortality dropped from 54 to 35 deaths per thousand live births during the same period. Further, the data show a clear dose related effect; mortality reduction was greater in villages operating for more time and with more program elements implemented. Mortality data and focus group commentary support the hypothesis that complementary programs which facilitate the accomplishment of basics needs both free time for participation in health education and positively expand the resources required for maintaining health. Villagers comments clearly reflect an understanding of the synergism between health and non-health development efforts. Health is not enough.

Introduction

Many health programs in developing countries share the common goals of reducing infant and child mortality. But there is no consensus on the most effective way to attain these goals.

After regarding the historical evidence, some contend that improvements in child survival are most strongly associated with a wide range of social and cultural changes, such as changes in attitudes to child rearing, in expectations regarding future support for parents from children, and in women's expectations for themselves and for their children, often stimulated as part of the literacy revolution (Ewbank and Preston 1990; Basu and Basu 1991; Caldwell 1979, 1986). Of all the social factors associated with child mortality reductions, maternal education, specifically literacy, has been singled out as one of the most important. In studies conducted in diverse locations such as Bangladesh, India, Mexico, Nigeria, and Zambia, strong correlations have been found between maternal education and child mortality (Lindenbaum 1990; Jain 1994; LeVine et al. 1994). From the findings of these researchers, public health practitioners have advocated child health programs that are implemented in combination with a range of developmental interventions that will stimulate the kinds of social and cultural change believed to be the key to facilitating changes in health attitudes and behaviour.

While not discounting the effect of social factors such as maternal education, others demonstrate the importance of access to health care services (Omorodion 1993; Caldwell 1994). In Nepal, a key factor associated with health status was the use of modern health services, which in turn was correlated with proximity to a road and knowledge of a health care worker (Niraula 1994). Recent debates about reversals of the health transition in the Soviet Union and newly independent states focus on the deleterious effect of the disintegration of the health system (Barr and Field 1996). Accordingly, some advocate strengthening the availability of primary health care in the areas of high child mortality.

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[1] Originally published in *Health Transition Review*, v7n1, April 1997. An online version of that publication is reprinted here with permission.

[2] Submitted by Save the Children/U.S. (SC/U.S.) through it's office in Westport, CT. The authors gratefully acknowledge the contributions of the entire staff of Save the Children/Burkina to the development and success of the program described here. Without their efforts, we would have nothing to communicate. We also would like to acknowledge the support for the work from the US Agency for International Development, through its child survival grant to the Burkina program. Finally, we thank David Marsh and Save the Children/US, for their co-operation, enthusiastic support for the project and for the permission to publish the results.

[3] Sally Findley, MD is Associate Clinical Professor of Public Health, Columbia University, New York, and was Evaluation Consultant to SC/U.S. during the study.

[4] Ahmed Zayan, MD, MPH was child survival specialist with SC/U.S. in Burkina Faso.

[5] Maria Kere is Country representative for SC/U.S. in Burkina Faso

[6] Youssef Kone, MS was Program Manager for SC/U.S. in Burkina Faso at the time of this study.

[7] Gaston Sogbo, RN was Health Information System manager for SC/U.S. in Burkina Faso at the time of this study, and is currently Program Manager for SC/U.S. in Burkina Faso.

Of course, it is very difficult to isolate the effect of health care interventions, independent of educati· ɔr public health interventions. Often it happens that improved primary health care programs are implemented context o. significant economic and social changes, as in Pebley and Amin's (1991) study of Ludhiana district, . Even if the program's effect on mortality is assessed separately for each category of villages (with different h: and non-health components), overlaid on these changes are those of the broader societal development, which c.. ..dditionally and differentially affect program implementation and assessments. Indeed in their study, they find that ‹ erall child mortality rates declined at an equal pace across all combinations of program implementation. However, tney do note significant differences in gender-specific mortality. They attribute the narrowing of the sex differential in child mortality to the effect of health education on the family's traditional system for allocating health and nutrition resources preferentially to males. Thus, the net effect of the program depends on the interaction with cultural and social values.

The other factor to consider is the sensitivity of health behaviour to socio-economic or community development inputs. When the behaviour is complex or requires the presence of several complementary factors (e.g. money with which to buy medications, visit of the vaccination team, retention of a sequence of instructions for health care), the more complex kinds of behaviour are likely to be adopted in the situations where the appropriate factors exist to facilitate adoption. Although the cultural orientation to the behaviour may be identical across all program zones, the health interventions will not work as well where there are factors which counteract or offset the possibilities generated by the health program. For example, bringing a child for vaccinations when the mobile team visits requires that the team comes on time, that parents are notified of the visit in advance, and that they can free themselves to bring children for the team visit. The more isolated neighbourhoods may not be informed in time, those with poor road access may find it impossible to get to the team on the specified day, or the parents may not be able to interrupt the critical sequence of harvesting activities. On the other hand, if parents can mix their own sugar-salt solution, they can treat their children's diarrhoea whenever it happens, regardless of their distant location, poor roads, or other constraints.

For this reason, when evaluating the effect of health and non-health interventions, it is important to include a range of program types and behavioural changes. If there are differences in the adoption of behaviour associated with specific contextual variations, this will suggest the need to consider how susceptible particular kinds of behaviour are to specific program features that vary at each site.

The program in Burkina Faso offers the possibility of controlling for different combinations of program activities. In this project, developed by Save the Children/US, an integrated child health program was implemented in all villages, and in about two-thirds of them a specified combination of other programs was implemented. Further, the child health promotion project targeted a variety of health behaviour and outcomes, giving the necessary opportunity to assess the sensitivity of particular kinds of behaviour to variations in the program and developmental context.

Study area

The project area on which this paper focuses is the Sapone district of Bazega province, 30 kilometres south of Ouagadougou, the capital of Burkina Faso. This area is typical of the savannah area which constitutes the settled area of the Sahel. The area is dominated by subsistence agriculture, with the major cash crop being cotton. During the rainy season, people raise millet, sorghum, peanuts, beans, and vegetables. People live in villages, which are characterized by several different neighbourhoods, with the cultivated area extending beyond the village clusters. Despite the proximity to Ouagadougou, the villages are not served by electricity, and few have modern deep wells.

Although a few non-governmental organizations are working with Sapone district villagers, this paper focuses on the project organized by Save the Children/US. The program works with villagers to implement small-scale, low-cost community development projects according to the village's priorities. In all projects, the program's major inputs are to facilitate a discussion of possible improvement activities that the village might undertake, and then, having established the priorities, to train the villagers in the skills needed in accomplishing the activities. Materials used are locally manufactured or purchased by the villagers. Many of the villages have chosen to develop their cotton production, the major cash crop of the area. Other community development activities include village well construction, group guaranteed lending and savings, vegetable gardens and irrigated cereal production, and literacy training in village schools.

Since 1988, health components have been added to the projects in all villages encompassed by the project. The first health component focused on raising child immunization coverage. In 1992 a major child survival program was implemented. More importantly for the present paper, the health components were extended to villages which had not yet undertaken any community development activities. By 1993, the program had been implemented in 26 villages, reaching a population of 25,670, with 5,693 women of childbearing age and 4,859 children under the age of five.

The project adheres to a self-help philosophy. The village, through its extant committee structure, discusses its priorities and undertakes the activities it chooses. Any activity depends on the labour and material contributions of the villagers. The key input of the FDC is training, to enable the villagers to carry out their chosen activities. In the health programs, the project relies on a team of local women who have been trained as health motivators. The motivators conduct educational sessions on a variety of health promotion activities, such as use of simple salt solutions, and cleaning underbrush to reduce mosquito breeding grounds. They extend their activities by training local health committees, local volunteer health workers, and midwives in health promotion activities.

The project also has a strong self-evaluation orientation. Before commencing any health promotion activities, the project started with a village census to establish the situation at the start of the project. This census is updated annually, with regular monthly updates to vital statistics. The monitoring system includes several of the project inputs, making it possible to monitor program activities and outcomes.

The health intervention

The child health promotion project of Sapone targeted several activities associated with improvements in child survival: administration of oral rehydration therapy, immunization of children and women, adoption of improved maternal and child nutritional practices, prenatal consultations and adoption of birth control for birth spacing, and control of malaria. The project provided no actual medical services, but emphasized the training of local health workers to educate, counsel and refer the villagers. While the local health workers were trained to distribute essential medications, this was a minor element of the program. The project's main contribution was training and supervision of newly trained residents.

Table 1. *Distribution of villages by program mix*

Program mix	No. villages	Mid-project population	Crude death rate
Health only	5	5905	16.8
Health & literacy	3	2122	16.5
Health & non-education	3	3721	18.8
Health & literacy & 1	6	7731	17.9
Health & literacy & 2	6	4381	17.1
Health & 2 non literacy	3	2261	17.7

The key to the project's success was recruitment and training of people from the district to work as village health motivators. They educate and motivate village health committee members and village health volunteers who in turn educate and mobilize village parents. The village health motivators each are assigned 3-4 villages where they go bi-weekly to conduct educational sessions for villagers, train and mobilize the volunteers, conduct growth monitoring, and distribute medications such as chloroquine to the person in charge of the village drug supply.

In two-thirds of the villages, the health training is complemented by the introduction of self-help development programs, including well construction, village-based credit and savings, gardening and other farming changes, and adult literacy. For each of these programs, the project outreach staff help create a village committee to determine the village needs, to develop a plan for addressing the needs, and then to build the necessary service structure. The village is responsible for all the inputs and labour required for any construction projects, such as digging a well or building a school.

As with the health activities the project staff concentrate on education and training. Because the non-health sector programs are implemented at the request of the village, each village may have a different combination of programs. Table 1 outlines the different combinations found among the 26 villages.

Only five of the 26 villages had only health programs. In six villages health programs were complemented by only one other program. Establishment of literacy programs and village schools is the most common choice for a

complementary program, both when only one additional activity is selected by the village and when more than one are selected. In 15 villages (over half of all villages) the program mix includes literacy programs. In most cases, the literacy programs are further complemented by other developmental activities, usually village wells and small-scale credit programs. In only three cases were two complementary programs implemented when literacy was not included.

Program evaluation

The health programs were implemented for four years (1992-1996), with good baseline data for 1993-1996. Some of the non-health programs pre-date the health interventions, while others do not. The project activities were monitored regularly with on-site supervision and the submission of quarterly reports by staff.

In addition, a locally introduced and managed health information system generated the data needed to evaluate changes in health outcomes. Before implementing any program, the project organizers conducted a complete census and identified all women of childbearing age in the 26 villages. In each village, a specially trained 'registrar' received information from co-villagers regarding all vital events: births, deaths, marriages, migrations and moves. These were recorded in a simple notebook and then verified by the village health motivator with a home visit at the time of her regular bi-weekly visit. Verified events were computerized at the program office in Sapone. Data from February 1994, 1995, and 1996 are used in this paper.

The project was evaluated in 1996 using several different methods. The first set of data was obtained from the project's own monitoring system. This system provided information on vital events, immunizations, pregnancies, and selected indicators for vitamin consumption. The second set of data was obtained from household surveys conducted in 1994 and again in 1996, of approximately 200 randomly selected women age 13-49 years with a child under two years. They were selected in batches of seven from each village, with two batches selected in the larger villages. The surveys were conducted by interviewers trained from among the group of village health motivators and village registrars. The surveys included questions about knowledge and adoption of the child health care practices promoted by the village health motivators.

The third set of data for the evaluation of the project came from qualitative interviews and focus groups conducted in 1996. The focus groups were conducted with the village health volunteers, local health committees, and with a group of village men. The focus group questions, developed with the entire staff of the project, solicited points of view on the most beneficial activities of the project, those most beneficial to family health and to their level of living, the difficulties they encountered in adopting the suggested behaviour, and their suggestions regarding actions or advice for further improvements of the program.

Because of the particular interest in determining the effect of the health interventions with and without the multisectoral complementary activities, the evaluation was structured to allow a comparison of findings in projects with only health programs versus those with multisectoral activities. Focus groups were conducted in villages with and without complementary activities (two sets of groups in each category of village). Focus groups were conducted by moderators trained from among the group of village health motivators. Discussions were held in the Moore language and recorded in French by village health motivators serving as observers. No village health motivator conducted focus groups in any of the villages for which she was responsible.

Findings

As seen in Table 2 there were remarkable reductions in infant and child mortality during the three-year project period. For the baseline, figures refer to February 1994 for the original 18 'early starter' villages where the project was started. For villages added the following year (the late starters), the baseline refers to February 1995. Thus, it is possible to make comparisons between the groups for comparable program durations. For both early and late starters, the changes in infant and child mortality are reported by health and developmental program mix.

Table 2. *Change in infant and child mortality, 1994-1996 by village program mix*

Village category	IMR baseline	IMR final	CMR baseline	CMR final	% decline in IMR all villages
n=18 (1994)	139	70	54	35	50
n=8 (1995)	91	68	69	34	25
n=26	135	69	55	35	47
Villages with 2+ programs					
n=13 (1994)	136	52	50	25	62
n=2 (1995)	120	36	81	18	70
n=15	133	49	53	24	63
Villages with <2 programs					
n=5 (1994)	148	136	68	52	8
n=6 (1995)	49	107	53	40	118
n=11	85	117	59	24	37

Despite the short period for observing the effect of the program on mortality, it is clear that this was significant. Infant mortality declined from 139 to 70, a 50 per cent reduction. The child mortality rate (deaths to children under age 5) went from 54 to 35, a 35 per cent reduction. The second set of figures in Table 2 shows that the largest reductions in infant and child mortality occurred for the villages with two or more developmental interventions. In these villages, infant mortality declined from 136 to 49, a drop of 63 per cent. The two villages which were added to the program a year later actually had a slightly higher drop for the shorter observation period (a 70% decline). Child mortality rates also were halved, from 53 to 24. The child mortality decline was comparable in the early and later starting villages.

In contrast, the third set of figures in Table 2 highlights the much smaller reductions in infant and child mortality for the programs implemented in the villages with only one or no developmental activity. In these eleven villages, infant mortality actually rose from 85 to 117. Part of the reason for the increase is the presence of two villages which reported no infant deaths for the baseline year. The absence of deaths was rechecked only in 1996, so it is possible that there might have been some missed deaths, but none were found unreported in 1996. The two villages with no reported deaths were both later starting villages, and if we look at the figures for the early starters only, we observe a drop of only eight per cent, from 148 to 136. In the eleven villages with only health interventions, child mortality dropped from 59 to 24, a decline of 59 per cent.

If we consider only the contrast for villages which had the full three years of interventions (1993-1996), we eliminate the difficulty of comparing results for varying periods of intervention. These figures are the first ones reported in each panel of Table 2. The infant and child mortality reductions for the 13 villages with multisectoral programs are significantly higher than those observed in the villages with one or no non-health programs. Infant mortality declined by 62 per cent from 136 to 52 in the former villages, a difference which is significant at the .000 level (Chi-Square = 41.4). It declined by only eight per cent in the group with only one or no complementary intervention. This change in infant mortality is not significant (Chi-Square = 0.59). The change in infant mortality was also significantly greater in the former than the latter group (Chi-Square = 28.8). Finally, the 52 per cent reduction in child mortality for the villages with two or more complementary interventions was significant (Chi-Square = 8.62), while the child mortality reduction of 25 per cent for the villages with no or only one developmental intervention was not significant (Chi-Square = 2.2).

While the results cover only a small time period when program effects on mortality are usually not expected to occur, there is nonetheless evidence of a significant reduction in the villages with multisectoral interventions. It would be nice to be able to further disaggregate the study findings by type of developmental intervention, but unfortunately the number of villages involved and the different durations of program implementation do not permit a more detailed breakdown. In the next section of the paper we explore the behavioural and attitudinal changes that accompanied these different mortality reductions.

Survey responses on changes in behaviour in all the villages

Behaviour and attitudinal surveys conducted in the second program year and at the end of the program covered key child health promotion practices, including those related to reduction in diarrhoea, feeding during weaning, participation in growth monitoring, behaviour to avoid high-risk births, and child vaccinations. The surveys show an increase in health promotion behaviour across the entire program area. The following table documents the increase observed in this behaviour, at the start of program implementation and then after three years of operation.

Table 3. *Behavioral and knowledge changes, 1993-1996*

Objectives	Achievements	Before program %	After program %
Reduction in diarrhoea	Knows to give fluids	20	73
	Knows to breastfeed more	15	60
	Knows to give more soft food	6	47
	Uses ORS or SSS	33	92
Supplemental feeding at weaning	Knows to start porridge at 4-6 months	60	80
	Knows to give simple porridge without fat	58	79
	Knows what weaning foods to give	7	96
Participation in growth monitoring	Has a growth chart	75	99
	Had child weighed	30	76
High-risk births and STDs	Knows need for 3+ prenatal consultations	65	88
	Knows to have first consult. in trimester 1	42	82
	Had no prenatal consult. for last pregnancy	72	6
	Women having 2 or more prenatal consultations	12	68
	Wants to space next birth	69	83
	Uses modern contraceptives	45	48
Vaccinations	Child completely vaccinated	69	89
	Proportion women with 2+ anti-tetanus vacc.	97	98
N		240	210

The surveys show substantial adoption of recommended behaviour. The health promotion practices became almost commonplace among the population served by the programs. The mothers also registered substantial improvements in their understanding of factors promoting child health.

Because of small sample sizes in each village, we were not able to report the change in behaviour separately for each group of villages. However, we did conduct focus groups in each group of villages, and these interviews clearly show a difference in attitudes and behaviour in the two groups of villages.

The mothers clearly knew much more about the appropriate treatment of diarrhoea than they had at the commencement of the program activities. As seen above, the proportions knowing to give fluids, to give soft food, and to breastfeed more increased by about 3-4 times for each practice. At the end of the program activities, over half of the mothers knew these treatments for diarrhoea, compared to less than one in ten at the beginning. The mothers' knowledge is matched by their behaviour. Before the implementation of the health programs, only 33 per cent of the mothers knew to give sugar-salt-solution (SSS) to a child; at the end of the program almost all mothers knew this (92%).

More modest improvements in knowledge were reported for use of supplemental feeding to be given while weaning a child. At the start of the program, only seven percent knew what weaning foods to give. After three years of nutrition demonstrations and village nutrition education sessions 96 percent of the women reported knowledge of at least one weaning food. The proportion knowing what type of porridge (without fat) and when to give the porridge

rose from 60 to 80 per cent. At the end of the program, 99 percent of the mothers of two-year-olds reported having a growth chart and 76 percent reported having their child weighed. This corresponds to program statistics which show a dramatic increase in the number of children weighed on regular village health motivator visits.

In both categories of villages where focus groups were conducted, the men and women were well aware of the changes in health of their children and the contribution from their own activities. Women said the following:

> The health advice clarified much for us about how to raise and nourish children. Before we took care of children almost by chance. The educational sessions on diarrhoea have helped us better manage health problems.
>
> Now I know what to do when my child is sick with diarrhoea.
>
> The sessions on diarrhoea have helped us a lot. I had experience myself two times with diarrhoea, when using the packets stopped the diarrhoea.
>
> We now know how to take care of our children with different porridges, because mother's milk is not enough.

The village health committee observed the effect of this on mortality:

> We rapidly treat the little illnesses of our children and then we avoid the bigger illnesses and the big expenditures for medications.
>
> We know that diarrhoea is less now. The number of rehydration cases is down, and each diarrhoea lasts a shorter period.
>
> In following their advice, we have changed our hygiene and diet. Now we know these things. Those who follow the advice change; those who do not want to follow them, they don't change.
>
> We think that women have received advice, and this advice helps them improve our children's health. Thanks to the weighing of children and the food demonstrations our children are not so sick. They are better nourished and eat well. This advice has helped us improve our health, so that now certain illnesses do not get worse.

Although improvements in behaviour and reductions in mortality were observed in both categories of village, the view of these improvements differed in the two types of villages. In the villages without complementary developmental interventions, the focus group participants frequently noted the difficulties of participating in the health education sessions or in accomplishing the recommended changes, as the following comments of the village health volunteers illustrate:

> Without a deep well in the village, women must leave to search for water instead of participating in an educational activity. Also, illiteracy is a brake on their participation, because many women prefer to take care of their own work rather than participate in meetings.

The focus groups highlighted the importance of the village well on women's participation in health promotion activities. In the villages without a well, this is what they said:

> Our principal problem is lack of water. We are tired from going to fetch water. Sometimes we can't even find water. And even for washing it is difficult to find water.

In the villages with a village-dug well, men said the following:

> The well has saved women hours of walking and waiting. During the dry season our wives sometimes spent the entire day getting water. Now they can get it here. And so they have time to go to the education sessions.

Vegetable gardening and soil conservation practices also were noted for their effect on health:

> The gardening has helped us improve the health of our family. Part of the production we use to fortify sauces, and the rest is sold. Then we have money to purchase medicines when we need them.
>
> There has been a change in everyone's behaviour. Now our eyes are opened. People are more involved in village activities. Thanks to the advice on anti-erosive embankments, there has even been an increase in agricultural production.

> Literacy training, including for women, also was seen to be essential to the acceptance of new behaviour, according to the village health committee in one of the villages which did not have a literacy program:
>
> Training given to the village health volunteers is good, because village health agents alone can't take care of all the health problems in the village. But for the village health volunteers to function well, they need to be literate and to have regular refresher courses.

Table 3 also shows the effect of the programs promoting prenatal care, anti-tetanus vaccination, and improved diet for pregnant women. At the start of the program, 65 per cent of the women knew that women need three or more prenatal consultations, and 42 per cent knew that the first consultation should occur in the first trimester. However, only 28 per cent had any prenatal consultations for their last pregnancy, and only 12 per cent of the women had two or more prenatal consultations. Both the knowledge and the actual visits increased significantly during the project period. At the end of the project, the majority of women surveyed (88%) knew that three or more consultations were needed, and 82 per cent knew that the first consultation should occur in the first trimester. For their last pregnancy, 94 per cent reported having made at least one prenatal consultation, and 68 per cent reported making two or more visits for their last pregnancy. At the end of the project 98 per cent of the eligible women had received two or more anti-tetanus vaccinations. Thanks to the information on the benefits of birth spacing from the village health motivators, at the end of the project 83 per cent of the mothers with a child under two wished to delay their next birth, and of these 48 per cent reported using modern contraceptive methods for this purpose.

Again, the health committees were knowledgeable about these changes:

> The village health motivator helps us a lot in following our children. Thanks to her, we know about all pregnant women in the village. They accept taking chloroquine during their pregnancy (to avoid serious malarial episodes) and they take the iron recommended.
>
> We have learned how to follow pregnancies, and the changes are due to the discussions. The training is good, because women now understand more, and it's due to the meetings.
>
> The village midwife now is trained on the factors making for a risky pregnancy. We know when the woman must be evacuated.
>
> District health officers corroborated the increase in referrals for care and delivery since the project commenced.
>
> Women appreciate the information they have received about birth spacing. Among the project benefits articulated by the women were:
>
> There are the benefits of birth spacing, which are numerous. Such as rest for women, better growth of children, and better for the first child to stay healthy.

Since the discussions we have learned. Now we space our births.

Summary of the focus group commentaries

These comments highlight the different processes of acceptance of health messages and behaviour in the two program contexts. In the villages with only health program activities, the villagers wanted to make changes, but they clearly were less able to do so, and they failed to achieve the same kinds of mortality reduction that were obtained in the other villages. Women found it very difficult to find time to attend health education sessions or to carry out some of the simple recommendations. In contrast, in the villages with complementary programs facilitating the accomplishment of basic needs, women had time to go to the educational sessions and learn how to better feed and care for themselves and their children. In addition, some of the developmental interventions positively expanded the resources available for maintaining health: clean water, small amounts of cash to buy food or medicine, vitamin-rich foods to supplement the diet. In this way, the developmental activities were critical facilitators for the adoption of health practices.

The comments clearly reflect the synergism between the health and developmental activities. More importantly, they reflect the villagers' understanding of this synergism and their commitment to continue to promote it.

What we have learned

The program in Burkina Faso demonstrates the efficacy of village-based child survival programs. With fairly limited resources applied over a very short period of time, mothers throughout the project area demonstrated their ability to learn essential child-survival concepts and to apply them in their daily lives. As women and men observed in the focus groups, after learning the new skills, mothers felt competent to handle what were previously serious diarrhoeal incidents. They were glad to learn of steps they could take to protect their children's health, to improve their diet, to avoid malaria, and so on. And they found that they could actually accomplish these steps. Finally, they could see and appreciate the effect these behavioural changes had on their children's survival.

Equally importantly, the program shows the very important multiplier or facilitation effect of complementary non-health interventions. Developmental interventions significantly increase the effect of health interventions, mainly by giving the village women more time and resources to allocate to improving their children's health. In the villages where the health education sessions were not complemented by a variety of activities enabling the villagers to better meet their basic needs, they were less able to attend to the health education messages received. Pressures of time and inadequate financial or food resources limited what these villagers could do for their children and for their own health. They fully understood the dilemma they faced and were eager to undertake well digging and other activities that would enhance their ability to make desired nutritional, behavioural, and health care changes.

This project illustrates the significance of time as a major constraint on behavioural change. Both men and women feel constrained by their heavy work responsibilities. When it comes to a choice between fetching water and listening to the village health motivator, they must choose water. The weaker health outcomes in the villages without complementary developmental activities show that these repeated choices do inhibit major reductions in child mortality. If planners of health programs want to increase their effectiveness, they should carefully plan their activities to minimize the amount of extra and 'prime' time demanded for participation in the activity.

Within the health intervention itself, it is important to consider the timing of activities from the villager point of view. Whenever possible, health education sessions or demonstrations should be scheduled off the 'prime' working time of the morning and early evening when women are preoccupied with household chores. Complementarities within the program should be fostered whenever possible, as in the Burkina program where the baby weighing became the occasion for food preparation demonstrations. Co-ordination also should be sought among the various providers of health services. In the Sapone district program, for example, immunization coverage increased less than expected because the program could not accurately inform villagers of forthcoming visits by the mobile immunization team and they were unable to co-ordinate these with other events for which the villagers would be gathered anyway.

Consideration also should be given to ways to help men and women restructure their obligations so that more time can be freed to attend sessions and develop new health promotion skills. In the villages with complementary well digging and gardening activities, the activities effectively shifted more work and responsibility to men. The men dug the wells, which in turn enabled their wives to attend health education sessions. Similarly, the men assisted in construction of the vegetable gardens and anti-erosion dikes, which relieved the women's work burden, which normally includes vegetable and peanut cultivation. With these gardens, the women were more certain of producing vegetables, making their time investments more efficient.

To be cost-effective, health programs need to work closely with those promoting economic and infrastructure development, so that the investments in health are not wasted. In an arid area like Burkina Faso, well digging was a high-priority complementary activity for freeing time. The villagers also craved literacy programs, as with these they felt they could better retain the educational messages of the village health motivators. But whatever the essential resource, it is important for the health programs to co-operate with those undertaking developmental interventions so that the basic needs are met and resources are made available for effective participation in the health program.

At a minimum, planners of health programs need to consider the complementary inputs that families require in order to adopt recommended changes. Our experience in Burkina Faso suggests that there is ample desire to improve health. The limits come from the situation that does not easily generate necessary resources. In addition to time, important ingredients for health promotion might include a stable, year-round water supply, expanded availability of vitamin-rich foods, lamps for conducting evening educational sessions, and literacy training for women and men, so

they can write down and retain health education messages. Health program staff should co-operate with others so these things can be developed along with the health activities.

It may be that the utility of the developmental interventions goes far beyond their outcomes on time and financial resources. They also may be useful as educational tools. Each program requires the villagers to learn and apply new facts and skills. They have the opportunity to experience the efficacy of applying new ideas or approaches to solve their problems, reinforcing the already strong desire to learn. This experience is likely to be transferred to health interventions through greater receptivity to the interventions and understanding that application of the recommended changes will prove beneficial.

To achieve the maximum from a health intervention, it is important to stimulate and respond to the very positive attitudes towards health improvement, as was found in Burkina Faso. The health program activities did this with the participatory and empowering approach used. The health activities were introduced as steps that villagers could take to help their children to better lives. Fellow-villagers, with the full support of the village health committee, introduced each step; this made each element seem manageable, and hence more likely to be adopted. Further, the villagers put pressure on each other to adopt these activities. The village health volunteers worked hard to encourage women to attend health education sessions and to help them remember what to do.

Another element in the success of the Burkina program was the fact that villagers were accountable for their actions. Deaths, births, and other vital events were monitored regularly, and villagers gathered at least once a year to discuss their progress in achieving mortality reductions and other health improvements. This made improvements self-reinforcing, an achievement they could mutually applaud. In the villages without complementary developmental interventions, they were hungry for more improvements. In the villages where they had undertaken both health and developmental activities, they had much to applaud each year.

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Capacity Building Approach in Health and Family Planning in Bangladesh[1]

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Abstract

CARE's efforts in Sylhet District, Bangladesh, to strengthen the Ministry of Health and Family Welfare's capacity to deliver outreach services are described. Significant improvements in various child survival indicators are noted; for example, the percentage of fully immunized children increased from 6% in 1991 to 54% in 1995 while the percentage of children under 6 receiving vitamin A supplements increased from 16% to 74%. Seven "elements of success" of child survival programs are described that include training, supervision, coordination between services and community mobilization. The importance of the long-term effort by CARE and the MOHFW to create a partnership which began in 1986 is also noted.

Introduction

CARE/Bangladesh has been implementing child survival activities through its health sector projects since 1986 in different parts of the country with close partnership with the Ministry of Health and Family Welfare (MOHFW) of the Government of Bangladesh (GOB). In response to a request from the MOHFW, CARE/Bangladesh started the Child Health Initiative for Lasting Development (CHILD) project in Sylhet, a low performing as well as remote district in the northeast of the country in 1991. The causes for low performance include: i) inadequate technical and interpersonal skills of government field workers; ii) high vacancy levels of government field workers and supervisors; iii) low awareness and mobilization of communities; iv) very low literacy rate; and v) high level of religious conservatism restricting women's mobility and involvement in the community based health activities. The CHILD-I project (1991-1995) operated under USAID Child Survival Grant VIII and CARE funding in 5 of 11 thanas (sub-districts) of Sylhet District. Based on the achievements of CHILD-I, the CHILD-II project was initiated in 1995 under USAID Child Survival Grant XI and CARE funding for a four year period to cover the rest of the thanas.

Project objective

Strengthen the MOHFW's capacity to deliver high quality, sustainable and integrated outreach services by establishing closer linages between MOHFW field workers and the community.

Key strategies

Technical assistance to the MOHFW

Technical assistance to the MOHFW for implementation of child survival services included:

- Planning and organization of satellite clinics[5] and outreach centres;[6]
- On-the-job training to MOHFW service providers: joint field visits, informal meetings or discussions, education on maintaining EPI cold chain, record keeping, client counseling on family planning;
- Assisting the MOHFW managers to monitor and analyze the field performance: undertake joint field visits, establish control room at the thana level to monitor immunization and family planning activities, attend monthly meetings, organize special planning workshops.

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[5] Satellite clinics are organized at the community level to provide maternal health and family planning services by the Family Planning Wing of MOHFW.

[6] Outreach centres are organized at the community level to provide mainly vaccination service for children under 2 years and women of child bearing age (15-45 years)by the Health Wing of MOHFW.

Community mobilization and education

The community mobilization and education component includes the transfer of skills to MOHFW field workers for community education:

- Mothers group education using participatory innovative methods, such as child-to-child, participation on learning, and simulation games;
- Mobilization of key community members, including informal leaders, religious leaders, school teachers, and local elites, and use of different women grous of NGOs/GOB and the household owners of the outreach centres as community mobilizers.

In every thana 3 to 4 experienced project staff are posted and they undertake the above mentioned activities related to MOHFW capacity and community mobilization.

Results

The results of the final survey in the intervention and non-intervention areas were compared and an impressive upward trend was found in coverage for all child survival interventions, as shown in Table 1.

Table 1. *Analysis of coverage[1] for different child survival interventions*

Intervention	Intervention Area Baseline - 1991	Intervention Area Final - 1995	Non-Intervention Area Final - !995
Immunization [2]	6%	54%	16%
Family Planning [3]	10%	23%	8%
CDD/ORT[4]	39%	54%	10%
Vitamin A [5]	16%	74%	44%

Notes: (1) All data obtained from KPC cluster sample surveys. (2) Percent of children 12-23 months fully immunized. (3) Percent of all mothers who desire no more children in next two years using contraceptive method. (4) Percent increase of children under 24 months with diarrhea in past two weeks who were treated with ORT. (5) Percent increase in the number of children aged 0-72 months who received vitamin A supplements during the last six months.

Key elements of success

Address the GOB system. From a structural point of view the GOB health infrastructure is fairly good with a large number of workers posted at the different levels. Considering factors such as wider coverage and sustainability, the CHILD project has been partnering with the Ministry of Health and Family Welfare as a catalyst using its existing structure. The challenge was to bring the two wings (health and family planning) of MOHFW closer, especially at the field level in order to achieve better performance. So, CHILD's main focus was to do effective coordination between these two wings at different levels through joint action planning, meetings and field visits, and establish a control room at the thana level to monitor the progress of the health and family planning wing activities jointly.

Improve in-service and ongoing training approach. Improve the in-service and ongoing training approach of the MOHFW through technical assistance at the different levels: improve the quality of the routine meetings of the MOHFW staff held at the different levels (for example, assist in preparing the meeting agenda, assist in taking proper minutes of the meeting, discuss programmatic issues more than administrative ones); provide on-the-job training to field workers in planning and conducting the outreach service centres effectively (for example, preparing yearly schedules, providing education on how to do appropriate client counseling, record keeping, cold chain, drug dispensing and client flow).

Effective monitoring system with focus on quality performance. Besides MOHFW's routine data, CHILD has been tracing quality data on the outreach service delivery system, using a quality checklist that is complied at the end of each month to see trends. Results are shared with the managers, supervisors and field workers during monthly meetings.

Emphasize strengthening the MOHFW supervisory system. The project rightly identified the gap between MOHFW field workers and their supervisors who are reluctant to do field supervision or to practice the traditional "fault finding" approach which caused low staff performance, low morale and deterioration of service quality. The CHILD project put emphasis on improving the supervisory system by creating a support-a-vision environment rather than doing policing. CHILD organized training for the supervisors on how to do effective supervision (in-service training) and developed a continuous follow-up mechanism (direct observation in the field when making joint visits) which helped to improve the relationship between workers and supervisors.

Community mobilization and communication strategy. CHILD effectively used multiple channels at every opportunity to mobilize the community and touch every section of it. For example, local leaders, religious leaders, school teachers, children and TBAs were all used to good effect in awareness building exercises. To ensure more community involvement in GOB outreach health activities, CHILD organized training for household owners, who have been providing space voluntarily to conduct monthly MOHFW outreach health centre meetings. These household owners are now participating as volunteers in a whole range of activities, such as bringing the target children and mothers to the sites, and updating birth registers.

To enhance motivation for work as well as community ownership, the project introduced the system of awarding certificates and prizes to the best performers among the volunteers, among the MOHFW field workers, and among the supervisors.

Emphasize local resource mobilization through partnering with other sectors. The project assisted the creation of an effective linkage between health functionaries and the local level GOB institutions, such as the Union Council. The council members and Chairman are making useful cash and in-kind contributions to the program (such as boats, boat fares, carrying medicine and vaccine, and providing other logistical support in the most remote areas during monsoon).

Long-time relationship between CARE and MOHFW. Probably most important, CARE's many years of partnering experience with MOHFW in child survival (especially through TICA, a massive immunization program during 1986-1995, and the CHILD project since 1991) along with the skilled staff of the project have contributed significantly to make the project successful.

Major lessons learned

The strategy of the CHILD project has had a positive impact on the performance and motivation of health workers. This is particularly evident at the level of workers who interact with the community in the outreach and satellite sessions. Note that this was done without providing extras (such as payments) to the workers ot to the system in which they work.

Within the communities of Bangladesh there is a sense of community responsibility that can be used and rewarded. The program initiated by CHILD that rewards community participants on different occasions (such as on National Immunization Day or National Vitamin A Week) is a good example.

Future direction

Work has started to replicate the project in other low performing areas of Bangladesh. Based on lessons learned from the CHILD project, CARE started a new project called BATCHA (Building Appropriate Training for Community Health Activities) in January, 1997 under bilateral funding from a GOB project being implemented in Sunamgonj, a hard to reach district neighboring Sylhet. This project is also aimed at strengthening the supervisory system of MOHFW at the thana level and below. Thus this project should be an excellent test of the replicability, relevance, feasibility and effectiveness of the CHILD strategy in Bangladesh's most remote and most underserved district.

Where Child Meets Survival: Healthy Start for Child Survival in Indonesia[1]

Nancy Muller[2]

Abstract

PATH's Healthy Start program in Lombok Province, Indonesia has as its goals the strengthening of Lombok's existing birth-centered system by delivering preventive services to postpartum women and infants within one week of birth, and replicating the government's new model of having trained midwives rather than TBAs assist home deliveries. It aims to improve immunization coverage, iron, iodine and vitamin A status, exclusive breastfeeding, breastfeeding during illness, and cord care practice. Key elements of the project included community-based vital events registration, integrated birth-centered preventive health interventions, including family planning, and active outreach to newborns in the home. An evaluation shows substantial improvements in most of the key indicators. PATH's integrated approach in Indonesia began in 1987 with the Hepatitis B Model Immunization Program. The long, continuous association between PATH and the Government of Indonesia is cited as a key contributor to the program's success. In addition, new technologies were field tested such as the UNIJECT and new monitoring and evaluation tools like the verbal autopsy were applied in the course of implementation.

Context

From a population of 205 million in Indonesia - now the world's fourth largest country - 236,000 infants die in their first year of life; many of these deaths occur in the first few weeks of life. Most births take place at home, often attended by a traditional birth attendant with little training. For most families there is little contact with formal health care services before the baby is six to eight weeks old. By this time many babies have either died or have become victims of an infectious disease.

This was the situation on the island of Lombok in Indonesia before the start of the Healthy Start for Child Survival (HSCS) project. Maternal and infant mortality rates were unacceptably high (750/100,000 live births and 110/1,000 live births) and among the highest in Indonesia. In Lombok, nearly half of all infant deaths occurred in the first eight weeks of life. Home births (over 90 percent of all births) were attended by traditional birth attendants. Neonatal tetanus rates were higher than in other parts of Indonesia. Babies were not breastfed immediately, and many mothers gave early solid foods which could harm the newborn's digestive system, subsequently causing diarrhea, and all too frequently, death. Hepatitis B (HB) infection early in life was highly prevalent, a good deal of it transmitted from mother to child.

In addition, babies were susceptible to dying from diarrhea and acute respiratory infections, aggravated by vitamin and other micronutrient deficiencies. The first time a baby was seen by a trained health provider was when the mother would take her baby to the first health center visit at six to eight weeks of age or even later. Tradition prohibits taking a newborn out of the home for the first 40 days of life. Routine preventive health care services offered little for newborns and their mothers.

The project has been located in Lombok and Sumbawa, Nusa Tenggara Barat (NTB) province, and in Tabanan district, Bali. The population of Lombok is 2,500,000 and is primarily Muslim. The population of Sumbawa is 970,000, with a total land area that is bigger than Bali and Lombok combined, resulting in much lower population density. The population of Tabanan district, Bali is 367,660 and is primarily Hindu.

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Program description

Goal: Healthy Start's goal was to improve maternal health and child survival in Indonesia by: strengthening Lombok's existing birth-centered system by delivering preventive health services to postpartum women and infants at or within one week of birth, and replicating the birth-centered service-delivery approach in an Indonesian location that represents the government's new model of having trained midwives - rather than TBAs (traditional birth attendants) - deliver infants in the home.

Objectives: The project objectives were to:

- increase mothers' and infants' immunization coverage;
- increase the proportion of women and, thus, the number of infants, protected against tetanus;
- improve infants' and postpartum women's iron, iodine, and vitamin A status;
- increase the proportion of women exclusively breastfeeding immediately after birth;
- increase the proportion of women continuing to breastfeed infants during episodes of diarrhea and fever; and
- improve cord care practices of TBAs and midwives.

The key elements of the project were:

- community-based registration system for pregnancies, births, and child deaths;
- integrated preventive health interventions;
- active outreach to newborns in the home.

In the Healthy Start project, the birth of a baby is the focal point for preventive interventions. During the antenatal period village volunteers identify pregnant women and urge them to attend the antenatal care sessions at the village health centers. TBAs are taught hygienic delivery practices and provided with equipment to facilitate this. A system of weighing babies at birth and caring for these of low birthweight has been established. Immediately postpartum, the trained midwife visits the mother and newborn baby in the home. Mothers are given a tetanus toxoid vaccination, a vitamin A capsule, iodine capsules, and a month's supply of iron tablets. The baby is given the first hepatitis B immunization and the first dose of oral polio vaccine. Mothers are taught about breastfeeding and good hygiene. Bars of soap are given to reinforce this message. Mothers are encouraged to take the baby for follow-up immunisation in the health center, and information is given about the availability of family planning services.

The core of the integrated approach used in HSCS is the delivery of health care services in the home at the time of birth. This originated with the Hepatitis B Model Immunization Program established on Lombok in 1987 by the MOH (Ministry of Health) with technical support from PATH/International Task Force on Hepatitis B Immunization. This program demonstrated that it was feasible to give the first dose of HB vaccine to newborn babies in the home within a week of birth. This was important in a country such as Indonesia where 25 percent of HB transmission occurs perinatally (transmission of the virus from mother to infant at birth).The model program demonstrated that home visits were not only feasible, but they offered a unique opportunity for early contact with families that could be built upon for the provision of complementary services and education.

In 1986, the government of Indonesia (GOI) established several new community-based service delivery models to decentralize health services from the sub-district level community health center (*puskesmas*) to the village level sub-health center (*pustu*) and the integrated health post (*posyandu*). This included training a new category of worker called the *bidan di desa* (village midwife) to eventually replace the existing *dukun bayi* (traditional birth attendant). The Healthy Start program supports this GOI transition to a decentralized *bidan di desa* system.

To make outreach services possible in the HB Model Immunization Program, it was necessary to create a registry of pregnant women and a system of birth notification. The birth reports now trigger home visits by the village midwife. Because TBAs in Indonesia are not permitted to give injections and the majority of births are attended by TBAs, it is necessary to rely on midwives to make the follow-up home visits.

In 1990, the USAID/BHR/PVC-funded child survival program, Child Survival-Plus Two (CS-P2) was designed by the MOH and PATH/International Task Force using the active outreach visit as a base and adding many of the maternal and newborn preventive services and health education elements present in HSCS. This expanded model program brought a central focus to maternal and newborn services and tied together several interventions in an integrated "birth-centered" manner.

In July 1993, AusAID funded the HSCS program in Lombok and in the Tabanan district of Bali. This allowed further expansion and enhancement of the birth-centered model of service delivery. Collaborators were the Macfarlane Burnet Centre for Medical Research (MBC) of Melbourne, Australia, PATH/International Task Force on HB Immunization, and the Indonesian MOH at the national and provincial levels, with assistance from YKSSI (Yayasan Keluarga Sehat Sejahtera Indonesia), a local NGO This project funded extension of the model to 100 percent of the villages in Lombok by 1996.During this time, the record keeping system was simplified and the infant verbal autopsy system was expanded and revised. Iodine supplementation was provided to pregnant women and newborns in areas of iodine deficiency. To demonstrate how HSCS could more fully utilize the government village midwife system, the model program was extended to Tabanan District in Bali, where a large proportion of deliveries were attended by these workers. In all sites, wherever possible, the project supports the function of the village birthing center (*polindes*), a national initiative to give the village midwife a physical presence in the village where she can provide antenatal and obstetric care.

In 1995, the USAID-funded HSCS project was launched on Sumbawa and Lombok islands. It sought to further refine the model while demonstrating its replicability in Sumbawa and its appropriateness for use in an urban setting in Lombok. Sumbawa presented the challenge of replicating the entire HSCS birth-centered service delivery model, including institution of the home visits within a week of birth. Sumbawa also represented a much more widely dispersed population, including transmigration villages.

The project was implemented in the following phases:

1. Phase one commenced in 1993 working to test and refine strategies in 18 villages in Lombok and 30 villages in Bali.
2. In Phase two, the second project year, HSCS expanded to work in a total of 87 rural villages in Lombok, 16 urban villages in Mataram, and in all 110 villages in Bali.
3. In Phase three, all remaining rural sub-districts in Lombok were trained at the *puskesmas* level with a focus on villages with *bidan di desa*. Activities in Bali continued in 110 villages.
4. In Phase four, project activities were replicated to villages in all three districts of Sumbawa and to remaining urban villages in Mataram, Lombok.
5. Phase five, project activities were expanded to 23 new villages in Sumbawa district and meetings focused on improving hospital/clinic/NGO involvement in urban Mataram.

Project cofunding was received in 1997 from the Family Planning Program Fund at PATH to design and conduct a pilot program in strengthening early antenatal care and family planning. In Indonesia, pregnant women typically do not receive their first antenatal check-up until late in their pregnancy. To help women receive antenatal care earlier in their pregnancies and, thus, increase the quality of antenatal care, antenatal home visits were introduced in eight villages in the Alas *puskesmas* of Sumbawa. Village midwives and village family planning workers worked together to identify pregnancies as early as possible and to visit these women in their homes. The teams explained the *posyandu* system and stressed the importance of monthly antenatal visits. The woman was encouraged to attend the upcoming *posyandu* immunization session.

Results

Health impact

In order to evaluate the health impact of the HSCS project, several tools were employed including the verbal autopsy analysis and baseline and final KAP (Knowledge, Attitude, and Practice)/coverage surveys. The same KAP/coverage survey questionnaire was used in the 18 core villages in Lombok and Sumbawa with independent sampling of hamlets within those villages. The standard 30-cluster sampling method developed by WHO for immunization-coverage surveys was used. Women who had given birth within the preceding two years were included.

Statistically significant outcomes between the Lombok baseline and final KAP/coverage surveys:

- reductions in infant deaths
- reduced proportion of low birthweight infants
- decrease in mothers receiving no antenatal care
- increase in mothers attending four or more antenatal visits
- increased proportion of women taking iron tablets during pregnancy

- increased percentage of births attended by a midwife or nurse
- increased proportion of mothers in iodine-deficient areas receiving iodine supplementation.

Table 1. *Lombok KAP summaries*

Intervention/Practice	1993 Baseline	1996 Final
Birth:		
Mean number of births per mother	3.7	3.1 *
Mean number of infant deaths per mother	0.73	0.55 *
Low birthweight babies (2.5kg)	5%	2%
Breastfeeding:		
Infants zero to four months exclusively breastfed	42%	58%
Immunization:		
Mothers receiving two doses of TT during pregnancy	47%	73%
Mother taking iron tablets during pregnancy for 4 weeks or more	15%	63%
Babies receiving HB1 within seven days of birth	71%	84%
Nutrition:		
Postpartum mothers in iodine-deficient areas receiving iodine capsule	3%	66%
Babies under 12 months receiving vitamin A with measles vaccine	33%	83%

Note. * These results are highly significant statistically.

After just 18 months of HSCS activities on Sumbawa Island the KAP/coverage survey showed the following outcomes:

- mothers receiving complete antenatal tetanus vaccine coverage increased from 15 to 76 percent
- babies weighed at birth increased from 29 percent to 81 percent
- fully immunized children increased from 11 percent to 84 percent.

Other key results from the baseline and final KAP and surveys in Sumbawa are highlighted in Table 2. See Annexes A and B for results by objective.

Verbal autopsy. The purpose of the verbal autopsy is to obtain information on deaths occurring among infants in the project areas. Verbal autopsy data were collected in rural and urban Lombok and Sumbawa from March 1995 through December 1996. A total of 543 questionnaires were received and analyzed. The questionnaire used was a modification of the those designed by the Society for Education Action and Research in Community Health (SEARCH) team in India and by WHO. It consists of a series of modules, each of which deal with the major causes of infant death in Indonesia. A certain number of criteria must be fulfilled for each module in order to make a

Table 2. *Sumbawa and urban Mataram KAP summaries*

Intervention	Sumbawa Baseline/Final	Mataram Baseline/Final
Nutrition		
Pregnant women correctly take iron tablets	37% / 56%	56% / 63%
Women receive iron tablets postpartum	1% / 87%	14% / 41%
Women receive postpartum dose of vitamin A	1% / 87%	13% / 30%
Infants exclusively breastfed until at least four months	42% / 54%	67% / 69%
Antenatal Care		
Women attend at least four ANC sessions	41% / 63%	75% / 78%
Perinatal Care		
Infants receive clean cord care	62% / 88%	47% / 78%
Babies checked for low birth weight	29% / 81%	59% / 84%
Immunization		
Pregnant women receive at least two doses TT	15% / 76%	26% / 31%
Postpartum women receive TT	1% / 79%	13% / 29%
Fully immunized children	11% / 84%	56% / 76%
Infants receive HB1 within seven days of birth	3% / 90%	24% / 51%

diagnosis/diagnoses. More than one cause of death may be possible. The questions are asked by midwives trained in verbal autopsy methodology of the person who was closest to the infant before death, usually mother.

The verbal autopsy analysis shows a reduction from 20-25 percent to less than five percent in the number of infant deaths due to tetanus over a three-year period. This is likely due to a combination of better hygiene at time of delivery and increased maternal coverage with tetanus toxoid vaccine.

The main cause of death was acute respiratory infections (58 percent). Perinatal causes including stillbirths, low birthweight, prematurity, and complications of delivery accounted for an addition 14 percent of deaths. Currently, acute respiratory infections have overtaken diarrheal disease in frequency as the leading cause of child deaths.

The reduction in deaths from diarrhea can probably be attributed to active promotion of exclusive early breastfeeding and improved community utilization of the health care system. Thirty percent of all infant deaths occurred in the first month of life. Forty-two percent of neonatal deaths occurred in the first two days of life. Twenty percent of deaths occurred in infants of low birth weight (including premature infants). Only 15 percent of infants who died were seen by a doctor before death and only 13 percent by a *bidan di desa.* The prevalence of goiter (thyroid enlargement, usually indicating iodine deficiency) was mapped throughout Lombok and defined accurately - for the first time - the areas where iodine supplementation should be targeted.

Policy

Hepatitis B vaccination of all infants at birth and postnatal home visits by midwives to all infants and their mothers was adopted as national policy by the Indonesian MOH before the HSCS project concluded. Healthy Start and the projects which preceded it are providing a model and a stimulus for the entire country.

Sustainability

One of the most significant indications of the potential for sustaining the HSCS project has been its adoption into routine health services throughout NTB province - even before the project's formal conclusion. Project activities were incorporated into routine practice throughout Lombok in 1996 when the Health Department in NTB Province instructed all District Health Services to sustain the HSCS system using local and central funding. The Health Department in Bali has stated its commitment to both sustain the HSCS system in Tabanan district and to replicate it in Karangasem Regency, a more inaccessible district of east Bali, prior to expanding HSCS services throughout the island. The HSCS birth-centered service delivery approach is continuing not only in Lombok and Bali with local government funds, but it has also been extended throughout Sumbawa with World Bank funds and has formed the basis for the recently awarded (AusAID-supported) Healthy Mothers Healthy Babies project in SE Sulawesi and North Maluku provinces.

Because the whole project has been implemented by staff from the Indonesian Ministry of Health, the work has continued after project staff and funding have been withdrawn. The HSCS National Team has presented its own set of final replication documents to the MOH with a request to replicate the HSCS program in the 26 other provinces of Indonesia. An interpersonal communication and counseling video developed by the companion, AusAID-funded Healthy Start project has already been distributed to all provinces.

Cost-effectiveness

A cost-effectiveness analysis undertaken in 1996 showed that HB immunization, in general, is highly cost-effective and desirable, whether it is delivered at home or in an integrated health post (*posyandu)* setting. Home delivery is more cost-effective than *posyandu* delivery.

The HB-filled UniJect™ syringe was the most cost-effective method for delivering a birth dose of HB vaccine during a home visit as compared to a disposable syringe and multi-dose vial, or SoloShot™ with a single-dose vial.

Pilot projects

In a field trial among 100 midwives in Bali and Lombok, the UniJect™ prefilled, nonreusable injection device was stored in midwives' homes for up to one month and used outside the standard cold chain-a strategy that could extend immunization coverage to underserved populations. Use of UniJect™ out of the cold chain simplified cold chain logistics, minimized vaccine wastage, and facilitated speed and efficiency during home visits. The comparison of seroconversion among HB-filled UniJect™ stored both in and out of the cold chain with a control group injected

with HB vaccine using a standard needle and syringe showed 97 percent of children enrolled in the serosurvey had detectable HB antibody.

The village midwife-family planning worker teams in the Sumbawa pilot family planning integration project reported many advantages to these early antenatal home visits. They felt it made women more open-minded about antenatal care, and the relaxed environment of home visits allowed women to ask more questions about their pregnancies than is normally possible at the busy *posyandu*. First trimester antenatal care increased substantially in the eight project villages. The program tripled the rate of women receiving antenatal care during their first trimester. Those receiving permanent contraceptive methods, IUD, and Norplant , increased substantially. The local chapter of the government family planning office has identified internal funds to continue and expand the program in Sumbawa.

Documentation

Several brochures and articles have been, or will be, published, both in English and Bahasa Indonesia, describing the overall HSCS model and achievements. A color brochure in English and Bahasa Indonesia entitled *A Healthy Start for Indonesian Children* has been widely distributed internationally and within Indonesia. Text and photographs from this brochure are in PATH's web site. Draft manuscripts describing the complete HSCS model program and the verbal autopsy system will be submitted for publication in international health journals. With funding from AusAID and USAID/HealthTech, two articles on the single-use injection device, UniJect™, have been written. One has been accepted for publication by the *WHO Bulletin*; the second has recently been submitted to *The Lancet*. The first issue of *Reproductive Health Integration Issues* published by Initiatives, Inc., included an article on the incorporation of family planning into the Healthy Start project in Sumbawa.

Critical programmatic approaches and methodologies

Replication and integration

Replication as a goal

A stated goal of the HSCS project was to replicate the project in one additional area and provide sufficient information and experience to allow the MOH to make a decision on the birth-centered service delivery approach. Initially, the project focused on *piloting, evaluating, and refining* specific preventive interventions. All activities were directed toward the refinement of the approach in order to make it sustainable and replicable within Indonesia.

Key elements of the project design were:

1. involvement of national decision-makers;
2. regular review meetings with representatives from the national and provincial levels;
3. evaluation mechanisms;
4. participation in national-level workshops and conferences on maternal-child health, immunization and nutrition;
5. adaptation and implementation of the program in diverse geographic and socioeconomic settings phasing;
6. documenting the project and disseminating information;
7. submitting papers for publication in scientific journals;
8. linking with an international group of scientific experts in HB immunization;
9. participation at international donor agency meetings.

Build on existing infrastructure

A number of specific activities were undertaken to promote the continuation and replication of HSCS:

Use the existing MOH infrastructure. This strategy aimed at assuring continuation of the birth-centered approach beyond project completion. The project had strong involvement of key decision-makers from the outset, ensuring that lessons learned would be utilized in national health policy development. An Indonesian steering committee was established at the national and provincial levels to coordinate planning, implementation, and evaluation of the projects. The Chairperson of the National Team was the Directorate for Epidemiology and Immunization, with other members representing the Minister's expert staff on Epidemiology, the Directorate for Family Health Improvement, and the Center for Health Laboratories. The National Team was represented at semi-annual and annual review meetings and had routine debriefings from project staff in Jakarta and Lombok. National Team members were critical in influencing the national policy change which emerged during the life of Healthy Start. One member of the

National Team played a significant role in that he worked for the MOH but was also a part-time consultai PATH/Jakarta. This created a certain tension that was not easy at times for the HSCS staff who were not i rta to reconcile. However, his involvement has been a factor in the project's success. He was able to provide ti National Team with an ongoing synthesis and reminder of the HSCS achievements and challenges.

Support and enhance MOH policies. The project supported the MOH policy to decentralize health services t the periphery; specifically, the policy of placing a village midwife at the village-level sub-health center to assist with antenatal care and with births. The continued success of the HSCS model is reliant on the continued development of the *bidan di desa* system. There is every reason to believe that the government will achieve its goal of placing a *bidan* in every village. Various components of the HSCS model could be incorporated into the curriculum for *bidan* training, which would have the effect of accelerating the replication of the home visit model to other parts of Indonesia.

MOH documentation. The MOH, with assistance from the project team, documented the HSCS project as a resource that can be used by other Indonesian provinces to adapt the model. This process was aided by conducting a national level workshop in May 1996 that presented the findings of the project to national and provincial decision makers. HSCS staff attended other national and provincial level meetings that were appropriate to the project such as the Safe Motherhood Coordinating Committee meetings and National Immunization meetings. PATH plans to seek funding to carry out a post-project evaluation two years after the project's end.

Support existing structures with new systems

Home visit. HSCS is built upon the reality that 90 percent of births in Indonesia take place in the home and that most of these babies are not seen by trained health workers until they are 6-8 weeks old. The HSCS program fills this gap by using the home visit, within days of birth, to provide preventive perinatal health services. Contact with a family during pregnancy and birth establishes a pattern of active interaction between families, TBAs, and formal health care providers. Having the village midwife in the home of a postpartum woman personalizes the health services and engenders a lasting relationship. Because the services are more convenient for families, compliance with follow-up activities is more likely.

Birth-centered. Linking project activities to the event of birth has been easily understood and accepted at all levels. Program interventions reach backward in time to include pregnancy detection and early referral for antenatal care, and reach forward in time to include birth, postpartum care, and follow-up for well-child immunizations and well-child care. The birth focus for service delivery is a win-win approach. It is popular with the postpartum women who see the convenience and benefit of having critical newborn health services brought to their homes. It is preferred by the TBAs, who have received additional training, supplies, and support from the midwives. The project acknowledged the important community role the TBA plays, not only in assisting in birthing, but also in performing household chores for the new mother's family. The midwives, often young recruits who are new to the community, benefited from having the trusted TBA as their conduit to the pregnant and postpartum women who will eventually be the source of their income. And the formal health care system saw critical health services reaching a mother and infant at a time when infants were most vulnerable to disease.

Community-based registration of pregnancies, births, and deaths. Records of pregnant women, births, infant deaths, and immunization coverage are maintained by the village midwives. The information for these records is provided by a network of community helpers. Appropriate incentives were used to enlist the assistance of the community helpers. TBAs were given alcohol and cotton when they report births - tools that help them perform the community work more effectively. One of these is a village volunteer member of the Indonesian Family Welfare Movement (PKK), which operates from the national to the sub-village level in Indonesia and is chaired by the wife of the local government administrator or other prominent community member. The traditional hamlet chiefs are also used to transmit health information on pregnancies, births, and deaths to the midwives. Having this information collected at the village level raised the awareness of key community leaders, both formal and informal, as to the health status of their community.

Integration of vertical programs. In the HSCS model, integrated training of health workers, community leaders, and volunteers replace separate, disease-specific vertical programs-EPI, Nutrition, MCH, Health Education/Promotion, and Family Planning-with the focus on the events of pregnancy and birth. It adds cohesion to the health services when the focus is on the person rather than on individual services.

Relationships

Building relationships may have been one of the strongest approaches and impacts of HSCS. Digging a tunnel of light into the closed traditional project communities is all about establishing relationships of trust and understanding to help people feel comfortable trying something new. HSCS excels at this. Relationships between TBA and bidan allows the bidan to enter the TBA's world and contacts. Relationships between bidans and community are established through the home visits and expand into future health care opportunities. Relationships between the bidan and her superiors at the *puskesmas* are enhanced through the empowered bidan's role in HSCS. Province to lower-level relationships are established through the training and supervisory system that forces them to work together. Finally, relationships among expatriate project team members, donors, and all the direct service levels are facilitated by the local steering committees and regular review process-we learn much that will be applied to future programs. All these relationships are what make HSCS work.

Training/health education

The extensive training program developed for Healthy Start has been a cornerstone of the project. A strong training and retraining program was seen as a funding priority, particularly given the fairly rapid turnover of health center doctors. The training approach was revised to use a participatory training methodology and competency-based learning approach. A core of master trainers at the provincial level trained the district level trainers and were present at the majority of training sessions at the lower levels. Master trainers trained the sub-district level trainers, and the sub-district level trainers trained the village level trainers. This pyramid training structure has produced a large cadre of well-trained staff and administrators which has very likely contributed to the project's effectiveness.

The project produced a set of 22 training modules that were extensively revised and field-tested to make them generic enough to be easily used in other Indonesian provinces. An interpersonal communications and counseling training module was developed and then adapted to incorporate a training video produced by the Indonesian NGO, YKSSI. The video was subsequently distributed for use throughout Indonesia. A supervisor's checklist was also used to help improve the effectiveness of supervisory visits.

Regular retraining must be given a high priority for the quality of field activities to be maintained. The integrated approach to the initial round of training should be used, but in a more focused way, in order to meet the retraining needs of the participants. The thoroughness of the training is expected, however, to be one of the costs that is most difficult to sustain in its entirety.

Behavior change communication materials were developed using a participatory process to ensure appropriateness and comprehension. Local artists were used for all illustrations. Pamphlets were developed for the community volunteers in Bahasa Indonesia and Sasak, the language native to most of Lombok. Pamphlets were also developed on home care of low birthweight infants, personal hygiene, and breastfeeding. HSCS also used a set of sturdy, laminated color cards for village volunteers produced by the Provincial Governments of West and East Java and NTB and CARE Indonesia on basic health information.

The project evaluations, however, have faulted the number of health education messages given to the new mother during the perinatal home visit, particularly the referral to follow-up with family planning services. This contributed to a refinement to the pilot project undertaken in Sumbawa, to have a six-week postpartum joint visit by the family planning worker and the village midwife.

Monitoring and evaluation

A number of tools were used to monitor and evaluate the project. These included:

- Health information systems (HIS);
- KAP/coverage surveys (baseline and final);
- Cost-effectiveness study on prefilled syringe;
- Field evaluations of health technologies;
- Ongoing monitoring and supervision;
- Semi-annual and annual review meetings.

Health information system

The HIS encompassed several different tracking systems:

- Vital events registration system (pregnancy, birth, and death detection and reporting);

- Verbal autopsy;
- Monthly immunization forecasting and coverage;
- Collection of routine data on interventions.

The *vital event registration system* was introduced to encourage community-based recording of pregnancies, ·hs, and maternal and child deaths, thereby improving overall project management. It has been made possible by ı cooperation of community volunteers, traditional birth attendants, hamlet and village leaders, and health worke The system was refined with input from the MOH at all levels from village to province. This system is critical tı .he effectiveness of the HSCS model, as it forms the basis for increasing coverage of preventive health services at the time they have the greatest impact.

A *verbal autopsy system* for infant deaths was introduced in Lombok during HSCS. Verbal autopsy results can be used to: assess the major causes of infant deaths; study age and sex patterns of mortality; assess the impact of project and other health interventions on mortality; help make decisions concerning future health intervention priorities.

There was close coordination with the National Health Statistics Office to ensure that the revised HIS met their specifications and to facilitate the process of replication of this activity to other sites in Indonesia. The *routine data recording and reporting systems* were simplified and unified, resulting in less administrative burden for the service providers. Simplified case definitions were produced for the verbal autopsy materials. A lifetime history of maternal TT and micronutrient supplementation has been produced and introduced. A seminar for local health officials was conducted in order to provide them with the strategies and skills needed to use this routinely collected data to set measurable, relevant, and achievable program targets; to identify problem areas; to monitor program activities; and to provide local feedback in a meaningful form.

Goiter survey

Because of the widespread problem of iodine deficiency, the HSCS program undertook a goiter survey in 1994 to determine the goiter endemic areas of Lombok Island. Although not part of the ongoing HIS, the iodine map has provided a tool for monitoring future changes in iodine deficiency in Lombok. In the goiter-endemic areas, women attending antenatal sessions, postpartum women, and newborn infants are given a capsule of iodized oil to prevent the physical and neurological damage caused by iodine deficiency disorder. By selecting for supplementation only those areas with documented iodine deficiency, the government is able to target limited resources toward the most vulnerable populations.

KAP/coverage survey

A clear indicator of the program's success was the dramatic increase in basic health coverage as evidenced by the KAP/coverage survey results. These increases were made in programs that had been receiving focused attention from the MOH for several years prior to HSCS. That HSCS could improve coverage in these areas so quickly has helped convince the government policy makers that HSCS is highly appropriate and effective for Indonesia.

Cost-effectiveness analysis

A cost-effectiveness analysis undertaken in 1996 showed that immunization with HB vaccine is highly cost-effective and desirable, whether it is delivered at home or in an integrated health post setting. Home delivery of vaccine was shown to be more cost-effective than health post delivery.

Evaluation of health technologies

Because of the well-established relationships in Indonesia and the long-term nature of the Start project in Lombok, a variety of field evaluations could be undertaken. Several new health technologies were field-tested. These included:

Birthweigh scale. A simple, color-coded baby-weighing system was provided to traditional birth attendants in the Healthy Start project. The yellow and blue color codes on the scale indicate whether a child weighs under or over 2,500 grams, and correspond to tear-off reporting cards which are used by the non-literate TBAs to report the birth. The scale allowed a triage of health services and personnel to the low birthweight newborns, those at greatest risk for further health complications. This has allowed for better screening and management of low birthweight babies. There has been a recent suggestion that simple birthweigh scales may provide a useful means of evaluating the effectiveness of nutritional interventions during pregnancy.

Outreach syringe. UniJect™ field trial results from the Healthy Start project being published in several international journals will help to shape immunization practices internationally.

Several other health technologies were evaluated: pretreated strips to detect protein in urine and several ARI timers and counter timers. Although these health technologies were not adopted by the MOH into routine use, the evaluations have provided information on the acceptability, appropriateness, and design of these diagnostic tools. The evaluation results of the proteinuria strips have informed the development of other health technologies and may play a part in shaping best practices or management of hypertensive diseases of pregnancy. The ARI timer results were shared with UNICEF to assist in their deliberations on improving ARI diagnostics and may also come into play with the introduction of ARI vaccines.

Ongoing monitoring and supervision
Ongoing monitoring and supervision has been an essential component of integrating the program elements into routine MOH practice. MOH staff involved with this project at the peripheral levels were busy with their routine work. Focusing their attention on the effective management and implementation of another project, even if it was being integrated into their own systems, was time-consuming and was something that needed to be consistently reinforced at the provincial level. The principal investigator of the project at the provincial level was extremely knowledgeable and supportive of the project and was willing to use his authority to reinforce the importance of routine supervisory visits. Transportation costs for MOH supervisory visits was paid for by the project, as was customary for other MOH supervision. This did not cover time or per diem, just the cost of transportation. Each of these visits, which were often conducted with one of two members of the project staff, acted as a refresher training in key project elements. It appears now that the project has ended that supervision takes place, but less frequently.

Specific factors contributing to Healthy Start's success

Strong collaborations
Strong base of collaboration. HSCS has been part of a series of ongoing collaborations in Lombok, beginning with the hepatitis B model immunization program and extending to the current Hib (haemophilus infulenzae B) vaccine clinical trial. A solid base of respect had been established through PATH/Jakarta's relationships with the MOH prior to the Lombok model program. This positive relationship was strengthened and broadened by the involvement of the International Task Force on HB Immunization, a group of international experts on hepatitis B. Scientific study protocols were jointly developed for the HB model immunization program in Lombok by the Task Force, PATH, Indonesian MOH, Centers for Disease Control and Prevention, and in association with the sophisticated Indonesian research laboratory in Lombok, Laboratory Hepatika. This approach of having expatriates with recognized technical expertise interact with Indonesian counterparts at the highest levels to develop integrated, multifaceted programs to improve health care delivery has ensured the results would be taken seriously. It has also fostered a dependence on Indonesian skills and resources rather than reliance on a high level of external input. PATH, MBC (Melbourne and Lombok), and the MOH continued this thorough, research-oriented approach in the HSCS project where innovations that were built in to the project could be evaluated and their effectiveness documented.

Project collaborators were competent, honest, and committed to the project goals. The expatriate project team had technical skills in tropical medicine, epidemiology, health information systems, training and health education, evaluation, project management, and financial administration. The project worked closely, especially on the KAP surveys, with an Indonesian NGO, YKSSI, which had familiarity and strong relationships in Lombok with the MOH and the community itself.

It was challenging to work with so many different groups: MOH (national and provincial), MBC, PATH (Lombok, Jakarta, Seattle), YKSSI (Lombok). The existence of several experts with similar expertise who represented several institutions made joint decision-making difficult at times. The introduction of electronic communication assisted in communications but didn't solve all the hurdles. The fact that the HB model immunization program in Lombok and CS-P2 had been highly successful and was making a difference created a bond among the organizations. In spite of their differences, all the team members were ultimately willing to pull together for a shared goal.

Consistent and flexible funding
The HSCS project and its predecessor projects' ten-year time frame has been critical. The extended time period has not only allowed for interventions to be tried, evaluated, adapted, and revised and for results to be seen, but also has allowed for the formation of essential relationships with MOH collaborators at the national and provincial levels.

Over the life of the project, the funders have been exceptionally flexible, allowing mid-stream changes a additions. The projects have been funded by the James S. McDonnell Foundation, AusAID, USAID/BHK C, with field evaluation of health technologies through USAID's HealthTech project with pilot grant from PA1.

Working within a hierarchical system

The project has benefitted from working in a country that has a strong governmental hierarchy. It has meant that when someone in authority makes a request, it is generally followed. This applies at all levels. This has certainly contributed to the ability of the project to work in all 274 villages in Lombok and to expand so rapidly in the island of Sumbawa. Sumbawa also benefited from having a strong, experienced provincial management team including the master trainers. Two of the three district chiefs had worked on HSCS in Lombok, and so understood the program.

Lessons about successes and failures

Be alert for opportunities. In project review meetings before the end of the HB Model Immunization program, the team realized that by having shifted the location of service delivery, a tremendous opportunity had been created to add on a set of preventive, cost-effective perinatal services during the home visit. Instead of just seeing the project in terms of an effective mechanism for HB vaccine delivery, the potential for making the home visit far more beneficial and cost-effective was utilized.

Challenges of working with so many groups. There were tensions and frustrations but this also led to broader exposure, inputs, technical and financial support, and ownership.

Check out assumptions. Had the original premise that it would be culturally unacceptable to immunize an infant in the home within a week of birth been accepted, there would be no HSCS project.

Urban model required a different approach. Urban settings provide a variety of alternatives for antenatal and child health. With so many health options it was more difficult to implement and evaluate the Healthy Start model. Private midwives were useful in conducting the birth interventions; however, physicians and hospitals were resistant to following the program guidelines. In addition, the typical urban breakdown in community links posed problems for the community-based reporting systems. The program achieved results in urban Mataram, but between already-high baseline coverage and the limited reach of the public health system, results were not as impressive as in rural areas.

Cultural differences. The cultures and health systems in Lombok, Bali, and Sumbawa were each different. The program had to be adapted somewhat for each setting. Lombok presented the greatest challenges, including its IMR (infant mortality rate) of 110/1000 in 1990, which is one of the main reasons it was chosen as the primary project site. Project staff in Lombok have observed that its culture combines very strong traditional beliefs and an interpretation of Islam which is male dominated and not conducive to improving maternal and child health. Women tend not to be empowered or highly educated, making it difficult for them to care for their children in ways that may improve their health.

HSCS relevance to other locations. Although Healthy Start clearly benefitted from the relatively good primary health care system in Indonesia, the project was able to make a significant difference in areas where the IMR was the highest in the country, where coverage was poor, and where traditional cultural practices were not conducive to improved infant health. It is felt that the key approaches used in Healthy Start were what made the greatest difference, and that these approaches can be adapted and modified to be appropriate for other settings.

Key HSCS approaches

1. Work with and through the agency which is providing the bulk of the public health services which, in the case of Indonesia, was the MOH, to ensure ownership and sustainability;
2. Offer technical expertise in public health, epidemiology, HIS, training/behavior change communication, project management, health care financing, and other appropriate areas;
3. Collaboration starting at the highest possible levels with those responsible for perinatal services (MCH, EPI, Nutrition, Health Education, Family Planning);
4. Examine systematically the needs in perinatal health programming;
5. Design project around:

- community-based pregnancy, birth, and death registration
- community-based educators to motivate pregnant women to attend ANC
- active (home, community) postpartum outreach visits by TBAs and/or midwives
- integrated, preventive perinatal services;

6. Actively and creatively identify resources and potential obstacles in a project area;
7. Thoroughly explore assumptions about what will or will not work;
8. Strengthen overall training and interpersonal communication/counseling skills;
9. Reinforce supervision;
10. Strengthen HIS;
11. Build in evaluation tools;
12. Document;
13. Share information.

Annex A
Project Results by Objective, Lombok and Bali

OBJECTIVE 1: Improve micronutrient status of postpartum women and infants.

Results

- Significantly more women (93 percent as opposed to 78 percent) took iron tablets during their most recent pregnancy.
- Ninety-six percent of postpartum women had written evidence of receiving vitamin A after delivery.
- Eighty-two percent of infants received a dose of vitamin A (100,000 IU) around nine months of age, compared to only 33 percent in 1993.
- Of mothers living in villages of known iodine deficiency, 66 percent had documented evidence that they received an iodine capsule during the most recent pregnancy, compared to only three percent of respondents during the baseline survey.

OBJECTIVE 2: Increase coverage and on-time delivery of vaccinations to infants and women.

Results

- The coverage of maternal TT immunization increased significantly from 47 percent in the baseline survey to 73 percent in 1996.
- The percentage of women receiving *no* TT doses has decreased significantly from 42 percent to 12 percent. During the same period, there has been a dramatic reduction in neonatal tetanus in Lombok. This is due to a combination of better hygiene at the time of delivery and high maternal coverage with TT vaccine.
- Coverage for each EPI vaccine has remained high. Delivery of HB1 and OPV1 within seven days of birth has improved, from 71 percent to 84 percent for HB1 and from
- 69 percent to 84 percent for OPV1.
- In 1996, only one percent of deaths were due to measles and 0.8 percent due to pertussis (whooping cough), reflecting high immunization coverage.

OBJECTIVE 3: Increase proportions of postpartum women immediately and exclusively breastfeeding.

Results

- Almost 100 percent of mothers breastfed their babies.
- The proportion of infants who were exclusively breastfed from birth to four months of age went from 42 percent to 58 percent.
- Eighty-eight percent of women started breastfeeding within 24 hours of birth as compared to 77 percent previously.

OBJECTIVE 4: Increase the proportion of women continuing to breastfeed their infants during episodes of diarrhea and fever.

Results

- Deaths due to diarrhea were reduced from 9 percent in 1990 to 2.8 percent in 1996.
- Of the mothers whose children had a recent episode of diarrhea, only 8 percent gave the child less fluid during an episode of diarrhea, compared with 31 percent in 1993.
- There has been an encouraging reduction of more than 50 percent in the proportion of children receiving "antidiarrheal" medication and antibiotics, from 36 percent in 1993 to 17 percent in 1996.

OBJECTIVE 5: Improve ability to monitor women's lifetime history of TT vaccinations and micronutrient supplements.

Results

- A lifetime maternal TT card, being introduced nationally by the MOH, was distributed and used as part of HSCS.
- The percentage of women with health record cards at home increased from 19 percent to 55 percent.
- The prevalence of goiter was mapped throughout Lombok and defined accurately-for the first time-the areas where iodine supplementation should be targeted.

OBJECTIVE 6: Improve cord care practices of TBAs and midwives.

Results

- The verbal autopsy analysis has shown a reduction in the proportion of infant deaths due to tetanus from 20 to 25 percent to less than five percent over a three-year period. This is likely due to a combination of better hygiene at the time of delivery and increased maternal coverage with tetanus toxoid vaccine.
- There has been no significant change in the instruments used for cutting the umbilical cord.

OBJECTIVE 7: Demonstrat feasibility of having village midwives administer HB and TT vaccines in a pre-filled injection device.

Results

- One hundred and ten midwives delivered approximately 10,000 doses of HB and TT vaccine with UniJect™ during the ten-month field study in Lombok and Bali.
- Fifteen of 23 midwives observed used UniJect™ properly 100 percent of the time. Accidental expulsion of a small amount of vaccine or improper injection angle were noted in 13 percent of observations.
- After several months, all 33 midwives surveyed preferred use of UniJect™ over a standard needle and syringe.

OBJECTIVE 8: Evaluate the protection provided by HB prefilled syringe compared to HB delivered by a standard needle and syringe.

Results

- The recent study comparing seroconversion among HB-filled UniJect™ stored both in and out of the cold chain with a control group injected with HB vaccine and a standard needle and syringe showed that 97 percent of children enrolled in the serosurvey had detectable HB antibody. Of those vaccinated with UniJect™, 96.6 percent had detectable antibody as compared to 98.2 percent of those vaccinated with a standard needle and syringe.
- No significant differences were detected in geometric mean titer between any of the above comparison groups.

OBJECTIVE 9: Operational impacts of using a prefilled injection device for HB and TT vaccination stored and used beyond the cold chain.

Results

- A recent study found that the use of UniJect™ beyond the cold chain simplified logistics, minimized vaccine wastage, and facilitated speed and efficiency during home visits.

OBJECTIVE 10: Demonstrate a reduction in infrastructure costs by the birth-centered delivery of health interventions.

Results

- A cost-effectiveness analysis undertaken in 1996 showed that HB immunization, in general, is highly cost-effective and desirable, whether it is delivered at home or in a *posyandu* setting. Home delivery is more cost-effective than *posyandu* delivery.
- When comparing home delivery of HB at birth with a disposable syringe and multi-dose vial, SoloShot™ with a single-dose vial, or HB-filled UniJect™ UniJect™ was the most cost-effective method for delivering a birth dose of HB vaccine and a dose of maternal TT during a home visit and also carries the least risk of cross-contamination.
- Although the health benefits from delivery of a postpartum dose of TT during the home visit are difficult to quantify, they are likely to be the same regardless of equipment used during the home visit. As the incremental cost of delivering a maternal TT dose during the home visit is lower when UniJect™ is used, UniJect™ syringes prefilled with TT are the most cost-effective option.

OBJECTIVE 11: Improve community acceptance of trained midwives operating at the village sub-health center level.

Results

- The percentage of births attended by a *bidan* or nurse increased from 8 percent to 20 percent.
- In 1996, 82 percent of women said they had been visited at home by either a nurse, vaccinator, *bidan,* or health staff from the *puskesmas/puskesmas pembantu* (sub-health center).

OBJECTIVE 12: Sufficient information and experience for the Indonesian MOH to decide about the replication of the birth-centered service delivery approach to at least one additional site.

Results

- There has been a very recent policy shift by the Indonesian MOH to adopt at birth HB immunization nationwide as well as postnatal home visits to all infants and their mothers.
- The HSCS National Team is presenting its own set of final replication documents to the MOH with a request to replicate the HSCS program in the 25 other provinces of Indonesia.
- The Health Department in Bali has stated their commitment to sustaining the HSCS system in Tabanan district and to its replication in another more inaccessible district prior to expanding HSCS services throughout the island.

OBJECTIVE 13: Sufficient cost-effectiveness information and experience for the Indonesian MOH

to decide which interventions to replicate throughout the islands.

Results

- The 1996 cost-effectiveness study conducted by economists Laura Bailey and Anna Wetterberg, and the 1 tudy by the International Vaccine Institute (IVI) and PATH provided the Government of Indonesia with concrete informa nowing the cost-effectiveness of delivering HB in Indonesia. Furthermore, their analysis showed that home delivery o ccine was more cost-effective than delivery at the *posyandu*.
- The emerging *bidan di desa* (midwife in the village) system is the most attractive strategy for delivering HB at birth.
- The cost-effectiveness analysis of the UniJect™ device with HB vaccine carried out by the IVI and PATH ar Bailey/Wetterberg analysis have shown that HB vaccine delivered in the home at birth in UniJect™ costs U per disability-adjusted life-year (DALY) as opposed to US$75.96/DALY for HB delivered at the *posyandu*. Acc a recent World Bank study, any intervention with a DALY of below US$100 is considered an excellent investment in
- The Health Department in NTB Province has instructed all District Health Services to sustain the HSCS sys ng local and central funding.

OBJECTIVE 14: Increase training skills in interpersonal communications and counseling.

Results

- A video on interpersonal communication and counseling was developed by YKSSI and used in the Phase three training for HSCS field staff in Lombok. This video has also been distributed to all Indonesian provinces as well as other NGOs working in public health.
- The percentage of women attending four or more ANC sessions has significantly increased from 58 percent to 77 percent, an indication of increased motivation or information from *bidan di desa*, *dukun bayi*, and *kaders* about its importance.
- Further indications of improved IPC/C skills may be seen through health improvements in areas in which the primary intervention was health education such as in the decrease in mortality from diarrheal diseases; the reduction in mean numbers of births per mother from 3.7 to 3.1; and the increase in the percent of women breastfeeding within 24 hours of birth and women who exclusively breastfed for four months.

Areas for future work

On the basis of the final KAP survey and the verbal autopsy results, certain behaviors and practices stayed the same or did not improve significantly during the life of the project. These are areas that should continue to receive the attention of the MOH.

- The high proportion of infants dying from ARI would warrant a dedicated project.
- The percentage of pregnancies resulting in still births has remained the same. Thus, the project has been successful in reducing infant deaths but not stillbirths, and this strongly emphasizes that there is still a need for further strengthening of ANC services.
- The percentage of women applying potentially dangerous substances to the cord, such as rice, ash, salt/pepper and herbal medicine, has also remained high. In 1993, 36 percent reported that they used other substances in addition to or in place of alcohol, iodine, or mercurochrome. By 1996, this figure was still 30 percent. These findings show there is a need for more information and continuing training on cord care.
- The percentage of infants receiving something other than breast milk prior to the first breastfeed has decreased but remains high: 43 percent in 1993 vs. 37 percent in 1996. In Lombok, infants are often given something sweet to eat shortly after birth, e.g., honey, as part of the Muslim tradition; this may or may not be a health risk.
- There is scope for additional improvement in health education concerning weaning practices. In particular, messages about duration of exclusive breastfeeding and weaning foods need to be emphasized during antenatal counseling. Good counseling techniques (as opposed to simply giving information) should be reinforced with the *dukun* and *bidan*.
- There is a need to include traditional healers in any future health interventions and also to educate mothers on the early recognition and appropriate treatment of a sick child.
- Maternal TT coverage has improved; however, the implementation of the new TT card could be improved. As coverage of women of reproductive age increases, providers should be carefully checking the card before administering another injection to avoid causing unnecessary side effects.
- Although food intake during pregnancy has improved, there is still a need for further education in this area. Providers could be given a check list of counseling points to be checked off as the health education is done.
- There is still a need for improved communication between the health worker giving the iron tablets and the mother as to how the iron supplements should be taken, how long they should be taken, as well as an explanation why the tablets are being given. Many health care providers are themselves unclear about the rationale for taking iron tablets. This part of the training modules needs to be strengthened. A checklist of counseling points could be used. The issues surrounding iron supplementation are being explored by PATH in related studies in NTB.

Annex B
Project Results by Objective, Sumbawa and Urban Mataram

OBJECTIVE 1: Improve antenatal care by increasing the number of visits with full antenatal services.

Results

- More women in Sumbawa attended at least four antenatal care (ANC) sessions during pregnancy (from 41 percent baseline KAP to 63 percent final KAP).
- In Mataram, 78 percent of pregnant women attended four ANC sessions (KAP).
- Reasons for not attending ANC sessions included: "too busy with housework," "too lazy, "not necessary if healthy," "too far to go."

Conclusion

Antenatal care coverage has improved, but continued community education is necessary to increase mothers' understanding and to improve coverage to satisfactory levels.

OBJECTIVE 2: Increase the proportion of women and infants protected against tetanus.

Results

- In Sumbawa, 76 percent of women received two TT doses during pregnancy (up from 15 percent baseline).
- In Mataram, 95 percent of pregnant women received two doses of TT (routine health records).
- In Sumbawa, 79 percent of women and 85 percent of women in Mataram received a dose of TT within seven days of delivery (health records).
- Cutting the umbilical cord with a sterile instrument increased in Sumbawa (41 percent baseline to 59 percent final) and Mataram (75 percent to 87 percent).
- Only one infant died of neonatal tetanus in project areas (verbal autopsy).

Conclusion

Due to improvement in TT coverage and cord cutting, neonatal tetanus has been largely eliminated from project areas.

OBJECTIVE 3: Improve iron and vitamin A supplementation of pregnant and lactating women.

Results

- In Sumbawa, 92 percent of women reported taking iron tablets during pregnancy (up from 61 percent baseline).
- In Mataram, 91 percent of women reported taking iron tablets during pregnancy (final KAP).
- In Sumbawa, 87 percent of women received postnatal iron tablets AND vitamin A supplementation (up from one percent baseline).
- Although there was a 17 percent increase from the baseline of postpartum women in Mataram who had written evidence of receiving vitamin A supplementation, the total is was only 30 percent.
- Only 68 percent of pregnant women took iron tablets for more than one month during pregnancy (KAP).

Conclusion

Micronutrient supplementation increased significantly. Improved communications between health worker and mother on how iron tablets should be taken and correct use of iron tablets are still needed.

OBJECTIVE 4: Improve lactation management.

Results

- Breastfeeding rates remained high (100 percent in Sumbawa, 99 percent in Mataram).
- Mothers initiating breastfeeding within eight hours of birth increased in Sumbawa (from 60 to 72 percent final).
- Infants receiving something other than breastmilk prior to the first feeding has not changed and remains high in Sumbawa (56 percent) and Mataram (34 percent). (Typical traditional first foods include honey, bananas, and premasticated rice.)
- Mothers who remembered being given postnatal information about the importance of early AND exclusive breastfeeding remained low in Sumbawa (three percent) and Mataram three percent).

Conclusion

There is scope for additional improvement in health education concerning weaning practices. In particular, messages about duration of exclusive breastfeeding and weaning foods need to be emphasized during antenatal counseling. Good counseling techniques (rather than simply giving information) should be reinforced with the *dunkun bayi* and *bidan di desa*. Traditional healers should be included in training.

OBJECTIVE 5: Improve cord care practices of dukin bayi, mothers, and bidan de desa.

Results

- Use of alcohol, mercurochrome, or iodine for cleaning the umbilical cord increased in Sumbawa (from 62 percent base to 88 percent final) and Mataram (47 percent to 78 percent).
- Fewer women reported using harmful substances to treat the cord in Sumbawa (from 67 percent baseline to 43 percent final) and Mataram (63 percent to 26 percent).
- In Sumbawa, 43 percent of mothers continued to use potentially dangerous substances on the cord typically ash, rice, salt, or herbs.

Conclusion

While cord care is improving, there is a need for more information and continued training of *dukun bayi* and *bidan di desa*. Traditional healers should be included in training program.

OBJECTIVE 6: Improve identification and management of low birthweight babies.

Results

- In Sumbawa, 81 percent of babies were weighed at birth (up from 29 percent baseline). Mataram increased from 59 percent to 84 percent.
- Advice on home care of low birthweight infants increased in Sumbawa from 10 percent baseline to 67 percent final. In Mataram, 85 percent of mothers were given advice on how to care for low birthweight infants (up from 33 percent baseline).
- According to field anecdotes, in some areas, low birthweight babies continue to receive potentially harmful traditional treatments, such as cold baths.

Conclusion

Attention to low birthweight babies, and understanding of the importance of low birthweight as a factor in reducing infant mortality, has improved.

OBJECTIVE 7: Maintain high EPI coverage rates.

Results

- Hepatitis B vaccine delivered within seven days of birth increased in Sumbawa (from three percent baseline to 90 percent final) and in Mataram (from 24 percent to 54 percent).
- Full immunization coverage increased in Sumbawa (from 11 percent to 84 percent) and in Mataram (56 percent to 76 percent).
- No measles or pertussis deaths were reported from project areas (verbal autopsy).

Conclusion

Coverage for all EPI vaccines has improved dramatically, including delivery of hepatitis B vaccine and OPV within seven days of birth. Vaccine-preventable diseases have been substantially reduced.

OBJECTIVE 8: Improve the supervision of project activities and interventions through the development and use of improved supervisory-training modules.

Results

- Supervisory training modules were developed and used to retrain all project supervisors in Sumbawa and Mataram.
- A supervisory checklist was developed and used to improve, standardize, and document all supervisory visits.

Conclusion

Supervision has improved. A large group of MOH staff at all levels is available to facilitate continuation and expansion of the program.

OBJECTIVE 9: Improve community acceptance of bidan di desa operating at the village sub-health center level.

Results

- The percentage of births attended by a *bidan di desa* increased in Sumbawa (from 16 percent to 27 percent), and in Mataram (from 40 percent to 54 percent).
- More women were visited at home by a health professional in the postpartum period in Sumbawa (from 38 percent baseline to 91 percent final).
- Anecdotally, many *bidan di desa* reported greatly improved acceptance by the community.

Conclusion

The Healthy Start program has given *bidan di desa* specific health activities within the community, thus improving community acceptance. This is likely to result in increased utilization of formal health services.

OBJECTIVE 10: Promote replication of the birth-centered service delivery approach in Indonesia.

Results

- The Indonesian MOH has recently adopted the Healthy Start model of at-birth HB immunization and postnatal home visits to all Indonesian infants and their mothers.
- Using locally available funding, the district of Sumbawa has expanded Healthy Start activities to all 14 health centers in the district. The districts of Bima and Dompu are planning to phase in Healthy Start activities to all their health centers during 1998.
- An AusAID-funded project, Healthy Mothers Healthy Babies, will implement the Healthy Start approach in its project areas covering four provinces in eastern Indonesia.
- An AusAID-funded project will implement the Healthy Start information system in its project areas in three provinces.

Conclusion

The Healthy Start approach is considered appropriate and cost-effective in Indonesia. It is being prioritized for internal funding and for receiving increased external donor assistance.

The Impact of Women's Community Organization on Perina Outcomes in Rural Bolivia[1]

Kathleen O'Rourke,[2] Lisa Howard-Grabman,[3] and Guillermo Seoane[4]

Abstract

A maternal-child health intervention was conducted in a remote Bolivian province with limited access to modern medical facilities. The intervention focused on organizing and strengthening women's groups, developing skills in problem identification and prioritization, and training community members in safe birthing techniques. The intervention was evaluated by comparing perinatal mortality rates and behavioral changes among 409 women before and after the intervention. Perinatal mortality decreased from 117 deaths per 1,000 births to 43.8 deaths per 1,000 births following the intervention. There was a significant increase in the number of women's organizations as well as women's participation in organizations following the intervention. The percent of women receiving prenatal care and initiating breast feeding on the first day after birth increased significantly. The timing of care given to newborn infants improved in controls, but this change was not statistically significant. This study demonstrates that community organization can be effective in improving maternal-child health in remote areas.

Introduction

The goal of decreasing infant mortality in developing countries has been met with varying degrees of success. Costa Rica had one of the most successful programs and has decreased infant mortality rates from 68/1,000 in 1970 to 20/1,000 in 1980 (1). Costa Rica's success has been largely attributed to the development of primary and secondary health care (2). In addition, infant mortality rates also declined dramatically in Nicaragua by increasing access to health services as well as primary care practitioners, predominantly nurses (3).

Bolivia has one of the highest rates of infant mortality in Latin America, with estimated 1994 rates of 75/1,000 to 105/1,000 (4). Within Bolivia, infant mortality rates vary by region as well as by urban vs. rural setting, with rates approximately 50% higher in rural areas as compared with urban areas. Infant mortality is higher in indigenous groups (specifically Aymara and Quechua) when compared to the Ladino population (4). Since there are limited health care resources in many rural areas, one recommended approach for reducing infant mortality is the training of less expensive workers such as nurses or community health workers (5).

In Bolivia, an evaluation of the role of local community health workers found that they do not easily fit into leadership roles of either modern or traditional medicine (6). They also found that community health workers were more accepted by both the medical and local community when project personnel worked with both the community and the health care worker to establish roles and responsibilities (6). Specifically, training women to evaluate the health status of their children and family members has been identified as a cost-effective means of improving the health of communities in which there is limited access to modern health care (7).

Warmi project

The Warmi project, conducted from July 1990 to June 1993, was developed to improve maternal-child health based on community involvement in health care. This methodology was presented by the World Health Organization at the Alma Ata conference. Their recommendation for developing effective health programs was to organize

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"community participation and ultimately self-reliance with individuals, families, and communities assuming more responsibility for their health (8)."

The Bolivian Province of Inquisivi was selected as the Warmi project site based on its remote and rural characteristics as well as its limited access to formal health care. In addition, this area was already the site of previous Save the Children/Bolivia projects. Fifty communities participated in the project with goals to improve maternal, perinatal and neonatal outcomes.

Key components of this project include:

a. Organization and strengthening of women's groups;
b. Development and implementation of problem-identification and prioritization;
c. Development and implementation of a formal action plan based on identified community needs;
d. Training birth attendants and husbands in safe birthing techniques.

Health care infrastructure

The Warmi project was conducted in three geographic zones of the Inquisivi Province: Inquisivi, Licoma, and Circuata. In the project area, there are three health posts. Two referral hospitals are located outside the project area at a distance of one to two hours. The health posts in Inquisivi and Licoma are staffed by one physician and an auxiliary nurse, while the health post in Circuata is only staffed by an auxiliary nurse. All three posts have only basic medicines and equipment. Furthermore, the referral hospitals do not meet the minimum WHO standards, lacking sterilization and anesthesia equipment, and properly trained staff.

Local health facilities are underutilized by the population. This is due in part to economic and cultural factors, but also because of people's belief and experience that these facilities are not equipped to deal with medically complicated situations. Consequently, women with obstetrical complications which occur during pregnancy and labor are usually referred to hospitals in La Paz or Oruro (4-6 hours by road).

In rural areas of Bolivia, only 23% of deliveries are attended by either an MD or trained nurse. Approximately 55% of babies are delivered by a relative, most often the father, 14% are attended by a midwife or a traditional birth attendant and 6% of the time the woman gives birth alone (9). In Bolivia, the term midwives refers to trained medical personnel who deliver babies, while traditional birth attendants (TBAs) are individuals within the community who deliver babies but are not trained as part of the formal medical system.

The Warmi project used a community organization approach to teach women about their role in reproductive health. It was an intensive process with facilitators overseeing community meetings in which women learned to identify their problems and explored ways of prioritizing and solving problems. This report presents the findings of how the organization of women's groups can be an effective tool in decreasing perinatal mortality in developing countries.

Methods

Prior to the implementation of the Warmi project, a case-control study of all infant deaths from 28 weeks of pregnancy through 28 days of life (perinatal mortality) was conducted. This study identified all births as well as all perinatal deaths in the community area for the prior two years (1988-1990). A questionnaire was administered to 237 mothers (or to other family members when mothers were not available) in their homes. Questions included demographic characteristics, obstetrical history and details of their most recent childbirth. For each identified case, two community controls were selected. Controls were randomly selected from infants who were born in the same year, lived in similar communities, and lived for at least 28 days.

A second case-control study was undertaken following the intervention. Again, all births and perinatal deaths which occurred in the 2 years prior to the survey (1991-1993) were identified. During the second time period, 172 interviews were administered. Cases and controls were ascertained using the same methodology as the pre-intervention study. In addition, the same questionnaire was utilized in both study periods. Data from cases and controls from the pre and post intervention periods were analyzed to determine changes in study objectives following the intervention.

Statistical analyses were performed in SPSS (10). Chi-square tests were performed on categorical data. Continuous variables were categorized according to determination of appropriate cutoff points from previous studies. The

Breslow-Day Test for Homogeneity of the Odds Ratios was used to identify differences in commun hang between cases and controls (11).

Results

Demographic comparison of communities

Characteristics of the three geographic zones in this study vary widely in stability and traditions. The Inquisivi zone is an older, more established and stable neighborhood, with more dispersed homes. In contrast, the communities in Circuata are newer with a large number of recent immigrant families. The villages are more concentrated than Inquisivi and the women are more apt to be bilingual. Licoma is a more mixed community with characteristics of the other two areas (12).

Table 1 provides a comparison of selected demographic characteristics in the study area. Inquisivi women were more likely to be married than women who live in Licoma and Circuata. Languages spoken were used as surrogates for ethnicity. The majority of women in all communities are Aymara Indians, but Inquisivi had a higher percentage of Aymaras and fewer Quechuas than the other communities. The presence of a dirt floor has been used as a measure of lower SES. Although the majority of women had dirt floors in all communities, the percentage was highest in Inquisivi. Women in Inquisivi were also less likely to participate in community organizations than other women, but this finding was not statistically significant.

Table 1. *Socio-demographic characteristics of women living in the three zones in Inquisivi Province, Bolivia*

		Community			
		Inquisivi (sample = 134) n (%)	Licoma (sample = 114) n (%)	Circuata (sample = 161) n (%)	p-value
Married		124 (92.5)	98 (86.0)	133 (83.1)	0.053
Language spoken:	Spanish	123 (93.9)	98 (89.1)	139 (95.9)	0.096
	Aymara	122 (93.1)	90 (81.8)	99 (68.3)	<0.001
	Quechua	27 (20.8)	35 (31.8)	39 (26.9)	0.149
Literate		114 (85.1)	92 (80.7)	136 (84.5)	0.606
Dirt floor		120 (89.6)	83 (72.8)	133 (82.6)	0.003
Participate in women's organizations		80 (60.6)	64 (56.1)	103 (64.0)	0.424

Mortality

Perinatal and neonatal mortality decreased significantly during the time period between the pre-intervention and the post-intervention period. Table 2 presents the total numbers of births and perinatal deaths recorded in the community registry and is not limited to the study population. During the first study period, a total of 639 births were identified. Of these, 36 infants were classified as either fetal death or stillborn, and 38 died after birth (data not shown). The timing of death for one infant was not available. During the second period, 708 births were identified. Of these, 21 were classified as fetal deaths or stillborn, while 10 died after birth.

Table 2. *Combined perinatal and neonatal mortality for the two study periods in Inquisivi Province, Bolivia (n=1,347)*

Period	Living n (%)	Not living* n (%)	Total
Pre-Intervention (1988-1990)	564 (88.3)	75 (11.7)	639
Post-Intervention (1991-1993)	677 (95.6)	31 (4.4)	708

* Includes deaths from 28 weeks gestation through 28 days after birth. Chi-sq p<0.001, 1 df

This decrease in observed mortality could potentially be due to changes in the populations surveyed between the two time periods. This could occur in several ways: (a) if more women were surveyed from one zone following the intervention as compared with before, or (b) by changing demographics within the area due to migration. However, neither is likely as the percentage of women surveyed in each

community from the pre to post intervention time periods remained constant. Furthermore, between pre-intervention and post-intervention periods there was no statistically significant change in socioeconomic variables such as maternal literacy, housing characteristics, or in language spoken (data not shown).

Intermediate outcome data

The following tables (Tables 3-6) are based on comparisons from the pre-intervention to the post-intervention period. Table 3 presents data on all women combined while Tables 4 and 5 provide data separately for cases and controls with the Breslow-Day Test to identify any significant differences between groups.

The primary program strategy was to increase the participation of women in women's groups. There were a variety of groups for women in the Inquisivi area with differing functions and effectiveness. These included mothers' clubs, syndicates, women's organizations and co-operatives, and are described elsewhere (12). Women's organizations were seen by the project staff as the most effective means to organize women around health issues. Consequently, program staff focused on these groups, initiating or strengthening fifty women's organizations.

Mother's clubs which had served for food distribution programs were no longer actively distributing food and these decreased markedly in the project area, while the numbers of women's organizations increased markedly (Table 3). These results taken together indicate that there was not an overall increase in the numbers of organizations in the community but rather a restructuring of the type of organization women attended following the program. Similarly, women's participation in the women's organizations also increased significantly while participation in mothers clubs decreased (Table 3). In addition, there was a greater level of participation of women in any group.

There were several objectives addressed by women's organizations: (a) increasing knowledge of reproduction, contraceptive use, danger signs of complications, and self-care, (b) improving immediate newborn care, and (c) increasing the percentage of women who received prenatal care and were cared for during delivery by a trained birth attendant. In this study, trained birth attendants included both husbands and other family members as well as local TBAs.

Table 3. *Existence of and participation of women in women's organizations between pre- and post-intervention periods (n=409)*

	Group in Community		Participation in Group	
Group	Present n (%)	P-value	Member n (%)	p-value
Mother's Club		<0.001		0.072
Pre-intervention	41 (17.3)		26 (11.0)	
Post-intervention	1 (0.6)		10 (5.8)	
Women's Organization		<0.001		<0.001
Pre-intervention	75 (31.6)		18 (7.6)	
Post-intervention	119 (69.2)		93 (54.4)	
Any Group*		0.779		<0.001
Pre-intervention	231 (97.5)		100 (42.2)	
Post-intervention	162 (97.0)		147 (86.5)	

* Includes Mother's Clubs, Women's Organizations, Syndicates, Co-operatives, Neighborhood Committees and Credit Programs.

Table 4. *Comparison of women receiving prenatal care from pre- to post-intervention periods (n=390).*

	Cases* Received Prenatal Care		Controls** Received Prenatal Care	
Period	No n (%)	Yes n (%)	No n (%)	Yes n (%)
Pre-intervention	41 (54.7)	34 (45.3)	77 (51.0)	74 (49.0)
Post-intervention	12 (40.0)	18 (60.0)	48 (35.8)	86 (64.2)

** Chi sq p-value=0.175; ** Chi sq p-value=0.009*
Breslow-Day Test for Homogeneity of the Odds Ratios Chi sq=0.004, 1 df. P-value=0.952

Table 5. *Attendance at deliveries by trained birth attendants comparing pre- and post intervention (n=391).*

	Cases* Attendance at Deliveries		Controls** Attendance at Deliveries	
Period	Yes n (%)	No n (%)	Yes n (%)	No n (%)
Pre-intervention	21 (28.8)	52 (71.2)	56 (37.1)	95 (62.9)
Post-intervention	11 (35.5)	20 (64.5)	40 (29.4)	96 (70.6)

*Chi sq p-value=0.497; **Chi sq p-value=0.169
Breslow-Day Test for Homogeneity of the Odds Ratios Chi-sq=1.596, 1 df, P-value=0.206

The program objective of increasing the number of women who received prenatal care during their pr ncie. showed improvement (Table 4). Both cases and controls were more likely to receive prenatal care foll g the intervention, with a statistically significant change for both groups combined. However, there were no tically significant differences between cases and controls.

The program objectives of training birth attendants and increasing the percentage of deliveries attended by rained birth attendants gave mixed results. In this analysis, trained attendants included TBAs, *promotoras*, physicians or nurses. There was a decrease in the percentage of child bearing women attended by TBAs for cases and an increase for controls but these findings were not statistically significant (Table 5).

Program objectives focusing on improving timing of newborn care also had mixed results (Table 6). A greater percentage of control newborns were attended immediately after delivery and there was a decrease in the timing of care for cases. The Breslow-Day Test for Homogeneity approached statistical significance (p=0.058) indicating a difference in changes between the two groups. The timing of breast feeding was only evaluated for control infants as the majority of cases would not have survived childbirth. A significantly greater percentage of control infants were breast fed on the first day of life following the intervention, 50.3 as compared with 25.3 prior to the intervention (Chi sq = 18.77, p-value <0.001).

Table 6. *Comparison of the timing of immediate care given to newborns at delivery between pre- and post-intervention periods (n=358).*

	Cases*		Controls**	
Period	Yes n (%)	No n (%)	Yes n (%)	No n (%)
Pre-intervention	15 (24.6)	46 (75.4)	50 (34.2)	96 (65.8)
Post-intervention	2 (8.7)	21 (91.3)	52 (40.6)	76 (59.4)

** Chi sq p-value=0.106; ** Chi sq p-value=0.274*
Breslow-Day Test for Homogeneity of the Odds Ratios Chi sq=3.580, 1 df, P=value=0.058

Discussion

Decreased infant mortality rates

Infant mortality rates provide an important indicator of community health status and are often used as a determinant of overall socio-economic development. Perinatal mortality rates, on the other hand, are a measure of women's health and the quality of health care provided during pregnancy and the intrapartum period (13). In this study, perinatal mortality was examined to identify the effect of a health intervention program focused on improving the health of women and children through organizing women to improve their health situation. Prior to the program, rates of perinatal mortality were extremely high in the Inquisivi area, with approximately 117 deaths per 1,000 births. Following the intervention, perinatal mortality in the project area decreased by 65%.

The decrease in mortality could have resulted from the intervention program or from other factors. Since there was no control community, it was difficult to determine with certainty which was the case. It also does not appear that changes in demographic characteristics accounted for the decrease in mortality as there were no differences in measures of SES, language spoken, literacy, or housing factors, between the two survey periods. Furthermore, there was no direct evidence of other causative events in these remote, isolated communities.

Reporting bias is one factor that could potentially influence this study. This is not likely in this case, since the same community registration methodology was utilized for both study periods. In fact, the project staff identified more births but fewer deaths during the second set of interviews.

Another possible cause of the decrease may have been a regression toward the mean resulting from the initially high mortality rate present during the first period. This is not likely to be the full explanation due to the magnitude of the decrease found. Thus, while it is not possible to determine absolutely that the decrease in mortality is the result of the intervention program, it seems reasonable that it was responsible for at least some of the impact.

Women's organizations

In this study, one of the greatest changes was the increased participation of women in women's groups. Within these

organizations, women were encouraged to become more actively involved in identifying health needs and designing programs to address these problems. Women discussed obstetrical complications and in the process learned that many reproductive health problems considered a matter of fate could in fact be manipulated.

One example of this was teaching women to care for the baby immediately after delivery and not wait for the delivery of the placenta. Although changes in the timing of infant care were not statistically significant, there was improvement with a greater percentage of control infants being attended immediately after delivery. In contrast, fewer cases were cared for immediately, although this could partly be due to the lack of attention given to stillborn infants. Other specific activities addressed in the women's organizations varied by community and included literacy training, developing use of credit programs, presenting educational programs about safe pregnancy or implementing family planning.

Study limitations

Classification of the time of death was based upon maternal recall and should be considered only approximate. It is not clear how well women were able to differentiate between a fetal death, which occurred prior to the onset of labor, and death that occurred during labor and delivery. Furthermore, infants were not always attended to immediately after delivery. It is therefore possible that an infant who was liveborn but died shortly after delivery would have been incorrectly classified as stillborn. Consequently, for the purpose of this evaluation, all deaths were grouped together and no sub-analyses were done by time of death.

One project objective not able to be fully evaluated was the training of birth attendants and husbands in safe birthing techniques. In Inquisivi, there are few individuals who function in the role of traditional birth attendant, i.e. a person within the community who delivers babies and has acquired her skills by working with other traditional birth attendants. Thus, the training of birth attendants focused on teaching individuals who were identified as potential birth attendants but not on improving the skills of already existing traditional birth attendants. Husbands were trained in safe birthing skills but it was not possible to identify the training status of the husband from the women's responses. Thus, the analysis of care provided by trained birth attendants did not include trained husbands.

Improvement in pre and postnatal practices

There were significant increases in the number of women who received prenatal care during their pregnancies. Previous studies have identified decreased risk of stillbirth and neonatal mortality for women who receive prenatal care (14). In Mexico, increased prenatal care was identified as a major determinant of improved perinatal mortality (15). While the exact mechanism of effect is not known, prenatal care provides health professionals with a way to identify potential problems as well as educating women about health in pregnancy, labor, delivery, and postpartum.

After the intervention, there was an increase in the number of infants who were attended immediately after delivery although this change was not statistically significant. In addition, there was a significant increase in the number of women who breast fed their infants on the first day of life. While changes in breast feeding practices would not impact on fetal deaths or stillbirths, early breast feeding can increase the likelihood that breast feeding is successful and could prevent mortality or morbidity related to unsanitary infant feeding practices (16).

Conclusions

Indirect causes of infant mortality are not well understood. Infant mortality has been consistently associated with low socio-economic status (13), decreased educational level (17), as well as with low overall status of women (18). This remains true even when analyses control for access to care (19). It is not known precisely how improving women's decision-making ability could impact on the outcome of their pregnancies.

In general, results of this evaluation support the use of community training and organization of women as a means of improving pregnancy outcome for women residing in remote areas and with limited access to modern health care. However, there is limited evidence defining the impact of individual components of this program. Further studies should focus on specific aspects of this type of program to identify which components may be more effective as well as the efficacy of this approach in more urban areas or for different populations.

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Dramatic Reductions of Childhood Mortality in Three Bolivian Child Survival Projects[1]

David S. Shanklin[2]

Abstract

This paper analyzes the impact of Andean Rural Health Care's (AHRC) primary health care program on infant and child mortality in three Bolivian project areas over eight years (1990-97), and presents results in the context of two sets of comparison data. The ARHC "Census-Based, Impact Oriented" (CBIO) model employs community health workers to perform home visits, preventive education and vital events registration. ARHC also manages remote health posts, centralized clinics, and integrates government health services into its health services. Infant and child mortality rates declined significantly over the course of the intervention and an increased utilization of pre-natal and delivery services was observed. Infant mortality dropped by 74% (over three years) in two of the program areas, but did not decrease in the third area. Among 1 to 5 year olds, mortality dropped by 83% in the three program areas. The overall under five mortality rate dropped from 164 to 63 deaths per 1000 live births, or 62%, in the program areas over roughly five years. There was no change in the comparison area. There was a clear dose-related effect; programs where prenatal care and delivery services were available and used experienced much greater reduction in infant mortality than programs where such services were not well utilized.

Introduction

This article describes the impact of a primary health and child survival program on rates of death among infants and children in three Bolivian health project areas, over a period of eight years, 1990 through 1997. This work was conducted by Andean Rural Health Care (ARHC) and its host country counterpart organization, Consejo de Salud Rural Andino (CSRA).

We begin with a description of the health program, including the process for the collection of vital events. This is followed by a description of the data and analysis methods. Based on the results, findings and selected conclusions are then offered.

Background

Andean Rural Health Care (ARHC) is a non-profit [501(c)(3)] organization which provides basic primary health care to impoverished populations which lacked access to such services. During its initial startup period, ARHC implemented and refined its health service methodology, largely based upon the pioneering work of Dr. John Wyon, Harvard University School of Public Health, under the dedicated leadership of ARHC founder, Dr. Henry Perry, III. The resulting approach, the "Census-Based, Impact-Oriented" (CBIO) methodology, has been applied in Bolivia for the past ten years (Perry, 1995). Because the CBIO methodology targets high risk populations, and because young children (less than five years of age) and women of child bearing age (15 through 49 years) are at greatest increased risk of death in our service areas, ARHC has targeted much of its resources to these two groups.

The CBIO model employs community health workers who carry out a program of home visits, preventive education, and the gathering of data on births, deaths and migration. This process assures that health care is available to even the most remote homes and that information is available to prevent and treat the most common causes of sickness and death. Health care is also offered in local health clinics, and through referrals to nearby hospitals.

All health and supporting administrative services in Bolivia are offered through ARHC's counterpart organization, Consejo de Salud Rural Andino (CSRA). In accordance with written terms of agreement between CSRA, local

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governments and the Ministry of Health (MOH), MOH facilities, staff and supplies are incorporated into our programs to maximize efficiency.

Child health services provided include: immunizations and Vitamin A capsules; growth monitoring, prenatal health care, health education (particularly related to the prevention and treatment of diarrhea, the early warning signs of childhood pneumonia, the prevention and treatment of childhood diarrhea, and the promotion of breast-feeding and prevention of early childhood malnutrition), treatment of pneumonia and diarrhea, and emergency assistance for complications arising during childbirth. Primary health care services include the treatment of acute conditions for persons of all ages (including transport of those with medical emergencies to a referral hospital), eye care, dental care and family planning services, among others. ARHC/CSRA also assist in selected health-related community development projects, such as the improvement of drinking water and the installation of latrines.

Vital events (births, deaths and migrations) are registered by health workers during home visits, and later are centrally recorded by program staff. Vital events are confirmed by the program supervisors and reviewed by supervising program physicians. The analysis presented in this article is based on the results of program activities which took place from 1990 to 1997 in four ARHC/CSRA project areas, summarized in Table 1. (Three sites serve as "CS intervention projects," and one, Carabuco, serves as a "post-test only" comparison area.)

Carabuco and Ancoraimes are located on the high plains, or "altiplano," area of Bolivia, about four hours north of La Paz. The altitude of most dwellings in these two areas ranges from about 11,500 to 15,000 feet above sea level. The population is almost exclusively Aymara Native American, with an illiteracy rate of about 46%. Agricultural production in these areas is limited to one harvest per year, primarily potatoes and high altitude grains such as barley and quinoa. Animal husbandry (cattle, horses, sheep and llamas) is another source of limited income, as well as some service work in the larger communities. The altiplano population is gradually declining as more families move to urban areas in search of a better livelihood.

Mallco Rancho is located in the Cochabamba Valley, and is an agriculturally productive area at an average altitude of about 8,500 feet. The population is largely Qechuan Native American, with an illiteracy rate approximately half of that found on the altiplano. Mallco Rancho is composed of eleven rural communities, located about one hour's drive from the regional capital, Cochabamba. Climatic and economic conditions in Mallco Rancho are not as harsh as those found on the altiplano, and given sufficient water access, farmers can produce up to three crops per year. A wide variety of production is possible, and includes fruits which are consumed throughout the country.

In contrast to the altiplano or mountain valleys, the ARHC/CSRA lowland urban project is located in the fast-growing city of Montero in the Amazon basin of Bolivia, at an average altitude of less than 1,000 feet. With a city-wide population of about 70,000, most of our health service clients are Quechuan Native Americans (about 70%) who have migrated from the mountain valleys in search of greater economic opportunity. The remaining 30% are native to the lowland area. Most of this population works directly in service industries, particularly related to truck transportation.

Overall, ARHC/CSRA was serving about 45,000 people in over 100 communities in these four health service areas during the course of the study period.

Program data

Birth, death and census data were reviewed for a period of eight years, between 1990 and 1997, in four health service areas, as summarized in Table 2. For each project area, the years in which data were available varied.

In Ancoraimes, vital events data were immediately available during 1992, as services were started in selected communities. As communities were added, so too vital events processes were initiated in these same communities. In Carabuco, ARHC's first health service area in Bolivia, health program activity began in 1983, but it was not until October 1987 that USAID funded child survival (CS) activities were begun, and vital events were not well documented for analysis purposes until 1990. By then, many of the outcomes associated with CS services appear to have been realized.

In Mallco Rancho, vital events registration was initiated more quickly, based in part on the lessons learned in Carabuco, and high quality vital events records were available by 1991. The project ended its relationship with ARHC with the ending of the three year USAID funded CS IX grant in October 1996, and mortality data are not

available for 1996 or 1997. In Montero, program services began during 1989 and progressed only slowly, with home visits and vital events registration covering only one barrio for the first several years. By 1992, most barrios were served by home visits and vital events registration was well established.

Table 1. *Years of CS program implementation, and vital events registration*

PROJECT	YEARS										
	1983..	1988	1989	1990	1991	1992	1993	1994	1995	1996	1997
ANCORAIMES						X	X	X	X	X	X
CARABUCO	===>			X	X	X	X	X	X	X	X
MALLCO ANCHO					X	X	X	X	X	X	X
MONTERO						X	X	X	X	X	X

KEY: [ ] = Years of primary health program implementation
X = Years of USAID CS program implementation

In addition to the above data, we also examined selected program outcome data in each project area in order to generate proxy measures of program service coverage. These data were collected during the USAID CS IX Knowledge, Practices and Coverage (KPC) surveys and final evaluations, in 1997. (The Mallco Rancho KPC survey and final evaluation data were collected in 1996.)

Bolivian Demographic and Health Survey (DHS, 1994) results were reviewed and are presented as one source of comparison data.

Data were analyzed by project, by year, and results compared within and across projects, and with the DHS data. That is, each project served as its own comparison, and as a comparison for other projects which started later in time. The Carabuco project, well established prior to reporting vital events results, serves as a "post-test only" comparison site for the newer projects, together with the DHS data. The DHS data are presented as national averages, and as averages for high risk populations. These high risk populations are consistent with those found in the ARHC/CSRA project areas. Thus, we have three "CS intervention" projects, and two comparison data sources: the established CS intervention area of Carabuco, and the DHS data series.

Mortality rates were calculated as follows:

Annual Infant Mortality = (# deaths < 12 months of age) x (1,000) / (# live births)

= # of infant deaths per 1,000 live births.

One to Five Year Mortality = (# deaths 12-59 months) x (1,000) x (4 years) / (population 12-59 months)

= # of deaths (1-5 years) in four year cohort per 1,000 population (1-5 years).

Zero to Five Year Mortality = (# deaths 0-59 months) x (1,000) x (5 years) / (population 0-59 months)

= # of deaths (0-5 years) in five year cohort per 1,000 population (0-5 years).

When average annual mortality rates are calculated across projects, the actual number of deaths (numerator) per year are calculated for each project, as well as the birth number and/or population per year (denominator).

There are limitations to the comparisons used here. First, we have no direct evidence that the mortality rates in Carabuco were actually higher prior to the introduction of ARHC primary health care and child survival services, although this would intuitively make sense. Second, each project area may actually be different from the others on a number of variables considered important to the interpretation of causation related to mortality change. Third, the DHS data presented here are collected nationally, by data collectors who are not previously known to survey respondents. As a result, especially in rural Bolivia, we believe that DHS results may systematically underestimate

real rates of infant and childhood mortality.[3] Nevertheless, we believe that the following findings are suggestive of a positive causal relationship between CS services and mortality outcomes, and merit consideration and replication in other settings.

Findings

Results are reported below, for infant mortality, one to five year mortality, and for childhood mortality (zero to five years of age). Please refer to Tables 1 and 2 and Figures 1 through 6 for tabular and graphic summaries of these findings.

Infant mortality rates demonstrated large reductions in two program areas where prenatal and delivery services were both offered and utilized.

Infant mortality rates clearly declined in two of the three CS intervention areas (Mallco Rancho and Montero), from an average of 68 deaths per 1,000 live births in 1992 for the two projects, to an average of 18 deaths per 1,000 in 1995, just three years later. This represents a reduction of 74% from the 1992 rate. Infant mortality rates did not appear to be lowered in the Ancoraimes project area, and rates varied considerably from year to year, averaging 120 deaths per 1,000 live births during its six year period of measurement. When compared to either the DHS "High Risk" mortality rates for the same age population (with an average rate for five years of 107), and the more established, geographically adjacent project of Carabuco (with an average for eight years of 93) this rate appears somewhat higher, but consistent with, what we might anticipate within this high risk rural population.

The most striking difference between the two projects with lowered infant mortality rates (Mallco Rancho and Montero), and Ancoraimes and the CS comparison project, Carabuco, is the coverage of related CS services. By the end of the study period, in both Mallco Rancho and Montero, program coverage rates for at least one prenatal visit received (82% and 93%, respectively), and deliveries attended by a health professional (72% and 79%, respectively) were substantially higher than those found in Ancoraimes or Carabuco. (For the percentage of pregnant women with at least one prenatal control, 26% was found in Ancoraimes and 40% in Carabuco; and, for the proportion of all deliveries conducted in the presence of a health professional, only 6% was found in Ancoraimes, and 22% in Carabuco.)

Thus, measures of program coverage appear to serve as sensitive indicators of mortality impact in this high risk age group. This is logical, since both types of CS services are anticipated to directly lower neonatal mortality, the most vulnerable age period within the infant population. For example, in Ancoraimes and Carabuco, for the past three years (1995-1997), 52% of all infant deaths occurred during the neonatal period.

One to five year mortality rates demonstrated remarkable reductions in all three CS intervention areas, consistent with the provision of basic child survival services.

Child mortality rates for this age category were initially high in all three intervention areas, and dropping dramatically from 1991 through 1997. The only exception to this trend was an increase in one to five year mortality in Mallco Rancho during 1995. The absolute number of deaths in Mallco Rancho were one in 1994, and nine in 1995, demonstrating the sensitivity of death rates to relatively small changes in the formula's numerator. Nevertheless, if one averages the end point death rates of the three project areas (22 deaths per 1,000 live births) and compares that to the start point average mortality rate (83 deaths per 1,000 live births), a reduction of 73% occurred within a seven year period.

Contrasting the data of the three CS intervention projects with the CS comparison site, Carabuco, and the DHS data series, we see that all three projects began with mortality rates substantially higher than either the Carabuco or the DHS rates (as we might expect), and with the Carabuco rates (with an eight year range of 5 to 41 deaths per 1,000 live births, and an eight year average of 23 deaths per 1,000) consistent with the range of the three intervention projects' end point measures. Over time, the one to five year mortality rate of the three CS intervention projects drops at a much faster velocity than occurred in the national DHS sample, suggesting a direct health program impact.

[3] Shanklin, David. "The Impact of a Bolivian Child Survival Program on Rates of Infant and Child Mortality." Paper presented to the American Public Health Association, San Diego, CA Nov., 1995.

End of project coverage measures for basic CS services suggest that adequate CS service implementation will result in significant one to five year mortality reductions. For example, the percent of the under two year population with all vaccinations in the four ARHC/CSRA project areas ranged from 57 to 85%, and the percent of the zero to five year population receiving an adequate number of growth measures ranged from 67 to 91%.

Logically, zero to five year mortality rates also demonstrated large reductions during the study period, with project rates initially higher than the national average, consistent with the program goal of working in high risk populations.

Within the three CS intervention sites, overall childhood mortality, zero to five years of age, dropped from an average of 164 deaths per 1,000 live births from the start point measures, to 63 deaths at last measurement, for an overall reduction of 62%. All three project areas began with death rates considerably higher than the CS comparison area, Carabuco, or the DHS national average rate, and ended with rates at or below these comparison data. The Carabuco childhood mortality rate remained parallel and below the national average until the last two years of the study period, when death rates appeared to spike upward. We have several working theories on why this occurred, although to date, we have not fully resolved the reason for this increase.

Conclusions

The findings reported here are based on high quality vital events data collected over a period of eight years in Bolivia, among impoverished communities utilizing ARHC/CSRA primary health care and child survival services. Generally, comparison data are difficult to generate and collect in field settings, and the comparison data used in this report are limited, minimizing the interpretability of our findings to other programs in other settings. Given these necessary caveats, the findings presented here are striking, and merit further investigation and replication.

In CS programs in which prenatal care and delivery services by health professionals are both offered and utilized, we found a reduction of almost 75% in infant mortality rates, within six years of CS program implementation. Conversely, in programs where prenatal and professional delivery services are not well utilized, infant mortality rates appear to remain stable, suggesting that neonatal death rates remain unaffected.

A striking reduction of one to five year child mortality also was noted in this analysis, with all three projects demonstrating mortality reductions on the order of 73%, again within six years of CS implementation.

Overall childhood mortality rates (zero to five years of age) in the three CS intervention project areas declined by an average of 62% during the period of study, and appeared achievable within six years of CS implementation.

These decreases in infant and child mortality rates appear so consistent, and are of such a magnitude, that further replication of this kind of analysis is essential. We are unaware of other sources of published results which have demonstrated the impressive impact shown here, utilizing a basic mix of CS health services, within a six year implementation period.

Table 2. *Infant and child mortality rates by project and year*

Ancoraimes

Data Category	1990	1991	1992	1993	1994	1995	1996	1997
# of communities			5	9	13	52	52	52
Births			61	80	117	292	208	184
Deaths, under 1 yr.			7	10	18	31	23	19
Infant death rate			115	125	154	106	111	103
Population, 1-5 yrs.			198	310	530	1367	1516	1249
Deaths, 1-5 yrs.			5	5	6	11	4	1
Child death rate, 1-5 yrs.			101	65	45	32	11	3
Child death rate, 0-5 yrs.			216	190	199	138	122	106

Carabuco

Data Category	1990	1991	1992	1993	1994	1995	1996	1997
# of communities	31	31	31	31	31	31	31	31
Births	194	228	215	171	196	147	137	116
Deaths, under 1 yr.	13	25	19	16	12	14	16	13
Infant death rate	67	110	88	94	61	95	117	112
Population, 1-5 yrs.	1001	1063	922	880	846	736	681	521
Deaths, 1-5 yrs.	9	2	6	4	8	1	7	2
Child death rate, 1-5 yrs.	36	7	26	18	38	5	41	15
Child death rate, 0-5 yrs.	103	117	114	112	99	100	158	127

Mallco Rancho

Data Category	1990	1991	1992	1993	1994	1995	1996	1997
# of communities		11	11	11	11	11		
Births		164	211	160	189	171		
Deaths, under 1 yr.		11	12	12	7	2		
Infant death rate		67	57	75	37	12		
Population, 1-5 Yrs.		700	700	704	708	708		
Deaths, 1-5 yrs.		14	8	3	1	9		
Child death rate, 1-5 yrs.		80	46	17	6	51		
Child death rate, 0-5 yrs.		147	103	92	43	63		

Montero

Data Category	1990	1991	1992	1993	1994	1995	1996	1997
# of communities			4	6	8	8	6	6
Births			156	248	303	391	370	311
Deaths, under 1 yr.			13	18	13	8	14	11
Infant death rate			83	73	43	20	38	35
Population, 1-5 yrs.			645	1360	1614	1572	1274	1372
Deaths, 1-5 yrs.			13	7	8	10	12	8
Child death rate, 1-5 yrs.			81	21	20	25	38	23
Child death rate, 0-5 yrs.			164	94	63	45	76	56

DHS

Data Category		1990	1991	1992	1993	1994	1995	1996	1997
Infant death rate	High Risk	116				97			
	Average	94				75			
Child death rate, 1-5 yrs.	High Risk	58				48			
	Average	49				41			
Child death rate, 0-5 yrs.	High Risk	174				145			
	Average	143				116			

Figure 1. Infant mortality rates, by project and year

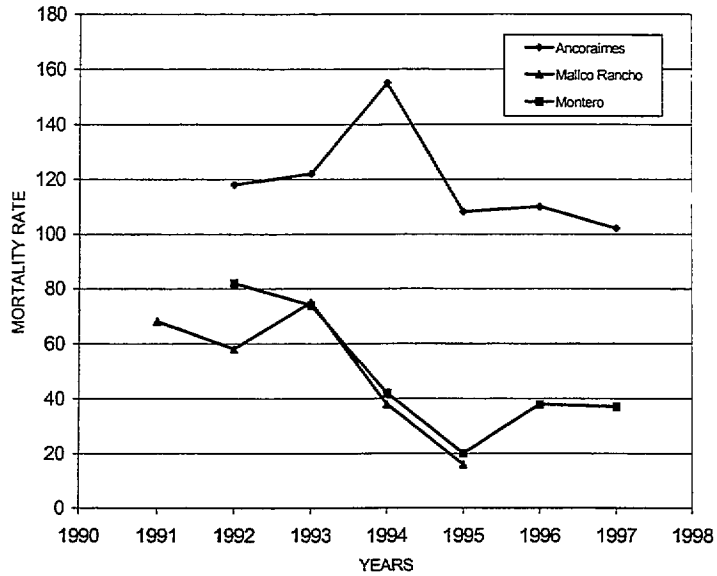


Figure 2. Infant mortality rates, Carabuco and DHS data

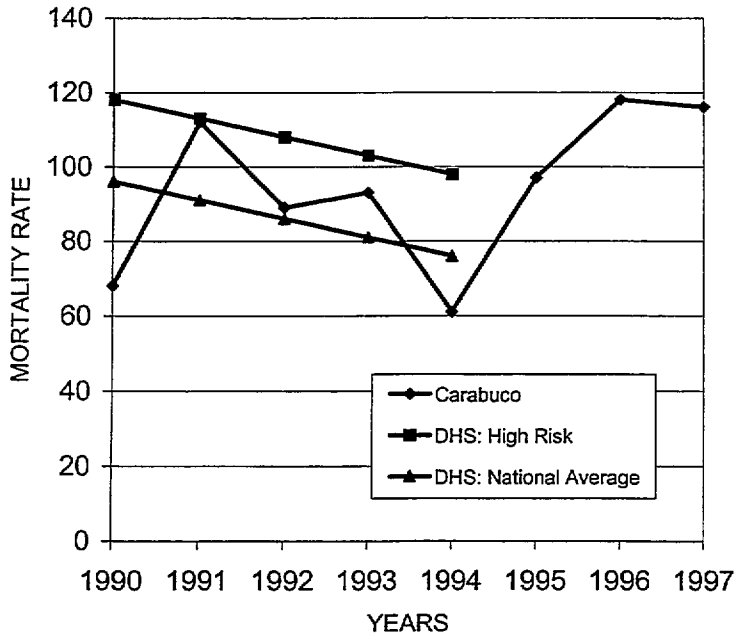


Figure 3. Child mortality, one to five years of age, by project and year

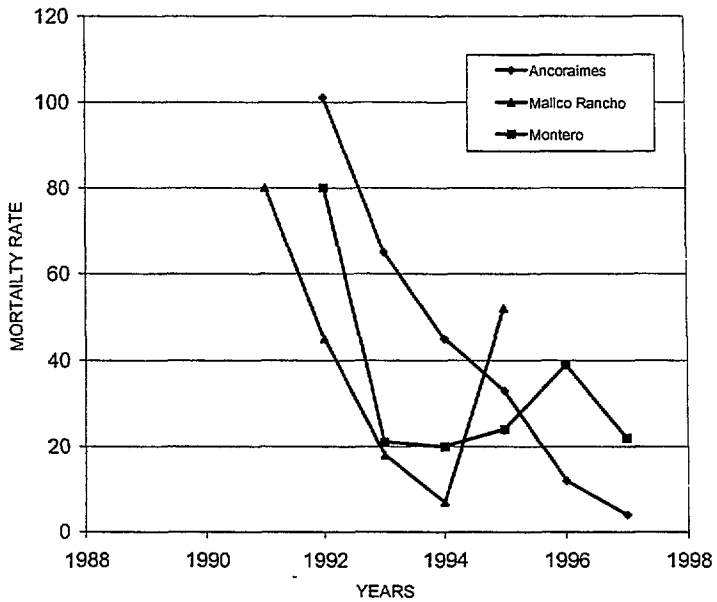


Figure 4. Child mortality, one to five years, Carabuco and DHS data

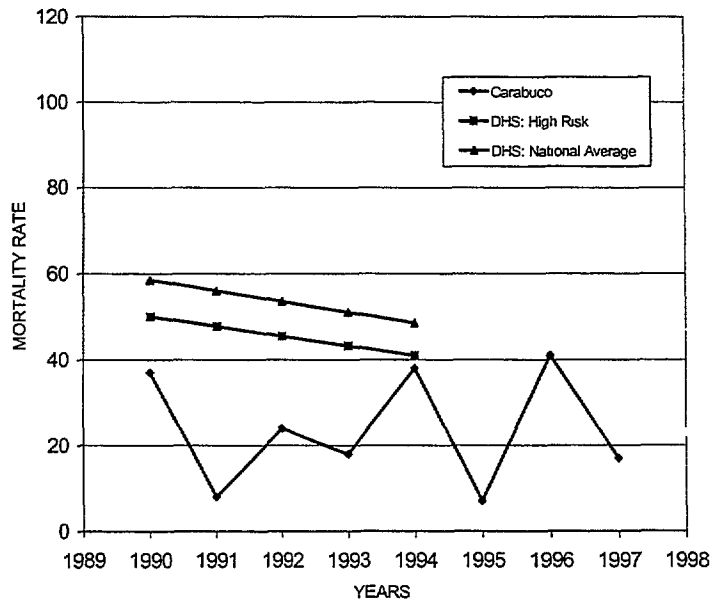


Figure 5. Child mortality, zero to five years of age, by project and year

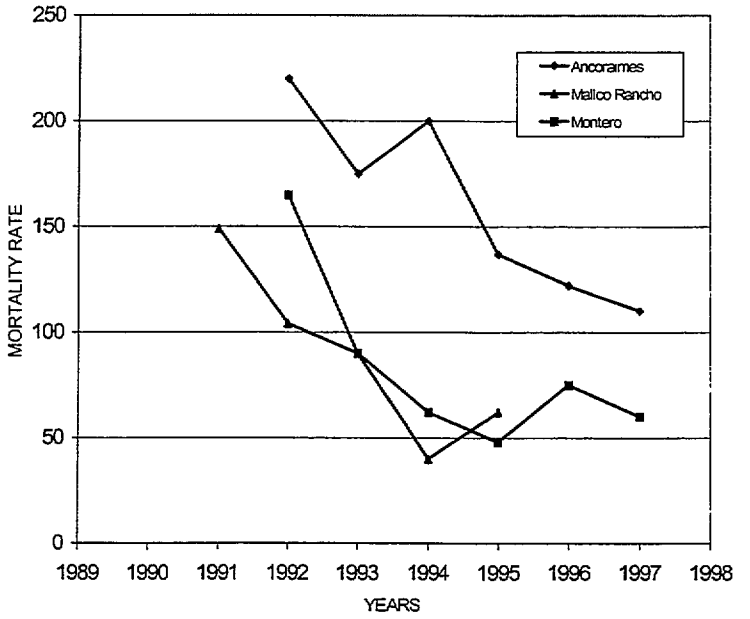
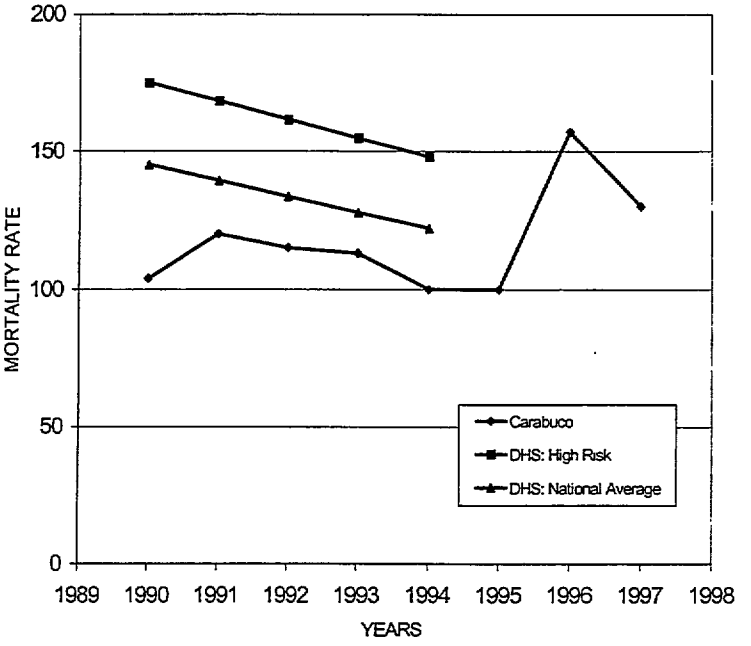


Figure 6. Child mortality, zero to five years of age, Carabuco and DHS data



Effectiveness of PLAN in Immunization Coverage and Breastfeeding Practices Santo Domingo, Dominican Republic, 1989-92[1]

Luis Tam [2]

Abstract

PLAN implemented a child survival program in poor, peri-urban areas of Santo Domingo, Dominican Republic during 1989-92. The project focused on increasing immunization coverage and improving breastfeeding practices. This paper reports an evaluation of the project that uses a rigorous methodology not usually applied in the evaluation of other PVO child survival projects. Midterm and post household surveys were conducted in program and control areas, with a sample of about 400 in each of the four surveys. Life tables and a Cox proportional hazards model were used to estimate program impact. Results show that the program was responsible for statistically significant improvements in both immunization coverage and breastfeeding practices, as well as feeding during diarrhea.

Background and purpose

PLAN International (PLAN) is an international humanitarian, child-focused development organization without religious, political or governmental affiliation. Child sponsorship is the foundation of PLAN. During 1997, PLAN assisted nearly 1,050,000 sponsored children, their families and communities of 38 developing countries with community development programs including primary health care.

In 1989, PLAN was awarded a 3-year grant by USAID/BHR/PVC to implement a child survival project in the periurban slums of the Herrera Sector surrounding the city of Santo Domingo, Dominican Republic. The goal of this paper is to demonstrate the effectiveness of the Santo Domingo Child Survival Project in increasing immunization coverage and improving breastfeeding practices.

Description of immunization and breastfeeding promotion components of this project

Immunization

The identification of eligible children and their immunization was accomplished with three major activities:

(1) Participation of project staff and volunteer health promoters as vaccinators during the periodical door-to-door vaccination campaigns organized by the Ministry of Health (MOH). For example, during 1990-91, the MOH organized five campaigns. Polio vaccine was administered in all five campaigns, DPI vaccine in three, and measles vaccine in only two.
(2) Identification and immunization of infants who were not immunized during the campaigns. To do this, project staff reviewed the family profiles of project beneficiaries and identified eligible children who were then vaccinated by volunteers or project staff.
(3) Education of mothers during scheduled home visits made by volunteers. Educational topics were: importance of vaccination and of the vaccination card, timely and complete immunization, side effects, and where the mother can go to vaccinate her child in case she can't do so during the campaigns. Health education materials (e.g. pamphlets, calendars) were distributed as reminders for timely and complete immunization.

[1] This paper was submitted by PLAN International, London, U.K., through its Arlington, VA office.
[2] Luis Tam, MD, PhD, FRSH was the HQ technical backstop for the Santo Domingo project during 1991-92. He is currently the Health Sector Manager for CARE/Peru. Mailing address: Apartado Postal 18-1590, Lima 18 (Miraflores), Lima Peru.

Breastfeeding promotion

This promotion also included three components:

(1) Group and person-to-person education provided by community health volunteers and PLAN field staff.
(2) Production and distribution of health education materials to families, i.e. calendars, posters, flyers.
(3) Continuation of solid feeding and breastfeeding during diarrhea was emphasized as part of the activities for the control of this disease.

Methods

The survey questionnaire and experimental design

Project and control areas. Four surveys (using structured questionnaires) were administered to samples of the project and control populations in order to ascertain the project's effectiveness in breastfeeding promotion and immunization coverage. The project area was the Herrera Sector of the city of San Domingo, while the control areas were the Alta Gracia and Cristo Rey sectors of the same city. Control areas were chosen due to their socioeconomic similarity to the project area. Therefore, the four surveys were:

	July 1991 (midterm evaluation)	July 1992 (final evaluation)
Project area: Herrera Sector	Convenience but representative sample of 442 children	Cluster sample of 399 children
Control area: Alta Gracia and Cristo Ray Sectors	Convenience but representative sample of 442 children	Cluster sample of 399 children

Table 1 shows that in both 1991 and 1992, control and project areas had no significant differences in terms of maternal age and education, age of the interviewed child, or number of alive and dead children in the household.

Survey questionnaire

The survey questionnaire was based on the JHU-designed Knowledge-Practice-Coverage (KPC) survey. The unit of analysis was children aged 0-23 months and the survey respondents were their mothers or immediate caretakers.

Sampling method

During the 1991 surveys, convenience but representative samples were obtained from the 5 neighborhoods in the project area and the 6 neighborhoods in the control area. In each neighborhood, the interviewers were distributed far from each other so that the results could be the most representative possible. Despite the non-randomness of the samples in both areas, the results in the control area were similar to those reported in the literature (1986 Demographic and Health Survey and 1990 UNICEF State of the World's Children) suggesting that the results were representative.

During the 1992 surveys, 32 clusters were randomly selected in the project area. Each cluster was the area worked by one volunteer and covered about 40 families. In the control area, 16 clusters were randomly selected in Alta Gracia and 16 in Cristo Rey. These clusters were the MOH immunization areas and their identification was possible using the Mods immunization maps.

In each cluster (of the project and control areas), a total of 12 children aged 0-23 months were interviewed.

Conclusion

Given that the survey questionnaire was almost identical in the four populations surveyed (project and control areas, both during the midterm and final evaluations), and the sampling methods were similar and representative, this evaluation method estimated the project's effectiveness taking into account the changes not due to the project's efforts, i.e., the comparison of control areas in 1991 and 1992.

Analysis of survey data

Life tables and the Cox proportional hazards model were used in the statistical analysis of the survey d [3] Life tables (and occurrence curves) show the cumulative probability of the occurrence of an event at a speci point in time.[4]

In this study, we have five events of interest:

(1) administration of DPT1;
(2) administration of DPT3;
(3) administration of measles vaccine;
(4) continuation of exclusive breastfeeding; and
(5) continuation of any breastfeeding.

Therefore the life tables and occurrence curves depict the cumulative probability of the occurrence of each of the above mentioned events at any age of the children in the four surveys. Life tables were prepared for each of these five events occurring in the four surveys (1991/control, 1991/project, 1992/control, 1992/project). The statistical significance of differences between life tables for each specific event and year (e.g. measles immunization in 1991) was tested using the LogRank test.

The *Cox proportional hazards model* (Allison, 1983, *op.cit.*) was used to ascertain the importance of "living in the project area" (as compared to "living in the control area") for each of these five events, after controlling for maternal education and age, number of alive and dead children in the household, and whether the father contributed to the household economy. Two Cox equations were produced for each of the five events; one for the 1991 survey (control/project) and the second for the 1992 survey (control/project). The statistical significance of differences between control and project areas for each Cox equation was tested.

Results[5]

DPT administration

Life tables and occurrence curves were calculated for DPTI and DPT3 administration in the four surveys (1991/control, 1991/project, 1992/control, 1992/project). The occurrence curves are shown in figures 1 and 2. For both 1991 and 1992, DPTI and DPT3 coverage are significantly higher in the project areas than in the control areas ($p<0.05$).

Thus, for example, at age 12 months the probabilities for DPTI immunization are: 0.86 (1992/project), 0.60 (1991/project), 0.62 (1992/control) and 0.48 (1991/control). Similarly, the probabilities for DPT3 immunization at 12 months of age are: 0.75 (1992/project), 0.43 (1991/project), 0.44 (1992/control) and 0.35 (1991/control).

In figure 1 it can be observed that during the 1992 survey, most of the DPTI immunization in the project areas occurred during the third and fourth month of life. After the fifth month of age, no significant increases in the probability of DPT1 immunization were observed in this population. In figure 2 it can be observed that DPT3 immunization in the project areas occurred during the fifth and eighth month of life, with a steady increase well into the second year of life.

Tables 2 and 3 show that after controlling for the variables associated with the five events of interest noted above, children "living in the project area" were significantly more likely to receive DPTI and DPT3 than children "living in the control area" both in 1991 and 1992.

It is also important that children with younger mothers, with mothers of lesser education, or with families with history of a dead child were less likely to be immunized with DPTI and DPT3 during the 1991 survey (risk criteria).

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[3] Life tables and the Cox proportional hazards model are part of a series of event history (or survival) analysis. They are designed to characterize an event (e.g., marriage, birth, death) occurring at a point in time and to identify the factors associated with its appearance. Several events are important for child survival, e.g., immunization of measles vaccine, cessation of exclusive breastfeeding. Therefore, these events can be characterized and associated with potential causal variables using survival analysis techniques.

[4] Allison P. 1983. Event history analysis. SAGE, Illinois.

[5] The results reported here build on an earlier report: Tam L, et al. 1992. "Comparison of selected child survival indicators in children aged 0-23 months living in the Herrera and Alta Gracia and Cristo Rey Sectors during the midterm and final evaluations of the PLAN Santo Domingo Child Survival VI Project." PLAN, Santo Domingo (mimeo).

However, the other two variables had no statistical importance during the 1992 surveys suggesting that the project was able to focus on these high-risk children during 1991-92.

Measles vaccine administration

Figure 3 shows the occurrence curve for measles administration in the four surveys (1991/control, 1991/project, 1992/control, 1992/project). In 1991, no statistically significant differences in measles administration were found between the control and project areas. However, the 1992 measles vaccine coverage is significantly higher in the project areas than in the control areas ($p<0.05$).

At age 12 months the probabilities for measles vaccine immunization are: 0.60 (1992/project), 0.30 (1991/project), 0.36 (1992/control) and 0.27 (1991/control). It can also be observed that during the 1992 survey most of the measles immunization in the project areas occurred during the tenth and twelfth month of life, with a steady increase well into the second year.

Table 4 shows that after controlling for the variables associated with the five events of interest noted above, children "living in the project area" were significantly more likely to receive measles vaccine than children "living in the control area" only in 1992. It is also important that children with younger mothers were less likely to be immunized during the 1991 and 1992 surveys (risk criterion).

Continuation of exclusive and any breastfeeding

Figures 4 and 5 show the occurrence curves for continuation of exclusive and any breastfeeding in the four surveys (1991/control, 1991/project, 1992/control, 1992/project). In 1991, no statistically significant difference was found between the control and project areas for either exclusive or any breastfeeding. In 1992, the likelihood of continuation of exclusive and any breastfeeding were significantly higher in the project areas than in the control areas ($p<0.05$), as seen in figure 4. For example, in the 1992 survey, at the end of the second month of life the probability of continuation of exclusive breastfeeding in the control areas was 20%, while it was 60% in the project areas. At age 4 months the probabilities for continuation of exclusive breastfeeding were 0.30 (1992/project), 0.18 (1991/project), 0.03 (1992/control) and 0.18 (1991/control). In summary, the probability of continuation increased in the project area between the 1991 and 1992 surveys, while it decreased in the control areas during the same time period. In the 1991 and 1992 surveys, the project and control areas had almost identical probabilities of continuation at the fifth month of life.

As shown in figure 5, the continuation of any breastfeeding in the project area was similar in the project areas during the 1991 and 1992 surveys. However, the continuation of any breastfeeding in the control area decreased from 1991 to 1992. The net result is that children "living in project areas" were more likely to continue breastfeeding than children "living in the control areas" only in the 1992 survey ($p<0.05$).

Tables 5 and 6 show that after controlling for the variables associated with the five events of interest noted above, children "living in the project area" were significantly more likely to continue exclusive and any breastfeeding than children "living in the control area" only in 1992.

Figures 6 and 7 show substantial increases in continuation of breastfeeding and solid foods during episodes of diarrhea.

Discussion

The results of this study strongly suggest that the Santo Domingo Child Survival Project was effective in improving immunization coverage and breastfeeding practices. Compared to children living in control areas, those living in project areas were more likely to be immunized with DPT1, DPT3 and measles vaccine, and also to continue exclusive and any breastfeeding. Differences between control and project areas were larger during the 1992 survey because the project field staff used the recommendations of the 1991 midterm evaluation (of which the survey was a component) to improve the effectiveness of its health communication and service delivery strategies.

Strong support for the continuation of breastfeeding was the significant increase in the continuation of solid feeding and breastfeeding during episodes of diarrhea. These practices and the *ad hoc* promotion of breastfeeding favored the continuation of both exclusive and any breastfeeding.

In 1993, PLAN was awarded an additional three year grant from USAID/BHR/PVC for this child survival project. During its final evaluation,[6] breastfeeding practices in the project area were still higher than the national average:

- 25.4% of children aged 0-3 months breastfed exclusively (5% is the national average).
- 20% of children aged 20-23 months continued to breastfeed (7.6% is the national average).

Similarly, the 1996 final evaluation also found that the immunization coverage in the project area was higher than the average in Metropolitan Santo Domingo:

- DPTI: 87.2% (Metropolitan 59.9%)
- DPT3: 80.0% (Metropolitan: 60.5%)
- Measles: 78.7% (Metropolitan: 52.6%)

After its end (1996), the project activities have been continued using PLAN's funding. It is expected that the benefits gained in these years will be sustained using PLAN investments, plus the significant contributions of community groups, government and families.

Table 1. *Comparison of family characteristics in the project and control areas*

	Midterm Evaluation (July, 1991)			Final Evaluation (July, 1992)		
Characteristic	Project (n = 442)	Control (n = 464)	P	Project (n = 399)	Control (n = 395)	P
Age of the child (months)	12.0	11.7	0.51	10.5	11.2	0.13
Age of the mother (years)	26.0	25.6	0.57	26.4	25.6	0.06
Maternal education (years)	6.9	6.8	0.79	7.8	7.7	0.69
Number of alive children per household	2.6	2.4	0.20	2.4	2.2	0.12
Number of dead children per household	0.19	0.20	0.62	0.08	0.13	0.08
Percent households where father contnbutes financially	92%	91%	0.80	90%	89%	0.53
Percent children aged 0-23 months with vaccination cards	65%	63%	0.58	90%	71%	0.01

[6] Soto RJ and Tapia GI. 1996. Final Evaluation Report, Child Survival IX. Santo Domingo, Dominican Republic. PLAN, Santo Domingo (mimeo).

Table 2. *Likelihood of administration of DPT1: results of Cox proportional hazards model*

Parameter	Estimate	S.E.	T-Stat	P-Value
Midterm Evaluation (July 1991):				
Mother's age (years)	0.007	0.009	0.803	0.422
Number alive children	–0.013	0.039	–0.325	0.745
Number dead children	–0.273	0.106	–2.562	0.010
Mother's education (years)	0.034	0.014	2.517	0.012
Father contributes (0=no, 1=yes)	–0.005	0.168	–0.029	0.977
Project area (0=no, 1=yes)	0.254	0.093	2.741	0.006
Final convergence criterion = 0.000	Initial score test of regression (6 dof) = 24.969			
Maximum gradient element = 0.007	Significance level (P-value) = 0.000			
	Final Log-Likelihood = –3028.892			
Final Evaluation (July 1992):				
Mother's age (years)	0.007	0.007	0.874	0.382
Number alive children	–0.010	0.039	–0.269	0.788
Number dead children	–0.155	0.129	–1.206	0.228
Mother's education (years)	0.001	0.012	0.065	0.948
Father contributes (0=no, 1=yes)	–0.224	0.152	1.469	0.142
Project area (0=no, 1=yes)	0.530	0.090	5.905	0.000
Final convergence criterion = 0.000	Initial score test of regression (6 dof) = 41.935			
Maximum gradient element = 0.000	Significance level (P-value) = 0.000			
	Final Log-Likelihood = –3231.818			

Table 3. *Likelihood of administration of DPT3: results of Cox proportional hazards model*

Parameter	Estimate	S.E.	T-Stat	P-Value
Midterm Evaluation (July 1991):				
Mother's age (years)	0.017	0.010	1.701	0.089
Number alive children	–0.015	0.046	–0.314	0.753
Number dead children	–0.249	0.127	–1.952	0.051
Mother's education (years)	0.054	0.017	3.244	0.001
Father contributes (0=no, 1=yes)	0.027	0.209	0.127	0.899
Project area (0=no, 1=yes)	0.236	0.115	2.053	0.040
Final convergence criterion = 0.000	Initial score test of regression (6 dof) = 25.121			
Maximum gradient element = 0.001	Significance level (P-value) = 0.000			
	Final Log-Likelihood = –1943.184			
Final Evaluation (July 1992):				
Mother's age (years)	0.020	0.008	2.323	0.020
Number alive children	–0.105	0.047	–2.242	0.025
Number dead children	–0.165	0.163	–1.012	0.311
Mother's education (years)	0.019	0.015	1.268	0.205
Father contributes (0=no, 1=yes)	–0.169	0.172	0.978	0.328
Project area (0=no, 1=yes)	0.793	0.107	7.383	0.000
Final convergence criterion = 0.000	Initial score test of regression (6 dof) = 70.450			
Maximum gradient element = 0.003	Significance level (P-value) = 0.000			
	Final Log-Likelihood = –2274.235			

Table 4. *Likelihood of administration of measles vaccine: Cox proportional hazards model*

Parameter	Estimate	S.E.	T-Stat	P-Value
Midterm Evaluation (July 1991):				
Mother's age (years)	0.025	0.012	2.025	0.043
Number alive children	--0.078	0.058	--1.341	0.180
Number dead children	--0.194	0.155	--1.248	0.212
Mother's education (years)	0.055	0.021	2.671	0.008
Father contributes (0=no, 1=yes)	--0.198	0.278	0.714	0.475
Project area (0=no, 1=yes)	0.203	0.142	1.423	0.155
Final convergence criterion = 0.000	Initial score test of regression (6 dof) = 19.647			
Maximum gradient element = 0.001	Significance level (P-value) = 0.003			
	Final Log-Likelihood = --1214.574			
Final Evaluation (July 1992):				
Mother's age (years)	0.024	0.010	2.267	0.023
Number alive children	--0.088	0.055	--1.601	0.109
Number dead children	--0.098	0.165	--0.592	0.554
Mother's education (years)	0.012	0.018	0.692	0.489
Father contributes (0=no, 1=yes)	0.028	0.193	0.147	0.883
Project area (0=no, 1=yes)	0.515	0.129	3.999	0.000
Final convergence criterion = 0.000	Initial score test of regression (6 dof) = 25.321			
Maximum gradient element = 0.001	Significance level (P-value) = 0.000			
	Final Log-Likelihood = --1460.373			

Table 5. *Likelihood of cessation of exclusive breastfeeding: Cox proportional hazards model*

Parameter	Estimate	S.E.	T-Stat	P-Value
Midterm Evaluation (July 1991):				
Mother's age (years)	0.003	0.006	0.428	0.669
Number alive children	0.000	0.029	0.003	0.998
Number dead children	--0.006	0.063	--0.093	0.926
Mother's education (years)	0.018	0.010	1.794	0.073
Father contributes (0=no, 1=yes)	--0.169	0.121	--1.403	0.161
Project area (0=no, 1=yes)	--0.097	0.068	--1.421	0.155
Final convergence criterion = 0.000	Initial score test of regression (6 dof) = 7.285			
Maximum gradient element = 0.003	Significance level (P-value) = 0.295			
	Final Log-Likelihood = --5292.390			
Final Evaluation (July 1992):				
Mother's age (years)	0.016	0.007	2.306	0.021
Number alive children	--0.040	0.034	--1.190	0.234
Number dead children	0.015	0.096	0.153	0.878
Mother's education (years)	0.003	0.011	0.244	0.807
Father contributes (0=no, 1=yes)	--0.122	0.120	--1.019	0.309
Project area (0=no, 1=yes)	--0.905	0.080	--11.257	0.000
Final convergence criterion = 0.000	Initial score test of regression (6 dof) = 135.720			
Maximum gradient element = 0.000	Significance level (P-value) = 0.000			
	Final Log-Likelihood = --4344.649			

Table 6. *Likelihood of cessation of any breastfeeding: Cox proportional hazards model*

Parameter	Estimate	S.E.	T-Stat	P-Value
Midterm Evaluation (July 1991):				
Mother's age (years)	0.020	0.008	2.450	0.043
Number alive children	–0.066	0.058	–1.777	0.180
Number dead children	0.035	0.080	0.436	0.212
Mother's education (years)	0.041	0.013	3.238	0.008
Father contributes (0=no, 1=yes)	–0.119	0.150	–0.794	0.475
Project area (0=no, 1=yes)	–0.144	0.085	–1.694	0.155
Final convergence criterion = 0.000	Initial score test of regression (6 dof) = 22.485			
Maximum gradient element = 0.000	Significance level (P-value) = 0.001			
	Final Log-Likelihood = –3458.974			
Final Evaluation (July 1992):				
Mother's age (years)	0.016	0.008	1.870	0.062
Number alive children	–0.042	0.041	–1.013	0.311
Number dead children	–0.197	0.126	–1.567	0.117
Mother's education (years)	0.011	0.013	0.843	0.399
Father contributes (0=no, 1=yes)	0.027	0.144	–0.191	0.849
Project area (0=no, 1=yes)	0.228	0.091	–2.515	0.012
Final convergence criterion = 0.000	Initial score test of regression (6 dof) = 12.460			
Maximum gradient element = 0.000	Significance level (P-value) = 0.052			
	Final Log-Likelihood = –2910.289			

Figure 1. *Cumulative probability of DPT1 administration by study group and child's age*

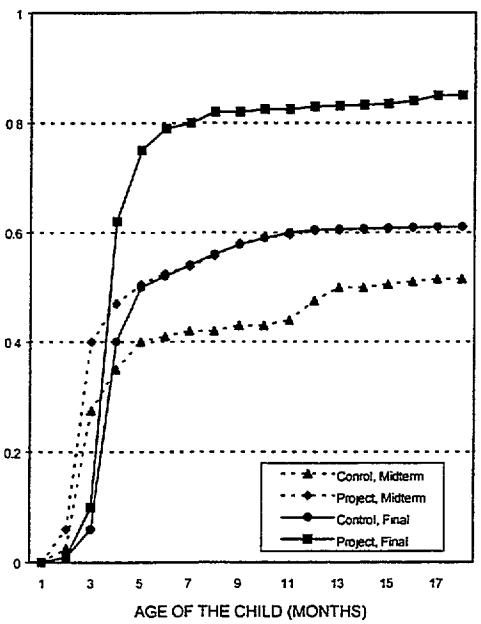


Figure 2. *Cumulative probability of DPT3 administration by study group and child's age*

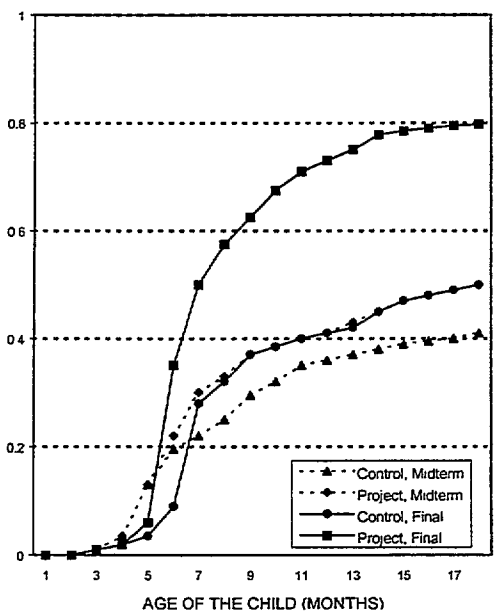


Figure 3. *Cumulative probability of measles administration by study group and child's age*

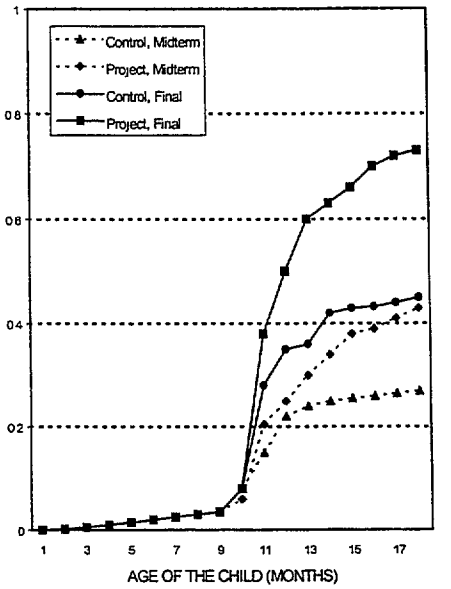


Figure 4. *Cumulative probability of exclusive breastfeeding by age of the child (months) in project and control areas, midterm and final evaluations*

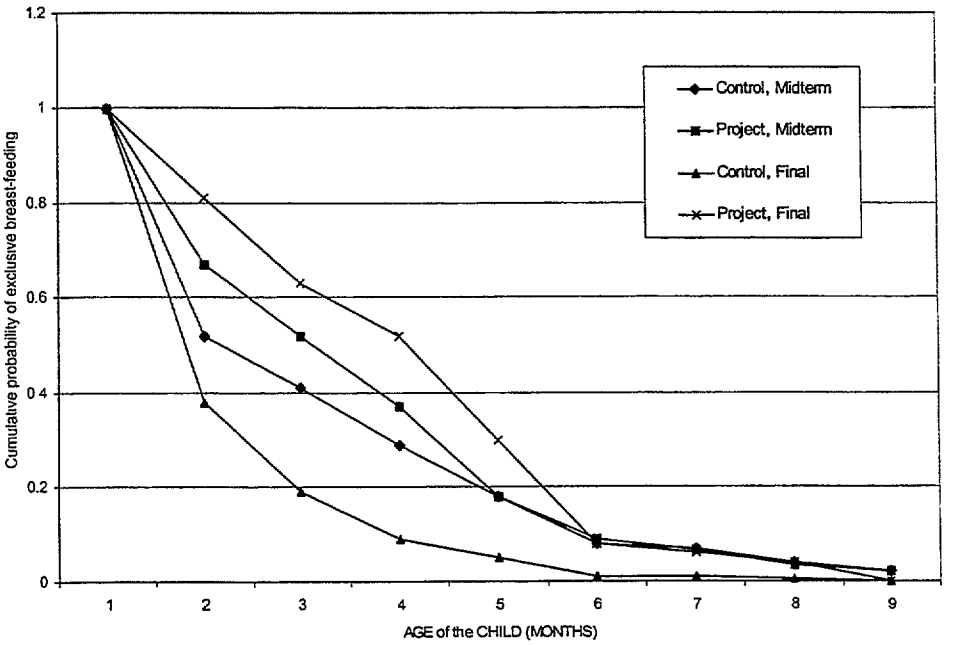


Figure 5. *Cumulative probability of breastfeeding continuation by age of the child (months) in project and control areas, midterm and final evaluations*

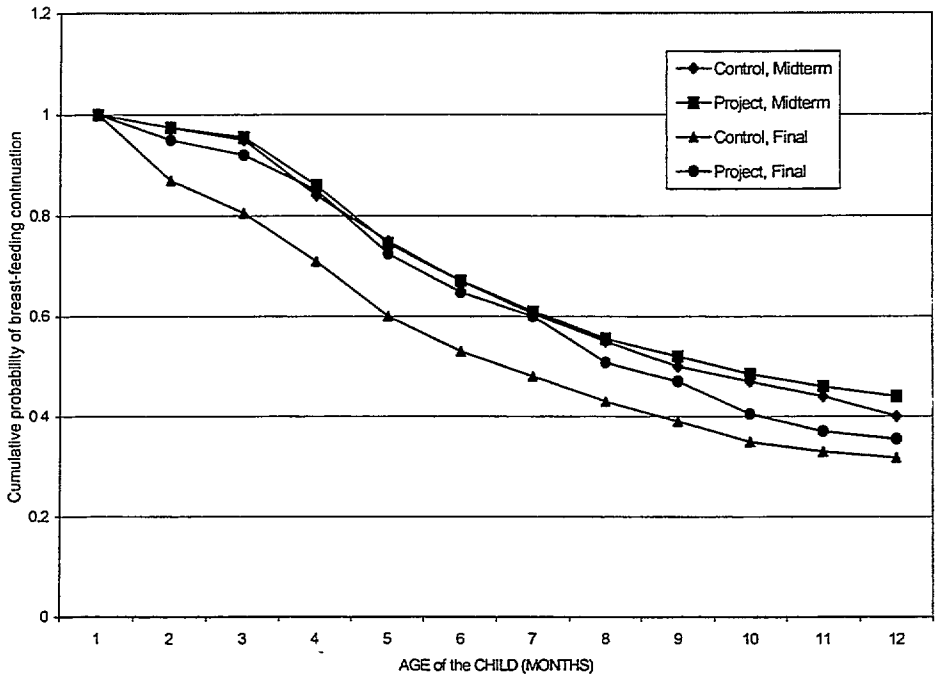


Figure 6. *Continuation of breastfeeding in children aged 0-23 months during diarrhea episode occurring in the last 2 weeks (project and control areas, midterm and final evaluations)*

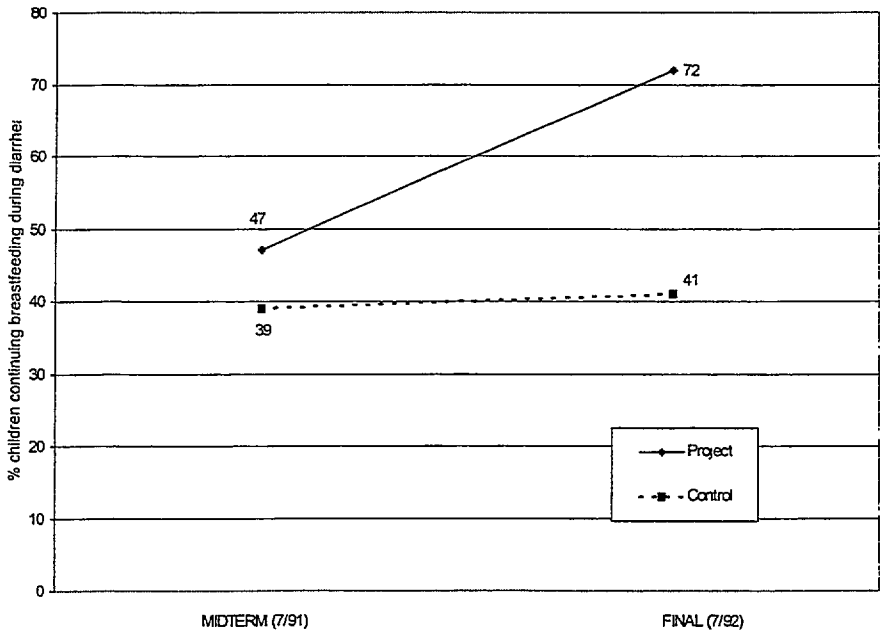
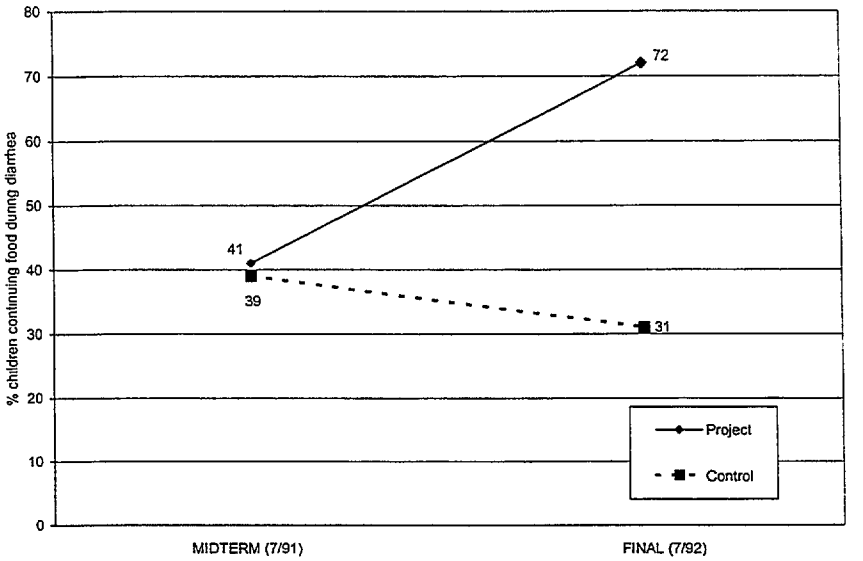


Figure 7. *Continuation of feeding in children aged 0-23 months during the diarrhea episode occurring in the last 2 weeks (project and control areas, midterm and final evaluations)*



Freedom from Hunger's Credit with Education Program in Ghana[1]

Ellen Vor der Bruegge[2]

Abstract

FFH's Credit with Education program combines village bank services for women with non-formal education in breastfeeding, child nutrition, diarrhea control, immunization and family planning. This paper presents an analysis of the key elements of the program, followed by a summary of an evaluation of the program in Ghana by Barbara MkNelly and Christopher Dunford. The 3-year program achieved significant gains in the nutritional status of one-year old children, improved breastfeeding practice and improved knowledge of diarrhea prevention and treatment in mothers. The program affected financial, behavioral and psycho-social factors which, while broader than the health agenda, actually appear to have a greater and more durable impact on health behaviors than on women's economic capacity. Interest paid by borrowers under this program covered 81 percent of the rural banks' cost of delivering the credit and educating women.

Main text of paper

I am a public health professional who specializes in behavior change communication to improve maternal and child survival and health. In addition, on the job with Freedom from Hunger, I have learned microfinance, specifically village banking. You might ask why! After all, there has been little evidence to date of the impact of microcredit on maternal and child nutrition and health.

However, Freedom from Hunger has found that village bank services for women appear to have positive impact even for the health and nutrition of children, when combined with nonformal health/nutrition education in breastfeeding, child nutrition, diarrhea treatment and prevention, immunization, and family planning. We have integrated this behavior change communication directly into the weekly meetings of the village banks, which are joint liability borrowing and saving groups of very poor women. The program design is called *Credit with Education*.

Figure 1 shows the joint delivery of credit and education to groups of women. The expected results are financial (increase of personally controlled income and assets), psychological and social (increased self-confidence and status within the family and community), and behavioral (increased knowledge and use of better health and nutrition practices). Directly and by interaction with each other, these changes are hypothesized to yield in the longer-term better household food security and improved personal nutritional status, particularly of the very young children of the household.

These immediate and long-term impacts are expected even in the context of an institutional framework which seeks to reach very large numbers of very poor women *and* cover the costs of doing so with interest paid by the women on the loans they receive and repay.

I will summarize for you the results of our three-year longitudinal impact study of *Credit with Education* in Ghana. The program is implemented and now fully financed by the Lower Pra Rural Bank as a regular part of the bank's operations in coastal Ghana.

The nutritional status (height-for-age and weight-for-age scores) of one-year-old children of participating mothers showed significant and positive difference from baseline measures as compared to one-year-olds living in control communities (Figure 2, Children's nutritional status, height-for-age).

[1] This paper was submitted by Freedom from Hunger (FFH), Davis, CA. This paper relies heavily on a report by Barbara MkNelly and Christopher Dunford, the primary implementors of the program for FFH, and contains the Executive Summary of MkNelly and Dunford's paper as an addendum.

[2] Ellen Vor der Bruegge is Executive Vice-President, Freedom from Hunger.

There were significant and positive differences in key child health and nutrition practices, economic capacity, and self-confidence. For example, participants were exclusively breastfeeding longer and were more likely to know how to prevent and treat diarrhea. Participants' children were also found to have diets of higher nutritional quality and were more likely to meet caloric intake requirements.

These impacts were achieved by a program that was covering 80% of the operating costs of both the credit and education services from the interest women paid on their loans.

Here's how the program works and why

The loans are typically between $50-300 per woman for a period of four to six months to invest as working capital in a tiny business of her own choice, subject to the approval and joint guarantee of her fellow group members. They are eligible to receive new and larger loans if and only if they successfully repay the current loan in weekly or biweekly installments and faithfully attend weekly or biweekly meetings of the group. Failure by any one member to repay results in ineligibility of all members to receive new loans-that is the nature of solidarity, or joint liability, group lending; it is the substitute for providing physical collateral for borrowing, which is the usual stumbling block for the very poor. In practice, group members cover the unpaid debts of other members in order to ensure their own continued eligibility for the program. Considerable peer pressure is applied to keep every member current in her repayments on her loan.

At the weekly meetings of the group, all members deposit some personal savings in their group account. They also participate in what we call a "learning session" or discussion facilitated by the field agent of the program around a pre-selected topic drawn from the familiar UN publication, *Facts for Life*. This learning approach emphasizes not only transfer of information and recommendations for behavior change but also identification of barriers to behavior change and negotiation and reinforcement of ways around these barriers, as shown in the document *Road to Behavior Change*.

One important advantage of using village banking as a delivery vehicle for child survival promotion is that mothers and other caregivers who participate are enabled by increased income and savings to put what they learn into practice. The other major advantage is that the women pay for this education service with their own earnings, thereby making the delivery system financially self-sustaining and potentially expandable to very large scale.

An important limitation of this credit-led approach to child survival promotion is that the poorest clients that can be reached are "the poorest of the economically active poor." We can reach even poorer people, but only when they are dependents of the clients of village banking. Also, the goal of financial sustainability limits the extent to which the breadth of other, non-financial services can be included in the agenda of the village banks.

There are three basics of designing microfinance programs to be both efficient and effective for poverty alleviation, especially for improvement of child survival.

1. Group-based lending to women is the best design for poverty alleviation.
2. "Education" for the groups at their regular meetings is essential for very poor women to become exposed to vital information and to process or digest this information.
3. Staff have to be recruited, trained, given incentives, and supervised to be *facilitators* of this learning process and to develop the *will* to be both efficient and effective.

The key feature of most microfinance oriented toward poverty alleviation is group-based lending to women.

The groups are very important for:

- Reducing transaction costs of the programs (lots of small loans can be bundled into one larger loan);
- Encouraging solidarity and mutual support to build the self-confidence of very poor women;
- Providing a forum for non-business education, which is critically important for very poor women to take advantage of their new opportunities to improve life for themselves and their families.

The key to attracting and keeping very poor clients is, first and foremost, **the people who provide the service**.

The staff have to **believe** (I emphasize "believe") that reaching the poorest and covering all costs is feasible. Bankers say that reaching the poorest is unfeasible; charities say that covering all costs is unfeasible. Staff have to refuse to

dismiss one or the other objective as unrealistic. That means they are committed to finding a way to do both. They highly value both objectives. They accept that their program has both a financial and a social bottom line.

Staff must be recruited and trained to exercise self-discipline and enforce client discipline in service of a cause that is both greater than any one staff person (self-enrichment should be unthinkable) and a cause greater than any one client (everyone must follow the rules; those who cannot or will not are out of the program-period-no matter how poor they are). **It is tough love, not charity.**

But staff must also know and truly respect their clients and the lives they lead. They must know that there is more to life than making a living. Clients have many needs. They lead complicated lives within families, communities, cultures. So field agents have to be prepared to take the time to listen to their clients and to know how to facilitate problem solving that goes well beyond ensuring loan repayment.

At the same time, they cannot become overly sympathetic or personally involved with the lives of their clients either. The field agent is, first and foremost, responsible for the *program*. The client is responsible for *herself* and her family.

The program goal of financial self-sufficiency also requires that *both financial and educational services be delivered by one and the same the field agent*. She or he must be trained to be a facilitator of not only a financial transactional process but also a process of learning, negotiation and commitment to behavior change. *This presents an unusual challenge for recruiting, training and supervising field program staff.*

The challenge has been met, more or less successfully, in a wide variety of institutional and cultural and economic settings. *Credit with Education* programs have been started up and mainstreamed by NGO social service organizations in Bolivia, Honduras, Ecuador, Mali, Uganda, Cambodia and Thailand, and by community-based financial service organizations in Burkina Faso, Ghana, Mali, Togo and most recently the Philippines.

We work almost exclusively with partner organizations. Freedom from Hunger itself has stimulated the development of 15 programs in Africa, Latin America and Asia. These are now serving about 80,000 women, whose interest payments are covering two-thirds or more of the operating and financial costs. World Relief corporation and Project HOPE have developed their own versions of the *Credit with Education* model and serve several thousand more women and families. More American PVOs and indigenous credit union movements are interested in adopting this approach with our assistance.

So it seems that a new movement for self-financing, integrated financial and child survival services is developing around the world. There is tremendous potential for much greater growth, given potential adoption of *Credit with Education* by the burgeoning microfinance and credit union movements worldwide.

Addendum[3]

Since 1989 Freedom from Hunger has worked with local partners to develop and disseminate a cost-effective integrated program strategy called *Credit with Education,* with the goal of improving the nutritional status and food security of poor households in rural areas of Africa, Latin America and Asia. In collaboration with the Program in International Nutrition at the University of California, Davis, Freedom from Hunger undertook a multi-year study in *Credit with Education* program sites in Bolivia and Ghana. Financial support for this collaborative research was provided by an Innovations Grant from the Thrasher Research Fund, with supplemental funding from the Nutrition Division of UNICEF/New York.

The evaluation research was designed to test hypotheses of positive program impact on children's nutritional status, on their mothers' economic capacity, women's empowerment and mothers' adoption of key child survival health/nutrition practices.

Two major survey and anthropometric (heights and weights) data collection rounds were carried out - a 1993 baseline and a 1996 follow-up - with different mother/child pairs participating in the two time periods. A quasi-experimental design was applied at the community level to minimize possible bias. Following baseline data

[3] The addendum is the entire Executive Summary from MkNelly B and Dunford, C. *Impact of Credit with Education onMothers' and Their Young Children's Nutrition; Lower Pra Rural bank Credit with Education in Ghana,* Freedom from Hunger Research paper No 4 (March 1998).

collection, 19 study communities were assigned to either a program or control group, with the latter not receiving *Credit with Education* until after completion of the evaluation research.

Three sample groups of women with children under three years of age were included in the follow-up research: (1) *Credit with Education* program participants of at least one year, (2) nonparticipants in program communities and (3) residents in control communities selected not to receive the program for the period of the study. Women for the two nonparticipant groups were randomly selected from comprehensive lists of all women with children under three years of age.

Program impact is evaluated by comparing the differences between the responses and measurements in the two data collection rounds (1993 and 1996) for program participants versus nonparticipants in program communities and residents in control communities. Different sets of women were included in the two data collection rounds, because few women had under-three-year-old children in both 1993 and 1996. Baseline respondents in the program communities were later reclassified on the basis of whether they ever joined the program when it was ultimately offered in their community. Consequently, baseline respondents in the study communities that received the program are classified either as "future participants" or "future nonparticipants." By comparing the 1993 baseline measures of future participants to actual participants in 1996, the difference between years can better be attributed to the impact of the program and not to inherent differences between women who self-select to join the *Credit with Education* program and those who do not.

There was no statistically significant difference in the socioeconomic status of households (as measured by consumer assets) or women's education and literacy across the three sample groups in either of the time periods. However, participants in the follow-up period were significantly older, had more children and were more likely to have recently engaged in a nonfarm enterprise than nonparticipants or residents in control communities.

Impact on women's economic capacity

The vast majority of 1996 participants (90%) felt that their incomes had "increased" or "increased greatly" since they had joined the *Credit with Education* program. Most commonly, participants attributed this improvement to expansion of their businesses, reduced input costs as a result of buying in bulk or with cash, and new activities or products made possible by access to credit. There was a significantly greater increase between years for participants' monthly nonfarm earnings as compared to nonparticipants and residents in control communities. The increase in net nonfarm monthly income (revenue minus costs) was $36 for participants, $18 for nonparticipants and $17 for residents in control communities.

While the 1996 participants overall exhibited significantly greater improvement in their nonfarm earnings, there was considerable range in monthly profits. Some participants had net monthly enterprise incomes as high as $200 to $300 per month, but 10% had net incomes of $10 or less. Diversity of income impact was clear even within the same Credit Associations, with some women enjoying considerable improvement in their economic activities and others experiencing little change. A better understanding of the factors that allow some women to be relatively more successful - individual attributes, entrepreneurial skill, specific loan activities or program loan terms - could stimulate changes in program implementation, such as incorporating basic business management education, which might enhance the economic impacts for less successful borrowers.

There was evidence that the program was fostering the entrepreneurial skills of participants. Between years, participants were significantly more likely to consider demand and profitability when deciding upon income-generating activities. There was also a significant difference in the percentage having savings and the value of cash savings between years for participants versus controls and participants versus nonparticipants.

Although nonfarm incomes had increased, there was no significantly different change in participants' assessment of their relative contribution to their households' total income as compared to the two nonparticipant groups. There were also few significant differences across the groups in change of household expenditures on food, clothing, medicine, school expenses, house repair or business assets. It is possible that substitution of responsibility for food purchases within participant households might be undermining program impact on per capita food expenditures.

Impact on mothers' health/nutrition practices

Among women who had more than one child, participants in 1996 were significantly more likely to report positive change in how they breastfed or fed their younger children included in the study than were nonparticipants or residents in control communities.

Relative to nonparticipants and/or residents in control communities, participants reported significantly greater positive change in a variety of the health/nutrition practices promoted by the *Credit with Education* program:

- Giving newborns the antibody-rich first milk (colostrum).
- Introducing liquids and first foods (in addition to breastmilk) closer to the ideal age of about six months.
- Not using feeding bottles.
- Enriching the traditional complementary food, koko, with bean/cowpea, egg, fish, groundnut, milk and palm oil.
- Enriching Weanimix (a complementary food promoted and distributed by the Ministry of Health) with fish powder.
- Rehydrating children who had diarrhea by giving them either ORS (made from the packets) or home liquids (like tea or rice water).
- Not "treating" children who had diarrhea by giving them enemas.
- Knowing ways to prevent diarrhea, such as "covering food to avoid flies" and "keeping food clean".

Despite involvement in their loan-financed activities, participants did not wean their children any earlier than did nonparticipants and were just as likely to breastfeed their babies into the child s second year of life.

However, no statistically significant difference was found in the following areas, indicating a need for greater nonformal education in these topic areas:

- Other diarrhea prevention practices promoted by the program, such as hand washing, reheating cooked food before serving/not keeping cooked food long before serving, and using clean water.
- Limiting or withholding food from children with diarrhea, as reported by the majority of women in each of the three groups.
- Immunization coverage.

The children of participants also experienced significantly greater improvement in feeding frequency as compared to the children of the two nonparticipant groups, with a marginally significant difference in egg and meat/fish consumption.

Impact on women's empowerment

Indicators of women's empowerment were developed to evaluate program impact on women's self-confidence and vision of the future, their status and bargaining power within the household, and their status and networks in the community.

Compared to the two nonparticipant groups, the 1996 participants rated themselves as being significantly more confident that they would be able to:

- Feed their child the good foods that they know they need.
- Prevent their child from getting diarrhea and other illnesses.
- Earn more money next year than this year.

However, they were not more confident that they could educate their children to their children's full potential.

At the level of the household, participants' bargaining power did not significantly improve as compared to the other two groups in decisions regarding a number of household investments, such as how much to spend on clothing, medicine, agricultural inputs or fixing the house. However, there was a significant increase in participants' "say" in whether or not children went to school as compared to nonparticipants, and a marginally significant difference as compared to residents in control communities.

Participants' husbands were significantly more likely to have offered to help their wives with child care and with their income-generating activities during the previous six months as compared to nonparticipants' husbands; however, there was no significant difference between participants and residents in control communities. There was also no significant difference across the groups in women reporting they had discussed family planning with their husbands.

At the level of the community, the program seemed to have positively affected women's participation in the community and their helping contacts with family and friends. There were significantly greater changes between the years for participants as compared to the two nonparticipant groups, in that participants were more likely:

- To be members of a community group beyond their families.
- To have helped a friend with his/her work.
- To have offered health/nutrition advice to others.
- To have offered business advice to others.

Participants were also contributing more money to non-kin funerals, which is important to an individual's social status and to the reputation of one's family.

Using these three aspects of women's empowerment, participants were significantly more "empowered" than the two nonparticipant groups, especially at the individual and community levels. However, it is interesting to note that residents in control communities were more confident and enjoyed relatively greater assistance from their husbands than nonparticipants in program communities. It is possible that the decision of nonparticipants not to join the program in their community itself reflects an initial lack of self-confidence and greater degree of inequity in marital relations.

Impact on the ultimate goals - nutritional status and food security

Participant households reported a reduced vulnerability to the "hungry season" relative to the baseline period as compared to the two nonparticipant groups. The nutritional status of participants' one-year-old children'both in terms of acute (weight-for-age z-scores) and long-term measures (height-for-age)-was also significantly improved between the years relative to the children of nonparticipants and residents of control communities. For example, the mean height-for-age z-score (HAZ) for participants' one-year-olds was almost 0.3 greater than the baseline HAZ of future participants' one-year-old children. The mean HAZ for children in control communities was 0.2 less for the same period of time. A similar positive effect was not found for maternal nutritional status as measured by women s body mass index (BMI).

Conclusions

The impact evaluation research in Ghana provides evidence that credit and education services, when provided together to groups of women, can increase income and savings, improve health/nutrition knowledge and practice, empower women, and ultimately improve household food security and children's nutritional status. Further analysis is planned to examine the relationship between the various intermediate impacts and their relative contribution to children's better nutritional status.

Although not a focus of the impact research, it is also important to note the program's performance in terms of financial sustainability. In the six-month period from October 1996 through March 1997, the program had an operating self-sufficiency ratio of 81%, meaning that the interest paid by borrowers covered 81% of the Lower Pra Rural Bank's costs of delivering the credit and education, covering all operating costs including financial costs such as interest on debt, but not loan loss reserve. While not yet fully financially sustainable, this represents a much higher level of cost recovery than most income-generation interventions and certainly more than traditional health/nutrition education programs. The combination of positive impact and financial sustainability makes *Credit with Education* a strategy with exciting potential for widespread and sustainable impact on nutrition and food security.

Figure 1. *Freedom from Hunger 'Credit with Education' Strategy*

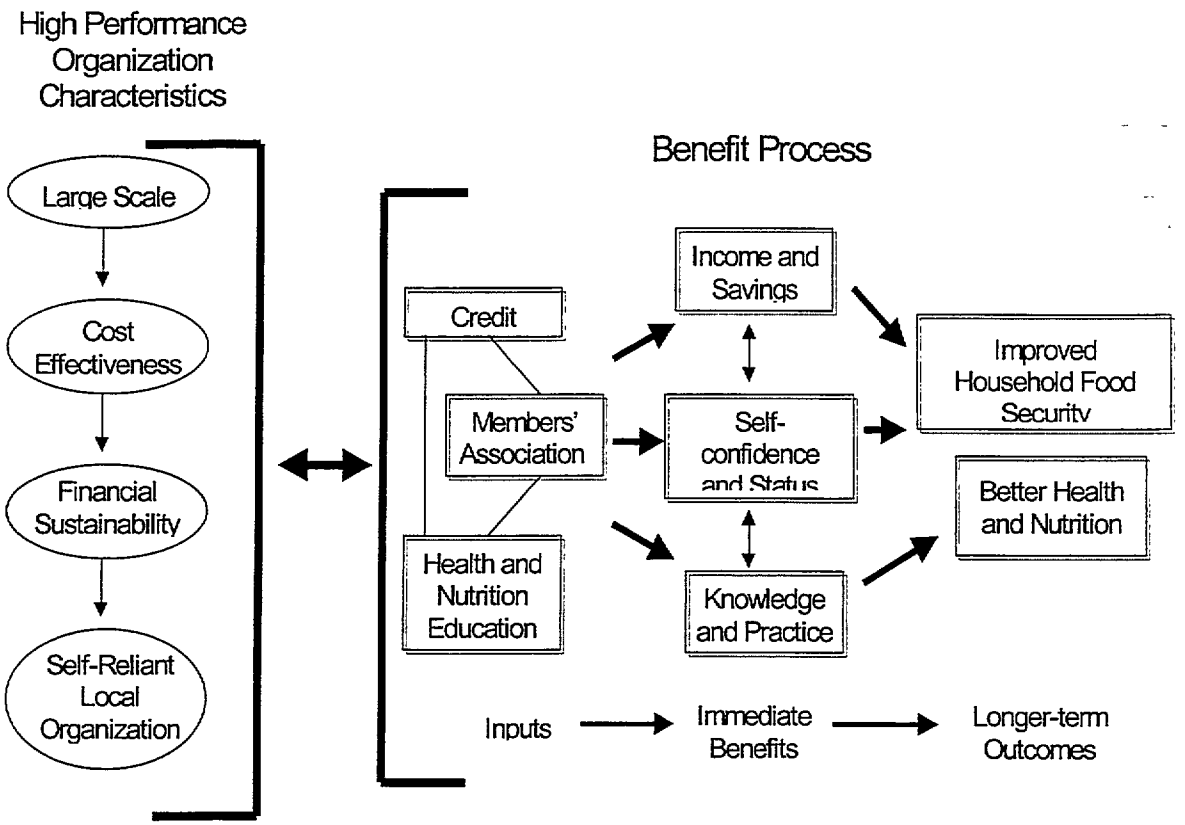
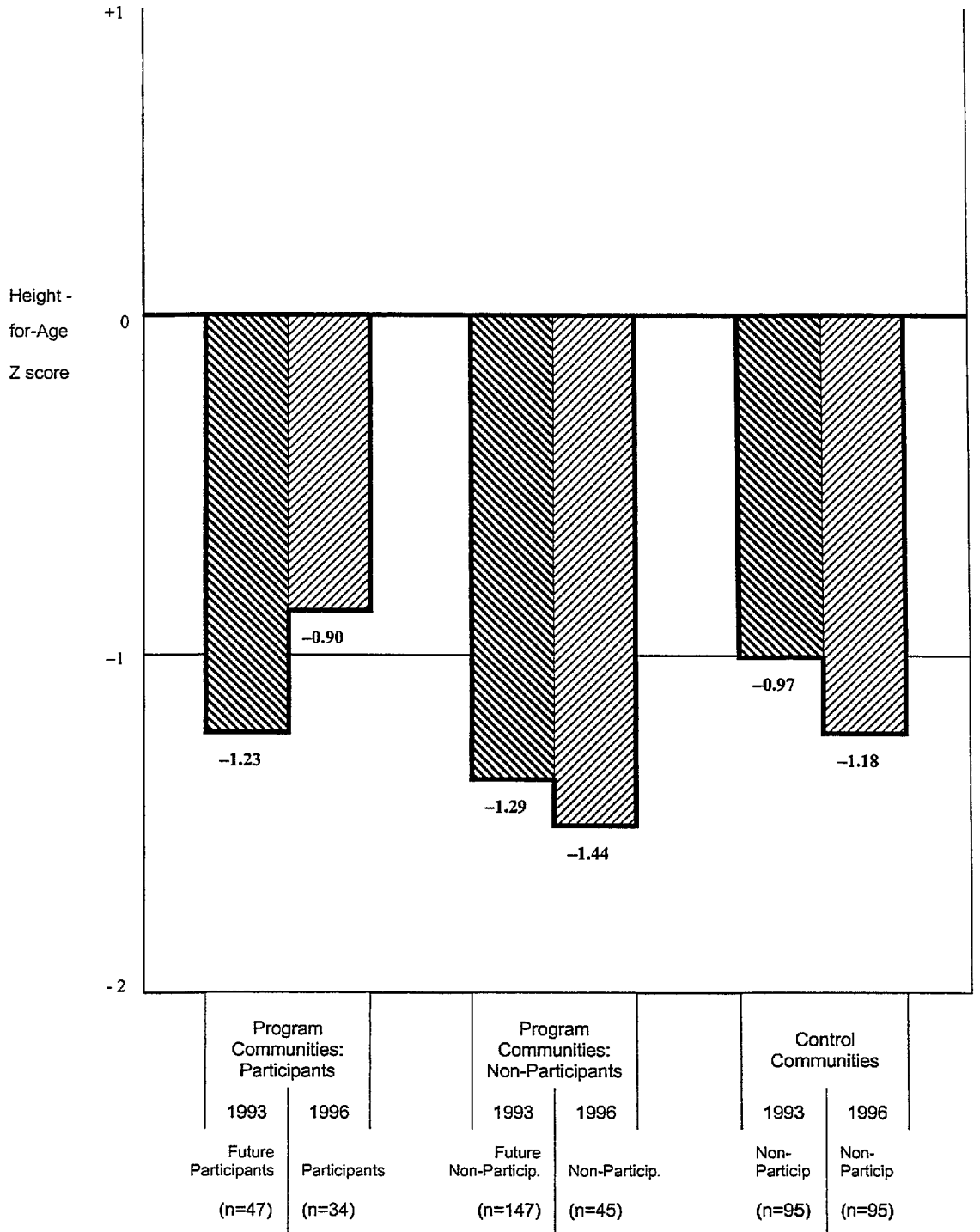


Figure 2. *Children's height-for-age nutritional status in Ghana impact evaluation*



Comparing 1993 and 1996 by Group. (1) Significant difference in years between program participants and control group, controlling for mother's height, child's age, and square of child's age (p=.01). (2) Marginally significant difference between program participants and non-participants in program communities (p=.08). (3) No significant difference between non-participants in program communities and control group.

Strengthening Partnerships between Communities and Health Workers for Child Health: Fostering Dialogue and Commitment[1]

Judi Aubel,[2] Mamadou Diagne,[3] Banda Ndiaye[4]

Abstract

This paper assesses the elements of WVI's child survival strategy in Senegal from 1986-89 which threatened program sustainability by creating dependency on WVI, both in the Ministry of Health and the communities. In 1991, a philosophical shift towards building partnerships between the Ministry, the health workers and the communities at the district level redefined the role of WVI so that dependency was not created and sustainability was enhanced. By contrasting the child survival program before and after 1991, this paper illustrates many key elements of long-term program sustainability. The authors also present a "Ladder of Community Participation" which provides a scale for comparing levels of community participation.

Executive summary

A major challenge faced by virtually all developing countries is to identify sustainable strategies for providing communities with access to basic health services which are of good quality. In all countries, priority is given to providing promotive, preventive and curative services to women and children, the most vulnerable groups in the society. In most countries, however, health sector resources are limited, the health infrastructure is weak and ministry of health staff are accustomed to providing services within fixed structures which, for many communities, are difficult to access on a regular basis. In the spirit of Primary Health Care (PHC), another priority is to strengthen partnerships between communities and MOH health workers in planning and implementing such services in order to ensure the appropriateness of those service and to increase community ownership of and responsibility for them. The challenges in providing appropriate and accessible MCH services are numerous.

The experience of World Vision International (WV) in Bambey and Mekhe Districts in Senegal in West Africa illustrates an innovative and potentially sustainable approach to providing basic MCH services to communities by strengthening the commitment and skills of both community actors and MOH staff. While in many programs the focus is more on developing the technical aspects of MCH services, in this case priority was given to developing a sustainable system for providing basic services at the community level through the collaborative involvement of community and MOH actors.

There is widespread discussion of the importance of developing "partnerships" between communities and health workers in community health programs, however, it is not yet clear how to operationalize this important concept in program strategies. Key features of the approach used by WV in two health districts in Senegal to develop such partnerships are described in this case study.

Important characteristics of the WV approach at the community level which have contributed to increased commitment and capacity on the part of community actors to carry out basic health activities at that level include: a methodical and democratic process for selecting village health committees (VHC) and volunteers; the development of relationships with community actors based on listening, respect, negotiation and encouragement; the involvement of VHCs in planning, implementing and evaluating all community health activities; the encouragement of women's involvement and respect for their contributions; and a cost-recovery scheme to support all community health activities. The WV-supported strategy has contributed to the development of a cadre of community volunteers who are highly motivated and have the skills necessary to carry out basic community health activities on their own and in

[1] Submitted by World Vision/Senegal. The project was funded by USAID/BHR/PVC under a child survival grant. The preparation of this paper was funded in part by the BASICS Project.
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collaboration with the health post nurses. The support they receive from their own communities and their level of motivation "to work for the well-being of their own communities" is rarely seen in community health programs.

Key features of the WV approach which have strengthened the commitment and ability of MOH staff to work in partnership with community actors are: a motivational strategy based primarily on non-financial incentives from the community and MOH; strong support for the WV project from the District Medical Officers and District Health Teams (DHT) as an integral part of the MOH program; involvement of health post nurses (HPN) and DHTs in planning, implementing and evaluating all project-supported activities; and the facilitative, non-directive role played by WV staff with MOH staff. In almost all cases the HPNs are highly motivated to carry out integrated, basic MCH outreach activities in the villages in their catchment areas and to ensure referrals to other services when necessary. WV has not provided financial incentives to MOH staff to carry out these important activities. Their commitment to do so is based on motivational factors that stem from both the community and MOH system itself. Given their commitment and motivation, prospects for sustainability of the HPN outreach activities appear to be good.

Most community health programs do not explicitly aim to strengthen relationships between community and MOH actors, which are essential to ensure the effectiveness and sustainabliity of community health programs. In the WV project this was an explicit priority. Key features of the WV approach which have contributed to community-health worker relationship building include: negotiation, clarification and public commitment to the complementary roles and responsibilities of VHCs, MOH and WV staff; regular visits by MOH nurses to target villages; and community "feedback meetings:" to monitor and evaluate community activities.

As compared with other health districts in Senegal, in Mekhe and Bambey both the short term accomplishments related to child health and the prospects of sustainability of child health activities are impressive. The experience of WV in the two districts has contributed both to improving the coverage of basic child health services to rural communities and to bringing about improvements in household knowledge and practices related to child health. These accomplishments are significant, but of even greater long term importance is the fact that they are the results of partnerships which have been created between communities and MOH services working together for the good of rural communities. The efforts to build capacity and to develop a sense of ownership of the community health activities increases the chances that both the activities and achievements will be sustained. The government of Senegal should seriously look at the approach used in Mekhe and Bambey in its search for sustainable approaches to providing basic health services to the population.

Based on this experience in Senegal, a series of lessons are formulated related to how sustainable strategies for promoting child health can be developed at the community level. The lessons deal primarily with how partnerships can be fostered between community actors and MOH staff; and with the role which NGOs can play in strengthening such partnerships through close collaboration with district health services. Many of the lessons appear to be of relevance to NGOs and governments in West Africa and elsewhere who are grappling with the challenge of how to ensure access to basic MCH services to resource poor and often isolated communities.

Introduction

In most developing countries, the health status of a large part of the population is precarious and health sector resources are shrinking. In these challenging times all governments are trying to identify effective ways to promote health and to improve access to health services. In addition, the importance of involving communities in promoting their own health is increasingly acknowledged in most countries.

Most NGOs and other donors are trying to develop approaches which contribute to building the capacity of both communities and health workers to promote community health. All organizations want to use their resources to develop strategies which will have a sustainable impact on the population in a district, region or country.

In Senegal, all of these needs, constraints and challenges are present. Faced with this situation, over the past 6 years, World Vision (WV), an international NGO, has worked closely with MOH staff to develop a promising approach to promoting child survival at the community level in two medical districts, Mekhe (in Thies Region) and Bambey (in Diourbel Region). With two successive child health grants from USAID, WV has developed an innovative approach to promoting child survival which focuses on strengthening collaboration between MOH staff and communities and increasing the involvement of both in promoting community health.

Compared with other projects and programs in the country with similar MCH objectives, the results of this

experience are very encouraging. However, outside of the two districts where WV is working, this experience is little known. Compared with many other NGO projects where NGO staff assume more directive roles, there are a number of advantages to the approach adopted by WV to develop the capacity of communities and health workers.

Community health programs in Senegal

Since the 1980's, Senegal, like most developing countries, has aimed to reorient its health services in order to improve access for rural communities, to improve the quality of services provided and to involve communities in managing local health programs. The Senegalese government signed the Alma Ata Declaration on PHC and has committed itself to strengthening community health programs. However, adopting the rhetoric of PHC has proven to be much easier than implementing sustainable programs based on the principles of PHC. In order to operationalize PHC, a number of concepts and strategies need to be clearly defined and developed related to the involvement of both communities and health workers in such programs.

At the community level, several aspects must be defined and developed. What type of community participation is to be developed? What sort of orientation should be provided to community members to enable them to participate in health activities in an effective and sustainable way? How should community health committees and community health workers be chosen, trained and supervised to ensure that they are motivated to work for the well-being of their own communities over time?

At the level of the MOH health workers, several issues must be addressed to enable them to effectively implement community health programs. In their basic training, the focus is on clinical aspects of community health and on activities carried out within the health structures. Relatively little attention is given to practical community level work. In refresher training programs, outreach community health strategies are also neglected. District level health workers usually define their own roles in terms of their health post activities. How can these health workers be motivated to carry out regular outreach activities at the village level which requires that they move out from the health structures where they are in charge and venture into the community where they are required to negotiate rather than to direct.

The success of PHC programs depends on the development of close relationships and collaboration between communities and health workers. Unfortunately, many NGOs have created a bad precedent by financially motivating health workers to carry out community outreach activities, which theoretically are part of their routine MOH job responsibilities. The involvement of health workers in such activities requires that they have a strong professional and individual commitment to working with poor, needy communities. The NGO practice of paying health workers to carry out routine outreach activities not only constitutes a constraint to the development of genuine partnerships between health workers and communities, but also creates a problem when such incentives are discontinued when the NGO withdraws. In addition to developing a sense of commitment to PHC on the part of health workers, what other skills and tools do they require in order to be able to work effectively at the community level?

In order to implement PHC programs which are accessible to all communities in Senegal, numerous challenges must be overcome.

In Senegal, it is primarily the local and international NGOs which are actively involved in developing practical strategies for implementing community health programs. National MOH policies give prime importance to PHC programs and provide general guidelines regarding how such programs should be implemented. However, the policies do not give a detailed definition of how PHC programs should be implemented beyond the health post level. This gives NGOs, working in collaboration with district health teams, a certain amount of flexibility to develop PHC strategies beyond the health post level. In this context, the work of World Vision is both innovative and promising.

In order to document and better understand the approach used by WV, BASICS decided to commission a case study on this work so that it can be shared with the government of Senegal, with other NGOs and with other countries.

Goals of the study

1. Document the strategies used to promote child health at the community level and to develop lessons for future programs.
2. Describe the collaborative approach used by WV to work with district MOH teams.

The methodology used to conduct the case study was both qualitative and participatory. In January 1998 information was collected from existing project documentation and from in-depth interviews carried out with all categories of project actors both at the community and local MOH levels. Toward the end of this period a meeting was held with WV and MOH staff in which the key conclusions of the study were presented and participants validated the key findings. Key project actors from both the MOH at the district level and WV staff were actively involved in conducting the case study. They participated in the data collection, analysis and formulation of lessons learned, as their own work schedules permitted.

The study was coordinated by an international consultant, Dr. Aubel, and a national consultant, Mr. Diagne, both specialized in qualitative research and knowledgeable about the health care system in Senegal. In September 1998, the final evaluation of the Child Survival Project was carried out. Some results of the evaluation were incorporated into the case study presented here.

World Vision's work in Senegal in child survival

Since 1985 World Vision has been involved in community health programs in Senegal. World Vision's orientation in Senegal is to support integrated rural development schemes in which project resources for water/sanitation, agriculture and health are focused in the same geographic areas. From 1986-1992 WV received a Child Survival grant from USAID to carry out activities in the Louga region. In 1991 a second USAID grant was received to support child survival activities in Mekhe District in the Thies region. In 1995, similar activities were extended to the Bambey District in Diourbel Region, with additional USAID funding.

Since 1986, the aim of WV's community health programs has been to strengthen basic MCH services and health promotion at the community level. The basic technical "package" of activities included in these programs has not changed, however, the approach used in working both with communities and with MOH staff has evolved dramatically. Since 1986, the WV health program has been involved in an important process of progressively learning and reorienting its strategies to make them more effective in the short term and more sustainable.

Learning from experience. In this paper we will be discussing "Phase 1" of WV's health program which was implemented between 1986 and 1989 in the Louga region, and comparing it with "Phase 2" which began in 1991 and continued until September 1998 in Thies and Diourbel regions. Between 1989 and 1991 WV's approach was already evolving but is not discussed here. A priority aim of the study was to identify program strategies which increase prospects for sustainability of community health programs.

In the final evaluation of the project in Phase 1, a number of features of the strategy were identified as potential threats to the sustainability of the project-supported activities. Subsequently, as predicted, many of the project activities were not sustained. Based on the experiences in Phase 1, important lessons were formulated which served as a basis for developing the Phase 2 strategy. The main focus of this paper is on the approach used in Phase 2. In this approach a number of factors are identified which appear to be critical for the sustainability of community health programs.

Phase 1: Focus on quantifiable outcomes related to child health activities

In Phase 1, the focus was on efficiently using project resources to carry out measurable project activities defined in the project documents. Priority was given to implementing concrete, measurable activities such as "constructing X no. of health huts, "training X no. of community health volunteers" and "vaccinating X percentage of children 0-23 months." After three years of project implementation, the project evaluation showed that in many cases the project objectives were realized, and in some cases the level of accomplishment surpassed the defined objectives. Important accomplishments were documented related, for example, to vaccination coverage, pre-natal consultations, ORS promotion, training of health committee members and community volunteers, construction and equipping of health huts.

Key features of the Phase 1 approach are described here, related primarily to the involvement of community members, MOH and WV staff. Several aspects of the Phase 1 strategy contributed to developing a strong sense of dependency on WV both by communities and MOH staff. In the following section, nine key aspects of the strategy which constituted threats to the sustainability of project-supported activities are discussed.

WV collaboration with district health teams. In Phase 1, following the prescribed procedures for NGOs working in Senegal, WV went through the official administrative channels to obtain permission, from both the regional and

district health offices, to work in certain zones. District health team members (DHT) were involved in developing WV's action plans. In some cases, however, WV-supported activities were initiated and/or carried out without informing the DHTs and this led to conflicts between the DHT and WV.

Collaboration with health post nurses (HPN). In Phase 1, WV staff took primary responsibility for planning community health activities. The nurses were expected to participate in carrying out those activities. To encourage them to do so they were given a per diem for each day of outreach work they participated in. This approach led to a high percentage of activities carried out, for example, in March 1987 full vaccination of children 12-23 months was at 89%. However, the fact that the nurses were not fully involved in activity planning and that they were paid by WV for the work carried out at the community level decreased their sense of ownership of the community activities and their commitment to carrying them out. In many cases the motivation of the nurses to participate in the "WV activities" was dependent on the per diem they received. Most nurses did not consider the WV-supported activities to be part of their MOH responsibilities.

Role of World Vision at the community level. WV field workers lived in the villages and were directly involved in carrying out MCH activities: cooking demonstrations, baby-weighing, IEC sessions. In this approach, most activities were carried out as planned, however, a dependency was created on VW staff.

Community participation. In Phase 1, community participation (CP) consisted mainly of eliciting community involvement in activities planned and organized by WV. Concretely, community participation consisted of community contributions in the form of money or labor, and their presence at health activities such as baby weighing and cooking demonstrations. On the ladder of community participation (Box 1), participation was generally limited to Level 1.

Health committees. Community health committees were the key vehicle for ensuring community involvement in the project. They were intended to be the intermediaries between community members and WV. Most of those chosen to be committee members were male, traditional community leaders who, in many cases, were not genuinely motivated to assume responsibilities related to child survival, and who did not represent the opinions of a majority of community members. The committees were involved in mobilizing people to participate in WV-organized activities. WV did not attempt to systematically train committee members in planning, implementation and evaluation of community activities. Often committee members made decisions to please WV staff which did not reflect community priorities. By the end of Phase 1, the majority of the health committees were inactive.

Box 1. *Ladder of community participation*

Level 4 participation. Program priorities are identified by communities themselves. They take the lead role in action planning, implementation and evaluation. They request support for their program from MOH/NGO staff.

Level 3 participation. Program priorities are jointly defined by communities and MOH/NGO staff. Together they identify problems, develop action strategies, implement and evaluate. Community members play the lead role and health & development workers provide technical and organizational support.

Level 2 participation. Program priorities are defined by the MOH/NGO. Communities are involved in problem analysis, strategy development, implementation and evaluation. Health & development workers play the lead role.

Level I participation. Programs are developed entirely by the MOH/NGO and communities are involved at the implementation stage.

Community health volunteers. Community health volunteers (CHVs) were expected to play a key role in the project. In each village they were chosen during a community meeting. However, the process used to select them did not ensure that the opinions of different sexes and groups in the community were taken into account. Initially the CHVs were motivated and active. Their motivation came primarily from the encouragement and materials for their jobs provided to them by WV. As time went by, however, community members paid little attention to them. They believed that the CHWs were working for WV. Over time the volunteer's interest waned. At the end of Phase 1, 60% of the CHVs had abandoned their jobs and many of those who remained were no longer motivated to carry out community health activities.

Health huts. Early in Phase 1, 49 heath huts were constructed and equipped by WV with limited community involvement. Communities frequently referred to them as "World Vision's health huts." At the outset these health huts functioned through the efforts of the CHVs. Follow-up of the health huts and CHVs by WV staff was sporadic. HPNs were not involved in an ongoing fashion in this supervision. Three years into the project, only seven of the

forty-nine health huts were still functioning. Given these and other constraints, utilization of the health huts by community members was poor.

Integrated development strategy. In response to the acute water problems in the Louga area, in the same zone where the health project was carried out the WV water team drilled bore holes and installed pumps in 210 villages. Support for vegetable gardening was also provided. Communities were very appreciative of these actions which responded to their basic and critical needs.

Choice of strategies and use of resources. WV staff were committed to carrying out the activities included in the project plan of action. In order to accomplish these objectives, the organization invested considerable financial and logistical resources. For example, significant logistical support and remuneration to MOH staff was provided by WV to carry out the EPI campaigns using mobile teams. Support from WV made it possible to significantly increase coverage and meet the quantitative activity and coverage objectives spelled out in the project document. However, in many cases the strategies adopted depended on high levels of financial and logistical input from WV which neither the MOH nor communities could sustain when the project ended. For example, the EPI mobile strategy was abandoned even before the end of the project.

Project outcomes. The efforts of WV staff and MOH collaborators in Phase 1 contributed to significant accomplishments in terms of concrete, quantitative outcomes. Relatively less attention was given to the process required to substantively involve community members and MOH staff in project implementation. The relatively limited involvement and ownership of project activities both by community members and MOH staff constituted serious weaknesses in the project and threats to the sustainability of project-supported activities.

Key lessons from phase 1

Based on the outcomes of Phase 1, a series of important lessons emerged:

1. In order to increase ownership and build capacity, the approach used by NGO staff, in working both with community members and MOH personnel, should be to facilitate rather than to directly implement project activities.
2. The definition of the respective roles and responsibilities of communities, health workers and NGO staff in community health activities, should be based on a process of dialogue and negotiation between the three partners. This will ensure that all partners understand each other's roles and that they publically commit themselves to their respective and specific responsibilities.
3. In working with community members, a capacity-building approach should be used which strengthens their ability to analyze problems, to plan, implement and evaluate community health activities. This will help ensure the relevance of community activities, community ownership of those activities and greater community ability to manage such activities themselves.
4. In order to gradually increase health workers' responsibility for community activities, and to increase their sense of ownership of them, they need to be involved in the planning, implementation and evaluation of these activities. It is essential that they view the project-supported activities as an integral part of their MOH responsibilities.
5. A critical element in any community health project is the motivation of both MOH health workers and of community members to be involved. Factors which contribute to either increasing and decreasing the motivation of community members and of health workers should be openly and thoroughly discussed at the outset of the project, and periodically during project implementation. It is particularly important to identify sustainable sources of motivation which come from within the community and from within the health system itself.
6. Communities are more motivated to participate in MCH activities if their essential needs related to water and food are also being addressed. For this reason integrated community development projects should be supported as much as possible.
7. In any project, sustainability should be a major concern in the choice of technologies, material and logistical support strategies. Less sophisticated and less expensive alternatives should be chosen in order to increase the chances that they can be used and maintained by communities and health workers in the long term.

Phase 2: Achieving sustainability

Principles and methods

The second phase of WV's community health work in Senegal, beginning in 1991 in Mekhe District and in 1995 in Bambey District, built on the lessons of Phase 1 and went beyond them in terms of the philosophy and approach used. Four priority principles served as a foundation for the development and implementation of Phase 2, namely:

- Building partnerships between health workers and communities;
- WV field workers as facilitators and catalysts;
- Strengthening the capacity of communities and health workers;
- Programmatic choices to support sustainability.

Building partnerships between health workers and communities. While there is widespread discussion regarding the importance of building "partnerships" in community health programs, often this aspect is not clearly defined in program/project goals nor developed in program strategies. In community health programmes, two types of objectives are usually addressed: first, to reinforce community members' knowledge and skills related to various health issues and secondly, to improve the knowledge and skills of health workers related to these same issues. In Phase 2, as in Phase 1, these types of objectives were important. However, in Phase 2 an additional priority, although unwritten at the outset, was "to reinforce contact, dialogue and collaboration between health workers and communities." This important objective is based on the assumption that the effectiveness and sustainability of community health programs is intimately related to the degree of commitment and collaboration which exists between these two key sets of actors. This objective has been overlooked in most programs which aim to strengthen both community and health worker capacity but which do not explicitly focus on strengthening the relationship and collaboration between them.

In Phase 2, the WV health team illustrated this objective with two over-lapping circles, one representing health workers and the other communities, with the interface between the two circles representing the collaboration between them. The project aimed to progressively increase the contact and collaboration between them, and hence, to gradually increase the amount of over-lap between the circles.

In Senegal, as elsewhere, contact between facility health workers and communities is generally limited, and when there is contact it is often based on top-down and one-way communication from health workers toward communities. According to the WV programme coordinator, "Our objective is to help bring communities and health workers together so that they know each other better and so that they learn to work together as partners." In Phase 2, WV used a number of activities to increase contact between health workers and community members, and to encourage horizontal, two-way communication between them.

WV field workers as facilitators and catalysts. A second key concept in Phase 2 related to the role of WV health team in their work with communities and with MOH staff. In Phase 1, WV staff often initiated activities and made decisions on their own. In Phase 2, given the focus on strengthening collaboration and commitment between health workers and communities, the role of WV staff was less directive. According to the project coordinator, WV's role was, on the one hand, to act as "facilitators" to encourage health workers and communities to come together and to maintain ongoing dialogue. On the other hand, a complementary role they assumed is that of "catalysts" who encouraged both health workers and communities to experiment with innovative activities and approaches. In the above diagram which illustrates the collaborative relation-ship which should exist between health workers and communities, the WV health team used a much smaller circle off to the side to suggest the facilitative and catalytic role it played in the project environment.

Strengthening capacity of communities and health worker. The development of effective partnerships in community health programs between health workers and community members depends on their individual and joint commitment and competencies. In Phase 2, a third key concept, which built on the limitations and lessons learnt in Phase 1, was the importance of focusing on strengthening the capacity of both communities and health workers to identify needs, develop, implement and evaluate strategies to address those needs. The sustainability of any community health program depends to a great extent on the knowledge and skills of both community members and health workers.

At the community level, Phase 2 activities aimed to strengthen the knowledge, confidence and skills of community groups related to priority CS interventions, their organizational and manage-ment capacity, and their ability to

mobilize resources both within and outside the community. Project activities targeting health workers aimed to increase their commitment and ability to collaborate with community leaders and groups in the analysis of community needs, in planning community health activities and in monitoring and evaluating such activities.

Programmatic choices to support sustainability. In Phase 2, an ever-present concern was choosing strategies, technologies and approaches which would have greater chances of being sustained beyond the presence of WV staff and resources. This concern applied to the approaches adopted both at the community and MOH health worker levels. WV consistently tried to adopt approaches which could be managed by communities and MOh staff themselves and which required resources which could be generated either within the community itself or within the MOH system.

Steps in developing commitment and collaboration between health workers and communities. In order to operationalize the concepts and roles discussed above, in Phase 2 WV proposed a 6-step process for strengthening community-health worker partnerships (Box 2).

Box 2. *Steps in developing partnerships in community health programs*

Step I. Establish a sense of partnership between WV staff and the MOH District Health Team..
Step 2. Make initial contacts with communities and provide them with basic information on the child survival project.
Step 3. Collect information on priority health problems targeted in the project.
Step 4. Develop a sense of partnership between communities health workers and World Vision.
Step 5a. Reinforce community commitment and capacity to carry out health prevention and promotion activities.
Step 5b. Reinforce the commitment and capacity of health workers to carry out community health activities in collaboration with community actors.
Step 6. Reinforce the partnership between communities, health workers and W V on an ongoing basis.

Note. Steps 5a and 5b are carried out simultaneously

Focus on the process of building partnerships between communities and health workers to promote child health

In Phase 2 WV staff worked closely with MOH staff to meet the quantifiable activity-focused objectives based on district MOH goals. These were also priority objectives in WV's CS project. While these objectives were of great importance, of equal, if not greater importance in WV's strategy was the process through which communities and health workers were involved in accomplishing those objectives. Key features of this process-focused approach are described below.

World Vision collaboration with District Health Teams (DHT). In each of the targeted health districts, involvement and support of the DHT, and particularly of the District Medical Officer (DMO), for WV's approach to community health promotion was critical. WV's objective was "to create one united team" composed of the DHT members, HPNs and WV health team members to carry out community health activities in each district. In order to create such teams, key aspects of WV's approach included: transparently sharing information with DHTs and HPNs; and carrying out all activities involving needs analysis, planning, and follow-up in collaboration with these local MOH partners.

WV staff worked intimately with the HPNs at the health post and community levels, and in most cases strong working relationships were established with them. The WV strategy focused less on the DHTs, although they did provide them with important support through training, and the provision of equipment and drugs for district health facilities. In most cases, the DHTs were not substantively involved in the community level activities. Most of them do not regularly participate in the follow-up of health worker and community activities supported by WV and, for this reason, most do not have an intimate understanding of the WV approach at the community level. This was a shortcoming of the strategy, and a threat to the sustainability of the WV-supported strategies.

Collaboration with health post nurses (HPN). In Phase 2, WV staff made a consistent effort to involve the HPNs in all steps of planning, implementation and evaluation of community level activities supported by the project. In the community level activities, the HPNs were consistently encouraged to take a lead role, while WV staff were expected to assume a supportive role. These strategies have contributed to an increased sense of ownership of the community activities on the part of the HPNs.

For some WV team members, accustomed to assuming a more directive role, it was not easy to learn to consistently play a non-directive, supportive role with the HPNs. Ongoing encouragement and follow-up of WV team members was required to help them assume this type of role.

One of the key lessons from Phase 1 concerns the negative consequences of an NGO providing financial incentives to MOH staff for routine community outreach work. In Phase 2, WV consistently maintained that project support

was to help district and health post staff accomplish the MOH objectives and tasks assigned to them, and that an NGO should not financially remunerate health workers for routine tasks assigned to them by the MOH. At the same time, WV consciously tried to motivate HPNs in other ways.

End-of-project interviews with the HPNs showed that most of those who work in the WV-supported areas have developed a strong commitment to carrying out the community health activities. While in the MOH in Senegal people usually equate motivation with financial incentives, the HPN interviews reveal that their motivation to carry out community health activities is related to several types of non-monetary factors.

A major determinant of the HPNs' motivation is the DMO's conviction that implementation of the CS activities is part and parcel of their professional responsibilities. Several types of non-monetary rewards come from communities themselves. According to the HPNs, these include: the dedication and dynamism of the community health volunteers; the active participation of community members in community health activities; expressions of satisfaction by community members regarding the HPN's work; and improvements in the health knowledge and health status of community members.

Other factors which have motivated the HPNs to be involved in community health activities stem from the approach used by WV, namely: the fact that WV involved them in all aspects of the community health program; the delegation of responsibility to them for carrying out community level activities; providing them with training, materials and equipment necessary for them to carry out their required tasks.

Role of World Vision staff at community level. In Phase 2. WV staff were expected to play a facilitative and support role with both community members and MOH staff. While in Phase 1 they lived in the villages, in Phase 2 they made periodic visits to health posts and villages to discuss plans for future activities, reinforce and encourage community volunteers. The interviews conducted in this study revealed that regular follow-up visits by WV staff to communities in the project have a strong motivational effect on community members.

In Phase 2, an important step in initiating activities with a community was to negotiate and clarify the roles of health workers, community health volunteers (CHVs) and WV staff. This was done through in depth discussions which took place during a series of meetings over a period of several months. The clarification of roles at the outset contributed to better collaboration, reduced conflict and confusion regarding roles and responsibilities and provided criteria for evaluating the performance of each partner.

Community participation. In Phase 1, community participation was limited to involvement in activities organized by WV staff. In Phase 2, community leaders and groups were viewed as active managers of community health activities, in keeping with Level II participation in the ladder of participation. WV's approach consisted of developing strong relationships with community representatives based on ongoing dialogue and collaboration to plan, implement and evaluate community health activities, such as vaccination days, health education sessions, and bednet production. The community volunteers have increased their ability to plan, organize and evaluate such activities. While the project contributed to strengthening community involvement in planning, managing and evaluating health activities, there is still considerable room to further develop community responsibility and skills. However, very high levels of illiteracy in the project areas constitute a significant constraint to doing so.

Another important result of community capacity-building efforts is increased confidence on the part of the community volunteers, who are mostly women. This is observed in their ability to express their opinions in group sessions to health workers, even when they disagree with MOH staff.

Health committees. Efforts to increase community participation, in Phase 2, have focused on the establishment and strengthening of village health committees (VHC). WV's support for health committees includes: facilitation of the process of choice of community representatives; pedagogical and logistical support for the training and follow-up of VHC members; the provision of tools and techniques for involving the committees in all phases of needs assessment, planning, implementation and evaluation; and frequent supervision of all VHCs.

According to WV staff, in Phase 1 the VHC members and community health workers were chosen using the traditional African decision-making approach, or "manipulated decision-making" in which formal community leaders decide for everyone else in the community. In Phase 2, WV staff did not influence community members' choices, however, they did propose a process for making those choices which took place during a series of meetings and ensured that the opinions of different groups in the community were taken into account. During the selection process, WV staff specifically encouraged communities to discuss the role of women in community and family

health and the role which they should play in a community health project. Once the VHC members ho: another important facet of WV's approach was to facilitate in depth discussions between VHC memb. 1 M staff regarding the committees' roles and responsibilities.

In Phase 1, as in many community health projects, the VHCs were not very motivated to carry out their ro: anc the majority abandoned their positions over time. In Phase 2 the outcome is strikingly different in terms of t.e motivation demonstrated by VHC members. According to the district PHC supervisors, in both districts, 100% of t. VHCs are not only functional but very active. Another remarkable finding is that of all of the VHC members chose since 1991, 97% are still holding these jobs and in most cases they are very dynamic. Only 3% have abandoned their positions, and most of these are due to the fact that their families moved away from the village. Another significant and atypical characteristic of the VHCs in the two districts supported by WV is that a large majority of committee members are women, 92% in Mekhe District and 82% in Bambey District. The systematic and democratic process used to select VHC members appears to explain the strong representation of women on the committees, the commitment which communities feel toward their chosen representatives and the motivation of the VHC members. Other factors which contribute to the VHCs' motivation are the training and the regular follow-up visits they receive, and the moral encouragement from MOH and WV staff.

Community health volunteers. In Phase 2 the female volunteers (village midwives and female animators), were chosen in the same way as the VHC members, through in depth discussions with community members. In both WV-supported districts, the VHVs are highly motivated to carry out their assigned roles and since the first volunteers were trained in 1992, few have abandoned their posts. The following quote from a health post nurse reflects the enthusiasm and effectiveness of the female animators who are residents.

The women animators are very respected by the community at large and that's why it's so easy for them to mobilize the community. Before we had the animators, it was difficult to inform community members about important activities and even more difficult to mobilize them to participate. Now all of this is very simple. All I have to do is call on the animators and I get quick results. Their effectiveness is due to the fact that they are well accepted in the community, that they were really chosen by the community and that the community has confidence in them.

The CHVs' commitment to their jobs and their effective performance suggests that they are highly motivated to carry out their assigned tasks. Based on interviews with CHVs and observations made by WV staff, it seems that their motivation comes primarily from their own communities, both through official community recognition of their roles and the moral encouragement provided to them. Other sources of motivation, but of lesser importance, are the encouragement they receive from the HPNs, and the encouragement and support from WV, in the form of simple equipment and materials necessary to carry out their tasks.

In Phase 2, the CHVs' first responsibility is to their own communities and their motivation appears to come primarily from the intangible support they receive from their communities. Support from MOH and WV staff also plays an important role in motivating them to do their jobs, although this appears to be of secondary importance.

Health huts. In Phase 1 communities were minimally involved in constructing and equipping the health huts and they referred to them as "World Vision's health huts." In Phase 2, community members had the main responsibility for constructing and equipping them, with WV providing limited materials and technical assistance. In the second phase, virtually all of the communities now have a strong sense of ownership of their health hut and utilization rates are high for vaccinations, growth monitoring, first aid and deliveries. The presence of the huts has significantly contributed to improved access to these basic services. In Mekhe District, in 1992 there were only 3 functional health huts whereas now there are 73. In 1995 when project activities started in Bambey District there were less than 10 functioning health huts whereas today there are 27.

Integrated development strategy. In keeping with WV's belief in integrated development, in the health project zones in the two districts, other health-related activities are being carried out by other WV programs which address needs related to water, agriculture and adult literacy. The experiences of the health program in Phase 2 again confirm the idea that if communities= basic needs are being addressed, they tend to be more motivated to be involved in health-related activities which address less urgent needs, like vaccinations and health education.

Choice of strategies and use of resources. In Phase 2, an ever-present concern was to choose strategies, materials and technologies which would have a greater chance of being sustained once WV support came to an end. Simpler technologies were chosen when equipping health huts and health centers. Financial resources were used primarily

for investments in equipment and capacity-building through training and follow-up, at both the community and health posts levels, and to only a very limited extent on recurrent expenditures for which resources would not be available when the project ended.

Outcomes and lessons learned

Based on the information collected from the various sources, including the final evaluation of the CSP in September 1998, it appears that the approach used in Phase 2 was quite effective in terms of contributing to the accomplishment of the five anticipated outcomes. For each of the five outcomes key features of the project strategy are identified which appear to have contributed to those outcomes. The first three outcomes relate to project objectives which were not included in the initial project document, but which pertain to key concepts and aims which significantly oriented the work of the WV team. The fourth and fifth outcomes are based on initial project objectives. While the lines and arrows in the diagram connecting the features of the strategy and the outcomes suggest linear relationships, in fact there are synergistic relationships between the different features and the various outcomes.

For each of these outcomes, several examples of indicators are cited (below) which have been either formally assessed or observed. Key features of the strategy are summarized and for each of the features, lessons are formulated based on WV's experience in Senegal which may be relevant to future community health projects in Senegal and elsewhere.

Outcome I: Increased commitment and capacity on the part of MOH nurses to be involved in community health activities

- 100% of the HPNs have developed close friendships and working relationships with the villages in their catchment areas;
- 85% of the HPNs carry out regular integrated outreach activities at the village level as part of their normal MOH responsibilities without NGO remuneration;
- 85% of the HPNs regularly supervise VHC members;
- all HPNs carry out initial and refresher training for their VHC volunteers.

Key contributing aspects of project strategy:

Support from the District Medical Officer and District Health Team for the WV project activities as an integral part of the MOH program. At the outset, considerable efforts were made in the two health districts to gain the support of the MOH authorities for the proposed approach. Given the precedent created by many NGOs who have remunerated health staff for routine community level work, it was initially quite difficult to get the DMOs to agree to support an alternative formula. Ultimately, the DMOs were very supportive and consistently reminded their staff that the CS community health activities are an integral part of their jobs.

From an institution-building and sustainability perspective, in the development of community health programs it is important, but not sufficient, to obtain authorization from district MOH staff. Concerted efforts should be made to develop their commitment to and ownership of such activities so that encouragement to MOH staff to implement community health activities comes primarily from them and not from NGO staff.

Motivational strategy based on non-financial incentives. In the CSP, factors that contribute to MOH staff motivation to carry out community health activities stem primarily from the MOH and from communities themselves. Several elements of the approach used by WV in working with MOH staff also served as motivational factors. The WV experience suggests that one of the keys to the success of any community health program is a motivational strategy which contributes to the development of genuine and long term commitment to communities on the part of MOH staff. If motivation is to be sustained, it must primarily be based on incentives which come primarily from the health system and from communities themselves.

Involvement of MOH nurses and DHTs in planning, implementing and evaluating all community health activities. The HPNs have been consistently involved in planning, implementing and evaluating community health activities in their catchment areas. This has lead to increased understanding on the part of the HPNs of the community partnership approach and to their greater sense of ownership of the community health activities. As regards the DHTs, they were periodically involved in district-level CS activity planning, to ensure that WV-supported activities correspond to district priorities. However, most DHT members were not extensively involved in the implementation and follow-up of community level activities. As a result some of them did not develop an in depth understanding of the community partnership approach nor a strong sense of ownership of the project.

While additional effort and time is required to consistently involve the DHTs in CS project activities, ai investment is valuable to enable them to understand and to ensure their ongoing support for the comm approach. Their involvement is also important insofar as they constitute a channel through which the h lev in the MOH can be informed of innovative community-based CS approaches.

Facilitative and non-directive role played by WV staff with MOH staff. WV staff played a non-directive role, as facilitators and catalysts, in order to strengthen the capacity of MOH staff and develop their sense of ownership of the program. Skills required to play these facilitative roles have been developed in WV staff primarily through modeling by the team coordinator.

In training programs developed for NGO staff working at the district level, particular attention should be given to developing their skills in non-directive consultation.

Outcome 2: Increased confidence, motivation and capacity on the part of community leaders and groups to promote community health

- 100% of the health committees are operating effectively to carry out village CS activities;
- Only 3% of committee member volunteers have abandoned their positions over a six year period;
- 97% of the originally chosen volunteers are active and highly motivated to carry out community CS activities;
- All female animators are respected by their communities and efficiently inform and mobilize others for CS activities;
- more involvement of women in community health decision-making: 88% of VHC members are women.

Key contributing aspects of project strategy:

Relationships of WV and MOH staff with communities are based on listening, respect, negotiation and encouragement. According to the DHTs, in the context of the project many of the HPNs have improved their interpersonal communication skills, related to listening, showing respect for community ideas and values, negotiating solutions and encouraging community actors to develop their full potential. These skills appear to have been of critical importance in helping WV and MOH staff to establish close relationships and collaboration with community leaders and groups as a first important step toward capacity-building. Future CS projects such as this would benefit from training strategies and materials which explicitly address the attitudes and skills of MOH field staff which are necessary in any capacity-building effort.

Methodical and democratic process used to select community health committee volunteers. The methodical and democratic selection process used to select community volunteers appears to be directly related to the strong support which communities have demonstrated for their representatives and to the volunteers' continued strong motivation to "serve their communities." In any community project, the process used to select community representatives should be carefully designed so that the voices of different groups within the community are heard, and particularly those of women. The WV experience suggests that a more democratic selection process contributes to increased long term motivation of those chosen and to greater community commitment to them.

Initial training and frequent follow-up of village health committees (VHCs). While formal training workshops constituted an important aspect of the community capacity-building effort, follow-up visits at least once a month were of greater importance in terms of motivating community members and reinforcing knowledge and skills taught in formal training sessions.

In order to increase the impact of formal training sessions, the content should be based on an analysis of the tasks expected of community members and on the use of participatory training methods. In any capacity-building effort at the community level, formal training is an important component but of greater importance is regular follow-up supervision to reinforce and encourage those trained. In order to meet CS-related training objectives, CS program strategies and budgets should give greater emphasis to supervision than to initial training activities.

Involvement of health committees in planning, implementation and evaluation of community health activities. In the 6-step methodology proposed by WV, simple, participatory techniques were used to involve committee members in all steps related to assessing problems, identifying alternative solutions, implementing and evaluating actions taken. While this process has contributed to increased community capacity, the impact of these efforts could have been

greater if detailed guidelines on each step in the process had been developed both for committee members and for MOH health workers.

In future projects, in order to increase community members' skills in planning, implementation and evaluation of community health activities, both systematic training and simple written guidelines should be developed related to these issues both for community members and MOH health workers. In addition, in projects which aim to increase community involvement in these ways, explicit project objectives should be formulated to address these aspects.

Integrated development strategy in response to community basic needs. The two districts where the CSP was implemented are part of WV's regional integrated development strategy. From communities' perspective, an integrated approach which responds to their basic needs, particularly related to water, elicits more interest and motivation than a MCH approach which is more narrowly focused. The integrated strategy appears to contribute to the motivation of community health committees to carry out the CS activities and of community members to participate in health promotion activities.

In future CS projects, attempts should be made to develop complementary strategies to address other basic community needs in order to increase community interest in preventive and promotive CS activities.

Support for women's involvement and respect for their contributions. Several aspects of the WV approach in Phase 2 have led to increased involvement of women, to their increased confidence to actively participate in managing community health activities and to gender awareness on the part of community members. The process used to select VHCs and VHVs, in which women were actively involved, was described above. Although the WV team members are all men, they consistently demonstrate respect for women's opinions and in so doing serve as models for both other men in the community and for MOH nurses. They also adopted the habit, in community meetings, of systematically eliciting women's opinions. These several features of the WV approach contributed to a certain degree of gender awareness amongst community members as regards the importance of listening to the ideas of both men and women before making a decision. According to both MOH staff and community members, the dynamism of the VHCs and their commitment to the CS activities is related to the fact that most committee members are women and that compared to men, who usually manage such committees, they have a more sincere interest in activities related to family health.

All NGO and MOH staff who are involved in health programs at the community level should be involved in developing specific strategies to increase women's involvement and contributions and increase the gender awareness of the communities they work with.

Cost-recovery scheme to support all community health activities. In the WV-supported strategy, all health activities and drugs are paid for by community members and revolving funds are managed by VHCs. The cost-recovery system for drugs is based on the Bamako Initiative system which operates elsewhere in Senegal only down to the health post level. In addition, in order to generate additional funds for health-related activities, associations of volunteers have been established which carry out income-generating activities of which the profits are contributed to community accounts. Activities financed with such funds include: construction of repairs of health huts, logistics costs for HPNs, meal/ refreshment costs during community feedback meetings, and support to community volunteers during training sessions.

The WV-supported approach includes several mechanisms for community financing of basic health activities. Community understanding of and ability to manage such mechanisms are important prerequisites for the viability and sustainability of collaborative community-MOH programs.

Outcome 3: Increased contact, understanding and collaboration between community groups and health workers in community health activities

- All HPNs have improved their interpersonal communication skills related to their ability to listen, respect, dialogue and negotiate with community members;
- monthly or bi-monthly visits by health workers to each village to conduct MCH activities and to supervise health hut activities;
- close collaboration between CHCs and HPNs in planning and implementing MCH outreach sessions in central and satellite villages;
- participation of village health committees and MOH health workers at quarterly feedback and evaluation meetings to monitor community health activities and performance of all partners;

- increased ability of village health committee members to give constructive feedback to MC ·V staff in community meetings.

Key contributing aspects of project strategy:

Negotiation, clarification and public commitment to the roles and responsibilities of health workers, co members and WV staffs. During initial contact with communities by WV and MOH staff, there were in a discussions regarding the roles and responsibilities of community, MOH and VW program actors. During discussions, the different partners committed themselves to the tasks they will carry out. The subsequent n of community activities during community visits by MOH and WV staff, and during community feedback is based on the performance of the different partners relative to the commitments made during those discus: According to WV staff, these discussions contribute to improved collaboration, and reduce conflict and con regarding roles and responsibilities. In any community health program, roles and responsibilities need to be negotiated amongst all program actors, to ensure clarity and commitment from all parties.

Regular visits by MOH nurses to villages to provide services and develop relationships In Phase 2, HPNs travel to each of the villages in their catchment area at least once every two months to carry out basic MCH activities and to supervise the health hut and committee activities. The visits themselves constitute a source of motivation for the CHCs. Positive feedback and encouragement from the HPNs also motivates community members in their tasks.

The development of strong relationships and collaboration between health workers and communities requires that they have regular contact with each other. In the African tradition, the fact that the HPNs leave their posts to visit the villages is an expression of respect for the villagers. In any community health program, the development of program collaboration between health workers and communities depends in part on ongoing contact an development of relationships between them. This important aspect of community health is often overlooked in programs which focus narrowly on technical objectives and strategies.

Community "feedback meetings" to monitor and evaluate community health activities. One of the innovative mechanisms developed in the project to strengthen dialogue and collaboration between community members and health workers is the quarterly "feedback/ evaluation meeting." These meetings allow program actors to review past activities, to identify achievements and constraints, and to develop lessons learnt in order to improve future activities. There is a consensus amongst community members, MOH and WV staff that they are extremely useful in encouraging dialogue and strengthening collaboration between the different actors.

In any project which aims to involve community members in monitoring and evaluation of CS activities, simple, participatory methods need to be developed which allow community members to share their views with health workers, in a structured way, and to develop lessons for the future. In the CSP the content of the discussions as well as the process used during the feedback meetings helped strengthen both relationships between community members and health workers and the quality of activities being carried out.

Outcome 4: Improved knowledge and practices of women on key maternal and child health topics

- 80% of women know that breast-feeding should be initiated during the first 8 hours after birth;
- 11% of children are exclusively breast-fed from 0-3 months;
- 86% of women know that a child with diarrhea should be given the same or increased amounts of fluids;
- 52% of pregnant women have at least 2 pre-natal visits before giving birth;
- 58% of the deliveries are assisted by a trained person (national average in rural areas is 30%).

Key contributing aspects of project strategy. Health education sessions organized by respected and enthusiastic female animators. In all communities, illiterate female animators have mastered key health education messages and are able to conduct simple health education sessions with other community members. Virtually all of the animators are highly respected in their communities, and their credibility and enthusiasm allows them to effectively mobilize women to attend these sessions. Although the teaching methods used are quite traditional, village women regularly and enthusiastically attend these sessions. WV's experience suggests that while the effectiveness of health education activities depends in part on the pedagogy and materials used, community members' interest and learning depends to a great extent on the relationship which exists between them and the health education facilitators.

Female health committee members carry out informal health education through social networks in the community. In addition to the formal health education sessions, health animators carry on CS education activities during home

visits, during community gatherings such as naming ceremonies for newborns and informally when they meet other women in the community. It is difficult to assess the impact of these activities but according to village women these informal education activities are frequently carried out and they greatly appreciate them.

Home visits carried out by village midwives and animators. Village midwives and animators carry out home visits related to pre and post-natal advice for women and newborns, to follow-up sick children and to advise on hygiene and sanitation. According to community women, the community volunteers responsible for these visits are respected by community members and their visits and advice are much appreciated.

Outcome 5: Increased coverage of basic community health activities/services

- 100% of village health huts are correctly providing maternity and first aid services;
- An integrated package of MCH services is provided to all target villages through regular outreach services (pre-natal consultations, growth monitoring, curative care, vaccinations);
- Health education sessions are carried out in all targeted villages at least once a month.

This outcome is dependent on the combined results of outcomes 1-4. In other words, increased levels of implementation of basic community health activities and services requires: HPNs who are committed and who have the skills needed to carry out community level activities; community groups which are motivated and have the required organizational and technical skills to participate in planning and implementing simple community health activities; strong collaborative relationships between community groups/committees and health workers; and women/families who have basic knowledge of priority maternal and child health topics.

Conclusions

The experience of World Vision International (WV) in Bambey and Mekhe Districts in Senegal in West Africa illustrates an innovative and potentially sustainable approach to providing basic MCH services to communities by strengthening the commitment and skills of both community actors and MOH staff. While in many programs the focus is more on developing the technical aspects of MCH services, in this case priority was given to developing a sustainable system for providing basic services at the community level through the collaborative involvement of community and MOH actors.

As compared with other health districts in Senegal, in Mekhe and Bambey both the short term accomplishments related to child health and the prospects of sustainability of child health activities are impressive. The experience of WV in the two districts has contributed both to improving the coverage of basic child health services to rural communities and to bringing about improvements in household knowledge and practices related to child health. These accomplishments are significant, but of even greater long term importance is the fact that they are the results of partnerships which have been created between communities and MOH services working together for the good of rural communities. The efforts to build capacity and to develop a sense of ownership of the community health activities increases the chances that both the activities and achievements will be sustained. The government of Senegal should seriously look at the approach used in Mekhe and Bambey in its search for sustainable approaches to providing basic health services to the population.

Improving Child Survival Programmes in a Rural Health Care System:
The Aga Khan Foundation(I) and the Aga Khan Health Services,I[1] experience in India

Arvind Mathur[2] and Aravind Pulikkal[3]

Abstract

The health gains of primary health care interventions are threatened by a decline in the coverage and quality of health programs due to decreasing financial resources. The Aga Khan Foundation has been supporting the primary health care program of Aga Khan Health Services, India with matching 1:1 support from USAID. The project goal is to establish a financially and organisationally sustainable health system capable of effectively addressing the priority health needs of the project population in selected villages by providing basic preventive, promotive and curative health services to more than 70,000 residents in 48 villages in two widely separated project sites. Both sites surpassed the end of project targets a year before the matching grant was due to expire. The immunisation rates among under one are 91%. Rates of severe malnutrition and low birth weight have reduced by 40% and 70% respectively. 82% new born were weighed and 83% were fed colostrum. The project has an infant mortality rate of 48.6 per thousand live births against 70 in India. The project has implemented some innovative approaches for systematic project planning and implementation that include health sector modeling, systems for community participation, support systems, intensive information-education-communication activities to convert the need into demand, and analytical approaches to program planning and management. To achieve financial sustainability, the project used operational efficiency analysis and introduced a variety of health financing mechanisms. The paper presents interventions that enabled the project to achieve its goal, analyzes the enabling factors, and discusses lessons from the project that may have more general applicability.

The Aga Khan Development Network and the Aga Khan Foundation

The Aga Khan Development Network (AKDN) is an independent self-governing system of agencies, institutions and programmes that operates to help people of all faiths and origins in the poorest areas of Asia and Africa to improve their living conditions and opportunities. The AKDN builds and supports institutions and programmes that respond to the challenges of social, economic and cultural change, and seeks to build permanent capacities to sustain development. The AKDN is committed to excellence and equality of opportunity, and seeks to empower people to take charge of their own lives and environments.

An institutional member of the AKDN, The Aga Khan Foundation (AKF) is a funding agency, but also involves itself actively in the intellectual genesis and evolution of projects and programmes, as well as in learning from the experience it funds. AKF seeks to promote sustainable and equitable social development in Asia and Africa. The Foundation pursues this goal by evolving innovative approaches to selected generic problems of development, and by testing these approaches through grants to organisations that share its goal. The purpose of these activities is to develop principles and management approaches for social development that can be applied more broadly both by the Foundation's grantees and by other agencies: i.e., AKF is searching for ideas and methods that are replicable. AKF aims to create a critical mass of focused and innovative projects, complementing each other within and across sectors, in order to make a significant contribution to social development. AKF strives to cross-fertilise ideas and

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interventions, most often at the community level, through the provision of technical assistance and the documentation and dissemination of lessons learned.

AKF health strategy

The Foundation's health strategy is based on a commitment to improve the equity, effectiveness and efficiency of health care in developing world. AKF gives special attention to addressing the health needs of children and women at high risk of preventable diseases and death. AKF's early investments in health focused mainly on three strategic areas: the development of community based primary health care (PHC) programmes, appropriate PHC technology and community-oriented manpower development. The underlying assumptions of the AKF Health strategy are:

- Health programs will be more effective and sustainable if they integrate medical care, health promotion and disease prevention services; strengthen linkages between medical care facilities and community based PHC programs; and give greater emphasis to addressing other determinants of health, such as water, sanitation, education, income and the environment, as well as health care.
- PHC programs will be more effective and sustainable when they operate within a health system context where NGOs, the private sector, and government health services collaborate to ensure complementarity and maximise coverage and referral support for defined population groups.
- Health organisations will be able to organise more effective, low-cost and sustainable PHC programs for improving health in poor rural or urban communities in the developing world by strengthening health management and information systems and by involving communities in planning, managing and financing PHC activities.

In the context of implementing its health strategy, AKF gives special attention to four principal themes:

Health system development. AKF focuses on improving health status by encouraging better utilisation of existing health delivery services and creating stronger links between community-based PHC initiatives and health care facilities (hospitals, clinics, etc.). Conscious of the need for greater integration between curative and preventive care, the Foundation has supported development of integrated health systems that incorporate environmental health interventions.

Sustainability. AKF promotes the sustainability-especially financial sustainability-of community-based health programmes as well as the sustainability of the overall health care delivery system by supporting community participation and contributions in cash and kind.

Management strengthening. The managerial efficiency of AKF-sponsored projects and programmes is increased by applying tools such as the PHC Management Advancement Programme.

Action-oriented health research and policy advocacy. AKF supports action-oriented research that contributes to a more profound understanding of how to enhance and sustain health status improvements in poor communities and disseminates the results and lessons learned from AKF-financed initiatives to encourage programme replication and, where warranted, changes in health policy.

Background and description of the project

The Aga Khan Foundation has been supporting the primary health care programmes of the Aga Khan Health Service, India (AKHS,I) since 1988. In 1994, with matching support from USAID's Office for Private and Voluntary Cooperation, AKF financed the "Junagadh and Sidhpur Health System Development Project." This project has enabled AKHS,I to provide basic preventive, promotive and curative health services to more than 70,000 residents in 48 villages in two widely separated project sites in Gujarat State. The goal of the project is to establish a financially and organisationally sustainable health system capable of effectively addressing the priority health needs of the project population in selected villages. The purpose of the project is to provide affordable, integrated health promotion, disease prevention and selected primary, secondary and tertiary clinical services. The services are targeted to reach vulnerable groups, i.e., women in the reproductive age group and children less than five years of age.

Findings

The project has used innovative approaches to organise and manage the health system and services, an. ›a variety of health financing mechanisms to ensure financial sustainability. These manag:rial and financia ;o have contributed to achieving a 90% coverage rate with basic health services and financial self-sufficien(6C Both project sites surpassed the end-of-project targets for financial sustainability and health service cover. one year before the matching grant was due to expire. (Figures at the end of text depict the yearly achievemen. ›r ch. and maternal health indicators in two project sites). These are intermediate results over a period of three years but their long term impact and sustainability may need to be assessed. Increasing community awareness regarding vaccine-preventable diseases through mass media, intensive and routine immunisation programmes and health education by health workers appear to be the principal interventions that contributed to increased immunisation coverage rates, decreased levels of malnutrition and reduced numbers of low birth-weight newborns. Child survival and safe motherhood interventions have been continuously strengthened through good referral and high quality health service support. While there have been a few communicable disease outbreaks in the State of Gujarat, there have been negligible or isolated cases in the project area. As a result of a high level of immunisation coverage the area is almost a polio free area. In addition, the project has achieved 60% operational self-sufficiency.

Aspects of sustainability

In the AKDN context, sustainability is expressed in terms of:

- health outcomes;
- programs;
- institutional operations; and
- financial self-sufficiency.

Three approaches have been adopted to increase project sustainability:

Programmatic sustainability. Programmatic sustainability includes meticulous program planning, need- based but demand-driven programs and services, quality and range of services, efficient and effective referral and technical back-up systems.

Organisational sustainability. Organisational sustainability includes organisational capacity and political commitment, need-based logistics and infrastructure, capacity to manage and market, surveillance systems, human resource management and development and flexi-time approach to respond to the growing and changing needs of the environment.

Financial sustainability. Financial sustainability includes capacity to plan and manage financial resources, financial and cost tracking systems, ability and potential to generate revenues and alternative financing mechanisms.

Programmatic sustainability

AKHS,I has identified the conditions that make a child vulnerable to diseases and ailments and developed family health care packages. These packages are designed to cover the general health needs of the community and the special needs of mothers and children. The project generates demand for these services through information, education and communication (IEC) strategies and social marketing approaches. Maternal health have been addressed through anaemia control programs for the women in reproductive age group and pre-and postpartum services. Since children with mothers in ill-health are often at high risk, the project's child survival strategy begins by addressing maternal health issues and then moves on to provide immunisation, growth monitoring and school health interventions for young children. The following are among the programmes offered:

- Child survival and safe motherhood (immunisation, growth monitoring and promotion, antenatal care, PNC, referral and counseling)
- Family welfare
- Control of communicable and non-communicable diseases
- Basic curative services
- Diagnostic services
- Referral system
- Program support systems

The objective of the project is to address preventive and basic curative needs of the families living in a catchment area through awareness programs and community and facility-based services. Protocols and check lists have been developed and implemented to ensure the quality and range of services provided.

Health staff spend about one-third time delivering basic curative services; the remainder is spent on disease prevention and health promotive activities that meet community needs. The community health worker manages routine and minor health problems, supported by a visiting doctor. Back-up diagnostic and facility-based services are available on referral. This approach has ensured the timely and appropriate delivery of basic health care.

The package of child survival services is constantly being improved. Check lists have been developed and implemented to maintain and improve the quality. Gender sensitive approaches have been initiated. Prophylactic Hepatitis B immunisation was started. Introducing and maintaining these programs call for systematic planning, supervision and assessment. Surveillance systems monitor key indicators, e.g., the prevalence of the six vaccine-preventable diseases, coverage with TT, under-five and under-one mortality rates, etc. This system works as a monitoring device to evaluate the effectiveness and programmatic sustainability of the programme.

Organisational sustainability

Organisational sustainability has been increased by introducing management systems and procedures that reflect quality standards, ethics and practices. At the community level, the project focuses on developing human resources, enhancing the capacity of broad-based community organisations, and encouraging the participation of women in the community governance systems. The project has empowered community organisations to manage their village health facilities and to alter their behaviours to improve and sustain health gains. Community participation has been strengthened and promoted through a network of volunteers. Community health volunteers (CHVs), who live in the community, play an important role in assuring the delivery of basic health services. CHVs-at least one per village-are identified and trained by the project staff. In the future, the project plans to introduce one community vaccinator in each sector. In the coming years, these approaches should ensure organisational sustainability through community ownership. High levels of community involvement should also reduce the unit cost of health services. Also, since the project collaborates closely with the government on programs such as child survival, safe motherhood and family welfare, many basic costs, e.g., materials and commodities, are kept to a minimum.

Financial sustainability

The project has adopted a two-fold approach to achieving financial sustainability. First, the project seeks to contain costs without sacrificing effectiveness and programme comprehensiveness. Second, the project works to develop innovative revenue generating methods while ensuring access to those most in need. This approach has enabled operational self-sufficiency to increase from 16.4% in 1994 to 68% in 1997.

Methods include cost-containment mechanisms, resource mobilisation, alternative financing schemes, in-kind contributions from the government and donor agencies, and user fees. Cross-subsidisation between (a) different geographical areas and (b) secondary and primary facilities are fundamental to financial sustainability. The table in Annex A provides utilisation of health centres for primary health care services (basic curative, preventive and deliveries) and operational self sufficiency of centres achieved through them. It is significant to note that the PHC services contributed 30-40% to self sufficiency. The income generating diagnostic services contribute another 20% as a mean of cross subsidisation to primary health services and remaining comes from alternate health finance mechanisms.

To develop mechanisms to ensure financial sustainability, the paying capacity of the community was assessed through community surveys and focus group discussions. The analysis revealed the absence of village-based, highly desired health services and an expression on the part of the respondents to contribute to establishing facilities and maintaining operations and thereafter towards its upkeep including medicines, diagnostic treatment, and even the doctors fees, according to the paying capacity. The major reasons for coming forward to make such contributions was that the facilities would provide services at the door step and save them the frequent transport charges as well as time, provide quality services including diagnostic and would cost less than the current expenditure in terms of private doctor's fees, transport and other expenses.

Since its beginning, the health system project has tried and tested different ways and means of alternative health financing with a mission of sustainability; a means to self help. By considering the socio-economic status of the community and the availability of other local resources-land, labour, materials, a range of mechanisms was

explored. Many have been tried, some were found very fruitful; others are still being tes d. The appr test in Sidhpur and their results are listed below. When reviewing these mechanisms for Sid pur, it is impor emphasize that financial sustainability depends on effective management and active co munity involve s we as financial resources. The alternative financing has taken three forms -- cash, in kind and services.

- *Programme sponsorship* takes place when individuals, the community groups or organisations support a ent or programme. Immunisation sessions, health education programmes, different training programs, medic check-ups, etc. have been supported in this fashion. This approach contributed 55% of the operational cos d 65% of the special programme cost. Each community has a few well placed individuals who can donate/contribute land, building, materials, stationery, etc. Donations are limited in nature and influenced by the socio-economic status of the area but often play a significant role in raising capital to establish facilities.
- *Pre-paid package service* schemes call for a lumpsum payment for a package of services. A maternity care package has one price that entitles the purchaser to antenatal and delivery care and postpartum services. A one-time fee paid during the first trimester entitles the women to all services. This package has ensured timely, standardised quality service, increased revenue by 20%, and contributed a 12% increase to operational self-sufficiency.
- *Other fund raising activities* consist of health and non-health-related activities such as exhibitions, concerts, film shows, etc. The applicability of this program depends on the economic potential of the area and the perceived value of the programs. This approach has had a poor response in rural Sidhpur.
- *Voluntary services* call on community members to participate in the planning and management of social programmes. Difficult to mount and sustain, voluntary efforts can increase the sustainability of community-based initiatives. Such voluntary efforts/services are very positive and encouraging methods of alternative financing.
- *Community health funds* require the community to contribute to the commodity costs of an operating health centre. In a rural PHC, revenue from the medicine distribution is more or less equal to operational or recurrent cost. The fund can be raised through collective contributions and donations. The size of the fund can be determined by analysing the area health needs, pharmaceutical requirements, pharmaceutical policy and rational use. If the community is fully aware and supportive, each household can be asked to contribute a small amount on a quarterly basis. (The amount can be determined by dividing the total pharmaceutical requirement by number of households in the area/villages). A very small amount is contributed by each family, e.g., INRs.10-40 quarterly, that can cover operating expenses.
- *Co-operative financing* is based on the willingness and ability of community organisations to pay for health care. In Sidhpur, milk co-operatives, credit co-operatives, Mahila Mandals receive and distribute income. In most of the villages of Sidhpur, dairy farming is one of the major occupations and the milk is sold through the village co-operatives. While exploring the options available for making the health services sustainable through sustainable sources, we assumed that if a financing method is developed where villagers contribute 3 to 8 paise per litre, which is deducted through the milk co-operative societies, then the same amount could go to the health account. Thus the quantity of milk given by a member will decide the amount charged against his/her health account. A deficit amount would be available on a mutually agreed periodic basis to the centre to achieve operational self sufficiency. This is a simple method without any additional effort and enables the health centres to meet the operational expenses and in turn optimise the utilisation of the facilities. As it is a commitment of an organisation (co-operative) to an organisation (health centre) it is a sustainable source that does not incur any additional administrative cost. This contributed to meet all deficits (48%) of the health centre and helps them become self-sufficient.
- *Other sources* come in the form of user fees and donations from agencies. User fees are based on the services received by the patients/beneficiaries of services. Though the recovery of the total cost is not possible, it contributes significantly towards operational cost. As a major source of revenue, it contributes 30-40% of the operational self-sufficiency. Other agencies both governmental and non governmental contribute materials and supplies such as posters, pamphlets, booklets, vaccines, delivery kits etc. This is an effective method of alternative financing for controlling recurrent costs for supply.

All these health financing mechanisms are possible only if the progressive transition has taken place from medical to health to social model (people's health in people's control). Marketing of services, institutions and programs are to be given due emphasis for the success of these programs. The success, once again, depends on socio-economic status, health awareness of the population and credibility of services and outlets. Somehow a feeling of "consumer surplus" is to be created for, not withstanding how much one pays, the quality of services is uniformly provided

which will increase the number of entrants. However the replicability of each mechanism has to be decided based on the area analysis.

Sustainability approaches

AKHS,I recognised that PHC services can only be sustained with subsidies from income generating facilities, innovative alternative health financing mechanisms, and by recognising that decentralised project management within a framework of sound institutional policies that respond to community needs achieves more sustainable results. These lessons are applied to strengthen the management and sustainability of the health system. During the project planning phase, different studies were conducted to understand the priority health needs of the population to organise the health system. Some innovative approaches conceptualised and implemented for systematic project planning and implementation include: health sector approach models and systems for community participation, support systems, intensive IEC activities to convert the need into demand, and an analytical approach to program planning and management. It also includes creation and inclusion of responsive community management structures and programs to sustain community interest, capacity building, development of progressive sustainability strategies and alternative financing mechanisms. Community involvement at the design and planning stages was critical since community endorsement leads to the mobilisation of community resources, improved acceptability, enhanced prospects for overall organisational efficiency and sustainability.

Health sector approach to program development and management

To improve access to essential health care, AKHS,I adopts a "health sector approach" where community is involved in planning, implementing and monitoring the health programs and assists in reaching out to the remote population. This is a decentralised community based approach to the development of health system that relies on the optimisation of resources. This geographically defined sector is a unit of one or more villages or clusters of population with clearly defined responsibility for providing primary health care. It is an innovative concept for local planning where each locality or geographic region uses its own potential to fulfil its needs with its own resources. A belief fundamental to this approach is that the community should take care of its health problems by achieving self sustainability of services. The approach is introduced to make services more accessible (available, affordable and acceptable) and self sufficient by making the services more efficient and cost effective. The aim of this approach is to transfer management and decision making to the people by using local level planning and management.

To meet the priority heath care needs of the population, a 4-tier approach is adopted instead of three tiers as in other systems (Annex B). The first tier provides community based health care with emphasis on preventing diseases and promoting health. This includes village health committees (VHC) that are responsible for program implementation, and community health volunteers (CHV) who are chosen from the community and ensure timely implementation of different programs. They also provide basic non-technical primary health care services to the community.

The second tier includes the village as "program-implementation unit" and Nodal Point (Sector), as "planning-management unit." An elected Health Sector Management Committee is responsible for planning and managing health programs in the sector. The third tier at the district or regional level provides prioritised secondary level services, technical support and referral back up to the health sector. The fourth tier is the tertiary level and provides specialised services to support the entire system.

The community based primary health care services are supported by qualified medical and para medical staff at health centres. These health centres are linked to medical centres and diagnostic and laboratory services. Such a system increases the availability and range of services and improves accessibility. It provides for level care and proper referral. By providing quality care services, active community participation through community governance and development of human resources, the project generated and sustained an effective demand for a range of services. Presently the project is partially managed by community organisations (community management committees) which have clearly defined reporting relationships from grass root level health committees to top level committees and coordination with professional staff at each level. Community felt needs have been met more successfully with this approach.

Community participation for sustainability

For AKF, projects will not be successful without active community participation. Participatory approaches foster the emergence of local competence and enterprise; project benefits are likely to be shared more equitably. A local feeling of ownership is more likely to lead to local investment of time and money in a project and, consequently, to

sustained benefits. The cornerstone of this program has been the active involvement of the c mnunity. Th community is involved from the very inception through the entire program planning, impler ation and maintenance process. During implementation community governance system (Figure 1) is c ed and activ s are assigned to the community members. The community dialogue is an ongoing activity of program. Community support has been forthcoming in different forms such as material and financial support, besides th ne and voluntary services being offered by the members. The community contributes towards various health facil. development and expansion, acquisition of equipment, furniture, and training program for volunteers. Commun human resources are developed with the intention of enabling them to own and independently manage the progr The program information is shared formally and informally on a regular basis and the issues discussed in a participatory manner. CHVs and LHVs who form the backbone are selected from the community, trained and technically supported to serve the communities. Volunteers from the local community play a key role in establishing acceptance and eventually in organisational and financial sustainability.

Referral system to meet the unmet needs

To link effectively the essential components of community based PHC with higher level care, a working referral system is required. Currently, AKHS,I facilities provide most preventive and promotive care. Clients requiring emergency services at primary, secondary and tertiary level are referred to qualified providers and facilities, linked with the AKHS,I program. The present referral system had been developed through a process that involved steps from analysing the needs to identifying the lacunae and then bridging the gaps by developing linkages with other providers. One of the limitation of the present referral system has been lack of control on quality of services from outside providers even though an understanding is developed to address these issues.

Collaboration with other agencies

The project shares an excellent rapport with the government health department, and various programs are jointly organised by the staff on both sides. Collaborating with the government avoids duplication and supplements the existing system. Immunisation camps are conducted regularly in villages by LHVs and ANMs. The project receives aid from the government in the form of health education material, vaccines, drugs supply especially IFA tablets, contraceptives, ATT drugs and delivery kits. Documentation of the project practices and results, and its provisions to the government and other health providers, all contribute to the dialogue on health policies and practices that is underway in India.

AKHS,I also collaborates with Muniwar Abad Charitable Trust (MACT) and AKRSP(I) in implementing the Environmental Sanitation Program (ESP). The Foundation has supported the collaborative effort of these NGOs as it has learnt and believes that health is not to be equated with health services because evidence suggests that non-clinical services such as water supply and sanitation play a more important role in improving the population's health status. AKHS,I is responsible for IEC activities to create an effective demand for sanitation services and also to bring change in personal hygiene behaviour of people.

Information system related to PHC

MIS refers to the collection and production of information useful to managers for programs and project planning and monitoring such as health status indices, health services activity, population covered by services and supplies consumed. Since the information is imperative in effectively pursuing the objective of PHC, the collection, processing, storage and dissemination of appropriate data must be properly managed. The project uses a combination of output and outcome indicators for monitoring and evaluation. Data on critical indicators is collected and compiled monthly and analysed quarterly. MIS generates quarterly progress reports and allows staff to plan interventions to enhance program performance. The quarterly monitoring reports are shared with the field staff and feedback is given to the community through community organisations and IEC programs.

Sustainability issues and factors

To date most PHC programs appear to be able to recoup very low percentage of their development costs from users charges. This raises the question of whether effective demand exists for PHC programs, especially among the poor. The issue of effective demand has important implications for the financial and organisational sustainability of PHC projects. The fundamental importance of community participation in ensuring health program sustainability has been well documented. In the "Junagadh Sidhpur Health System Development Project" a number of other important observations can be made on the factors facilitating the development and operation of the program, lessons learned to date and important issues that still need to be addressed.

Facilitating factors include:

- The type and degree of involvement of the local community contributed towards acceptance of the program and ensured resource mobilisation from community.
- The emphasis on quality care and level care has generated demand and ensured optimal utilisation.
- The spirit of volunteerism amongst the community afforded a much needed scarce human resource.
- The two way coordination and resource sharing between government, other health care providers and AKHS,I has helped to evolve a supplementary health care system in the area.
- The financial and technical support provided by the donor agency has helped in the implementation of project.

Lessons learned and issues

Lessons learned

- The sustainability of program and financing is highly influenced by the degree of community participation.
- Sustainability strategy should be an integral part of the project operational plan.
- The program should be need based but demand driven.
- Quality and continuity of the services are important for sustaining the interest of the community.
- Fee for service is an effective method of cost recovery for operational costs.
- Progressive sustainability strategy needs to be in built for monitoring the project's progress.
- Services of volunteers, community financing and sponsorship of events and programs are another way of alternative financing.
- Community ownership in planning, implementation, management and financing with an emphasis on self-help is an indicator for sustainability.
- Accessibility, availability, acceptability, affordability and appropriate technology are key factors for PHC programs.
- Management competency is an important factor for effective implementation and hence sustainability.
- HRD techniques are crucial to sustain staff motivation and build community human resources.

Issues remaining

- Demands for new health facilities and services grows at a faster rate than what can be sustained.
- Cost recovery mechanisms, such as user service charges, have to be stepped up gradually. This delays the achievement of the break even point.
- Sustainability takes time. The funding agency should, therefore, support for longer term.
- Expectations of various partners, government, individuals, etc. often do not conform to reality.
- Competition with providers of low quality services affects sustainability.
- With the emergence of a market economy, it is difficult to recruit dedicated development professionals.

Replicability and scaling up

The project plans to extend services to an additional 15,000 residents in Sidhpur and Junagadh by replicating the existing project approaches. In Junagadh, AKHS,I will provide technical and managerial support to the public and private sector health providers and communities who are partners in the project. Since providing health services is only one way to improve health status, in the future the project will test approaches to increase the income of women by partnering with agencies that promote social and economic development of women, and also promote behaviour change and interventions focused on illness prevention, e.g., household sanitation and hygienic practices.

Figure 1 *Community Governance Process*

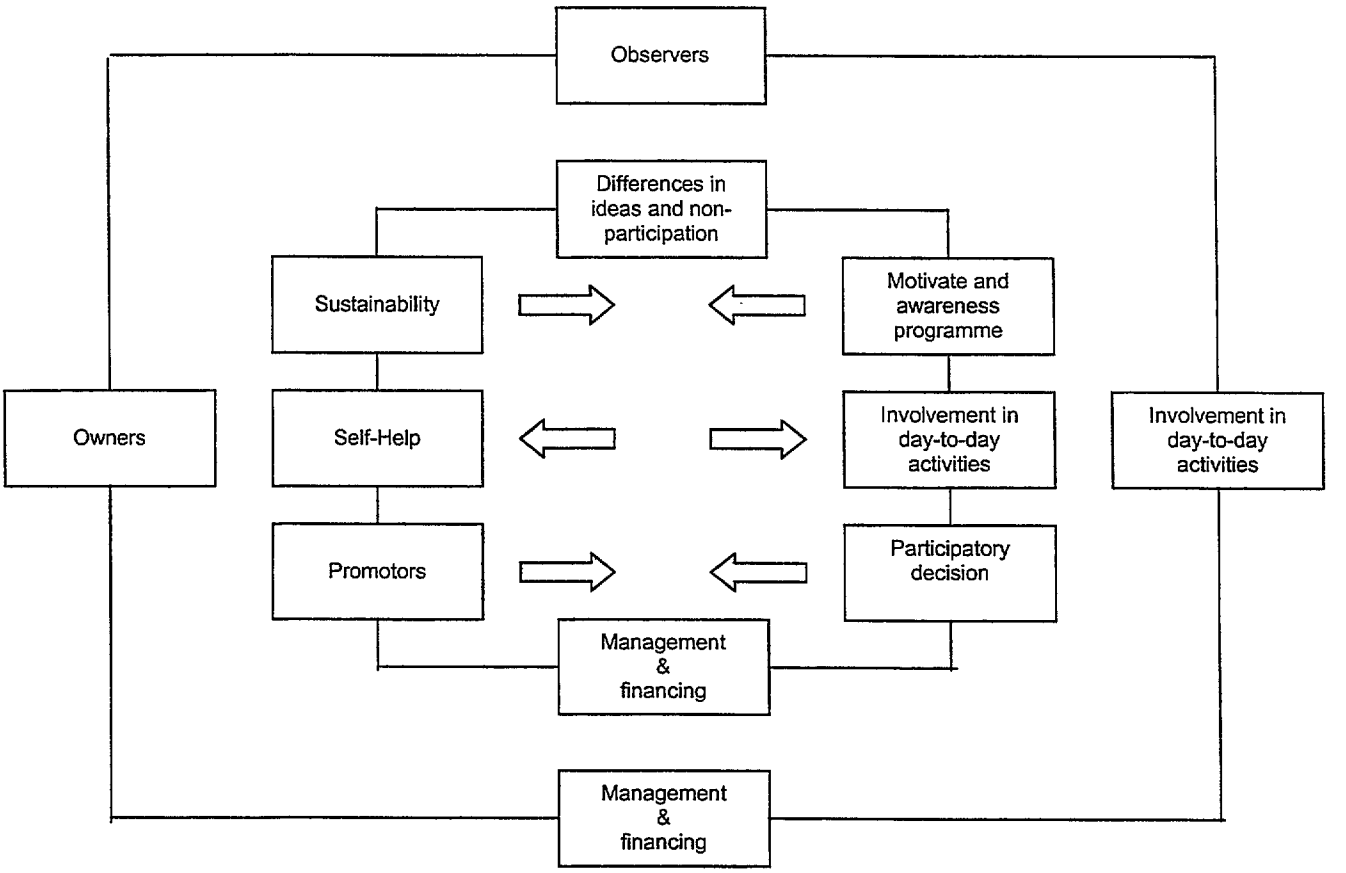

Figure 2. *Immunization coverage*

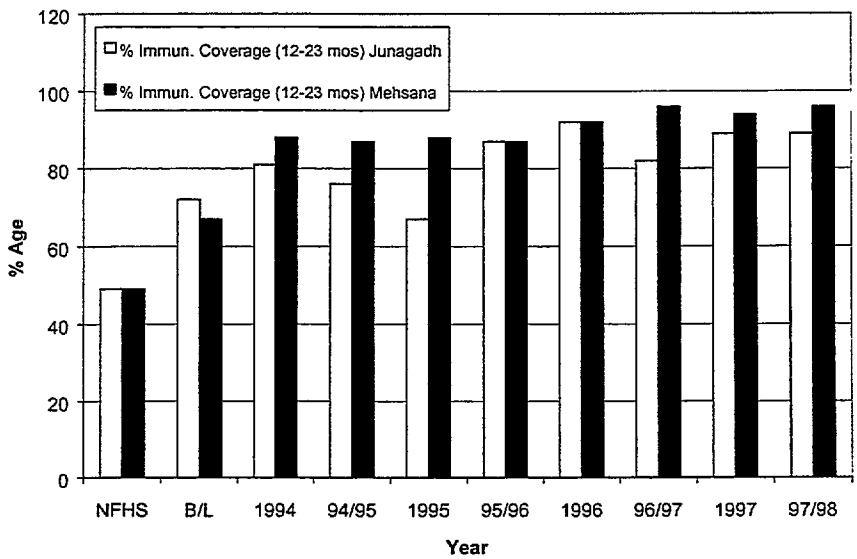

Figure 3. *Growth monitoring*

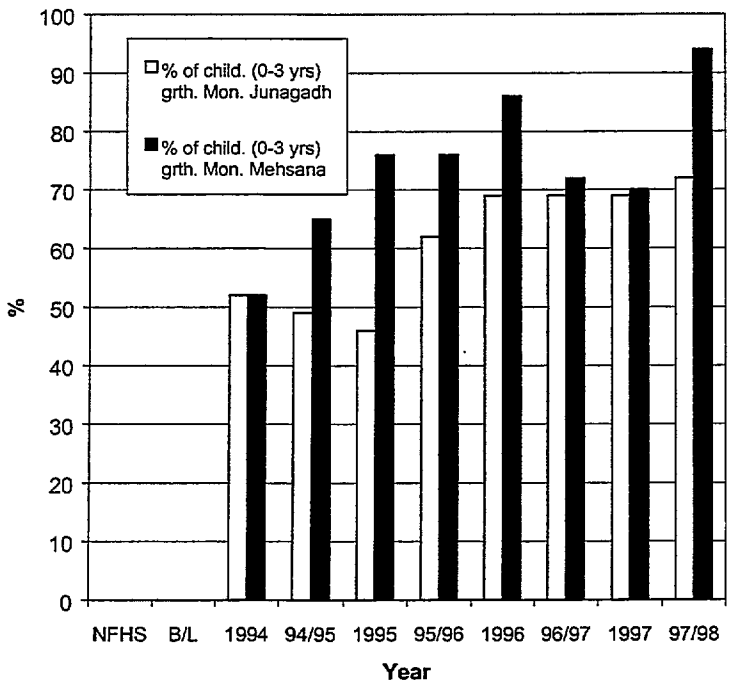

Figure 4. *Newborns weighed*

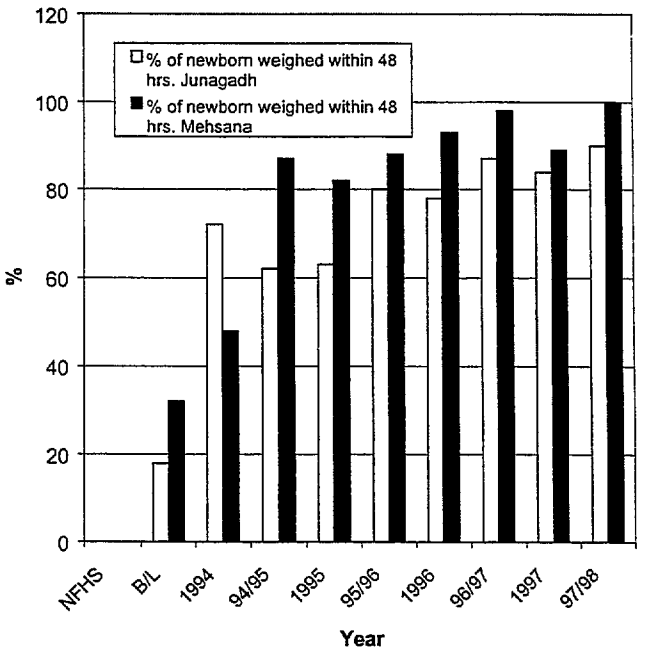

Figure 5. *Low birthweight*

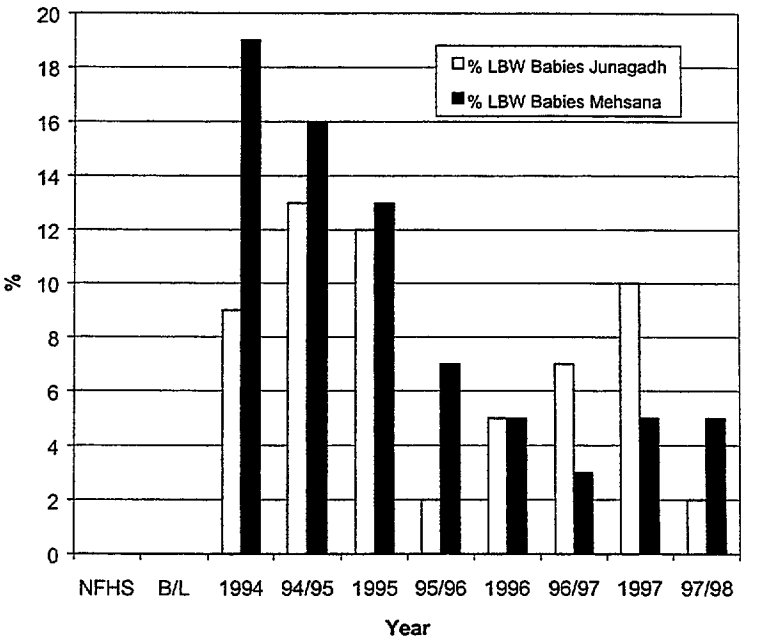

Figure 6. *Early initiation of breastfeeding*

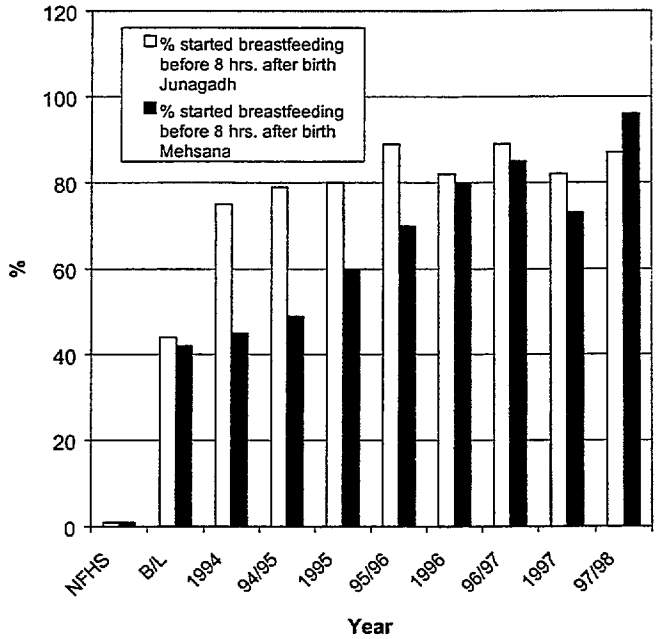

Figure 7. *Child nutritional status*

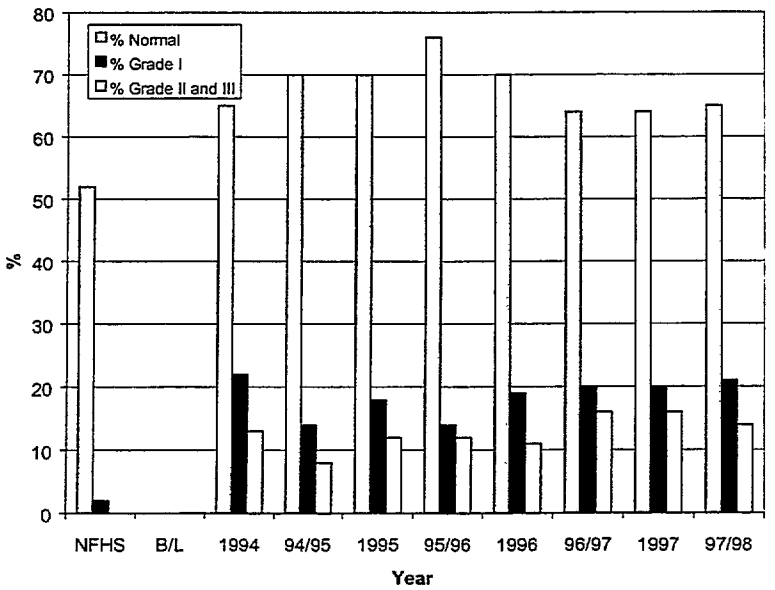

Figure 8. *Antenatal coverage*

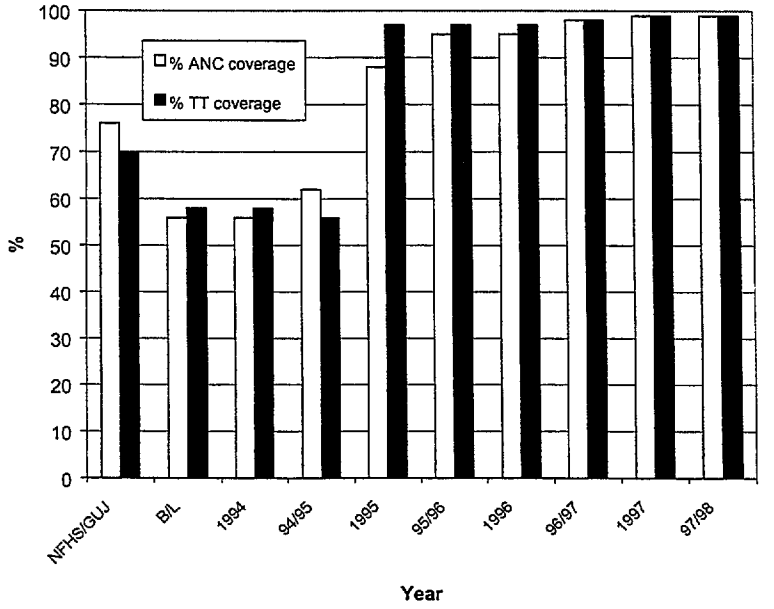

Figure 9. *Deliveries by place and personnel*

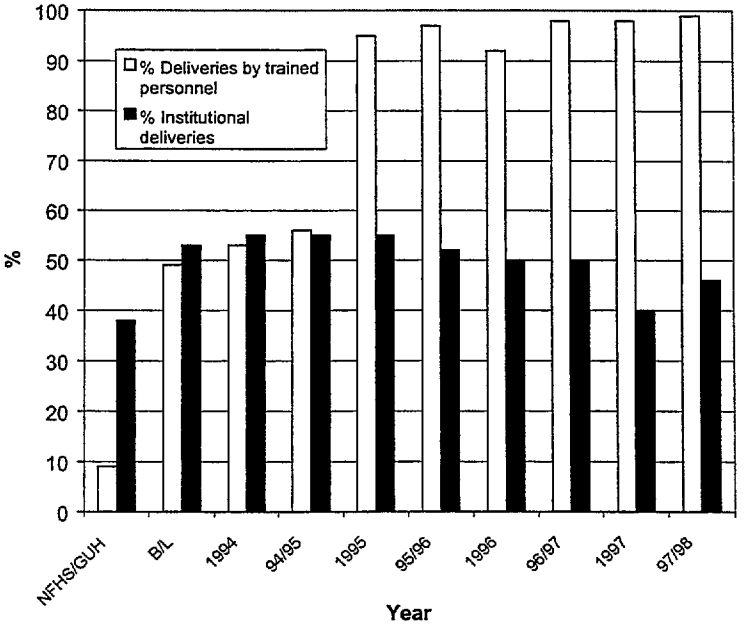

Figure 10. *Postnatal coverage*

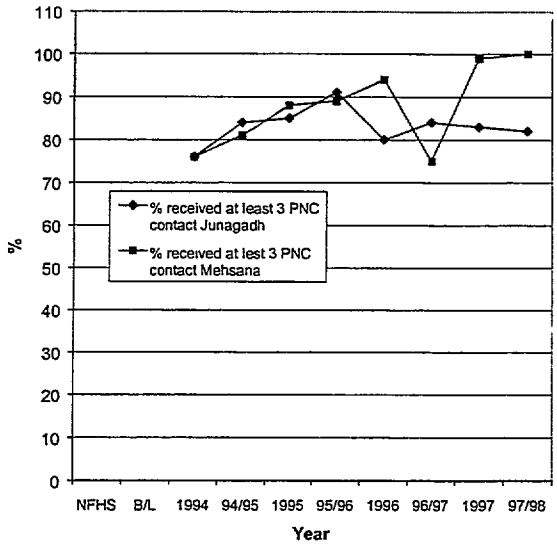

Table 1. *IMR Trends (deaths per thousand live births)*

	1996	1996	1997
India	73	72	N/A
Gujarat	64	62	N/A
Project	70	N/A	48.6

Source: National Family Health Survey (NFHS), 1993, India IIPS, Bombay; AKHS, MIS Report; Baseline survey 1996, CORT, Baroda.

Annex A
Utilization of Health Care Centre and Financial Sustainability 1995-97

Health Centre	Curative Service (OPDs)			Prevention + Delivery Visits		
	1995	1996	1997	1995	1996	1997
JHS	8724	14606	13394	4847	16492	12608
SHS	16029	19566	26938	2244	7209	7606
PROJECT	24753	34171	40332	7091	22701	20114

Health Centre	Income (1000 Rs.)			Expenditure (1000 Rs.)			Self Sufficient Level (%)		
	1995	1996	1997	1995	1996	1997	1995	1996	1997
JHS	42.7	261.7	204.0	108.1	640.4	766.9	39	41	27
SHS	38.1	244.7	361.3	100.0	493.8	636.9	38	60	67
PROJECT	80.7	506.1	686.4	208.1	1134.3	1401.8	39	46	40

Annex B
Health System Approach

Services	Area	Population Coverage	Unit	Provider	Management Structure	Finance
Selected tertiary level care	Division Central Level	Registered and Service	Hospital	Specialists	Board	User=s Fees+Funding
Dx services Secondary level maternal & curative care	RHB/Project Level	Registered and Service	DX/PC/MH	Specialists	PMCs	User=s Fees+ Donor Funding
Selected referral & technical support	LHB / Zonal Level	Registered and Service	MCs	CN/Mos	ZMCs	User=s Fees +AHF
PHC Basic Curative	Sector Level	Registered and Service	HCs	LHVs MPWs	HSMCs	User=s Fees + AHF
CBHC	Village Level	Registered	Village	CHVs	VHCs	User=s Fees+ Donations

CBHC = Community Based Health Care
PHC = Primary Health Care
LHB/RHB = Local/Regional Health Board
MH = Maternity Home
HC = Health Centre
Dx = Diagnostic Centre
PC = Poly Clinic
PMCs = Project Management Committees
HSMCs = Health Sector Management Committees
CHV = Community Health Volunteer
LHV = Lady Health Visitor
MPW = Multi Purpose Worker
CN = Clinical Nurse
MO = Medical Officer
VHCs = Village Health Committees
ZMCs = Zonal Management Committees
AHF = Alternative Health Financing

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Strategies to Motivate and Sustain Volunteer Work[1]

Irma Ch. de Maza[2]

Abstract

La Leche League International (LLLI) and La Leche League Guatemala (LLLG) implemented a program of mother-to-mother support in poor peri-urban areas of Guatemala City under a USAID child survival grant in 1988-92. The project trained 214 local mothers to be breastfeeding counselors, and incorporated them into a volunteer structure in ten communities where they ran breastfeeding support groups, provided one-on-one counseling and made referrals to health facilities. A 1996 study four years after the grant ended found that most of the counselors were still active, although the number of support groups had declined, that approximately 25% of women of child-bearing age in the community surveyed were in contact with a counselor, and that over 90% of the mothers referred to a facility actually went. The paper suggests that the reasons the program was able to sustain after the grant ended included: (1) high personal motivation of the volunteer breastfeeding counselors, and (2) a support structure that provides "bidirectional support" and motivation to the mothers, the volunteer counselors, the elected coordinators in each community, and the staff and volunteers in LLLG.

Background

Guatemala is one of the countries where LLLI developed a program for low-income mothers. In 1988, LLLI and LLLG initiated a project to establish a community mother-to-mother support network in poor peri-urban areas of Guatemala City with a USAID child survival grant. 214 breastfeeding counselors (BCs) were trained and they provided one-on-one counseling to other women in the area, referred them and their children to nearby health clinics, and ran mother-to-mother support groups, all on a volunteer basis with no financial incentives.

Description of post grant program

In 1992, as the end of the grant funding approached, BCs and LLLG staff met to discuss the future of the program. Seven of the 10 communities were represented at the meeting and decided to continue the program. The BCs from each of the seven communities selected a coordinator and sub-coordinator from their ranks to act as their leader and represent them to the program. LLLG committed to continue to provide support to the program with monthly meetings and mini-workshops for the coordinators, maintain the information system and provide overall coordination, with a greatly reduced staff. These commitments were implemented and have been maintained for the most part to the present.

In 1996 LLLG undertook a study of the sustainability of the Guatemala peri-urban project with funding from BASICS. The study focused on three questions:

In what sense has the program been sustained?
What factors have contributed to the program's sustainability?
Can LLLI establish norms that systematically promote sustainability of its programs?

Sustainability study methodology

The sustainability study obtained three types of data:

1. a household survey of a sample of women living in one community (El Limón) within the program area;

2. structured interviews with as many of the original BCs as could be located;

3. administrative and financial data from LLLG records.

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[1] This paper was submitted by La Leche League International (LLLI) and La Leche League Guatemala (LLLG). The paper is based on a study of LLLG s program in peri-urban areas of Guatemala City, reported elsewhere (Maza I Ch de, Oliva M M de, Huffman SL, Magalhaes RS, Stone-Jimenez M, Burkhalter BR. 1997. *Sustainability of a community-based mother-to-mother support project in the peri-urban areas of Guatemala City: A La Leche League study*. Published for LLLI and USAID by the BASICS Project, Arlington, Va.). The author extends her full appreciation and acknowledgement to the authors (and colleagues) of the 1997 report and their equal contribution to the present paper.

[2] Irma (Mimi) Ch. de Maza is Executive Director, La Leche League Guatemala.

El Limón, a community of about 12,000, was selected as the site of the household survey because it was fairly typical. A census of households in 50 of the 83 blocks in El Limón yielded information from 501 women between the ages of 15 and 49 years, 217 of whom were pregnant or with a child under 2 years of age (the priority group for the BCs) and 284 others with older children.

Of the 214 mothers originally trained to be BCs, 141 participated in the LLLG program and 73 from religious groups and elsewhere did not participate in the LLLG program communities. Structured interviews were obtained with 102 of the 141 BCs who participated in the LLLG program; most of the remaining 39 had moved away, and one had died. No attempt was made to interview the 73 trainees who had not participated in the LLLG program, many of whom had moved away to other places.

Findings on structure, supervision, and support

The structure of the program can be characterized by six levels:

1. women in the community who are not in contact with the BCs;
2. women in the community who are in contact with the BCs;
3. the BCs;
4. the coordinators and subcoordinators;
5. LLLG and the paid program staff;
6. LLLI and its associated country leagues.

The study showed that support flows in both directions across these levels and that each of these levels provides support to the adjacent levels on both sides and in some cases two levels away. For example, the BCs are motivated and sustained by the women they serve, by the coordinators they selected, and by the LLLG organization, while at the same time they provide valuable services to many women in the community and motivate the continued commitment of the coordinators and LLLG. The BCs report that they receive valuable support from the coordinators and LLLG; 83% of the BCs reported feeling support from LLLG. Another example: 65% of the women in contact with a BC have taken it upon themselves to counsel other women in the community about breastfeeding and health (the so-called ripple effect), thus establishing the support link between the first two levels of the structure.

Findings on services provided

Reporting and nonreporting BCs

Following the termination of the grant, some of the BCs continued to report monthly through their coordinators while others did not. LLLG assumed that the nonreporting BCs were no longer active. One of the big surprises from the structured interviews with BCs is that this assumption is wrong. The nonreporting BCs are still actively promoting breastfeeding and child health through individual counseling and referrals, although most are not running mother-to-mother support groups. The nonreporting BCs are spending about half as much time on breastfeeding promotion activities as the reporting BCs.

Counseling

In asking the women if they had heard of "a woman who knows a lot about breastfeeding," 31% answered in the affirmative and, interestingly, the majority (77%) of those identified did turn out to be BCs. Although there are only 12 BCs in El Limón, one-fourth of the women in the survey sample have had contact with a BC. In addition, a "ripple effect" was noted among the women surveyed, 65% of whom said they had been counseled by a BC and had in turn given breastfeeding advice to other women.

Referrals

BCs were introduced to child survival interventions as a part of their training so they would be able to refer mothers and children to health services as needed. The survey results show that of all the women who had contact with a BC, nearly two-thirds had been referred to some health service and 90% of them had followed through on the advice. This indicates to us that the BCs have a gfreat deal of credibility among the women of theeir communities. The majority of the referrals were made during individual counseling sessions or home visits (41%).

Support groups

LLLG's experience is that support groups grow gradually and the women come to them because they are personally invited by someone they know. It is for this reason that support groups have a limited invited application for widely

promoting breastfeeding, but they are a very effective way for women to learn about good breastfeeding practices. Given that the focus of support groups is to help mothers make decisions and take action by offering individual and group support, as well as by providing useful information, it was found that the size of each group should be limited to allow a certain amount of intimacy between the BC and the participating women.

Table 2. *Activities of the breastfeeding counselors*

Characteristic	Reporting N=45	Non-reporting N=57	All BCs N=102	P-Value
Last individual counseling in:				NS
3 months or less	93%	77%	84%	
over 3 months	4%	16%	11%	
never	2%	7%	5%	
Average counselings during Jan-Mar 1996 for BCs who counseled	90	54	72	
Last home visit in:				
3 months or less	84%	37%	58%	
over 3 months	9%	18%	14%	
never	7%	46%	28%	
Average home visits during Jan-Mar 1996 by BCs who made visits	29 (N=38)	37 (N=21)	32 (N=59)	
Last referral in:				
3 months or less	78%	65%	71%	
over 3 months	9%	5%	7%	
never	13%	30%	23%	
Average referrals during Jan-Mar 1996 by BCs who made referrals	26 (N=34)	13 (N=35)	19 (N=69)	NS
Last support group in:				
1 year or less	76%	12%	40%	
over 1 year	24%	88%	60%	
Hands in support group form	94%	0%	78%	
*Average hours given to activities/month	23 (N=35, sd=30)	13 (N=45, sd=18)	18 (N=80, sd=24)	NS

Notes. N=number of respondents. P = probability that observed difference among columns is due to chance. NS = statistically not significant. sd=standard deviation; * The average hours calculation excludes four breastfeeding counselors who reported >100 hrs. This table was copied from Table 2-12 in Maza, et al, 1997, op.cit.

BC characteristics

Table 1 shows demographic characteristics of the 102 BCs interviewed for the study. The average age of reporting and nonreporting BCs is about the same (43 years). Nonreporting BCs are more educated than reporting BCs (30% vs. 24% completed primary school and have slightly more secondary and post secondary education than reporting BCs), which perhaps betters qualifies them for paid work outside their communities. This factor may also contribute to their nonreporting status because their time is likely devoted to other pursuits.

BC activities

Both reporting and nonreporting BCs show a high level of activity during the three months preceding the survey (Table 2); 84% of both groups had individual counseling sessions in that period. However, the average number of individual counseling sessions and referrals made by the reporting BCs was double that of the nonreporting ones. The average time given to their program activities is a little higher for the reporting BCs, possibly because some of them lead support groups.

According to the data shown in Table 3, more nonreporting BCs do paid work than the reporting ones, and the difference is statistically significant. Table 4 shows the activities of the coordinators. The majority of the coordinators visit their fellow BCs at least once a month and participate in the monthly mini-workshops. Although only 45 BCs of the 102 surveyed are active as defined by their reporting status, the work they do in their communities is very impressive. The data collected by the LLLG's system of community information on breastfeeding shows that the most time-intensive and labor-intensive activity of the reporting BCs revolves around running their support groups.

Sustainability

The data on factors that motivate the BCs to continue their project activities and contribute to the sustainability of the project were analyzed by community. We found that a majority of the reporting BCs who lead support groups and feel supported by their coordinators as well as by LLLG. The differences among the communities are significant. It is clear that the coordinators who are elected by the community enjoy greater credibility and cooperation in the community and, therefore, are better able to strengthen the bond between BCs and LLLG.

Table 3. *Paid work of BCs excluding those who work for UPAVIM **

	Reporting BCs	Nonreporting BCs	All BCs
Do you do paid work?			
Yes	9 (29%)	29 (51%)	38
No	22 (71%)	28 (49%)	50
TOTAL	31 (100%)	57 (100%)	88

Notes: * UPAVIM is a community organization of women, standing for United in order to Live in Spanish. This table was copied from Table 2-14 in Maza, et al, 1997, op.cit

Volunteers are still supporting pregnant women and breastfeeding mothers, although not all of them report their work. The two factors that appear to be key to the continued sustainability of this program are:
The high personal motivation of the various participants (mothers, BCs and LLLG volunteers and staff).
The six-level support structure that includes participating and nonparticipating women, BCs, coordinators, LLLG, and LLLI.

These levels provide bi-directional support and motivation across the levels and are similar to the support structure that is in place in La Leche League International, as an organization of support for breastfeeding mothers.
Vital components of the program include the recruitment of respected and motivated women as BCs, coordinators selected by the BCs, and the monthly and annual workshops for coordinators and BCs. Training in topics such as: organization, administration, self-esteem, gender, mental health and a productive activity in order to help the women contribute to the household budget have helped the groups to grow and be strengthened.

Coordinators and subcoordinators

They are elected for a period of a year and can be reelected by the BCs of their communities. From among these groups of coordinators, an overall coordinator and subcoordinator are elected for a period of one year. Approximately 70% to 80% of the coordinators attend monthly mini-workshops held at the LLLG office, where they represent the other BCs from their communities. This system is designed to promote cohesion among the BCs by: (1) engendering self-sufficiency among the BCs in their communities in order to keep their mother-to-mother support groups active in sharing experiences, information and support on breastfeeding, (2) maintaining intercommunity relationship with and among the BC coordinators, and (3) maintaining a program of continuing education that can be replicated in each program community.

The responsibilities of the general coordinator and subcoordinator are to: (1) schedule support group meetings for each community, (2) receive reports of the work accomplished in the past month in the form of calendar sheet and support group forms with individual counseling and home visits recorded, and (3) designate dates for refresher courses in each community.

Table 5 presents an overview and comparison of the activities of BCs and coordinators during the grant period from 1989 to 1992 and the postgrant period from 1993 to 1996. A popular activity added in the postgrant period occurs during the World Breastfeeding Week, when BCs plan and participate in walks with women and children carrying cloth banners, accompanied by school bands and floats to promote the practice of breastfeeding.

Table 4. *Activities of the coordinators*

Activity	Proportion of Coordinators Doing this Activity
Visits by BCs	4 / 5 (80%)
Frequency of visits:	
Once a month	3 / 4 (75%)
Twice a month or more	1 / 4 (25%)
Participates in monthly mini-workshops	5 / 6 (83%)
Frequency of participation during January-March 1996:	
3 mini-workshops	4 / 5 (80%)
2 mini-workshops	0 / 5 (0%)
1 mini-workshop	1 / 5 (20%)

Note: This table was copied from Table 2-15 in Maza, et al, 1997, op.cit.

Table 5. *BC and coordinator activities in two periods*

Activity	Child Survival Project 1989-1992	Postgrant Period 1993-1996
Volunteer work:		
BCs	2 hours/week	2 hours/week
Coordinators	3 hours/week	3 hours/week
Types of incentives	Framed diploma. Identification carnet. Annual workshop. Snacks and raffles in refresher courses. Christmas party (donation of clothes and other products).	Annual workshop. Snacks and raffles in refresher courses. Christmas party (donation of clothes and other products). Monthly workshops for coordinators with raffles. Mental health course at mini-workshops. Course on counseling skills for coordinators. Breastfeeding walks in communities during World BF week with donated products.
Reimbursement of expenses	Travel to annual mini-workshops and Christmas party.	Travel to annual mini-workshops and Christmas party.

Note: This table was copied from Table 2-18 in Maza, et al, 1997, op.cit.

Organizational support for BCs

LLLG continued to support BCs in the postgrant period with two staff persons spending 40% time working with the communities. The BCs themselves reported that the major reasons they have continued working on breastfeeding activities are their own motivation and spirit of service, their mutually supportive relationship with the personnel of LLLG, and their desire to learn more and to share their knowledge with other women in their communities. Survey results related to these factors and other qualitative information are presented in Tables 6 through 9.

Table 8 presents useful qualitative data about factors that may play a significant role in encouraging and sustaining BCs in their community activities. It is interesting to note that there is a significant difference in responses to all the questions between the reporting and non-reporting BCs. It appears that those BCs who feel more support from LLLG and from their coordinators maintain a higher level of activity; however, it may be that because they report their activities, supportive feedback from their coordinators and LLLG is more likely. Visits from the coordinators seem to be crucial motivators as do monthly refresher courses at LLLG. An invitation from a BC in the community or someone they know and trust appears to have been effective in persuading these women to train as BCs.

Budget

Since the end of the Child Survival Project grant in 1992, LLLG's budget has been cut drastically. There has been a 40% reduction in the project budget since that time. LLLG has been getting some assistance from various sources. Wellstart International and the Institute of Reproductive Health at Georgetown University have financed two workshops and a case study. The Population Council is funding an operative research study in a Mayan community. The project itself has generated some income by providing technical assistance to some NGOs and selling educative materials developed by LLLG. LLLG needs to focus on exploring all avenues for income generation in both the public and private sectors.

Table 6. *Factors motivating reporting BCs to continue project activities*

Motivating Factor	Number of Reporting BCs
Being useful to the community and other persons.	18 (40%)
Seeing that baby bottle is no longer used (seeing results).	6 (13%)
The needs of people, especially unprotected children.	2 (4%)
Like the work.	3 (7%)
Other.	16 (36%)
TOTAL	45 (100%)

Note: This table was copied from Table 2-19 in Maza, et al, 1997, op.cit.

Table 7. *Factors that may influence BC's level of activity*

Factor	Reporting BCs	Non-reporting BCs	P-value
Feel support from LLLG	43/44 (98%)	15/26 (58%)	< .000
Feel support from coordinator	28/38 (74%)	11/26 (42%)	< .010
Receive visits from the coordinator	18/39 (46%)	5/25 (20%)	< .030
Know there are monthly meetings with other BCs	37/44 (84%)	14/26 (54%)	< .010
Have attended meetings of BCs	23/37 (62%)	2/15 (13%)	< .001
Were invited to the training by:			< .010
NGO in the community	4/45 (9%)	8/57 (14%)	
Health Center	6/45 (13%)	9/57 (15%)	
BC	10/45 (22%)	1/57 (2%)	
Someone from the community	7/45 (16%)	6/57 (11%)	
Someone outside the community	0/45 (0%)	6/57 (11%)	
LLLG	18/45 (40%)	27/57 (47%)	

Note: his table was copied from Table 2-20 in Maza, et al, 1997, op.cit. P = probability that observed difference between columns is due to chance.

Conclusions

Upon examining the results of the study, it is clear that LLLG s mother-to-mother support project succeeded in sustaining nearly the same level of service for more than three years since the grant ended, on a greatly reduced budget. In light of the questions posed by this study, it can be concluded that:

- The reporting BCs continue to offer their services in the communities and to enthusiastically participate in LLLG activities, while the nonreporting BCs are maintaining a high level (90%) of activity through individual counseling.
- The sustainability of the project is related to the personal motivation of the BCs as much as to the personnel of LLLG and to the mutual support and affection that exist between the two groups.
- The socioeconomic and demographic factors do not appear to influence program coverage.

Lessons learned

A number of lessons can be drawn from the LLLG experience in implementing the community-based mother-to-mother support project in peri-urban areas that may be valuable to other organizations engaged in similar programs:

Establishing a peri-urban project. Community involvement is crucial to the success of any development project. It is the experience of LLLG that all potential candidates for breastfeeding counselors must be recognized and respected women in their communities. It also works and gives program sustainability, permitting the community to own the program, by giving them more responsibilities in the follow-up.

Table 8. *Reasons given by the non-reporting BCs for not continuing their support groups*

Reason	Frequency of Response
Other work	25 (43%)
Small children	5 (8%)
Lost contact with the BC group or LLLG	4 (7%)
Illness	5 (8%)
Lack of time or involvement in other activities	7 (12%)
Other	11 (19%)
TOTAL SAMPLE	57 (100%)
Non-reporting BCs who continue to promote breastfeeding	52 (91%)

Note: This table was copied from Table 2-21 in Maza, et al, 1997, op.cit.

Training. The initial training session with BC candidates provides an opportunity for reflection in which the women themselves, through discussion and guidance, come to an understanding of the characteristics of a BC and her role and responsibilities in the community. It is a *self-selection process* in which the woman decides whether or not she can meet the criteria of the position.

Support and nurturing. LLLG has learned that BCs need ongoing nurturing (similar to that provided to LLL Leaders within the LLLI structure). LLLG provides this nurturing through positive feedback, demonstrated interest, support, guidance, and incentives. This includes monthly mini-workshops at the LLLG office and refresher courses in the communities that provide timely information on breastfeeding and various health-related topics. These meetings also help maintain unity and cohesion among the BCs. The annual workshop provides good motivation for both reporting and nonreporting counselors.

Table 9. *What BCs have liked most about their work*

Indicator	Reporting BCs	Non-reporting BCs	All BCs
Orient, teach, share advice	25 (56%)	39 (68%)	64 (63%)
Learn, receive courses	12 (27%)	6 (11%)	18 (18%)
Other	8 (18%)	12 (21%)	20 (20%)
TOTAL	45 (100%)	57 (100%)	102 (100%)

Note. This table was copied from Table 2-22 in Maza, et al, 1997, op.cit. The difference between the reporting and non-reporting BCs is significant at the .01 level.

The Long Hard Road to Child Survival Program Sustainability[1]

David S. Shanklin[2] and Nat C. Robison[3]

Abstract

During its 15 year tenure in Bolivia, Andean Rural Health Care (ARHC) has increasingly focused on the sustainability of its programs. A chief sustainability intervention was the creation of a permanent local counterpart NGO, Consejo de Salud Rural Andino (CSRA), to take over and operate the health programs. This paper analyzes the progress made towards sustainability by AHRC and CSRA. A key measure of CSRA's sustainability is its financial autonomy. AHRC's support to CSRA dropped from 75 percent of program expenses in 1987 to 35 percent in 1997. Based on ARHC's experience, the paper concludes that sustainability is possible and requires in-country NGO capacity in leadership, administration, finance, marketing, fund-raising, and health information systems.

Introduction

This article describes progress in health program sustainability which has been achieved by ARHC and CSRA during the past decade. We also consider future progress during the coming five years, with a focus on refining a model of health program sustainability for child survival and primary health care services in Bolivia.

Below, the ARHC/CSRA program is generally described, followed by a discussion of the social and political context in which these services are provided. Programmatic data used in this article are then described and summarized. This is followed by our working definitions of health program sustainability, a presentation of key findings, and selected conclusions.

Background

This year marks the fifteenth anniversary of the incorporation of Andean Rural Health Care (ARHC) as a non-profit [501(c)(3)] organization. The ARHC Mission Statement reflects its programmatic values and direction:

"Moved by our faith, we are committed to the measurable improvement of health and the prevention of unnecessary suffering, sickness and death. We bring hope through health, working through self-sustaining local partnerships in communities lacking access to basic services."

Four basic principles guide the health care work of ARHC:

- Program impacts are measured and reported
- There is equitable access and usage of health services
- The work is community-based
- Benefits are sustainable locally in the long run

During the mid-1980's, ARHC implemented and refined its health service methodology, largely based upon the pioneering work of Dr. John Wyon, Harvard University School of Public Health, under the dedicated leadership of ARHC founder, Dr. Henry Perry, III. The resulting approach, the "Census-Based, Impact-Oriented" (CBIO) methodology, has been applied in Bolivia with the ultimate aim of reducing the rates of illness and death.[4] Because young children (less than five years of age) and women of child bearing age (15 through 49 years) are at greatest increased risk of death in our service areas, ARHC has targeted much of its resources to these two groups.

The CBIO model employs community health workers who carry out a program of home visits, preventive

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[4] Perry, H, et.al. The census-based, impact-oriented approach , it's effectiveness in promoting child health in Bolivia. *Health Policy and Planning* 13(2):140-151. 1998.

education, and the gathering of data on births, deaths and migration. This process assures that health care is available to even the most remote homes and that information is available to prevent and treat the most common causes of sickness and death. Health care is also offered in local health clinics, and through referrals to nearby hospitals.

All health and supporting administrative services in Bolivia are offered through ARHC's counterpart organization, Consejo de Salud Rural Andino (CSRA). In accordance with written terms of agreement between CSRA, local governments and the Ministry of Health (MOH), MOH facilities, staff and supplies are incorporated into our programs to maximize efficiency. CSRA first began as the in-country corporate entity for ARHC in Bolivia, but completed incorporation as a free-standing non-profit organization in 1995, with its own volunteer Board of Directors, and its own emerging corporate identity.

Child survival health services provided include: provision of immunizations and Vitamin A capsules; growth monitoring, prenatal health care, health education (particularly related to the prevention and treatment of diarrhea, the early warning signs of childhood pneumonia, the prevention and treatment of childhood diarrhea, and the promotion of breast-feeding and prevention of early childhood malnutrition), treatment of pneumonia and diarrhea, and emergency assistance for complications arising during childbirth. Primary health care services include the treatment of acute conditions for persons of all ages (including transport of those with medical emergencies to a referral hospital), eye care, dental care and family planning services, among others. ARHC/CSRA also assist in selected health-related community development projects, such as the improvement of drinking water and the installation of latrines.

A four year written cooperative agreement between ARHC and CSRA now is in the final stages of completion. This document focuses on strengthening the relationship between the two organizations, and in the development of CSRA leadership capacity, administration, infrastructure, and service delivery for the four year period. A model of health project financial sustainability[5] also has guided the work and finances of the two organizations, and will be considered in the context of the findings reported.

Social and political context

During the past 15 years, ARHC has offered rural primary health care and child survival services among some of the poorest of the Americas, Native American populations living in rural Bolivia. There are currently four health programs being run in two geographic areas of Bolivia. In the altiplano region of Bolivia are 1) the Carabuco Health Area, 2) the Ancoraimes Health Area, and 3) the Puerto Acosta Health Area. In the tropics of Bolivia, a ten barrio Health Area is located on the outskirts of Montero, a city near Santa Cruz. Each project is headed by a Bolivian doctor, and each employs only Bolivian health workers. ARHC currently serves over 200 communities and 68,000 people. The ARHC/CSRA projects included in this study are summarized in Figure 1, which also describes the length of time we have been present in these four areas.

Figure 1. *Years of CS program implementation, and vital events registration*

PROJECT	YEARS										
	1983..	1988	1989	1990	1991	1992	1993	1994	1995	1996	1997
ANCORAIMES						X	X	X	X	X	X
CARABUCO	===>			X	X	X	X	X	X	X	X
MALLCO ANCHO					X	X	X	X	X	X	X
MONTERO						X	X	X	X	X	X

KEY: [ ] = Years of primary health program implementation
X = Years of USAID CS program implementation

Carabuco and Ancoraimes are located on the high plains, or "altiplano" area of Bolivia, about four hours north of La Paz. Puerto Acosta, also on the altiplano, is located about seven hours from La Paz, bordering Peru. The altitude of most dwellings in all three areas ranges from about 11,500 to 15,000 feet above sea level. The population is almost exclusively Aymara Native American, with about 46% of the population described as illiterate. The agricultural productivity of theses areas is limited to one harvest per year, primarily potatoes and high altitude grains such as

[5] Shanklin, D. A model of health project financial sustainability, internal ARHC document, 1992.

barley and quinoa. Animal husbandry (cattle, horses, sheep and llamas) is another source of limited income, as well as some service work in the larger communities. The altiplano population is gradually declining as more families move to urban areas in search of a better livelihood.

In contrast to the altiplano, the lowland urban project is located in the fast-growing city of Montero in the Amazon basin of Bolivia, at an average altitude of less than 1,000 feet. With a city-wide population of about 70,000, most of our health service clients are Quechuan Native Americans (about 70%) who have migrated from the mountain valleys in search of greater economic opportunity. The remaining 30% are native to the lowland area. Most of this population works directly in service industries, particularly related to truck transportation.

During 1994, the Bolivian government passed the "Law of Popular Participation," a sweeping revision of the relationship between the federal government and the 300 municipalities which make up the country, forever changing the primary health care service environment. This law attempts to shift power away from the federal government and back to the municipalities to control such basic services as health, education, culture, sports and infrastructure. Municipalities were authorized to strengthen their democratic governmental structures, and financial resources were provided to fund the budgets of these new efforts. Since 1994, the configuration of public health roles and responsibilities have changed several times, reflecting the new and uncertain future ahead. These changes reinforced the observation that the health care system has been and probably will continue to be in considerable flux, making health program sustainability all the more precarious, even as communities become more engaged in the management of their own health care services.

These fundamental changes in the structure and management of local health care evolved during a time when ARHC and CSRA philosophy of service delivery also was changing. ARHC began its work 15 years ago with the assumption that program services were to serve only as a temporary "bridge" between actual community health needs, and the growing capacity of the Bolivian federal government to meet these needs. We have since modified this view, and have come to the conclusion that there will be an important, long-term role for an indigenous NGO offering health services at the municipal level. We believe that this is an attractive although still under appreciated role for NGOs to play in Bolivia, and one that will become more self evident in the future.

The current health care management configuration is made up of the Ministry of Health and Social Services (MOH), Departmental MOH Health Units, MOH Health Districts, the Local Health Boards, and local networks of health services. The MOH sets overall policies and direction of the health sector, making an effort to integrate these with policies and guidelines in education, culture and sports. The Departmental Health Unit is responsible for supervising the implementation of national health policies at the departmental level, for staffing government health services and for developing the Department's health budget.

The Local Health Board (LHB) is the local governing body for municipal health services. It is made up of one representative each from the municipal government, the MOH Health District, and the Municipal Oversight Committee. Functionally, it may contain other representatives as well, and CSRA staff sit on several of the LHBs with whom they work. The Municipal Oversight Committee is democratically elected by the communities in a separate annual election process, is designed to represent the interests of the communities in the activities of the municipal government, and to exercise control over municipal government activities. Functionally, these committees remain relatively weak and ineffective. Finally, the local network of health services is made up of the hospitals, health centers, and health posts offering services in each municipal jurisdiction. These may be governmental, and non-profit private and religious agencies.

Program data

Financial and program data were reviewed for an eleven year period, from March 1, 1986 through February 28, 1997. These dates coincide with the fiscal years of ARHC and CSRA. For simplicity of presentation, fiscal years are reported on a calender basis, and reflect the end date of each fiscal year. (For example, "1987" data reflects the fiscal year, March 1, 1986 through February 28, 1987.)

Financial data were derived from externally audited financial reports and internal financial summaries. In-kind contributions were largely based upon cost estimates for U.S. volunteer teams traveling to Bolivia to work on community projects for two week periods. Also included were donated medical supplies and equipment shipped from the U.S. Not included in these data are MOH salaries and materials, particularly vaccines, which are not part of the CSRA financial management system. In the case of the analysis of actual financial costs, 1993 through 1997, and the financial projections for the years 1998 through 2002, MOH contributions were taken into account in order

to more accurately reflect anticipated outlays, and other, non-programmatic expenses are excluded ifically t "in-kind" costs associated with US volunteer work-teams and donations.

Written six month technical reports of the CSRA National Director were reviewed for the same ele ear period, as well as annual census forms, in order to link program expansion and coverage activities with ann nancial data. These data are summarized in Tables 1 through 6 at the end of this article.

Definition of child survival program sustainability

Within ARHC, we have used the practical definition of health program sustainability as "the state in which the indigenous NGO is able to maintain clearly defined, high quality health benefits indefinitely, based upon its own corporate capacity to generate and manage the necessary resources, in conjunction with community leadership and participation." By definition, the populations with whom CSRA and ARHC work are considered "the poorest of the poor", and are not able to generate all of the local resources needed to support adequate and/or ongoing primary health care. Therefore, it is essential that CSRA be able to attract funding from a mix of local, regional, national and international sources rather than depending upon community and/or municipality resources only. Further, child survival program sustainability is viewed as one component of a larger primary health care model, without which we believe sustainability is unlikely to succeed.

CSRA defines health program sustainability as "the continuous provision of health benefits to a determined set of communities, indefinitely."[6] The "recipe" for success is defined as:

1. An adequate and secure flow of resources and supplies;
2. Clearly defined, high demand products, with related measurable program goals and objectives;
3. Technical capacity;
4. Organizational structure (including leadership, accountability, clear lines of authority and decision-making, and stability); and,
5. A sense of ownership.

Findings

1. Program sustainability has been managed within the context of expanding service volume.

There has been an increase of 652% in the total population served during the past decade (from 9,751 in 1987 to 63,544 in 1997) by the ARHC/CSRA primary health care program, and an increase of 658% among the child survival population (from 3,320 in 1987 to 21,862 in 1997).

This program growth corresponds to a 762% increase in NGO (CSRA) income during the same ten year period (from $124,542 in 1987 to $949,262 in 1997), and an increase of 535% in overall program expenses (to $727,979 during 1997; this includes all administrative levels of the organization, including the national office staff). Because of improved financial management and control during this time period, the difference between growth of income and expenses has translated into an accumulated funds balance of $283,494 by 1997.

In 1990, ARHC began to "expense" all capital investments in Bolivia, resulting in a significant increase in fixed assets beginning in 1991. In 1997, depreciated fixed assets of CSRA equaled over $300,000. Overall, fixed costs represented 14% of total program costs, while 85% were considered recurring costs, and 1% were other costs.

Staffing has grown, consistent with program growth (619% during the past decade), with a mix of about 70% field health staff, and 30% administrative and ancillary support. Average personnel costs for CSRA are about 53% of annual expenses. The proportion of program beneficiaries to field health staff has varied within a range of about 500 to about 1,100, with the 1997 proportion at 1,086 beneficiaries per field health staff person. Among child survival beneficiaries only, the average during 1997 was 374 child survival (CS) beneficiaries per field health worker, close to the average for the past ten years.

2. Program sustainability has been managed in the context of maintaining stable unit costs over time.

The costs of providing primary health care, and child survival services was estimated. The average cost to all beneficiaries during the past decade was $12.72 per beneficiary, and the cost per beneficiary during 1997 was

[6] Robison, N.C. Internal CSRA document, 1996.

$11.46. Thus, ARHC/CSRA has been able to keep program costs constant during the past ten years, even as a number of additional health services have been added. Further, if inflationary factors were considered, the cost per client, in relative terms, clearly has dropped.

Costs for CS beneficiaries (all annual in-country health care costs divided by the CS population served during the same year) during the same ten year period averaged $35.55 per beneficiary, with the average 1997 cost being $33.30 per CS beneficiary. Since many of these costs were not related to the direct provision of CS services to CS beneficiaries, a better method of estimating the real costs of CS services in a primary health care context needs to be developed.

3. Health program financial sustainability has improved during the past decade, based on the ARHC definition of health program sustainability, and the ARHC model of project sustainability.

During the baseline year of this study, 1987, ARHC contributed 75% of total operating costs to CSRA ($284,332 of $379,941), the remaining 25% ($95,609) came from CSRA and project local income. By 1997, these proportions had changed significantly, with ARHC contributing 35% of total operating costs ($253,453 of $725,144), local project income had risen absolutely and relatively ($151,396, or 21%), as had CSRA direct support ($320,295, or 44%).

Based upon the results of this article, the CSRA national headquarters, together with the two rural altiplano projects of Carabuco and Ancoraimes, in an economically poor region of the country, appear the most difficult to support with in-country resources. The ARHC/CSRA urban project in Montero has benefited from more local income, and the new Puerto Acosta project began with the explicit intent of limiting ARHC commitment to its funding.

Projections generated in Bolivia suggest that ARHC will continue to decrease its financial obligations to CSRA over time, to a low of about 12% of total annual costs by the year 2002. Thus, in a 15 year period, ARHC will have reduced its financial commitments from 75% of total costs, to 12%, during a period of significant program growth

Figure 2 summarizes the key elements of the "ARHC model of financial sustainability," while Figure 3 summarizes actual and projected financial data for a ten year period. As can be seen between the two graphs, remarkable conformity exists. While the model calls for an initial startup phase of about seven years, the "real life" experience of ARHC and CSRA has been that a period of about twelve years has been needed. We are now moving into the model's phase two, or period of stabilization, and this is reflected in Figure 3, with costs for services stabilizing, and actually declining over time, and most expenses being covered by local income, the MOH, or the in-country NGO. This period may require about three years to complete. Phase three, program institutionalization, may require another five to ten years. Thus, based on our data analyzed to date, the model of project sustainability appears to be closely aligned with experience, although requiring a somewhat longer 20 to 25 year period.

The duration of this model must certainly vary with experience, and one could assume that in general future projects will require less time to become self-sufficient. However, project locale and underlying social and political conditions will always dominate the sustainability formula, greatly determining the ultimate amount of time that will be needed for self-sufficiency.

4. Indigenous NGO institutional sustainability has improved during the past decade, based on the CSRA definition of health program sustainability

Reviewing the5 ingredients of the CSRA "recipe for health program sustainability" the situation has improved considerably during the past decade.

An adequate and secure flow of resources and supplies. Thanks largely to a well established, automated financial management system, together with a stable annual budget and cash disbursement process, expenses have been better managed and income more readily known at the beginning of fiscal periods. This has reduced the number of years during which expenses have exceeded income, and recently has resulted in the net accumulation of a funds reserve. The goal of future years is to continue to grow the reserve funds as a source of interest income for the organization, as well as collateral for capital investments.

Clearly defined, high demand products, with related measurable program goals and objectives. Part of the annual CBIO process of ARHC and CSRA is to collect data on the primary causes of preventable illness and death, and to determine local community health program priorities. It has been these latter priorities which have helped to

generate income through fees for services. Such services include dental care, eye care and traditional cures.

ARHC and CSRA have not taken full advantage of these high demand opportunities to date. Specific tasks that have been left undone include: conduct unit costs studies of particular services in order to better understand costs per service; conduct productivity studies, based on performance standards coming out of quality assurance processes; improve pricing strategies; intensify the use of cost recovery mechanisms; and develop social marketing capacity, including enhancing the image of the program within communities.

During the past five years, project staff have completed annual plans for health program activities, which include goals, objectives, activities, measures and schedules. These annual plans have been translated into quarterly project plans, and monthly individual work plans. At the end of each year, the annual plan is evaluated against its specific outcome measures, and the new plan developed on the results of the previous year. Thus, measurable program results are part of an ongoing process that we anticipate continuing to improve over time.

Technical capacity. With the growth of the organization has come the realization that services and quality must be standardized in order to have an impact. Continuous quality improvement (CQI) is the tool we are attempting to utilize to ensure improvement of technical capacity over time. CQI committees exist in all project areas, although implementation must be improved. The large task yet to be undertaken is the written documentation of technical and administrative processes, including technical interventions, and the standardization of other administrative processes, procedures and policies.

Organizational structure (including leadership, accountability, clear lines of authority and decision-making, and stability). Both ARHC and CSRA are committing themselves to a four year cooperative agreement, within which is a schedule of milestones to complete. These milestones are directly related to: corporate leadership development; technical and legal accountability; and improved institutional functioning and stability. Required annual monitoring of the agreement by both parties should ensure that milestones are met, and when not met, alternative strategies developed and tested.

A sense of ownership. One of the most powerful mechanisms for indigenous NGO ownership has been the unique relationship that has existed between ARHC and CSRA. First, the two organizations were at one time the same corporate entity. It was only in 1995 that a separation became legal. This close sense of mutual destiny continues through to today, with independent strategic plans that complement the technical capacities and resources of the other. Second, the commitment to CSRA on the part of ARHC is clear at all levels of the organizations, particularly at the volunteer leadership (Board of Directors) level. This commitment has been tested by problems and miscommunications in the past, with the final result that our mutual resolve is time-tested. Third, CSRA has (willingly) had to assume a significant level of responsibility for its own funding, and in-country technical capacity building. This transition was perhaps the most perilous and difficult, but has happily resulted in a highly committed local and national staff who are motivated by past funding and programmatic successes.

Ownership at the local level may be a much more difficult task to finally address. However, the Law of Popular Participation, unique to Bolivia but consistent with national "decentralization" strategies around the world, is consistent with the ultimate goal of increasing community participation and control. Current mechanisms are weak, and motivation is lacking or may at times be inappropriate, but the stage has been set for long-term community participation in local health programming.

Conclusions

Based on the experience of ARHC and CSRA in Bolivia during the past 15 years, we conclude that primary (and child survival) health program sustainability is possible, as we have defined it. This process may require a period up to 20 to 25 years, and will greatly vary depending upon corporate experience, the underlying health needs of specific populations, the economic conditions of the communities in which work is planned, and the social and political context of the program.

Further, health program sustainability is possible in the context of an expanding program. Even as the Bolivia health program has grown by about 750% in a ten year period, ARHC has been able to reduce its proportional support of in-country health program expenses from 75% in 1987, to 35% in 1997, with a reduction to 12% of total annual costs (program and administration) anticipated by the year 2002. Costs per beneficiary have not risen during the same initial ten year period, even as other services have been added. Clearly, cost containment is crucial to program stability and success.

All aspects of program sustainability must be considered and addressed, aside from financing. These include: country NGO leadership capacity; administration; financial management systems; infrastructure development; business planning; marketing; a well functioning health information system; and, technical service quality.

Controlling expenses through a well functioning financial management system is essential, and has resulted in annual income being increasingly greater than annual expenses over time, allowing the growth of a reserve fund, now reaching about $250,000. This system includes the development of annual budgets based upon accurate income estimates, and the use of cash disbursement schedules. Annual work plans are based on the resources anticipated to be available for each year. In all likelihood, staffing will remain the single greatest cost element, which averaged 53% in this analysis.

A changing environment in which primary health programs operate obviously will always influence program sustainability efforts. The instability of local leaders, lack of experience with community health care issues, lack of administrative skills, and highly politicized agendas can all create havoc if not managed well. These factors argue for the importance of indigenous, professional leadership and ownership of the health care system. Support of in-country NGOs to provide primary health care and child survival services is not only desirable, it is programmatically sustainable.

Figure 2. *ARHC model of financial sustainability*

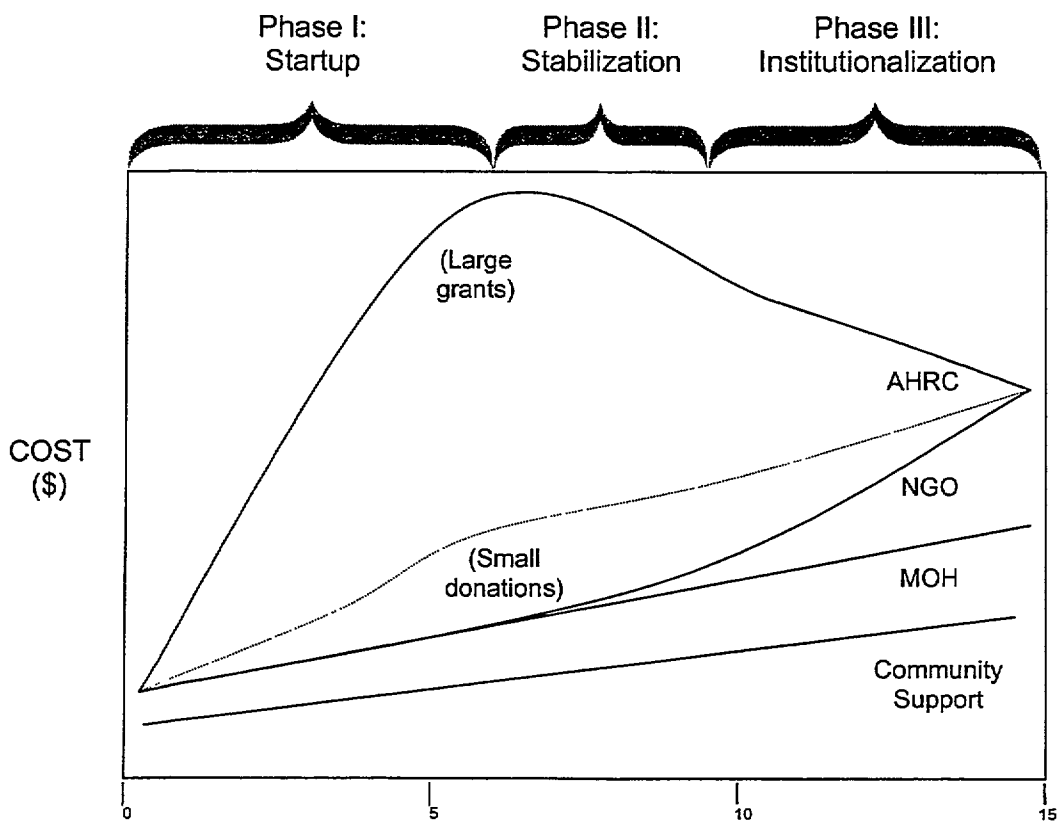

Figure 3. *CSRA Sustainability: Actual and Projected*

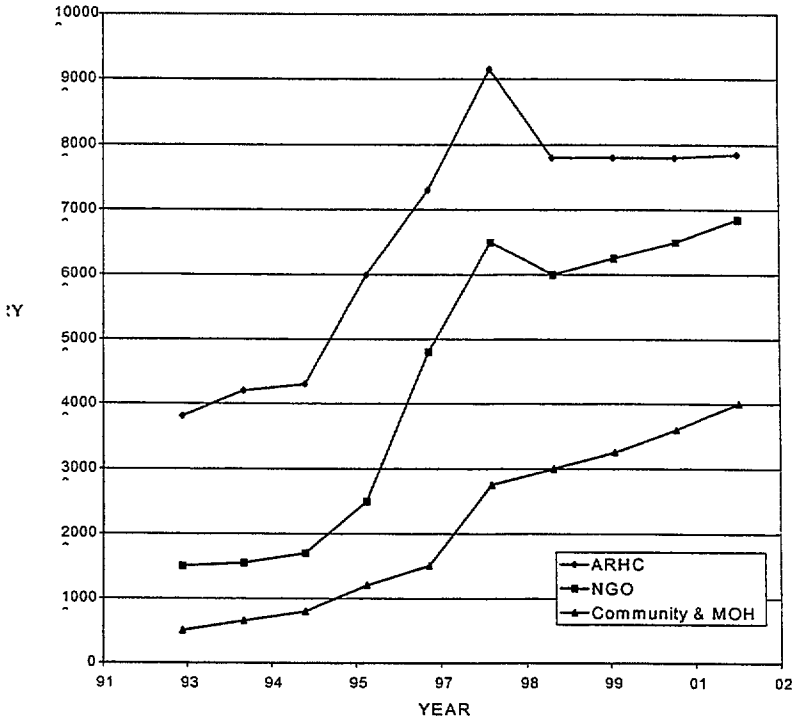

Table 1. *Population of Bolivia project areas by year, 1987-97*

Project name	A	B	C	A	B	C	A	B	C	A	B	C	A	B	C	A	B	C
Carabuco	9751	2002	1320	9751	2002	1320	9751	2002	1320	9449	1973	1220	9034	1831	1077	9034	1831	1077
No. of Communities		31			31			31			31			31			31	
No. with census		28			28			28			28			31			31	
Mallco Rancho			N/A		N/A		5086	1075	742	5086	1075	742	5829	1232	850	6345	1481	880
No. of Communities								11			11			11			11	
No. with census								1			6			8			11	
Sipe-Sipe			N/A		N/A			N/A			N/A			N/A		1808	376	301
No. of Communities																	17	
No. with census																	5	
Montero-Villa C.			N/A		N/A		6562	1564	1049	6562	1564	1049	9563	2319	1601	10977	2714	1870
No. of Communities								8			8			8			8	
No with census								1			1			8			8	
Montero-Cruz Roja			N/A		N/A			N/A			N/A			N/A			N/A	
No. of Communities																		
No. with census																		
Ancoraimes-Norte			N/A		N/A			N/A			N/A			N/A			N/A	
No. of Communities																		
No. with census																		
Ancoraimes-Sur			N/A		N/A			N/A			N/A			N/A			N/A	
No. of Communities																		
No. with census																		
Puerto Acosta			N/A		N/A			N/A			N/A			N/A			N/A	
No. of Communities																		
No. with census																		
Total Population	9751	2002	1320	9751	2002	1320	21399	4641	3111	21097	4612	3011	24426	5382	3528	26356	6026	3827
No. of Communities		31			31			50			50			50			50	
No. with census		28			28			30			35			47			50	

	1993			1994			1995			1996			1997		
Project name	A	B	C	A	B	C	A	B	C	A	B	C	A	B	C
Carabuco	8986	1814	1001	8694	1779	921	8673	1779	921	8092	1630	807	7508	1460	740
No. of Communities		31			31			31			31			28	
No. with census		31			31			31			31			28	
Mallco Rancho	6345	1481	880	6451	1496	850	6451	1496	850	6451	1496	850		N/A	
No. of Communities		11			11			11			11				
No. with census		11			11			11			11				
Sipe-Sipe	7359	1531	1225	9832	2261	1382	9832	2261	1382	9832	2261	1382		N/A	
No. of Communities		17			17			17			17				
No. with census		16			17			17			17				
Montero-Villa C.	12390	3109	2139	13280	3272	2326	9822	2471	1541	10084	2537	1581	10841	2654	1622
No. of Communities		8			8			6			6			6	
No. with census		8			8			6			6			6	
Montero-Cruz Roja		N/A			N/A			N/A		7930	2013	985	7930	2013	985
No. of Communities											4			4	
No. with census											2			4	
Ancoraimes-Norte	545	112	69	7694	1651	989	7944	1855	1097	15265	3468	1962	15265	3468	1962
No. of Communities		28			28			28			52			52	
No. with census		7			9			12			26			26	
Ancoraimes-Sur	6520	1565	906	7311	1741	1033	6726	1580	980			*Note: Now 5 sectors combined*			
No. of Communities		24			24			24							
No. with census		4			8			12							
Puerto Acosta		N/A			N/A			N/A		20000	4207	2118	22000	4628	2330
No. of Communities											103			103	
No. with census											0			6	
Total Population	42145	9612	6220	53262	12200	7501	49448	11442	6771	77654	17612	9685	63544	14223	7639
No. of Communities		102			102			100			224			193	
No. with census		61			67			72			93			70	

Notes **A** = Total population. **B** = Women 15-49 years of age. **C** = Children 0-5 years of age. **N/A** = Not available.
Carabuco: 1987 and 1988 data derived from 1989 census data; 1991 data based on 1992 census data.
Mallco Rancho: 1989 and 1990 data based on 1990 total population figure, w/ women and children estimated using 1991 proportions; 199: based on 1993 census; 1995/96 data based on 1994 census.
Sipe-Sipe: 1991 data based on projections taken from HBP mortality study; 1995 and 1996 data based on 1994 census.
Montero: 1990 data based on 1989 census of one barrio; 1992 is interpolated from 1991 and 1993 censuses;1996 Cruz Roja data is base
Ancoraimes: 1996 data based on 1997 census.
Puerto Acosta: 1997 data extrapolated from 1996 data, using a new total figure and the1996 age-sex proportions.

Table 2. *Summary of Income and Expense, Consejo de Salud Rural Andino, 1987-97*

Income and Expense Category	1987	1988	1989	1990	1991	1992
INCOME:						
Restricted income	-	-	-	-	-	-
Unrestricted income	-	-	-	-	-	-
Total income	124,542	209,999	210,465	248,995	285,137	389,320
Annual income as % of 1987 income	100%	169%	169%	200%	229%	313%
EXPENSES:						
In-kind contributions	51,370	102,929	181,413	197,189	200,931	296,657
Fixed assets	26,881	18,065	7,336	5,540	190,485	157,455
Personnel costs	-	-	-	-	-	-
Cost of fixed assets	-	-	-	-	-	-
Travel expenses	-	-	-	-	-	-
Direct operating costs	-	-	-	-	-	-
Indirect operating costs	-	-	-	-	-	-
Indirect operating costs	-	-	-	-	-	-
Total expenses	136,110	211,477	202,918	266,902	297,745	394,986
Annual expense as % of 1987 expense	100%	155%	149%	196%	219%	290%
Personnel costs as % of total annual expense						
Income less expense	(11,568)	(1,478)	7,547	(17,907)	(12,608)	(5,666)
Accumulated fund balance	-	-	-	-	-	-

Income and Expense Category	1993	1994	1995	1996	1997
INCOME:					
Restricted income	489,685	507,030	550,292	712,670	910,552
Unrestricted income	51,282	32,651	45,080	75,933	38,710
Total income	540,967	539,681	595,372	788,603	949,262
Annual income as % of 1987 income	434%	433%	478%	633%	762%
EXPENSES:					
In-kind contributions	286,029	232,157	242,415	239,916	138,025
Fixed assets	258,333	196,316	235,285	287,287	309,377
Personnel costs					
Cost of fixed assets	284,810	284,566	321,875	365,572	376,767
Travel expenses	51,887	14,676	22,319	64,270	37,639
Direct operating costs	19,795	23,965	25,297	22,215	31,612
Indirect operating costs	76,880	91,210	111,095	161,398	154,400
Indirect operating costs	79,759	71,701	113,261	180,621	127,561
Total expenses	513,131	486,118	593,847	794,076	727,979
Annual expense as % of 1987 expense	377%	357%	436%	583%	535%
Personnel costs as % of total annual expense	56%	59%	54%	46%	52%
Income less expense	27,836	53,563	1,525	(5,473)	221,283
Accumulated fund balance	40,266	43,124	140,541	199,963	283,494

Notes. * Years apply to Fiscal Years. For example, 1987 applies to FY1986-87, March 1, 1986 through February 28, 1987.
"-" Information is not available.

Table 3. *Health program staffing by year, Consejo de Salud Rural Andino, 1987-97*

Project Areas and Staffing Categories	1987	1988	1989	1990	1991	1992	1993	1994	1995	1996	1997
LA PAZ OFFICE											
Technical Support	0	0	0	0	1	1	0	1	1	0	1.5
Administrative Support	3	3	4.5	4.5	6	6	5	6	7	8.5	9
Total	3	3	4.5	4.5	7	7	5	7	8	8.5	10.5
CARABUCO											
Physicians	1	1	1.5	1.5	2	2	1.5	2	2	2	2
Dentist	0	0	0	0	0	0	0	0	0.5	0.5	1
Mid-level Health Staff	2	2	2	2	2	2	1	0.5	0	0	0
Lower-level Health Staff	2	13	13	13	12	12	10	9	8	8	8
Ancillary Support	2	2	2	2	2	2	2	2	3	2	2
Administrative Support	1	4.5	4	3 5	3.5	3.5	3.5	3.5	4	4	5
Total	8	22.5	22.5	22	21.5	21.5	18	17	17.5	16.5	18
APSAR											
Physicians	0.5	1	1.5	1.5	2	2	3	3	4	2	-
Dentist	0	0	0	1	1	0	2	2	1	1	-
Mid-level Health Staff	2	2	2	2	4	4	7	6	5	2	-
Lower-level Health Staff	2	1	2	2	3	6	6	8	8	3	-
Ancillary Support	0	0	2	1	2	6	7	7	7	3	-
Administrative Support	1	1	3.5	5	5	6	5	5	7	5	-
Total	5.5	5	11	12.5	17	24	30	31	32	16	
MONTERO											
Physicians	-	0.5	2	3	2	3	3	3	3	3.5	5
Dentist	-	0	0	0	0.5	0.5	0.5	0.5	1	1	1
Mid-level Health Staff	-	1.5	1.5	1	2	3	2	3	4	4	5
Lower-level Health Staff	-	0	1	2.5	5	6	6	7	8	8.5	10
Ancillary Support	-	0	1	1	1	1	1	1	1	2	3
Administrative Support	-	0	2	2	2	3.5	5	4	3	6	7
Total		2	7.5	9.5	12.5	17	17.5	18.5	20	25	31
ANCORAIMES											
Physicians	-	-	-	-	-	1.5	1.5	1.5	2	2	2
Dentist	-	-	-	-	-	0	0	0	0.5	0.5	1
Mid-level Health Staff	-	-	-	-	-	3	4	3	3	3	3
Lower-level Health Staff	-	-	-	-	-	2	3	5	10	8	8
Ancillary Support	-	-	-	-	-	2	2	2	2	3	2
Administrative Support	-	-	-	-	-	0	0	0	0	0.5	1
Total						8.5	10.5	11.5	17.5	17	17
PUERTO ACOSTA											
Physicians	-	-	-	-	-	-	-	-	2	2	2
Dentist	-	-	-	-	-	-	-	-	0	0	1
Mid-level Health Staff	-	-	-	-	-	-	-	-	0	0	2
Lower-level Health Staff	-	-	-	-	-	-	-	-	2	3	7
Ancillary Support	-	-	-	-	-	-	-	-	2	3	3
Administrative Support	-	-	-	-	-	-	-	-	0	1	2
Total									6	9	17
ALL PROJECT AND NATIONAL OFFICE HEALTH PERSONNEL											
Technical Support		0	0	0	1	1	0	1	1	0	1.5
Physicians		2	5	6	6	7	9	9.5	11	11.5	11
Dentists		0	0	1	1.5	0.5	2.5	2.5	3	2.5	4
Mid-level Health Staff		4	5	6.5	11	12	14	12.5	12	9	10
Lower-level Health Staff		14	16	16	16	19	25	29	34	30.5	33
Total, Health Personnel		20	26	29.5	35.5	39.5	50.5	54.5	61	53.5	59.5
% of All Staff		73%	64%	67%	70%	64%	66%	69%	69%	64%	
ALL PROJECT AND NATIONAL OFFICE ADMINISTRATIVE PERSONNEL											
Ancillary Support		2	5	4	5	9	12	12	13	13	10
Administrative Support		5.5	9.5	10.5	10.5	13	13.5	12.5	14	16.5	15
Total, Administration		7.5	14.5	14.5	15.5	22	25.5	24.5	27	29.5	25
% of All Staff		27%	36%	33%	30%	36%	34%	31%	31%	36%	30%
Total, All Staff		27.5	40.5	44	51	61.5	76	79	88	83	84.5
Staff as % of 1987 Level		100%	147%	160%	185%	224%	276%	287%	320%	302%	307%

Table 4. *Selected health program financial and service data by year, CSRA, 1987-97*

Program data		1987	1988	1989	1990	1991	1992
Population:	Children 0-5 yrs.	1,320	1,320	3,111	3,011	3,528	3,827
	Women 15-49 yrs.	2,002	2,002	4,641	4,612	5,382	6,026
	Total, all ages	9,751	9,751	21,399	21,097	24,426	26,356
No. of communities		31	31	50	50	50	50
No. communities with census		28	28	30	35	47	50
% communities with census		90%	90%	60%	70%	94%	100%
In-country program costs		$136,110	$211,477	$202,918	$266,902	$297,745	$394,986
Field health personnel		9.5	20.5	26	29.5	35.5	48
Cost per beneficiary *		$13.96	$21.69	$9.48	$12.65	$12.19	$14.99
Cost per CS beneficiary**		$40.97	$63.66	$26.18	$35.01	$33.42	$40.09
Beneficiaries/Field health staff *		1,026	476	823	715	688	549
CS beneficiaries/Field health staff**		350	162	298	258	251	205

Program data		1993	1994	1995	1996	1997
Population:	Children 0-5 yrs.	6,220	7,501	6,771	9,685	7,639
	Women 15-49 yrs.	9,612	12,200	11,442	17,612	14,223
	Total, all ages	42,145	53,262	49,448	77,654	63,544
No. of communities		102	102	100	224	193
No. communities with census		61	67	72	93	70
% communities with census		60%	66%	72%	42%	36%
In-country program costs		$513,131	$486,118	$593,847	$794,076	$727,979
Field health personnel		50.5	54.5	64.5	53.5	58.5
Cost per beneficiary *		$12.18	$9.13	$12.01	$10.23	$11.46
Cost per CS beneficiary**		$32.41	$24.67	$32.61	$29.09	$33.30
Beneficiaries/Field health staff *		835	977	767	1,451	1,086
CS beneficiaries/Field health staff**		314	361	282	510	374

Notes. * Beneficiaries = Total population, all ages.

** CS beneficiaries = Children 0-5 yrs + Women 15-49 yrs.

Table 5. *Actual income and expense by project and year, CSRA, 1993-97*

Project	1993 Actual	%	1994 Actual	%	1995 Actual	%	1996 Actual	%	1997 Actual	%	5 Year Average
LA PAZ OFFICE											
Income:											
Local Income	4520	5%	3839	4%	0	0%	7092	7%	6712	6%	4%
CSRA Support	120	0%	4310	5%	3358	4%	5758	6%	3414	3%	4%
ARHC Support	94052	95%	81879	91%	76536	96%	85352	87%	94905	90%	92%
Total Income	**98692**	**100%**	**90028**	**100%**	**79894**	**100%**	**98202**	**100%**	**105031**	**100%**	**100%**
Expense:											
Fixed Costs	875	1%	12468	14%	379	0%	7000	8%	0	0%	5%
Recurring Costs	93237	93%	75953	84%	79994	100%	85112	92%	98374	100%	94%
Others	5677	6%	1481	2%	0	0%	0	0%	0	0%	1%
Investment Funds	0	0%	0	0%	0	0%	0	0%	0	0%	0%
Total Expense	**99789**	**100%**	**89902**	**100%**	**80373**	**100%**	**92112**	**100%**	**98374**	**100%**	**100%**
CARABUCO											
Income:											
Local Income	9771	10%	16592	16%	20227	22%	24952	24%	27443	20%	18%
CSRA Support	0	0%	10421	10%	16172	17%	45073	43%	65338	47%	23%
ARHC Support	91819	90%	76002	74%	56794	61%	34941	33%	47124	34%	58%
Total Income	**101590**	**100%**	**103015**	**100%**	**93193**	**100%**	**104966**	**100%**	**139905**	**100%**	**100%**
Expense:											
Fixed Costs	20191	18%	2008	2%	3125	3%	12716	11%	12118	9%	9%
Recurring Costs	89552	81%	89464	98%	90122	97%	100244	88%	118331	91%	91%
Others	745	1%	0	0%	0	0%	681	1%	0	0%	0%
Investment Funds	0	0%	0	0%	0	0%	0	0%	0	0%	0%
Total Expense	**110488**	**100%**	**91472**	**100%**	**93247**	**100%**	**113641**	**100%**	**130449**	**100%**	**100%**
MONTERO											
Income:											
Local Income	17695	18%	26138	18%	38267	26%	47891	22%	65893	28%	22%
CSRA Support	52662	53%	55722	38%	46848	32%	34712	16%	126856	54%	39%
ARHC Support	28177	29%	65048	44%	63325	43%	136846	62%	41082	18%	39%
Total Income	**98534**	**100%**	**146908**	**100%**	**148440**	**100%**	**219449**	**100%**	**233831**	**100%**	**100%**
Expense:											
Fixed Costs	18412	20%	21962	16%	38872	21%	42425	17%	25844	13%	18%
Recurring Costs	73466	80%	112315	84%	124582	67%	156246	61%	159449	83%	75%
Others	0	0%	0	0%	21780	12%	40819	16%	6592	3%	6%
Investment Funds	0	0%	0	0%	0	0%	15000	6%	0	0%	1%
Total Expense	**91878**	**100%**	**134277**	**100%**	**185234**	**100%**	**254490**	**100%**	**191885**	**100%**	**100%**
ANCORAIMES											
Income:											
Local Income	12726	15%	17560	21%	16509	14%	28740	23%	31566	23%	19%
CSRA Support	45799	54%	15277	18%	22595	20%	31079	25%	36489	26%	29%
ARHC Support	26075	31%	50451	61%	75973	66%	65604	52%	70342	51%	52%
Total Income	**84600**	**100%**	**83288**	**100%**	**115077**	**100%**	**125423**	**100%**	**138397**	**100%**	**100%**
Expense:											
Fixed Costs	22154	28%	513	1%	10012	10%	16082	12%	19535	13%	13%
Recurring Costs	55632	72%	85819	98%	90433	90%	116261	86%	135874	87%	86%
Others	0	0%	1524	2%	0	0%	3276	2%	0	0%	1%
Investment Funds	0	0%	0	0%	0	0%	0	0%	0	0%	0%
Total Expense	**77786**	**100%**	**87856**	**100%**	**100445**	**100%**	**135619**	**100%**	**155409**	**100%**	**100%**
PUERTO ACOSTA											
Income:											
Local Income							11224	27%	19782	18%	
CSRA Support							20786	50%	88198	82%	
ARHC Support							9380	23%	0	0%	
Total Income							**41390**	**100%**	**107980**	**100%**	
Expense:											
Fixed Costs							30039	73%	38759	36%	
Recurring Costs							11351	27%	69094	64%	
Others							0	0%	0	0%	
Investment Funds							0	0%	0	0%	
Total Expense							**41390**	**100%**	**107853**	**100%**	
ALL PROJECTS											
Income:											
Local Income	44712	12%	64129	15%	75003	17%	119899	20%	151396	21%	17%
CSRA Support	98581	26%	85730	20%	88973	20%	137408	23%	320295	44%	27%
ARHC Support	240123	63%	273380	65%	272628	62%	332123	56%	253453	35%	56%
Total Income	**383416**	**100%**	**423239**	**100%**	**436604**	**100%**	**589430**	**100%**	**725144**	**100%**	**100%**

Gumer Child Survival Project and the Horses: An alternative and sustainable approach to child survival programs[1]

Haile Wubneh[2]

Abstract

The Gumar District of Ethiopia faced many problems that hindered the delivery of health services to its people, including insufficient health infrastructure, high attrition among health workers (85% in 5 years), and ineffective and non-existent transportation. In order to improve maternal and child health and survival under its USAID child survival grant, Africare addressed the barriers to health service delivery. A stable source of funding to pay community health agents was established by collecting a small contribution (about 15 cents per year) from each household. This stopped attrition. The transportation problem was solved by acquiring ten horses that were used by the health workers to visit villages. This proved to be a lower cost and more sustainable solution than the alternatives, such as motorcycles. These and other culturally appropriate interventions achieved the desired results, with service coverage increasing dramatically. For example, measles coverage jumped from 23% to 53% in one year.

Introduction

Infectious and communicable diseases complicated by nutritional problems have remained the major causes of morbidity and mortality for many years in developing countries, particularly among mothers and children. Affected countries, including Ethiopia, over recent decades have attempted to combat the major causes of ill health in various ways, only to become increasingly aware of deficiencies in some of the public health strategies that they employ. Public health strategies that had been adopted by Ethiopia in the 1950s and early 1960s were based on tackling each selected communicable disease through a time-limited vertical campaign, an approach that failed to address the wide range of health needs felt by people. During the late 1960s and early 1970s, health systems shifted to another sometimes disappointing strategy, the basic health service approach. In 1978, out of general dissatisfaction with strategies in place, the concept of primary health care (PHC) was adopted by the World Health Organization assembly as an approach through which the world's major health problems could be tackled, in order to achieve the social goal of Health for All by the year 2000.

Some, such as Milton Roemer, viewed the Alma-Ata Conference not as the origin of PHC, but rather as a major spring board for advancing a movement that had been in process for some time. The PHC approach advocated a minimum but adequate level of health services that could be made accessible to the entire population, rather than provision of highly sophisticated medical services to only a few. Ethiopia, along with many other developing countries, took the PHC concept for granted, and began to implement the broad programs envisaged. Despite massive funding and other resources from multilateral organizations such as WHO and UNICEF, and bilateral donors, the progress achieved never reached that anticipated or expected. PHC program implementation differed from the earlier basic health service approaches. It not only required that other government agencies be involved in health work, but also demanded that communities be actively involved. PHC also accepted the fact that health is a reflection of social and economic situations. Acceptance of this fact widened the scope of activities needed to improve the health status of communities.

The PHC package within Ethiopia included a number of interventions: childhood immunization, diarrheal disease control, nutrition, maternal and child health/family planning, essential drug supply, manpower development, health education, water and sanitation, and the development of community health services. Each was considered of priority, and the attempt was to implement them all as a package. Although there was government good will, government financial and material support was lacking. Most, if not all the programs were left to bilateral donors and UN organizations.

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PHC embracing the above interventions was implemented in a wide range of locales. While the start up seemed to offer promise, nobody in the health profession was sure about the sustainability of the various interventions. Transportation remained to be a main concern of most if not all of us. None of the donated vehicles were affordable or feasible due to maintenance and fuel cost. The HORSES then should have been given a chance to compete.

In 1985, a team of experts from the World Health Organization and the Ministry of Health reviewed the Ethiopia PHC program. By chance, the author of this paper was among the experts who conducted the extensive review. This was the turning point for most health program implementors in Ethiopia, whether national or international.

UNICEF, a major supporter of the PHC program, started what they called their "GOBI" strategy focusing on (G) Growth Monitoring, (O) Oral Rehydration Therapy, (B) Breast Feeding and (I) Immunization. Not much later, UNICEF again changed to "RIBS" standing for Rural Integrated Basic Services. The author had never come across evaluation results of these two programs. While some basic differences could be seen between the PHC, GOBI and RIBS, none of these approaches seemed to be clearly defined in terms of implementation targets and requirements. Clear definitions of targets and approaches are at the heart of determining what everyone can agree is appropriate. This is where child survival programs derive their success, because they are defined and implemented on the basis of clear terms and the use of appropriate, available and affordable means, to ensure not only immediate performance, but also sustainability and lasting community participation.

Lessons learned from 1985 review of PHC implementation in Ethiopia

The 1985 National Primary Health Care review was extensive. It covered 12 administrative regions, 72 health facilities, 1687 households, and 3,136,048 persons. Hence the survey was likely to reflect the situation that generally existed in Ethiopia. The findings of the review were numerous, including:

Positive findings

(1) *Health services had been broadly expanded* to the masses, especially by establishing new health stations and health posts.
(2) Immunization programs against the six major childhood diseases were also expanded, as were maternal and child health services including family planing.
(3) The numbers of medical and para medical personnel were increased, as were public information attempts to improve knowledge about health care.

Negative/unsatisfactory findings

Although a number of constraints and problems were identified in the review, the following are some of interest to discuss in this paper.

(1) *The infrastructure to organize and implement PHC generally was insufficient at the district level.* The absence of a body responsible for organizing, implementing, supervising and monitoring activities close enough to the community meant that continuity of various programs was not possible. Regional and national follow up and support was never enough to do the job.
(2) *Sectoral collaboration also was difficult to achieve.* The PHC philosophy on integrated approach required integration of efforts from all development sectors, even at a grassroots level, which was not possible given the absence of district level organizing bodies.
(3) *Health service coverage was less than adequate to create proper networking systems* in the implementation process of PHC. Health stations were staffed by health assistants who for the most part had no basic training on how to supervise and train their staff, yet they were expected to supervise and support Community Health Agents (CHAs) and Traditional Birth Attendants (TBAs).
(4) *Community involvement in PHC planning was weak or non existent.* Members of a given community were not aware of what their role should be in the establishment of the community health services. They were asked to select candidates for training, which they did, but when it came to their financial support of CHAs and TBAs, funds were not forthcoming.
(5) *A high attrition rate was experienced among community health agents and traditional birth attendants.* During the early 1980s, a considerable number of community health workers were trained throughout the country. Studies conducted here and there had indicated, however, that less than half of those trained remained in their places. During the PHC review (five years following the effective start of PHC), the attrition rates were as high as 85%. The main reasons identified included lack of community support, no remuneration, and lack of

supervision.

(6) *Transportation generally was either poor or entirely lacking.* Supervisory bodies from the region or district needed some means of transport to support PHC workers at all levels, particularly CHAs and TBAs. While UNICEF had in most instances provided Toyota land cruisers, their maintenance and running cost was not affordable at a later stage. Furthermore, most health posts were not accessible by vehicles year-round, i.e., there were times of the year when roads or tracks were impassible due to rains, even to four-wheel drive vehicles. The immediate supervisory staff had no means of travel, hence there was no supervision of community health workers at all.

(7) *Skill and knowledge regarding supervision and training of CHAs and TBAs were insufficient.* The health assistants who run the health stations were trained to handle minor illness and give health information to the public. Their basic training did not include the basics of supervision and training. Therefore, they were in need of additional on the job training on supervisory skills, and problem solving.

Project description

Since October 1994, Africare has been implementing a Child Survival Project (CSP) in Gumer *Woreda* (District) of Ethiopia. The findings of the 1985 National PHC Review, coupled with information on Gumer Woreda gathered subjectively by Africare, were considered in the design of the project carried out in partnership with District, Zonal, and Regional authorities of the Southern Nations and Nationalities and Peoples Region of Ethiopia. To verify and expand upon the existing information, Africare undertook a Knowledge, Practice and Coverage (KPC) Survey.

In 1994, the total population of Gumer Woreda was estimated at 240,500[3] of which 98% was rural. Women of reproductive age accounted for approximately 60,125 people (about 25% of the total) and under-five children about 33,670 (14%). The population was predominantly Muslim engaged primarily in subsistence farming. Women as in the rest of the country remained culturally and socially oppressed. Gumer was one of eleven districts in the Gurage Zone. During 1994, the Zonal Health Department in Wolkite, the Zonal Capital, was in the early stages of being established. Similarly the Woreda Health Office at Arkit, the capital, was similarly new. None of these offices had the minimum required personnel or office facilities to speed up project implementation.

The CSP undertook all necessary measures to help partner offices to launch their own activities and participate actively in the implementation of the CSP. Gradually the Zonal Health Department progressed. And while the *Woreda* health office still has various constraints, it too improved considerably. At the time, there were four health stations with a total of eight health assistants serving the 62 peasants associations (PAs) of Gumer Woreda. The PAs (each with a population of 3000 to 5000 people) are the most peripheral administrative unit in the country. Most PAs are inaccessible during the rainy season (June to September).

Vital statistics were not available for Gumer alone but, in 1994, for the zone the infant mortality rate was estimated at 146/1000 live births, 46 percent of child deaths being due to diarrheal diseases, pneumonia and measles most of which can be prevented or cured. National estimates for maternal mortality indicated 700-1400 deaths per 100,000 live births. Urban hospital statistics indicated that 40 percent of maternal deaths were due to ruptured uterus, 22 percent to abortions, and 20 percent to sepsis.

Africare and its partners conducted the project baseline survey in November-December using a standard Child Survival Knowledge, Practice and Coverage (KPC) questionnaire developed by the PVO Child Survival Support Project (CSSP) at Johns Hopkins University, including some basic questions regarding maternal and child health care, nutrition, breast feeding and weaning practices, diarrheal disease control, immunization and AIDS prevention. The sampling was carried out using the World Health Organization 30-cluster sample survey methodology. The survey results provided an in-depth view of the situation as it existed at the start of the project, which has been very helpful for subsequent monitoring and assessment of project progress.

Respondents to the KPC survey were 300 women, 18 to 44 years old (mean 31.05 years), and their index children 0 to 23 months of age living in the thirty sampled clusters in Gumer Woreda. Of the 300 women, 90 percent reported that they were illiterate, while 5 percent had basic education and thus could read and write. Only 0.3 percent had some level of secondary (grade 9 to 12) education. The ages of the index children varied widely, with the mode (most frequent) being 12 months. Only one mother out of the 300 was a salaried employee. Most (77.3 percent) of

[3] Source: Statistics Authority

the mothers reported not working away from their homes, and 82.3 percent were not involved in any income generating work. Nonetheless, 55.2 percent of older children were caretakers of their younger siblings while mothers performed daily domestic and agricultural chores in the vicinities of their homes (indicating that health education messages needed to be directed at the family in general, and older children in particular). The baseline survey provided useful data from which the project could plan its intended activities. Some of its major findings follow.

Nutrition

On a positive note, more than 96 percent of the mothers were breast feeding the index child at the time of the survey, and 85 percent of the children had been breast fed within the first 8 hours after birth. Furthermore, 67 percent of the children between 20 and 24 months were still being breast fed when the survey was carried out. In other words, many mothers were practicing fairly good infant feeding behaviors on initiation and persistence of breast feeding. Findings of particular concern were that:

- Only 45.2 percent of mothers surveyed had exclusively breastfed the index child up through four months of age, and 73.1 percent did not know what behaviors would help them to keep on breast feeding their child.
- Only 37.7 percent replied that supplemental food should be added after 6 months of age, and 60.2 percent said that they did not know what the additional foods to breast feeding should be. Only 12, 11.3 and 5.6 percent knew of the value and sources of calories, vitamin A and iron rich foods respectively.
- Semisolid foods were being added to the diet of infants five to eight months of age in only 16 percent of the households surveyed, with 8.8 percent receiving plant protein enriched foods, 8.8 percent receiving eggs or yoghurt, none receiving other animal protein or vitamin A rich foods, 6 percent receiving fruits, and only 3.8 percent receiving vegetables.
- Only 35 children had growth monitoring cards, and only one of these had been weighed during the four months prior to the survey.

These findings strongly suggested the need to initiate a campaign style health education in the project area, to create adequate awareness through culturally appropriate messages based on locally available foods according to season, and to promote growth monitoring as a means of tracking and responding to nutrition needs. They also pointed out the need to train Woreda and departmental health staff on the importance and successful use of growth monitoring in relation to nutrition education.

Diarrheal disease

The point prevalence rate for diarrhea was found to be 26.7 percent. Continued use of fluids and continued breast-feeding, by the surveyed mothers to treat their children's diarrhea episodes, were significant. However, the percentage of mothers who gave or used oral rehydration solution (ORS) was negligible. The need to educate the community and particularly mothers on home treatment of diarrhea and the use of ORS and home based solutions were obvious. Training of woreda and zonal professionals, after needs assessment, would require a workshop on diarrhea management. Training would need to include how to conduct and perform effective, performance-oriented supervision of outreach workers, i.e., CHAs and TBAs. The project would need to develop and distribute simple pictorial health education leaflets. TBAs and CHAs, as community outreach agents, would need to be trained to promote and provide health education on increasing both fluid/breast milk and food during and right after a diarrheal episode, use of home mixed ORT (SSS), proper dietary management of diarrhea and appropriate referral of serious cases. Improved basic sanitation was also needed. Collaboration would need to be explored with non-health-sector and governmental agencies involved in food production, water resource development, and sanitation.

Immunizations

The survey revealed several important findings, namely that:

- The full immunization coverage rate for children aged 0 to 23 months in Gumer before the project was only 0.3% (3/10ths of one percent), with none of the children under 12 months of age fully immunized (the denominator for children 12-23 months of age was 122, and that of children < 12 months of age was 178).
- BCG coverage for children 0-23 months was only 26.3 %; DPT1 and OPV1 coverage rates were only 23.0 percent and 25.7 percent.
- DPT3 and OPV3 rates documented by cards for children under two years of age were 31 % and 44 % respectively.
- Measles antigen had been administered to only 23 % of children 12 to 23 months old.
- Mothers lacked knowledge about when and where vaccinations were offered, and what vaccinations were needed.

These findings explained past outbreaks of vaccine preventable diseases such as measles, pertussis and polio and indicated that such epidemics would continue unless major efforts were made to increase levels of parental knowledge, community action and child immunity through immunization. Good health education and tracing of defaulters would be crucial for overcoming the problem. This meant that the project, in collaboration with the zonal Health Department, would need to develop a training curriculum on how health workers could best improve upon the health education that they provide to mothers. The project would need to recognize that the training of community health workers (CHAs and TBAs) at the peripheral level, if properly conducted, could be a key point for the EPI health education. A close working relationship with the Departmental health educator would be crucial for establishment and successful performance of sustainable immunization centers at outreach and static sites, in order to attain national EPI objectives. It was concluded that the project should increase the coverage level found during the baseline survey, and focus on fully immunizing a child before his/her first birthday.

Maternal care/family planning

The baseline survey indicated how at-risk mothers were in the project area, providing a compelling reason for a strong maternal care component:

- None of the 300 mothers had a maternal health card.
- Of 27 mothers with a tetanus card, 5 had only one TT vaccination, and 22 had two or more TT vaccinations.
- While 36 percent reported that they had visited a health site for antenatal care, none of the 300 mothers had actually received antenatal care.
- About 70 percent of the mothers did not know what foods were good for pregnant women in order to prevent pregnancy anemia; 93.7 percent did not know how much weight a woman should gain during pregnancy; and, 43 percent reported that the amount of food they ate while pregnant with the index child was less than usual.
- While nearly half (47.8 percent) of the 300 women surveyed did not want to have another baby in the next two years, only one mother was using a modern contraceptive method.

Africare concluded that the project should collect additional information related to the family, female fertility and sexual practice, in order to train CHAs and TBAs to be effective in: educating families about matters such as health benefits of properly spaced births and antenatal follow up; performing safe, sanitary home deliveries and referring mothers at risk; recognizing signs of complications that would require referral to a health institution; and, promoting institutional antenatal care including tetanus toxoid vaccination even when home delivery is planned.

Formulation of project targets and interventions

After carefully analyzing the prevailing situation in Gumer, project design staff formulated a set of targets that could be attained during the life of the project. Recognizing that the problems as a whole were well beyond the ability of any single organization to address at any given time, the design staff therefore undertook the difficult task of identifying the most achievable targets that could have the most positive impact on the total population, from which we identified the project's goal and objectives. The goal level target was to reduce child/maternal morbidity and mortality in the intervention areas by:

- Strengthening the technical, management, and service outreach capabilities of the Zonal Health Department's (ZHD) primary health care (PHC) program through training and material support.
- Increasing community health mobilization capacity through the strengthening or creation of Peasant Association Health Committees, and the training of community health workers.
- Establishing self-help water supply, sanitation and home gardening sub-projects.

To achieve this goal, Africare and its partners adopted the following objectives:

- To fully immunize children by 12 months of age, by strengthening of the MOH EPI system, and training community health workers (CHAs and TBAs) to educate and mobilize communities to make use services.
- To control diarrheal disease through health education by health assistants, CHAs and TBAs emphasizing prevention and appropriate dietary management of diarrhea.
- To improve maternal health through training of traditional birth attendants to improve their skills in education, delivery and referral, and through the provision of education on available child spacing methods to health assistants, CHAs and TBAs.
- To improve child feeding practices as a result of regular nutrition promotion, education, growth monitoring and

follow-up by health assistants, CHAs and TBAs.

Because the broad objectives were stated in very general terms, each had to be carefully analyzed and examined at every step in terms of feasibility, affordability and sustainability, to lay a solid foundation for continuation of interventions beyond the life of the project. Each objective was discussed and agreed upon not only with the area health personnel but also with the members of the communities, to take into account resource constraints and needs in training. MOH zonal and woreda personnel were trained to train and supervise community health workers (community health agents and traditional birth attendants).

The project emphasized improvements to preventive health services and, to a lesser extent, improvements to basic curative services. Local health committees were formed, and local authorities were educated about the importance of PHC to development. The Gumer CSP set out to offer solutions that could serve as models for other areas of the country. As a result, various alternatives were considered in the process of problem solving, to mention a few:

Training and education
For increased sustainability, the project carried out quality training of CHAs and TBAs, of substantial duration (90 days for Community Health Assistants, 30 days for Traditional Birth Attendants), followed by on-the-job supervision and refresher training, all within the first 18 months of project implementation. This created a corps of very well trained, competent, and active community health workers. CHA and TBA efforts in health education and promotion seem to have led to increased levels of knowledge and improved health practices among the target populations. In addition, by involving MOH personnel in the selection of candidates, planning, and execution of training, their capacity has been strengthened as well, and the community health workers are seen as MOH (not Africare) adjuncts. This is especially important, as MOH policy intends that the MOH will eventually support health posts and CHAs in each PA. Although both the Regional Health and Disaster Prevention and Preparedness Bureaus were very interested in seeing short-term results, e.g., ensuring that EPI rates were high, feedback sessions with them showed great satisfaction on their parts with the sustainability oriented approach taken by the project. They stated that they were very pleased with the level of cooperation and collaboration that they have had with Africare, one additional positive sign of progress in achieving the intended goals.

Community health workers
Selection of candidates to be trained as CHAs and TBAs was left to the communities. The general criteria set by the MOH for selection of such candidates were introduced, but the responsibility was left with the communities to select the right people whom they think would serve them best after training. Hence all candidates were carefully selected and properly trained. Training presented a number of challenges. The scheduling of TOT trainers was not simple, due to their other commitments. Living at training sites was inconvenient, particularly for TBAs, most of whom had left their children and family members back at home. Remuneration was a problem during the first year. But later on, as a result of discussions with the concerned bodies and residents of the project area, a sustainable system was introduced. Each household was to contribute one Birr (15 US cents) per annum, collected by the Office of Finance that collects Government taxes every year. This amount of money was sufficient to cover the salary of all trained CHAs and TBAs. Once this system was introduced, there was no single drop out by community health workers.

The Horses

Solving the problem of transportation was key to the whole process of developing community health services under the Gumer CSP. Supervisors and health outreach workers needed a reliable means of transport in order to reach the many small villages that they served. Without reliable transport, the program would fail. Several alternatives were suggested and even tried. Motorcycles, while considered good at the start, could hardly run for six months and then required huge amounts of funds for maintenance and repair. Moreover, the cost of fuel was far beyond what the health station budget could afford. The CSP managers observed from their surroundings that the local population made extensive use of horses, for all sorts of travel. The idea of using horses was not new to local administrations (historically, they had been used), but in this day and age most people prefer to have a better means of transport. At first, when CSP management proposed horses, the health workers were not pleased and they complained. A common concern was over who would care for the horses. Even so, as a trial, five horses were purchased and the health workers started to use them, perhaps too frequently and without proper care. As a result of frequent use and failure to dry saddle blankets, some of the horses developed ulcers on their backs. Otherwise, the horses served the purpose far more than expected. With training in proper care, the first purchased horses plus five new ones are now covering the entire project area satisfactorily. The cost of one horse is far less than one major service charge for a

motorcycle. In the future the health workers are considering having female horses as well breed a maintain timely supply of replacement horses when needed. The idea of coming back to the use of rses, af two decades of modern (equals "no") transport, is now being considered by neighboring woredas.

Once the above-mentioned problems were solved, only minor problems were incurred, which were not expected to interfere with future sustainability. A mention of the constraints will be made later in this paper. The midterm evaluation carried out in the third year of the project produced results which were very encouraging. Table 1 shows the planned versus achieved inputs and outputs up until the midterm evaluation, as reported in the midterm evaluation. The project has continued up until the present time, which is its fourth year. Final evaluation is scheduled to be done in a few months.

Table 1. *Planned vs. achieved inputs, and project outputs*

PLANNED vs ACHIEVED INPUTS	PROJECT OUTPUTS
Planned: Training of CHAs and TBAs. **Achieved: Done, plus refresher training**	39 trained CHAs and 31 trained TBAs who educate mothers about EPI, assist in mobilization for and implementation of EPI outreach, and carry out defaulter follow up during home visits.
Planned: Training for HAs. **Achieved: Done, plus refresher training**	Ten better trained HAs. Static and outreach EPI activities seem good quality, and coverage levels have increased dramatically.
Planned: Training for health committee, PA chairmen, and animators **Achieved: Done**	PA chairmen and HC members became very aware of importance of immunization, and reported increased use of EPI services. Some CHAs are working with village elders to increase defaulter compliance.
Planned: Increased outreach sites **Achieved: Done**	Increased number of outreach sites, and better quality outreach services. CHAs observed were extremely conscientious in counseling mothers about possible side effects and when to return.
Planned: Increase the number of health posts **Achieved: Done**	Total of 39 health posts established out of 40 planned.
Planned: Provide transportation facilities **Achieved: Mostly done.** Horses and saddles provided to all five health centers. Thirty litres/month fuel provided for Bole HS's motorcycle for outreach activities.	Increased community access to vaccination services through increased outreach. Each station uses their horse for EPI outreach. Two motorcycles bought by the project are still blocked in customs, but should be out soon. They will be for Mugo health station and the Arekit *Woreda* Health Office (sharing with Arekit Health Station.)
Planned: Install HIS **Achieved: Done.**	MOH/Project HIS was streamlined, and immunization cards were printed for women and children. Each health station and the *Woreda* Health Office were given 2 registration books. Every health station visited had current EPI figures posted on their wall.
Not planned but done: Loudspeakers were procured for each health station and for the *Woreda* Health Office.	Loudspeakers used for community mobilization and notification of EPI and growth monitoring outreach sessions.
Not planned but done: Posters about immunization for health posts and health stations	Posters displayed in all HSs and HPs. The most frequently mentioned change in the villages due to the CHAs was increased knowledge and use of EPI services. Women's awareness and knowledge of immunization seemed extremely high.

Overall achievements

Some major training and supervision activities carried out by the Gumer Child Survival Project include:

- One TOT for Zonal and Woreda health staff (2 days).
- One training of animators for census (1 day).
- Two trainings by ZHO, WHO and Africare staff for CHAs (3 months training) and TBAs (1 month training).
- Two sets of refresher sessions for CHAs and TBAs (1 week).
- One training session for Health Assistants (HAs) (1 week).
- One refresher session for HAs (1 week).
- Two sets of training sessions for Health Committees and PA Chairmen (2 days).

- Monthly supervision of health stations and frequent supervision of health posts by HS, WHO and Africare.

Some of the overall achievements as registered during the midterm evaluation are indicated in Table 2 below:

Table 2. *Planned and actual outcomes over three years*

	YEAR ONE		YEAR TWO		YEAR THREE	
	Planned Total	Actual Total	Planned Total	Actual Total	Planned Total	Actual Total
Number PAs involved	20	13	40	39	61	59
Total Population in covered PAs	90,520	52,782	186,400	180,185	291,196	281,000
WRA in covered PAs	19,914	11,612	41,008	39,841	64,063	61, 200
Children <5 years in covered PAs	13,578	7,917	27,960	27,028	43,679	40,150
Number CHAs trained	20	12	40	39	61*	59
Number TBAs trained	20	9	40	31	61**	57
Number Health Posts opened	20	12	40	39	61	52
Number of PAs with census	20	13	40	13	61	59

* Currently 59 CHA's are in place and the number of PA's reduced to 59 in the process of reorganization.
** Fifty-seven TBA's are in place.

Improving the transportation and supervision of health workers was followed by improving immunization coverage for almost all antigens. Table 3 indicates the difference in EPI coverage rates for 1994 as compared to 1997 (1998 results, believed to be higher, are being collected now).

Table 3. *EPI coverage, 1994 and 1997, Gurage District, Gumer Woreda, Ethiopia*

Vaccine	1994	1997
BCG	30%	81%
DPT	19%	74%
Measles	23%	53%

Constraints

Staff turnover

Several changes in personnel have delayed project implementation and hindered even greater achievements than the project has managed. These changes in personnel were not limited to MOH staff alone, but also Africare's staff as well. This change resulted in the delay in hiring and orienting of the Project Manager and the Financial Officer until August 1995. In the Africare/Ethiopia Office, the previous Country Representative ended his contract in January 1995, and a new Country Representative took his place. This change resulted in restructuring of the country office and temporary lack of administrative support, which in short time resulted in a more responsive administrative structure. The Africare/Ethiopia Health Sector Coordinator present during the CSP design and early implementation phases was replaced by Ato Haile Wubneh in February 1996. Two field coordinators were hired in May 1996, but one was not able to obtain an official release from the MOH, so he stopped work in August 1996 and was not replaced until December of the same year.

Delay in initiation of the KPC survey

The KPC was to have been conducted in October 1994, but it did not actually start until the end of November. As a result, the collection of data, analysis of baseline findings, the writing of the baseline survey report and the development and submission of the detailed implementation plan (DIP) were also slightly behind schedule (six

weeks to two months).

Logistical and bureaucratic constraints

Progress was slow in obtaining housing and office space at the project site, Welkite. The housing market in ite is very limited and although a house was identified, extensive repairs and modifications were required by the ect Advisor. Similarly, office space for the project was difficult to locate. Initially, the Zonal Health Office offere of their spare rooms, but in August 1995 its roof was torn off in a storm. The CSP had to locate new office spac which was completed at the end of 1995. The new office space has the advantage of being located within the Zonal Health Office (ZHO) compound, which increases ease of collaboration with ZHO officials.

There have been bureaucratic delays with the Ethiopian government, specifically the Relief and Rehabilitation Commission (RRC), now the Disaster Preparedness and Prevention Commission (DPPC), which oversees all NGO activities in Ethiopia. There were difficulties in clearing project supplies (e.g., vehicle, computer, etc.), opening the project bank account at the project site, obtaining the CSP Advisor's work permit and residency permit, and clearing health station/health post supplies through customs.

Support and payment of CHWs

Initially, some CHWs experienced low community financial support and irregular payments. These were reportedly due, in part, to recent changes in the administrative structure of some Gumer peasant associations (some peasants associations were being combined from two PAs to one PA), and also in part to recent elections that had removed many PA chairmen with whom the Ministry of Health and Africare had negotiated commitment to provide financial support for the community health workers. Some of the new peasant association chairmen became too busy with administrative changes and with ongoing tasks such as general tax collection to focus on collecting funds to pay community health worker salaries. This was a lesson learned, as a result of which a permanent solution had to be found as regards community financial support. That solution, a surtax collection system, was introduced and the problem is now permanently solved. The Ministry of Health technical field workers are thus focusing more on meeting regularly with PA chairman and community members to improve community support and ensure regular salary payments for community health workers, in addition to conducting regular technical supervision and support of health worker and health station activities. Additional solutions include: closer collaboration between health committees and community health workers to educate and mobilize the community, organization of community meetings in each peasants association, and recruitment of volunteers to support health programs and health workers. Biweekly health committee meetings at the peasants association level and monthly meetings at the health station level were instituted in several areas. Additionally, a competition was instituted among different PAs, with awards for outstanding peasants associations, community health assistants, and traditional birth attendants.

Shortage of drugs

Shortage of drugs in the health posts (HPs) remains a major problem for the peasants associations, the community health workers and the mothers. The shortage is due to undercapitalization of the revolving fund, an insufficient supply of drugs in the first phase of health post drug distribution due to inadequate supply at Epharmacor government depots, and a delay in drug resupply as most drug items were again not in stock. Some of the second cohort of health posts never received some of the basic drugs on the HP list, since they were apparently not available through the government depots. In addition, the project staff had hesitated to restock until they had collected more of the funds from the sale of HP drugs (not all of the initial stocks had been sold, and about 50-60% of the receipts had been collected). It was decided during the midterm evaluation to go ahead and obtain an interim stock of the most essential drugs such as paracetamol, chloroquine, mebendazole, aluminum hydroxide, etc., with the currently available revolving fund. This part of the activity was not well designed in the project. Africare together with its partners expect to find solutions to the problem before the end of the project.

Irregular supervision

Although the project has done a reasonable job of supervision, some weaknesses were noted. These seemed due partly to weak supervision by the health stations, as well as less than adequate overall planning by the project, and failure by MOH and project staff to proactively use the monthly HIS reports to identify potential problems. Other constraints to regular supervision include shortage of transportation for the Zonal and Woreda Health Offices, bad road conditions and long distances.

Inappropriate choice of volunteers

Although the project, together with the MOH, asked the PAs to use standard GOE selection criteria for CHA and TBA candidates, these were not always correctly applied in the beginning, nor were the people chosen as CHAs and TBAs always the most appropriate ones. This was corrected in the subsequent selections. The project staff, as well as two women inappropriately selected to become TBAs themselves agreed that they were not correct choices for TBAs, since it is culturally unacceptable for an unmarried woman to attend a delivery. Neither of these two TBAs had attended deliveries prior to, or after their training. It was agreed between project staff and ZHO and WHO staff that stricter application of certain selection criteria would help eliminate this problem in the future. Once this lesson was learned special attention was paid to selection. Of the three groups of CHW trained, only 9 CHAs out of 59, and 6 TBAs out of 46 were not working at the end of the third year. All of those who ran away were from the group that were not carefully selected. Compared to the national average which is more than 80% attrition, the Gumer CHWs loss rate is very small.

Conclusion

The Gumer Child Survival Project has introduced and experimented with limited health service programs that are manageable, affordable and sustainable, and that are expected to reduce child morbidity and presumably mortality as well. This statement may call for scientific verification, but from all initial observations the project has successfully prevented epidemic proportions of the most commonly appearing diseases that had been that causes of morbidity and mortality for the prior three years in a row. Moreover the immunization coverage improved (e.g., from 17% to 70% DPT3) and was sustained from the start of the project. The community health workers -- community health assistants and traditional birth attendants -- have joined the system of health care on a sustainable basis. They are well motivated and properly remunerated by their communities for the services that they render. As a result, the attrition rate over four years remains less than 15% both for CHAs and TBAs (out of 131 CHAs and TBAs trained, 116 are fully functional and actively engaged in their work, while earlier reports including the 1985 PHC review indicated an attrition rate of over 40% in one year and over 85% in three years). Local transportation (using HORSES) has proven to be better and affordable as compared to modern unaffordable means of transport, a point now being appreciated by the health workers who initially were not for it. Dependable transportation has been essential for outreach and extension support, and without it the success of the project would have been compromised. An approach of organized and planned type of extension health service delivery systems is now in place, as opposed to the old fashion way of working in the clinic waiting for patients to come. Health workers now know how to plan with the people whom they serve, for activities ranging from a month to a year and more. They are strictly following their planned out reach services and they are well oriented on how to involve the people and mobilize resources. The Gumer Child Survival Project has been a very successful project and serves as a model from which other rural health care providers in the country can learn.

Expanding Mother-to-Mother Support:
Lessons learned in creating and implementing a model for community-based mother-to-mother support[1]

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Abstract

Infant formula is just food, but the living fluid, called breastmilk, is food and medicine uniquely engineered for human consumption. Breastfed babies are healthier, have fewer hospitalizations and have lower mortality rates than formula fed infants.[9]

This paper, authored by representatives from La Leche League, the Mothercare Project and Wellstart International who live and work in several countries, provides a history of La Leche League International followed by case studies from Dominican Republic, Egypt, Honduras and Pakistan that highlight different critical program aspects such as training, IEC materials development, and supervision. The success of La Leche League derives in part from its focus on motivational and behavior change strategies that are more broadly applicable beyond breastfeeding and weaning. La Leche League provides a model that offers NGOs concrete guidelines for working at the community level. The paper discusses the spread (to over 60 countries) and sustainability of the LLL program, and provides an extensive list of lessons learned.

Introduction

In spite of centuries of knowledge of many of these benefits, by the Second World War, the cultural processes that worked against breastfeeding as a normal in both mothers and babies, in the industrialized world, had already produced a large number of women with little or no knowledge of how to breastfeed.

In 1956, only 18% of the women delivering in the US ever even started to breastfeed. That was the year when seven mothers in a suburb of Chicago, Illinois agreed to share their stories of how they had successfully breastfed their babies with their friends and relatives. These women founded La Leche League, which has grown from the original seven women to over 32,000 volunteers in the course of its 40 year history, becoming one of the most successful international voluntary organizations in the world, with volunteers in over 60 countries.

This same movement, in both the US and other Western European countries, was largely responsible for the upswing in breastfeeding rates beginning in the 1960s. Even today, in European countries, breastfeeding rates are higher in those countries with strong mother-to-mother support movements such as the Scandinavian countries, than in those countries with no or small mother-to-mother support movements, such as the countries that border the Mediterranean.

La Leche League International (LLLI) was the inspiration for almost every other important community breastfeeding organization throughout the world and has been a vehicle for empowering millions of women to happily and successfully breastfeed and wean their infants in an appropriate manner, often against seemingly unsurmountable odds.

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[9] Baumslag N, and Michels DL. 1995. *Milk, Money and Madness*, London: Bergin and Garvey.

How did this remarkable spread and sustainability come about? Certainly not through the expenditures of large amounts of public and private monies. Women are, as Gabrielle Palmer so appropriately states, the "half of the world's people who are the least wealthy and the least powerful."[10] Even today, to manage a worldwide organization of over 8,000 active volunteers, LLLI has an operating budget of approximately $3,000,000.

La Leche League model of mother-to-mother support

What made the success and spread of mother-to-mother support possible were the basic features of the LLLI model. A woman comes into a "community" and experiences group interaction and one-on one counseling in an environment of support, respect, interest and appreciation. She interacts with her counselor/mentor, who is a peer. This support person is guided by a methodology that facilitates information sharing, reflection on her own and others experiences, mutual support, the free articulation of doubts, positive reinforcement and a non-judgmental attitude in the face of negative practices. In this model, all of these features interact to empower a woman to analyze and make decisions in her own and her children s interests not only on breastfeeding but in other areas of child rearing (care, complementary feeding, discipline, education, etc.) and on their own self-care and reproductive health. (See Annex A for a visual example of how this process develops in a first meeting).

As a woman moves through all of the basic steps toward behavior change,[11] she becomes an apprentice in the methodology, with her peer/mentor who will prepare her and support her. This training is one-on-one, or occasionally in small groups of women and may take a year or more.

Although the LLLI model is quite sustainable, the way spread occurs is through actual physical movement of a leader or someone in contact with a group who continues the relationship with LLLI (through letter writing). In fact, the spread, outside of Chicago, outside the US and to the developing world, went on in just that way and enabled the development of an apprenticeship/mentoring system that begins with the first visit to the group and continues as long as a woman is active in LLLI, even as she herself prepares new leaders.

Even today, a system of monthly evaluation meetings or the preparation of monthly written reports with fairly immediate, practical and pertinent feedback motivates leaders, increases their self-esteem and keeps them in contact with LLLI, no matter where in the world they are. These reports may be via e-mail today, but this system of supportive supervision is still at the heart of maintaining the organization.

Influence of LLLI in developing countries

It comes as no surprise that the first leaders to work in the developing world were either foreign nationals who had been in the U.S. or U.S. citizens living abroad. LLL in countries such as Mexico, Brazil, Argentina, Honduras, Bolivia, Argentina, Ecuador, the Philippines and Guatemala began this way. The members were middle and upper-class women in those countries with telephones and cars that made possible the kinds of meetings and telephone counseling of the U.S. model. Some of these women began to work in public health projects. The first projects receiving funding (CALMA [Centro de Apoyo a la Lactancia Materna], in El Salvador, with funding from USAID through La Leche League International and PROALMA [Proyecto de Apoyo a la Lactancia Materna] in Honduras) were not mother-to-mother support projects. However, La Leche League leaders were involved in their development and implementation.

PROALMA was a hospital based project, and stimulated many important and sustained changes in public health and medical practices in Honduran hospitals, such as ending the routine use of infant formula and establishing rooming-in as public policy. Most importantly, these changes were associated with a reversal of a downward trend in breastfeeding in Honduras that is still sustained.[12]

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[10] Gabrielle Palmer, 1988 *The Politics of Breastfeeding*, London: Pandora.

[11] Johns Hopkins University, Population Communication Services: *Steps to Behavior Change (SBC)* Abstract available at: *Steps to Behavior Change* http://www.jhuccp.org/r&e/sbc.stm. The steps include: *knowledge* (recalls specific messages; understands what messages mean; can name products, methods, or other practices and sources of services or supplies), *approval* (responds favorably to messages; discusses messages or issues with members of personal networks such as family or friends; thinks family, friends, and community approve of practice; approves practice), *intention* (recognizes that specified health practices can meet a personal need; intends to consult a provider; intends to practice at some time), *practice* (goes to a provider of information, supplies or services; chooses a method or practice and begins use continues use), *advocacy* (experiences and acknowledges the benefits of practice; advocates the practice to others; supports programs in the community).

[12] In 1982, when the program began, only about 80% of the women in urban areas ever initiated breastfeeding. A baseline study in Tegucigalpa indicated that 68% of the women delivering in hospitals offered bottles with artificial milk on the first day of life, provided by health personnel. The use of other milks increased to 75% by the end of the first month. In 1981, the average duration of breastfeeding in urban

Community-based models

La Leche League had an influence on many of the concepts of these two programs, but neither of th· vere able t· develop community-based models that would achieve appropriate feeding practices during the entire · riod of infancy and toddlerhood (exclusive breastfeeding to about six months and continued breastfeeding with appropriate, adequate complementary foods to at least two years of age).

At about the same time, in the north of Brazil, a La Leche League leader set up a series of "nursing mothers groups" with a Brazilian Welfare League, with support from UNICEF, that did develop with LLL methodology but, the model was not well documented.

In 1988, interested in the possibility of the creation of a community-based model, USAID awarded a child survival grant to La Leche League International to set up pilot projects in Guatemala and Honduras for the formation of community-based breastfeeding advocates. When both of these groups started their work, there were no indicators, programmatic guidelines, nor any benchmarks that would help define, monitor or evaluate a community model of breastfeeding support, develop sustainability or apply most of the other elements familiar to CS programs. There was limited interest at the Ministry of Health and at the Honduras USAID Mission in supporting this "radical" experiment.

The basic experiences both groups had to draw upon was that of LLLI in mother-to-mother support and of the leader, Rebecca Magalhaes, who had been working in Brazil and, back in the US, was hired by LLLI to monitor the project.

In spite of all of the advantages of breastfeeding and how basic and fundamental it is to child survival, it was, and probably still is, an intervention that had to be "proven" in terms of its programmatic worth. The influence of bottlefeeding seems to be so pervasive that there does not seem to be an immediate appreciation of the drawbacks of a child survival model when breastfeeding promotion, protection and support are not included with the same emphasis as are the other elements of child survival. This is quite different from the clarity that exists about the importance of ORT or immunization.

There was, and probably still continues to be a great deal of scepticism as to the efficacy of including an important focus on breastfeeding in child survival interventions because many program managers have already had experience in what they consider "breastfeeding promotion" (the repetition of some of the advantages breastfeeding) without much success. To respond to this challenge and to produce a programmatic intervention, it has been necessary to create all of the communications, programmatic, training, supervisory and evaluation elements that would allow the construction of an integrated model attuned to the needs and possibilities of urban-marginal and rural communities without sacrificing the best features of the original LLL model.

Also, as a child survival project, it was necessary to develop strategies for integration into other interventions (child survival, reproductive health, food security, micro-enterprise, etc.) and how to "spread" the program and scale it up. Thus, both LLL groups were immediately confronted with the challenge of how to make possible the programmatic reproduction by PVOs and government institutions at national and local levels in developing countries.

When LLL/H began its work, in 1989, there were six La Leche League leaders in the country and no community breastfeeding counselors. Today there are over 1,400 counselors that have been directly trained by LLL/H and countless others who have been mentored by these counselors in a variety of organizations, including public health community volunteers, church groups and NGOs.

According to the 1987 Honduras National Health and Demographic Survey, approximately 20% of the infants under four months were exclusively breastfed. The 1996 Family and Reproductive health Survey reports that over 40% of the infants under four months of age had been exclusively breastfed at the time of the survey[13]. It is quite possible that this increase is related to the presence of community-based volunteers who build on the basic hospital

areas was less than 5 months. (Huffman,SL et al, *Breastfeeding Promotion in Central America: High Impact at Low Cost.*) Unpublished data from the 1996 national health survey reports that the average duration of breastfeeding in urban areas had increased to over 12 months and in Tegucigalpa and San Pedro Sula, where there has been far more breastfeeding promotion and support than in other areas of the country, the average duration was over 14 months. (Ministry of Health, USAID, CDC, 1997, Draft tables, National Health Survey.

[13] MOH, Family Health International and USAID, National Health and Family Survey (ENESF) and unpublished data from the 1996 health survey (MOH, USAID, and CDC).

experience, but the necessary research has not yet been carried out.[14]

Developing the methodology

The processes that LLL/H developed were not drastically different from most other child survival processes. The organization carries out a consciousness-raising activity in the community, discusses the profile of the type of volunteer required and then offers training and follow-up to volunteers with the required profile[15]. The volunteers map their communities, have families assigned to them and report monthly on behavioral indicators related to breastfeeding and family health. What differs from some of the other child survival interventions is the methodology employed in the training and taught to the volunteers and the content of the training, much more heavily focused on infant feeding, particularly breastfeeding, the introduction of complementary foods and maternal health and child development (See Annex B for a Table of Contents of the *Training Curriculum*).

As LLL/H developed its intervention, other NGOs made more and more requests for training. Consequently it was forced to confront the need for documenting its methodology, because, although resources may have been available for first-tier training, there was not sufficient staff for provision of follow-up or additional training of trainers.

After 1992, when the LLLI child survival grant finalized, LLL/H had to develop strategies for funding its staff. The organization had applied for funds from the local USAID mission to be able to continue its training of other NGOs and its follow-up to women in the community. While waiting for these funds, LLL/H had the opportunity of receiving support from the newly integrated USAID/Wellstart Expanded Promotion of Breastfeeding Project (EPB).

With the support of Wellstart EPB, LLL/H was able to document its training content and methodology. Methodologically, the curriculum is developed to enable training by trainers who are neither content, nor training experts and in this way, it is adaptable for use by non-health personnel and by groups that have not had breastfeeding support as part of their experience. (See Annex C for an sample topic from the curriculum). Although not entirely necessary, if trainers have a great deal of experience in highly participatory training, it is recommended that the master trainers receive a TOT in the use of the curriculum and, after receiving this training, they "adapt" the practicums to their local conditions.

The curriculum has 12 modules and takes approximately 40 hours to teach. It is predicated on the basis of investing more, not less, time in the training of groups with little formal schooling. The methodological assumption is that there needs to be even more participation when people cannot consult books. In this way there is more possibility of fixing knowledge and adopting new patterns of behavior. These processes take more time than more traditional "banking" teaching processes that focus on knowledge transmission rather than the acquisition of new skills. Action planning and follow-up are included in the training.

As the demand for more training grew and as EPB considered the implications of community based interventions, it became clear that there were other pieces necessary to be able to take the Honduras experience to other NGOs and other countries. The Wellstart *Community-based Breastfeeding Support* Trilogy grew from these experiences and from discussions, observations and research on other organizations carrying out breastfeeding support.

The *Curriculum* is supported by a *Guide for Trainers and Supervisors* (see Annex D) that assists trainers in the use of the methodology and in how to provide supportive supervision and mentoring. The trilogy is completed with *A Planning Manual*, which assists groups that have not had experience in working at the community level in breastfeeding promotion, such as health personnel, NGOs with a general child survival focus, etc (see Annex E) or breastfeeding organizations planning community interventions.

These manuals are the results of experiences that were initiated in the CALMA program, continued in the PROALMA program and were more fully developed in the USAID La Leche League child survival community program for breastfeeding advocacy in Honduras and Guatemala and finally as part of the Wellstart/USAID Expanded Promotion of Breastfeeding Program (EPB) between 1991 and 1996.

[14] In 1995, USAID supported a base-line survey in two health areas of the country. One received the community-based training intervention and the other had only hospital training. The follow-up survey was to have taken place in early spring, 1998 but severe limitations in LLL/H funding that could have been used for follow-up has raised questions about whether coverage is high enough to warrant a full-scale survey At present, some limited monitoring is being analyzed in order to develop a strategy as to what to do.

[15] In the case of LLL/H, mothers who are now breastfeeding or have recently breastfed a baby, who have a desire to help their communities. Recently, basic literacy has been included as a requirement, but initially this was not included. The profile is developed in consensus with the community.

As the trilogy was written and when it was finalized, the materials were tested, adopted and adapted by community groups, both La Leche League and non-La Leche League in Mexico, Guatemala, Dominican Republic, Peru, Bolivia, Honduras, El Salvador, Nicaragua and Pakistan. Some of the organizations have been involved in child survival projects, some have not been.

Diskettes with the entire trilogy in Spanish and English were widely distributed at the end of the EPB project, in 1996, along with at least one hard copy per organization or country. Since the end of the EPB program in 1996, the materials and methodologies have continued in use in many of these places and their use has also been initiated in Argentina, Uruguay and South Africa.

Five case studies

All of the organizations that used the materials were contacted to report on what has occurred as a result of the use of the materials and the lessons learned. The following short case studies summarize the responses that have been received to date.

1. IEC materials development: Pakistan

In Pakistan, the Asia and Aga Khan Foundations funded the Pakistani National Initiative (PNI) to support NGOs in promoting child survival. As part of this initiative, the Wellstart/EPB program was asked to assist in developing IEC materials and adapting the LLL/H community breastfeeding training curriculum. A consultant from LLL/H with a great deal of experience in support group and counseling methodology was asked to train lady health workers and doctors in the use of the IEC counseling cards. In order to avoid modeling the use of counseling cards as an instrument similar to a flip chart, the consultant worked on participatory methodologies (taken from the *Guidelines for Trainers and Supervisors*) with five of the NGOs that were part of the initiative. One follow-up visit was carried out to monitor use of the cards and the use of the adapted curriculum.

The Mothercare resident advisor, who has been providing support to five NGOs in the PNI who had received training reported that they had continued to revise and pre-test the Urdu curriculum (adaptation of the LLL/H training curriculum). All of the five NGOs have started the support groups but none of them are well established. However one has now received a grant and it may be possible to give them direct support for implementation. Each of them had prepared their training plans for the first and second tiers of , but only a few have implemented it. These NGOs were working basically on their own.

There was a male doctor in the first group of trainers who was the first trainer to form a group of community-based trainers. During the follow-up visit to Pakistan, the consultant observed a support group facilitated by one of the lady health workers trained by him through his NGO and, although the discussion took place in Urdu, it was clear that all the women were participating, from the very young to the very old. There was lively participation in spite of all of the warnings that the consultant had received about the reticence of Pakistani women in talking about intimate matters and the even greater reticence about such conversation in the presence of a male.

When asked about the most important impact of the new methodology, the response was:

- "What convinced us was [its] ability to build the self-esteem of the trainers themselves who are a product of the same society where women are supposed to take a secondary role. Also for years they have been in trainings or have been conducting trainings in the same way didactic way."
- "While training the NGO trainers to do formative research it was much easier working with this group than with the professional researchers and subject specialists that we worked with when we were doing the last breastfeeding qualitative research."
- "The trials in the formative research, which were also based on the counseling technique and its success has now convinced [all] of the NGO health workers [involved] that counseling in nutrition can bring about changes in practices. In the trials, out of the mothers who agreed to follow the recommendations, nearly 80-95% mothers actually tried them."

At present, there seems to be some possibility that the Pakistan National Initiative (PNI) and UNICEF may give support to the NGOs involved in order to facilitate developing support groups.

2. Training strategy: Dominican Republic

In the early 1990s, La Leche League of the Dominican Republic began training community volunteers in breastfeeding, in a small town outside of Santiago, with the help of the Peace Corps. They visited the town once a week for seven months. Some women traveled up to five hours to come to the group meetings. They had one class on support groups in the training course.

In 1993, LLL/RD received funds from UNICEF to train two staff members from each of 25 hospitals to carry out support groups and, in turn, train 10 community volunteers to work at the community level in order to carry out the community support called for in the final step of the Baby Friendly Hospital Initiative[16]. In 1994, at the time that Wellstart was asked to support this process, the Community Curriculum was finished and the other two volumes on planning and training, and on supervision were in the process of development. Thus, the experiences from this technical assistance also enriched the development of the Community-based Support materials.

The original request from the mission was for assistance in developing a breastfeeding training strategy for NGOs working in child survival. After three visits to attempt to develop the strategy, the only point of agreement between Wellstart and the USAID mission staff was on the need for assistance in the adaptation of the Honduras community training curriculum.

The group that was involved in adapting the curriculum was multi-disciplinary from public sector, the community and NGOs. The first step was to provide a TOT in counseling and facilitation skills. With a basic understanding of the methodology, six work groups were formed and each group received two chapters from the manual for adaptation. After the adaptation process, which took several months, a 5-day workshop was held to form a group of master trainers from LLL/DR, and other NGOs, in the use of the community curriculum. As the final part of the workshop, training strategies were developed.

Although the mission did not continue to support this activity with the other NGOs, UNICEF continued to provide limited support to LLL/DR for training and follow-up. Three years later, a request for an update provided the following information:

> "We have not carried out formal follow-up but have continued to have contact with the people that we have trained. We know that the trilogy is valuable because:
> ✓ The entire group can study it. It is in Spanish and is accessible to everyone.
> ✓ The content is excellent.
> ✓ It is easy to use and manage.
> ✓ It is up to date.
> We use it in all of our workshops. It would have been very difficult to have worked without it because our work was wide-spread and we had to train several counselors in each group. Even if we could all read English, I have not seen a manual that is so complete and detailed on each topic and with information so easy to find. I am now studying a series of texts in order to prepare to become a lactation consultant, but none of them covers all of the topics with such clarity, with visuals ready for overheads. When we need to do a workshop, we grab the manual and there it is. If it hadn't existed (I don't even want to imagine this), each country would be reinventing the wheel, more work, more time, more wasted resources."

3. Child survival - training of trainers: Honduras

A CARE group in Honduras has support for a child survival project in conjunction with Project Hope and three health centers in Tegucigalpa. At the beginning of 1998, LLL/H was contacted by the CARE staff to assist them with a TOT in breastfeeding as the midterm evaluation had shown that exclusive breastfeeding had declined over the baseline. There was concern about not being able to achieve this part of their child survival objectives. CARE and Project Hope staff were somewhat reluctant to participate in yet another breastfeeding training course, thinking that there was little more that could be done to mobilize the community or the health center.

The TOT included demonstrations of conscious raising sessions with staff of the three project health centers, a TOT for CARE, health center staff and volunteers, and practice at a general hospital. The training course was nine days long. There were five days for counseling and facilitation training. The group realized that there was a great deal of new information and requested additional training in breastfeeding, with the new methodology.

After a month, the trainees began to use the methodology in the health centers. In situations where there was support from the administration, they made some headway. However, in other health centers where there was resistence

[16] See 10 Steps for Successful Breastfeeding, Annex F.

from the top management, they were not able to initiate work. CARE had expected resistence from the community when originally contacted, but they had not expected lack of support from top management.

Some of the results of the use of the methodology are:

- During a consciousness raising session, a doctor stated: "I expected a boring talk as are usually given and I was thinking about how I could leave after an hour. Really, I didn t expect that I would learn so much about my fellow staff members at the health center or that I would learn anything about breastfeeding."

- Glenda, a volunteer and president of her neighborhood association, was involved in the counseling and group facilitation workshop. When a serious problem developed in her neighborhood association, she asked for the group s help. Using the methodology, she resolved the problem. She said that she had learned that she needs to listen and to ask what is happening so that the others can express their concerns instead of jumping right in with an explanation or justification. After that discussion, she acted on her own reflection.

- Ana, a mother of two adolescents, just married for the second time, was having serious problems with her children who did not accept their mother s new situation very well. As Ana learned the new techniques for counseling and facilitation, the relationship with her children began to improve and the children noticed. At the end of the training course, the children came with her because they wanted to see the people who had helped her so much.

- During the final evaluation of the CARE workshop, the participants stated that they had thought that spending two and a half weeks with *one* workshop facilitator would be boring, but that with this methodology, the trainer was really a group member who may participate a little more than the rest of the group and the activities were so varied and the discussions so lively that they really hadn t felt that they were in a "training session."

- The volunteer counselors from CARE said that "they had never been involved in any training session where they had felt so much freedom to speak, we are the same as all of the group members". They referred to the professional nurses who were part of the group, but who, in this new relationship, did not make them feel inhibited about expressing their thoughts and opinions.

4. The adaptation of the "Trilogy" in Egypt: A health revolution in the making

Wellstart International is providing technical support to the Ministry of Health and Population's (MOHP) National Breastfeeding Program through a USAID-funded, four year grant. As part of this technical support collaboration, Wellstart is facilitating a process of expanding the National Program to include more community outreach and mother-to-mother support elements, particularly in target governorates in Upper Egypt.

This work is being carried out in collaboration with local NGOs and Wellstart felt that the best strategy for assuring the commitment to the training of community workers would be to adapt the trilogy for local use. The adaptation process included the following steps:

1. Review of the Trilogy by the technical staff in Egypt involved in breastfeeding training.

2. Adaptation of the *Guide for Trainers and Supervision* to Egypt. Although initially the core Wellstart group thought that many changes would be needed in the case examples in the guide, when the cases were reviewed by Egyptians, not as much change as expected was required for them to be culturally acceptable in Egypt.

3. The Wellstart Staff, Egyptian and U.S.-based, adapted and incorporated specific portions of the Planning Manual to develop a monitoring/evaluation system that includes two checklists (one for counseling and breastfeeding and one for support groups) that will allow monitoring and evaluation of these activities.

4. A training strategy was adapted from the Planning Manual that includes: (a) training of supervisors/trainers of the collaborating NGOs by master trainers by the director and master trainers of the National Training Center; (b) training community workers by the supervisors/trainers; (c) counseling and educating mothers by the community workers (at least three of the NGOs will try the support groups).

5. The draft was fine tuned and the entire curriculum was translated into Arabic. The master trainers have already been trained.

Outcomes to date include:

- Strengthened community-based primary health care services through integration of breastfeeding and related topics into the existing outreach, counseling, education and IEC activities of participating institutions including Ministry of Health and Population (MOHP) and NGOs.
- Improved generic supervision, counseling and support skills of participating NGOs and community development associations.
- Development of an effective networking and referral system involving NGOs, community development associations and the MOHP service providers and facilities in participating governorates.
- A transformation from the traditional practice of "recommendations" to a new and more effective method of interaction and support for Egyptian families.

Finally, through the process of adaptation, it was possible to create a sense of ownership among the participants and to convince even the most conservative, traditional health professionals the understanding that led to the need to have the professional "master trainers to be involved" in a community intervention.

5. Supervision: Honduras

The Ministry of Health of Honduras is developing a series of community hospitals as maternity centers. One of these hospitals is the former general hospital in San Pedro Sula. The Pan-American Health Organization has been supporting the process of transforming this hospital into a low-risk maternity center. In March, 1998, a volunteer nurse-midwife visited the hospital to assist the staff in improving their care in labor and delivery. LLL/H has been supporting this hospital over a number of years and an LLL/H volunteer accompanied her during the visit.

During that week the two volunteers worked with the staff on humanizing birthing support and developing skills in immediate post-partum breastfeeding. The LLL/H consultant also discussed with the staff how to support breastfeeding postpartum. She was asked if she could give them some practical support. It is important to note that the nurses in the hospital have ALL been trained in breastfeeding content. The nursing school includes a great deal of breastfeeding content. In Honduras, the staff of many hospitals and health centers think that they have already learned ALL they need to know about breastfeeding.

On the first visit to the maternity ward, a nursing auxiliary was observed "counseling" a mother. She was telling her, in a scolding tone :"You should breastfeed the baby. Breastfeeding is good not just for the baby, but its good for you too. But the trouble with all of you is that you don't take care of yourselves." This was considered an important motivational message. When the nursing auxiliary saw the midwife and the lactation consultant who were coming to work with the staff, she turned to them and said: "We tell these women what they need to do to take care of themselves, but they don't do it, they just don't do it!"

The staff received about 20 hours of in-service training in about a two-month period. After an absence of almost a month, a group of nursing students with a doctor were observed helping a very anemic just-delivered adolescent mother. The mother was not able to breastfeed because she had no strength to hold the baby to the breast and because she felt dizzy. The students brought her some orange juice to give her energy to be able to hold the baby. They gave the mother a great deal of physical and emotional support, even fashioning a sling to help the mother support the baby. The doctor on the ward reassured her that they would keep her in the hospital until she felt better and was able to breastfeed her baby. The consensus of opinion after that experience was that the staff needed to meet more often to learn how to truly support the mother. That is, they wanted to have a formative supervisory experience. Other staff members are prepared to provide that experience through the use of the methodology.

At the same time, they were not aware that their behavior had, indeed changed and that they *were* supporting the mother. Prior to that, perhaps they might have expressed the importance of breastfeeding for recovery from blood loss postpartum, but the mother would have been left alone to cope with her problem. And the response of the staff would have resembled the scene observed on the first day in the ward.

Some additional results of the workshops are:

- The methodology helped raise the consciousness of the staff of the maternity ward and now they will not discharge the mother if breastfeeding is not established. The group works together as a team to support mothers with problems.

- The outpatient clinic sees a large number of adolescents. The Head Nurse wants her staff to be trained in counseling and facilitation to be able to have support groups and deal with a series of topics with their clients: family planning, childbirth, pregnancy, breastfeeding.

- A union leader from a hospital considered that the methodology was so important that she recommended it to her brother, a district supervisor for the Ministry of Education as a way to help him foster self-esteem and a sense of participation among the teachers in his district.

Lessons learned

In an earlier paper[17] lessons learned in planning, implementation, training, supervision and monitoring and evaluation were summarized. From the follow-up and new experiences using the materials in the last two years, there are some lessons learned that may be considered when planning for behavior change for child survival.

Behavior change
- The adaptation of the Trilogy, in and of itself, initiates the process of behavior change.
- The process is assisted when adaptation and training workshops are facilitated in the same manner as support groups to model the way that facilitators, trainers and group members should interact.
- Modeling and practice of this "new" approach is essential to changing traditional training techniques and behaviors.
- It is important to included time for action planning as part of the adaptation/training process.
- Action Planning allows reinforcement of the behavior changes and is essential to keeping momentum and avoiding the re-establishment of old habits and concepts.

Sense of ownership and motivation
- The process of adaptation, interaction and reflection is fundamental to the adoption of the new methodology. Actors need to develop their own cases, from their own experiences, based on the models in the Trilogy.
- All of the actors, both from formal health institutions and NGOs, participating in this work are enthusiastic, appreciative and motivated to continue the work, in many cases, without financing.

Methodology
- The Trilogy lends itself quite well to modification and adaptation because it is the PROCESS that is is utilized, rather than particular words or sections.
- It is not necessary to have had prior experience as a mother-to-mother support group facilitator to be able to master the methodology.
- Individual counseling needs to be promoted and taught. It is vital to follow-up on problems identified in the group sessions. Additional practicums may be developed to reinforce this process.
- When action plans for community interventions and communications materials are developed, counseling and group facilitation training should be carried out BEFORE developing the plan or material.
- Mother-to-mother support can take place in any group setting without it being specifically focused on breastfeeding, as long as the format is open and participatory, so that group members, not facilitators, own the meeting.

Need for behavior-based indicators to monitor change
- The Planning Manual offers help in developing outcome indicators, but these indicators are not the existing child survival breastfeeding indicators, which are not based on behavior.
- There may be need to integrate new indicators to ongoing baseline surveys in order to be able to monitor change.
- Nutrition indicators should be behaviorally derived.

Importance of support for the methodology at managerial levels
- NGOS need to devote more time to the support groups, but they have a lot of other work to do, so they have little time to train facilitators, conduct or supervise groups.

[17] Wellstart International, 1996, Nurturing Our Communities: Lessons Learned in Community Outreach in the Latin American and Caribbean Region.

- When MOH and NGO managers have been part of the adaptation and training process, they are more supportive and committed because they understand the value of the methodology.
- Using the methodology, it is possible to develop this consciousness in a one-day session or even less.

Possibility for scaling up

- The model can be used for scaling up. The only limitations are personnel for supervision and follow-up. *The Guide for Trainers and Supervisors* is useful for training volunteer supervisors.

Quality of care

- Staff's own personal difficulties, when unarticulated, often affect their work. However, until given the opportunity to reflect on this situation, they are often unaware that this is happening or the role their own personal lives are playing in their work.

- Staff need to understand that this type of methodology takes time and energy to develop, along with the supervisory time necessary for effective feedback. However, the use of a supportive facilitation and counseling methodology results in more sustainable changes, not just while the intervention is going on.

Communication

- In learning to listen, staff learns that messages need to target key behaviors that impede optimal infant feeding in contrast to the general messages about the advantages of breastfeeding that they were accustomed to.

- Confrontations can usually be resolved on the basis of asking questions and using active listening.

- Staff often thinks that it is enough to know the content area, but have not reflected upon the need for a methodology for transmission of this content. When they are frustrated in their attempts to transmit their messages they blame the clients, rather than reflect on their communication methodology.

Supervision

- Supervision at the community level should focus on the motivation of staff and volunteers, not be conceptualized as control or criticism.
- The methodology is useful for all kinds of supervision and checklists for supervision can be developed as part of the adaptation and training process based on generic models in *The Planning Manual.*

Impact of support groups

- Support groups are low-cost vehicles for many kinds of health promoting activities
- Research indicates that support groups enhance the effect of interpersonal counseling

Wider applicability of the methodology

- The methodology is applicable to any situation of life, and not just breastfeeding.

Conclusion

If the theory of behavior change has five processes involved, in order to assure that a given population will actually change behavior, each one of these steps needs to be addressed.

In nutrition education in general and breastfeeding promotion and support in particular, (with some notable exceptions, such as the "Hearth" model[18]) the message is given, but there is no immediate search for feedback to ascertain if the message has actually been absorbed and the changes made. Approval is heard, but doubts are not investigated to determine needs for clarification or additional knowledge. Intent is not focused on, nor is practice modeled or monitored. Finally, there are no well documented methodologies in nutrition education that transform practicing communities into advocates for their new practices.

[18] Presented by Gretchen Berggren in Session 4, Nutrition Improvement and Child Health: Involving the Community. Eighth Annual Hunger Research Briefing and Exchange, Brown University, 5-7 April 1995.

Support group and counseling methodology speaks to people on all of these levels. In particular it deals ith a life crisis situation in which women are forced to learn new behaviors rapidly, often without models. In the safety of the group, they can learn, question, observe, clarify, model and practice. As they move through the stages of learning how to raise their new baby as he/she moves through infancy and to toddlerhood and beyond, they have the support of a group of people who understand and care for them and can help them find information when they need it.

All community volunteers need support, but the support group methodology helps people to become sensitized and open, which assists them, in turn, in becoming more committed to their community work in general and in particular to each of the mothers that the volunteer cares for.

Counseling and facilitation methodology provides a means for offering that needed support and helps the volunteer to feel that she, in turn, is cared for by the institution to which she is providing service.

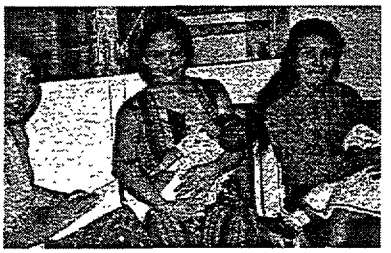
The lessons learned from the experiences in implementing the methodology developed from the USAID Child Survival grant provided to La Leche League International indicate that the model developed is one that can be exported to other organizations and can be scaled-up. It is a model that offers an NGO concrete guidelines for working at the community level and for producing sustainable behavior change in the parents of infants and young children.

Annex A - A training group experience in Honduras

1. Nurse-facilitator introducing herself and explaining what will take place.

2. Facilitator reading list of appointments by name. Observe Sonia on her left.

3. Mothers are "sharing their stories" and mothers who are exclusively breastfeeding are being reinforced. Sonia is unsure of how her story will be received.



4. Facilitator congratulates Sonia on her baby and asks her whether she thinks she could continue with exclusive breastfeeding until six months and then beyond six months with complementary foods. Trainer is drawing on the experiences of other mothers in the group to reflect on the meaning of "only breast for six months". Sonia accepts the experience.

5. Sonia happily responds that this is easier and confidence and trust begin to develop

6-7. In these pictures, a nurse with two asthmatic children is talking with a mother who is nursing her 18-month old who also has asthma. At the beginning of the discussion, the mother is ashamed that her 18-month old is still nursing and is explaining that the baby feels more comfortable when breastfeeding so she continues in spite of all of the criticism from the neighbors and relatives. With the nurse s positive feedback, in which she explains that when children are ill, they need the comfort that breastfeeding can provide and talks about her own experiences, establishing a bond with the mother instead of the distance an impersonal response would create.

Annex B

Table of Contents: Triology *Training Curriculum*

Community-based Breastfeeding Support: *A Training Curriculum*

July 1996

A collaborative effort of:

Wellstart International s Expanded Promotion of Breastfeeding (EPB) Program (under Cooperative Agreement # DPE-5966-A-00-1045-00)

U.S. Agency for International Development (USAID)

Nurture/Center to Prevent Childhood Malnutrition

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Annex C

Module 1
Breastfeeding Support Groups

Note to the trainer: Before beginning the session, arrange the chairs in a circle to encourage group participation. To facilitate interaction the participants, you should be a member of the circle.

I. Objectives: After completing this session, the participants will be able to:

A. Definite the concept of a support group;
B. Describe the characteristics of a breastfeeding support group;
C. Explain how to organize a support group; and,
D. Apply the methodology that is used to conduct support groups.

II. Development of the Topic

A. Definition of the Concept of Support and Support Groups

Q: Ask the participants: What does the word support mean to you?

A: Listen to the participants and, as necessary, add to their responses with:

Feeling support usually means that we feel a sense of trust, acceptance, self-worth, value, and respect. In this kind of relationship, we can share information better, acquire new skills, express our thoughts and feelings, and develop a sense of connection.

Q: Ask the participants: What is a support group?

A: Listen to the participants and, as necessary, add to their responses with:

A support group is formed when people come together with a common interest or life experience. It may be informal or formal, but includes the following: safe atmosphere, sense of respect, sharing of information, availability of practical help, sharing of responsibility, acceptance, mutual learning, and emotional connection.

Q: Ask the participants: What is a breastfeeding support group?

Show Annex 1-1.

A: Listen to the participants and round out their responses by saying:

It's a meeting where pregnant women and breastfeeding mothers, as well as other people with similar interests, come together in a safe atmosphere to exchange ideas, share experiences, give and receive information, and, at the same time, offer and receive support in breastfeeding, child rearing, and women s health.

B. Characteristics of a Support Group

Q: Ask the participants: What are the characteristics of a breastfeeding support group?

Show Annex 1-2.

A: Listen to the participants comments, write them on a flip chart, and add the following (if necessary):

- All participants should be able to have eye-to-eye contact;
- The group should include from three to fifteen participants;
- The group decides on the length of the session;
- The members support each other through sharing experiences and information;
- The group is made up of pregnant and lactating women and other interested people;
- Facilitation is by a breastfeeding counselor with experience, with co-facilitation by a more inexperienced counselor;
- The group is open, allowing for the admission of new members;
- Group members decide on the frequency of meetings; and,
- The members decide on the topics to be discussed.

Annex D

Community-based Breastfeeding Support: *A Guide for Trainers and Supervisors*

June 1996

Prepared by:

Judith Elise Rosenberg
and
Maria Jose Joya de Suarez

for:

Wellstart International s
Expanded Promotion of Breastfeeding (EPB) Program
(under USAID Cooperative Agreement #DPE-5966-A-00-1045-00)

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Annex E

Community-based Breastfeeding Support: *A Planning Manual*

July 1996

A collaborative effort of:
Wellstart International's Expanded Promotion of Breastfeeding (EPB) Program
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Nurture/Center to Prevent Childhood Malnutrition
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Annex F

Ten Steps to Successful Breastfeeding: WHO and UNICEF, 1989

Step 1: Have a written Breastfeeding and complementary feeding policy that is routinely communicated to all health care staff and community personnel.

Step 2: Train all health personnel (staff and volunteers), midwives and promoters in the skills necessary to implement this policy.

Step 3: Inform all pregnant women about the benefits of optimal infant feeding and how to manage breastfeeding.

Step 4: Help mothers initiate breastfeeding within a half-hour of birth.

Step 5: Show mothers how to breastfeed, and how to maintain lactation should they be separated from their infants.

Step 6: Give newborn infants only breastmilk, without other foods or drinks.

Step 7: Facilitate rooming-in of mothers and babies at all times in health establishments that have hospital services and co-sleeping at home of birth is at home, as well as continued co-sleeping well into the first year of life.

Step 8: Encourage breastfeeding on baby s request.

Step 9: Give no bottles, pacifiers, or artificial teats to breastfed babies.

Step 10: Foster the establishment of a support group network for the mother for appropriate breastfeeding, complementary feeding and her own reproductive health

Turning the Ordinary into the Extraordinary: The Green *Pendelu* and Maternal Health in Mali

Lydia Clemmons,[2] MPH and Yaya Coulibaly[3]

Abstract

This paper introduces the philosophy and elements of the DIORO Approach in which indigenous cultural resources in Mali, including songs, singer/storytellers (*griots*) and traditional clothing, were used in a successful campaign to increase communication between husbands and wives regarding pregnancy and to improve health-seeking behavior during pregnancy. In a culture where pregnancy has traditionally been a taboo subject and rarely discussed at the household level between husbands and wives, Africare's Dioro Child Survival Project in Mali successfully increased communication and health-seeking behavior during pregnancy. Assisted births in the project area increased from under 20% at the start of the project to 77% in the year after the IEC campaign was implemented. Of particular note was the innovation of the *pendelu*, a traditional undergarment for women in Mali which, when colored green, took on new symbolic meaning and was used to signal pregnancy. This nonverbal communication innovation and other aspects of the DIORO Approach are being widely used throughout the Dioro district four years later, are spreading to other parts of the country, and have been recognized internationally.

The DIORO approach

Africare began working in child survival and maternal health in Mali in 1989, when the first phase of the Dioro Child Survival Project began. Located in the Dioro District of the Segou Region in Southern Mali, the USAID-funded Dioro Child Survival Project had the overall goal of reducing morbidity and mortality rates among children and women of reproductive age. Specific interventions included: nutrition and growth monitoring; diarrhea disease control, immunization services and promotion, maternal health, family planning services, and education about AIDS and sexually transmitted diseases.

During nine years and three phases of implementation, Africare staff, local communities and partner agencies worked together to develop the most effective methods to implement and sustain improvements in health and community development. During the second phase of the project, the staff looked to other projects and programs for *lessons learned* and *best practices* and discovered that many development projects tend to ignore or undervalue cultural resources, turning instead to new technology and "modern" resources. The staff realized that the Dioro project itself had relied almost exclusively on posters and flip charts to educate communities about maternal and child health.

The approach that was gradually developed, called the "DIORO Approach," does not depend on large budgets or significant external expertise. Instead, it seeks out practical and effective resources within communities and cultures. The DIORO Approach is based on the philosophy that, in order for health projects in Africa to be beneficial, meaningful and sustainable, they must actively support African cultures and incorporate beneficial cultural values, knowledge and practices. The name "DIORO" both represents the district in which the approach was developed and serves as an acronym in French: *Dynamisons les Initiatives pour Organiser et Rassembler les Organisations non-governementales, étatiques et communautaires pour un développement durable!* (Let's Take Dynamic Initiatives to get NGOs, Government Agencies and Communities to Work Together for Sustainable Development!).

In the Dioro district, the Africare project staff developed a new tool called the "cultural resources inventory," to identify indigenous resources upon which the project could build its strategies. Dividing resources into categories,

[1] A version of this paper was submitted by Africare, 440 R Street NW, Washington, D.C. 20001 and presented by Laura Hoemeke, MPH and Aissatou Lo, MS, RN at the Expert Consultation on High Impact PVO Child Survival Programs. Ms. Hoemeke was Senior Health Program Manager, Africare, Washington, D.C. at the time the paper was presented, and is currently with USAID/Benin. Ms. Lo is Health Programs Coordinator, Africare, Bamako, Mali.

[2] Lydia Clemmons, MPH, was Africare's Coordinator of the Dioro Child Survival Project from 1993 to 1995. She is currently a staff member of the Manoff Group and Senior Technical Advisor for Communities and Social Networks for the CHANGE Project in Washington, D.C.

[3] Yaya Coulibaly is Africare's IEC Project Officer in Mali.

the staff identified structures and events that mobilize and organize people, social roles, relationships that bind people, objects with special symbolic meaning, performance arts and artists. Among the many cultural resources identified were village youth associations *(tons),* initiation ceremonies, marriages, extended family networks, kola nuts, traditional clothing, incense, proverbs and traditional performance arts such as theater, giant marionettes, storytelling and *griots* (singer/storytellers).

These cultural resources were used to develop innovative educational materials and community organization strategies based on the local culture in Dioro. The DIORO Approach promotes sustainable interventions through four components: (1) cultural empowerment, (2) rethink information, education and communication, (3) discover, build upon and reinforce existing community organization, and (4) create standards of excellence.

This paper will introduce some of the philosophy and components of the DIORO Approach through a description of the experience of a successful information, education and communication campaign promoting behavior changes related to maternal health. The campaign used a variety of cultural resources, including songs, griots and traditional clothing, to increase communication between husbands and wives regarding pregnancy, improve health-seeking behavior during pregnancy and improve overall maternal health.

Let's not discuss it

The Dioro Child Survival Project included interventions for both maternal and child health. Project activities targeting maternal health included improved prenatal consultations, assisted deliveries, community-based distribution of contraceptives, condoms and spermicide, and training and supervision of traditional birth attendants.

In 1992, during the project's first phase, Africare, through private funding and significant community participation, constructed a maternity ward in a central location in the sector of Koila, 17 kilometers from Dioro. The communities of Koila had expressed the need for a center in which women could receive high-quality prenatal care and safe delivery, perceiving the lack of a center as a major obstacle to better maternal health. Health professionals saw the center as a key service delivery point; prior to its construction, only two maternity wards, two dispensaries and the Dioro Health Center served the entire district of Dioro, a population of nearly 90,000.

Initially, the Koila maternity ward was visited by nearly all women in the Koila sector, pregnant or not, and generated much interest among community members. During the maternity ward's first year of operations, however, the number of deliveries per month, which began at nearly 30 per month, fell to 7 to 10 per month one year later. Few women participated in prenatal consultations or visited the maternity ward.

To improve their understanding of the problems linked to utilization of the maternity ward and the overall context of pregnancy and childbirth in the project area, in November 1993 the Dioro project staff designed an action-oriented qualitative research project to investigate knowledge, attitudes and practices about pregnancy, childbirth and health services (Clemmons and Coulibaly, 1994). An important goal of the research was to identify constraints and obstacles to improving maternal health and seeking care to develop an overall strategy to improve maternal health in Dioro. Outside funding for this research, which had not been foreseen in the original detailed implementation plan was received from the National Pivot Group of Health NGOs (*Groupe Pivot-Santé)* in Mali.

Project staff conducted fourteen focus groups discussions with women and men in the seven villages of the Koila sector. The results of this research confirmed some initial ideas about constraints to care seeking and provided additional information that surprised the local Malian staff.

In contrast to what some of the project staff had assumed, the research findings showed that the under-utilization of maternal health services was neither due to a lack of information nor to a lack of interest. Both women and men were well aware of the risks and dangers associated with pregnancy and childbirth and worried about the outcome:

> "As soon as a woman becomes pregnant, she worries about her health throughout the pregnancy and about the conditions in which she will give birth." [Female focus group participant]

> "Every time my wife is pregnant, I've been afraid of what could happen during the delivery." [Male focus group participant][4]

An important positive research finding was the cultural ideal of the husband's supportive role during his wife's pregnancy. Both women and men said that the husband of the pregnant woman should act as her principal advisor and protector. In addition, although men lacked basic information about caring for pregnant women, they expressed a great deal of interest in the development of the pregnancy and said that they feel responsible for a safe outcome. Men shared detailed descriptions about the changes women go through in terms of eating habits and energy levels when they are pregnant, indicating their close observation of their wives' progress during pregnancy.

The research revealed that one of the most important cultural obstacles to women's maternal health care-seeking behaviors was the absence of discussion about pregnancy at the household level, particularly between husbands and wives. Both men and women participants cited shame and embarrassment as the primary reason for the lack of verbal communication on this subject:

> *"In general, a woman is ashamed, from the very beginning, of people around her finding out that she is pregnant."*
>
> *"The husband is not informed by his wife of her pregnancy because of shame."*
>
> *"A woman is embarrassed to inform her husband that she is pregnant, particularly if it is her first pregnancy."*
>
> *"During the entire pregnancy, a woman will only discuss her pregnancy with her husband as a last resort: when she has a problem that she is unable to resolve herself, whether that be material, financial or health-related."*
>
> *"A man would rather discuss [pregnancy] and other problems related to sexual relations with a friend or someone other than his wife."* [5]

Husbands and wives were not only embarrassed to discuss pregnancy between themselves; women also reported feeling embarrassed to discuss the topic with other women, including their mothers-in-law, co-wives and friends.

The lack of discussion at the household level about pregnancy can thus block information sharing between family members about high-risk pregnancies and warning signs. It can also inhibit the decision-making process necessary for the allocation of family resources and the adoption of behaviors beneficial to maternal health. Although women in the Koila sector desired maternal health services, one of the reasons they could not take advantage of them was that they could not initiate discussions and solicit the consent and financial support of their husbands, who are considered the heads of the household and the principal decision-makers about family matters in Malian culture.

How then, could a project hope to communicate with communities and to promote the adoption of behaviors that are beneficial to maternal health if pregnancy itself was a topic that evoked feelings of silent shame and embarrassment among both women and men?

Let's start discussing pregnancy: tapping into cultural resources

Although frequently used by maternal and child health projects in Mali, print materials (particularly flip-charts, posters and brochures) are unsuitable for information, education and communication about pregnancy and maternal health care in Mali for a variety of reasons. First, the majority of the Malian population (98%) is illiterate (Mali DHS, 1991) and cannot decipher the written messages on the materials. Second, most images depicted in drawings are not easily comprehensible to audiences who are not familiar with the two-dimensional representations of depth and proportion that are typically used in these print materials (Moynihan and Mukherjee, 1981: 251-262). Third, married couples in rural areas do not use print materials in regular household communication and would be even less likely to do so in communication about maternal health. Fourth, pregnancy is a taboo topic of discussion in both the public and private spheres; this is particularly the case in rural areas, where audiences are likely to consider print

[4] Clemmons, L. and Coulibaly, Y. N'En Parlons Pas! Recherche Qualitative sur les connaissances, attitudes et pratiques concernant la grossesse et la planification familiale dans le secteur de Koila. Africare. Bamako, Mali. 1994.
[5] Ibid.

materials and health personnel who openly address pregnancy as being obscene, impolite or, at the very least, inappropriate.

Health educators usually attempt to get people to change their behaviors by appealing to reason through arguments based on logic or practical issues. As evidenced by the low impact of many health IEC strategies, however, this approach has not been very effective (USAID/Mali, 1996). Traditional communication channels, including stories, songs, proverbs, praise-poetry and epics, provides an important alternative for health IEC strategies, for they offer the most direct path to sensitive topics and personal issues through people's values, attitudes and motivations (Hale and Stoller, 1985; Mutasa, 1994). Traditional communication channels can successfully promote behavior change, at both individual and social levels, by appealing to people's emotions and also by informing and educating them. For these reasons, and within the socio-cultural context described above, the DCSP staff elected to utilize traditional media in a maternal health IEC campaign. The DCSP developed innovative uses of three traditional communication channels: (1) a traditional article of women's clothing; (2) a singer/storyteller (*griot*) and (3) a song.

The green pendelu

Traditional outer attire for Malian women consists of a long, very loose-fitting robe of light cotton, called a *boubou* in French. Although the boubou covers most of the body from the neck to below the knees, the looseness of its fit and the lightness of its fabric makes it ideal attire for the hot climate and also, incidentally, for concealing a pregnancy. Malian women almost always wear a long wrap-skirt under the boubou. The wrap-skirt, called a *pagne* in French, covers the body from the waist to the ankles.

The little *pagne* (*pendelu* in Bambara) is a short cloth undergarment resembling a half-slip and worn underneath the pagne. According to social dictates, only married women can wear the pendelu, for in addition to serving as their intimate apparel, it is also used by a couple to wipe away body fluids following sexual intercourse. Although considered erotic clothing (much as a black negligee is so perceived in the United States), the pendelu, which is traditionally made of white cotton, has a far deeper cultural significance. It is both perceived as a *symbol* of marital roles, duties and privileges and interpreted as a *non-verbal signal or cue* for gender-specific attitudes and behaviors between husbands and wives. When a wife wraps the pendelu around her waist, she has a melange of emotions associated with the act of wearing this traditional attire, from simply feeling womanly and attractive to feeling confident and *in control of a situation that she is creating*. A woman will wear the pendelu in front of her husband in the privacy of the bedroom, discretely yet suggestively, because she wears it to attract his attention, to arouse his desire, and to initiate an interaction that goes beyond the realm of sex. For when a husband notices his wife wearing a pendelu, he is reminded not only of his role as a sexual partner, but also as his wife's advisor, protector and provider. The sight of his wife wearing a pendelu makes a man feel virile, wise, strong, concerned and responsible. Women say that it is there, in the intimacy of the bedroom, with the pendelu wrapped provocatively around their waists or lying close at hand, that wives are most able to express their concerns and special requests, and husbands are most inclined to listen. The pendelu, a subtle yet powerful symbol, is consequently an effective traditional non-verbal communication channel used by married couples. It initiates both physical and emotional intimacy and signals in women and men culture- and gender-specific roles and responsibilities.

Chiwome (1994) has demonstrated elsewhere in Africa that non-verbal communication in families is particularly important when tension and other emotional barriers block speech:

> *The deliberate use of gestures and other non-verbal communication channels is an effective substitute for words, particularly in a setting where words would be inappropriate.*

Using creative brainstorming and a new tool they developed called the cultural resource inventory, the Africare project staff in Mali identified the pendelu as the ideal media to facilitate communication between husbands and wives about pregnancy.

The project staff placed a special order with local tailors to produce three hundred *pendelu* to distribute during a pilot IEC campaign. An important modification of the pendelu was to color-code this intimate apparel and dye the traditional white cotton fabric a brilliant green, to symbolize pregnancy and to signal the husband's cultural role as protector, advisor and supporter. As Comaroff (1985: 223) has noted, *"blue and green, hues of rain, water, freshness and growth... are linked to activating power... (and) connote fecundity... Green specifically signifies origins or points of growth."*

The griot

Griots are bards whose traditional role in Malian culture is a combination of oral historian, praise-singer and social mediator. Bakary Koita is a griot who has lived in Dioro-ville all of his life. He is a member of one of the major griot families in Mali and learned his profession from his father. As a free-lance artist, he is well known throughout the Dioro district, for he does not restrict himself to any particular family nor to any particular village. Finnegan (1970) and Johnson (1986), well-known folklore scholars, point out that free-lance griots have greater flexibility in that they can vary artistic styles and motifs more easily than their more conventional counterparts, and also tend to have larger and more diverse audiences, since they cover wide areas with many different ethnic groups and languages. Mr. Koita illustrates this point well, for he is equally at ease with praise singing, storytelling, and singing new songs that he composes himself. He accompanies himself on a traditional guitar. When he is not performing, Mr. Koita farms his land in a small village a few kilometers outside of Dioro-ville with his three wives.

The Dioro child survival project staff's decision to enlist Mr. Koita's services for the maternal health campaign was arrived at through a good understanding of the griot's role in Malian society. Griots have been recognized as social psychologists, mediators/conciliators, historians, artists, diplomats, possessors of supernatural, powerful forces, preservers of culture, and educators as well as entertainers. Throughout history, griots have consistently demonstrated their effectiveness as social catalysts, using the power of words to dramatically influence people's behavior through their emotions (Conrad and Frank, 1995; Finnegan 1970; Hale and Stoller 1985; Johnson 1986; Okpewho 1979; Sienaert et al, 1994).

Knowing the names, family history, personalities and even the mundane affairs of nearly everyone in the community, griots enjoy the socially-sanctioned privilege of being able to say directly to anyone what no one else in the community would dare to say, regardless of an individual's age, gender, ethnicity or social standing. Griots use personal charisma and the power of words to mediate social relations- between members of the same family, between neighbors, and even between communities. As Radcliffe-Brown, the famous anthropologist, pointed out, kinship ties play an extremely important role in mediating social relations. In Mali, only a griot could effectively promote discussion of the sensitive topics of pregnancy and the pendelu in both the public and private spheres without being considered obscene or inappropriate by rural communities.

Over a period of two weeks, Mr. Koita worked with the project staff to compose a song that educated people about maternal health care and also promoted the intended use of the green pendelu. He participated in all staff meetings concerning the organization of the campaign. During the actual campaign, which lasted seven days, Mr. Koita participated as a member of the IEC team and received a fixed daily fee for his services.

The song

The project staff developed a technical outline for a song, which contained key maternal health care messages. The technical outline also called for the promotion of the green pendelu as a symbol of pregnancy and couple communication and identified husbands, wives and wives' mothers-in-law as target audiences for the song. To counteract the shame, embarrassment, fear and helplessness described by both men and women in the focus group discussions, the project staff also requested Mr. Koita to associate the appearance of the green pendelu with feelings of happiness, pride, responsibility and confidence. The primary objectives of the song were to 1) inform married men, married women, and women's mothers-in-law about high-risk pregnancies, warning signs during pregnancy, and risk-reduction behaviors; 2) increase communication about pregnancy and maternal health care at the household level, particularly between husbands and wives; and 3) increase pregnant women's utilization of the maternal health care services and facilities offered by qualified providers.

Mr. Koita composed the melody and the words for the song, following the technical outline developed by the project staff. The project staff corrected or modified words or phrases in the song only to assure the technical accuracy of the health information. The collaborative effort between the griot and the health personnel in the creation of a new song was not easy in the initial stages, for it required a balance between artistic quality and technical accuracy of health information. During the practice sessions prior to the campaign, the project staff noticed that Mr. Koita frequently modified the artistic aspects of the song, speeding up or slowing down the rhythm, repeating certain verses, or adding entirely new ones. This artistic license at first had a deleterious effect on the educational messages, for the griot often omitted key messages and gave maternal health information that was either

incorrect or unclear. On the other hand, the rigidity of the technical outline reduced the artist's creativity and flexibility and so had a negative effect on the quality of his performance.

These initial difficulties were overcome through mutual tolerance and hard work. Mr. Koita spent several days working alone and then met with the project staff, either at his home or in the Africare office, to play the song and discuss the form and content. The artistic aspects of the song were left entirely to the griot. For example, in one phrase, the griot addresses husbands with a metaphor about pregnancy:

> *My friends, you are farmers. When you see the green pendelu on your wives you know that the seeds you have planted have taken root. Be happy for the harvest!*

The collaborative work sessions would last several hours and the griot would then go back to working alone for another few days. At one point during the creation of the song, the project staff agreed to eliminate some of the health information in order for the griot to be able to include more poetic verses and hence improve the artistic quality of the song.

The song, *Pendelu Nimuji* (The Green Pendelu), was pretested in a neighboring village to assess its comprehensibility and its appeal to audiences. On the basis of the successful pretest results, no changes were made to the song prior to the campaign.

During the campaign, Mr. Koita frequently modified the song in his performances, adding greetings, humorous remarks directed at the general audience and sometimes at specific individuals and, occasionally, proverbs. These variations improved the quality of his performances, which were tailored to each of the seven communities. Thanks to the practice sessions with the project staff, the changes did not, however, alter the technical health information nor reduce its accuracy.

The maternal health IEC campaign

A pilot maternal health information, education and communication (IEC) campaign was conducted in seven villages in the Koila sector of the Dioro district to test the effectiveness of the traditional media. A total of 600 adults (three hundred men and three hundred women) participated in the campaign, representing about 10% of the total population of men and women 15 years of age and older. Because the project staff were uncertain about the reaction of the rural Muslim communities to public discussion of pregnancy and intimate women's apparel, they scheduled separate assemblies for men and women. As an added precaution, men's assemblies were held first, in the mornings, to give husbands the option of approving or refusing their wives' participation in the campaign. Women's assemblies were thus held in the late afternoons, and followed the same format and content.

The campaign format began with a general maternal health discussion session led by one of the IEC team members and followed the critical awareness-raising approach developed by Paulo Freire. The IEC team member explained the baseline survey statistics on morbidity and mortality rates of women and infants related to pregnancy and childbirth. The IEC team member also explained the findings of the qualitative research, particularly the communication problem between husbands and wives. In each village, traditional birth attendants (TBAs) who had attended training and refresher courses provided by the project explained the importance of prenatal care consultations and deliveries assisted by qualified attendants. Another IEC team member then showed a 40-minute video-drama about a woman who has a miscarriage because she and her husband did not communicate in time about maternal health care. The participants at the assemblies then discussed the video, commenting and asking questions.

Following this introductory discussion session, the griot, Bakary Koita, performed his song about the green pendelu. At the end of the song, the project staff pulled out a green pendelu and showed it to the participants. More discussion would follow, during which the project staff would repeat some of the key educational messages concerning high-risk pregnancies, warning signs during pregnancy, maternal health care and the importance of couple communication. At the men's assemblies, the project staff asked permission to repeat the session with the women in the afternoon and to distribute the pendelu. In all seven villages, the men gave their unanimous consent. Women assembled in the public meeting places in the late afternoons and the IEC team repeated the session format and content.

It is interesting to note the differences in the reactions of the men and women assemblies during the griot's performance. While both men and women listened attentively to every word, men would do so gravely; women, in

contrast, would openly show their pleasure by smiling, laughing, clapping, humming along with the music, and singing the refrain. The women invariably requested the griot to repeat the song several times and by the end of the assembly had mastered most of the words of the song. By the end of the assembly, most of the women present were already standing up to dance.

During the afternoon assemblies, the project staff distributed a total of three hundred green pendelu to all married women of reproductive age in each of the seven villages. The distribution was carried out amidst animated discussion and laughter among the participants, who often crowded around the staff in their eagerness to receive the pendelu. In all of the villages, older women participants who were no longer of reproductive age adamantly demanded a green pendelu. When IEC team members refused, explaining that the pendelu was for women to use when they are pregnant, the older women always insisted that they would make sure that they would give the green pendelu to their daughters and daughters-in-law who had been unable to attend the assembly and that they would transmit the information faithfully to their female relatives as well as to their married sons. As proof of their abilities, the older women often repeated the key messages and explained the symbolism and the use of the pendelu on the spot. This exchange between the older women and the IEC team members took the form of friendly banter, indicative of the exceptionally relaxed atmosphere created during the women's assemblies.

When leaving the community meeting place where the IEC campaign had been held, the women participants often placed the pendelu on their heads or carried them visibly under their arms, openly discussing the article of clothing and joking about their husbands' reactions.

The impact

To measure the impact of the green pendelu and other communication channels used during the behavior change communication campaign, including the song written by the griot, the video, and a badge promoting the project community-based activities, the project staff conducted an evaluation three months after the campaign. The project's final evaluation Knowledge-Practice-Coverage Survey further measured the impact of the IEC campaign.

The impact evaluation of the campaign consisted of a survey of 320 people, including 205 individuals who had participated directly in the activities of the campaign and 115 who had not participated. The sample included 130 married women of reproductive age (referred to as wives), 127 married men (referred to as husbands) and 63 older women with married sons (referred to as mothers-in law). The average age of respondents was 36.5 years.

According to the survey results, the campaign dramatically increased the level of communication between husbands and wives concerning maternal health; overall, 65.5% of all survey participants said they discussed pregnancy and maternal health issues after the campaign. Prior to the campaign, approximately 3% of the population had discussed maternal health with their spouse.

Among all the means of communication used during the campaign, the green pendelu was the element that the participants found the most interesting (83.9%). A total of 94.4% of survey respondents had heard of the green pendelu. Remarkably, eighty-five percent (85%) of those interviewed who had *not participated* in the campaign had heard of the green pendelu, indicating a rapid and effective spread of this innovative concept. Indeed, the impact evaluation indicates that although only 600 people (10% of the population) had participated in the IEC campaign, nearly 5000 people (89% of the population) had seen or heard about the green pendelu three months later.

Nearly all of those interviewed knew that the green pendelu represented pregnancy: 89.9% of husbands, 79% of wives and 76.9% of mothers-in-law. When asked what they would do if their wife wore the green pendelu, 32.3% of husbands said that they would talk with their wife about it, 41.7% said that they would lighten their wife's workload, and 49.6% said that they would make sure that she "eats right." Almost all of the pregnant women interviewed said that they had already worn the green pendelu and of those women of reproductive age who were not pregnant, nearly all (89.9%) said they intended to wear the garment when they became pregnant.

The IEC campaign also led to more positive attitudes about pregnancy; most of the people surveyed interpreted the green pendelu as a symbol of pregnancy *and happiness.*

In short, the evaluation survey results indicate that the innovative use of traditional communication channels was not only effective in promoting non-verbal *and verbal* communication between husbands, wives and mothers-in-law,

but also facilitated social change. Pregnancy is no longer a taboo topic in the Koila sector, and indeed, discussion about pregnancy and maternal health care is now a common occurence at both the household and community levels.

The results of the survey conducted after the IEC campaign are summarized in Tables 1-7. Tables 1-4 report responses to questions asked only to those who attended the IEC campaign, while Tables 5-7 include responses from all survey respondents including those who attended and those who did not attend the IEC campaign. Table 8 gives a schedule of key events during the project.

In the year during and after the awareness-raising campaign, the project surpassed its objective of assuring that 60% of births were assisted by a trained birth attendant or health care professional, up from less than 20% at the beginning of the project. Approximately 77% of births were assisted and more than half of pregnant women sought prenatal consultations.

There is anecdotal evidence of some unanticipated beneficial effects of the use of the traditional communication channels in the campaign. During the 1994 impact evaluation, traditional midwives told interviewers that they would like to start up a small business in the production of green pendelu to generate additional income for the purchase of maternal health care equipment and supplies. Project staff also noticed that several enterprising tailors in the area had already begun producing them for sale in the weekly market. The song's melody became popular throughout the district, even in communities outside of the seven test villages. Project staff report that this diffusion is partially due to word-of-mouth among the general public and partially due to Bakary Koita, who continues to perform the song on request as he travels throughout the area as a freelance griot.

The final evaluation of the second phase of the Dioro Child Survival Project, conducted in June 1996, included focus group discussions and a final Knowledge-Practices-Coverage (KPC) survey. According to the final KPC survey, 64.8% of women of reproductive age in the project area had a health card, up from 3.7% at the beginning of the project.

The final KPC survey also showed that 83.3% of women in the project area had participated in at least one prenatal consultation, and there was an average of 2.8 prenatal consultations per pregnancy. A total of 79.1% of births were assisted by a trained birth attendant, either at the health center or maternity ward or in the home, up from less than 20% at the beginning of the project. In addition, 55.6% of women reported having discussed maternal health and pregnancy with their husband, up from less than 5% of women at the beginning of the project.

Women participating in focus groups said that, as a result of the project, their workloads have been lightened during pregnancy, especially the difficult task of transporting wood for household cooking fires. Women also eat better during pregnancy, they said, and, in general, receive more attention from their husbands than previously.

Older women participating in focus groups said that they were jealous of their daughters and daughters-in-law, claiming that the younger women were "getting spoiled" by all of the attention they received during pregnancy. One older woman said, "I wish that this had come along 30 years ago. It's not fair that we did not have the green pendelu."

Discussion

The wearing of clothes can be considered a "body technique," an anthropological concept explained by Marcel Mauss. "Body techniques" are specific motions or positions of the body that are (1) particular to cultures, (2) divided by sex and age, (3) effective, (4) traditional, (5) deliberate and, (6) often taught (Mauss, 1979: 97 - 109). Malian women traditionally wear the pendelu to arouse their husbands' desire and to initiate communication with them on personal subjects. Africare's Dioro Child Survival Project used both the pendelu and the body technique of wearing the pendelu as cultural resources for a maternal health care IEC strategy. The traditional meaning and use of the pendelu were modified by a simple innovation: changing the color from white to green so that it symbolized pregnancy and signaled appropriate behaviors. This innovation was effectively legitimated and diffused through a griot and a song.

The beauty of the green pendelu is that because its traditional meaning and use were already well understood in the project area, there was no need for the IEC team members or the song to explain in great detail what a green pendelu is, what emotions it arouses and what attitudes, roles and responsibilities it signals. All that was necessary was to explain the meaning of the color green (pregnancy) and to associate it with specific actions beneficial to

maternal health. This observation is analogous to Canonici's (1994) textual analysis of Zulu folk-tales, whose thematic patterns are so well-known they do not need much in the way of explanation when performed in local communities.

Yet can green underwear truly be considered an effective communication channel, traditional or otherwise? The answer is a firm yes, within the appropriate cultural context, and indeed, it can even represent much more than this. The pendelu, even in its traditionally white form, conveys strong messages from wives to their husbands, messages that effectively prompt desired behaviors. Malian women have long used the pendelu as one of a wide repertoire of subtle, yet powerful tools in their interpersonal communication strategies in the private sphere. These strategies often rely on non-verbal communication. When dyed green, the pendelu becomes an innovation, interlacing old signals and responses with new meanings and outcomes. Beyond the significance of the *tool*, itself, is that of its *use*: the wife's pre-meditated act of wearing the pendelu and the cultural context in which it is worn. These factors bring the simple pendelu into more the more complex realms of *applied folklore* and *applied anthropology*. Ben-Amos (1991) defines folklore as a "communal body of knowledge, a mode of thought, or a kind of art," and notes that these categories are not necessarily mutually exclusive. Folklore also entails artistic interpersonal communication in small groups. While the pendelu itself is not folklore, much as a traditional guitar or drum cannot be considered folklore, the combined knowledge, values, beliefs, attitudes and body techniques that accompany a woman's act of a wearing a pendelu for her husband in the privacy of their bedroom, and a husband's interpretation of and response to that act, certainly do constitute folklore.

Much of the success of the green pendelu in promoting communication about pregnancy can be attributed to the effectiveness of innovations that are based on traditions. As Ben-Amos (1993) observes, "Folklore may be 'old wine in new bottles' and also 'new wine in old bottles' but rarely has it been conceived of as new wine in new bottles." Although the meaning of the green pendelu was new, the setting (bedroom), circumstances (physical and emotional intimacy), users (wives) and intended audience (husbands) remained the same as those for the traditional pendelu. Accordingly, women in the Koila sector easily adapted to wearing the green pendelu during pregnancy because they used a familiar "body technique." Along the same vein, Canonici (1994) observes that tradition and originality can go hand in hand:

> *Originality consists in using traditional material in a new way or in inspiring a new creation with the same spirit that produced the original one. While the traditional basis is constant, its manifestation can be quite different because of the dynamic nature of originality.*

Over the two years following the maternal health IEC/BC campaign, Bakary Koita reported that the local communities often request information about other health topics and ask him to perform educational songs. On his own initiative, he stops by the DCSP office at least once a quarter to request information about specific topics and technical assistance in assuring the accuracy of the health messages in the new songs he composes.

Many scholars have described how griots' traditional skills dramatically influence both individual behavior change and social change (Finnegan, 1970; Johnson, 1986; Hale; 1990).

> *In a role related to that of mediator, bards are sometimes responsible for initiating action. By praising or insulting a patron, the bard can move that person to act. This role is often mentioned in epic poetry... For instance bards profess to have been the conscience of kings and to have moved them to action with their poetry. They claim to have followed warriors into battle, singing encouragement to enhance their bravery...* (Finnegan, 1970).

A number of scholars have also convincingly documented griots' adaptive ability to change with the times and adopt new ideas without relinquishing past identities (Conrad and Frank, 1995; Sienaert, et al, 1994; Hale, 1995).

The Dioro Child Survival Project's collaboration with Bakary Koita provides a vivid example of these skills and the practical applications of griots' flexibility in contemporary settings. Moreover, Bakary Koita's professional dedication and consistent good-will in his collaboration with the project validates the pertinence of Hoffman's criticism of the "typically derogatory portrayals of Mande jeliw one finds throughout the scholarly literature." This negative depiction of griots is evident in Keita's (1995) discussion of two famous Malian griots, Massa Diabate and Banzumana Sissoko, who deplored what they perceived as the opportunistic and increasingly degrading aspects of griots' performance in modern times. Yet far from being a "social parasite and a mercenary," a griot can be an agent

of positive social change and, as Mr. Koita has demonstrated, can actively seek to promote the welfare of others without necessarily seeking financial gain.

Mr. Koita has reported that his affiliation with the project has increased his prestige and popularity throughout the district. Although his educational songs do not substantially increase his revenues, both he and his audiences enjoy their addition to his repertoire and recognize the benefits of the health information contained within

> *...it is precisely because the bard... conveys a tradition which goes back many centuries that he may be able to contribute in a rather unique way to the kinds of social changes most needed for the survival of many African peoples today.* (Hale and Stoller, 1985)

Africare's Dioro Child Survival Project's experience with the maternal health IEC campaign is important in that it demonstrates the practical, even potentially life-saving, applications of folklore and traditional media in contemporary settings. The key lesson lies in the recognition of the dynamic nature of culture, tradition and folklore- these are not static entities but rather domains full of creative, and effective, potential for behavior change communication. Finnegan emphasizes this point in her discussion of songs, which she demonstrates can perform an important function in influencing attitudes and behaviors at the public sphere. In light of her discussion, it is not surprising that "The Green Pendelu," composed by a local griot, could have a greater impact on couple communication and other maternal health-related behaviors than flip-charts, posters and brochures.

> *It is of particular importance to draw attention to this and to give a number of examples because of the common tendency in studies of African verbal art to concentrate mainly on the "traditional" - whether in romanticizing or in deprecating tone- and to overlook its topical functions, especially its significance in contemporary situations.* (Hale and Stoller, 1985)

Of the various media and methods used to inform, educate and communicate about pregnancy and maternal health, the DCSP impact evaluation survey showed that the three traditional media were by far the most remembered by the communities. Very few respondents remembered the research data presented by the IEC team members, nor the content of the discussions during the assemblies, nor the content of the video-drama. Nearly all respondents, however, remembered the green pendelu, the griot, and the song.

Hence, although pendelu, griots and songs are traditional channels of communication in Mali, their utilization can be effectively innovated to adapt them to modern needs. Mutasa (1994) draws similar conclusions in his discussion of the modern use of old proverbs in South Africa:

> *Changing times and situations require solutions which the traditional forms can no longer supply. However, it is often sufficient to adapt an antiquated item to a modern context or constructions. This process of innovation becomes a living proof of continuity of the traditional forms.*

Conclusions

Although a number of scholars and practitioners have pointed to the importance of incorporating traditional media into contemporary community development approaches and behavior change strategies, a review of the literature has uncovered very few examples of the practical advantages of such an approach. Africare's maternal health IEC campaign in Dioro, Mali illustrates the potential that both folklore and traditional media have for contributing to the health and welfare of rural communities in Africa. Moreover, this unusual example of transforming the ordinary into the extraordinary underscores the value of developing innovative strategies that tap into cultural resources that are so commonplace or mundane that their inherent beauty, complexity and effectiveness may otherwise remain unnoticed and underutilized.

The DIORO Approach identifies effective strategies to empower cultures and promote behavior change at the same time. The green pendelu and other innovative strategies of the *DIORO Approach* have received national attention in Mali and have been replicated by Africare and other agencies. In 1995, the project received an award from the Malian Non-Governmental Organization Health Group (*Groupe Pivot-Santé*) for having the most innovative approach among all NGOs working in Mali. The Minister of Health of Mali coined the term the "Dioro Initiative,"

stating that the innovations introduced through the DIORO Approach had been comparable to those of the Bamako Initiative. Evaluation surveys and feedback from communities and partner agencies in Mali all lead to the conclusion that the impact of the green pendelu and the IEC campaign has been significant, and suggest s the need for more innovative approaches of this kind.

There is evidence, too, that building on cultural resources creates *sustainable activities and benefits*. Nearly four years after the initial campaign in the Koila sector, tailors are still producing green pendelu; women, children and the griot are still singing the song about the green pendelu all over the Dioro district; pregnant women are still wearing the green pendelu; and families are discussing pregnancy and supporting maternal health care-seeking behaviors.

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Table 1. *What do you remember seeing or hearing during the campaign? (N=205)*

Channel	Husbands	Wives	Mothers-in-Law	Overall
Griot	22.0%	42.3%	12.7%	28.4%
Song	30.7%	56.2%	28.6%	40.6%
Video	64.6%	74.6%	42.9%	64.6%
Badge	36.2%	23.8%	15.9%	27.2%
Green pendelu	80.2%	90.0%	82.5%	84.7%

Note: Sample includes all 205 people who participated in any of the IEC campaign activities.

Table 2. *What communication channel did you find the most interesting?*

Channel	**Husbands**	**Wives**	**Mothers-in-Law**	**Overall**
Griot	3.1%	13.8%	1.6%	7.2%
Song	8.7%	22.3%	6.3%	13.8%
Video	40.9%	40.8%	20.6%	36.9%
Badge	13.4%	5.4%	12.7%	10.0%
Green pendelu	**66.9%**	**79.2%**	**76.2%**	**73.8%**

Note: Sample includes all 205 people who participated in any of the IEC campaign activities.

Table 3. *Did you talk with anyone about pregnancy after the campaign?*

	Husbands	Wives	Mothers-in-Law	Total
NO	6.4%	0.0%	15.9%	5.6%
YES	93.7%	100.0%	84.1%	94.4%

Note: Sample includes all 205 people who participated in any of the IEC campaign activities.

Table 4. *What did you talk about?*

Topic	**Husbands**	**Wives**	**Mothers-in-Law**	**Overall**
Pregnancy	69.5%	68.1%	73.0%	69.5%
High-risk pregnancy	17.1%	23.1%	21.6%	20.5%
Danger signs during pregnancy	9.8%	34.1%	43.2%	26.2%
Timely transportation before delivery	13.4%	5.4%	12.7%	10.0%
The Koila maternity ward	42.7%	39.6%	47.8%	40.5%
Traditional birth attendants	11.0%	8.8%	8.1%	9.5%
The nurse/midwife	6.1%	15.4%	24.3%	13.3%
Communication	9.8%	24.3%	18.9%	17.6%
Other	24.4%	30.8%	27.0%	27.6%

Note: Sample includes all 205 people who participated in any of the IEC campaign activities.

Table 5. *Did you talk with anyone about pregnancy after the campaign?*

	Husbands	Wives	Mothers-in-Law	Total
NO	35.4%	30.0%	41.3%	34.4%
YES	64.6%	70.0%	58.7%	65.4%

Note: Sample includes all 320 people surveyed, whether or not they participated in IEC campaign activities.

Table 6. *What does the green pendelu symbolize for you?*

Meaning	Husbands	Wives	Mothers-in-Law	Overall
Pregnancy	85.7%	77.5%	64.2%	78.4%
Happiness	14.3%	26.4%	28.3%	21.9%
Pride	1.6%	1.6%	1.9%	1.7%
Appeal to husband for support	5.0%	27.1%	30.2%	18.9%

Note: Sample includes all 320 people surveyed, whether or not they participated in IEC campaign activities.

Table 7. *If you saw your wife wearing the green pendelu, what would you do?*

Reactions	Husbands
Talk with her	32.3%
Go see the TBA	6.3%
Go to the maternity ward	56.7%
Assure timely transport for delivery	22.0%
Lighten her workload	41.7%
Make sure she eats right	49.6%
Nothing	0.8%
I don't know	7.9%

Note: Sample includes all 320 people surveyed, whether or not they participated in IEC campaign activities.

Table 8. *Green Pendelu Campaign Activities Time Line*

1989	1992	1993	1994	1995	1996	1998
Dioro child survival project begins.	Koila maternity ward constructed.	Initial qualitative research conducted.	Analysis of research and development of green pendelu campaign. IEC campaign in 7 pilot villages. Impact evaluation. Green pendelu and DIORO approach recognized nationally in Mali.	IEC campaign continues in additional villages.	Final KPC survey and final evaluation.	Green pendelu still worn and song still sung in Dioro and elsewhere in Mali.

Scaling Up the WARMI Project: Lessons Learned
Mobilizing Bolivian Communities Around Reproductive Health[1]

Fernando Gonzales[2], Elizabeth Arteaga[3], and Lisa Howard-Grabman[4]

Abstract

This paper describes eight major steps in the process of scaling up from the experience of SFC/Bolivia. From 1995 through 1997, SCF/Bolivia, working with the Ministry of Health, PROCOSI (a national PVO umbrella group), and other partners, expanded the Warmi Project from a pilot in three rural communities in one province to a national program affecting 513 communities in Bolivia. Their experience demonstrates how participatory approaches, specifically the community action cycle can be brought to national scale through flexibility, inter-institutional coordination and establishment of common goals. As the Warmi model expands to other countries in Latin America and Africa, health planners need to examine lessons learned from this seminal work in Bolivia.

Introduction

Bolivia's maternal, perinatal and neonatal mortality rates are higher than in any other country in the Western Hemisphere except Haiti. Bolivia's National Institute of Statistics (INE/ENDSA) estimates a national maternal mortality ratio of 390 per 100,000 live births (1994) and an infant mortality rate of 64.6 per 1,000 live births (1998). Mortality rates in some rural areas of Bolivia have been estimated to be two to three times higher than the national rates.

The Warmi Project was developed by Save the Children/Bolivia under the USAID-funded MotherCare project to demonstrate what could be done to reduce maternal and perinatal mortality at the community level in isolated rural areas with limited access to health services. The pilot project was carried out from 1990 to 1993 in 50 communities in Inquisivi Province. A gender sensitive participatory methodology, now known as the "Community Action Cycle," was developed to work with women's groups and other community members to improve maternal and perinatal health in their communities. The Community Action Cycle consists of four phases: Autodiagnosis (problem identification and prioritization), Planning Together, Implementation, and Participatory Evaluation. The project achieved many noteworthy results including a reduction in perinatal mortality of nearly 50% and improved practices related to prenatal care, breastfeeding, immunization and other behaviors. In addition, women increased their participation in the community planning and decision-making processes and commented on the fact that they had never spoken to one another about these types of problems before.

The Warmi Project and methodology have evolved considerably since national scale activities were initiated in 1994. Implementing agencies include two bilateral agencies, 8 PVOs and NGOs that are members of the PVO umbrella group, PROCOSI, and government health services in selected districts. From 1995 through 1997, SC staff were based in four Bolivian cities from which they provided technical assistance to the other implementing agencies. With additional field experience the methodology has continued to become more efficient. The project is now reaching approximately 200,000 women in more than 500 rural communities in all departments of Bolivia. For the first time in their lives, thousands of women have analyzed their reproductive health, prioritized problems, and have become pro-active participants in creating better lives for themselves and their families.

The great challenge for successful community-based demonstration projects is to expand the reach of these programs to cover a much larger population without compromising the high quality of implementation necessary to

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achieve similar results on this larger scale. This paper describes many lessons that have been learned thus far from scaling-up the Warmi Project.

Results

The results of the three year implementation of the National Warmi Project are:

The WARMI methodology has reached 513 communities of the following departments, Santa Cruz, Cochabamba, Beni, Chuquisaca, Potosí, Tarija, Oruro and La Paz (8 of the 9 Departments in Bolivia), in 29 Health Districts. The methodology is estimated to have benefited over 200,000 women and their families. This large outreach was achieved through the efforts of seven NGO members of PROCOSI, a PVO/NGO umbrella network for organizations working in health in Bolivia. Save the Children/Bolivia provided technical assistance and training to these NGOs so that they would be able to replicate/adapt the WARMI methodology for use in their project sites. SC/B also provided technical assistance and training to two bilateral agencies including the Child and Community Health Project (CCH) supported by USAID and Health Strengthening Project (PSF-Proyecto de Fortalecimiento en Salud) supported by the Inter-American Development Bank (IDB) and the GTZ.

Of the 513 communities implementing the WARMI methodology at the national level, 289 communities worked with the NGO partners and 278 communities worked with the National Secretary of Health staff. The bilateral partners, PSF and CCH, also participated in the Warmi Project implementation.

SC/B trained 180 technicians from the National Secretary of Health and 70 technicians from PROCOSI in the four phases of the Warmi "community action cycle" methodology; a total of 250 trained Warmi technicians nationally.

Currently, 170 of the trained technicians are using the methodology. Most of the ten trained technicians who have abandoned the process were from the National Secretary of Health. These technicians were either rotated out of Warmi areas or discharged.

Nationwide, 445 Warmi women's groups were organized. Through the identification and prioritization of their health problems, women from these organizations began to mobilize their communities. In all cases, the Warmi methodology helped to increase women's participation in the community. During this process, women's group members develop not only their communication skills-- they also learn how to plan interventions and negotiate with other community organizations to improve health conditions.

One of the recommendations from the National Secretary of Health during the National Project's first year evaluation was to include the community action plans that emerge from the implementation of the Warmi Methodology in the Annual Plan of the Municipal Governments (POAS). This would actively encourage sustainability and support for the methodology and broad participation of community members in the municipal planning process. This has already begun in several communities. To date, approximately 15% of the Warmi Project communities' plans have been included in the municipal governments' annual plans. Many of the remaining communities are aware of, and working toward, this project objective.

Finally, the goal of the National Warmi Project was not only to conclude the community action cycle in all of the communities that initiated it, but that each health district would develop the capacity to implement the Warmi Project methodology on its own. The National Warmi Project aimed to create the necessary structure, technical capacity and resources in each participating institution to achieve this goal. In this effort, SC/B has been successful. While USAID funding for SC/B's technical assistance and training component of the project has ended, the methodology continues nationwide through the participating partner agencies.

Scaling-up strategies

Save the Children/Bolivia employed many strategies to scale-up the Warmi Project to improve maternal and neonatal health nationwide, especially in rural areas of Bolivia, including:

- Develop, implement and document a successful demonstration project;
- Disseminate project methods and results;
- Advocate to build consensus and influence policy;
- Mobilize resources;
- Define organizational structure and philosophy of the national project;

- Establish agreements with partners (MOH and NGOs);
- Provide training and technical assistance;
- Coordinate activities with partner agenicies;
- Develop and use monitoring and evaluation systems; and,
- Sustain health improvements and use of project methodology in the future.

Develop, implement and document a successful demonstration project

The Warmi Project was designed to serve as a pilot project that, if successful, could be expanded to many communities in similar settings. When developing the initial project proposal, SC/Bolivia and JSI/MotherCare staff looked for possible avenues for future replication of the project and identified members of PROCOSI, a network of PVOs and NGOs working in child survival in Bolivia, as potential partners. The Ministry of Health was also identified as an important partner.

Selected PROCOSI members and MOH staff were invited to participate in the demonstration project's mid-term and final evaluations. All PROCOSI members were invited to attend presentations of the results of the mid-term and final evaluations. SC/Bolivia was open to suggestions and comments by participants in these events. The PROCOSI members' active participation helped to establish a base upon which to have a more involved discussion of the project and its potential replication or adaptation by PROCOSI members in the future.

During implementation, the demonstration project staff carefully documented baseline indicators, field work and results. SC/B field staff maintained a women's health roster for every participating community to track each woman's reproductive health status and practices such as use of prenatal care, use of trained birth attendants and/or clean birth kits, immediate breastfeeding, tetanus toxoid vaccination status and iron supplementation, etc. SC/B field staff kept notebooks that documented what happened during each step of the community action cycle in every community. The documentation was used by field staff during their monthly quality circle meetings at the zonal level where they discussed which strategies were and were not successful, and where they planned activities for the next month. Documentation was also used at quarterly evaluation and planning meetings held with SC/B senior program staff in the zone to monitor progress and plan future action. Ultimately, the documentation also provided information to others outside of SC/B who were interested in replicating or adapting the Warmi methodology.

Project results were obtained through a final evaluation that included pre-post retrospective case control study, qualitative and participatory evaluation with community representatives and groups of women, men, local authorities, health service providers, etc., and a review of the women's health rosters and SC/B birth/death registers based on family census data and ongoing community and SC/B reporting.

The results of the demonstration project included positive changes in maternal and neonatal health indicators, increased women's participation in community decision-making and led to programs that improved women's literacy and numeracy, women's access to credit and other opportunities. Men began to appreciate and to value what women and women's organizations could contribute to their communities.

Disseminate project methods and results

The participatory methodology that was developed by the project was presented in a manual entitled, "The Warmi Project: A Participatory Approach to Improve Maternal and Neonatal Health." Two working papers were produced for the MotherCare Working Paper Series detailing the project's experience with the community action cycle and a 17 minute video was produced that summarized the project methodology and results. These products were used to disseminate the project process and results to government health professionals, PROCOSI members, donor agencies and others interested in the experience.

Upon completion of the final evaluation, SC/B presented the results to PROCOSI members, government health professionals and donors. A formal presentation of the Warmi Project video was held for over 100 policy makers and health professionals in La Paz.

Advocate to build consensus and influence policy

Following the initial dissemination phase, SC/B and USAID staff made visits to each PROCOSI member organization individually to speak with directors and health program advisors to determine whether they were interested in using the Warmi Project methodology in their project areas. Some of these visits were followed by additional presentations for groups of program staff to brief them on the methodology and results. When it was determined that there was sufficient interest to merit developing a project proposal to expand the Warmi

methodology and other reproductive health activities, PROCOSI members met again as a group several times to discuss project goals and objectives and develop a logical framework for the project.

Opportunely, at the national level, a new administration dedicated to decentralization had begun to explore ways to increase popular participation at the community and municipal levels. The Warmi Project methodology and philosophy were consistent with the new administration's vision. SC/B was invited to participate on the national commission to develop the maternal and reproductive health component of the national health plan to represent a community-based perspective. The Warmi Project methodology was then included in the national health plan ("Plan Vida") as an approach to working with communities to improve maternal and neonatal health. Several policies were introduced into the plan as a result of Warmi's field experience including recognition of community-based midwives as a part of the district health referral network. The plan validated the need to make family planning services available in rural areas and created the opportunity for many other improvements.

In 1994-95, the national government introduced and began to implement the "Law of Popular Participation." The new law decentralized decision-making about local development projects and local services to the municipal level. Budget resources, which had until then been allocated by the centralized national level, were now divided and distributed to the municipalities based on a flat per capita rate. This profoundly affected communities' abilities to make positive changes (or negative ones) using local resources. The potential to improve health through the use of local resources was increased, but could be realized only if communities recognized and prioritized the need to allocate their resources for this purpose. The Warmi Project methodology helped to raise community members' awareness of health issues and the action planning phase of the community action cycle became even more relevant. (Interestingly, government officials who were developing the Law of Popular Participation discussed the Warmi Project experience when they reviewed Bolivian examples of community participation and planning.)

The National Warmi Project was launched in 1995 when potential members of the project team attended a workshop in which the community action cycle methodology was shared and demonstrated. The workshop was held in Inquisivi so that workshop participants from the various potential partner organizations could experience the methodology in the field. The National Warmi Project incorporated those who attended the workshop who were interested in participating. All participation in the National Warmi Project was on a voluntary basis.

As mentioned earlier in the Results section, municipalities have begun to incorporate the action plans that resulted from the planning together sessions into the Municipal Government annual plans.

Define organizational structure of the national project

The national project team consisted of five Save the Children/Bolivia field office staff, five Ministry of Health staff and one representative from each participating NGO or bilateral agency as follows:

National level :	SC Project Coordinator - MOH National Coordinator
	Secretariat of PROCOSI
Regional level:	Regional SC Trainers
	MOH Regional Coordinators
	NGO Regional Coordinators
	Bilateral Regional Coordinators (CCH and PSF)
District level:	District Director (MOH)
	NGO implementing personnel
	MOH implementing personnel (primarily auxiliary nurses)
Community level:	Women's Group President and other officers
	Local leaders (Mayors, other municipal government officials, etc.)
	Community members

The National Warmi Project Coordinators (SC/B and MOH) oversaw all project implementation and played an important role in bringing project partners together to plan, discuss strategies, monitor overall project progress and coordinate data collection. They provided technical assistance to the regional teams as needed.

SC/B staff worked with MOH counterparts at the regional level and most were housed in the MOH offices. This led to good coordination of activities and reinforced teamwork

Training for all implementing partners was organized by SC/B using a cascade approach. The SC/B regional trainer in each region carried out training in each phase of the project methodology that was attended by Warmi Project

coordinators from the implementing agencies. These coordinators would return to their field sites and train their project teams. Often, SC/B staff would assist with these trainings. To follow-up, SC/B staff visited field sites to provide technical assistance and determine how training could be improved.

Mobilize resources

USAID invested approximately $300,000 in the development of the demonstration project in Inquisivi over three years. This included the costs of project design and development, all field implementation, materials, technical assistance, monitoring and evaluation, and documentation. To reach rural areas on a national scale, more resources were required.

Mobilizing resources for the National Warmi Project was a challenging and complex task that required months of consensus building, negotiation, proposal development and review, and patience. The USAID/Bolivia Mission provided funding to PROCOSI (approximately $4 million over a three year period) for its members to carry out reproductive health activities including Warmi Project replication/adaptation. The USAID-funded MotherCare Project provided approximately $360,000 to SC/B over a three year period to provide coordination, materials development, technical assistance and training for all implementing partners. The USAID-funded Child and Community Health Project (CCH) and the Inter-American Development Bank PSF Project provided its own funding to replicate the Warmi methodology in the ten districts in which they worked.

Provide training and technical assistance

Project team partners were trained intensively in the philosophy and application of the methodology and in adult learning principles and techniques. Members of the National Warmi Project SC/Bolivia technical assistance team participated in the demonstration phase of the Inquisivi project, providing them with invaluable field experience.

SC staff held participatory workshops in each region throughout the country to train NGO and district MOH facilitators in each phase of the community action cycle methodology. These workshops were followed-up by visits from SC/B staff to field sites to assist partners with their own workshops and field work with communities. SC/B's supportive role and openness to being flexible in the adaptation of the methodology to local realities helped to increase their partners' ownership of the methodology.

Establish agreements and coordinate with partners (MOH and NGOs)

SC/Bolivia developed written agreements with each participating organization and with the Ministry of Health at the national, regional and district levels. The agreements clearly established the roles, responsibilities and contributions of each party as well as the desired project results and products.

Implementing partners included the Ministry of Health, the Child and Community Health Project (CCH), the Health Strengthening Project (PSF) funded by the IDB with technical assistance from the GTZ, and NGOs. Eight of the 24 members of PROCOSI, a network of NGOs working in health, participated in the replication of the WARMI methodology including:

- Association of Health Programs in Rural Areas (APSAR)
- Association of Health Promoters in Rural Areas (APROSAR)
- CARE
- Freedom From Hunger (FFH)
- Plan International (PI)
- Project Concern International (PCI)
- Rural Andean Health Project (CSRA)
- Save the Children (SC).

From the beginning of the project, the National Health Secretariat played a very important role in the planning and monitoring of project activities. As anticipated, the health districts, the regional directors' offices and regional district offices coordinated project implementation at the regional and local levels.

Project implementation was hindered by several factors in some of the districts in Oruro and Potosí. A delay in the disbursement of funds from PSF (a partner agency) to support the implementation of training workshops and monitoring activities in project communities. The relocation of trained personnel to other areas where the project was not implementing the WARMI methodology meant that new personnel needed to be trained or the methodology would not be implemented in that area. Thus, keeping trained personnel on the project can be problematic,

particularly when there is constant change of staff which is not uncommon when working with government h. .th institutions or unstable partner organizations.

The partnership between SC/B and CCH in Santa Cruz and La Paz proceeded very well. Currently, each regional office is informed about the achievements obtained through the Warmi methodology in each district.

Monitoring and evaluation

Thoughout the project, SC/B coordinated monitoring and evaluation in each of the participating health districts through the following activities:

- Regular site visits to monitor progress and provide technical assistance
- Monthly evaluation and planning meetings in each district
- National evaluation workshop (1 per year)
- Mid-term evaluation
- Mid-term regional evaluations (7 per year, 1 per region)
- Final evaluation

During implementation of the National Warmi Project, SC/B staff visited the districts and selected communities to closely monitor the quality of the implementation process.

Leadership in project coordination and implementation was assumed by all the members of PROCOSI and the MOH. Joint leadership resulted in well planned Warmi activities, and served as an experiential learning process to strengthen organizational capacity. SC/B is certain that this process has increased the likelihood that the project will be sustained, particularly by CARE in Potosí and Rural Andean Health in La Paz.

At the first National Evaluation Workshop held in March 1996, the participants defined and decided upon impact indicators which are now included in the Bolivian National Information System (SNIS). These indicators are:

- Perinatal mortality
- Number of pregnant women who had at least one prenatal visit
- Number of pregnant women who had at least two doses of TT
- Number of deliveries attended by trained community personnel
- Number of deliveries attended by health personnel (doctors, nurses, etc.)
- Number of women of fertile age that use contraceptive methods
- Number of pregnant women in high risk referred to the health system.

The results of the project have not yet been measured as the majority of communities have only recently concluded the community action cycle. An impact study will be carried out at the end of 1998.

Sustain health improvements and use of project methodology in the future

It is too early to judge whether health improvements that have been achieved as a result of the National Warmi Project will be sustained long-term. The Inquisivi demonstration project experience indicates that positive trends are likely to continue, providing conditions in Bolivia remain relatively stable.

There are several indications that the methodology will continue to be used by government health staff and NGOs, at least for the next few years. As mentioned earlier, several PVO partners decided to use their own resources to continue to receive SC/B technical assistance when MotherCare's financial support of this component ended in December 1997. The Warmi methodology is now contributing to the development of municipal annual plans. Ministry of Health staff continue to use the methodology in their work with communities, and, as many of these workers are at the auxiliary nurse level, they do not rotate out of their communities as rapidly as doctors do. Importantly, when the new government administration assumed power, the new National Secretary of Health staff maintained the project through the transition.

Current project implementors have recommended that the methodology be included in medical and public health university courses. In Potosi and Sucre, university students have participated in the Warmi Project as part of their course field work. In Santa Cruz, medical students were oriented in the Warmi methodology before beginning their mandatory rural service. In fact, in the United States, the Warmi Project experience has been introduced in graduate classes at Johns Hopkins University, George Washington University, Yale University, University of Arizona and other schools. In Peru, Warmi methodology is taught in the University in Lima. As a result of these classes, some graduate students have gone on to adopt various aspects of the methodology and approach in their field work.

Internationally, the Warmi Project experience has been presented at a number of conferences including a WHO meeting in Geneva attended by African health policy makers and other health professionals. n Peru, a national reproductive health project, ReproSalud, was designed based on the Warmi methodology. ReproSalud is now finishing its second year of implementation. Currently, Plan International is introducing the Warmi methodology in Ecuador as part of the First Ladies' of Latin America Initiative to Reduce Maternal Mortality. There appears to be great interest in applying the methodology in other settings. It is important to stress that the Warmi methodology's application in other settings may require modification and should not be replicated on a large scale in a new setting until program implementors are convinced that the process is appropriate in the new cultural context.

Lessons learned

- Participatory processes require time to implement. In scaling-up Warmi, the project methodology in the community was participatory as were the coordination, budgeting and administration in the larger initiative. Accommodating timing between various organizations working collectively with common objectives while respecting each agency's independence demands more time than was anticipated to achieve project sustainability, establish measurable impact and utilize participatory processes. A three-year project time frame is not realistic.

- Communities lose interest in the Warmi process if long periods of time pass without follow-up by the trainers, particularly during the initial community action cycles. The implementing organization loses credibility in the eyes of the community if follow-up is not punctual. Delayed funding disbursements by bilateral partners sometimes created gaps in training and implementation of the methodology. When this happens, the project risks losing the participation and interest of the leaders and women organized into groups in the process and momentum is lost.

- Educational processes are long and complex, especially when they aim toward a critical understanding of one's reality and self-determined change (it is probably simpler to disseminate knowledge about diagnosing illness, but is less long-lasting). Warmi essentially works to awaken critical consciousness and awareness of one's reality and the results of this process cannot be measured in quantitative terms. Evaluation should also include ways to show empowerment of women and communities, measuring their capacity to exercise their right to participate and propose actions to solve their problems.

- Before beginning to implement the Warmi methodology, it is important to carefully select and understand communities, paying particular attention to socio-cultural factors. For example, in communities where women normally do not participate in decision-making in the community or in their families, when one begins to work here one must solicit the approval of male leaders and husbands first to try to prevent resistance and encourage men's participation. Men must feel comfortable that they too can participate if the Warmi process is to be successful.

- The Warmi methodology creates demand for information and immediate services. The institutions implementing the Warmi Project and health providers serving Warmi Project areas should plan for this increase in demand. Communities generally request information on such themes as the importance of pre- and post-natal exams, sexually transmitted diseases and infections and others. To respond to this demand, didactic materials need to be obtained and/or developed and health personnel need to be well trained in all aspects of reproductive health services. Service providers should ensure that they have sufficient commodities and supplies on hand to meet the increased demand for family planning and other reproductive health services. The National Warmi Project experience has been that health district services were not prepared for the increased demand in part due to shortages of contraceptive supplies and in part due to lack of clinical training in contraceptive methods. This led to an increased demand by service providers for training and adequate supplies. Specifically, in districts in Tarija, La Paz, Sucre and other areas, providers obtained the necessary supplies from the regional warehouses of MOH. They also scheduled training for those providers who needed it, in some cases very rapidly.

- The Warmi methodology generates reflection and analysis about reproductive health problems, and about such themes as human sexuality, self-esteem, family violence, and human rights. It opens communication between women, between women and their husbands, and increases women's participation in community affairs. These results were consistently achieved by the National Warmi Project regardless of the implementing agency.

- Several important achievements support the likelihood that the project and the Warmi methodology will be sustained including: community leaders have been trained in, and are using, the Warmi methodology; the Warmi process was articulated in the national health plan; and, the fact that NGOs are now using their own resources to pay for technical assistance and to implement the methodology in new project sites.

- Interinstitutional coordination was key to the success of the scaling-up effort. The coordination with the Ministry of Health was not just at the executive level, but negotiation and action took place at the regional, district, sector and area levels as well.

- When new methods are introduced, there may be initial resistance which can be overcome if the methods are effective. For example, government auxiliary nurses initially saw the Warmi methodology as one more thing they had to do. This changed over time and most now enjoy this aspect of their job. The constant assistance by SC/B staff was critical to the successful implementation of the project. In areas where SC/B was not able to assist project teams due to geographic isolation, field workers did not complete the process or it was delayed.

- The staffing of the project was well designed. The national coordinator of the Warmi Project managed and coordinated the activities implemented by the regional trainers. Few technical staff meant low direct and indirect costs and required intensive reliance on the participating organizations to implement, yet provided national coverage in Warmi technical matters.

- The technical personnel in charge of coordinating the Warmi Project for partner agencies should possess the following characteristics: high level of skill in non-formal education methodologies, speak the regional language, exceptional interpersonal skills so that they are capable of obtaining the acceptance of the communities and commitment to stay with the project for at least to years.

- The original Warmi methodology was very time intensive, particularly when women's groups did not exist before the project and participants had not experienced group processes such as priority setting and planning. These processes take time, and women's time is valuable. Community participants must be able to quickly measure the impact that their participation has had or they will cease to participate. The Warmi methodology has responded to this need and has reduced the total time required to implement the entire process. Originally, a community action cycle would require eight months to a year to complete. The revised methodology, which will be detailed in the Second Manual for Warmi Implementors, has cut down the time required to complete the first cycle to approximately six months. Subsequent cycles are often shorter and a community would need to complete 4 or 5 cycles before its members could then internalize and apply the process on their own.

- The expansion of the Warmi methodology to ReproSalud, a national project in Peru, demonstrated that participatory, community-based methods can spread to other countries as well. After two years of implementation, ReproSalud is still relatively young but several lessons can be learned from its work so far. The ReproSalud project staff based their project design on the Warmi methodology after they participated in a briefing by SC/B staff. While ReproSalud improved some steps in the methodology, other important aspects of the approach were not included such as participation of men, local leaders and decision-makers in the planning together phase. This omission diminished the project's acceptance and integration into some communities, leading to keeping women relatively isolated from community decision-making. It is important to be flexible in adapting methodologies to meet the needs of partner organizations, but to help ensure that similar successful results are achieved, the basic principles and approaches that have had success should be maintained. Organizations will learn what works and does not work through their own experience in the field, as the ReproSalud project has learned that it now needs to include men. The benefit of having on-the-ground technical assistance from organizations that have successfully implemented the methodology is that these lessons have often already been learned and could have been shared with new partners. This also points to the need for very detailed documentation of the methods used and the rationale behind them.

Conclusion

The expansion of the Warmi demonstration project to a national program offers a wealth of experience in how participatory approaches can be brought to a national scale through flexibility, interinstitutional coordination and establishing common goals.

Scaling-up is an evolutionary process. While an organization cannot guarantee that every successful demonstration project will go to scale, there are many things that an organization can do to enhance the likelihood that a successful

demonstration or pilot project will be replicated or adapted to reach more people in nee Nevertheles here are always positive and negative conditions which are beyond an organization's control. Ar sightful an and understanding of the external environment (health problems, government and donor prior es, etc.) and d timing to take advantage of potential support are critical to success. The willingness and ability to be flexible, nego ate and be patient are essential.

If a methodology is effective and is clearly and systematically shared with a wide audience, it is likely that at least a few organizations will try it out and continue to use it if they are successful. Participation in a scaling-up effort must be voluntary. To help other organizations replicate or adapt promising methodologies, careful documentation and step-by-step descriptions of what has been done, how it has been done and why it has been done this way are invaluable. Technical assistance and training that are sensitive to organizational strengths, weaknesses, structure and philosophy, in addition to being technically sound, are also strongly recommended.

We are still learning much about what is and is not working. Many challenges remain for us to truly evaluate the results of this project. While health indicators have appropriately been the primary focus of the evaluation framework, the Warmi methodology affects broader aspects of community life and community members' skills that we have not systematically evaluated and that have important implications for sustainability of the project and continued improvements in community development including health. Women's empowerment, men's empowerment to empower women, problem identification and prioritization skills, planning skills and ways that communities organize to take action are just some of the areas that should be studied more extensively.

Figure 1 presents a summary of the major steps that the Warmi Project followed.

Figure 1. *Eight Steps to "Scaling-Up"*

1. Establish that the technical intervention, methodology or approach that is being considered for scaling up leads to desired results through carefully evaluated and documented research.

2. Assess possibilities for scaling up (need, available resources, political will, potential partners, etc. and potential barriers to scaling up (opponents and their arguments, policies, etc.).

3. Build consensus for scaling up among decision makers, implementors and leaders of those who participate in the program/ use the intervention through meetings, presentations, field visits, etc. with key individuals and groups.

4. Ensure that policies are supportive and that resources will be available.

5. Develop plans/proposals with decision makers and implementors on the organizational structure and relationships of the scale up, activities, management, monitoring and evaluation, training and technical assistance, etc. Program designs or interventions should be simplified as much as possible and should be accessible in "user friendly" language.

6. Be prepared to solicit many donors and negotiate many hours in order to put all pieces into place. The amount of funding needed for large scale programs is often not available through only one donor. Negotiate contracts, budgets, work plans.

7. Prepare training and technical assistance teams and materials to work at regional or other level depending on organizational structure. Be flexible and adapt to meet local conditions whenever possible without losing essential elements of quality.

8. Program implementors meet regularly on local, regional and national levels to monitor progress, detect problems, develop innovative solutions/approaches, strengthen skills and build team. Ensure that representatives from those who are participating in the program (community men and women, etc.) participate in monitoring and evaluation at a minimum at the local level.

The scaling-up process requires a tremendous amount of negotiation, diplomacy, patience, flexibility, time and resources to be successful.

Partnering with Government for Child Survival Interventions[1]

Linggawijiaya[2] and J. Stephen Robinson[3]

Abstract

This description of Project Concern International's child survival interventions in Indonesia focuses on the practical issues of partnering with government. The paper describes six immunization interventions that were implemented in concert with the Maluku Province Ministry of Health and that proved to be successful, dramatically so in some cases. The six interventions include: (1) advocating policies for tetanus vaccination of all women of child bearing age rather than just pregnant women, (2) lifetime TT cards, (3) on-the-job peer training, (4) computerized local area monitoring, (5) school based MCH, and (6) student immunization week force. The implementation of these six interventions in Maluku initially and then in East Kalimantan and Irian Jaya provinces of Indonesia is reviewed and lessons drawn about partnering and about replication. Successful elements of the partnering approach includes: (1) joint government-PCI intervention design, (2) training and use of government staff for implementation, (3) involvement of government staff in monitoring and evaluation, (4) providing assistance to government staff in preparing budgets for continuation, and (5) allowing time for a gradual turnover. Conclusion: programs that work well in one setting may not transfer to another setting successfully without substantial fine-tuning.

Introduction

Without delving into the historical details it is safe to say that health development has gone through a gradual process of maturation since the end of World War II when the Marshall Plan heralded the stereotypic "aid" package. Today we like to think that it is rare to see programs imposed from the outside with no regard to the perceived needs of the recipient nor their involvement in the planning processes. Most programs today tend to be developed as partnerships with recipient governments and/or community groups.

In discussing the practical issues of partnering with government as a method for realizing health development, this paper will present the results of activities conducted in several provinces of Indonesia by Project Concern International over the past seven years. As most of the intervention strategies were designed and developed in Maluku Province, the primary focus will be on this province. This will be accompanied by a presentation of the same activities implemented in Irian Jaya (Western New Guinea) and East Kalimantan (Borneo). The paper will also discuss some of the elements of successful partnering with government that have been identified in the process of conducting these activities.

The partnering scheme

Each of the several interventions implemented in Maluku was conducted collaboratively with the Government of Indonesia. It is obvious that any intervention that impacts on the populace and the services normally rendered by the government needs to be carefully planned together with the latter.

Based on "lessons learned" by PCI over the years, a general plan is delineated below for establishing and conducting a successful partner program with government.

(1) Develop the intervention design together. This is probably the most important element. The design must be consistent with governmental policy and must answer their perceived needs. Plus the government counterpart must have a sense of ownership.

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[1] Submitted by Project Concern International (PCI), San Diego, California. The projects described were jointly implemented by PCI and the provincial and district Ministries of Health (MOH) and of Education & Culture (MOEC) in Maluku and Irian Jaya Provinces of Indonesia under a child survival grant from USAID/BHR/PVC, and jointly by Community OutReach Initiatives (CORI) and the provincial and district MOH and MOEC in East Kalimantan Province of Indonesia. Contact PCI, 3550 Afton Rd, San Diego, CA 92123 for additional information.

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(2) Train and use government staff for implementation. All interventions in Maluku were primarily conducted by GOI workers (HC staff, teachers) or members of the local community (mothers, VHWs, students). NGO project staff was only used to conduct the technical training when needed, provide funding and logistical assistance, plus conduct the monitoring and supervision.

Pragmatically PCI has found the implementation process needs to be conducted in a manner that will facilitate the program being entrusted to the partner in the future. This also strengthens sustainability. The steps in the process of developing a new project or piloting a new strategy might proceed as follows:

- Conduct a pilot project with a small population if the concept is new to the partner.
- Measure the impact of the pilot intervention to demonstrate the value and feasibility of the approach.
- Expand the strategy to a larger area to test its replicability and impact on a larger scale.
- Measure the impact on the expanded intervention over a longer time to ensure that the strategy is cost-effective and sustainable and will work on a large scale.
- Formally present the results of all evaluations to the local partner agency.
- Seek opportunities to present the results with the local partner at higher-level government (national or regional) partner conferences/meetings.
- Seek support from well-respected NGOs and professional agencies to validate the intervention strategies.

(3) Involve government staff in monitoring and evaluation. If the government partner is not involved in the assessment, evaluation, and monitoring process, the results, especially if poor, may not be accepted. This is particularly true for statistics like immunization coverage and morbidity/mortality data.

Once the above steps have been conducted, if the intervention is successful, it is important to assist the partner in preparing for long-term replication and expansion.

(4) Assist in preparing budgets for continuation. The local partner/government sector will likely need some assistance in planning expenses for the coming years to ensure that funding can be set up for future fiscal years.

(5) Provide enough time for a gradual turnover. Do not expect even a very attractive intervention to sweep the country in a year or two. These are rare. It is likely that the process of maturing from a design to a pilot to a full-scale area project to becoming a national policy will take several, if not many years. During this time the intervention will need continued financial and technical support as it works through the process of institutionalization. Patience is vital. Most NGO innovations, even brilliant ones, have died unsung heroes.

Background

The Province of Maluku (The Moluccas) is located in eastern Indonesia and consists of more than 1,000 islands between the large island of Sulawesi and the western end of Irian Jaya (formerly Dutch New Guinea) and extending from 3 degrees North latitude to 9 degrees South latitude. Maluku covers an earth surface region equal to the area of Pakistan.

The total population of Maluku (also known as the Spice Islands) is about 2 million of whom 40% are under the age of 15 years and 13% are under the age of 5 years. Like much of Indonesia, most (81%) of the population of Maluku live in rural areas. About 70% of the villages are located more than 10 km away from the nearest Puskesmas (Community Health Center); and 65% cannot be reached by wheeled vehicles. There are 133 indigenous languages spoken in Maluku. Unlike the rest of Indonesia between 50-60% of the people are Christian, the rest being Moslem or animistic. The major products are fish, timber, pearls and spices (cloves, nutmeg, and cinnamon).

From 1991-93 the Moluccas had the lowest immunization coverage in Indonesia. One quarter of the population endured a measles coverage of less than 10%. Only 49% of children under two had Road-to-Health cards and only 13% of women had proof of complete tetanus toxoid coverage in their last pregnancy. These deficiencies were primarily due to the difficulties encountered by the Ministry of Health (MOH) in providing services to a geographically isolated populace spread over an area equal to 10% of the surface area of all of Indonesia.
Most immunizations in Indonesia are given by mobile teams at monthly village Integrated Health Posts (Posyandu However, due to geographic remoteness in this province, almost one-quarter of the population was only served quarterly or, at best, annually by Posyandu. Moreover, of those villages that were readily accessible, only 71% held Posyandu monthly on a routine basis.

With USAID funding Project Concern International implemented two sequential Child Survival programs (USAID Child Survival Grants CS-VII and CS-X) in this island province. The primary objective was to increase immunization coverage of the target population.

Strategies

Project Concern International (PCI) worked together with the provincial MOH from 1991-1997 to overcome some of the factors contributing to the low immunization coverage and high infant and maternal mortality in the area. Three strategies were employed:

(1) Strengthen the cold-chain and management of the immunization program. Information on the strengths and weaknesses of the program obtained from a cold-chain and immunization program survey conducted by PCI of 101 health centers was given to the MOH. Recommendations were made for steps to correct problems and improve immunization management and cold-chain integrity. Several innovative programs were developed that relied on close government cooperation to solve some of the most serious inadequacies:

1) Training of immunizers needed to be improved.
2) Immunization data monitoring was ineffective and not utilized

(2) Increase implementation of Posyandu. By Ministry of Home Affairs decree each Province was instructed to increase Posyandu implementation by forming multi-sectoral Posyandu Supervisory Teams from provincial to village level. It has been found that the participation of local government (especially the non-health sector local officials) in Posyandu implementation is a key to its success. Support was provided to form these teams and train officials on the importance of maternal and child health interventions to overall development of the community.

(3) Increase community participation in Posyandu. Once the immunization delivery and management program was strengthened and number of Posyandu increased, the next logical step was to increase the attendance of mothers and children at Posyandu. This was achieved by convincing mothers of the importance of the weighing clinic services using elementary school students in a child-to-mother education program and trained TBA "motivators."

By April, 1994 (after three years) PCI's program had assisted Maluku to achieve Universal Childhood Immunization (UCI) with full coverage over 80%. A three-year extension (CS-X) was awarded to enable PCI to build on the progress achieved in CS VII. This included the expansion and institutionalization of several of the successful pilot efforts. During the six-year period, the project initiated two immunization strategies that have become national policy: 1) Use of a Lifetime TT card, and 2) TT immunizations available to <u>all</u> women of childbearing age. In addition, project-designed computer software for monitoring and reporting immunization program results (*MANISE*) was produced and is currently being expanded nationally.

The CS-X final survey and evaluation conducted in September, 1997 demonstrated a significant improvement in many maternal and child health indicators over the life of the project. Ninety-seven percent of the villages surveyed had active Posyandu compared to only 70% in 1991 and 85% in 1994. The proportion of children with a Road-to-Health card rose from 49 to 69% province-wide. Attendance by children under two at the Posyandu rose from 30% to an average of 51%. With improvement in Posyandu indicators, immunization coverage of children 12-23 months of age improved as well with UCI being maintained.

There was a significant improvement in the proportion of mothers who obtained pre-natal care and who knew about the need to increase food consumption during pregnancy. There was a significant shift to the greater usage of health professionals as opposed to TBAs. Diarrheal disease management and the use of ORT improved. The recognition of the danger signs of dehydration and Acute Lower Respiratory Infection (ALRI) likewise improved.

Many of these achievements were due to the development of innovative approaches that relied on work with the MOH and their subsequent institutionalization. Several of these are described below.

New policies in elimination of neonatal tetanus

Indonesia launched a campaign to eliminate neonatal tetanus on Java and Bali by 1995 and the rest of Indonesia by the year 2000. The current national TT-2 coverage for pregnant women is only 65%. Until very recently Indonesia had a policy of only allowing pregnant women to be immunized with TT and more recently elementary school children in first and sixth grades. In order to accelerate improved TT coverage, PCI in 1993 requested and obtained permission from EPI/National to undertake a trial program of immunizing <u>all</u> women of childbearing age who

attended the Posyandu (regardless of pregnancy status). This increased the target population of women elig for TT immunization from 3% to about 25% (an eight-fold increase). As expected, over the ensuing year, the n r of doses of TT delivered jumped 4 to 5 times the usual figure.

The new campaign emphasized that women of childbearing age need five tetanus toxoid shots to attain lifetime immunity. In order to monitor the program and record immunizations, PCI designed and printed TT Lifetime cards for distribution. Over the ensuing years PCI printed and distributed more than 500,000 cards with support from donors and private industry. The results of the trial in Maluku were presented at a national EPI strategy meeting from which discussions were launched over the next two years on developing a system to introduce Lifetime coverage in all women of child-bearing age. UNICEF and WHO strongly supported the use of a Lifetime card, but in the past had not succeeded in convincing the GOI to adopt the program.

Currently with the support of UNICEF and WHO, and based on the PCI field trials of the new card, the central MOH has modified national EPI policy. After several attempts at gaining a sponsor, national TT Lifetime cards have been printed. A mass immunization effort was launched in 1996 to immunize all women of child-bearing age in areas at high risk for neonatal tetanus (a calculated 15% of the women). The national TT card first appeared at that time. The use of the card and the 5-dose TT policy has slowly made its way to all provinces, but the limitations on funding for card printing and TT vaccine stocks has temporarily limited the program from becoming universal.

In Maluku there was a large increase in the proportion of women with proof of tetanus toxoid immunization status due to the province-wide policy of using the TT Lifetime card introduced by the project. Coverage with TT2 rose from 16% to 47% in three years (1994-97).

Immunizer peer management training

The cold-chain survey conducted at the outset of activities in Maluku convinced PCI staff that poor management skills were often the cause for poor immunization results. Good management is not taught in a course -- it is a behavior pattern within an individual. *If you didn't learn to organize yourself as a young person it is not likely you can learn to change this pattern by attending a course.* Many old habits and behavior patterns have to be changed. This is not always possible. New behavior patterns must be learned on the job if they can be learned at all. PCI staff suspected that the best person to assist with this was another immunizer -- one who already had a good management style. Hence, an immunizer-to-immunizer (ITI) peer training program was developed wherein a successful immunizer works side-by-side with the "poor" immunizer passing on points and demonstrating techniques for more effective management of the program. The "effective" immunizer is rewarded with a 10-14 day trip to work in another area where the immunization program is running poorly.

An evaluation conducted by the BASICS project in 1996 showed that the program was very successful. Immunization coverage in the work areas of the recipient clinics rose 40%. The training program cost only about US$53 per trainee (June, 1997) and about US$2.12 per additional percentile increase in coverage. The MOH in Maluku was pleased with the concept and agreed to continue this program with their own funds beginning in 1998.

Computerized local area monitoring

Indonesia uses a Local Area Monitoring (LAM) scheme as a management tool in the immunization program. Each month, based on the number of doses of vaccine given, health centers produce a series of bar graphs depicting in rank order the percentage of the annual target achieved by each village in their area. Thus substandard villages are graphically identified providing an opportunity for decision-making and targeting resources. At the next level, district EPI managers re-draw the same graphs according to health center performance. This data moves further up to the province and then eventually is reported to the national EPI office.

A complete report requires that separate graphs be produced for DPT-1, Polio-3, Measles, TT1, TT2, and drop-out for DPT1-Polio3 and TT1-2. These seven graphs are all drawn manually. Although the procedure is a helpful management exercise, the process is time-consuming and often suffers from mathematical errors. At the district level the monthly task consumes several days. Once the graphs are drawn they must be photocopied and sent on to the province by mail.

PCI has computerized the LAM reporting with a program called *MANISE (Managemen Imunisasi Setempat*, or Local Immunization Management) that facilitates data entry, calculations, and printing of the graphs (see Appendix C). The usual two-day chore at the district level takes less than one hour on the computer and graphs can be reproduced on the printer in minutes to provide extra copies for feedback to the field. Data is sent on a diskette to

the province where another *MANISE* program compiles the data for a national EPI report. The program is w en with FoxPro in Indonesian with pull-down help menus.

The program in itself is a money saver for the MOH. What normally takes two whole days for the compilation of data and the drawing of graphs by hand is now accomplished in 40 minutes with the software. The added advantage is that the results are more accurate and they can be quickly relayed to the next level on the network by sending a diskette only. There is no further need to mail bulky hard copies that require expensive postage.

PCI developed the computer program in Maluku province installing it in all five districts and the province. BASICS provided a grant in 1996 to write a generic program for use in any district or province plus a national-level program for compiling data in EPI/Jakarta. The generic program allowed for the monitoring of any vaccine and included a component to monitor vaccine wastage. This year (1998) the national EPI obtained funds from WHO to install the generic program in five provinces and several of their districts. The software consultant has recently produced a Windows 95 version of the program. The aim is to achieve a national computer network of immunization data. In addition, a system for using the Internet to communicate data is being developed.

Elementary school MCH program

Evaluation of a project in Maluku showed that elementary school students can be effective advocates for the Posyandu and MCH interventions. The program was developed by PCI in concert with the Ministry of Education & Culture and the Ministry of Health. The heart of the program was a curriculum designed for students living in remote villages where multi-media campaigns cannot reach. Fourth and fifth grade physical education teachers were trained to teach each lesson in the curriculum. The 16-week curriculum requires students to complete homework assignments with their mothers in specially designed workbooks. Homework also includes the completion of four "mini-surveys" in the neighborhood covering Posyandu attendance, immunization coverage, breast feeding, and diarrhea management. This provides a previously untapped conduit for maternal health education.

Elementary school teachers work with the local health center staff and village health workers to deliver this curriculum. Surveys have shown that for every child involved five women with a child under three are impacted directly. In other words, an average of five women with a child under three were visited by an enrolled student conducting a survey or were invited to attend the Posyandu.

Evaluation of a pilot in Maluku with pre- and post-testing of randomly-selected mothers and examination of health center records demonstrated dramatic increases in the proportion of children with Road-to-Health cards, Posyandu attendance, and immunization coverage. Attendance at the Posyandu and the proportion of children with Road-to-Health cards doubled resulting in a two-fold increase in children completely immunized.

The program was expanded to 625 schools in Maluku in 1996-97, directly reaching more than 50,000 mothers. An evaluation of the replicated and expanded program substantiated the long-term effectiveness of the program: TT coverage tripled, and dramatic increases in RTH card possession, Posyandu attendance and child immunization coverage were again observed.

The Ministry of Education in Maluku has formally sanctioned the inclusion of this program into the fourth grade teaching curriculum. Participating teachers receive "credit points" toward professional advancement and future promotions. The major recurrent costs are only for training new teachers and the provision of the workbooks, which are paid for by the students at about fifty cents each.

The School Posyandu Program was piloted in Irian Jaya in the academic year of 1997/98 involving 40 schools. An evaluation of the pilot program this year showed there was a 3 to1 outreach for every student enrolled. Despite some technical difficulties, RTH card possession increased as did the proportion of fully immunized children. PCI staff felt the program did not run as well as the Maluku and East Kalimantan programs for a number of reasons:

1) Lower educational level and inadequate professional training of teachers;
2) Lower educational level of the students;
3) Low fluency in Bahasa Indonesia with preference for use of the local languages;
4) High dropout rate and absenteeism of students and teachers;
5) Difficult program supervision; and,
6) Poor local Posyandu implementation.

The School Posyandu Program has been replicated in East Kalimantan (Borneo) in 50 villages increasing to more

than 100 this year. A tuberculosis curriculum has been added that promotes and supports the DOTS (Directly Observed Treatment – Short course) strategy for tuberculosis treatment. This pilot project has been endorsed by WHO as a model to be replicated throughout the country. Through COR Initiatives technical assistance to private industry, this program will be replicated in three additional provinces this year with funding from several large mining companies. The program will continue to run in East Kalimantan this year and Maluku.

Despite difficulties in the PCI Irian program CORI will be introducing the SPP with malaria and tuberculosis curricula in another district of Irian Jaya. Some of the lessons learned in the PCI project will be the basis for revisions as we work toward an effective program for Irian.

Student national immunization week force

In an effort to eradicate polio, Indonesia, like many other countries, conducted a series of National Immunization Days (NIDs) annually from 1995-1997. WHO and UNICEF challenged the NGO community to develop innovative and proactive strategies to reach high-risk populations during the NIDs especially in difficult-to-reach areas (like Maluku). Building on their experience with the elementary school students, PCI contributed to the campaign by helping to organize Indonesia's first *Pasukan Mudrid Pekan Imunisasi Nasional (PAMUPIN)* or Student National Immunization Week Force. PCI chose fourth, fifth, and sixth grade students trained by the School Posyandu Program teachers throughout the province to become members of this force. One month prior to the NID, students were requested to find and register at least one mother with a child under five. Students were also supposed to inform the mothers about the NID program and then escort them with their children to the immunization post on the day of the NID. Each student was given an armband to wear identifying him or her as part of the student program. By decree from the provincial MOEC they were released from school on the day of the NID to carry out their duties. This program was run for the NIW in 1996 with the participation of 65 schools.

An evaluation showed that the resultant population coverage for polio vaccine was significantly higher in the program sub-districts than in the non-program areas (94% versus 76%). Thus the students increased registration of mothers by 15% and consequently many more children were immunized in the areas that conducted the program than in the control areas. There was a greater problem expanding the program due to the logistics of reaching the highland schools and training the teachers and students in more remote villages in the one month between the start of the school year and the date of the campaign (September).

Results of program expansion to other provinces

The Student NID Force strategy was conducted in each of the three years of the NID program. The Minister of Health himself visited the province during the inauguration of the NID in 1997 to see the student NID force at work and congratulated PCI and the local MOH authorities on the innovation.

However, a strategy that is very successful in one area may not necessarily be so when transplanted to another geographical situation or another cultural context. The Maluku innovations have been piloted in Irian Jaya where PCI has a CS-XI grant.

In the past year former PCI-staff have formed a consulting NGO (Community OutReach Initiatives) specifically to provide technical assistance in community health to private industry. Based in East Borneo, the NGO is currently conducting health projects in communities surrounding six mining companies in four provinces plus developing women in the workplace programs for the employees of a major shoe manufacturer. Many of the interventions like the School Posyandu Program are being replicated in these communities with great success.

In Irian Jaya PCI has been working in Paniai, one of the province's ten districts, that has a population of 265,000. Most of the interventions introduced in Maluku were also tried in Irian. This district in eastern Indonesia is part of the island of New Guinea and is likely one of the world's most remote areas. Most of the population live in isolated villages in the mountainous highlands living as subsistence farmers or nomads. With illiteracy amongst women greater than 80% and government services barely existent, the infant and maternal mortality is still more than twice that of the rest of Indonesia. Communication is complicated by the diverse languages (more than 20), inhospitable terrain, and inter-tribal wars. With only 100 kilometers of road in an area the size of Nepal, most travel must be done by small plane or on foot (for days at a time).

New policies in elimination of neonatal tetanus

The TT lifetime card program was introduced in Irian by PCI only last year with the printing and distribution of the TT cards to the health centers. Cards are being used by village midwives trained in a joint PCI-MOH program. As

with many new programs that are introduced (even by the central government), local acceptance and compliance often lags for years. The national card has not yet been disseminated in the area and there is still some confusion about the program with local MOH officials despite PCI's efforts. The lack of an EPI chief the past several years has resulted in poor leadership in this part of the District MOH. It is too soon to assess any changes in TT status.

Community OutReach Initiatives (CORI) is currently working with the national MOH, UNICEF and Reebok to develop a universal TT immunization coverage program for factory workers (both women and men). The national TT card will be used and mass immunization sessions for employees will be conducted. Up to now it has been almost impossible for a male to get TT immunization after the age of 5 years.

Immunizer peer management training

This Immunizer-Trains-Immunizer (ITI) program was conducted in six health centers in Irian in 1996 and five more centers in 1997. Preliminary results showed a decrease in immunization coverage, but not as much as in the overall district. The district EPI program has been compromised the past year by lack of a director, and a severe monetary crisis due to 80% devaluation of the Indonesian Rupiah against the US dollar. The cost of the program was four times greater than the Maluku program due to transport constraints. Currently all government budgets have been cut back sharply effecting spending for training, travel, and equipment (maintenance and purchase). At the time of evaluation only a small number of the originally trained immunizers were still working at their original health center. Many had damaged cold chain equipment for which there were not sufficient funds to allow for repair (only four of eleven refrigerators had correct temperature ranges). Management practices did not improve as much as in the Maluku program, but they did improve.

Computerized local area monitoring

The MANISE program was introduced only at the district level in Irian Jaya. The original plan to install it at the provincial level and in the nine other districts went awry when a Provincial MOH official who had meager computer experience refused to use the program unless it displayed data and graphs in the exact spatial configuration as the manual program. The software needed to achieve this would have required a large amount of memory, hard disk space and expensive support software. These unrealistic demands were not adequately countered before the program was written off (on the whims of one official). As the software has been accepted by the national EPI and is being installed in other provinces, it is likely only a matter of time before the software is used in Irian Jaya.

Despite the above, there are other factors which continue to present obstacles to MANISE (or any computer data network). The level of computer sophistication and technology in Indonesia's poorest province is far below the rest of the country. Moreover, the computer in the Paniai District MOH office has been inoperable for some time due to hardware failure and virus infection. Timely repair is usually difficult due to bureaucratic and budgetary constraints.

There was also poor organization in the section of Communicable Diseases Control of District MOH, where there has been no section head responsible to supervise the immunization program officers. Finally, there was very poor appreciation for the value of the original manually-produced LAM report with scant regard for the value of the graphs for making program management decisions (the reports were rarely completed and submitted). Thus, MOH staff did not make sufficient efforts to see to it that the program was running and used.

Discussion

At this point it will be beneficial to review the elements of partnering in particular regard to their role in the success or failure of individual interventions.

Develop the intervention design together. Maluku the MOH was involved in the design in all the above interventions from the outset. All proposed activities were discussed at length with the counterpart and presented in meetings for further input. The Ministry of Education and Culture staff reviewed the School curricula extensively.

Although the District MOH chief in Irian Jaya was very closely involved in the writing of the original CS-XI proposal in 1994, he modified his personal objectives for the project several times in the ensuing years. This occurred because the government official expected to have a more flexible project design that would allow for drastic changes in mid-project. The PCI staff met with some difficulty explaining the USAID system that rigidly fixes objectives and outcomes thus making little room for significant changes in the implementation plan. The medical officer, the major counter part in the project, no longer felt the project was reflected his needs nor his

aspirations. Hence there has been difficulty in getting support for various interventions requiring policy decisions like the Lifetime TT program and the use of the EPI monitoring software.

Train and use government staff to implement. In both Maluku and East Borneo MOH and MOEC staff have carried the programs successfully. After initial training by PCI staff, health center staff trained birth attendants, provided improved health education, conducted immunizer peer-management training, and used the MANISE software. More than 1,300 government elementary school teachers conducted the SPP for no additional remuneration. School students escorted mothers and children to the immunization posts and provided health education during surveys. The TT Lifetime card was designed by the provincial EPI officer.

Implementation by GOI staff was more problematic in Irian Jaya where there is a chronic shortage of government staff in the remote clinics and schools. The high turnover of immunizers negated the benefit of the peer training as seen in the evaluation where only a fraction of the originally trained immunizers were left to evaluate. In addition, the SPP suffered from high absenteeism in teachers, who, even if present, were pressured to only teach a portion of the day so their students could be released to assist at home on the farm. The overall weak government infrastructure and worsening government financial status with the current monetary crisis in Indonesia made government staff participation an unrealized dream. Indeed, the quality of government employees serving in very remote areas tends to be lower than in more settled regions. Without reliable government staff support the NGO must implement the activities alone or with just marginal assistance.

However, many other factors can hinder the NGO's ability to implement the activities. In addition, poor infrastructure and management contributes to poor maintenance of equipment and stocking of expendable supplies. Many more refrigerators were inoperable at the time of the immunizer training post-test than the pre-test because of lack of funds for repair. Decreased budgets for procurement and travel undoubtedly contributed to vaccine stock shortages. This is one of the drawbacks of building a program on implementation by the partner. Sometimes there are emerging factors that arise to compromise your partner's ability to commit to project implementation that are often beyond the control of the NGO.

Involve government staff in monitoring and evaluation. All the interventions described above went through evaluations during pilot and expanded activities. The trainer immunizers themselves evaluated the host immunizers. All the baseline and final surveys used MOH and MOEC staff in the data collection. Immunization data monitoring was performed by MOH staff in concert with PCI staff. Involvement in this process has been lacking somewhat in the Irian program due to the lack of government staff that can be afforded to assist with surveys.

Assist in preparing budgets for continuation. PCI in Maluku has assisted the GOI in preparing budgets for continuation of the School Posyandu Program by the MOEC. In addition, they have sought donor funding to supplement the government budget until the program could stand on its own. The MOEC has offered to print the school workbooks in-house.

WHO has been assisting the national MOH with funds to get the immunization data network system based on MANISE running. The peer immunizer training program requires so little funding, the MOH agreed to just make it part of their regular budget.

Provide enough time for a gradual turnover. Several years have passed since the SPP pilot was undertaken. The gradual expansion of the program into 56 sub-districts in Maluku has taken four years. The national MOEC has recently requested assistance at getting the program "seeded" in as many provinces as possible in order to be able to convince enough national and provincial policy-makers to support the program nationally. A high-ranking MOEC official has just returned from presenting a paper on the program at WHO/Geneva (March, 1998).

Both the TT Lifetime card and the MANISE program will take several more years before they reach all their target areas. And then we must always remember that despite central policy decisions one should never expect that a successful program in one geographic area will succeed in another especially when areas can be so culturally and geographically different as they are in Indonesia.

Policy-Level Impact of the Save the Children - Department of Health Partnership on the Community Volunteer Health Workers Program[1]

Naida G. Pasion[2]

Abstract

In 1995, the government of the Philippines legislated an impressive package of benefits and incentives for village health workers. This paper documents the remarkable three-year effort by Ssave the Children (SC) and the Philippine Department of Health to enhance each other's programs by developing a partnership which combined the flexibility and international experience of SC and the political and logistical support of the government. After detailing the key policy and implementation actions, the paper draws seven "significant insights" critical to the partnership between a government and an NGO.

Introduction

In the Philippines, there are 250,000 front-line health workers called Community Volunteer Health Workers (CVHWs) reaching about 60% of the population. The role and the stature of these workers in the Philippine public health sector have evolved greatly since the government signed the Alma Ata Declaration in 1979. The term CVHW refers to all health workers mobilized by both the government and the private sector, and includes, among others, Barangay (Village) Health Workers, traditional birth attendants, Barangay Nutrition Scholars, and the Community Health Workers of non-government organizations. This paper will focus on the Barangay Health Workers trained by the Department of Health and the Community Health Workers trained by non-government organizations, and will refer to both each time the generic term CVHW is used.

At first, the CVHWs were considered as adjuncts to the midwives. Thus they were asked to do menial or routine jobs in the health centers such as taking of vital signs, weighing of patients, locating individual consultation records, and more often than not, providing janitorial services. Over time, the vital role of the CVHWs in the health system was increasingly recognized. Rather than being treated as a "side kick" of the midwife, the CVHWs were given more meaningful responsibilities in both the community and at the health centers. The importance of the CVHWs was reflected in various studies that documented the effects of their committed service to the communities. The CVHWs became very visible, and were active in practically every major public health event in their communities.

The Typical Community Volunteer Health Worker
Age: 41-45 years old
Status: Married
Education: High School
Years of Service as CVHW: 10-15 years
Sex : Female (97%)
Religion: Roman Catholic (81%)

A study done in the mid -1980s in the province of Bohol documented the role of the CVHWs in the management of acute respiratory infections (ARI). The action research, which included 28,000 children 0-4 years old, made the CVHWs responsible for identifying ARI cases in the communities. They were able to identify ARI cases with a high degree of accuracy (89%). Moreover, the CVHWs also facilitated educational campaigns on ARI among caregivers, and provided symptomatic treatment of cases using herbal medicine. In areas where access to medicines was difficult, the 12 CVHWs assigned to these places were trained to dispense antibiotics. The action-research documented significantly lower ARI-specific mortality in the experimental (13/1000) versus the control area (20/1000).

Numerous studies have documented the contribution of the CVHWs to the national Expanded Program on Immunization (EPI). A study of CVHWs (7) found that 70% of the 3,000 parents interviewed cited the persuasiveness of the CVHWs as the main reason why their children were fully immunized.

[1] Submitted by Save the Children Philippine Field Office.
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CVHWs have consistently been credited for their important contribution to the achievement of high EPI coverage rates. While the mass media, particularly the radio and TV, increased public awareness of the program, the CVHWs played a critical role in translating this awareness into action. Their house-to-house efforts to shepherd parents and their children to the health centers during national immunization campaigns was essential to this success. When the turnout was less than satisfactory, CVHWs themselves would guide other health center workers to the homes of those who had not been able to avail themselves of the services at the health facilities, in what they would jokingly refer to as the "mopping up operation."

In nutrition, a study of effectiveness of social marketing for the prevention and control of vitamin A deficiency documented the effect of the CVHWs on child survival. An analysis of those children who registered the most significant increase in the consumption of vitamin A revealed that the children's mothers acted on the information coming from the CVHWs, as against the print and broadcast media (4).

These are but a few examples of the documented contribution of the CVHWs to improved health practices and the use of critical health services at the community level.

Roles of the community volunteer health workers

The Department of Health defines the roles of the CVHWs as three-fold: a) community organizer; b) service provider; and c) community educator. As community organizer, the CVHW mobilizes the families in his or her area of coverage to collectively act on specific health concerns. As community educator, the CVHW conducts information campaigns, small group or one-on-one instructional sessions with mothers and other household members or caregivers. As service provider, the CVHWs provide a range of child survival services, which include: growth monitoring, micronutrient supplementation, household care for control of diarrheal diseases, follow-up of compliance to medication for acute respiratory infections, and referral of cases to the health center.

On average, CVHWs spend about 80 percent of their volunteer time on the provision of child survival and maternal health services. Typically, CHVWs spend an average of two days (or 12 hours) per week in their volunteer capacity. In more remote areas, where there is poor access to health centers, CVHWs often spend even more time providing services (7).

CVHW services are, in principle, voluntary. However, a majority of CVHWs receive honoraria, or travel allowances, which range from US$0.50/ month, to a high of US$50/month in more well-off areas. These honoraria are either provided by the municipal/city government, or by the Village Development Councils. In an increasing number of cases, both the municipal/city government and the Village Development Councils have been jointly providing funds for the CVHWs' honoraria. This is made possible by the Local Government Code, which has devolved health services starting from the provincial level, down to the municipalities and villages, and where at each level, support to local health programs can be funded out of the government's respective revenue allocation.

CVHWs are generally chosen by their fellow community members, through the initiative of the government Rural Health Midwife or the NGO Community Organizer. The minimum requirement for a CVHW to be recognized as such is that he or she must be at least 18 years old, have functional literacy skills, and have completed a basic training program for village health workers. The design of the training program is determined by the local health unit in the case of government Barangay Health Workers, or the NGO conducting the training for the NGO volunteers.

Save the Children's partnership with the Department of Health

In recognition of the CVHWs' important role in child health, Save the Children (SC) actively pursued a partnership with the Department of Health to further improve CVHW performance and support systems. SC was encouraged by the fact that at the onset of the decentralization of the Philippine Government, the health sector was among the front-runners, with its call for "Health in the Hands of the People," and its policy of involving the private sector in all its vital activities.

In various consultations between the government and NGOs involved in health, there was the recurring recognition of the lack of a standard training program for the CVHWs which can be utilized by both the government and the NGOs. It was observed that DOH trainings focused mostly on government programs and services for child survival and maternal care, and not so much on how to foster community involvement and ownership of these programs. On the other hand, NGO CVHW trainings were found to have strong participation and community organizing

components, while the service delivery training was limited and not linked with the prevailing health system. It was therefore recommended that the best features of the training program of both the government and the NGO be combined into a single curriculum.

Because of its experience in working with volunteer health workers in Metro Manila, Iloilo and Guimaras, SC was invited by the Department of Health to be the NGO representative to the National Advisory Committee on the CVHW Program in 1993. Through its membership in the Committee, SC was able to provide the NGO perspective in CVHW programming.

SC entered into partnership with the Department of Health with a broad framework of how such a relationship could mutually enhance each other's work in child survival. SC brought to the partnership flexibility, and a field-based presence that could be used to test ideas and approaches quickly, as well as international experience in child survival (including work with community volunteers), and a clear sense of what could work in the field. On the other hand, the government offered the most effective vehicle for both institutionalizing and scaling up a program of this nature, as well as the political and logistics support needed to succeed.

SC's initial partnership with the DOH was in planning and implementing the first National Congress of Community Volunteer Health Workers in 1994 which was attended by a cross section of CVHW Federations across the country. This yearly CVHW National Congress marks the apex of the state-of-the-art information dissemination for community health work, and includes sharing of the best practices in the field. Save the Children provided technical support in designing, managing, and facilitating the programme for the Congress, and in documenting its results.

To formalize the partnership between Save the Children and the Department of Health, a Memorandum of Agreement was signed by both parties in 1995. The document also officially defined the respective roles and commitments of both partners, including the establishment of a CVHW Unit at the Department of Health - a tangible expression of the DOH's commitment to this partnership.

The CVHW Unit was envisioned as the clearing house for all efforts related to the Community Volunteer Health Workers. The Unit was also responsible for setting the long-range vision for the CVHWs as part of the Primary Health Care approach, so that at some future date, the CVHWs could become an independent entity and a formally recognized government partner in the delivery of health care. The CVHW Unit was managed by two staff members, one fully supported by the DOH, the other paid initially by Save the Children, with funding of this position gradually shifted to the DOH over a two-year period.

The three years of continuing partnership were marked by major achievements which include the following milestones:

In 1995, the Philippine Government enacted the "Barangay Health Workers Act of 1995," granting benefits and incentives to accredited Barangay health workers. The Act applies to all Barangay health workers who have undergone training provided by any accredited government or non-government organization and who voluntarily render primary health care services in the community after having been accredited to function as such by the local health board.

In 1996, the Implementing Rules and Regulations of the Barangay Health Workers Act was approved, which started the road towards greater involvement of other national government agencies such as the Department of Education Culture and Sports, the Department of Justice, the Civil Service Commission, the Department of Interior and Local Government and the Department of Budget and Management.

In 1997, the Department of Health provided funds to Save the Children to pilot-test an advocacy campaign for local government support to CVHWs among selected local government units in two provinces. The experience showed that with adequate information and motivation, local government units (LGU) were ready and willing to provide

The Barangay Health Workers Act of 1995

Provisions
Hazard Allowance
Subsistence Allowance
Training Education and Career Enrichment Programs
Recognition of years of primary health care cervice as credits to higher education
Scholarship benefits
Special training programs
Civil Service Eligibility
Free Legal Services
Preferential Access to Loans

financial, logistics and formal LGU recognition of the role of CVHWs. As an output of the advocacy sessions, municipal government units increased the transportatation allowance of their CVHWs, and provided an annual budget for their regular upgrade trainings.

In 1998, the Department of Health, now ready to respond to the need for a standard training and support system for all CVHWs (whether trained by the government or private sector) decided to embark on a comprehensive capacity-building project for the CVHWs entitled the "Barangay Health Workers Continuing Learning for Sustained Service," otherwise known as the BHW CLASS Project. The new training program focuses on family health, with an emphasis on the needs of children and women - the most vulnerable members of the family.

Tables 1-4 summarize the achievements of the partnership between the Department of Health and Save the Children:

Table 1. *Achievements of the SC-DOH Partnership towards improving technical support to CVHWs*

Situation Before the SC-DOH Partnership	Accomplishments of the Partnership	Possible Future Actions of the Partnership
Technical Resources		
• Lack of "user friendly" CVHW materials	• Development of "Health Work is Team Work," a comprehensive user-friendly guide for CVHWs • DOH granted SC government funds to develop the CVHW Action Organizer	
• No central place to keep CVHW Reference Materials	• DOH designated a CVHW Resource Center at the Central Office, which is part of the Primary Health Care Resource Center.	• SC to lead the development of the concept of Community Continuing Learning Centers

Table 2. *Results of the Partnership in Improving Program Systems for the CVHWs*

Situation Before the SC-DOH Partnership	Accomplishments of the Partnership	Possible Future Actions of the Partnership
Program Systems		
• Lack of a nationwide training system for CVHWs	• DOH gave grant to SC to design standard training system for Barangay health workers • Training to emphasize family health but will focus on vulnerable members of the family such as children and women, as the priority	• Capability building of midwives to provide next-line support to the CVHWs
• No monitoring system for performance evaluation of CVHWs after training	• SC given grant to develop a monitoring system using "index CVHWS" as reference; results will affect policy formulation	• Training of DOH staff from national to regional levels to implement this built-in monitoring system

The partnership led to providing better access for the CVHWs to technical resources in the form of manuals and reference materials.

The SC and DOH partnership was given a formal mandate to develop a nationwide training system for CVHWs which is learner-oriented and which will incorporate the best features of trainings that have been conducted by both the Government and the NGOs.

This assignment includes the training of 150 national core of trainers coming from the DOH and local NGOs who will then be accredited to train the CVHWs. Likewise, SC was commissioned to develop a monitoring system which will measure the performance of the CVHWs as a result of the training. The system will, among other things, provide a national picture of the performance of the CVHWs in relation to key child survival activities such as immunization, oral rehydration, and micronutrient supplementation.

Republic Act 7883 became a legislative landmark for CVHWs and a major step by the national government to ensure the sustainability of the CVHWs and to formalize their role in the mainstream health system.

As an offshoot of the Republic Act and the corresponding Implementing Rules and Regulations, local government support to the CVHWs has increased significantly. However, while there have been gains, new problems are emerging. For instance, some local government officials, aware that they are now compelled by law to provide incentives to their CVHWs, have started to register or replace CVHWs with persons who will support their political agenda.

Table 3. *Achievements of the DOH-SC partnership on legislation and Local Gove ment Advoc ward CVHW Sustainability*

Situation Before the SC-DOH Partnership	Accomplishments of the Partnership	Possible Future s of the Partners
Legislation and Advocacy		
• No legislated incentives to CVHWs	• Republic Act 7883, " An Act Granting Benefits and Incentives to Barangay Health Workers and for Other Purposes" • Implementing Rules and Regulations for RA 7883	• Researches to aid formulation of legislation/policies to further support CVHWs
• Need to develop best approaches for advocating CVHW support among municipal government councils	• SC was given a grant by the DOH to develop advocacy models among selected local government units in two provinces • SC was given grant funds to refine above advocacy models for nationwide implementation	• Document case studies of local government support for CVHWs as part of the effort to popularize best practices of local government units

Table 4. *Achievements of the Partnership in Strengthening the CVHW Federations and in Networking/Linkaging*

Situation Before the SC-DOH Partnership	Accomplishments of the Partnership	Possible Future Actions of the Partnership
Organizational Strengthening		
• Weak management of CVHW federations	• CVHW Annual National Congress • Conduct of organizational development workshops	• Documentation of best practices among CVHW federations in managing income-generating projects to ensure sustainability of federations and to provide additional income to individual CVHWs
Linkaging and Networking		
• Lack of concerted effort among NGOs utilizing CVHWs as a strategy towards community health management • Opportunities for inter-organizational learning among NGOs on CVHW work not optimized	• Development of a capability building program to enhance NGO capability to train CVHWs and to conduct advocacy sessions among local government units • Blueprint for organizing NGOs nationwide to support the CVHW program	• Documentation of successful NGO experiences in training and advocacy for CVHWs

The CVHWs have organized themselves at the barangay level, and in most areas, are federated at the municipal and provincial levels. There are now regional CVHW federations, area federations for each of the three major island groups of the country, and a national CVHW Confederation. This intricate pattern of associations is slowly shaping the CVHWs as an emerging political force. Proof of its recognition as a strong political entity showed during the recent national elections, where politicians wooed the support of the CVHW federation officials to support their candidacy. The CVHWs responded to such political overtures with varying degrees of political maturity. Some were swayed by the promise of more legislated benefits, but the general membership echoed the prevailing sentiment during the latest CVHW National Congress in November 1997: i.e., that they chose to be CVHWs primarily to serve and to help improve the health situation. Added benefits are a bonus and are not the main determinant of the commitment to serve their communities.

In the NGO community, Save the Children's partnership with the Department of Health is looked upon as a model on how an NGO can work with government at the national level. In the same manner, some NGOs working at the sub-national levels have been encouraged by this experience to further their partnership with local government units.

Lessons learned in partnering for child survival

The road to the DOH-SC partnership has been long and winding, yet it has survived the changes of administration of five Secretaries of Health over a five-year period, with a sixth Secretary of Health about to be installed in another month. Both negative and positive experiences within the partnership helped to shape simple lessons in partnering between a non-government and a government organization seeking to improve its work in child survival. The following are the most significant insights in the partnering experience:

Lesson No. 1: Define the parameters of the partnership at the beginning. If possible, make the terms as clear to both parties as possible by forging a written Memorandum of Agreement or Understanding. For SC and DOH, it was clear from the outset that the partnership was sought because of SC's focus on children, particularly those under age five where illness and death is concentrated. The Memorandum of Agreement states this common concern for the welfare of the children, and identifies the CVHWs as the means by which the those most in need can be reached.

Lesson No. 2: *Work on the same paradigm.* Both organizations are operating on the principle that workable and sustainable child survival activities should be designed within the context of a community-managed health system, and not just from the point of view of the health providers. The DOH slogan, "HEALTH IN THE HANDS OF THE PEOPLE" defined the common vision which transcended institutional differences. As an example, in deciding what basic minimum services for child survival were to be expected from the CVHWs, routine activities at the health center, such as weighing children, were not assigned to them, unless they had an explicit role in implementing follow-up activities with the parents and caregivers. This way, it is clear to the CVHWs that they are not just doing mechanical tasks, but rather are part of a process that will impact on the health of children.

Lesson No. 3: The partnership is between two institutions, in this case Save the Children and the Department of Health, particularly the Community Health Service, and not just among the project staff assigned to the partnership. We have observed that many partnerships in the Philippines were not sustained because the purposes and terms of the partnerships did not permeate the multiple levels of the organizations that need to be committed to the agreement. The SC-DOH partnership involved the Director and the staff of the Community Health Services, coupled with the full and active support of the Save the Children Field Office Director and the staff of the SC Philippine Country Office.

Lesson No. 4: *Observe mutual trust and transparency.* The partnership has survived and continues to thrive because of a simple adage: what you see is what you get. There were no instances where one organization manipulated the other to be in an advantageous position. A helpful factor was the fact that the core staff who were in the partnership remained through the years. Staff were added, but few were replaced from either side.

Lesson No. 5: *Recognize mutually beneficial strengths and help each other overcome weaknesses.* Because of SC's direct field experience in child survival activities in its impact communities, DOH has drawn on this experience to design more realistic strategies. SC has also more flexibility, such that in matters which call for fast logistical response, or where budgetary constraints of the DOH made it impossible for them to access the resources, SC was able to help. SC logistics support, such as the hiring of vehicles to transport workshop participants to various CVHW trainings, may seem minor but often had a major impact on the level of participation. The extensive

infrastructure of the DOH, on the other hand, provided the vehicle whereby SC could help scale-up best practices by influencing policies, integration into existing programs at the national level, and through the financial support of the government.

Lesson No. 6: Seize every opportunity to strengthen the partnership through other activities or projects even if they are outside the bounds of the partnership. When Save the Children obtained a contract from the Johns Hopkins University (JHU) to develop a model for mobilizing communities to increase their utilization of the linked services of child survival and family planning, a National Project Core Team was organized by the JHU. SC convinced JHU to invite the same staff from the DOH who were working on the CVHW project also to be part of the team. Thus, developments in the concept of integrated child survival and family planning services were used to enhance the design of the DOH CVHW materials.

Lesson No. 7: Look beyond linear or one-on-one partnerships. Inter organizational learning (Szecsey, 1998), which may criss-cross organizations, where each one shares each other's special skills, appears to be a promising model. In the case of the partnership between SC and DOH, the partnership does not just rely on the expertise of both organizations, but on a pool of technical resources that may be made available through each other. SC has helped to facilitate a new relationship between the Community Health Service (CHS) of the DOH and Johns Hopkins University which could help strengthen the communications component of the CHS. Through DOH, SC was able to obtain useful data and information from the Research Institute for Tropical Medicine (RITM) in the development of a community protocol for acute respiratory infection among children. These two are just examples of a partnership that may spawn other mutually beneficial arrangements. It is possible that SC may forge another partnership with the RITM, or the Community Health Service with the Johns Hopkins University, but all are within the purview of enriching learnings on child survival.

Conclusions

A broad range of possibilities for influencing national policies are embedded in a simple yet strategic partnership for child survival such as the one between Save the Children and the Department of Health. Working together to determine how 250,000 CVHWs, and those who will join their ranks in the future, will be trained and will pursue their multiple roles of organizer, service provider and community educator, presents a unique opportunity for improving child health on a national scale. The math is simple: If just every CVHW can prevent one less childhood illness, or one less childhood death every year, then the partnership would have made the term "child survival" a reality.

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Scaling Up a Poverty Alleviation and Nutrition Program in Vietnam[1]

Monique Sternin[2], Jerry Sternin[3], and David Marsh[4]

Abstract

Sternin et al. provide a case study on how a successful nutrition program in Vietnam was scaled up from the 1991 Save the Children-managed "Povert Alleviation and Nutrition Program" covering four communes with a population of 20,000 to a largely government-managed, multi-district program covering 1.2 million persons on 1998. Evaluations of the program find that it virtually eliminates severe malnutrition in young children; for example in the original four communes the prevalence of moderate and severe malnutrition in children under three years of age dropped from 36% to 4% after the program had been in operation for two years. Many innovations were incorporated into the program to enhance sustainability and replicability. For example, the use of positive deviance to identify sustainable local practices which lead to healthy child nutritional status was key to designing the village-based interventions. Many different lessons can be drawn from this experience.

Introduction

In early 1990, Save the Children/USA, an international non-governmental organization or private voluntary organization based in the United States, received an unprecedented invitation from the Government of Vietnam to create a national community development model, with a special focus on addressing the needs of vulnerable groups placed at special risk by the economic transition to a market economy.

Twenty years earlier the people of Thanh Hoa Province were struggling to survive the ravages of the "American War" which had devastated the province, destroyed all the major industry, and played havoc with the one crop rice culture. The ideological driving force behind efforts to improve food and nutrition until the latter 1980s were collectivists who were as concerned with political dogma as with enhanced productivity. All villages were divided into work brigades with each household responsible for providing labor, while the commune provided rice rations to all its members.

Decollectivization was a recognition that the collectives were failing drastically and that the near-famine conditions in the 1980's posed great human as well as political risks. Vietnam's evolution to a market economy began in 1986 and has generally raised living standards. By 1990 it was clear that the shift from the centrally planned economy to a market economy was beginning to have a very positive impact on agricultural productivity. However, under the market economy-- which was accompanied by cost recovery policies and an end of state subsidies for certain health, social services and agricultural inputs--there was recognition of a growing gap in wealth distribution. According to the Vietnamese Communist Party, in 1993 rural sub-populations experienced increased vulnerability due to the cessation of the Commune Agricultural Collective Farm's wealth redistribution and the privatization of health care (Berggren and Tuan 1995).

Vietnam has the highest prevalence (52%) of moderately or severely underweight children in the Southeast Asia despite a relatively low underfive mortality rate, 48/1000 (UNICEF 1995). The National Institute of Nutrition (NIN 1995) of Vietnam reported that 45% of children under age five were malnourished despite great success in rice production. In 1990 Vietnam sought strategies to respond to its malnourished children that are both sustainable (unlike feeding programs) and rapid (unlike programs attacking root causes). In response, Save the Children

[1] Submitted by Save the Children/U.S. , Westport, CT. A version will be published in: Marchione T, *Scaling Up, Scaling Down: Capacities for Overcoming Malnutrition in Developing Countries*, in press, Gordon and Breach.

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accepted the challenge to develop a Poverty Alleviation and Nutrition Program (PANP) which could measurably and sustainably enhance the quality of life of children and their families.[5]

Despite the high prevalence of malnutrition, Save the Children observed that a narrow majority (55%) of children were actually normally nourished by UNICEF's criterion. Moreover, many, if not most, of these were certain to be from poor families. We centered our "positive deviant" (PD) approach on these resilient children. Strategically, a positive deviant study asks the question: How do poor families have well nourished children when their neighbors do not? That is, what is their "deviant" behavior (Zeitlin 1990)? The PD approach uses an epidemiological "two by two" table which categorizes a group of individuals according to the presence or absence of two phenomena which are epidemiologically associated and relevant to the community, for example "well nourished child" (yes/no) and "household impoverishment" (yes/no). Positive deviants, a poor family with a well-nourished child, attract attention because they contradict the general pattern. Likewise, a "negative deviant" (Shekar 1991) is a relatively wealthy family with a malnourished child. "Positive" and "negative" refer to a social, rather than numerical, values. Positive deviance is well suited to communities where a problem is common, recognized, important, and remediable through behavior modeled within community norms. The process galvanizes households at risk in poor communities to quickly identify and adopt affordable, lasting solutions to vexing problems from their own impoverished neighbors' experiences.

Thanh Hoa Province

Save the Children introduced the Poverty Alleviation and Nutrition Program (PANP) in the coastal and lowland delta areas of Thanh Hoa Province (population 3 million). One of the country's poorest provinces, Thanh Hoa is approximately 150 km south of Hanoi, a four hour drive on the main north-south national highway. Inhabitants were primarily subsistence and cash-crop rice farmers who received small parcels of land after agricultural de-collectivization. Moderate "hungry seasons" (April-June and September-October) preceded each of two rice harvests. Literacy was high among most groups. Women and men worked in the fields. Women were entitled to a monthly "menstruation day" and a three-month postpartum leave, but they generally worked throughout pregnancy. Elderly females and older siblings typically reared young children. Poor rural families expected to educate two children, leaving two to work the land.

Save the Children chose districts with high levels of childhood malnutrition and supportive commune leadership. The extensive social infrastructure included: People's Committee, Women's Union, Health Committee, and Farmers' Committee, among others. The health system included a brigade or hamlet nurse for each hamlet, with a commune health center staffed by a pharmacist, doctor, mid-wife, and/or nurse and a geographically accessible hospital.

National political concern for childhood nutrition facilitated community entry which, in turn, took advantage of existing organizations and systems. The chairman of the People's Committee (mayor equivalent) headed the PANP Commune Steering Committee, other members of which were the chair or vice-chair of the Women's Union, a Health Committee member, and an accountant. Aided by public address systems reaching all hamlet inhabitants, the Commune Steering Committee mobilized community members for PANP.

Developing the model: Phase one

During program development early in 1991, it became clear that a phased development strategy beginning with a small, easily monitored, target population would maximize opportunities to build upon lessons learned before going to scale.

Phase One involved establishing a four commune pilot site with a population of 20,000 people in Thanh Hoa. The selected communes became a social laboratory through which a wide range of community development initiatives could be tested. Over a three-year period of continuous testing and evaluation, the Poverty Alleviation and Nutrition Program (PANP) was implemented successfully. The model was based on the belief that in order for development gains to be sustainable, strategies and solutions to community problems had to be identified within the community by the members themselves. Translating this hypothesis into action enabled the PANP to focus on community resources, as well as needs, critical to the model's sustainability and scaling up. The PANP focus on resources includes identification and exploitation of both human and material resources. This process contrasts with the more

[5] The nutritional status of children as measured in national surveys during the time this program was implemented improved only by a few percentage points(NIN 1995). The 40% reduction in real prices of rice in the early 1990's was a benefit to net buyers of rice, nearly half of households in Vietnam, but the vast majority of the recipients of this program were net rice sellers whose incomes would have been adversely affected by the price rise. Furthermore, only nine percent of rural persons in Vietnam did not produce rice in the early 1990s; the three percent of these households that are in the lowest income groups would have benefited most from the lower price (IFPRI 1996).

traditional development approach which focuses on community needs as the principal basis for · ram development while underemphasizing existing community resources.

One of the principal features of the PANP model was the establishment of a group of Health Volunteers (HV) in each commune. Utilizing the existing commune social infrastructure, Women's Union members and brigade nurses were trained as HVs. This key cadre received health, nutrition, and management training-practice-review incrementally over the two year program implementation cycle as well as a small stipend, initially provided externally, and later paid through the commune endowment fund.

Health volunteers led a three-pronged nutritional situation analysis. First, each conducted a census of her approximately 80-100 families from which she made rosters of all children under three years of age. Second, she weighed all children less than age three years at the beginning of an every-other-month Growth Monitoring Promotion Program (GMP). Third, she led the positive deviance study.

Trainers taught health volunteers to review the results of the first GMP session, seeking well-nourished children from poor families, according to public wealth rankings based on rice production. After perusing the list, their response was always "*co, co*" (there are!). Having established that it was possible for some very poor families to have an adequately nourished child, the trainer invited the volunteers and hamlet leaders to construct a list of questions pertinent to their context, including types of foods given, hand-washing practices, snack offering practices, and child care, and to undertake a survey as part of the positive deviance study to learn the secret of these families' success. Visiting four extremely poor families with well nourished children enabled the volunteers not only to interview successful parents, but also to actually observe what went into the cooking pot and the kind of child care which was provided. By consensus, the team identified the likely explanations of the "deviant" behavior resulting in the normal nutritional status despite family poverty. The free, or inexpensive special foods identified through the PD study varied by community and season. They included tiny shrimps and crabs, found in abundance in the rice paddies (but considered inappropriate for young children), sweet potato greens, sesame seeds, peanuts, dried fish, fish sauce, and corn.

Another component of the positive deviance study involved visits to two "well off" families with malnourished children to help the communes understand that good nutrition was not necessarily correlated with economic status. The results of the PD study became the core of the rehabilitation program. The protocol was based on proven, successful dietary practices within the commune, rather than on theoretical concepts of good nutrition.

Four integrated progrmas in the PANP

Four integrated programs within the PANP were developed with a focus on sustainability. Within each program, mechanisms were adopted to ensure financial viability and continuity after the three year PANP implementation cycle was completed.

The Growth Monitoring Promotion Program (GMP): This program weighed all children under three years of age every two months. Trained commune health volunteers counseled mothers regarding their children's nutritional status. Mothers whose children were doing well were encouraged to continue the good work. At risk children suffering from second and third degree malnutrition were identified and immediately enrolled in the Nutrition Education/Rehabilitation Program (NERP). Health education, treatment of sick children and bi-annual deworming were also provided at the GMP sites for all children under three years of age.

The Nutrition Education/Rehabilitation Program (NERP): All second or third degree malnourished children under age three identified at the GMP were referred by the health volunteers. Each month over a two week period mothers (or caretakers) were invited to bring their children to neighborhood NERP centers established throughout the commune where they actively participated in their children's rehabilitation. Rehabilitation was defined as reaching normal or first degree malnourished status.

The NERP objectives were: 1) to rehabilitate malnourished children and 2) to enable parents to sustain and improve their child's enhanced nutritional status after rehabilitation at home. The first objective, rehabilitating malnourished children, was achieved by providing them with sufficient nutritious food. The real challenge, however, was achieving the second objective which required families to sustain their child's enhanced nutritional status within the existing context of their poverty. Here it was necessary to find the answer in the commune, within the reach of its poorest members. A positive deviance study provided the mechanism.

The actual NERP protocol consisted of a 12 day session in various homes throughout the village. Health volunteers taught basic nutrition and hygiene messages while supervising the preparation of a nutritious, calorie-dense meal to rehabilitate the assembled second and third degree malnourished children. The meal was comprised of rice, fat, and a source of locally available, inexpensive protein such as eggs or tofu. In addition, each mother/caretaker's daily "price of admission" was a handful of the previously identified "positive deviant" food. The focus of the NERP was to change behavior rather than to transfer knowledge. The behavioral modification which resulted from the mothers' required daily contribution was critical to the success of the program. After the first year, the majority of malnourished children in the commune graduated from the NERP and this aspect was phased out. Approximately 90% of participating children had achieved first degree malnutrition or normal nutritional status. Health volunteers targeted the remaining 10% of the children and their caretakers through home visits for nutrition counseling and health education.

In addition to the gains realized by NERP participants, nutrition education had been provided for the entire community by demonstrating the dramatic impact good nutrition could have on the health and quality of life of its children. At the time of phase out, almost everyone in the commune had either been personally involved in the program or had had a neighbor, friend, or relative who was in some way involved either as beneficiary or manager, (i.e., HV, steering committee member, hamlet nurse, or leader.) Hence, nutrition rose from near oblivion to center stage in the community's consciousness. Individual interviews and focus group discussions revealed that many families in the community which never participated in the NERP noted the changes in the children who were rehabilitated and asked their mothers/caretakers how they achieved such results. A recent independent survey determined that the "positive deviant" foods introduced by mothers during the program implementation were widely used by most mothers of children under three years of age in the commune two years after the NERP portion of the program had ended.

The Nutrition Revolving Loan Program: The objective of this program was to provide immediate access to supplementary food to poor families of malnourished children who had not yet graduated from the program, despite participation in at least two NERPs. Loans in the form of laying hens were made with the condition that five eggs be given to the malnourished child each week. Loans were repaid into the revolving fund which made loans available first to other families with malnourished children and then to other poor families in the commune.

The Healthy Pregnancy/New Mother Program: This program was a critical component of the PANP community health and nutrition strategy. Whereas the NERP and Nutrition Revolving Loan Program enhanced the nutritional status of malnourished children under three years of age, the Healthy Pregnancy/New Mother Program proactively focused on preventive care to address the problem of malnutrition at its source: namely to prevent malnutrition in the fetus, the pregnant woman, as well as the lactating mother. Strategies included targeting and mobilizing men to address women's health issues, providing the program high visibility in the commune through the establishment of a monthly Pregnancy Day and combining quality health care delivery and education for the beneficiaries.

The objectives of this program were to enable all women in the commune: 1) to have healthy pregnancies, 2) to have safe deliveries, 3) to be healthy mothers, and 4) to have healthy babies through the provision of quality reproductive health care, maternal nutrition, hygiene education and counseling.

The program had two main components, the Pregnancy Monitoring Component and the Home Visiting Format. Pregnancy monitoring encouraged all identified pregnant women to have a minimum of three prenatal check-ups during their pregnancy. At a monthly Pregnancy Day at the commune health center, pregnant women received prenatal examinations and pregnancy counseling, anti-tetanus protection, iron supplementation, and weight and blood pressure measurements. Concurrently on that day, health volunteers provided hygiene education as well as interactive nutrition education through food demonstrations. Home visiting used HVs to visit the pregnant woman and the new mother at home with their family members, particularly the husband and mother-in-law to provide counseling on the special needs of the pregnant woman, the new mother and baby. Subjects covered were: delivery preparedness, reducing hard workload, maternal diet before and after delivery, breastfeeding management, hygiene, and timely introduction of supplementary feeding.

Strategies for sustainability

To ensure the sustainability of the above programs initiated during the three year PANP implementation cycle, communities needed the requisite financial and human resources to independently carry on those activities in the post phase-over period. The financial sustainability of the four PANP programs was addressed through development endowments established in each commune. These endowments consisted of grants given to communities for income generating projects, such as milling machines and transport boats. The endowments were managed by the Commune

Management Steering Committee composed of commune leaders and established early in the implemen[illegible]n o[illegible] PANP. The income from these projects was designated by the Commune Management Steering Commit[illegible] fu[illegible] specific programs within the PANP, such as stipends for health volunteers. Through the development endo[illegible]ent[illegible] commune leaders were trained in endowment management as well as in the overall management of the PANP.

In addition to financial resources, communities also needed the human resources necessary to manage on-going programs. Human resource development, realized through on-going training of commune leaders, health staff and health volunteers, was an integral component of the PANP model. The training-practice-review approach of the PANP model provided a series of training workshops for each of the four PANP programs prior to their implementation. To complement these workshops, short evaluation workshops to review results were held after the completion of each program component. This training method, training-practice-review, greatly contributed to the success of the trained commune leaders, health staff and health volunteers.

Measuring impact in the pilot communes

Baseline census measured for each family member (i.e., those eating together): district, commune, hamlet, household number, couple, and family number; relationship to head of household; date of birth; and sex. Census data were computerized allowing for print-outs of HV rosters of children eligible for each GMP. HVs weighed children on a UNICEF-approved, locally made Seca 25 kg (0.1 kg interval) infant scale, recalibrated between each weighing. At each GMP, HVs plotted weight for age on mothers' "road to health" cards displaying four growth channels: ("normal") > = -2 standard deviations (SD) below reference median weight for age; ("moderate malnutrition") < -2 and > = -3 SD; ("severe malnutrition") < -3 SD and > = -4 SD; and ("very severe malnutrition") < -4 SD.

By early 1993, two years after program inception in the first four pilot communes, the model had already produced significant changes in the nutritional status of the communities. At the beginning of the program, in the first four pilot communes, 36% of all children under three suffered from second or third degree malnutrition. Two years after the inception of the program, this extremely high incidence of physically and intellectually debilitating malnutrition was dramatically reduced to 4% (Table 1). Of the more than 1000 children participating in the Nutrition Education/Rehabilitation Program (NERP) in the first four communes, 93% were rehabilitated.

Moreover, they remained so up to two years after their participation in the program (Table 2).

Alternative explanations for the improved nutritional status must be considered. A generalized improvement in living standard or nutritional status was unlikely to have occurred, as suggested by similar initial GMP profiles from other PANP cycles begun in other districts. Deworming, as part of the intervention, probably contributed to the effect, but its role was unlikely central since nutritional improvement in some cycles preceded its implementation. Moreover, only children under three years of age were treated rather than all children and/or food preparers. Commune immunization and vitamin A coverage likely improved concomitant with initiation of semi-annual campaigns in November 1993. However, improved national immunization coverage has not correlated with improved child nutrition. Finally, one should at least consider factitious data, perhaps manipulated to achieve targets. However, independent evaluations by the National Institute of Nutrition confirmed improvements in child nutritional status in other PANP cycles (NIN survey as quoted in Berggren and Tuan, 1995). Moreover, targets were either not used or not communicated to field staff. Finally, computer-assisted monitoring of HVs showed that they randomly, rather than systematically, misclassified nutritional status in the approximately 10% of assessments in which they erred; this also argues against data manipulation.

From the beginning of the program in early 1991, Save the Children shared impact data with a wide range of Vietnamese and foreign development experts with an interest in nutrition. As data began to show significant reductions in malnutrition, curiosity was peaked and the pilot villages were visited by many Vietnamese officials and international development personnel, including UNICEF, UNDP, the World Bank, the Vietnamese National Institute of Nutrition, the Committee for Protection and Care of Children and health staff from districts and provinces throughout Vietnam. While appreciating the extraordinary nutritional gains realized by the program communes, most visitors were skeptical about the replicability of the model. "Save the Children has had control over all the program inputs," they argued."When anything went awry in the villages, you were able to change course immediately. How do you replicate that degree of surveillance in thousands of communes throughout the country?"

Going to scale with quality intact: Phase two

In March 1993, Save the Children was authorized to expand the program to an additional ten communes with a population of 60,000 people in Thanh Hoa province. Six staff members from the Vietnamese National Institute of Nutrition (NIN) were seconded to Save the Children to assume responsibility for scaling up the program while maintaining its positive outcomes.

The primary objective for the expansion of the PANP to fourteen communes was to demonstrate that the dramatic results achieved in phase one could be achieved on a larger scale utilizing national staff. Going to scale while maintaining the quality of the original model presented a set of critical challenges. Among these was the transfer of responsibility for program implementation, training, and evaluation at the field level from expatriate staff to Vietnamese staff. Extended visits to the original four villages provided the new NIN staff with direct encounters with the model in addition to the conceptual framework presented through numerous workshops. NIN staff were asked to evaluate the ongoing project, a process which afforded them broad access and contact with village leaders, program beneficiaries and villagers at large.

Utilizing National Institute of Nutrition staff as program trainers provided, not unexpectedly, both advantages and challenges. As trained professionals, their knowledge of nutrition improved the technical component of the NERP protocol. As Vietnamese, their understanding of the socio-political context of the village led to structural innovations in program management, beyond the reach of the expatriate staff responsible for the original model. The other side of the "expertise" coin, however, has been a skepticism about the value of villagers' knowledge, experience and wisdom: the "doctor knows best" syndrome. Inherent in the success of the original model was the reliance on villagers to identify solutions to their own problems. It was the conscious absence of a preconceived plan of action which led, for instance, to the development of the NERP, based on untapped, but readily available food resources found in the villages. Modification of the NERP diet and introduction of poultry loans were also the direct results of villagers' ownership of problems and responsibility for finding their solutions. Without a genuine belief in the villagers' wisdom, the model simply could not have succeeded. Hence, the success of program expansion was contingent to a large measure on the ability to inculcate that conviction in the trainers. The conversion of National Institute of Nutrition staff from technical experts to process sensitive trainers was a significant challenge.

The NIN staff, as described above, made valuable contributions both in the content and form of the program during the first phase of program expansion. What emerged from the experience, however, was a clearer understanding of the requisite skills for program trainers. These tended to be heavily weighted towards process rather than technical expertise. The efficacy of the technical content of the NERP, GMP, and Healthy Pregnancy/New Mother Program had been demonstrated and documented. Still required to scale up were the skills to transfer that knowledge and to add to it, by effectively tapping the experience and knowledge of villagers in new communes.

Expansion of the program

Since the primary challenge of the expansion phase was the transfer of program implementation and management to NIN staff, a three-step geographic expansion maximized opportunities to build upon lessons learned and problems perceived. The first expansion began in March 1993 in three new villages, followed by another three in July, and a final expansion to four villages in a new district, Tinh Gia, in November 1993. In all, ten new villages, with a population of 63,774, were selected by the districts and Save the Children staff based on the results of a nutritional baseline carried out by the Vietnamese National Institute of Nutrition.

After providing the new health volunteers with training in GMP, the NIN staff and Health Volunteers undertook the positive deviance study to determine the appropriate content for each village for its Nutrition Education/ Rehabilitation Program protocol. Unlike the old villages where locally available shrimp, crabs and greens were the principal foods provided to their children by the poor "positive deviant" families, the new villages, lacking these foods, depended on other free or inexpensive foods such as peanuts, sesame or dried fish.

A newly installed computer Management Information System provided a check on the accuracy of the health volunteers' manual GMP report. The program compared each child's date of birth, weight and corresponding nutritional status with the manual calculation reported by the health volunteers. Hence, errors could be detected and analyzed and then used as a basis for retraining health volunteers in the GMP protocol. Lessons learned from the first GMP in the first three new villages (March 1993) demonstrated that the training of the health volunteers was inadequate.

Consequently, NIN staff held additional workshops to upgrade growth card plotting skills of the health nte and of equal importance, increased the time allowed for GMP training in the subsequent two groups of 1 villa. Similarly, the training schedule for other program components for the second and third set of new village as based on experience in the first expansion villages. Time allotted for training was increased where necessa . and training materials were improved based on the experience gained in the first expansion villages. These intense training demands for time and personnel and the surveillance were necessary only during the program development stage. Improvements over time in training techniques and materials enabled health volunteers, for example, to greatly improve accuracy of GMP plotting. Hence, the manual system at the village level now proves sufficient.

The expertise gained over the first two and a half years by villagers in the original program communes provided an excellent resource for the people in the villages added to the new expanded program. Health volunteers, People's Committee and Women's Union leaders and members took an active part in training new villagers in program objectives, implementation and protocol. The utilization of "old villagers" as consultants not only contributed to a smoother program implementation in the expanded villages, but reinforced the knowledge and sense of empowerment of the contributing consultants and their villages.

The creation by the NIN staff and villagers of an NERP Management Committee in the expanded program villages proved to be an important innovation and an effective vehicle for increased program participation and ownership at the highest levels. In the original pilot villages, the NERP was managed by an individual such as the Women's Union chairperson or the head of the clinic. The managing committee in the expansion villages was comprised of the head of the People's Committee, the Party chairman, the head of the Women's Union, and one commune health center staff. The committee members viewed their role as "ensuring the overall management, implementation and monitoring of the program." Committee members attended NERP sessions and checked on hygiene, menus, and eligibility of attending children. Their assistance not only contributed to the overall conduct of the NERP and other programs, but also greatly enhanced the commune's official commitment to children's health and nutrition.

New district, new opportunities

The expansion of the program to a new district, Tinh Gia, in November of 1993 provided an opportunity to utilize the commune Management Steering Committee concept at the district level for the first time. Meetings held at the Tinh Gia People's Committee focused on expectations, roles and responsibilities. Unlike the program in the original villages, where district level Women's Union, People's Committee and Health Cadre had a somewhat peripheral role, those entities were asked to assume a principal management role for program implementation and monitoring. The assumption of a management role for the district has proven critical not only for sustainability of the program, but for scaling up as well.

As managers of the program, the district assumed responsibility for the overall implementation and quality of the program. Women's Union leaders visited NERPs and Pregnancy Day programs. People's Committee members checked on the commune's financial management of loan programs and development endowments. District health and family planning cadres participated in training village health staff for pregnancy monitoring. Growth monitoring and NERP results were passed by the commune to the district rather than to Save the Children as in the original communes. Hence, after program phase-over at the commune level, the district remained responsible for resolving problems. By managing the overall program, the District Steering Committee developed a comprehensive understanding of the specific programs and their impact. This enabled them to replicate individual components on their own in other communes throughout the district. With only minimal external financial assistance, specific components of the program, (i.e. GMP, NERP, Healthy Pregnancy/New Mother Program) could be implemented in non-program villages by district level cadres who participated in training and management of these protocols. One district, Quang Xuong, implemented the Pregnancy Day in all 43 villages throughout the district. This strategy facilitated a redefinition and enhancement of roles: "district leaders as program catalysts" rather than the more passive role of "district leaders as program partners."

The ability to build on content and process lessons learned in the original program villages combined with structural innovations (such as the management steering committee), enabled the NIN staff to get off to a more rapid start in the expanded program villages. Program impact was similar to that seen in the initial development stage (Table 3). Indeed, it was faster. Because the NERPs had been refined, village mothers/caretakers rehabilitated their children in an average of 2.8 sessions, rather than the 3.3 required in the original communes. As a result, the NERP program was phased out in the second group of 10 communes in an average of 10 months rather than the 23 months required in the first four communes.

A detailed cohort analysis (Sternin et al. 1997) was performed of the impact of PANP in Group C, the last four of these added communes. Children's weight for age improved, on average, by 0.36 Z-score (from -2.14 to -1.78 Z-scores). Moreover, the nutritional status of severely and very severely malnourished children improved by fully 1.44 Z-scores (from -3.58 to -2.14 Z-scores). Very severe malnutrition vanished (Table 4), while severe malnutrition decreased from a prevalence of 19% to 4%, and the normal group increased by a third (from a prevalence of 42% to 56%). Indeed, our Vietnamese colleagues dramatically succeeded in using local solutions to alleviate childhood malnutrition over the 24 month program.[6]

Living university and further geographic expansion

By the spring of 1994, it was clear that program expansion and implementation managed solely by Vietnamese staff in no way compromised the quality or impact of the PANP. Many international and Vietnamese organizations which had earlier visited the program now expressed interest in replicating it in their respective geographic areas.

Major development organizations involved in nutrition, health and poverty alleviation in Vietnam, including UNICEF, and a host of international non-governmental organizations demonstrated keen interest in accessing the model for replication. Increased attention highlighted the need to create a mechanism through which the model could be made available to the maximum number of communities throughout Vietnam. "The Living University," which opened in July 1994, responded to that need by using the 14 program communes as an open classroom where the PANP model was experienced as well as studied.

Participants attending the Living University in Thanh Hoa gained experience in each of the four integrated programs which made up the PANP, visiting existing communes where the model was in full operation. The curriculum integrated direct field experience with theory-based workshops to provide an in-depth foundation for implementation of the PANP. This direct practical experience enabled participants to gain a full understanding of the implementation and management of the PANP prior to initiating the program in their own communities.

By December 1995, the Living University graduated seven classes consisting of representatives from 11 international NGOs, as well as Vietnamese commune and district level Women's Union, health services and people's committee cadres. The PANP has been introduced by these graduates in 20 communes in nine provinces throughout Vietnam. Four of the organizations were already using their newly initiated model communes as their own mini-Living University providing a vehicle for program expansion to other communes within their program areas. Thus, the Living University provided an excellent vehicle through which Save the Children's mandate to create a national Poverty Alleviation and Nutrition Program may one day be realized.

A major shift occurred after March 1995 when Vietnamese district officials became the primary clients of the Living University. Previously representatives from international non-governmental organizations such as CARE or Plan International would attend the Living University course and then directly train health volunteers in a few of their program communes before implementing the PANP. After March 1995, District People's Committee, Women's Union and Health Department officials attended two-day pre-training management workshops before selecting district trainers to attend the Living University's two-week training of trainers (TOT). Upon completion of the course, the district trainers trained health volunteers in two additional communes and in collaboration with the People's Committee, Women's Union and Health Department personnel, supervised the overall program. The sense of program ownership by the district greatly enhanced the long-term sustainability of the program. District leaders felt greater responsibility for program success than when implementation was under the supervision of an international non-governmental organization.

After several months of training Health Volunteers in two new communes, the district trainers were "up to speed" in training techniques and fully conversant with the first few PANP components. They were then ready to expand the model to additional communes in the district. Hence, each district developed its own mini-Living University, greatly facilitating program expansion. This means of quantitatively scaling up the program proved highly effective. By

[6] Pelletier et al. (1995) reported that risks of child mortality due to infectious disease were remarkably dependent on severity of nutritional status and were similar across numerous developing country settings. The relative risk for death compared to children with normal nutritional status increased geometrically for worsening nutritional category: 2.5 for mild, 4.6 for moderate, and 8.4 for severe (closely approximating our categories B, C, and D). If we apply these risks to our children (including 1 for category A), using an indirect standardization approach, PANP averted 30.3% (standardized RR compared to normally nourished population: 2.499 at baseline versus 1.741 after year two) of childhood deaths due to infection. A birth rate of 29/1000 (UNICEF 1995) in this population of approximately 25,000 yields 725 live births annually. At least half of an under five mortality rate of 55/1000 (UNICEF 1995) could be due to infection, claiming 40 children over two years. Thus, PANP could avert up to 12 (40 x 0.303) of the projected child deaths over the period of the project, assuming most deaths occurred before age three.

early 1998, the Poverty Alleviation and Nutrition Program, including its Nutrition Education/Rehabilitation Program (NERP) component, had reached more than 200 communes. In seven years, the population being affected grew from 20 thousand to 1.2 million.

Other processes and strategies for scaling up

Learning from the students. The Living University not only provided an excellent mechanism for geographic scaling up, but also served as a basis for ongoing modification and improvement of the model. Because Living University graduates returned to areas throughout the country to implement the model, innovations and modifications occurred based on local conditions, interpretations and, sometimes, chance. The staff visited "graduate" programs to provide consultancies but also to learn from the satellite programs. Innovative practices or successful modifications were then incorporated into the curriculum and shared with subsequent participants.

Cooperation, co-options, and partnering. Save the Children has borrowed staff from other Vietnamese organizations concerned with nutrition on one or two year contracts. Arrangements with the National Institute of Nutrition and the Community Health Research Unit of Hanoi Medical College, have for example, enabled Save the Children to add additional personnel to the Living University staff, while providing invaluable practical training and experience for those individuals which later can be utilized when they return to their respective institutes. First hand experience with a community based nutrition program like the NERP can help broaden the perspective of local institutes whose world view is often much more academic than reality-based.

Save the Children's relationship with the Community Health Research Unit includes funding of PANP implementation in two communes by the unit. The program communes not only enable unit staff to gain direct experience in managing a community based nutrition program, but also provide a training ground for medical school students in preventative health care and nutrition.

Functionally scaling up

Save the Children made a strategic decision to minimize the number of interventions required to measurably and sustainably impact nutritional status. Although it is clear that water and sanitation projects, increased agricultural productivity, and income generation would certainly further enhance nutritional impact, the cost of these additional components would militate against broad program replication. Poor communes with high levels of malnutrition in Vietnam simply do not have the financial resources to access these inputs, nor is it likely that the central government will be able to provide them in the foreseeable future. With a current one time cost of less than two U.S. dollars per beneficiary for the PANP, funding needs could easily be met by bilateral and multi-lateral funders and international non-governmental organizations. Hence, Save the Children has placed replicability above optimum impact in prioritizing ultimate program objectives.

Political scaling up: from service delivery to advocacy

During the creation of the model in the first four communes, Save the Children's role was limited to that of service delivery agent. In the second stage, with the expansion to an additional 10 communes under the management of NIN staff, that role broadened to include trainer and partner. With the creation of the Living University, Save the Children has further expanded its role to include advocacy. Advocacy in the context of the Save the Children program means utilizing the program, now operational in more than 30 communes, to demonstrate that nutrition can be addressed at the grass-roots level today. The Vietnamese have a saying, "*tram nghe khong bang mot thay, tram thay khong bang mot so*" ("One hundred hearings is not worth one seeing, and one hundred seeings is not worth one doing"). Lying somewhere between "Seeing is believing" and "One picture is worth a thousand words," the expression is indicative of Vietnamese pragmatism and unwillingness to accept things on faith.

Therefore, one of the objectives of the Save the Children program has been to provide a demonstrably successful low cost, high impact nutritional model which can be used to advocate the viability of addressing malnutrition without addressing all causal factors. The conventional wisdom in Vietnam and elsewhere is that the causes of malnutrition are so closely related that the problem can not be solved before all the contributing factors are addressed. This perspective has often led to resignation and a "do-little" attitude regarding the inevitability of high degrees of malnutrition in the context of Vietnam's poverty. Hence, Save the Children, by involving a variety of key leadership partners and community organizations in a high visibility model project, has attempted to demonstrate that malnutrition can be impacted before all causal factors are addressed.

In this regard, Save the Children has played a small role in joining others in Vietnam over a five year period to place malnutrition on the political screen. As more and more data have become available confirming the impact of the

NERP, Save the Children has increased its advocacy for the need and viability of acting now to address malnutrition. Through the efforts of the Vietnamese National Institute of Nutrition, the Vietnamese Committee for the Protection and Care of Children, UNICEF and others, enhanced nutrition is now a stated goal of the government where there is considerable will to enact a National Plan of Action for Nutrition.

Our final thoughts, then, rest on the likely conclusion that PANP works. How widely applicable is the PANP experience? Is Vietnam a "positive deviant" from which other peoples can learn? Literacy since "the American War" is nearly universal. Communism's heritage of central planning through targets, although often misguided, has instilled a quantitative culture. National policy endorses population control and child nutritional improvement. Classless, casteless Vietnamese people may be easy to mobilize because of their discipline, obedience, and reverence for education and training. The ubiquitous public address systems certainly facilitate information education and communication. Another advantage was community-level service organizations that were formed to serve state purposes, were readily available. Finally, the positive deviant food is, in many communes, "free" for the gathering. Other settings could capitalize on these or different strengths.

Wiser through discovering apparent solutions for an intractable problem, we would not be surprised to learn that other common, recognizable, important problems, can be dramatically ameliorated through local, non-technical solutions. While not a panacea, neither is positive deviance a "niche-tool" to be rarely used. Resting squarely on equity, positive deviance not only targets those in need, but requires guidance from them. Positive deviance strategies deserve wide usage.

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Table 1. *Nutritional status among children under age 3 years in 4 pilot communes: Quang Xuong District (1991-1993)*

Program Phase	Nutritional Status* (%)				
	Normal	Moderate Malnutrition	Severe Malnutrition	Very Severe Malnutrition	Total
Baseline** (n=1765)	32	32	30	6	100
Phase-over* (n=1626)	69	27	4	0	100
Post Phase-over* (n=1876)	66	32	2	0	100

*See text for definitions
**Baseline (February 1991), Phase-over (December 1993), Post Phase-over (August, 1993)

Table 2. *Nutritional status among NERP attenders in 4 pilot communes: Quang Xuong District (1991-1993)*

Program Phase	Nutritional Status* (%)				
	Normal	Moderate Malnutrition	Severe Malnutrition	Very Severe Malnutrition	Total
Entry Status** (n=1624)	0	0	89	11	100
Phase-over* (n=1251***)	63	33	4	0	100

*See text for definitions
**Entry Status (March 1991 to March 1993), Phase-over (December 1993): 6-24 months after participtation in NERP (Nutritional Education and Rehabilitation Program)
***11 deaths and 362 children not reweighed (well-nourished children were less likely to be reweighed)

Table 3. *Nutritional status among children under age 3 years in 10 expanded communes: Quang Xuong and Tinh Gia Districts (1993-1995)*

Program Phase	Severe and Very Severe Malnutrition*(%)			
	Group A**	Group B**	Group C**	Total
Baseline	24	29	29	27
One Year	11	7	3	7
Two Years	1	2	2	2

*See text for definitions
**Group A (April 1993-February 1995), Group B (July 1993-July 1995), Group C (November 1993-September 1995)

Table 4. *Follow-Up Nutritional Status of Children Under Age 3 Years at Baseline in 4 Expanded Communes: Quang Xuong and Tinh Gia Districts (1993-1995)**

Baseline Status: Age 0-35 months (n, [%])	Endline Status** (month 24: Age 24-59 months) [%]				
	Normal (n=1060)	Moderate Malnutrition (n=738)	Severe Malnutrition (n=76)	Very Severe Malnutrition (n=0)	Died (n=9)
Normal (791, [42])	74	24	1	0	1
Moderate Malnutrition (668, [35])	50	44	4	0	1
Severe Malnutrition (362, [19])	36	57	6	0	1
Very Severe Malnutrition (72, [4])	24	61	14	0	1
Total (1893, [100])	56	39	4	0	1

*See text for definitions
**60 children were lost to follow-up: we assumed that their nutritional outcomes were identical to their baseline-specific counterparts.

The Role of the USAID/BHR/PVC Child Survival Projects in Enhancing Health Policy and Programming in the South American Region of PLAN International[1]

Luis Tam[2]

Abstract

PLAN International operates child-focused health and development programs in many countries and communities serving hundreds of thousands of children throughout Latin America and the world, funded by contributions from the public. This paper shows how three USAID-funded child survival grant projects in Latin America operated by PLAN influenced the policies and practices of all of PLAN's programs in Latin America. The conclusion states six elements which contribute to institutional success. For example, PLAN has begun holding annual country planning workshops, initiated field exchanges of project staff, and adopted household surveys and other evaluation techniques as a result of the child survival projects. PLAN has also given higher priority to activities that promote the health of children in its annual budgets.

Background and purpose

PLAN International (PLAN) is an international humanitarian, child-focused development organization without religious, political or governmental affiliation. Child sponsorship is the foundation of PLAN. During 1997, PLAN assisted nearly 1,050,000 sponsored children, their families and communities of 38 developing countries with community development programs, including primary health care.

During 1997, the South American Region of PLAN assisted more than 200,000 sponsored children in Bolivia, Ecuador, Peru, Colombia and Paraguay, plus an almost equal number of non-sponsored families. Figure 1 shows an estimate of total families (sponsored and non-sponsored) being benefitted by PLAN s development and health programs.

From 1986 to 1997 PLAN was awarded six 3-year grants by USAID/BHR/PVC to implement child survival (CS) projects in the South American Field Offices (FOs) of:

Bolivia: Sucre (1986-89, 1989-92),
Bolivia: La Paz (1986-89, 89-92, 93-96), and
Ecuador: Azuay/Canar (1994-97).

These CS Projects emphasized infant/child immunizations, control of diarrheal diseases and pneumonia, infant and child nutrition (including promotion of breastfeeding and growth monitoring) and maternal health.

Goal of this paper

The goal of this paper is to present the influence of the CS projects (funded by USAID/BHR/PVC) in enhancing health policies and programming in PLAN's South American countries.

Enhancement of PLAN's capacity to design, implement and evaluate health programs in South America

Technical programming

USAID grants funds were used to hire technical and managerial staff at PLAN's international headquarters and at the participating field offices. Through their professional expertise and participation in USAID-funded technical

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workshops, they brought to their CS Projects key concepts and methods on how to design, implement and evaluate effective and sustainable health programs, such as:

- the design of health interventions in terms of behavior change endeavors with clearly defined and measurable objectives;
- to work with high-risk populations;
- to focus on few interventions but develop them fully;
- to develop effective management support systems (e.g. training, supervision, information systems); and
- to work in partnership with communities and local institutions.

In 1993 and 1994, two South American health workshops were held in Bolivia (in Sucre and La Paz). Both events were attended by technical and management staff from the CS projects and from the remaining country and field offices in South America. In the first event, the best practices of existing CS projects were discussed and activities to replicate them were agree upon.

The 1994 workshop provided an "Update on Child Survival Programs." Both the 1993 and 1994 events were mostly funded using PLAN's regular budget. Most importantly, these events spurred the participants' interest on better approaches to carry out their health activities.

In 1994 the South America Regional Office appointed a Regional Health Advisor to provide technical support in the five South American countries. He previously held the position of PVO HQ technical backstop for the CS projects. This position was mostly funded using PLAN s non-grant budget.

The Regional Advisor's first task was to promote institutional learning using the CS projects as examples. Country Planning and Programming Workshops took place in the five South American countries. Detailed description of the priority country-wide health programs were major outputs of these workshops (each description was similar to a summary detailed implementation plan).

During these workshops, staff from the CS projects presented their "best practices" and "lessons learned." Many of their contributions were incorporated in the workshops' outputs. Since their appearance, these workshops have occurred annually in each PLAN country in South America. Indeed, the current emphasis is to use these events to design integrated programs, such as the Child Survival and Pre-school Education for Under-Five Children.

Inter-country and within-country field visits to exchange experiences also began to occur, e.g. Quito staff traveling to the Azuay/Canar CS project or from Paraguay traveling to the Bolivia CS projects. These visits are now included in PLAN's institutional learning activities and are regularly budgeted.

In 1995, the South American workshop trained its 30 participants to implement the Knowledge-Practice- Coverage Survey (KPCS). This survey, originally developed by the Johns Hopkins University to be used in CS projects, was adopted by the South American Region as a useful tool for baseline and evaluation assessment and for program management. Since 1993, 25 KPCS have taken place in:

- Bolivia: La Paz (1993, 1996-1, 96-2), Sucre (1993, 1996), Santa Cruz (1996), Tarija (1995, 1996);
- Ecuador: Azuay/Canar (1994, 1996, 1997), Guayaquil (1994, 1995), Daule (1994), Manabi (1995), Loja (1996-1, 1996-9), Quito (1997), Bolivar (1997);
- Peru: Piura (1995), Cuzco (1995);
- Colombia: Tumaco (1995), Cali (1996);
- Paraguay: Cordillera/Paraguari/Guaira (1997),Caagazu/Caninde yu/San Pedro (1997).

Figures 2 and 3 show examples of the results obtained in these KPCS. Figure 2 shows the percent of children aged 12-23 months with measles vaccinations. Figure 3 shows the percent of last pregnancies attended by medical personnel. Both indicators are based on international standards.

Most important, key results and conclusions of each KPCS has been discussed with local PLAN and partner staff, in order to enhance the quality in the design, implementation and evaluation of the health programs. Moreover, many field offices also presented and discussed these results and conclusions within its target communities. In this way, relevant and informed participation was obtained from communities and families.

A summary of the major results in the 25 KPCS was prepared by the South American regional office in September 1997, distributed to country and field offices in the region, and through them, to major national and local partners. In October 1995, the senior management of the South American region approved the regional strategy for health programs which guides (until now) their development and implementation. Many contributions from the CS projects were incorporated in this strategy.

Health programs during 1998

Based on PLAN's goals in the health sector and on the above mentioned regional strategy, PLAN countries in South America decided to focus their efforts in four priority programs during 1998.

Health of the under-five children

- Maternal and child immunizations.
- Control of diarrhea diseases and pneumonia.
- Child nutrition, including growth monitoring and promotion, promotion of breastfeeding and weaning foods, prevention and control of micronutrient deficiencies.

Reproductive health

- Family planning.
- Prenatal, birth delivery and post-natal care.
- Case management of obstetric emergencies.

Health of children aged 5-11 years

- Periodic deworming.
- Oral health.
- Early detection and control of visual and auditive deficiencies.
- Prevention and control of micronutrient deficiencies.

Adolescent health

- Responsible parenthood (family planning).
- Prevention and control of substance abuse (including tobacco and alcohol).
- Prevention and control of HIV/AIDS and sexually transmitted diseases (STD).

Moreover, each PLAN country offices decided to implement only 1-3 of these programs during1998. Table 1 shows the countries' selection of priority programs for 1998. It is important to note that these programs are implemented in close collaboration with national and local institution partners, both in the public and private sectors, e.g., Ministry of Health, municipalities, UNICEF WHO/PAHO, local NGOs, USAID, UNFPA.

Table 1. *Selection of Health Programs*

Program	Bolivia	Colombia	Ecuador	Paraguay	Peru
Health of under-5 children	All	Most	All	All	Most
Health of children aged 5-11 yrs	Most	Most	Most	All	Some
Reproductive health	Most	Most	Most	Most	Most
Adolescent health	None	Most	Most	Some	None

Key: "All" = all field offices participate in the program. "Most" = more than half of field offices participate in the program. "Some" = half or less of field offices participate in the program. "None" = no field office participates in the program.

Figure 4 shows the number of PLAN-affiliated families who are benefitting from these four priority programs in the South American region during 1998. Approximately 115,800 PLAN families will benefit from the Health of

Under-Fives Program, while close to 79,000 families will benefit from the Reproductive Health and School-aged Programs. Nearly 30,400 families will benefit from the Adolescent Health Program. Not included in these figures are tens of thousand of non-PLAN families also participating in these programs.

Resource allocation

The commitment of the South American region for high quality health programs has been strongly supported with an increasingly favorable resource allocation, both in financial and human resources.

Figure 5 shows the increasing amount of PLAN funding assigned to health programs that are part of the Growing Up Healthy Domain during the last three fiscal years. The unit of measurement is the U.S. dollars assigned to these programs for each enrolled foster child in each country. Therefore, it is adjusted for changes in the country's caseload of foster children, allowing for comparisons within and between countries and across time periods.

Figure 6 shows the distribution of this health budget within the region's priority health programs. The Health of Under-Fives Program (i.e. child survival) gets the most funding (39%) and Reproductive Health follows (26%).

In most of PLAN country and field offices, full-time health professionals are currently in charge of their health programs. Country health teams have been developed in each PLAN country. As a reference, in 1993 only four field offices (out of 20) had full-time health professionals on their payrolls. Table 2 shows the distribution of full-time health professionals during 1998.

Conclusions

This paper shows the success story on how the "best practices" and "lessons reamed" from a small group of CS projects were used by PLAN International in South America to enhance the quality of its regularly funded health programs. These programs currently serve hundreds of thousands of children, their families and communities on a continuous basis.

What are the key components which made this story a success?

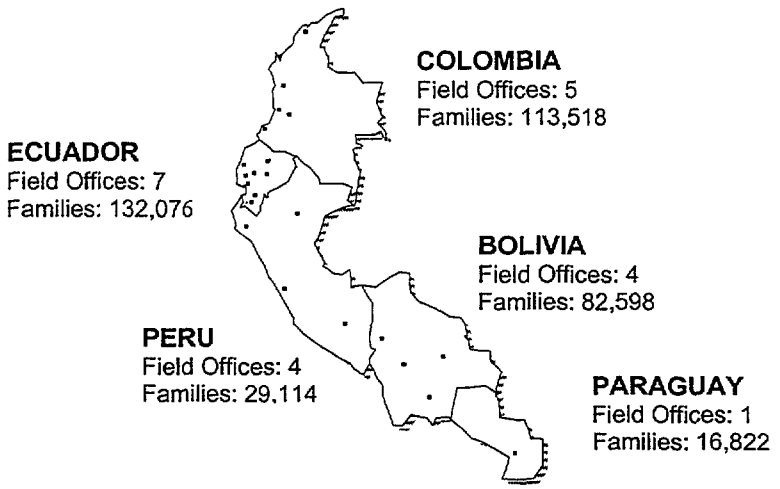
- *Institutional learning,* as a way to disseminate lessons and best practices.
- *Well-defined strategies and plans,* which incorporated the best of public health knowledge in a child focused, human development context. These plans and strategies were designed on a collaborative basis within PLAN and with the collaboration of local partners. The use of KPCS was crucial to focus the programs to key health problems and to evaluate the results of PLAN intervention.
- *Committed and qualified technical staff* who were willing and able to implement complex health programs.
- *Support from senior management* to the health programs and to its technical staff so that the institutional learning was applied to core PLAN functions (e.g., programming and budgeting).
- Availability of *financial resources* to put these health programs in practice.

Table 2. *Full-Time Health Staff, 1998*

Type of Staff	Bolivia	Colombia	Ecuador	Paraguay	Peru
FO Health Coordinator	Yes, all FO	Yes, all FO	Yes, all FO	Yes, all FO	Yes, most FO
FO Health Team (beyond coordinator)	Yes, most FO	Yes, some FO	Yes, most FO	Yes, all FO	Yes, some FO
CO Health Advisor	No	No	Yes	No	No
Country Health Network in operation	Yes *	Yes	Yes	Yes *	Yes

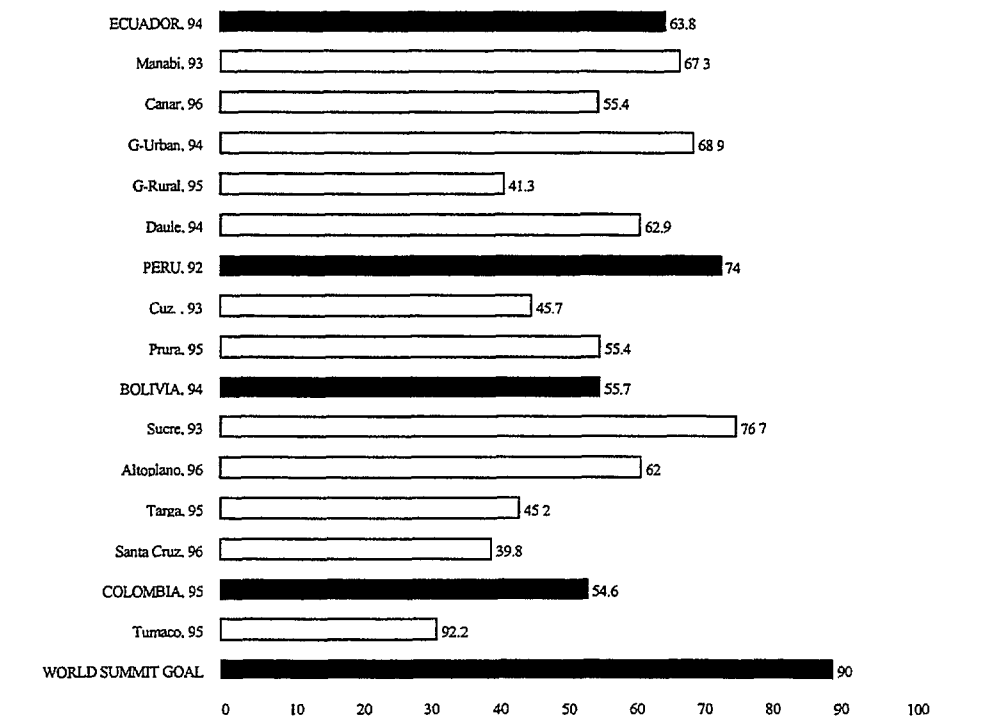
Note. * The networks of Bolivia and Paraguay meet together.

Figure 1. *Location of PLAN Field Offices in South America*



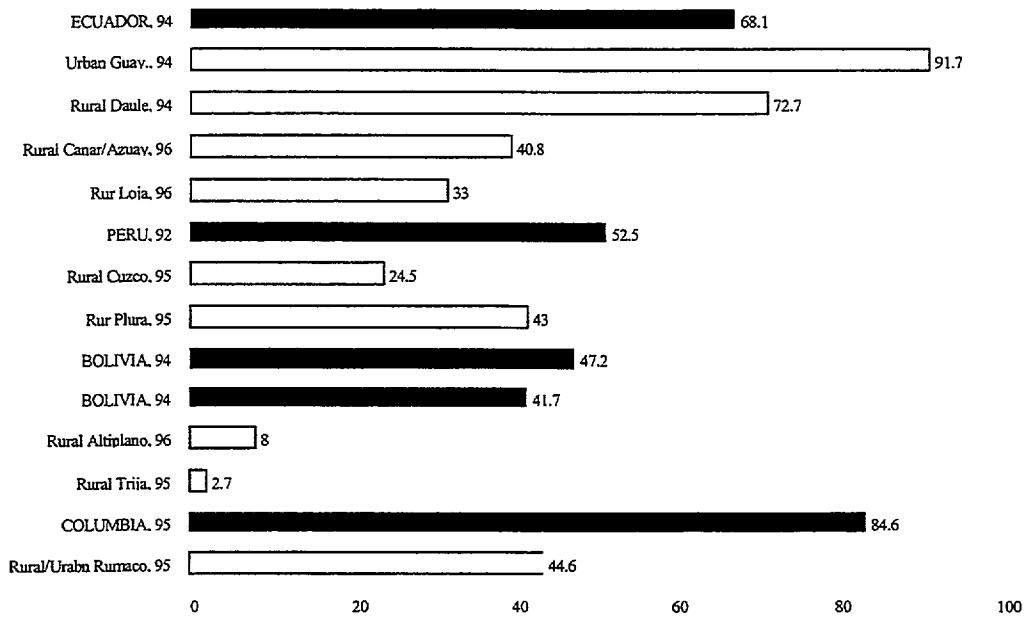
Note: Sponsored and non-sponsored families are included.

Figure 2. *Percent of children aged 12-23 months immunized with measles vaccines: PLAN field offices in South America, 1993-6*



Source: National data from DHS, 1991-95. Field office data from PLAN's KPCs on maternal and child health, 1993-96.

Figure 3. *Percent of Birth Deliveries Attended by Medical Personnel, PLAN Field Offices in Colombia, Bolivia, Ecuador and Peru, 1993-96*



Source: National data from DHS, 1992-94. Field office data from PLANs KPCs on maternal and child health, 1993-96.

Figure 4. *Number of PLAN-Affliated Families Participating in the Health Programs, 1998 [Ecuador, Peru, Colombia, Paraguay, Bolivia]*

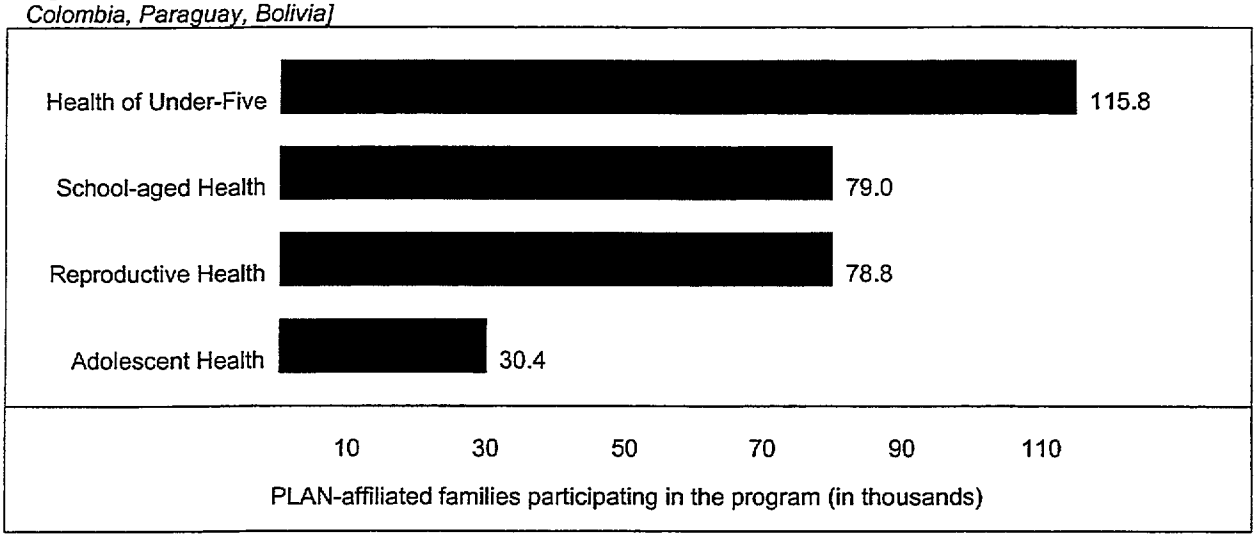
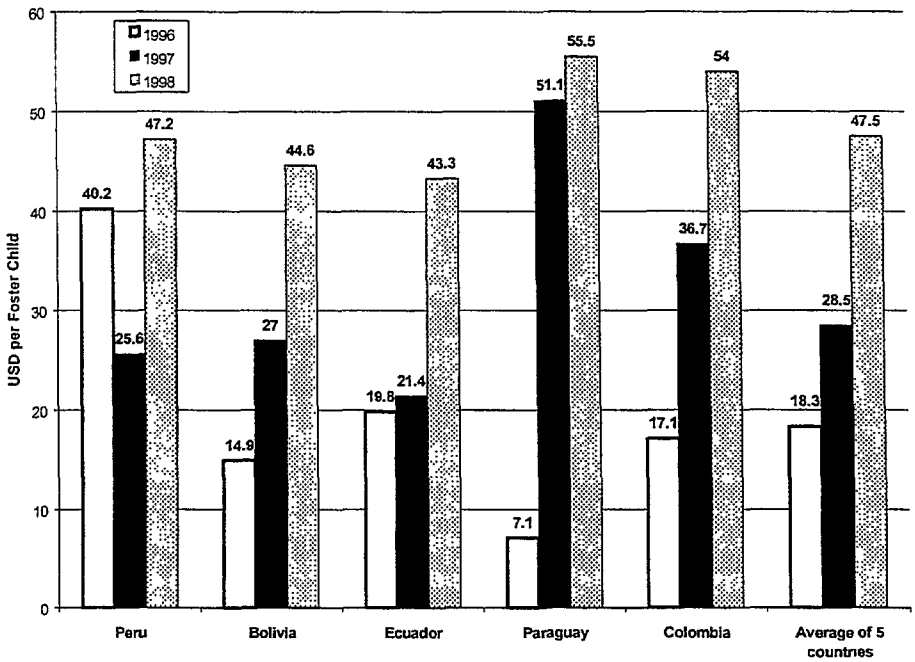
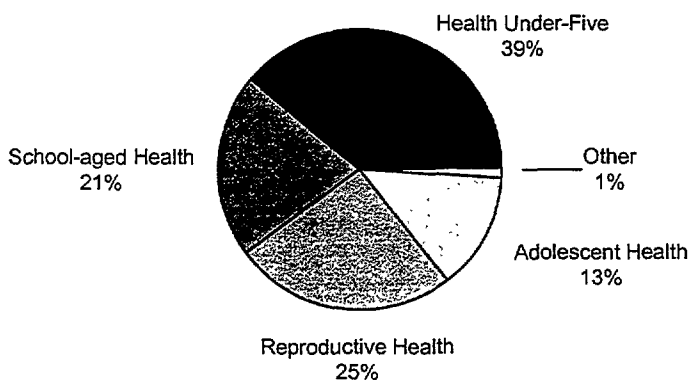


Figure 5. *Investments in the Health Sector per Foster Child during 1996-98 (Bolivia, Ecuador, Peru, Paraguay, Colombia)*



Note: Includes salaries and program support.

Figure 6. *Programs in the health sector, 1998 (Bolivia, Colombia, Ecuador, Peru, Paraguay)*



Note: Total funding in program profiles = USD 10,419,042.

Promotion of a Simple Energy-Rich Recipe for Improved Child Nutrition in Niger[1]

Michelle Kouletio,[2] Sani Aliou,[3] Eleonore Seumo,[4] Inoussa Malaam,[5] Judiann McNulty,[6] Laminou Sani,[7] Rahila Omarou[8]

Abstract

This paper describes CARE's effort to introduce a new weaning food into its Sanu Yara child survival project in Niger. The weaning food was a PRITECH-developed method for adding peanut oil to porridge, in order to increase the energy intake of young children. The behavior change strategy used by CARE included ethnographic studies to identify barriers to change, application of "trials for improved practices" (TIPS) to find feasible approaches, and use of various types of health workers to promote the new food in one-on-one interaction with mothers. The nutrition intervention met criteria for appropriateness outlined in the paper. The probable success of the intervention is supported by a study which indicates that 40.7 % of children in the program area are receiving the improved weaning food and that those children are receiving an average of an additional 120 kcal per day as a result. Four recommendations for achieving impact in such activities are made, including: promotion of the father's role, building on existing practices, engaging the community in research, and use of health workers as change agents.

Introduction

CARE has been operating child and reproductive health programs in Zinder over the past decade. The extreme poverty and marginal existence attributable to the Sahel, the minimal function of the local government health system, and the overall political instability since 1990, all combine to make an extremely difficult working environment and challenge definitions of sustainability and impact. Health risks to infants, children, and pregnant women are tremendous as a result of infectious disease, poor water and sanitation conditions, food insecurity, and poor health infrastructure. Less than a third of Niger's population lives within a reasonable walking distance of five kilometers from a primary health care post.

CARE's Child Survival program has successfully promoted improved infant and child feeding practices which may result in considerable reductions in child malnutrition. This project reaches 42,713 women and children in three districts, Matameye, Magaria, and Mirriah, of the department of Zinder, in the southeastern region.

Program description

CARE started the SANU Yara child survival program with USAID central funds in October 1995. The two-fold goal of this four-year program is to:

- Reduce the high morbidity and mortality associated with vaccine-preventable diseases, malnutrition, malaria, and diarrheal diseases in children under two years of age in 70 rural villages in Mirriah, Matameye and Magaria Districts through the use of sustainable child survival interventions.
- Strengthen the Ministry of Health system and institute viable community-level organizational structures to ensure the long-term impact of the child survival interventions.

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[1] Submitted by CARE, Atlanta GA from its SANU YARA project in Nigeria, a USAID centrally funded program (FAO-0500-A-00-5035-00).

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FACTS ON NIGER

Infant Mortality Rate	191
Under-5 Mortality Rate	320
Maternal Mortality Ratio	1,200
Female Illiteracy Rate	93%
Total Fertility Rate	7.2
National Population	9 million
SANU Yara Beneficiaries	42,713

Source: UNICEF 1998

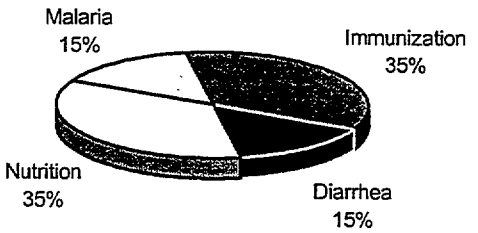
The project concentrates on four interventions in concerted effort to reach its goals. These interventions and level of effort are shown in Figure 1.

Immunizations: Increase the immunization coverage of children under five and women 15-45 years of age through sustained community involvement in the Expanded Programme for Immunizations (EPI) and by strengthening the Ministry's capability to achieve its EPI objectives.

Control of Diarrheal Disease: Increase community awareness of the causes, management and prevention of diarrheal disease and increase the percentage of mothers who correctly manage diarrheal episodes in their children under five: appropriate management within the home for mild episodes; and early recognition and referral to a health facility for more serious cases.

Malaria: Improve community knowledge and use of chloroquine to prevent and treat malaria, especially for children under five and pregnant women.

Figure 1. *Level of effort of project interventions*



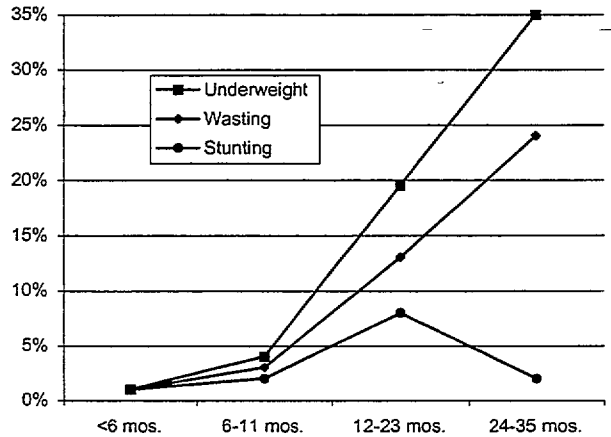
Nutrition: Raise community awareness of the causes of child malnutrition and promote sustainable community-based practices for prevention and management. The indicators for this intervention include:

- Increase from 0% to 10% the percentage of infants who are exclusively breastfed from birth to six months of age.
- Increase from 11% to 30% the percentage of infants who are breastfed within the first hour following birth
- Increase to 35% the percentage of children aged 6 to 24 months who eat at least 5 times per day (including breastfeeding for children under 12 months).
- Increase to 35% the percentage of children aged 6 to 24 months who consume "fura da mai" (a local milet-based porridge containing peanut oil) at least 4 times per week.
- Increase to 50% the percentage of women of reproductive age (15-49 years) who know of at least two ways to improve their own nutrition during pregnancy and lactation (e.g. increase intake of iron-rich foods; consumption of energy-rich foods like fura da mai; reduction of workload; increase resting time; etc.)

Chronic malnutrition is an important contributor to Niger's extremely high under-five child morbidity and mortality. Lack of food security, low nutrition awareness, and inequitable distribution of scarce food resources within the household are the principal underlying causes for the high prevalence of child malnutrition. Malnutrition is the single most important direct and indirect cause of infant and child mortality in Niger; nationally, 15% of all children under-five are severely underweight.

Figure 2 clearly shows high levels of malnutrition of children, particularly among children being weaned. One-third of the project effort is aimed at improving the nutrition status and behaviors among mothers, infants and children.
While chronic food shortage is an important limitation that requires large-scale interventions, current beliefs and practices also increase risk of malnutrition among children.

Figure 2. *Sever malnutrition rates, Niger 1992*



Note: *Severe malnutrition defined as -3SD from an international reference curve.* *Source: DHS 1992* [1].

A review of health surveys conducted in Zinder have shown significant increases in immediate breastfeeding practice; however other indicators such as the prevalence of diarrhea, oral rehydration therapy (ORT) use, and immunization coverage have shown lower levels of improvement. What this data indicates is that promoting changes in nutrition practices can have sustainable improvements over time in this area because it is primarily dependent on individual behavior and social norms. Whereas other health issues, such as ORT use, depend on external factors including the availability of supplies and cost.

Table 1. *Comparative health indicators for Zinder, Niger 1988 and 1997*

	1988 Baseline Survey	1997 Midterm Evaluation Survey
Diarrhea Prevalence	65%	49%
ORT Use	34%	34%
Immediate Breastfeeding	9%	48%

Source: CARE 1997.

Infant feeding practices among the Hausa ethnic group have been subject to an extensive ethnographic study conducted by Nancy Keith for PRITECH.[9] A typical Hausa infant in this area may not receive colostrum due to delayed breastfeeding, will be given water from the first hours of life and porridge beginning on the 40th day after birth. The mother will continue to provide breastmilk until about 18 months, and the young child will be abruptly weaned the day the mother decides to discontinue breastfeeding. Current infant feeding practices place these infants at considerable risk for infection, malnutrition, and poor growth. Adequate nutrition during the first two years of life has long term effects on total physical and mental development.

A major barrier to improved infant feeding is the mother's time. Her daily work of fetching water, grinding grain, cooking, child care, and farming occupy her from dusk to dawn, leaving her little time to breastfeed on demand or prepare special weaning foods separate from the family meal.

Methodology

During 1995, the project invited a colleague from CARE in Cameroon to assist in the study of the acceptability and feasibility of local weaning recipes. This colleague had considerable experience using consultative processes with community members to develop appropriate infant and child feeding programming. As a part of these trials, the research team looked for recipes that did not require significant time for preparation that were very low cost, culturally acceptable, and would have a positive nutritional impact for the child.

[9] Keith, N (1991, February). Young child feeding, weaning, and diarrhea illness: Practice in a Hausa village and educational implications (Part I: The Ethnographic Study). Arlington, VA: Technologies for Primary Health (PRITECH) Project.

At the time of this operations research, the Ministry of Health and the Peace Corps were promoting enriched porridge recipes. These promotions had little impact in the region primarily because of their requirements to prepare a special dish in addition to the family meal. These recipes also called for ingredients that needed to be purchased, or were seasonal, or required long cooking time such as beans.

CARE's Child Survival project sought to improve the nutritional status of children by introducing locally produced peanut oil to the staple porridge, fura. A typical daily meal plan for a rural family in Niger consists of left over tuwo or fura for breakfast, freshly prepared fura for lunch, and freshly prepared tuwo or fura for dinner. While the fura with peanut oil recipe was introduced in laboratories by PRITECH in Niger, no one had promoted its actual practice.

Using the trials for improved practices (TIPs), a core method of the consultative research approach to systematically identify household child feeding practices with families to find practical ways to improve these practices. The process is known as Designing by Dialogue.[10] TIPs methodology includes: 1) an initial home visit to gather background information and interview primary child care givers about the child's diet; 2) analysis of dietary and feeding practice data to identify feeding problems and usual feeding practices; 3) development of counseling guides with a short list of recommended behavior changes; 4) a counseling visit with the care giver where several options are given for improving a child's nutrition and the care giver negotiates options that he/she is willing to try during that week; and 5) a follow-up visit to assess whether the care giver tried the practice, what happened, and whether willing to continue practice and why or why not.

The research team conducted a pre-test among 20 households in 4 rural villages not participating in the project in the Mirriah district. This was followed by 79 home trials in active project villages. Parents with children aged 6 to 24 months were surveyed on child feeding practices, demonstration of fura da mai, and recommended changes. The surveyor followed up within four days to assess the acceptability and feasibility of the recipe and gather input from the family on the innovation. Fathers were also included in these trials to assess their role in their child's nutrition and their acceptance of the fura da mai recipe.

CARE selected the oil supplementation as a feasible intervention to improving energy intake of children. Feeding recommendations by age are as follows in Table 2:

Figure 4. *Daily frequency of fura da mai consumption by age group, 1997*

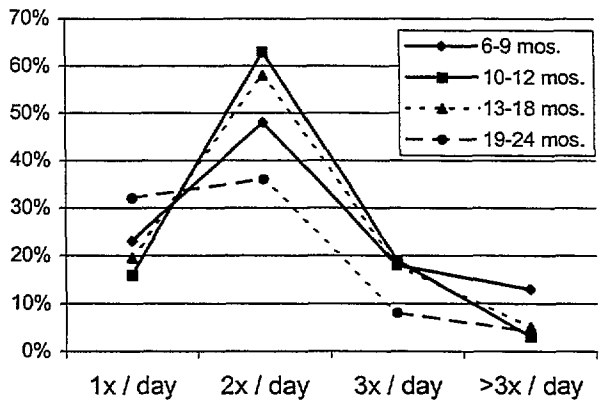


Table 2. *Recommended recipes by age group*

Age Group	Recipe Recommendations
0 – 6 months	Exclusive breastfeeding
6 – 9 months	2 ladles (150ml) of fura (millet and milk) and one tablespoon of oil (10ml) to be fed in two servings during the day
9 – 12 months	2 ladles (150ml) of fura (millet and milk) and one tablespoon of oil (10ml)
12 – 24 months	3 ladles (225ml) of fura (millet and milk) and one tablespoon of oil (10ml)

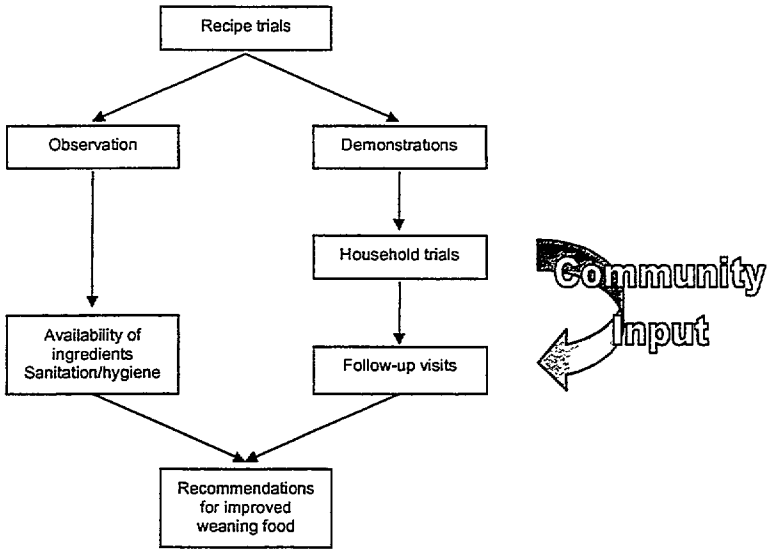
The recipe was justified as an appropriate intervention because it met the criteria of:

[10] Dickin, K., Griffiths, M., and Piowz, E. (1997, June). Designing by Dialogue: A Programmer's Guide to Consultative Research for Improving Young Child Feeding. Washington, DC: Health and Human Resources Analysis Project/The Manoff Group/Support for Analysis and Research in Africa.

Mother's time. Beyond buying peanut oil once a month, the improved recipe requires no additional time on behalf of the mother. She already prepares the fura dish every morning. The nutritional improvement is obtained simply by adding 10 ml of oil to the recipe.

Local availability. The requisite ingredients for the fura da mai recipe are available in most villages, year round, in the project area. Peanut oil is produced within the village by one or more families. Its promotion supports the local economy.

Nutritional impact. The adoption of this innovation has a significant role to play in improving physical growth. Each tablespoon of peanut oil adds 120 kcal to a child's diet, representing at least 10% of a child's daily caloric need (95-kcal/day/per kilogram).[11] Increases in energy consumption allow children to spare protein for growth and make it possible to better metabolize fat-soluble vitamins A, D, E, and K.



Measurement. During the pre-test, the lack of availability of tablespoons in the villages was identified as barrier to measurement of the ingredients, particularly peanut oil. Working with the care givers, the surveyor's were able to recommend the use of locally available bottlecaps as equivalent measures of a tablespoon. Similar equivalents were identified for various ladle sizes.

Taste and acceptability. Because of the improved taste of the oil-supplemented fura, young children consume more of the porridge than simple fura. Half of the mother's surveyed stated that the fura with oil tasted better than fura alone. They reported that the child eats more than usual, sleeps better, is calmer, and the child's physical appearance had improved.

Following the findings of this research, project staff, community health volunteers, local Ministry of Health staff, and TBAs were trained to prepare and promote the recipe for all children aged 6 to 24 months. In addition, the project promoted male participation by encouraging husbands to purchase peanut oil for their wives to prepare the recipe daily. Information about the recipes was diffused through demonstrations, home visits, and recuperation feeding.

Findings

In addition to monthly recipe practice data reported from household visits by community volunteers, a 30 cluster KPC survey was conducted in the project area in October 1997. Three hundred mothers with children aged 6 to 24 months residing in the project area were surveyed about the use of the peanut oil supplementation to porridge.

Of the 300 respondents, the majority were aware of the peanut oil recipe that CARE was promoting in their villages (n=258/300 [86%]). More than half of the mothers who knew of the recipe had prepared it at least once (n = 147/258 [57%)] and were currently serving the recipe at least once a day for their children aged 6 to 24 months (n = 122/147 [83%]). As shown in figure 4, the majority were serving it at least twice a day. Of the 147 mothers who had tried the recipe, feeding frequency was self-reported as shown in Table 3.

[11] Mitzner K, Scrimshaw N, and Morgan R (1984). Improving the Nutritional Status of Children during the Weaning Period. A manual for policymakers, program planners, and fieldworkers. International Food and Nutrition Program, MIT, Cambridge, MA.

Table 3. *Self-reported frequency of daily recipe intake*

Servings received per day	Number of mothers preparing recipe for children 6-24 months	Percent of mothers who have tried the recipe who report preparing it regularly (n=147)	Percent of mothers surveyed (n=300)
One serving per day	23	15.6%	7.7%
Two servings per day	65	44.2%	21.7%
Three + servings per day	34	23.1%	11.3%
Other frequency	1	0.7%	0.3%
At least one serving per day	**122**	**83.6%**	**40.7%**

Source. CARE 1997

The majority of mothers who have tried the recipe stated that they had experienced no difficulties as the result of palatability to child, availability of ingredients, or preparation with the new recipe (n=107/147 [72.8%]). Slightly more than one- third of all mothers who have tried the recipe have received assistance from their spouse in obtaining the requisite ingredients, namely the peanut oil (n= 56/147 [38.1%]).

It is prudent to use caution in interpreting self-reported data as actual practice. Given the high frequency of nutrition messages disseminated by the community animatrice, a mother is more likely to claim to provide the recipe to their child when surveyed. For the final evaluation scheduled for September 1999, CARE will request 24-hour diet recall information to validate these earlier findings.

Given the limitations of the quantitative data, the triangulation of monthly supervision reports and observation allow us to validate the conclusion that there has been a rapid, widespread adoption of the fura da mai recipe. Indicators of the success of the innovation include:

- Qualitative data collected in interviews and fieldwork have shown that mothers observed that a child eats more and has physical improvements since eating the supplemented fura. Field agents spend considerable time in the villages to supervise the community health workers and closely monitor activities and outputs reporting. These supervision reports repeatedly indicate that children prefer fura with the oil, they eat more, they sleep better, and they grow faster. Mothers like it because it is easy to prepare and flexible.
- A CARE field agent was approached by a family with a severely malnourished child who had not yet begun to walk. She counseled the family and demonstrated fura da mai. A few weeks later, the village leaders gave the field agent a jar of honey, one of the highest honors a village gives to outsiders, to show their gratitude for helping the child gain strength and walk.
- The availability of peanut oil has been increasing in the villages as a result of multi-sectoral programming by CARE promoting small credit to women and the project's simultaneous promotion of supplementing family meals with oil.
- The communities this project serves are now asking that the field agents to provide additional recommendations using local foods to improve the nutrition of their children. This interest reflects the increased acceptance of these communities to new nutritional practices.

Results and conclusions

The project's efforts to promote the peanut oil innovation over the past two years for children aged 6 to 24 months at least once per day has been adopted by more than 40% of all mothers. This rapid and widespread adoption of the innovation is a clear indicator of the appropriateness and acceptability of the recipe.

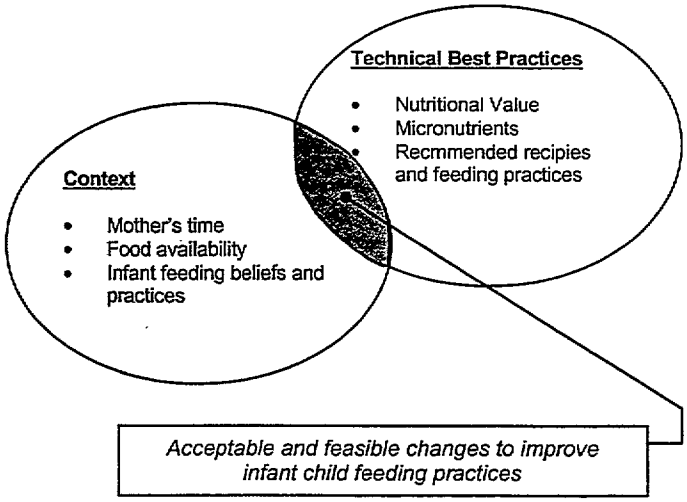
CARE's project was the first to promote the peanut oil recipe and hence we believe that the adoption is a direct result of CARE's programming. While not designed to directly measure causality between improved energy intake and reductions in infant and child mortality, it is known that increased energy consumption has a beneficial effect on the nutritional status of children. Based on the 300 mother's surveyed, we estimate that the project has increased the consumption by 120 kcal per day among 40% of all the children aged 6 to 24 months in the project area. Near universal levels of illiteracy in the project area have precluded utilization of a growth monitoring strategy due to limitation of volunteers' skills to record and track changes. At this time we are not able to demonstrate that the improved nutritional practice has resulted in improved growth.

This innovation has already influenced national policy and has shown rapid spread and replication at the department and national levels. The peanut oil recipe is now being promoted at the national and district-levels of the Ministry of Health through the Integrated Management of Childhood Illness nutrition protocol.

Sustainability is very high given the positive factors of local accessibility of ingredients, the appealing taste of the recipe for children, and the prompt, observable physical effects. Informal community networks have already spread the practice beyond the project area. Antedotal data shows that the recipe is shared with friends and family members during weekly market days, and through special events like baptisms and weddings.

Recommendations for Impact

Building on existing practices
By investigating how to make improvements to actual infant feeding practices the researchers were able to identify an innovation that required a small behavior change. Taking into consideration the context in which care givers live, realistic recommendations were needed to address the lack of the mother's time, the limited local availability of ingredients, seasonality, and infant feeding beliefs.



Community engaged in research
The consultative research approach allows care givers to participate in the trials for improved feeding practices. Through observation, the researchers were able to identify alternative measurement devices. During follow-up surveys, through listening, program planners can develop modifications to innovations that are feasible and acceptable by the communities they intend to serve.

Involvement of father in infant feeding
The promotion of the father's role is an under utilized strategy in the vast majority of maternal and child health programs. By targeting interpersonal messages towards fathers with young children, the CARE project has increased male support to mothers to improve infant feeding practices. In addition, the project has increased resource allocation to the infant's health by encouraging the husband to purchase peanut oil for his child. Similar results have been shown in USAID's Nutrition Promotion Program in Niger with foods to increase Vitamin A consumption.[12]

Emphasis on change agents
An important factor of success was mobilizing genuine support by change agents. This included training of TBAs and community health workers, local health personnel, field agents. Training included recipe demonstration, taste tests to compare fura with and without oil, comparing the innovation to traditional beliefs of including oil in other dishes including tuwo to improve the taste. Using interpersonal channels and individual demonstrations, these change agents were effective in promoting the innovation.

[12] Brandstetter, R.H., Fishman, C. (1988, October.) Final Report: Rapid Ethnographic Assessment of Infant Feeding. Nutrition Communication Project. Washington, DC: Academy for Educational Development .

Evaluation of a Peer-to-Peer on-the-Job Immunizer Training Program in Indonesia[1]

J.Stephen Robinson,[2] Barton R. Burkhalter,[3] Barbie Rasmussen,[4] Ristianto Sugiono[5]

Abstract

In order to increase immunization coverage and prevent childhood illness, Indonesia has devolved responsibility for immunizations at the local level to health centers, appointed a practical nurse (called "immunizer") in each health center to carry out the responsibility, and developed a system of monthly visits (called "Posyandu") to villages to reach the population. In Maluku Province, the Department of Health and Project Concern International jointly undertook a series of activities to enhance the provincial immunization program, including (along with other efforts) field surveys, a computerized immunization information system, and an on-the-job peer-to-peer training program. The training program sent experienced, highly-performing immunizers to the health centers of inexperienced or poorly-performing immunizers for one to two weeks to provide on-the-job training and assistance to those immunizers. District health officials selected both the trainee and the trainer immunizers using information from the surveys and information system.

An evaluation of the training program compared changes in key performance indicators in the year before and the year after the training in a group of 13 immunizers who received the training in 1993 and 1994 ("program group") to a group of all 95 immunizers in the Province who did not receive the training ("nonprogram group"). Coverage of DPT1, polio3 and measles vaccine in the program group rose about 40% while coverage in the nonprogram group remained nearly constant over the two year period, a highly significant difference ($p<.001$). This result reflects increases in actual doses given and in reporting accuracy, both goals of the training program. Various potential threats to the validity of the study were addressed and found not to be significant.

The training program improved the problem-solving skills of the trainees (such as organizing Posyandu and following up on no-shows) and improved particular techniques (such as refrigerator organization, information system form completion and BCG vaccination technique). The out-of-pocket cost of the training program was only $53 (U.S.) per trainee, which included travel and per diem expenses but not salaries of the trainers or trainees. This works out to be about 5 cents per additional reported vaccine given, and about $2.12 per additional percentile increase in coverage. The marginal cost per additional fully immunized child is estimated to be roughly $.50.

- Field Surveys
- Computerized Immunization Information System
- Peer-to-Peer Training
- On-the-Job Training
- Low cost
- 40% increase in immunizations

Introduction

Training by peers has been proposed as an efficient, effective and sustainable alternative training strategy to formal didactic classroom methods of health worker training (*1, 2, 3*). Many studies demonstrate that peer-based programs can be highly effective in dealing with social and psychological problems, where peers perform as counselors, mediators between professionals and clients, trainers, or leaders of self-help groups (*4, 5, 6*). For example, a meta-analysis of 240 evaluations of substance abuse prevention programs found that the programs employing peer-based strategies were consistently much more effective than programs relying on other approaches such as knowledge acquisition, affectation or attractive alternatives (*7*).

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[1] Submitted by Project Concern International, San Diego, CA through their Indonesia Country office, Jakarta. This paper draws substantially on a BASICS Technical Report with the same authors and title as this paper.

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Although childhood immunizations are often considered to be the most important and successful of the many strategies for reducing child mortality and sickness, a great deal of work remains to be done to eliminate the effects of vaccine preventable diseases in developing countries. Improvement of health worker performance is one of the keys to achieving this goal (8).

In this paper, we report the evaluation of a program in which experienced and highly performing nurse-immunizers provided on-the-job training to less experienced and less successful nurse-immunizers. This program, which was implemented in 1993 in the Maluku Province of Indonesia by the Provincial Department of Health and Project Concern International, a private voluntary organization, was part of a more comprehensive effort by the Provincial government and Project Concern to increase immunization coverage and quality (*9*). The evaluation attempts to determine the effect of the program on immunization coverage, immunizer knowledge and practice, and to summarize program costs.

Program description

Indonesia's preventive health care services are largely delivered through a network of health centers, which are the next-to-smallest service areas within the hierarchy of provinces, districts, sub-districts, health service areas and sub-health service areas. Health centers use a variety of strategies to provide immunizations to women and children in their catchment areas, including monthly visits to villages and neighborhoods to weigh, educate and immunize mothers and children ("*Posyandu*"),[6] and the creation of a special immunizer position on the health center staff to manage the health center's immunization program. The immunizers, who typically have a 9th grade education, 3 years of nursing training in a hospital, several years of nursing experience, and a one week government course on immunization techniques, have full responsibility for implementing the health center's immunization program, including managing the cold chain, giving vaccinations at the health center and *Posyandu*, recording and reporting data and helping to organize the *Posyandu*. In Maluku the immunizers from each district meet quarterly for several days.

- Inform and motivate mothers
- Work closely with community leaders
- Monitor vaccine storage
- Follow up on children due for vaccination
- Recognize and affirm effective immunizers
- Identify and coach "weak" immunizers

The immunizer-training-immunizer (ITI) program was established to provide on-the-job training to immunizers who were not performing well, as indicated by low or poorly reported coverage data, or who were inexperienced. The ITI program was initiated in Maluku in 1993 and implemented in 15 health centers throughout the province during 1993 and 1994. Each of the five district health offices in Maluku identified two or more health centers to receive the ITI program (referred to here as "host health centers" and "host immunizers"), and also selected the immunizers to give the trainings (referred to here as "trainers"). Most of the trainers came from nearby health centers in the same district (to reduce travel cost) that were similar to the host health center to the extent possible. All trainings were held at the host health centers for a period of 1-2 weeks. Usually the trainer and host immunizer were acquainted before the ITI training because of the quarterly district meetings, and sometimes the visiting trainer stayed in the home of the host immunizer. Although neither the trainer nor the host immunizer received additional remuneration for this activity, the trainer received recognition, a paid trip of 1-2 weeks to the host health center and formal credit towards advancement.

- Age appropriate vaccinations
- Immunization management practices
- Program costs

During the training, instruction and practice was provided on techniques to improve quality (e.g., operation and maintenance of the refrigerator, proper storage of the vaccines in the refrigerator, injection techniques), operation of the information system, and ways of increasing coverage. Some strategies for increasing coverage included reinforcing knowledge that it is appropriate to vaccinate when the child is ill with fever or diarrhea, during a *Posyandu* using the record book to identify no-shows who are due for a vaccination and tracking them down that day to give the vaccination, giving public presentations at *Posyandu* to inform and motivate mothers about immunizations (for example by explaining that a slight fever in the child is normal after some vaccinations and should not be cause for

[6] The *Posyandu* is a community supported monthly clinic that provides immunizations, growth monitoring, nutrition education, vitamin A supplements, antenatal care, family planning, and diarrheal disease control (ORS packets) for pregnant women and children under 5 years. It is organized by the community and served by community volunteers with the provision of technical assistance from the local health center staff.

failing to complete the full course of immunization), and increasing attendance at *Posyandu* by better scheduling, more effective use of village volunteers and closer cooperation with community leaders and sub-district officials.

Methods

Of the 116 operational health centers in Maluku Province during 1993-94, 15 completed the ITI program, one initiated the training but discontinued almost immediately, and 100 health centers did not initiate the program in either 1993 or 1994. The program group includes the 15 health centers that completed the program, while the control includes the other 101 operational health centers.

Various kinds of data were obtained to assess the impact and cost of the ITI program. The immunization information system operated by the Maluku Province Department of Health yielded retrospective data on reported age-appropriate doses of DPT1, polio3 and measles vaccine given and reported monthly by the health centers in the 12 months before and the 12 months after the ITI training was implemented. The vaccinations are defined as "age-appropriate" when they are given before the first birthday, and in addition the measles vaccine must be given after nine months of age. The Provincial information system also provided official estimates of the immunization target population by health center catchment area in the corresponding time periods.

Two province-wide surveys using the standard WHO cluster sampling methodology were completed by PCI and the Maluku Province Department of Health in 1994 and 1995, capturing vaccinations given in the two years prior to the surveys (10). The results from these two surveys, which were independent of the ITI program, provided estimates of the actual immunization coverage rate in the Province to compare to the estimates obtained from the Provincial immunization information system.[7] This comparison produced adjustments which were used to correct for over reporting of coverage by the Provincial information system.

PCI and the Maluku Province Department of Health also completed a field survey of immunization management practices in a sample of 90 health centers during the period preceding and following the ITI trainings. The field survey covered many of the health centers twice several months apart. Twelve of the ITI program health centers were surveyed in the months just preceding the ITI training, and nine of these also received a second survey within a year following the training. The remaining three were surveyed by the authors in 1996. Although not originally designed to contribute to the ITI evaluation, these surveys provided serendipitous and independent information on changes in key immunization practices. Additional information on changes in practices following the ITI trainings was obtained from assessments that the ITI trainers completed at the start and at the end of each training. These assessments were available for eleven of the ITI trainings. In early 1996, the authors carried out interviews with several of the trainers, host immunizers, and district disease control officers (who have technical oversight responsibility for the immunization activities in the health centers and who played a key role in the selection of the ITI trainers and trainees), giving particular attention in these interviews to the special conditions that surrounded each of the 15 program health centers and ITI trainings and possible confounding factors that might threaten the validity of the results. Finally, cost data was obtained from the PCI accounting records.

The number of age-appropriate doses of vaccine given monthly as reported by the health centers to the Provincial information system is referred to as "Reported Doses;" the estimate made by the Provincial Department of Health of the number of children living in a health center catchment area who should be immunized in a particular year is referred to as the "target population;" and the ratio of Reported Doses (times 100) to the target population is referred to as "Reported Coverage." Reported Coverage uses administrative data to estimate both the numerator (Reported Doses) and the denominator (target population) and is to be distinguished from coverage estimates based on card and recall data obtained from a survey of a representative sample of children aged 12-23 months. "Survey Coverage" refers to coverage obtained from the 1994 and 1995 household surveys. "Adjusted Coverage" is the Reported Coverage corrected for overestimation by applying the adjustments obtained from the 1994 and 1995 household surveys.

[7] The cluster surveys provide estimates for three different definitions of coverage. "Vaccinations received," is defined as the fraction of the children in the survey sample, 12-23.9 months old at the time of the survey interview, who were vaccinated by the time of the survey. "Vaccinated by first birthday" is the fraction of sample children vaccinated by their first birthday. "Correctly vaccinated" is the fraction vaccinated according to the recommended schedule, including all vaccines by the first birthday, measles after 9 months of age, and proper spacing between vaccinations. The survey only counted vaccinations that were verified (including the date) by the child's Health Card or the health clinic's immunization registry.

Complete data on Reported Doses were available for only 13 of the 15 ITI program health centers. Further, one ITI health center split into two health centers six months before the ITI training, thus making it impossible to allocate the data on Reported Doses in the year before the split between the new and old center. For this reason and because the ITI training was implemented in both the new and the old health center in the same month, they were treated as a single case for the analysis of coverage. Thus, the program group contains 13 health centers, but are consolidated into 12 cases in the data tables. Similarly, no data was reported for six of the 101 health centers that did not participate in the ITI program in 1993-4, leaving 95 in the nonprogram group. Although monthly data on Reported Doses were obtained for each program health center, only an aggregate figure was available for the 95 nonprogram health centers, obtained by subtracting reported doses in the 13 program centers from the corresponding province-wide figure for all 108 reporting health centers. The number of reported doses given were obtained from the immunization information system for a 24 month study period ending with the twelfth month following the month in which the ITI training occurred, but the Before and After analysis periods are only eleven months long to eliminate short-term effects of the training month. The Before period for each program health center includes the eleven month period immediately preceding the month the training occurred, while the After period includes the eleven months immediately following the month of the training. Most of the trainings occurred in or near September, 1993. Therefore the Before period for the nonprogram group was assumed to be the eleven month period ending August 31, 1993 and the After period the eleven months ending August 31, 1994.

Results

Increases	
DPT	- 34 %
POLIO3	- 42 %
MEASLES	- 38 %

In the 13 reporting program health centers, the Reported Doses for DPT1, polio3 and measles increased by 34%, 38% and 40% respectively in the eleven month period immediately following the ITI training compared to the eleven month period immediately preceding the training. Corresponding figures for the 95 nonprogram health centers showed little or no change (0%, -2% and -2% for DPT1, polio3 and measles). A composite indicator obtained by summing the Reported Doses for all three vaccines shows a 37% gain in the program group compared to a 1% drop in the control group. Thus the net increase in Reported Doses is 34% for DPT1, 40% for polio3, 42% for measles and 38% for the composite (Table 1).

Province-wide coverage from the 1994 and 1995 household surveys is about 23 percentiles lower for all antigens than the corresponding Reported Coverages from the immunization information system. The reasons for this difference between Survey Coverage and Reported Coverage are unknown but could include many factors, such as inappropriate reporting of doses given to children over one year of age, inconsistent and over reporting, missed immunizations in the coverage survey, and what is probably most important, under-estimation of the target population. When these results are combined with the Reported Doses and target population data from the information system, the Adjusted Coverage estimates are obtained (Table 2). Adjusted Coverage in the program health centers rises dramatically while in the nonprogram health centers the rise is very small. For example, measles coverage increases from 35% to 61% in the program health centers but only from 50% to 51% in the nonprogram health centers, a net gain of 25 percentiles. The composite indicator also showed a net gain of 25 percentiles. The differences in the increase between the program and nonprogram health centers in Reported Doses and in Adjusted Coverage are all highly significant (<0.001) for all three antigens, but the difference among antigens is not significant.

- Improved ranking
- Improved immunization practices
- Improved reporting

All but two of the program health centers showed a large increase in coverage following the training. The two failures were due to transport problems - a broken boat in one and a burned up vehicle compounded by heavy flooding in the other. In both cases the result was a drastic reduction in immunizer attendance at Posyandu and a decrease in coverage in the year following the ITI training. When these two health centers are removed from the analysis, the remaining program health centers show a net gain in reported coverage of about 55%. This figure represents what is possible under ideal circumstances, and in that sense is a measure of the efficacy of the ITI program.

In addition to a consistent improvement in absolute scores, the ITI program health centers also showed a consistent improvement in their ranking relative to other health centers. The ranking of each program health center just before the ITI training was compared to their ranking six months later using a six-month composite coverage score of all three antigens. All 15 program health centers improved their rank within their own district; ten of the 15 moved

from the bottom half to the top half of the health centers in their district, with an average district ranking that rose from the 23rd percentile just before the ITI training to the 58th percentile six months afterward, an increase was 35 percentiles.

Immunization *practices* improved in the program health centers following the ITI trainings according to the field study of immunization management practices and to assessments made by the trainers before and after the ITI trainings. In the field survey of management practices, data was obtained from 12 of the program health centers on 12 key practices (Table 3). The average number of those practices performed correctly rose from 7.4 in the Before survey to 10.2 in the After survey, an increase of about 30%. The largest gains occurred in the practice of giving immunizations to children who are sick with fever, diarrhea or colds (URI). In the After survey, eight of the 12 health centers performed correctly in over 90% of the practices, while all but one was over 75%. The before and after assessments by the ITI trainers mirror these results. According to the trainers, the average number of correctly performed practices (out of 7) rose from 5.1 at the start of the training to 6.6 at the end, a gain of 29%.

Some potential threats to the validity of the results reported were examined to determine if they were significant. Seasonal patterns due to weather or end-of-fiscal-year effects were controlled by including exactly the same months of the year in the before and after measurement periods. Data heaping at the boundaries of the time periods, due to delayed reporting or other reasons, was found not to be present. An observed increase in doses given by program health centers during the ITI training month was controlled by eliminating that month from the analysis comparing the 11 months just preceding the training to the 11 months immediately following the training. Some of the program health centers reassigned, replaced or changed the number of immunizers following the training, but analysis found that although these factors may have influenced coverage in the health centers where they occurred, their positive effects in some health centers and negative effects in others tended to cancel each other out resulting in no net effect on the study conclusions. Similarly, the reallocation of staff time to the immunizer function failed to draw firm conclusions and the effects also appeared to cancel each other out. Regression-toward-the-mean is a potential threat because the program group was selected from the lower part of the performance distribution, but this was ruled out as an important factor because the program group included only chronically poor performers.

For example, the field study found that the percentage of program health centers that vaccinated children with fever, diarrhea and colds (URI) more than doubled after the training, and program health centers that opened a new pack of vaccine when only one child showed up at *Posyandu* increased by about 40%.

A major confounding issue is the extent to which the observed increases in Reported Doses and Adjusted Coverage are due to an improvement in reporting rather than to an increase in the number of age-appropriate doses actually given. In fact, the ITI program has both objectives -- increase actual coverage and improve the reporting. The data obtained for this study does not permit the untangling of these two factors, and so it is not possible here to estimate how much of the observed increase is due to improved reporting and how much to actual increases in doses given. However, there is strong anecdotal evidence that both factors contributed to the increase. For example, two health centers were selected for the ITI program specifically for the purpose of improving their reporting function. Another program health center modified its reporting procedure following the training to count doses given by a nearby hospital to children living in the health center catchment area. Both of these examples support the conclusion that some of the increase in Reported Doses was due to changes in reporting. In support of an increase in actual doses given, several host immunizers recounted specific strategies they learned at the ITI training which they then used, and which in their opinion substantially increased the number of doses they gave. For example some of the strategies mentioned included following up with no-shows and working with village volunteers to increase *Posyandu* attendance. These observations were confirmed by medical staff at the health center and by district health officers. In addition, the field study of immunization management practices and the pre and post training assessment of host immunizer knowledge and practice by the trainers provide objective evidence of improvements that are likely to have increased coverage. For example, the field study found that the percentage of program health centers that vaccinated children with fever, diarrhea and colds (URI) more than doubled after the training, and program health centers that opened a new pack of vaccine when only one child showed up for a *Posyandu* increased by about 40%. The trainers' assessments reported a substantial increase in the number of host immunizers who kept track of the children who were due for a vaccination at a *Posyandu* and went to get them if they didn't show up.

Cost and cost-effectiveness

The average out-of-pocket cost of each immunizer training was about $53 (U.S.). This includes all expenses for travel and per diem. It does not include salaries of either the trainer or the host immunizer, which would have been paid anyway. Per training cost ranged from $16 to $134, depending on the duration of the training (which ranged from 3 to 12 days) and cost of travel. This works out to about $2.12 for each one percentile increase in Adjusted Coverage.[8]

Each health center provides eight different childhood vaccinations (BCG, DPT 1/2/3, polio 1/2/3, measles). Using simplifying assumptions[9], we estimate that the number of reported doses of all kinds increased by 12,745 in the 13 program health centers in the year following the ITI program as a direct result of that program. This works out to about five cents for each additional dose reported and 40 cents to provide eight additional vaccinations, the package required to complete all immunizations for one child. If only half of this increase is due to an increase in actual doses given, as opposed to an improvement in reporting[10], then the training cost per additional dose given in the following year is about ten cents and about 80 cents to provide all eight required vaccinations. These estimates will be cut in half if the impact of the ITI program is assumed to continue for two years instead of just one, and so on. These estimates do not include increased vaccination for tetanus that the program might achieve.

Another way to present costs is by Fully Immunized Child (FIC).[11] Using our estimate of a 40% increase in reported performance, we estimate that the ITI program increased reported FICs in the program health centers by about 40%, from 2,898 in the year before the training to 4,057 in the year after. The Maluku Baseline Survey[12] estimated that measles coverage by the first birthday was 57% and complete coverage (BCG, DPT3, polio3, measles) by the first birthday was 47%, ten percentage points below measles coverage. This information (47% complete coverage before program and 40% increase in reported FICs) plus a target population of 6,165 before the program yields an ITI training cost of $0.59 per additional reported FIC assuming one year of impact[13]. The estimated cost per additional FIC actually achieved (rather than reported) depends on the amount of the reported increase that comes from an actual increase rather than improved reporting, and on the number of years that the impact of the program sustains. The marginal out-of-pocket cost of an additional FIC for a duration of impact from 1 to 5 years and an actual increase that ranges from 50% to 80% of the reported increase. This yields a marginal cost range of $.15 to $1.18. The results suggest an estimate of roughly $.50 as the marginal out-of-pocket cost per additional FIC, which occurs for an impact duration of about two years.

Discussion

The evaluation of this immunizer-training-immunizer (ITI) program reported here concludes that it significantly improved both practice and coverage in the program health centers. The evaluation compared the increase in coverage in 13 program health centers to corresponding data for 95 health centers in Maluku that did not participate in the program and for which immunization data were available. To estimate change in coverage over a two year period, the evaluation used the change in number of doses of DPT1, polio3 and measles vaccine given to children at the appropriate age as reported in the Provincial Health Department's administrative information system for immunizations ("Reported Doses"), and the change in Adjusted Coverage (Reported Doses divided by the target

[8] The marginal cost per percentile increase in Adjusted Coverage is obtained by dividing the average marginal cost of the program ($53) by the net percentile gain in Adjusted Coverage, which is $53/25 = $2.12.

[9] The average increase in total Reported Doses given of all eight vaccinations in the year following the ITI training is assumed to equal all Reported Doses in the year immediately preceding the ITI training multiplied by 40%, the average gain due to the ITI program. The gain in annual Reported Doses is assumed to equal twelve-elevenths (12/11) of the gain between the two 11-month study periods, and Reported Doses for all eight vaccinations are assumed to equal eight-thirds (8/3) of Reported Doses in the 3 measured vaccinations. Thus, *Gain in All Reported Doses in 13 ITI centers = 10,953 x 12/11 x 8/3 x 0.4 = 12,745.* The training cost per additional dose reported is estimated as ($53x13)/12,745 = $0.05.

[10] Based on the interviews and the situations in the program health centers, the authors believe that this is a very conservative assumption, and that in fact well over half of the increase in Reported Doses is due to an increase in actual doses given.

[11] A fully immunized child is defined as a child that has received all eight of the recommended vaccinations (BCG, DPT 1/2/3, polio 1/2/3, measles) by his or her first birthday [Taken from Brenzel L and Claquin P. Immunization programs and their costs. *Social Science and Medicine*, 39(4): 527-536, 1994].

[12] Project Concern International/Indonesia (PCI), Ministry of Health Maluku Province. (1995). BaselineSurvey: *Maluku Province Indonesia, Child Surival X.* January 16-February 10, 1995.

[13] FICs before the training = (Target Population) x (Coverage) = 6,165 x 12/11 x 0.47 = 2,898. FICs after the training = (FICs before) x (increase factor) = 2,898 x 1.4 = 4,057. Out-of-pocket cost per additional reported FIC per one year of impact = $53 x 13/(4,057-2,898) = $0.59.

population for each health center adjusted for over-estimation). The results show an increase of about 38% in Reported Doses and 60% in Adjusted Coverage in the program health centers relative to the nonprogram centers.

Furthermore, the increase is consistent across antigens and, with two exceptions, positive across health centers. An independent field survey of immunization management practices in 90 Maluku health centers and pre and post ITI training assessments of the host health centers by the trainers themselves provided strong anecdotal evidence that practices related to better quality and increased coverage improved as a result of the ITI training. For example, improvements in adherence to cold chain protocols, sterilization, reporting performance, vaccinations to sick children, and far more energetic, problem-solving approaches to find and vaccinate children in the villages were observed and reported in many of the ITI program health centers. The success of on-the-job peer-to-peer training of health workers to improve the teaching of cognitive strategies for problem-solving (as opposed to routine technical procedures) has been observed elsewhere by Godwin (11), and the results reported here support the conclusion that such training is a good way to teach problem-solving. However, contrary to Godwin's findings, the ITI program also improved routine technical skills, such as sterilization and proper arrangement of vaccines in the refrigerator.

Far more energetic problem-solving approaches to find and vaccinate children in the villages were observed and reported

In addition to the ITI program, numerous other factors might have contributed to the observed increase in doses reported, including: improved reporting, change in immunizer personnel, seasonal effects, other components of the immunization program, data heaping due to delayed reporting, one-time campaigning or drop-off effects during the training period, and regression-to-the-mean. However, the evaluation concluded that, except for improved reporting, these other potentially confounding factors did not contribute significantly to the positive effect of the program, and in some cases may have contributed to an underestimate of program effect. It concluded that the observed increase in coverage was due to the combined effect of improved reporting and an increase in actual coverage brought about by the ITI program. Although the evaluation was not able to untangle the relative contribution of these two factors from the data available, there is convincing evidence based on the interviews and the improvements in practice that the number of doses actually given increased substantially in most cases and the reporting improved in a few cases as a direct result of the ITI program.

The issue arises as to the validity of the two indicators of performance used in the study, namely, gain in Reported Doses and gain in Adjusted Coverage. Because the Provincial Health Department's goals for the ITI program included both improving actual coverage and improving reporting performance, the confounding of the two is not a problem from the Department's perspective. The reliability of the two indicators is another issue. In theory, the coverage indicator should be superior to the number of doses indicator because it has a denominator reflecting the target population. However, the estimates of the target population of health centers are made at the national and provincial level using standard procedures for allocating national population projections to the local level that produce unreliable estimates. Thus, estimates of coverage for health center catchement areas contain two random variables, one of which is unreliable, and so number of doses given is likely to be a more reliable indicator than coverage at the health center level. Furthermore, the proportional *change* in doses given in a health center area is likely to be the same as the proportional change in coverage for that health center when the target population is fairly stable from one year to the next and when most of the vaccinations given to children in the health center area are given by the health center team. These two assumptions generally hold in the program health centers.

- Improved Practices
- Improved Coverage
- Developed Special Computer Software
- Popular with Participants
- Low Costs
- Government commitment to continue program using local government funding

The 40% increase in performance was achieved in a sample of low performing health centers, as indicated by lower Adjusted Coverage in the program health centers in the year before the ITI training (41%) than in the nonprogram health centers (58%). Therefore the ITI program is not likely to produce a similar increase in all health centers. Additional experience is needed to estimate the value of the program with higher performing health centers.

The data available through the computerized immunization information system developed and implemented by the Maluku Department of Health and PCI is a vital component of the ITI program. Reported Coverage by health center was used to identify the immunizers in need of training and the immunizers capable to carry out the ITI training, and

the subsequent changes in Reported Doses was used to determine if the training had been successful. The importance of objective performance data to the success of peer-to-peer training has been observed by other authors as well (*12*).

The program has been very popular with the participants and managers at the host health centers. The host immunizers talk enthusiastically about their experience. Several noted that it is much easier to learn in the ITI program than in "official" training courses because it is practical, addresses the real problems they face, and because they can admit what they don't know to a colleague forthrightly in a way they would never do in a formal group classroom setting.

The out-of-pocket cost of the program was very low, averaging $53 (U.S.) per immunizer trained, not counting the wages of either the trainer or host immunizer or costs associated with higher coverage. This works out to about five cents per additional Reported Dose given, and about fifty cents per additional fully immunized child (FIC). As a result of the low cost and apparent success, some of the district and provincial governments have made plans to continue the program under their own budgets.

Using cost data from immunization programs in eight countries, Brenzel and Claquin (*13*) estimate that the average cost per fully immunized child (FIC) is about $15 in 1987 U.S. dollars, with about 10% for vaccines. However they note two weaknesses with this result. First, the use of FIC as the unit of effectiveness does not reflect the value of partial immunization, of vaccinations after the first birthday, and of the relative importance of the different diseases vaccinated against. Second, the use of *average* cost provides no information about *marginal* cost, which is important for program design and management. Further, there is a paucity of information about marginal costs of immunization programs in the literature. Both of these weaknesses limit our ability to compare the cost-effectiveness of the ITI program to other interventions. It is not clear whether our rough estimate of $.50 for the marginal out-of-pocket cost of an additional FIC from the ITI program represents the full marginal cost of an additional FIC, or whether other factors such as the cost of vaccines should be included. In any case, the marginal cost of each additional FIC obtained by the ITI program is very small compared to the $15 average cost estimated by Brenzel and Claquin, whether or not vaccines are included in the marginal cost.

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Table 1. *Increase in Reported Doses*

Vaccination	Group	Number Reported Doses		Percentage Gain	Net Percentage Gain	Significance
		11 months Before	11 months After			
DPT-1	Program	4,051	5,421	34%	34%	<0.001
	Nonprogram	41,222	41,135	0%		
Polio-3	Program	3,626	4,996	38%	40%	<0.001
	Nonprogram	38,765	38,064	-2%		
Measles	Program	3,276	4,593	40%	42%	<0.001
	Nonprogram	34,189	33,402	-2%		
Composite: Sum of all 3 vaccinations	Program	10,953	15,010	37%	38%	<0.001
	Nonprogram	114,176	112,607	-1%		

Notes. Number of Reported Age-appropriate Doses Given in 13 ITI program health centers and 95 nonprogram health centers in Maluku Province in the 11-month periods before and after the ITI training. The difference in the gain in Reported Doses between the program and nonprogram health centers is significant at the 0.001 level for all three vaccinations and their composite sum using a Chi-square test with children as the unit of analysis

Table 2. *Increase in Adjusted Coverage*

Antigen	Group	Target Population		Adjusted Coverage		Percentile Gain	Net Percentile Gain	Significance
		11 mths Before	11 mths After	11 mths Before	11 mths After			
DPT-1	Program	5,651	5,495	49%	76%	27	24	<0.001
	Nonprogram	47,044	45,366	65%	68%	3		
Polio-3	Program	5,651	5,495	41%	68%	27	28	<0.001
	Nonprogram	47,044	45,366	59%	60%	1		
Measles	Program	5,651	5,495	35%	61%	26	25	<0.001
	Nonprogram	47,044	45,366	50%	51%	1		
Composite Sum of all 3 antigens	Program	5,651	5,495	42%	68%	26	24	<0.001
	Nonprogram	47,044	45,366	58%	60%	2		

Notes. Adjusted Coverage in 13 ITI program health centers and 95 nonprogram health centers in Maluku Province in the 11-month periods before and after the ITI training in each program center The net gain in adjusted coverage of the program health centers over the nonprogram health centers is about 24 percentiles. The difference in the gain in Adjusted Doses between the program and nonprogram health centers is significant at the 0.001 level for all three vaccinations and their composite sum using a Chi-square test with children as the unit of analysis.

Table 3. *Correct Management Practices According to the Field Survey*

Type of Practice	Number of Program Health Centers with Correct Practice, by Type of Practice		
	Before	After	Gain
1. Refrigerator temperature ok (2-8 C).	11	11	0
2. Refrigerator temperature recorded.	6	11	5
3. No damaged vaccine.	12	11	-1
4. All vaccine stored correctly.	10	11	1
5. Shake test okay.	11	12	1
6. Information recorded past 3 months.	5	9	4
7. Information sent to sub-district.	3	5	2
8. Immunize when child > 12 months.	10	11	1
9. Immunize when child has fever.	4	9	5
10. Immunize when child has diarrhea.	4	10	6
11. Immunize when child has a cold.	5	11	6
12. If only one child, still open and vaccinate.	8	11	3
AVERAGE NUMBER OF CORRECT PRACTICES PER HEALTH CENTER	7.4	10.2	2.8

Notes. Results from the Field Survey of Management Practices in 12 ITI program health centers, showing the number of centers performing each immunization practice correctly, before and after the ITI training. Practices 1, 2, 4, 6 and 7 in this table correspond to practices 1, 2, 3, 4 and 5 respectively in Table 5.

Impact and World Vision's Child Survival Programs:
Re-visiting Impact: World Vision Asia-Pacific Region's journey and lessons learned of an idea whose time has not just come, but has been long overdue[1]

Ratu Saha[2] and Sri Chander[3]

Abstract

This paper describes the development and current state of World Vision International's Surveillance System which has been introduced in two WVI child survival projects in Bangladesh. In addition to presenting data collected through this system, the authors discuss an evaluation of the system that includes completeness of data collection and five key elements for quality program design: (1) integrated program designs, (2) draft impact objectives first and then proceed to output, process and input objectives, (3) identify and budget against key project milestones, (4) develop a detailed implementation plan, and (5) implement a community-owned information system. The paper concludes that PVO impact on child health can be measured through the discipline of documentation, and that such documentation can be achieved through the community owned and initiated bottom-up information system that facilitates health decision-making at the individual, family and community level.

Background and purpose

World Vision in the Asia-Pacific Region has over ten years demonstrated track record in implementing child survival and reproductive health services through 26 integrated child survival and reproductive health projects in 12 countries, including five USAID/BHR/PVC-funded projects:

1. the Dhaka Urban Integrated Child Survival Project in Bangladesh serving 249,462 customers in 8 wards of Dhaka City--billed by Stan Foster as having "the best community empowerment process in an urban child survival setting in 60 countries;"
2. the Navapur Integrated Child Survival Project in remote Maharastra/India covering 63,058 clients in 54 villages—it's achievements have been presented to the US Congress;
3. the Sanggau Integrated Child Survival Project in West Kalimantan/Indonesia serving 46,528 clients in 2 subdistricts;
4. the Kien Svay Child Survival Project in Kandal District/Cambodia covering 59,593 customers; and
5. the recently-funded Sorsogon Child Survival Project covering 622,003 people in remote Sorsogon province in the Philippines.

The purpose of this paper is to describe World Vision's journey and lessons learned in impact monitoring of two Child Survival Projects (CSPs) of World Vision Bangladesh where a prototype Community-Based Death and Disease Surveillance (CBDDS) module has been pilot-tested. The two CSPs include the above-mentioned USAID/BHR/ PVC-funded Dhaka Urban Integrated Child Survival Project (DUICSP), and the peri-urban Chittagong Child Survival Project (CCSP), funded by CIDA/Canadian Public Health Association.

This prototype module on community-based surveillance calls for communities to track impact indicators such as (a) deaths in neonates (0-28 days), children 1-59 months, and women 15-45 years, and (b) vaccine-preventable childhood disease cases (polio, measles and neonatal tetanus) with initial focus on surveillance of acute flaccid paralysis (AFP), a proxy impact indicator for polio.

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Description of programs

The Dhaka Urban Integrated Child Survival Project (DUICSP)

This project provides maternal and child health services to a population catchment area of 210,000 people in Dhaka, Bangladesh. Nine years' grant funding by USAID/BHR/PVC over three cycles ended in September 1997, and the project has now transitioned into two long-term (10-15 years) urban Area Development Programs (ADPs) in Dhaka City with private World Vision funds. The beneficiary population resides in 8 wards of Dhaka City. An estimated third of the population dwell in urban slums and are categorised as urban poor. Among these urban poor, population turnover rates are as high as 30% per year. Environmental sanitation is poor. Literacy rates among mothers of children under two are low (60%); many mothers work outside home leaving the care of young children to older children. Income among the urban poor seldom exceeds $2 per family per day. Unemployment rates are high. There are many clinic-based NGOs providing specific child survival (CS) interventions.

Table 1. *Dhaka Urban Integrated Child Survival Project*

Level	Population	Households	Volunteers	Project Staff
Clusters (100)	2,000	400	Focus mothers (slum dwellers)-(72) 2-3 traditional birth attendants-(80) 2-3 community volunteers-(310) 1 neighborhood health committee-(89)	
Compartments (35)	6,000	1,200		Community development workers (35)
Areas (3)	70,000	14,000		1-2 PHN 1 CD coordinator; 1 Area coordinator
Project (1)	210,000	42,000		Core staff-12

The Chittagong Child Survival Project (CCSP)

This project serves a population of 60,000 in two peri-urban wards of Chittagong City, Bangladesh's second largest city. The project received 4 years of CIDA/CPHA funding and is now operating under a PATH/Canada/ CIDA subgrant for vitamin-A related activities. There is less population mobility in this project area. WV is the primary provider of CS interventions, besides a clinic-based NGO providing reproductive services in the project area.

Strategy

The project is community-based. Each family is visited twice a year by a community volunteer (CV) or a project community development worker for the purpose of enumeration and health promotion. Certain services, such as vitamin A, are delivered door-to-door. Accelerated immunization services, the Polio National Immunization Days (NIDs) and the measles-tetanus campaign, were provided at outreach collecting points. Other services, such as immunization, prenatal and postnatal care, and treatment of minor illnesses are provided in the four health facilities of the DUICSP. High coverage of preventive services relates in part to the active identification and referral of cases by the community and active follow-up of defaulters by the facility. (Please refer to Annexes A and B.)

Evolution of the community-based death and disease surveillance system (CBDDS)

The DUICSP and the CCSP undertook with their partners the following steps in developing the community-based death and disease surveillance (CBDDS):

Community surveillance of deaths in neonates (0-28 days), children 1-59 months, and women 15-45 years. With technical assistance from Henry Kalter (PVO CSSP), and Sally Stansfield (WV Consultant), the project:

1) Finalized 3 types of death investigations forms for field investigation of (a) neonatal deaths, (b) children 1-59 months, and (c) maternal deaths (15-45 years);
2) Finalized diagnostic criteria for classifying cause of death by death investigation (verbal autopsy);
3) Trained project staff, EPI staff, NGO staff, CVs, TBAs, FMGs, NHC members, private practitioners and school teachers in the management of the community based death surveillance.

Table 2. *Chittagong Child Survival Project*

Level	Population	Households	Volunteers	Project Staff
Clusters (Baris) (355)	150-175	25-30	Focus mothers (slum dwellers) (72) 2-3 traditional birth attendants (80) 2-3 community volunteers (310)	
Neighborhoods (30)	2,000	333	Neighborhood health committee (89)	
Compartments (8)	7,500	1,250		Community development workers (16)
Areas (4)	15,000	2,500		Area coordinator (4)
Project (1)	60,000	10,000		PHN (2) Program coordiantor (3) Project manager

Death reporting. An important achievement of the DUICSP has been the development of a system to identify and systematically investigate deaths in children under five and among women 15-44. Community-based health workers (CV, CDWS, TBA) and NHC members report immediately any deaths to the PHN. Deaths identified within one month are investigated by a PHN or senior PHN, using established verbal autopsy/death investigation protocols to determine the cause of death. The DUICSP and CCSP also liase with nearby hospitals to obtain death notification among under-5 children and women 15-45 years from the 8 wards. It also arranges for maintenance of line listing of all neontal, child and maternal deaths to facilitate summary and to prevent double-counting. Individual causes of death are discussed with those involved to identify strategies to prevent such events in the future.

Community Surveillance of 3 vaccine-preventable disease cases (polio, measles and neonatal tetanus).
To facilitate case identification and reporting, the DUICSP and the CCSP:

1. Developed simplified definition of a "suspect" case for popular use in the project area in the detection of each target disease: (i) polio: new paralysis in a child or adolescent, (ii) measles: fever and rash in a child, (iii) neonatal tetanus: stiffness or inability to suck in a newborn;
2. Field tested/adapted all CBDDS forms to assure that their designs were optimal;
3. Trained project staff , EPI staff, NGO staff, CVs, TBAs, FMGs, NHC members, private practitioners and school teachers in the above-mentioned simplified case definitions that should detect most of the cases of polio, measles and neonatal tetanus;
4. Conducted community education through community meetings, schools and home visits to ensure that health workers and community members would be able to detect suspect cases;
5. Adapted and distributed promotion materials including memory aids and posters within project area;
6. Instructed community members to immediately report suspected cases of the 3 EPI target diseases to their first contact health worker (CV, TBAs, CDWs or NHC member) or their closest contact in the DUICSP or CCSP);
7. Created a climate where everyone needs to report every case of AFP (acute flaccid paralysis) --reporting of AFP was instituted on a monthly basis;
8. As the community definitions are very general, this resulted in more reported cases (e.g., reported AFP cases) than actual cases (e.g., case-based AFP with stool positive for polio virus 8) -- the first contact health worker was instructed to report every suspected case immediately to the PHN/Senior PHN;
9. Trained the project staff (Doctor/PHN/senior PHN) to promptly (within hours) investigate any suspected cases by filling out a Suspected Case Identification Form, which is submitted to the EPI Zonal Office of the Dhaka City Corporation or Chittagong City Corporation;
10. Conducted a full investigation in collaboration with the EPI Zonal Office using the national case report form for suspected polio and neonatal tetanus cases;
11. Arranged with the EPI Directorate for stool specimens from suspected polio cases to be taken and sent on ice or in specially designated reverse cold chain to the designated polio laboratory at Dhaka;
12. Assisted the EPI Zonal Offices in weekly monitoring of timeliness and completeness of reports.

Analysis and findings from the DUICSP and the CCSP

Dhaka Urban Integrated CSP

Mortality data reported for October 1994-September 1997 (FY95) and October 1995-June 1996 are summarized in Table 3.

Table 3. *Under-5 deaths reported: DUICSP mortality system from October 1994 to June 1996*

Age	Pre maturity	Difficult Labor	Birth Trauma	Asphyxia	Pneu-monia	Diarrhea	Malnu-trition	Other	Total
0-28 days	34	2	5	5	7	2	–	18*	73
1-11 months					23	32	6	9**	70
12-23 months					4	4	3	1	12
24-59 months					1	1	3	7	12
Total	34	2	5	5	35	39	12	45	167

Notes: * NNT=2; stillborn=2, other=8; Unaccounted for = 6 ** Other =4; Unaccounted for = 5

There were 25 deaths reported in 15-45 year old women from the following causes: liver disease including totaled hepatitis and hepatoma (6 deaths), cardio-respiratory (5 deaths), pregnancy-related (3 deaths), accidents (3 deaths), suicide (2 deaths), abortion (1 death), leukemia (1 death), tuberculosis (1 death), other (2 deaths).

While the percentage of deaths identified and investigated is low, the DUICSP mid-term evaluation (MTE) team found the data are of high quality. The finding that neonatal and post-neonatal deaths are equal, rather than the usual under-enumeration of early infant deaths, supports the concept of representativeness. For a service delivery program, the identification of causes of deaths provides important data for planning at the program and education at the community level.

Chittagong CSP

Community-based disease and death surveillance (CBDDS) was first introduced on October 1, 1994 in ward 41 (population = 23,354). A year later, on October 1, 1995, CBDDS was expanded to cover ward 40 (population = 34,704). A total of 98 neonatal, child and maternal deaths in both wards 40 and 41 were reported during the two-year period (Table 4). These are line-listed geographically in the table to avoid double-counting.

Table 4. *Chittagong CSP*

Reporting Period	Year 1 (10/1/94 thru 9/30/95)	Year 2 (10/1/95 thru 9/30/96)		Total (10/1/94 thru 9/30/96)
Location	Ward 41	Ward 40	Ward 41	Wards 40+41
Deaths reported and investigated	32	20	46	98

According to age-specific rates of children under five, only about 2% of children are dying before the age of five in the Chittagong CSP area, compared to 13% in urban Dhaka (Zone 3/ICDDR,B, 1995), 16% for the Save the Children program areas (1993); 7% for the Matlab program area (1995), and 12% for Bangladesh as a whole (Source: Henry Perry, Team Leader, Chittagong CSP Final Evaluation, 1997).

Table 5. *Chittagong CSP: Deaths reported and investigated by age*

Reporting Period	Year 1 (10/1/94 thru 9/30/95)	Year 2 (10/1/95 thru 9/30/96)		Total (10/1/94 thru 9/30/96)
Location	Ward 41	Ward 40	Ward 41	Wards 40+41
Deaths reported and investigated:	no.(%)	no.(%)	no.(%)	no.(%)
a. Neonatal (0-28 days)	13 (41)	10 (50)	28 (61)	51 (52)
b. Child (1-59 months)	17 (54)	5 (25)	15 (33)	37 (38)
c. Women 15-45 years of age	2 (6)	5 (25)	3 (7)	10 (10)
d. Total	32 (100)	20 (100)	46 (100)	98 (100)

Measles case reporting. Twenty-three suspected measles cases in children were reported in ward 41 for the period October 1, 1994 through September 30, 1995; only two suspected cases of measles in children in both wards 40 and 41 were reported for the period October 1, 1995 through September 30, 1996.

Polio/neonatal tetanus. No cases of polio or neonatal tetanus were reported in the CCSP.

Table 6. *Chittagong CSP: Maternal and child mortality Oct 1, 1995 - Sep 30, 1996*

Indicator	Wards 40 and 41	Comparative Data
Neonatal (0-28 days) mortality rate	18 neonatal deaths/1,611 live births x 1,000 = 11 per 1,000 live births	
Infant mortality rate	25 infant deaths/1,611 live births x 1,000 = 15.5 per 1000 live births	96/1,000 LB for Zone 3, Dhaka, 1995 (ICDDR,B) 95/1000 LB Rural Bangladesh, 1993 (Save the Children) 51/1000 LB Matlab MCH-FP Rural area. ICDDR,B 1995
Maternal Mortality Ratio	4 maternal deaths/1,611 live births x 1,000 = 2.5 per 1000 live births	4.6/1000 LB (overall national) 3.9/1000 LB (national urban) (*Source*: BBS/UNICEF, 1995)
Maternal Mortality Rate	4 maternal deaths/11,362 women 15-44 years x 10,000 = 3.5 per 10,000 population	
Stillbirth rate	20 stillbirths/1,611 live births x 1000=12.4 per 1000 live births	
Perinatal mortality rate	30 perinatal deaths/1,611 live births x 1000= 18.6 per 1000 live births	

Surveillance data quality and completeness

Data quality

Evaluations of both the Dhaka Urban Integrated CSP and the Chittagong CSP found that the surveillance information is meticulously collected, recorded, collated, and reported. The evaluation teams found no evidence of false reporting.

Completeness of death reporting

Chittagong CSP. In two target wards of the Chittagong CSP, a careful reassessment of the completeness of the vital events registration was undertaken by two CDWs visiting every home in her compartment to identify any deaths missed by the CBDDS revealed that only about 10 percent of the infant, child and maternal deaths were missed by the surveillance system. The high levels of coverage of key child survival interventions are consistently with the low mortality rates reported in the Chittagong CSP (Figure 3 and Tables 4-6). Two independent evaluators, namely Henry Perry (ICDDR,B) and Rick Matthias (CPHA consultant) reviewed the surveillance data and were satisfied with the high degree of completeness of reporting.

Dhaka Urban Integrated CSP. However, for the DUICSP, Stan Foster, leader of the mid-term evaluation team in August 1996 found that the actual levels of reporting of vital events are significantly lower than the project staff's estimate of 90% (see Table 7). The MTE team's estimates are based on the widely divergent reported rates of fertility, infant and child mortality reported for urban Dhaka. This variability relates in part to the population sampled and methods used. The estimates of completeness are not precise, but do provide the project with the range of current collection of vital events.

Table 7. *Dhaka urban CSP: Actual and project staff reporting of vital events*

Indicator	Reported rate (Source of estimate)	Estimated for Project rate x Pop	Reported by Project Staff *	Estimated Completeness
Population	191,480 (May 1996, Project Census)			
Pregnancies	30/1000 pop (births x 1.2)	5,800	2,002 by pregnancy register	35% (47% for Kamalapur; 18% for Mohammedpur)
Births	25.3/1000 births (1993-94 DHS)	4,844	1,693 by HH survey	35%
Neonatal Mortality	43.7/1000 births (1993-94 DHS)	211	36 by HH survey 42/yr by Mort Investigations	17% 20%
Infant Mortality	80.9/1,000 births (1993-94 DHS)	392	64 by HH survey 82 by Mort Invest	16% 21%
	141/1000 births (ICDDR,B 1991)	681	82 by Mort Invest	12%
Child Mortality	36.3/1000 births 1993-94 DHS	175	14 by Mort Invest	8%
	97/1000 births ICDDR,B 1991	468	14 by Mort Invest	2%
Under-5 Mortality	114.3/1000 Live Births	552	95 by Mort Invest	17%
Maternal Mortality	550/100,000 LB UNICEF 1993	26	3 by Mort Invest	10%

**Note.* Reported Deaths October 1994-June 1996 (21 months) were multiplied by 24/21 to estimate 2 year total and divided by 2 to estimate the annual number of deaths per age category. Completeness was estimated by dividing reported by estimated and multiplying by 100. Source: Stan Foster, DUICSP MTE Report, Aug 1996.

The DUICSP staff's explanation of the above-mentioned assessment included the following: (a) the high (30 percent) population mobility, and (b) highly complex community structures of the eight urban Dhaka target wards where more than a third of the population are slum dwellers.

Quality of death investigations

As part of the DUICSP MTE, death investigation forms for under fives and women 15-44 years were independently assessed for cause of death by a pediatrician (Milton Amayun, WVRD). There was a high degree of concordance between the diagnoses of the project staff and that of the independent reviewer.

Attribution of Impact. The term impact refers to a *set of program results* that occur *at the beneficiary level* and that can be *directly attributed to program activities*, rather than external factors. However, no pre-intervention surveillance was conducted in either the DUICSP or the Chittagong CSP, and no baseline surveillance data for a comparable control area was gathered at project outset.

In the context of the Chittagong Child Survival Project, where World Vision was the primary source of child survival activities in two wards of Chittagong City where population mobility is minimal, one can, with some qualification, attribute impact to the project's interventions and to its community-based death and disease surveillance.

In the case of the Dhaka Urban Integrated Child Survival Project covering eight wards of Dhaka City, with a high proportion of slum population and approximately 30 percent population mobility, and where a multitude of clinic-based local NGOs besides World Vision deliver specific child survival interventions, it is difficult to directly attribute mortality and morbidity impact to World Vision s program.

Discussion

World Vision's evolutionary journey

Over the span of child survival grant funding, both the DUICSP and the Chittagong CSP traveled through the following evolutionary steps towards impact monitoring of their child survival/reproductive health interventions:

1) *Community mobilization and empowerment.* Right from the beginning, both projects developed and nurtured a strong and extensive community infrastructure (Tables 1 and 2) to carry out the child survival and development activities. The NHCs, CVs, TBAs, focus mothers, school teachers, local NGOs, private practitioners that were mobilized and trained by the two CSPs became the driving force for sustaining the project's benefits as well as for introduction of the CBDDS later. The two CSPs assisted the NHCs to choose 5-6 critical indicators that can be (i) visually represented, (ii) tracked regularly by themselves, (iii) result in action, and (iv) lead to improved health and decreased mortality of women and children.

2) *The initial program design* of both CSPs focused primarily on inputs and outputs (coverage) only. No impact objectives/indicators were included then, nor were they required by the donors.

3) *Mid-term evaluations* of the second cycle of funding for both CSPs revealed that both projects had achieved relatively high coverage of CS interventions. As such, a health management information systems (HMIS) review was recommended for both CSPs to enable them to focus more on quality and impact of the CS interventions.

4) *A Health Management Information Systems (HMIS) review* was conducted on-site at both projects in July 1994 with technical assistance from Henry Kalter (PVO Child Survival Support/Johns Hopkins University) and Sally Stansfield (World Vision consultant). This review became the turning point of both CSPs. Three principles guided the review:

i. Collect data directly related to CSP objectives and to the data-collecting instruments:
   i.e CSP objective ➡ Indicator ➡ Instrument
ii. No duplication. Focus on complementing the existing national and city surveillance system, which at the time was passive, institutional-based and focused on clinical polio cases, not in creating a new HMIS.
iii. Collect information for action and immediate decision-making by the person who collects the information.

Outputs of the HMIS review included:

a) Drafting three types of death investigations forms for field investigation of: (a) neonatal deaths; (b) children 1-59 months; and (c) maternal deaths (15-45 years);
b) Finalization of diagnostic criteria for classifying cause of death by death investigation (verbal autopsy);

c) Development of a simplified definition of a 'suspect' case for popular use in the project area in the detection of each target disease: (i) polio: new paralysis in a child or adolescent; (ii) measles: fever and rash in a child; (iii) neonatal tetanus: stiffness or inability to suck in a newborn;
d) A plan for field-testing and adaptation of all CBDDS forms to assure that their designs were optimal.

5) Training of staff and community partners was conducted in August/September 1994 by Mary Carnell (Urban EPI consultant) and R. N Basu (WHO consultant EPI epidemiologist), followed by pilot-testing and revision of the different CBDDS instruments.

6) CBDDS was officially introduced in October 1994 in both CSPs, with initial focus on deaths in under-5 children, women 15-44 years, and on three vaccine-preventable disease. The CVs and the NHCs were the prime collectors of the surveillance information.

7) A review of the CBDDS conducted in September 1995 revealed uneven degrees of completeness of death reporting; it was recommended that focus mothers and TBAs be mobilized to capture and report surveillance data from the cluster levels of both projects.

8) An assessment of the CBDDS was conducted by Dr Stan Foster at the DUICSP in August 1996, and by Henry Perry and Dr Rick Matthais in September 1996. Follow-up steps recommended included:

a) Simplifying further the CBDDS instruments;
b) Facilitating more effective use of surveillance data at:
   i. *the community level*--e.g if there is a diarrheal or pneumonia death or NNT death or maternal death , target all pregnant women in the cluster/compartment for intensive health education regarding ORT, pneumonia recognition and referral; TT or family planning/spacing;
   ii. *program level*--map the geographical distribution of all identified neonatal, child and maternal deaths;
   iii. *strategic/planning level*--recommend family planning as the single most important intervention to reduce neonatal mortality;
c) Discussing with community and NGO partners on possible strategies to raise the proportion of neonatal, child and maternal deaths captured by the CBDDS;
d) Procuring local technical assistance (e.g., ICDDR,B or Mitra Associates) in conducting an independent sample survey to look at:
   i. Mortality and demographic data;
   ii. Completeness of registration;
   iii. Completeness of death reporting;
   iv. Age distribution;
   v. Promoting active community-based surveillance by creating a climate where everyone needs to report every case of AFP (acute flaccid paralysis).

Lessons learned

World Vision in the Asia-Pacific Region does not have to reinvent the wheel: it has drawn on the lessons learned and best practices from the two above-named World Vision Bangladesh CSPs and has accessed their key staff to serve as field-based resource persons as it adapts and replicates this CBDDS model in its other 24 child survival programs. This will be followed by up-scaling to 202 World Vision area development programs (ADPs) in Bangladesh, India, Cambodia, Indonesia, and the Philippines initially, with a potential impact population of approximately 20 million people.

The lessons learned form this experience are summarized below in Boxes 1-5 and in five elements that are key to the design of successful programs.

Box 1. *Name of the Game for PVOs*

CHANGING REALITY
Name of the game for PVOs such as World Vision today.
Not just creative program designs, but designs that:
demonstrate team approaches to continuous quality improvement,
and
document impact or outcomes.

Box 2. *Today's buzz word*

RESULTS-BASED MANAGEMENT (RBM)
Today's buzz-word among donors

- ✓ Do things to produce results.
- ✓ Plan for realistic expected results based on appropriate analysis.
- ✓ Focus on efficiency and effectiveness to produce results.
- ✓ Measure progress towards results and resources consumed with the use of appropriate indicators.
- ✓ Identify and manage risks.
- ✓ RBM=PVO staff accepting their accountability with their partners in delivering results.
- ✓ RBM=managing for results (impact/outcomes), not just managing on the basis of inputs and outputs.
- ✓ Demands a new paradigm, and a radical change in the way PVO facilitates program design.
- ✓ Implications: PVOs such as World Vision develop policy statement on RBM for PVO programs.

Box 4. *Cost*

CONSIDER THE COST
in Planning for Impact and Sustainability
of Child Survival Programs

1. Cost-*Efficiency* = Cost/output
   e.g., cost per child fully immunized
2. Cost-*Effectiveness* = Cost/impact
   e.g., cost per child death averted

✓ Donors' focus is on a project s cost-*effectiveness*, not just cost-efficiency. Yet how can we in PVOs like World Vision measure whether our programs are cost-effective if our programs do not track accurate and consistent data on impact?

A PROGRAM THAT IS NOT
COST-EFFECTIVE IN THE SHORT-TERM
WILL NOT BE SUSTAINABLE IN THE LONG-TERM

Box 3. *Some results donors are expecting*

- ✓ Reduction in mortality (e.g. reduced number of neonatal, infant, child and maternal deaths).
- ✓ Reduction in morbidity (e.g. reduced number of cases of measles, polio, neonatal tetanus, tuberculosis, accidents, malnutrition, night blindness, goiter).
- ✓ Behavior change such as:
  - i. changes in preventive behaviors, (e.g., reduction in the number of sexual partners, increased reported condom usage by clients of commercial sexual workers)
  - ii. changes in care/treatment-seeking behaviors, (e.g. increased percentage of STD patients seeking treatment).
- ✓ Use of local resources (e.g increased number/ percent of families growing vitamin A foods in home gardens).
- ✓ Increased best practices (e.g. increased number/percent of under-5 children with pneumonia who have been provided with standard pneumonia management according to approved protocol).
- ✓ Socio-economic status, purchasing power, and food security (e.g., increased percent of families who are able to eat two meals a day; increased percent of households with improved incomes).
- ✓ Advocacy/changes in community norms (e.g.,reduced number/percent of women who married below 18 years of age, reduced number /percent of adolescent girls subjected to female genital mutilation).
- ✓ Gender equity (e.g., increased literacy rate of women, increased primary school enrolment of girls).
- ✓ Policy reform (e.g. legislation introduced to prosecute pedophiles).
- ✓ Value changes (e.g., qualitative changes).

Box 5. *Five key design elements for quality program design for child survival impact*

1. Implement **integrated approaches** in program design: same rigorous standards whether funding from sponsorship or special grants.
2. *Focus on drafting* **impact** *objectives* **first**, *and then working backwards through* **output** *objectives,* **process** *objectives, and, finally,* **input** *objectives:* **impact** objectives → **output** objectives → **process** objectives → **input** objectives.
3. **Budget** for the **Irreducible Minimums** in terms of **key project milestones** to ensure that impact is planned for and monitored from project conception.
4. Ensure that each program develops a **Detailed Implementation Plan** (DIP) that meets Critical Standards.
5. *Facilitate* Community-Owned/-Initiated Bottom-up Information Systems *which track impact.*

Program design element #1: Integration

Implement integrated approaches in program design--same rigorous standards whether funding source is from sponsorship or from special grants. Thus, there is no "program schizophrenia" or double standards because of different funding sources.

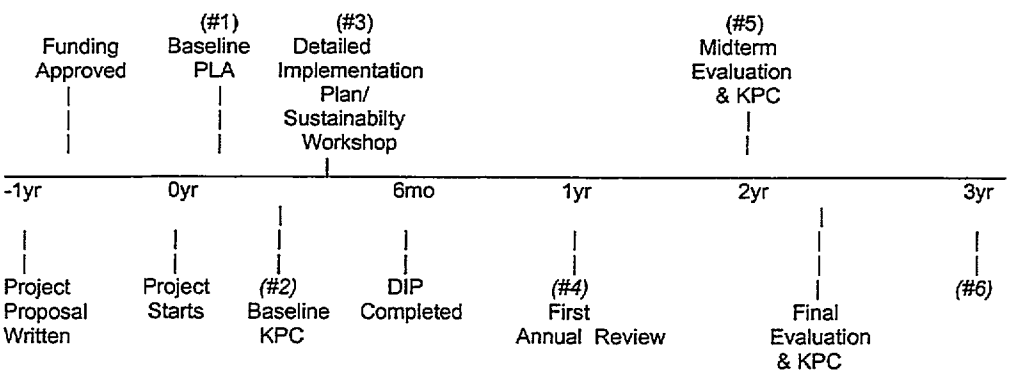
Program design element #2: Draft impact objectives first

Focus on drafting impact objectives first, and then work backwards through output objectives, process objectives, and, finally, input objectives.

Impact Objectives ➡	Output Objectives ➡	Process Objectives ➡	Input Objectives
* Socio-economic status, purchasing power, and food security	* Coverage	* Quality assurance	* Manpower
* Advocacy/changes in community norms	* Access	* Partnership	* Materials
* Gender equity	* Utilization of goods and/or services		* Money
* Policy reform			
* Value changes			
* Mortality reduction			
* Morbidity reduction			
* Behavior change			
* Use of local resources			
* Increased best practices			

Program design element #3: Key project milestones

Budgeting for the "Irreducible Minimums" in terms of key project milestones ensures that impact is planned for and monitored from project conception.



PLA = Participatory Learning For Action Exercises (qualitative baseline)
KPC = Knowledge, Practice & Coverage Survey (quantitative baseline)

Program design element #4: Detailed implementation plan

Ensure that each program develops a detailed implementation plan (DIP) that meets critical standards, according to the following generic checklist:

INDICATOR	OPERATIONAL DEFINITION OF INDICATOR
A. Active Community & Partner Participation in Program Planning	1) Participatory Learning & Action (PLA) approaches were used to gather community inputs and data on community needs: **Yes/No** 2) Community members were involved in baseline KPC (Knowledge, Practice Coverage) health survey: **Yes/No** 3) Community members initiated & led the DIP (Detailed Implementation Plan) process: **Yes/No** 4) Baseline qualitative & quantitative data used to develop the DIP: **Yes/No**
B. Well-Accepted Detailed Plan & Obectives Developed with All Project Partners	1) All partners were involved in setting DIP objectives: **Yes/No** 2) DIP objectives developed were SMART: **Yes/No** 3) DIP objectives developed had objectively verifiable indicators: **Yes/No** 4) Baseline quantitative health /development figures were used in defining yearly benchmarks: **Yes/No**
C. Sustainability Action Plan Developed with All Partners	1) Sustainability Action Plan (SAP) Workshop facilitated with all partners: **Yes/No** 2) Measurable objectives/indicators/ yearly benchmarks jointly developed to track progress in achieving: (a) Managerial sustainability: **Yes/No** (b) Technical sustainability: **Yes/No** (c) Financial sustainability: **Yes/No** (d) Institutional sustainability: **Yes/No** (e) Social sustainability: **Yes/No** 3) Memoranda of agreement on roles & contributions of all partners towards achieving sustainability: **Yes/No**
D.Program Design Centers Around National Office's Vision and Strategy for the Poor	1) Program Vision statement includes Development Opportunity Statement on ministry to the poor: **Yes/No**

Program design element #5: Community-owned information system

Facilitate community-owned and initiated bottom-up information systems which track impact, such as community-based disease and death surveillance (CBDDS). The CBDDS calls for communities to track impact indicators such as deaths (neonatal deaths, infant deaths, child deaths and maternal deaths), and disease cases (e.g., of measles and acute flaccid paralysis--a proxy impact indicator for polio).

The biggest challenge for community-initiated impact monitoring such as the CBDDS is for World Vision to assist its community partners to maximize the completeness of reporting of impact data (such as deaths and disease cases), and to independently validate the degree of completeness of such reporting. More rigorous, experimental or at least quasi-experimental evaluation designs with comparable control groups must be applied to establish cause-effect relationships and determine attribution. However, for child survival programs which are designed to affect changes in essential household actions in large population groups, CBDDS appears to be cost-effective and viable method to monitor trends in mortality and morbidity change.

The importance of community empowerment cannot be over-emphasized as the underpinning for CBDDS and enhancing the capabilities for individuals, families and communities to make decisions and plans to protect and provide for their own health.

Conclusion

Impact in PVOs such as World Vision:

- ✓ starts from a keen sense of personal and corporate accountability;
- ✓ demands radical change in program design with our partners; and
- ✓ can be measured for all to see and comment, through the discipline of documentation.

Impact Evaluations of Child Survival Programs using Global Health Information System Data: A Preliminary Report[1]

Dirk Schroeder[2] and David Marsh[3]

In 1986, Save the Children began using computerized health information systems (HIS) to collect data on program participants. The HIS are used to gather and computerize detailed data on vital events, child growth, and immunizations, among other information. Save the Children has implemented such systems in nine countries in Asia, Africa and Latin America and gathered information on over 370,000 individuals. These data were originally collected for monitoring and impact evaluation at the individual project or country level. In a collaboration between Emory University and Save the Children, the individual data sets from the nine countries have been standardized and merged into one large data set. These prospectively-collected data represent a gold mine of information which can be used to answer a variety of questions related to the epidemiology of child growth and survival and the impact of health and child survival programs. The availability of repeated measurements on individuals over time and the geographical diversity, yet comparability, of the information in terms of collection and recording methods, further increase the value of this resource.

With support from USAID/BASICS, a series of analyses using this merged data set are underway. These analyses include an examination of the impact of various types of health and nutrition interventions on child growth in Bolivia and an analysis of the impact of malnutrition on child mortality, among others. Subsequent analyses may examine regional patterns of growth faltering and correlates of maternal mortality. Finally, this project has provided key insights into the difficulties and limitations of establishing and maintaining computerized health and information systems within the context of on-going programs in the developing world. The researchers will document these lessons so that future HIS can be more useful and sustainable.

1 Submitted by Emory University and Save the Children. This analysis is being funded in part by the BASICS project.
2 Dirk Schroeder, Ph.D. is Assistant Professor, Emory University School of Public Health, Atlanta, Georgia.
3 David Marsh, MD, is Child Survival Specialist with Save the Children, Westport, Connecticut.

Table 1. *Characteristics of completed data sets as of February 13, 1998*

Data Set	Dates of data collection	Number of people in data set	Number of U5 children in data set	Total child-months of observation *	Number of weight measures on U5 children	Number of U5 deaths
Bangladesh - PMIS	4/48 - 12/93	99,072	14,681	239,635	165,380	636
Bolivia (updated)	3/89 - 6/97	32,957	7,074	141,079	36,119	207
Haiti	2/89 - 3/97	55,579	8,932	160,677	49,420	197
Indonesia	9/89 - 2/91	41.270	5,660	61,943	21,475	39
Mali	8/86 - 3/92	84,138	9,207	56,273	21,952	285
Vietnam	2/91 - 5/96	57,308	6,409	126,758	55,926	34
Totals	4/84 - 6/97	370,324	51,963	786,365	350,272	1,398

Note. * Based on first and last weight for individual child.

Table 2. *Characteristics of incomplete data sets as of February 13, 1998*

Data Set	Dates of data collection	Number of people in data set	Number of U5 children in data set	Total child-months of observation *	Number of weight measures on U5 children	Number of U5 deaths
Bangladesh ProMIS update	8/74 - 12/95	37,835	11,194	**	**	413
Burkina Faso	11/84 - 6/91	7,166	**	**	**	**
Colombia	Data set being acquired.					
Mali update	Data set being acquired.					
Nicaragua	Data set being acquired.					

Notes. * Based on first and last weight for individual child. ** Calculations in process.

Table 3. *Key variables in completed data sets*

Key Variables	Bangladesh PMIS	Bangladesh ProMIS	Bolivia	Burkina Faso	Haiti	Jakarta	Mali	Vietnam
Household Characteristics	X							
Demographic:								
Date enrolled in program	X	X	X	X	X	X	X	X
Time enrolled in program	X	X	X	X	X	X	X	X
In school	X	X	.	.	.	.	.	.
Years of education	.	X	.	.	.	.	.	.
Marital status	X	X	.	.	.	.	.	.
Primary occupation	X	X	.	.	.	.	.	.
Secondary occupation	X	X	.	.	.	.	.	.
Relationship to head of HH	X	X	X	X	X	X	X	X
Vital Events/Residency:								
Date of birth	X	X	X	X	X	X	X	X
Date of death	X	X	X	X	X	X	X	X
Primary cause of death	X	X	X	X	X	X	X	.
Secondary cause of death-1	X	X	X	X	X	X	X	.
Secondary cause of death-2	.	X	X	X	X	X	X	.
Date of migration	X	X	X	X	X	X	X	X
Residency/migration status	X	X	X	X	X	X	X	X
Child Anthropometry:								
Gender	X	X	X	X	X	X	X	X
Weight	X	.	X	.	X	X	X	X
Date of measurement	X	.	X	.	X	X	X	X
Child Immunizations (codes and dates)	X	X	X	X	X	X	X	.
Family Planning:								
Birth control method	.	X	.	.	.	.	.	.
Date method adopted	.	X	.	.	.	.	.	.
Maternal Tetanus Vacc. (codes and dates)	X	X	X	X	X	.	X	.
Pregnancy:								
Birth attendant	X	X	X	X	.	X	X	.
Place of delivery	X	X	X	X	.	X	X	.
Pregnancy outcome	X	X	X	X	.	X	X	.
Pregnancy termination date	X	X	X	X	.	X	X	.

A Psychological Epidemiology of People with HIV/AIDS in Kenya: An Approach for Improving Counselor Training[1]

Nancy A. Vollmer[2] and Joseph J. Valadez[3]

Abstract

Objective: This study develops a typology of psychological problems reported during counseling by people with HIV infection (PHIV). This typology provides a framework for developing a curriculum for training paraprofessional counselors (PPCs) in East Africa.

Design: Study participants included 307 Kenyans tested for HIV at any of six clinics in Nairobi specializing in STDs, infectious diseases or tuberculosis. Pre-test, post-test, and follow-up counseling was provided by 12 HIV+ PPCs. Data consisted of demographic, physical and psychological information reported by PHIV during follow-up counseling.

Methods: Counseling data were coded using an ipsative method; a unique code was assigned to every distinct topic. Factor analysis with a Varimax rotation reduced the original 109 psychological variables into 15 logical groupings. Multivariate analysis examined the relationship of factors and demographic characteristics.

Results: Clients reported 1-18 psychological and 1-10 physical complaints in a single session. 65% of female clients reported >8 psychological problems; 49% of males reported >8 psychological problems. Factor analyses revealed that the 109 psychological events could be reduced to 15 categories of problems. Multivariate analyses explained little of the variance in the relationship between client's demographic profile and the psychological factors.

Conclusions: Training for PPCs should be relevant to the problems they encounter during counseling. Results indicate that PPCs can expect any client to present one or more of the 15 factors during counseling as no demographic characteristics explained substantial amounts of variance. The 15 factors produced in this study could form the core of a training curriculum for paraprofessional HIV counselors.

Introduction

Care for HIV and AIDS patients has already overwhelmed the health systems in many East African countries. Access to antiviral and prophylactic drugs is limited due to cost, inadequate supply and the need for close medical supervision. Currently the most feasible category of care is the provision of counseling services as it is not dependent on drugs or medicines and can be offered at minimal cost. A growing body of literature recognizes counseling as an integral part of services for people infected and affected by HIV/AIDS (PHIV) [1-3]. Although counseling is not intended to be a substitute for medical interventions, it can ameliorate emotional problems of PHIV, which if ignored can lead to greater alienation, deterioration of family cohesiveness, broader social problems and exacerbated medical problems [4-6].

As the epidemic continues, the need for psychological care and support services for PHIV and their families will increase. Recent estimates conclude that the per capita burden of mental health needs for PHIV soon will be relatively greater in Africa than in the rest of the world combined [7]. Given the shortage of trained professional counselors in Africa, paraprofessional counseling (PPC) may be a feasible way to address the growing need for psychological assistance among PHIV. However, the limited amount of training that PPCs receive has been insufficient to prepare them for the range of problems that PHIV present in counseling [1, 8, 9]. PPCs are typically

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trained over a period of weeks compared to the years of training that professional counselors receive. Further, the content of training for PPCs often is not based on the types of problems they encounter in their counseling work [10]. Effective training for PPCs is needed so that these counselors are equipped to respond to the needs of people seeking counseling for HIV/AIDS.

Psychosocial problems of PHIV are complex and may be complicated by the individual's culture, context of infection, and disease stage. Several investigators point out the importance of identifying culturally appropriate counseling strategies to help PHIV cope with their infection [4, 5, 7, 11-14]. While there is a demonstrated need for psychological interventions to enhance AIDS care in Africa [7, 12, 13, 15-17], there is still an insufficient understanding of the appropriate content and delivery of psychological care. Developing counseling interventions for PHIV in Africa is hampered by a gap in understanding the psychological needs of PHIV that can be addressed through counseling. Although there is a growing literature on the psychological care for PHIV, the emphasis has been largely on the Western client. Few empirical studies have addressed the psychological needs of PHIV in Africa [12, 18].

In particular, little is known about the effectiveness of specific forms of counseling in the African setting. For example, it is not clear whether individual, family, or group counseling is more effective and whether intensive counseling is worth the cost of repeated follow-up [19]. Likewise, there is little information on whether nurse, midwife, or trained paraprofessional can adequately handle the mental health needs of PHIV or if professional psychologists should take full responsibility [20]. Further, counseling interventions typically have been discussed in terms of their role for fostering behavior change for HIV prevention [11, 21, 22]. Rarely are counseling interventions evaluated for their impact on improving coping skills, easing suffering or improving the quality of life of HIV/AIDS patients in Africa [19].

However, before these issues can be considered, the basic question of defining the psychological needs of African PHIV needs to be addressed. The counseling field currently lacks information on the issues and problems that PHIV themselves identify as priorities. Such data would be useful for developing training curricula for PPCs to better prepare them to address the needs of their clients.

The authors developed this study in response to an operational problem of the Know AIDS Society (KAS), a local NGO in Kenya. Kenyans with HIV/AIDS formed the KAS in the early 1990s. The group initially offered peer support to other PHIV in an STD clinic in Nairobi. As the group expanded, it began operating support services in five other Nairobi clinics that functioned as HIV screening and treatment centers. The KAS offers counseling to individuals, families and communities affected by HIV/AIDS. KAS counselors are all paraprofessionals trained by the Kenya Red Cross Society in a two to three week training course. While their initial training was intensive, the counselors found they were still not adequately equipped to respond to the issues that arose during HIV counseling. They felt both overwhelmed by their clients' problems and under-prepared to address them. During 1991 KAS counselors sought technical assistance from one of the authors to improve their capacity to provide HIV counseling services.

The intent of this study was to define the psychosocial needs of people seeking HIV counseling. This information would provide a basis for developing a curriculum to prepare PPCs to address the range of problems that clients report in counseling. The study identifies counseling priorities by analyzing the problems reported by the study cohort. Findings are used to recommend a curriculum for training paraprofessionals in HIV counseling.

Materials and methods

Design and setting

This study was a descriptive, cross-sectional analysis of problems that PHIV presented during KAS counseling sessions in Nairobi, Kenya over a 12-month period (January-December 1992). Twelve KAS counselors were trained to record in their case notes the issues reported by 100% of clients who sought follow-up counseling.

Data collection

Study participants were 307 clients tested for HIV at six Nairobi clinics specializing in STDs, infectious diseases or tuberculosis. Each clinic was represented approximately equally in the study population. Clients were provided pre-test, post-test and follow-up counseling by 12 KAS PPCs. The study team organized an additional two weeks of intensive and specialized training for these PPCs by a professional HIV/AIDS psychologist. There were

approximately equal numbers of female and male PPCs and all were HIV+. One author trained the PPCs to transcribe into notebooks the words and phrases of clients exactly as they were expressed during the counseling sessions, and to use two questionnaires for this purpose: a demographic form and a counseling form. The PPCs recorded information on the demographic form after the first visit of each client regardless of his/her HIV status. Information included age, sex, education, HIV status, marital status, employment status, wealth, number and age of children, knowledge of own HIV status, knowledge of partner's HIV status, and partner's knowledge of the client's HIV status.

The counseling form was completed during follow-up counseling sessions. Each counselor transcribed his/her own counseling notes onto a counseling form either during the session or immediately after it. They were instructed not to see another client until they had filled out the counseling form for the client who had just been counseled. Data recorded from the counseling notes included a client's information on current physical complaints; their own psychological and financial problems; client attitudes toward the family; client's perception of the family's attitudes toward the client; client's perception of societal values toward HIV infection; client's attitudes toward treatment regimens; and problems of material support for the clients and their family. The average time lapse between the first visit, when the client learned his/her HIV status, and the follow-up counseling session was between two weeks and four months. All information collected by the PPCs was reported voluntarily by the clients and transcribed as reported. Clients also may have had other serious problems they did not share and which are not reflected in the study.

Coding and analysis

The study team collected data forms daily from the 12 KAS counselors. Data were coded using an ipsative method so that each new counseling issue received a unique code [23]. Each subsequent presentation of the same topic received the same code. By using an ipsative approach the full range of issues could be studied. The set of all psychological problems of PHIV may be larger than what was captured in this study; however, that set is not necessarily reported to counselors. The study data include 109 psychological variables and 56 other variables with which clients described their own health problems. These data represent the full range of issues brought to KAS counseling sessions. A full discussion is presented elsewhere [24]. As the physical data were not confirmed by clinical examination (due to resource constraints) they are not analyzed in an in-depth manner.

Analyses of psychological variables included factor analysis with a Varimax rotation to reduce the 109 psychological variables into logical groupings. Hence, factor analysis identified the underlying categories of psychological problems in the dataset and the variables included in each category. Then, for each study subject, the number of positive responses to each variable in a given category was summed. For example, if a category included 10 variables, then a subject's total could be as low as zero or as high as 10. These new variables were used in the place of the factor scores for additional analysis. The Chi-square test was used to examine associations among the demographic variables. Multiple regression examined associations between the factor variables and clients' demographic characteristics.

Results

Description of KAS counseling clients

Of the 307 clients initially enrolled in the study, 125 (20 HIV-, 1 status unknown) returned for counseling during the study period (return rate = 41%). An additional 43 individuals (1 HIV-) sought follow-up counseling from KAS counselors throughout the study period; for this group KAS did not carry out pre- or post-test counseling. The only demographic data recorded on these new clients included gender and HIV status; however, psychosocial data were collected from all of them. The total cohort from whom psychological data exists consisted of 168 individuals.

Among clients attending follow-up counseling 87% was HIV+ and 13% HIV- (Table 1). Relatively even proportions of male and female clients entered the study (49% women, 51% men); however, more women than men sought follow-up counseling after receiving their HIV test result (56% women, 44% men). Seventy-one percent of clients seeking counseling were unemployed and 86% had fewer than five children.

Most of the client population was minimally educated (66% had less than 8 years of education) and clients appeared to have rural origins as most had chambas (small land holdings in rural areas). In order to estimate clients' material resources a wealth indicator was developed based on the size of their rural chamba, and the number and type of their animals and crops. Animals and crops were weighted by their relative cash value. Clients were categorized into

seven strata according to their wealth measure (Figure 1). Nearly 70% of the counseling clients was in the lowest two wealth strata. The average male wealth score (23.89 ± 17.8) was nearly twice as great as the average female wealth score (12.21 ± 14.5). Fifty-seven percent of female clients were in the lowest wealth stratum whereas 67% of male clients was distributed evenly across the lowest three wealth categories.

Thirty-four percent of clients reported receiving HIV counseling in the past. Yet, 89% of clients did not know their HIV status prior to this study. Among HIV+ clients, 87% was previously unaware of their HIV status, which indicates that most of the seropositive clients in the study represented newly detected cases of HIV infection. Likewise, 83% of clients was unaware of their partner's HIV status, which suggests that large proportions of clients either have been placed at risk of HIV infection by their partners or are placing their partners at risk.

Case load of clients in HIV counseling

Clients tended to raise many physical and psychological concerns in a single session (Figure 2). Clients frequently discussed their health problems. Only 9.5% of the males and 9.7% of the females never mentioned physical disorders. Male clients had up to seven physical complaints with 84% reporting between one and four problems. Female clients reported as many as 10 physical problems, with 84% presenting between one and four complaints. As all physical problems were self-reported without any clinical confirmation, no in-depth analysis of these data is carried out.

The ipsative method of coding [23] psychological problems resulted in 109 binary variables (mentioned = 1, not mentioned = 0). In any one counseling session, clients presented varying numbers of psychological problems. The first analysis investigated this distribution across genders. For this purpose the distribution was reduced to three intervals according to the natural clustering of the data. Women presented up to 21 psychological problems per counseling session. Thirty-five percent of women (n=33) presented 1 to 7 problems, 51% (n=47) had 8-13 problems, and 14% (n=13) reported 14 or more. By comparison, male clients presented up to 23 psychological problems in a single session. Fifty-one percent of men (n=38) reported 1 to 7 complaints, 28% (n=21) had 8 to 13 problems, and the remaining 20% (n=15) presented 14 or more complaints. In summary, the majority of women presented 8-13 psychological events whereas the majority of men presented 1-7. Therefore, whilst the range of psychological problems was wider for men, women tended to present greater numbers of psychological problems in any one session. This cross gender difference in distributions was statistically significant ($\chi^2 = 8.38$, $p = .015$).

When clients' pragmatic concerns (financial and treatment worries) are withdrawn from the set of psychological variables, the gender differences disappear. This result suggests that most of the difference between genders is due to these material concerns. We investigated further the relationship of psychological problems with economic concerns by stratifying the data by clients' employment status. Chi-square analysis indicate a significant relationship between employment status and the distribution of psychological problems ($\chi^2 = 10.67$, $p=.001$). Sixty percent of employed clients reported 7 or fewer problems whereas the majority (72%) of unemployed clients presented 8 or more.

Factor analysis

Factor analysis was used to reduce the 109 counseling variables to a more manageable number by revealing the underlying structure in the data. A principal components factor analysis with a Varimax rotation reduced the psychological items to 15 different factors [25-28].

The set of 15 factors explained 42.60% of the variance in the raw counseling data. Table 2 shows the variables that loaded in each factor and the variance resolved by the factors. All factor solutions were unique; no variables loaded in more than one factor. All but one factor exhibited exclusively positive relationships among the variables. Factor 13 (*Gaining access to treatment*) had both positive and negative loadings; family support variables had a negative relationship with variables indicating treatment concerns. Results suggest that the seemly wide variety of psychological problems have a more simple underlying structure revealed through factor analysis.

Predicting clients' psychosocial needs for HIV counseling

Multiple regression analyses were used to assess relationships between clients demographic characteristics and the psychological factor variables. The regressor variables in Table 3 were selected using stepwise regression methods. Then for each factor variable, a regression model was calculated in which all the independent variables with significant effects were included in the model simultaneously. Significant results were produced for 11 of the 15

models (Table 3). However, only three models explained >11% of the variance: *Communication and counseling* = 19.85%), *Economic concerns about basic needs* (R^2 = 31.39%), and *Blame spouse/partner for HIV* (R^2 = 21.04%

Independent variables that yielded significant results for the first model included *living with one's spouse or partner, client's level of education,* and *client's knowledge of his/her HIV status prior to this study.* Results from this model suggest that issues of communication and the perceived need for counseling tend to be associated with individuals who live with their spouse or partner, have little education, and recently learned their HIV status. Significant variables in the second model include *employment status, level of education, wealth,* and an interaction term, *gender x wealth.* This result suggests that economic concerns tend to be a counseling issues for clients who are unemployed, have some education, and are HIV+ with little material wealth. The final model with considerable variance explained included the following independent variables: *number of cildren, marital status, HIV+ status,* and the interaction term *HIV status x marital status.* This result suggests that clients who blame their spouse for their HIV infection tend to be married HIV+ individuals with children.

Of the significant independent variables, only **employment status** was a powerful independent predictor explaining 19% of the variance in *Economic concerns about basic needs.* Two other covariates were somewhat less important independent predictors, each for a different counseling need. Clients living with their partners accounted for 11% of the variance in the *Communication and counseling* factor. Client' number of children explained 12% of the variance in *Blame spouse/partner for HIV infection.* Of the remaining independent variables none was an important predictor of clients'counseling needs.

The models for eight other factor variables explained little variance (i.e., <11%, see Table 3): *Rejection, Secrecy, I am a burden to others, Responding to treatment, Protecting my children from HIV infection, Gaining access to treatment, Was I bewitched,* and *Problems with spouse/partner.* Independent variables associated with each of these factor variables are presented in Table 3. They are not discussed because of the small amount of variance explained by each one. The remaining four factor variables had no statistically significant regression models: *Meeting my family responsibilities, Denial, Concern for my children' future,* and *Self-hate.*

The conclusion of this section is that the independent variables measured in this study explain small amounts of variance in the distribution of factor variables. In short, the problems presented by clients cannot be reliably anticipated by the demographic characteristics of clients.

Discussion

The psychological issues reported by a cohort of Kenyan PHIVs seeking counseling from KAS PPCs revealed 15 categories of problems. KAS clients systematically share this set of 15 factors. The factors do not represent all psychosocial problems of PHIV, but only those issues clients presented in counseling. However, these are the issues that HIV counselors need to be prepared to handle. Although statistical analysis revealed these 15 factors, we have further simplified them, using normative principles, into seven broad problem areas: **financial worries** (*Meeting my family responsibilities, Economic concerns about basic needs*), **children** (*Concern for children s future, Protecting children from HIV infection*), **dilemma in personal relationships** (*Hate and blame partner, Problems with spouse/partner*), **relations with others** (*Communication and Counseling, Rejection, Secrecy, and I am a burden to others),* **self image** (*Self-hate, I am a burden to others*), **treatment** (*Responding to treatment concerns, Gaining access to treatment*), and **denial** (*Denial, Was I bewitched?*).

Our first observation is that clients'counseling problems primarily concern relations with family and friends. In the first four groupings (financial worries, children, dilemma in personal relationships, and relations with others) clients'problems are social, or other-focused, rather than individual. This focus on relations with others has been documented elsewhere [13] where the authors noted that HIV+ and HIV- individuals placed an emphasis on relationships or social problems rather than on medically-oriented problems.

The remaining three groupings are directed inward (self-image, treatment and denial). Prominent attitudes in these groupings include anger, guilt, confusion and concern for one' health; these are personal issues. However, they also have a social dimension. Hate and blame for one' self could be a product of negative family attitudes or social stigma. Denial of one's HIV status could result from the pressure of social stigma or from a misunderstanding of the disease and transmission mechanisms.

AIDS impacts a community tied together by social networks and a common lifestyle. It disconnects the HIV+ person from family, friends and from normal social institutions (e.g., job, health care). Stigma and fear can reinforce the sense of isolation and guilt among PHIV [3] which is conveyed in several psychological factors: *Rejection, Secrecy, I am a burden to others, Denial,* and *Problems with spouse/partner*. These issues signal a need to integrate counseling with community support systems to break down social stigma [29, 30] and to help PHIV lead socially productive lives [31]. Further, the financial concerns and treatment issues mentioned by clients suggest a need for community mobilization for material assistance. Support groups could help restore a sense of connectedness and therefore improve coping responses of PHIV and their families [29, 30].

A second observation is that families of PHIV are as likely to be supportive as unsupportive and therefore, cannot be relied upon to provide care for them. Clients reported positive support from family members as well as a lack of sympathy from their family. Families also had a tendency to blame the clients for their infection. In Africa, the family has frequently taken on the responsibility of providing support and care for sick family members. However, fear and discrimination associated with HIV/AIDS in the community hampers their efforts [32]. Even trusted family members may choose not to provide care or support for fear of becoming infected [33]. Nevertheless, other accounts show that AIDS patients are increasingly accepted by relatives and partners and are increasingly cared for at home [34-37]. A recent review of TASO's work in Uganda suggests that community-based counseling has helped improved family coping with PHIV with the majority of clients revealing their HIV+ status [38].

The discrepancy in family support may explain why education and counseling (Factor: *Communication and counseling)* for the family was a priority need of clients in the study. Family counseling could support the restoration of the natural and traditional care-giving role of the family to reduce the client's sense of isolation and alienation. It could also help the client establish a setting in which to reveal his/her serostatus. Improving relations with the family could help alleviate the client's concerns about the care of their children after his/her death. Family counseling also can extend support and care to members of the client's family who may be grieving the loss or anticipated loss of a loved one [39]. Their negative attitudes toward the client may be due to their difficulty in coping with the client's infection.

A third observation is that any client regardless of his/her demographic characteristics could present the 15 categories of problems. Multiple regression identified weak but statistically significant independent predictors for 11 of the 15 psychological factors. The small variance explained by the regression models suggests that counselors can expect to address these problems in all clients. The possible exception to this conclusion are three independent variables: employment status, living with one's partner, and number of children, all of which explained between 11%-19% of the variance in a single factor, namely, *Economic concerns about basic needs, Communication and counseling, and Blaming spouse/partner for HIV infection*, respectively.

Conclusions

Caring for PHIV in Africa should be discussed in the context of limited medical facilities and personnel, incomplete and incorrect knowledge of HIV among some care providers, and the lack of social support systems [40, 41]. Meeting the psychosocial needs of PHIV generally falls on insufficiently trained paraprofessional counselors [20]. As the number of HIV cases increases, demand for the services of trained PPCs will also increase [16]. However, the lack of information on the psychosocial needs of African PHIV impedes the development of training systems for PPCs.

This study attempts to establish an empirical basis for designing a training system for PPCs in East Africa. In practical terms, each of the 15 factors presented in this study can be treated as a separate module in a curriculum to train PPCs to address the problems that PHIV bring to counseling. This study was initiated because KAS counselors felt under-prepared to handle the problems their clients presented. Previous research indicates that HIV counselors in the UK complained that their training had not equipped them to address their clients' needs [1]. Counselors were uncomfortable in their work in part because they were not prepared to discuss certain topics (e.g., suicide, death, dying, and bereavement) and in part because they were uncertain how their clients would react in counseling.

In a study in South Africa, hospital counselors reported they felt unprepared to handle several problems they encountered during HIV counseling: client's denial of a positive HIV test result; anger at being infected; concerns about their jobs, children and fertility; traditional or superstitious beliefs about the disease; and techniques to encourage HIV+ clients to reveal their status to their sexual partners [10]. The counselors requested additional information on how to best deal with these problem areas. Each of these areas is similar to a problem reported by

clients in the current study, suggesting that focused training for PPCs could accommodate the needs of client and counselors alike.

Counseling training for paraprofessionals varies widely in content. Topics range from basic facts about HIV antibody testing, HIV transmission and prevention, to interpersonal and facilitation skills, to decisions about notifying sexual partners, to coping strategies for death, dying and bereavement [1, 3, 16]. The issues are numerous and complex. A PPC would require extensive training and/or experience in order to feel comfortable in his/her role as HIV counselor. PPCs could be better prepared if they receive focused training in areas that are relevant to the issues that tend to arise in counseling. The typology developed in this study reduces the myriad of possible topics to a manageable and teachable set that is relevant to the experiences of PHIV and counselors.

While other studies have documented the multiple psychological and physical problems associated with HIV infection [30, 39], the present study shows how training of paraprofessionals can be based on the diverse problems that clients present in counseling. Developing a training curriculum based on a typology of problems reported by PHIV could help to reduce the uncertainty of what counselors can expect to encounter in counseling. This may produce counselors who are confident in their work and capable of assisting PHIV cope with their infection.

Several factors limit the generalizability of these results. First, the study is based on an assessment of one cohort of clients; findings may not be representative of other PHIV or people affected by HIV. Second, the data are cross-sectional which precludes an analysis of the progression of client attitudes over time. Given the uncertainty surrounding the onset and outcome of HIV and the symptoms of AIDS, client distress levels and coping abilities may change over the course of the infection [7]. The original intent of the study design was to track the psychological problems clients brought to counselors over time, and to associate these with clinically diagnosed physical problems. However, clients seldom returned to counseling; and when they did, it was on an irregular basis.

Nevertheless, the findings of this study offer an inventory of problems that clients themselves identified as priorities for follow-up counseling. This study is an initial exploration of the psychosocial needs reported by HIV clients and may be helpful to PPCs working to improve the psychosocial counseling available to PHIV and people affected by HIV. Additional research is needed to validate in other settings the 15 modules in our proposed curriculum (i.e., the 15 factors), and to determine the long-term psychosocial needs of PHIV and how these relate to their health status and disease stage.

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Table 1. *Data on HIV status, age, marital status, education level, employment status and living arrangement for male and female clients attending KAS counseling in Nairobi, Kenya*

Variable	Number (%)		
	Male	Female	Total
Number of clients	74 (44)	93 (56)	167 (100)
Serostatus (n = 167)			
HIV +	69 (93)	77 (83)	146 (87)
HIV -	5 (7)	16 (17)	21 (13)
Age in years (n = 130)			
0 – 19	1 (2)	3 (4)	4 (3)
20 – 29	24 (45)	41 (53)	65 (50)
30 – 39	18 (34)	30 (39)	48 (37)
40 – 49	4 (8)	2 (3)	6 (5)
50 – 59	5 (10)	1 (1)	6 (5)
60 +	1 (2)	0 (0)	1 (1)
Marital status (n = 128)			
Single	19 (36)	30 (40)	49 (38)
Married	28 (53)	26 (35)	54 (42)
Widowed, divorced or separated	6 (11)	19 (25)	25 (19)
Education level (n = 125)			
None	7 (14)	26 (35)	33 (26)
Any primary school	5 (10)	14 (19)	19 (15)
Any secondary school	30 (59)	32 (43)	62 (50)
Beyond secondary	9 (18)	2 93)	11 (9)
Employment status (n = 120)			
Employed	27 (54)	8 (11)	35 (29)
Unemployed	23 (46)	62 (89)	85 (71)
Living arrangement with spouse/partner (n = 115)			
Client living with spouse/partner	21 (44)	19 (28)	40 (35)
Client living alone	25 (52)	47 (70)	72 (63)
Spouse/partner is dead	2 (4)	1 (2)	3 (3)

Note. Percentages may not sum to 100 due to rounding of decimals.

Table 2. *Fifteen factor solutions of the psychosocial variables (n=190).*

Factors	Variables	Loading	Variance explained (%)
Factor 1 Communication & Counseling	• Client wants family to be educated about AIDS	76	4.23
	• Client wants counseling for family	74	
	• Client wants people to be taught about AIDS	72	
	• Client wants family to know his/her HIV status	68	
	• Client wants counseling	66	
	• Client understands disease and is ready to live with it	47	
	• Client wishes that family and friends would understand his/her HIV status	45	
	• Client has a positive attitude toward counseling	45	
	• People believe there is no such thing as AIDS	44	
Factor 2 Rejection	• Client is angry at rejection by family	79	3.97
	• Client feels the family does not want him/her anymore	74	
	• Family blamed client for contracting AIDS	67	
	• Client feels isolated by family and friends	64	
	• Client is not on good terms with family (spouse, brother, sister)	53	
	• Client is concerned about rejection by society or family	49	
	• Client has been chased out of home by parent and has resorted to prostitution for a livelihood	30	
	• Client has been deserted by friends and has no one to talk to	28	
Factor 3 Secrecy regarding HIV status	• Client does not want family to know his/her HIV status	77	3.20
	• Client wants to keep his/her status a secret	75	
	• Client does not want anyone to know about his/her HIV status	71	
	• Client is concerned about how break to the news of his/her HIV status	55	
	• Client feels guilty to face friends, family, and society in general	47	
Factor 4 Meeting family responsibilities	• Client fears he/she will lose business/job because of HIV status	74	3.17
	• Client is the sole bread winner and cannot do much to help the family now	68	
	• Family is very understanding and they will accept his/her status even though they will be shocked	62	
	• Client's family is poor and cannot help in any way; they depend on him/her for financial support	62	
	• Client does not want people to know to avoid gossip	60	
	• Client has high hopes of being cured	56	
	• Family does not know client's serostatus yet	52	
Factor 5 Economic concerns about basic needs	• Client does not have enough money to buy food	76	3.11
	• Client cannot afford the cost of medication	73	
	• Client is unemployed and has no money for food/drugs	70	
	• Client is unable to pay for rent, school, fees	61	
Factor 6 Denial	• Client does not believe in AIDS	70	2.97
	• Client does not understand diagnosis or need for treatment	66	
	• Client does not want any kind of medication	64	
	• Client has a negative attitude to counseling	56	
	• Client does not accept his/her status	49	
	• Client feels that STDs are not his/her kind of disease	43	
Factor 7 Blame spouse/partner for HIV infection	• Client blames spouse for bringing the disease	69	2.91
	• Spouse is a drunk	65	
	• Client hates spouse for infecting him/her	61	
	• Client wonders what to do with sex life	56	
	• Client is depressed about his/her impending death	47	

Table 2 Continued

Factors	Variables	Loading	Variance explained (%)
Factor 8 Concern for my children's future	• Client worries about who will look after his/her children and spouse after client's death	76	2.59
	• Client is concerned about who will take custody of his/her children upon his/her death	71	
	• Client worries about providing for family (school fees, house rent, food)	66	
Factor 9 I am burden to others	• Client feels he/she is a bother to family and friends	60	2.57
	• Client believes that HIV+ cases are regarded as terminal cases and therefore are a waste of money to treat/feed well	54	
	• Family feels that since AIDS cannot be cured, the client is a bother and they talk ill of him/her	53	
	• Client feels very guilty and a bother to family	53	
Factor 10 Responding to treatment	• Client worries a lot about the disease	66	2.53
	• Client is angry that the opportunistic infections are not healing	51	
	• Client wonders why he/she is not responding to treatment	48	
	• Client is looking for money to buy Kemron	42	
Factor 11 Protecting my children from HIV infection	• Client's daughter sells local brew illegally; client wants daughter to be warned of the dangers of the brew and HIV	72	2.38
	• Client is unhygienic regarding utensils, food and clothes	72	
	• Client fears that he/she will infect his/her children	69	
	• Client fears that he/she might infect his/her children and does not want them to know of his/her infection	62	
Factor 12 Self hate	• Client hates and blames him/herself	57	2.30
	• Client is angry at his/her own carelessness	53	
	• Client has a resigned attitude and waits for death	46	
Factor 13 Gaining access to treatment	• Client is not on any medication and fears he/she will die	59	2.28
	• Client is physically beaten in prison and does not receive any HIV medicine	52	
	• Client is angry that his/her ailments are not being treated		
	• Client's family is very supportive and kind *(negative loading)*	47	
	• Client's family has a very positive attitude *(negative loading)*	-53	
		-46	
Factor 14 Was I bewitched?	• Client is confused about having contracted the disease and feels he/she may be bewitched	72	2.25
	• Client believes that he/she is bewitched	57	
	• Client's family is going to send client to village to await death	43	
Factor 15 Problems with spouse/partner	• Client wants to go back to parents but fears that husband will come after her	54	2.14
	• Client=s wife/husband wants a divorce		
	• Client is angry at spouse/partner for not caring that he/she is infected	49	
		43	

Table 3. *Regression models and significant effects for the 15 psychological factors.*

Factor	*Regressor*	Variance explained	Parameter Estimate	N	R^2 model	*P*
1. Communication & counseling	Living with spouse/partner	1.636	.114	95	.199	.0002
	Education level	-.109	.473			
	Client aware of HIV status prior to study	-1.560	.373			
2. Rejection	Gender	-.711	.056	167	.108	.0001
	HIV status	.907	.052			
3. Secrecy regarding HIV status	Age of youngest child	-.124	.065	96	.105	.006
	Partner knows client=s HIV status	-.919	.041			
4. Meeting family responsibilities						ns
5. Economic concerns about basic needs	Employment status	-1.015	.188	97	.314	.0001
	Wealth index	-.061	.050			
	Education level	-.068	.045			
	HIV status * wealth index	.042	.031			
6. Denial						ns
7. Blame spouse/partner for HIV	Number of children	.092	.118	121	.210	.0001
	HIV status	.862	.082			
	Marital status	.739	.005			
	HIV status * marital status	-.791	.056			
8. Concern for my children's future						ns
9. I am a burden to others	Employment status	-.254	.033	120	.033	.046
10. Responding to treatment	Gender	.376	.033	167	.033	.018
11. Protecting my children from HIV	lient knows his/her HIV status	.868	.017	102	.098	.006
	Gener* client knows his/her HIV status	-1.000	.081			
12. Self hate						ns
13. Gaining access to treatment	Age of youngest child	.044	.040	111	.073	.016
	Education level	.028	.033			
14. Was I bewitched?	Number of children	.042	.059	122	.059	.007
15. Problems with my spouse/ partner	Marital status	.263	.057	128	057	.007

What Are We Forgetting? The Human or Spiritual Side of Development Success[1]

Alonzo Wind[2]

As we ponder issues of achieving real public health impact, and the technical approaches for community effectiveness, spread, and sustainability, I think we are forced to accept that there are spiritual dimensions to success that we seem ill-equipped to address here, but which may have as much or more importance as many other interventions being discussed over the last three days.

As one colleague here has stated to me in a recent email message, "Development does not happen in a vacuum. It often occurs because of a change in people's values. That change often follows the demonstration of what is possible or what is desirable by someone in their midst. People respond to the demonstration of values that many of us share - love for children, respect for others as equals, integrity, hard work, community solidarity, faithfulness to spouse and family."

We haven't heard this point of view widely expressed here. Beyond the technical and political questions as to how can child survival and sustainable development be promoted, how child survival interventions can truly be brought to scale for hundreds of millions of people around the world and who will pay for it all, an important question facing the world community is this: How can we overcome entrenched patterns of conflict, self-interest, and short-sighted behavior, and contribute to enlightened co-operation and long-range planning on a global scale?

Although not commonly discussed in relation to the challenges of child survival and development, there are current in the world certain trends - including the widespread lack of moral discipline, the glorification of greed and material accumulation, the increasing breakdown of family and community, the rise of lawlessness and disorder, the ascendancy of racism and bigotry, and the priority given to national interests over the welfare of humanity - all of which destroy confidence and trust, the foundations of collaboration.

The reversal of these destructive trends is essential to the establishment of unity and co-operation. This reversal will require a deeper understanding of human nature. It requires a new concept of leadership - the leader as servant. For, although economics, politics, sociology and science offer important tools for addressing the interdependent crises facing humanity, a true resolution of the dangerous state of affairs in the world can only be realized when the spiritual dimension of human nature is taken into account and the human heart is transformed.

Although there are mystical aspects that are not easily explained, the spiritual dimension of human nature can be understood, in practical terms, as the source of qualities that transcend narrow self-interest. Such qualities include love, compassion, forbearance, trustworthiness, courage, humility, co-operation and willingness to sacrifice for the common good, all qualities of an enlightened citizenry.

The profound and far-reaching changes, the unity and unprecedented co-operation, required to reorient the world toward a sustainable and just future, will only be possible by touching the human spirit, by appealing to those universal values which alone can empower individuals and peoples to act in accordance with the long-term interests of the planet and humanity as a whole. The appeal is most profoundly established through the dynamic force of example, an example that is expressed with humility by project managers and leaders.

Another colleague of ours, in a recent email to me, mulled over how the spiritual questions affect development success. That colleague, looking at one of the PVO's most successful projects, found that two things made this project "a crown jewel among many excellent projects." These were:

- Charisma, creativity, and initiative on the part of the director, which is transferred to her staff through the dynamic force of example; and
- The complete trust on the part of two private co-sponsors with the PVO that excellence of care and concern for the patient are the overriding philosophy of the program.

[1] Presented as a closing address to the Expert Consultation.

[2] Alonzo Wind, MD was Child Survivor Coordinator, Medical Care Development Inc., Washington, D.C. and member of the Planning Committee for the Expert Consultation. He is currently Program Coordinator, International Save the Children Alliance, 275-281 King St., London W6 9L2, U.K.

There have been a few examples at the conference that have seemed to point tentatively to an appreciation of the spiritual dimension of project success. On the first day, as Ellen told us about the FFH program in Ghana, she commented that one of the most important elements of success is to the village banking services is the importance that the local staff BELIEVE in the ability of the poor to participate in and benefit from the program. In her paper, Ellen stressed that this was TOUGH LOVE, not charity. This belief in others and what they can do, this faith in peoples' ability to overcome obstacles, is an expression of deeply potent spiritual - or if you prefer, humanist - values that can ennoble even as it enables others.

In another example, Lisa told us also on the first day about how SAVE program managers of the Warmi project in Bolivia had to remain firm to their belief in the ability of communities to respond to the participatory methodology, overruling the doubt an perhaps even initial cynicism of local staff.

Rob Northrup's assessment of successful impact strategies included the observation that "the identification of problems and aggressive problem-solving" mattered, enabling the project to be pro-active in stock taking. This characteristic of aggressive, committed pro-active managers is an intangible that is often absent from any evaluations or quantitative assessments, but we all know from experience what a difference to a project that can make. More times than not, this aggressive, defiant unrelenting behavior from a field manager is the product of a deeply spiritual sense of accountability, responsibility and restlessness over suffering and injustice. It comes from staff who are not prepared to accept quietly the preventable loss of human life. This is, I posit, a spiritual dimension to success that we have alluded to but not fully grasped.

There is a growing awareness in the development world about the contribution of the "Faith Community" to meaningful outcomes. Just this past February, Dr George Carey, the Archbishop of Canterbury and Mr James D Wolfensohn, the President of the World Bank hosted the Dialogue "World Faiths and Development" at Lambeth Palace, London, on February 18th-19th 1998. Leaders from nine world Faiths, including the main traditions within the Faiths, participated: Bahá'í; Buddhist; Christianity; Hindu; Jains; Jewish; Muslim; Sikh and Taoist.

In a joint press release the World Bank and the religious leaders expressed the following points:

- We are strengthened in our conviction that the definition and practice of desirable development must have regard to spiritual, ethical, environmental, cultural and social considerations, if it is to be sustainable and contribute to the well-being of all, especially the poorest and weakest members of society.
- All participants in the Dialogue agreed that "well-being" must imply the elimination of the suffering caused by absolute material poverty whilst also recognizing the importance of spiritual and cultural life. Our understanding of poverty and development has been widened and enriched by the exchange between the World Bank experts and the different faiths with their diverse interpretations of what it means to lead a fully human life.

They agreed to establish joint working groups to explore together themes of concern such as: community building; hunger and food security; environmental sustainability; preservation of cultural heritage (including sacred sites); violence and post-conflict reconstruction; education and social service delivery.

In their joint closing statement, Wolfensohn and the leaders of the communities of faith found that "The religious communities already contribute substantially to the design and implementation of several development programs, significantly improving their effectiveness. We hope they will feel encouraged to explore further opportunities for partnership in this field, both bilaterally and on a multifaith basis. We encourage the stimulation of pilot projects to develop good practice at the initiative of the countries themselves and with the collaboration of the religious communities and with the full backing of the Bank."

However one interprets initiatives such as these of the World Bank Group, it does however seem to me that whether or approach be religious or secular, we won't fully address issues of community effectiveness without finding ways to both enable and ennoble the Human Spirit; we won't fully address sustainability without being able to demonstrate and evoke values of sacrifice, sharing and solidarity; we won't fully address scale or spread without re-stating our implicit commitments to social justice, refusing to disregard or ignore fundamental human rights, and by acting in such a way to touch the human spirit of donors and beneficiaries alike, appealing to those universal values which alone can empower individuals and peoples to act in accordance with the long-term interests of the planet and humanity as a whole.