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Breastfeeding Promotion in Central America: High Impact at Low Cost

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ABBREVIATIONS

AED	Academy for Educational Development
APHA	American Public Health Association
ARI	Acute Respiratory Infections
CALMA	Centro de Apoyo a la Lactancia Materna (Breastfeeding Support Center)
PROCOMSI	Proyecto de Comunicación para la Salud Infantil (Communication for Child Health Project)
CSS	Comisión de Seguros Social (Social Security Commission)
DRU	Departamento de Relaciones con el Usuario (Department of Public Relations)
IHSS	Instituto Hospitalario de Seguros Sociales
INCAP	Instituto Nutricional de Centro America y Panamá
JHU	Johns Hopkins University
LAC	Latin America and Caribbean (A.I.D. Regional Bureau)
MOH	Ministry of Health
PAHO	Pan American Health Organization
PROALMA	Proyecto de Apoyo a la Lactancia Materna
PROLACMA	El Proyecto Panameño de Promoción de Lactancia Materna (Panama Breastfeeding Promotion Project)
ROCAP	Regional Office for Central America and Panama
USAID	United States Agency for International Development

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EXECUTIVE SUMMARY

Low durations of breastfeeding and short intervals of exclusive breastfeeding in Central America in the 1970s and early 1980s raised concerns because of health consequences for infants and children. Some countries had experienced declines in the incidence of breastfeeding which led to the development of projects to try to reverse these declines. This report discusses the results of interventions supported by USAID in Honduras, Panama and El Salvador to improve breastfeeding practices. These projects had similar objectives of enhancing the knowledge, attitudes and practices of health professionals, changing hospital policies and practices to be more conducive towards breastfeeding and promoting breastfeeding during the critical period before and after birth.

Each country used a slightly different approach to promote such changes but in each country core activities were focused on hospitals. The national breastfeeding promotion project in Honduras (PROALMA) implemented from 1983-1988, worked primarily through training of health professionals but was preceded by a major mass media campaign that stressed breastfeeding.

The Panama Breastfeeding Promotion project (1983-1987), was administered by regional divisions of the Ministry of Health, and included regional training of health professionals, local mass media efforts and a working women's research component at the national level.

The CALMA project in El Salvador (1980-1989) emphasized training of health workers in urban areas, and provided training to community level workers in rural areas; CALMA also worked directly with mothers through support groups established in three hospitals and through peer counselors who provided direct support to new mothers.

Milk banks were established within hospitals in all three countries. These helped to support changes in hospital practices by providing a focused breastfeeding activity in each hospital.

The projects in Honduras and El Salvador sent representatives to health professionals training at Wellstart, the San Diego based lactation management program. At least seven personnel from PROALMA and five from CALMA were trained by Wellstart during the years of project implementation.

Project Implementation

The Honduras Breastfeeding Promotion Project was a result of a joint effort between the Ministry of Public Health, the National Social Security Institute and the National Welfare Board. The project was coordinated by PROALMA, housed within the National Welfare Board. PROALMA I was a 2 1/2 year project (1983-1985) focused on three major urban hospitals with about 24,000 births per year (about 1/8 of the total births in Honduras). In the national expansion phase, PROALMA II (1986-1988), efforts were focused on

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institutionalizing practices promoting optimal breastfeeding at regional and area hospitals, as well as the major hospitals in Tegucigalpa and San Pedro Sula (the major urban areas). They represent approximately 1/3 of the births in the country.

The Panama Breastfeeding Promotion Project (1983-1987) was coordinated by the National Commission for the Promotion of Breastfeeding, executed by the Ministry of Health, with funds administered by INCAP through the local office of PAHO. This project was decentralized, with an inter-sectoral commission established in each of the 11 regions, generally meeting at least once a month to plan activities for the project. Each region submitted proposed plans for activities, and was funded to conduct their own selected programs. Activities centered on training of health professionals, changing hospital practices, establishing of milk banks in hospitals within six regions, mass communication to promote breastfeeding, and studies of breastfeeding among working women.

Unlike the programs in Panama and Honduras, the Breastfeeding Promotion Project in El Salvador was administered through the private sector. CALMA, a La Leche League affiliate, became a fully autonomous indigenous private voluntary organization in 1983. CALMA was supported by major grants from USAID from December, 1979 to January, 1984 and February, 1985 to January, 1990.

Efforts of CALMA focused on training of health professionals working in low-income urban and marginal areas of El Salvador. In rural areas of the country, CALMA provided training to community level workers and education to mothers and other community members. Training was conducted primarily through workshops and seminars.

CALMA also worked to establish milk banks in major hospitals and to support the work of volunteer peer counselors (promoters) who provided individual counseling to new mothers in hospitals and breastfeeding education of women within communities.

Impact on Breastfeeding

All three programs resulted in improvements in breastfeeding. Indicators of success included:

- ▶ Increasing breastfeeding rates (initiation rates, as well as, duration of any breastfeeding, or decreases in bottle-feeding)
- ▶ Increasing support for breastfeeding among health professionals
- ▶ Increasing rates of rooming-in
- ▶ Decreasing routine formula use in hospitals
- ▶ Decreasing use of glucose water for infants
- ▶ Decreasing the use of oxytocin for postpartum women
- ▶ Decreasing the interval between delivery and first breastfeeding
- ▶ Decreasing the interval between delivery and rooming-in

Program-specific surveys in the areas covered by PROALMA show an increase in the median duration of un-supplemented breastfeeding from less than 2 weeks to 2 1/2

months among low income women in Tegucigalpa, the capital city between 1983 and 1985. During this period the percentage of infants who initiated breastfeeding rose from 93% to 98%. The proportion breastfed at 3 and 9 months also increased significantly by 24 and 25 percentage points respectively.

Nationally representative data on breastfeeding practices, available for approximately the same span as that covered by the PROALMA project, indicated the median duration of breastfeeding increased from four months in 1981 to ten months in 1987 in urban areas. Independent analysis of these different national and program-specific surveys conclude that PROALMA activities contributed substantially to these improvements in breastfeeding practices.

Data from the most successful regional projects in Panama also illustrate a trend to increased durations of breastfeeding and increases in the proportion of young infants being exclusively breastfed. Nationwide data also suggest an increase in the mean duration of breastfeeding in urban areas from 6 months to nearly 8 months after the first year of the project. There is insufficient information in El Salvador to assess impacts of the program on breastfeeding rates.

Important lessons can be learned from these successful programs. An examination of project implementation problems ranging from financial to logistical are examined in this report as well as the solutions designed to address such problems.

Evaluation

These three projects illustrate a wide range in evaluation methods. The Honduras project has two sets of baseline-evaluation surveys that can be used to assess project impacts. There are also three national health and family planning surveys which provide excellent data on breastfeeding trends in the country. The Panama project has some small-scale regional studies (prepared for a final evaluation workshop) that help to illustrate impacts. Surveys conducted in 21 hospitals throughout the 11 regions following the evaluation workshop help to illustrate changes in hospital practices. The CALMIA project had only minimal evaluation and as such is more typical of breastfeeding projects conducted previously, since little information is available on the impacts of the project. Only some process indicators of numbers of professionals trained, and observations by a consultant during a mid-term evaluation are available to ascertain likely impacts of the project.

The three levels of evaluation and the corresponding quality of the results illustrate the importance of well designed evaluations prior to the implementation of breastfeeding promotion projects. Without adequate knowledge of what activities do and do not work, expansion of breastfeeding promotion efforts is apt to be limited. However, it is important to emphasize that without control groups secular trends may be reflected in the results. None of these evaluations included control groups, which are often difficult to obtain in evaluating programmatic interventions.

It is necessary for funds to be set aside for evaluations, however. In PROALMA I, 8% of project costs (\$32,000) were allocated for the

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evaluation, with additional expenditures provided through another contract for the baseline survey conducted before the project began. In PROALMA II, 5% of project costs were set aside for evaluation (\$44,450). In Panama, although \$42,000 was budgeted for an evaluation that would have included baseline and follow-up surveys of health professionals and nationwide surveys of breastfeeding practices, these were not conducted as planned because of local problems. The CALMA project in El Salvador had no specific evaluation plan, however funds (about \$12,000) were set aside in the second USAID contract for a midterm assessment by an outside consultant.

Economic Aspects of the Projects

Project costs for the three countries ranged from about \$100,000 to \$200,000 per year. In assessing project costs, it is useful to compare the size of the target population within each country. In 1988, the population of Honduras was 4.8 million with 195,000 births; of Panama, 2.3 million with 62,000 births; and of El Salvador, 5.4 million with 184,000 births (Population Reference Bureau, 1988; UNICEF, 1991). In Honduras, the total project cost for the six-year project was \$1,181,660. (Phase I of PROALMA cost \$365,000 which focused on hospital practices affecting about 24,000 births per year in three hospitals, and PROALMA II cost \$816,660, with interventions covering on most Honduran hospital births which are estimated at about 65,000 births.) The four-year Panama project, which took place between 1984 and 1988, cost \$720,000. The total cost of CALMA from 1980-1989 was \$909,000, with \$762,000 provided by USAID.

In Honduras, cost savings (from decreases in infant formula, bottles and oxytocin) averaged \$26,500 per year in two of the PROALMA I hospitals for which data are available, or over \$1.00 per birth. In Panama, such cost savings averaged about \$1,000 per year in small regional hospitals, and \$11,000 per year in a large urban hospital in Panama City, again about \$1.00 savings per birth.

On average these estimated costs savings underestimate the overall economic impact of the three country programs because they do not take into account institutional savings from reductions in morbidity (diarrhea and acute respiratory infections) directly associated with improvements in breastfeeding practices.

Lessons Learned

A number of important programming conclusions can be drawn from the USAID-supported breastfeeding promotion efforts in Central America. These are outlined below:

1. Vertical programs focused on breastfeeding can achieve significant impact on breastfeeding practices at a relatively low cost.
2. Savings in hospital costs associated with adoption of new breastfeeding norms are substantial, relatively simple to document and offer an immediate way of recovering some of the costs of initiating a breastfeeding promotion program.
3. Training and education of health professional in the advantages of breastfeeding and in the techniques to

counsel and help mothers breastfeed was found to be a key component in all three projects. In the urban context of Latin America, where a high proportion of births are hospital-based and where the health sector reaches a large proportion of the population, bringing about changes in attitudes of health professionals, changing hospital norms and practices to favor breastfeeding and providing intensive counseling of new mothers has proven highly effective.

4. PROALMA found that establishment of lactation clinics in the hospitals served as a driving force for the breastfeeding promotion efforts in these institutions.
5. The Panama experience, with its multi-regional and multi-faceted approach, underscores the need for strong management to coordinate interventions.
6. Despite success in bringing about improvements in initiation and duration of breastfeeding, the programs were not very successful in altering patterns of mixed-feeding and thereby enhancing the period of exclusive breastfeeding. This suggests that a multi-faceted approach -- with more intense media, community and policy components -- may be needed to bring about and sustain changes in deeply rooted cultural practices. The experience from the three countries does not permit drawing conclusions about an optimum mix of interventions.
7. Obtaining government financial support of breastfeeding promotion activities needed for program continuation, was problematic in all three countries. This underscores the need to present program impact results and cost data to

policymakers at different levels -- from hospital directors to officials in the ministry of health and planning -- at key periods during the course of a project.

8. While the three country projects can be characterized as uni-focused, vertical breastfeeding programs, a two-year operations research effort carried out as part of PROALMA, obtained promising results by combining breastfeeding with family planning. Improvements were obtained in both breastfeeding rates and family planning usage when the two were promoted together in an integrated family-planning clinic.
9. Well-designed evaluation was critical to documenting the impact of the breastfeeding promotion efforts. The evaluation designs also highlighted the difficulty of attributing all the observed improvements in breastfeeding to program interventions without the use of control groups. As countries begin to experiment with different mixes of interventions to promote breastfeeding, it will be especially important for evaluations to begin examining the role of each component in effecting change.
10. The programs in Honduras and Panama were linked to mass media efforts. From the evaluations, however, it is not possible to assess the role of these activities in the overall success of the breastfeeding promotion efforts.

Conclusions

While breastfeeding generally has been considered important, many program planners have doubted whether programs could alter a perceived "socio-cultural" practice. The breastfeeding promotion projects in Honduras, Panama and El Salvador exemplify how a comparatively small financial investment can have a large impact on breastfeeding practices with the ultimate effect of enhancing child survival.

COUNTRY STUDY

PROALMA: Honduras Breastfeeding Promotion Project

I. Introduction

Low rates of exclusive breastfeeding and short durations of total breastfeeding in Honduras had been reported in the early 1980s. Data from a national survey in 1981 noted an average duration of breastfeeding of only four months among urban women (Ministry of Public Health, 1983). In urban Tegucigalpa, infants were reported to be partially breastfed from birth, with use of bottles common in hospitals (O'Gara, 1983).

The high infant mortality due to diarrhea led to the development of programs to reduce deaths due to diarrhea, with a particular emphasis on breastfeeding. PROALMA I (Proyecto de Apoyo a la Lactancia Materna) was established in September 1982 as a joint project between the Ministry of Public Health, the National Social Security Institute and the National Welfare Agency. Activities in PROALMA I were conducted in three large municipal hospitals in Tegucigalpa and San Pedro Sula. The number of annual births per hospital was about 15,000 in the MOH hospital in Tegucigalpa, 5500 in the Social Security Hospital in Tegucigalpa, and about 3000 in the Social Security hospital in San Pedro Sula. Funding for the project was provided by the U.S. Agency for International Development for

the period July 1983 through December 1985 (PROALMA I). The project was extended to expand activities throughout regional and area hospitals in Honduras through a new contract in 1986 through the first few months of 1989 (PROALMA II).

Several other promotion efforts took place prior to and during this time period, intensifying the PROALMA efforts to change health worker and maternal practices, to reduce infant morbidity and death. Activities included a national mass communications project to improve infant health, PROCOMSI (Proyecto de Comunicación para la Salud Infantil), a Ministry of Health project funded by USAID and receiving technical assistance from the Academy for Educational Developments's Mass Media and Health Practices Project.

PROCOMSI, which began in 1981, focused on reducing infant morbidity and mortality from diarrhea. The program included a breastfeeding communications component utilizing radio, pamphlets and face-to-face communication to change behaviors related to breastfeeding.

The first promotion phase ran from March - June 1981. Of the 20 radio spots produced and aired that phase, five focus specifically on breastfeeding, describing

breastmilk as more nourishing and safer than formula. From June, 1981 - October, 1982, little specific attention was given to breastfeeding promotion. Intensive breastfeeding promotion began in November, 1982 with the launching of the AMA-Mas ("Love-More") radio course, supported by six radio spots, a catchy song, and the involvement of health workers and community members through interpersonal communication.

The PROCOMSI campaign was a pilot project in 3 of the 8 Ministry of Health regions. The total population reached was about one million, approximately 30% of whom were women of childbearing age (Booth, 1983). The mass media component had national coverage. The radio course, containing eleven 15-minute programs, taught the "Nine Golden Rules of Breastfeeding" complemented by a 20-page booklet which mothers received from a rural health nurse or community health worker.

From May, 1981 to March, 1983, over 54,000 radio spots and programs were aired. Close to 20,000 of these directly focused on the promotion of exclusive breastfeeding. Other activities during this period included two national medical seminars on breastfeeding in which more than 500 doctors and nurses participated, national distribution of breastfeeding posters by the Ministry of Health, PROALMA, and the Ministry of Labor, and a 1984 calendar featuring the "Nine Golden Rules of Breastfeeding." These activities helped to promote a supportive environment for the PROALMA I project.

II. Goals and Objectives

The goals of PROALMA I and II were to increase the extent and duration of breastfeeding; postpone the early introduction of supplemental foods to infants being breastfed; and decrease the rate of bottlefeeding.

The major objectives of PROALMA I included:

1. Improving health professionals' knowledge and attitudes about breastfeeding,
2. Changing hospital policies and practices to support breastfeeding in the three intervention hospitals.
3. Establishing new norms and procedures promoting breastfeeding.

The objectives of PROALMA II were to implement the above objectives nationwide within 18 institutions throughout Honduras. In addition, PROALMA II had the additional objectives of:

4. Training community based health workers in breastfeeding promotion within their communities.
5. Institutionalizing the breastfeeding support activities throughout the 18 institutions.
6. Development of educational materials on breastfeeding for health workers and mothers.

III. Project Implementation

To address PROALMA goals and objectives a program was developed based on five basic principles (Zeldin, 1985):

1. The need to establish norms and practices that promote breastfeeding;
2. The importance of early bonding between mother and baby, including immediate breastfeeding at birth and rooming-in;
3. No routine supplementation of newborns in the hospital;
4. The encouragement of exclusive breastfeeding during the first four to six months of life with supplements given thereafter;

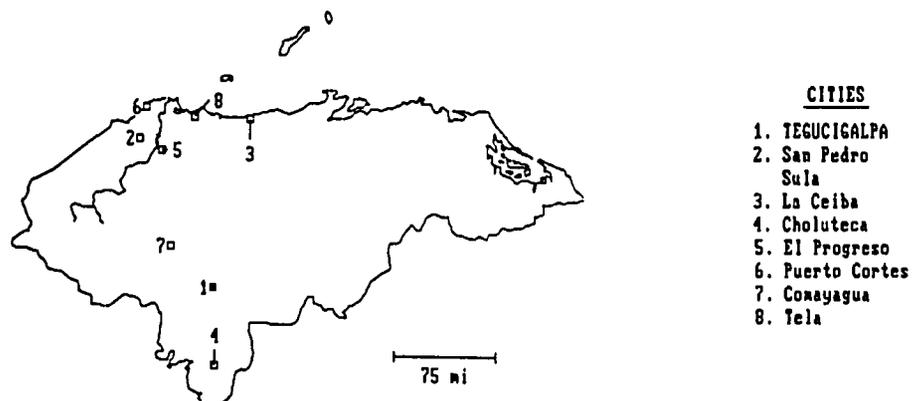
5. Clinical management: Training of health care providers to inform and support mothers both prenatally and postpartum about how to establish and maintain normal lactation, and to manage breastfeeding problems as they arise.

PROALMA I: 1983-1985

During the model phase, activities to promote breastfeeding took place at three major hospitals: the Maternal and Child Hospital (the national teaching and referral hospital in Tegucigalpa), and the Social Security (IHSS) hospitals in Tegucigalpa and San Pedro Sula (Figure 1), and a health center in Tegucigalpa. PROALMA staff included a physician, a nurse and a breastfeeding counselor in each of the three hospitals, and a nurse at the public health hospitals, and a nurse at the public health center. Emphasis was placed on the postpartum phase: counseling mothers, not introducing bottles, helping mother put baby to the breast and dealing with problems such as sore nipples. Personnel working with PROALMA received their initial training at Wellstart, the San Diego, California-based lactation management program.

Figure 1.

Map of Honduras



Country Study: Honduras

Training:

PROALMA staff held training sessions for health professionals, including physicians, midwives, nurses, community health workers and medical and nursing students on breastfeeding management. In addition, they provided training to other hospital staff, developed and distributed educational materials about breastfeeding and worked with Ministry of Health officials and hospital administrators on policies related to breastfeeding. From 1983-1985, more than 1500 nurses, auxiliaries and other professionals were trained in breastfeeding promotion and in the treatment of specific breastfeeding problems. In 1985, all physicians beginning their year of social service work following graduation from medical school received training.

Norms:

National norms to promote breastfeeding were adopted by the Ministry of Health in 1984 and disseminated in 1985 (Canahuati, 1990). These norms pertain to labor and delivery, newborn care, and postpartum care.

Breastfeeding Clinics:

Lactation management clinics were established in the three hospitals to provide follow-up counseling after birth and provide clinical assistance to women with breastfeeding problems. All women who gave birth in the participating hospitals were given an appointment at the breastfeeding clinic shortly after delivery.

Milk Banks:

Each of the project hospitals set up a small-scale milk bank for premature and sick infants, using manual and electric breast pumps,

and allowing mothers to enter the newborn nurseries to breastfeed (Calderone and Canahuati, 1988). Interviews with program managers suggest that these milk banks played an important role in generating interest about breastfeeding among medical staff.

Breastfeeding Counseling:

At each hospital, PROALMA staff made daily visits to new mothers on maternity wards to provide counseling about breastfeeding. Visits were also made to other areas within the hospital that serve newborns, including the milk bank, the nursery and the labor, delivery, and pediatric wards. One pamphlet targeted at new mothers was produced, and more than a dozen pamphlets targeted at nurses and physicians. More than 21,000 copies of various educational materials were distributed (Canahuati, n.d.).

A documentation center was established to provide the technical back-up for the project. This center housed over 70 books and categorized research articles on lactation for use by health professionals.

In addition, more than 100 home visits were made to treat specific breastfeeding problems (Zeldin, 1987). Six public health clinics in Tegucigalpa developed educational and support programs for pregnant and breastfeeding women (Calderone and Canahuati, 1988). The lactation management clinics served as a driving force for the breastfeeding promotion effort and as a coordination unit for the various hospital departments and a link between hospital and outpatient consultations for those with problems (Ministry of Public Health, 1990).

PROALMA II: 1986-1988

The objective of PROALMA II was to expand the activities of the first project phase to a national level, implementing project activities within 18 cooperating institutions. These institutions included the three hospitals in PROALMA I (the national teaching hospital and two IHSS hospitals) as well as six regional hospitals and nine Ministry of Public Health area hospitals.

Lactation specialists were hired to give technical back-up to all of the health regions. The PROALMA I model, however, with an active breastfeeding coordination group and a breastfeeding clinic was institutionalized in only one additional hospital during the expansion phase.

Training:

- ***Health Professionals***

Methods used to train health professionals were similar to those used in the model phase. Workshops, seminars and conferences were held during the project. A total of 3800 health professionals participated in these activities, with about 20% physicians, 20% medical students, and 14% professional nurses, and 24% auxiliary nurses. Others included health promoters, nursing students, and other auxiliary workers (Godoy Mejia et al, 1990).

- ***Community Health Workers and Leaders***

More than 200 coordinating meetings were held with private sector agencies

(such as the Red Cross, Horizontes de Amistad, Save the Children) resulting in over 5900 community leaders being trained in breastfeeding promotion.

- ***Educational Materials***

In collaboration with the Ministry of Public Health, of three pamphlets, a poster and a calendar on breastfeeding/infant feeding were produced and distributed (100,000 copies each). UNICEF supported the printing of these materials. Materials produced through a Population Council sponsored project on breastfeeding and Family planning, were also distributed (50,000 copies).

An information center that was established during PROALMA I provided a resource for materials on breastfeeding. The Center distributed 22,000 pamphlets to health professionals and community members trained in the project. It also produced a slide set and guide that was distributed to the 6 regional hospitals.

Throughout the project, over 14,000 educational talks were held reaching 125,000 community members.

- ***Milk Banks***

Training on milk banks was provided to teams from all of the 18 institutions. Milk banks were further supported in the three PROALMA I hospitals with electric pumps and additional training, and in two other regional hospitals and one private hospital milk banks were established with electric pumps. Out of the five hospitals that reported on the

Country Study: Honduras

functioning of the milk banks, over 20,000 women donated to the banks over the 3 years of the project. At the end of the project, six additional electric pumps were donated to the MOH for the establishment of additional milk banks.

- ***Breastfeeding Clinics***

By the end of the project, 4 hospitals were providing individual attention to women with lactation problems through specially created lactation management clinics. These included the three hospitals in PROALMA I and a fourth in San Pedro Sula, Hospital Leonardo Martinez. These four hospitals provided more than 16,000 clinical sessions during the project.

IV. Impact on Breastfeeding

Results of studies are available to illustrate the likely impact of these efforts. These include three nationally representative surveys as well as hospital- and community-based surveys which were conducted as part of the project.

National Surveys

The national surveys are the 1981 Contraceptive Prevalence Survey, the 1984 Maternal and Child Health/Family Planning

Survey, and the 1987 Epidemiology and Family Health Survey. The sample sizes of children less than 24 months old for these surveys were 1540, 1471, and 3354 respectively. All three surveys included questions on whether the last live born child was breastfed, the duration of breastfeeding, and the age at which other milks were introduced. The two latter surveys included additional information on feeding of waters and other foods, and use of bottles and pacifiers.

PROALMA Surveys

PROALMA I:

Health worker surveys of knowledge, attitudes and practices (KAP) were conducted in 1982 (n=338) and 1985 (n=427), surveys of postpartum mothers were conducted in 1982 (n=449) and 1985 (n=166) to assess changes in hospital practices, and surveys of women residing in the community surrounding the major teaching hospital in Tegucigalpa were conducted to assess breastfeeding practices in 1982 (n=868) and 1985 (n=521) (Popkin et al, 1991).

PROALMA II:

- ***KAP of health professionals***

While a baseline KAP survey of 437 health professionals was conducted in 1986, a follow-up KAP was not conducted. However the information obtained in the 1986 survey is comparable to the PROALMA I KAP surveys of health professionals and is useful for assessing impacts of

PROALMA I on the KAP of health professionals on a national scale.

Surveys of Postpartum Mothers

The baseline survey of postpartum mothers was conducted in 1986 by interviewing all (n=251) postpartum mothers delivering during one week in each of 13 regional and area hospitals. More than 30 mothers were interviewed in 3 hospitals, but in the other hospitals, the samples were quite small. In 4 hospitals, the range was between 23-29, and on the other 6 hospitals, the number of women interviewed ranged from 3-8 women each. All deliveries were included in the surveys, and 23% were caesarian or other complicated births.

The 1988 survey of postpartum mothers included interviews of 30 mothers in each of the same 13 hospitals, with the addition of 2 other area hospitals and the 3 PROALMA I hospitals. Only uncomplicated vaginal deliveries were included in the 1988 surveys.

Serious differences in the pre- and post-survey methodologies make comparisons of results difficult. Since many of the examined norms would be less likely to be met by women with caesarian deliveries or problem births, noted changes (most likely, improvements) could be due to the different sample characteristics. This problem as well as the differences in sample size for the individual hospitals make comparisons between the two surveys of postpartum women problematic.

- ***Community Surveys***

Another part of the planned evaluation of PROALMA II was a pre- and post-intervention comparison of mother's knowledge, attitudes and practices concerning infant feeding. Approximately 1000 mothers of infants aged less than one year from 5 cities were interviewed in both years. The cities included in the surveys were Choluteca, Comayagu, Santa Rosa de Copan, Yoro, and La Ceiba.

Cities with the highest percentage of hospital births per total expected births, and the proportion of births per 100 hospital admissions outside of Tegucigalpa and San Pedro Sula were selected to be included in the community surveys. Within each selected city, the sample was designed to be proportional to the total population of that area. The number of households to be visited to randomly select the appropriate distribution of infants was estimated. Surveys were then conducted in the selected households. In 1986, 901 mothers were interviewed and 1020 were interviewed in 1988. In 1988, 72% of the women reported delivering at a Ministry of Health hospital, 12% in a private hospital, and 16% at home. A 1987 national survey reported that 32% of births in Honduras occurred at a public hospital, 5% at a private hospital, and 63% were delivered by a traditional birth attendant or in a health center.

- ***Observations of Hospital Practices***

In order to evaluate hospital practices in PROALMA II, four professional nurses made site visits to 18 hospitals in 1988

Country Study: Honduras

to assess practices surrounding 30 births in each institution. Following the observations, the nurses interviewed the same mothers in the postpartum ward.

● *National Breastfeeding Trends*

Between 1981 and 1987 breastfeeding increased significantly in Honduras, particularly in urban areas, with most of the increase occurring between 1981 and 1984 (Popkin et al, 1991).

a. *Incidence of Breastfeeding*

The incidence of breastfeeding increased considerably in urban areas, particularly between 1981 and 1984. The increase observed was from 80% in 1981 to 89% in 1984 and 93% in 1987. In rural areas changes were less marked, (95%, 96%, and 98% respectively), perhaps because of minimal PROALMA activities in rural areas and relatively high rates of breastfeeding at the onset.

b. *Duration of Breastfeeding*

Substantial increases in the duration of breastfeeding were observed especially among urban women for whom the median duration increased from about 4 months in 1981 to 9 months in 1984 and 10 months in 1987 (Figure 2). Increases in duration also were observed among rural women. The overall pattern of breastfeeding by the infant's age, shown in Figure 3, is especially illustrative, with a trend for increases evident in both urban and rural areas.

c. *Duration of Exclusive Breastfeeding*

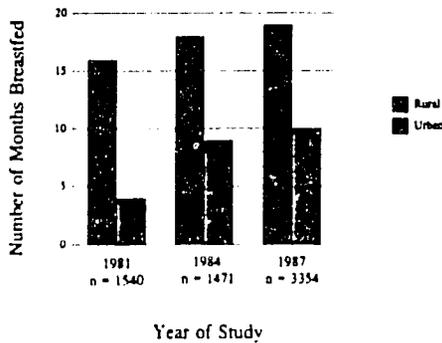
There are no national data that can be used to assess changes in exclusive breastfeeding rates, since questions on exclusive breastfeeding were only included in the 1987 Epidemiology and Family Health Survey. This survey reported that 44% of infants are exclusively breastfed for less than one month, 21% for 1-2 months and only 6% for 3-4 months. At 3-4 months of age, nearly 50% of infants received milk and other foods in addition to breastmilk (Figure 4). A comparison of exclusive breastfeeding patterns in previous years cannot be made. However, these data suggest that while the duration of breastfeeding appears to have increased in Honduras since PROALMA began, there is still much room for improving the rates of exclusive breastfeeding.

While these national level data suggest that PROALMA had a national impact on breastfeeding rates, it is also important to note that the mass media campaigns that were a part of PROCOMPSI may have also been an important factor leading to changes in breastfeeding.

Additionally, the economic crisis in Honduras during the early 1980's led to major price increases in milk products. Between 1981 and 1988, the retail cost of infant formula increased by 66% and that of powdered whole milk by 44%. These economic factors may also have influenced breastfeeding rates.

Figure 2.

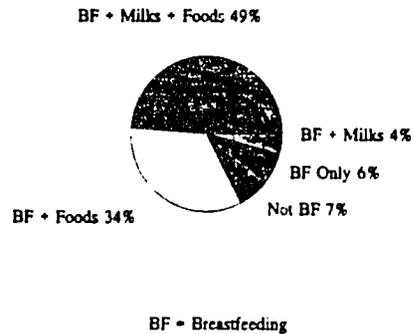
Median Duration of Breastfeeding
Honduras
1981/84/87



Ref: Popkin, B. M., et al. (1991) "PROALMA: an evaluation of a national breastfeeding promotion program in Honduras." *Journal of Biosocial Science*, 23(1), 5-21

Figure 4.

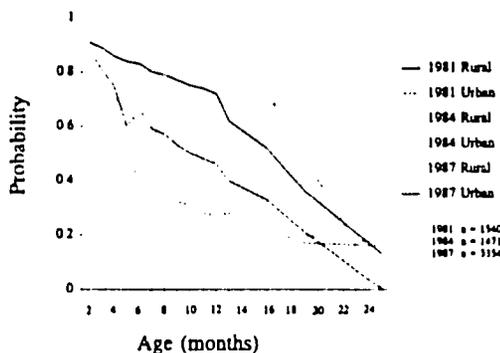
Feeding Practices / Honduran Infants
Aged 3 - 4 Months
1987



Ref: *Epidemiology and Family Health Survey, Honduras Final Report*. (1987). Ministry of Public Health of Honduras, Honduran Association for Family Planning, Management Sciences for Health, and Family Health International

Figure 3.

Probability of Infants Breastfed
Honduras
1981 - 1987



Ref: Popkin, B. M., et al. (1991) "PROALMA: an evaluation of a national breastfeeding promotion program in Honduras." *Journal of Biosocial Science*, 23(1), 5-21

PROALMA Evaluations

PROALMA I Evaluation

Health Worker Surveys:

Baseline and follow-up surveys of health professionals' knowledge, attitudes and practices regarding breastfeeding were conducted in 1982 and 1985, in the three major intervention hospitals, to assess the impact of the model phase, PROALMA I.

Results from the PROALMA I evaluation show improvements in the knowledge and attitudes of health care professionals regarding breastfeeding. Comparison of the results obtained from the evaluation of

Country Study: Honduras

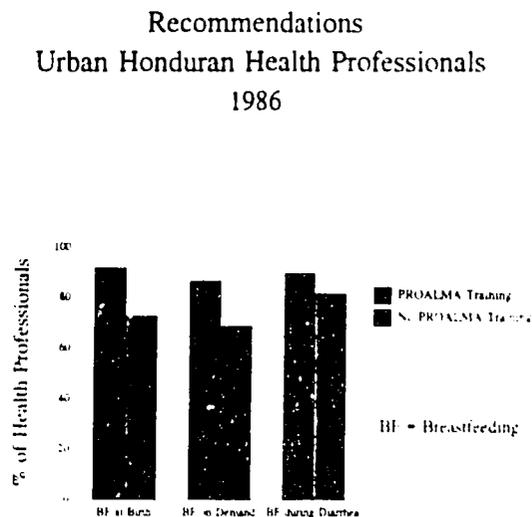
PROALMA I showed that between 1982 and 1985, the following improvements occurred in the three intervention hospitals:

- (1) The proportion of health care professionals who recommended breastfeeding at birth increased from about 27% to 87% (Popkin et al, 1991).
- (2) The proportion of professionals who recommended breastfeeding on demand increased from about 38% to 84% (Popkin et al, 1991).
- (3) The proportion of health professionals stating that bottles should never be recommended for infants in low-income families increased from less than 20% among all health professionals, to 63% of physicians and 80% of nurses (Huffman and Combest, 1988).
- (4) The proportion of health professionals who reported that an infant with diarrhea should continue breastfeeding increased from 84% to 93% (Popkin et al, 1991).

Fifty-eight (58) percent of the health professionals interviewed in the 1986 PROALMA II baseline survey had received some training in breastfeeding from PROALMA I or the Ministry of Health, and 4% reported other sources of training. This is compared to 80% in the 1985 survey of three intervention hospitals (Mothers and Children, 1987) for the staff in the three hospitals in PROALMA I. Training provided by the MOH was probably actually provided by PROALMA which was a Ministry program, but which may not have been explicitly referred to as PROALMA training. The only other training that the MOH may have done at this time would have been other courses

associated with the MOH, where breastfeeding was mentioned, as for example a course on oral rehydration therapy in which breastfeeding was also discussed.

Figure 5.



Ref: Popkin, B. M. et al. (1991). PROALMA: an evaluation of a national breastfeeding promotion program in Honduras. *Journal of Biosocial Science*, 23(1), 5-21.

The positive effect of PROALMA I activity can be estimated by comparing knowledge of health personnel who had received PROALMA I training to those who had not, as there was no baseline control on the national level. In 1986, 93% of health professionals who had received training from PROALMA I recommended breastfeeding at birth, compared to 74% for those with no PROALMA I training (Popkin et al, 1991). Similar results were shown for recommendations to breastfeed on demand and knowledge of whether an infant with diarrhea should continue to be breastfed (Figure 5).

These results suggest that PROALMA had some level of national impact by 1986 because it reached over half of all health professionals interviewed in the nationwide sample. This could have occurred because of the training of health professionals through national seminars, distribution and enforcement of national norms, and the influence of the teaching hospitals on health professionals practices.

Surveys of Postpartum Women and Hospital Practices:

Interviews with mothers in the hospital during their postpartum stay documented changes in hospital practices. In 1982, only 7% of mothers had touched their infants in the delivery room, compared to 50% in 1985 (Zeldin, 1985). Rather than asking about rooming-in, interviewers observed whether the mother had her infant with her at the time of the interview. Figure 6 shows that in all three hospitals, the rates of rooming-in more than doubled.

Changes in institutional practices within the main teaching hospital also included a decrease in the proportion of infants who received a bottle in the hospital (from 32% to 10%), and an increase in the proportion of women breastfeeding during the first hour after delivery (from 0% to 53%) (Zeldin, 1985).

Community Surveys:

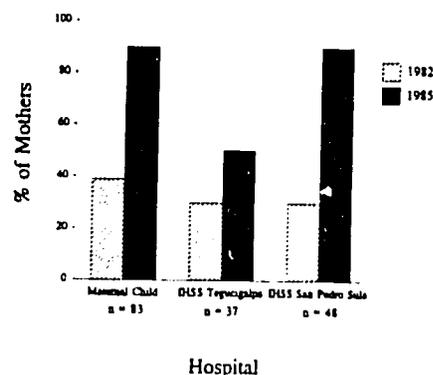
In 1982, prior to the initiation of the project, a baseline survey was conducted of over 900 mothers living in 19 low-income neighborhoods in Tegucigalpa served by the teaching hospital. In 1985, a follow-up survey of over 500 mothers was conducted in the same neighborhoods.

Comparison of the baseline and follow-up household surveys show that there was a significant increase in the duration of breastfeeding between 1982 and 1985 (Figure 7) (Popkin et al, 1991). Other improvements between 1982 and 1985 include the following:

- (1) The percent of infants ever breastfed increased from 93% to 98% (Popkin et al, 1991).
- (2) The proportion of infants breastfed at 6 months increased from 45% to 72% (Popkin et al, 1991).

Figure 6.

Percentage of Postpartum Mothers with Infant at Time of Interview



Ref Zeldin, L. (1985). "Evaluation report of breastfeeding support project PRGALMA." INCS Report Series. Educational Development Center, Newton, MA.

- (3) The median age of introducing bottles for women who ever breastfed increased from less than 2 weeks to 2 1/2 months (Mothers and Children, 1987).

Country Study: Honduras

- (4) The proportion of women who introduced a supplement other than water by 1 month decreased from 65% to 40% (Mothers and Children, 1987).

PROALMA II Evaluation

Observations of Hospital Practices:

Observations in 1988 by the interviewers of were conducted to assess whether hospital norms and routines were supportive of breastfeeding. Mothers were observed from the admission to the labor ward and followed until they were in the postpartum wards. Observations were on a continual basis until the sample of 30 normal deliveries was obtained. A hospital was considered to have met the norm when at least 20 of the 30 mothers observed had a positive experience. Hospital routines were observed during these times, and women were asked about prenatal care sessions as well. Table 1 gives the proportion of hospitals that had hospital routines that were supportive to breastfeeding.

The table separates the four hospitals where lactation management clinical services were provided (3 PROALMA I hospitals in Tegucigalpa and San Pedro Sula where services were further strengthened in PROALMA II, and the fourth hospital in San Pedro Sula), from the regional and area hospitals. Evidence from the PROALMA I evaluation shows that there were substantial changes in hospital practices in the hospitals in the two major cities between 1982-1985. The PROALMA II results show that the Tegucigalpa/San Pedro Sula hospitals on average had similar proportions of routines that were followed as the regional and area hospitals.

Table 1.

**PERCENT OF HOSPITALS WITH HOSPITAL ROUTINES SUPPORTIVE OF
BREASTFEEDING — PROALMA II EVALUATION**

Hospital Routine		Percent of Hospitals with at least 2/3 of mothers having positive experience		
No. of Routines	Type of Routine	Tegucigalpa/ SPS Hospitals (n=4)	Regional/ Area Hospitals (n=14)	All Hospitals (n=18)
3	Pre-natal Care Routines	67%	60%	61%
	Received prenatal care	75%	86%	84%
	Began pre-natal care 1st trimester	50%	29%	33%
	Had at least 3 visits	75%	64%	67%
12	Routines Related to Delivery	60%	59%	59%
	None or partial episiotomy	100%	100%	100%
	*Exam of nipples	0%	0%	0%
	No use of enemas	75%	79%	78%
	No use of drugs during delivery	100%	100%	100%
	Spontaneous rupture membranes	25%	64%	56%
	Delivery position seated/semi/prone position	50%	0%	11%
	Mother allowed liquids in labor	0%	0%	0%
	Mother selects delivery position	25%	36%	33%
	Mother helped with delivery	100%	93%	94%
	Mother helped with contractions	100%	100%	100%
	*Baby put to breast at birth	50%	36%	39%
*No methergine use after birth	100%	100%	100%	
5	Routines Regarding Newborn	71%	58%	61%
	Infant examined immediately after birth	75%	64%	67%
	Umbilical blood taken	75%	50%	56%
	Infant given i.d.	100%	86%	83%
	Eye prophylaxis given	75%	86%	83%
	Sponge bath given	25%	14%	17%
7	Promotion of Breastfeeding	43%	53%	51%
	*Taught advantages of early contact	0%	0%	0%
	*Rooming-in	50%	64%	61%
	*Breastfed 1st hour	50%	43%	44%
	*Allow mother to hold infant immediately	50%	0%	11%
	*Infant brought to mother 1st hour	0%	71%	55%
	*Infant in the mother's bed	50%	100%	89%
	*Breastfed in hospital	100%	93%	94%
27	All Routines (mean %)	58%	58%	58%
10	*Routines Directed at Breastfeeding	45%	51%	50%

Country Study: Honduras

How these patterns came to occur is not clear. The regional and area hospitals may have had better practices initially, and these results may show that the Tegucigalpa/San Pedro Sula hospitals were now functioning at a similar level. Since PROALMA I did training of recent hospital graduates and held national workshops that may have influenced the regional and area hospital staff as well. The changes may have taken place during the earlier years of PROALMA I and were reinforced during PROALMA II.

On the other hand, PROALMA II may have led to changes in the regional and area hospitals. Because there were no observational data available from 1986, it is difficult to assess this. However some information available from the postpartum interviews conducted in 1986 can be compared to those conducted in 1988 which helps clarify this issue.

If we assume that the experience of all hospitals was probably similar to those of the 3 major hospitals included in the PROALMA I 1982 baseline survey, then these are likely to have been improvements. For example, in 1982, by the definition used in this evaluation (of more than 2/3 of women observed with the infant in their bed), none of the three hospitals had successfully met the objective of having infants in the bed with their mothers. In 1988, 89% (16 out of 18 of the observed hospitals) were shown to have met this norm.

Similarly in 1982, none (0 out of 3 hospitals) of the hospitals had met the standard of infants having been breastfed during the hospital stay, while in 1988, nearly all had (17 out of 18).

Surveys of Postpartum Women:

In 1988, the same women who were observed in the hospitals as described above were questioned about their experiences in the hospital. An important finding is that none reported that their infants had been given bottles in the hospital. In 1982, in the three hospitals the percent of infants having been given a bottle ranged from 60% in IHSS hospital in Tegucigalpa, 32% in the MOH teaching hospital, 8% in the IHSS hospital in San Pedro Sula. The combined rate in the 1986 baseline survey was 13%. While we do not have strictly comparable data to assure that the current practice of restricting bottles is related to PROALMA, it is evident that this important restriction is now well established in the major hospitals throughout Honduras, a major positive step.

In 1988, Although mothers from only 28% of the hospitals reported that they had contact with the infant during the first hour, the actual observations found the rate to be double that (56%), suggesting that recall of this information underestimated the actual practice.

Surveys of Women in the Community:

Only slight differences between the 1986 and 1988 community surveys of women were noted. The percent receiving information on infant feeding during a prenatal visit was 18% in 1986 compared to 22% in 1988 (Godoy Mejia et al, 1990). The percent being breastfed (and receiving no other milk) was 26% compared to 27%. In 1986, 82% had ever given artificial milk to their infants compared to 87% in 1988.

However, while few changes in breastfeeding practices were noted, the samples differed in so many characteristics in the two

samples, that it does not appear appropriate to compare the two surveys.

The sampling method did not result in a population distribution that was similar in both time periods. The proportion of respondents from each city varied greatly in each survey: the proportion of respondents who were from La Ceiba (a coastal city) was 31% in 1986 versus 38% in 1988, while in 1986, 36% were from Choluteca compared to only 26% in 1988. Breastfeeding rates in La Ceiba were much lower than in Choluteca in 1988 (56% compared to 75%), suggesting that the 1988 sample was biased to have lower breastfeeding rates in part because of the differences in the sampled populations. Thus the lack of finding striking improvements in breastfeeding practices may only be due the fact that the sample included a larger proportion of women who had lower rates to start with initially.

While many characteristics of the mothers were similar in the two interviews (mother's age, educational level, number of previous pregnancies, number of living children, household size), there were some notable differences in SES indicators. These differences suggest that the 1988 population may have been slightly better off economically than those interviewed in 1986. Women with higher socio-economic status were shown in the survey to have lower rates of breastfeeding.

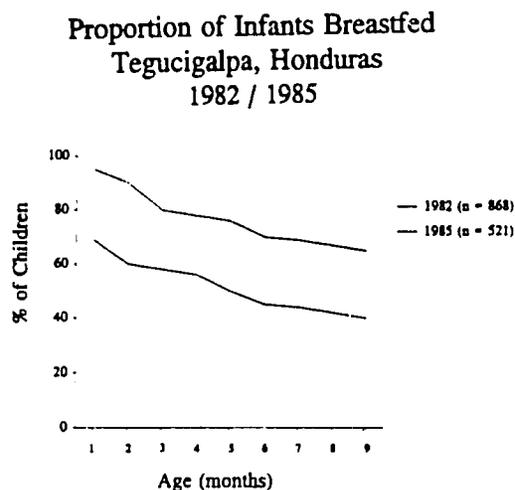
Another problem with the two surveys is that the age distribution of infants was younger in 1986, with 54% less than 6 months compared to 51% in 1988. Since much of the analysis on breastfeeding compares breastfeeding rates at the time of the two surveys, if the earlier survey has disproportionately more young infants, then breastfeeding rates are likely to be higher in the earlier survey only because of the age distribution.

All of the above problems result in a lack of comparability of the results of the two data sets. Thus based on the current analyses available from these community surveys, whether any changes occurred in breastfeeding rates is not discernable.

V. Impact of Breastfeeding Promotion on Fertility in Honduras

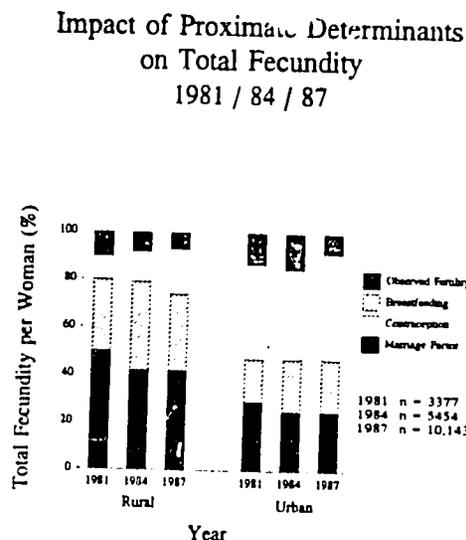
The promotion of breastfeeding was also shown to be associated with a reduction in fertility. Breastfeeding provides more than 98% protection from pregnancy during the six months postpartum if the mother is "fully" or nearly fully breastfeeding and has not experienced menses (Family Health International, 1988). Figure 8 illustrates that fertility in Honduras was reduced both by an increase in breastfeeding and an increase in contraceptive use from 1981 to 1987 (Bailey et al, 1989). Popkin et al (1991) report that if the mean duration of breastfeeding had remained the same between 1981 and 1987 rather than increase, there would have been an additional increase in births of 1 birth per woman in urban areas, and 1/2 birth in rural areas. This change was probably caused not by a large increase in exclusive breastfeeding, but rather an increase in longer durations of breastfeeding that also reduces fertility. While breastfeeding is highly effective in preventing conception when it is exclusive, there is also an important effect even after supplements are started or after the first 6 months postpartum.

Figure 7.



Ref. Popkin, B.M., et al. (1991). "PROALMA: an evaluation of a national breastfeeding promotion project in Honduras." *Journal of Biosocial Science*, 23(1), 5-21.

Figure 8.



Ref. Bailey, P., et al., (1988) "Changes in the proximate determinants of fertility in Honduras 1981-1987" Paper presented at the APHA meeting, November, 1988

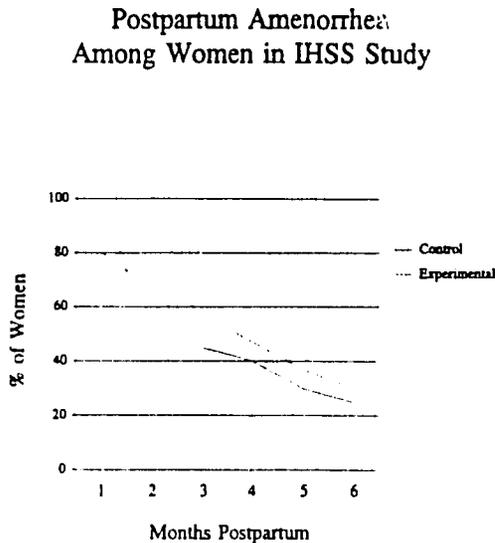
A separate PROALMA project specifically focused on the promotion of both breastfeeding and family planning was conducted in the Social Security hospital in San Pedro Sula. The project included the creation of breastfeeding and temporary family planning clinics in conjunction with education and counseling, and changes in hospital policies on breastfeeding and family planning (Canahuati, 1990).

In early 1987 and six months later, data were collected from postpartum mothers who only received the normal information provided which was supportive of breastfeeding. The combined intervention began in September 1987 when data were collected among postpartum women, with follow-up studies conducted six months later.

The project led to substantial increases in both family planning and breastfeeding practices. The percent of women exclusively breastfeeding at 4-6 months was 37% in the control and 78% in the experimental group. Counselling on family planning was given to 77% of controls and 97% of the experimental group, and on breastfeeding was given to 50% and 75%, respectively.

The prevalence at six months postpartum of use of effective methods of contraception was 54% among controls compared to 68% in the experimental group. The proportion of women breastfeeding at six months was 58% compared to 73%. The duration of postpartum amenorrhea also was greater in the experimental group (Figure 9) (Canahuati, 1990). These findings are exceptional, in that they illustrate that a combined intervention can lead to enhancements in both family planning and breastfeeding.

Figure 9.



Ref: Canabuan, I (1990) "One Country's Story: The PROALMA Project in Honduras" in M. Labbok and M. McDonald (eds.), *Proceedings of the Intergency Workshop on Health Care Practices Related to Breastfeeding*, *International Journal of Gynecology and Obstetrics*, 31(1): 17-24

Summary

Impact on Breastfeeding:

The data from several sources described above offer evidence for the positive impact of PROALMA on breastfeeding practices throughout Honduras. National survey data suggest that the largest changes occurred during the period 1981 to 1984, suggesting that PROALMA I may have been particularly successful. Other factors that may have contributed to behavioral changes include the economic crisis that occurred during this period and the increase in cost of infant formula may have also played a role, however. Additionally, the mass media campaigns on breastfeeding conducted as part of the diarrheal control program in the early 1980's may also have

helped enhance the effectiveness of the PROALMA activities on breastfeeding practices.

The lack of a large impact on national breastfeeding practices between 1984 and 1987, when PROALMA II was in operation suggests that while it may have helped to sustain changes brought about by PROALMA I, there were only small increases in breastfeeding associated with PROALMA II. However, by 1986, the majority (58%) of health professionals surveyed in the regional area hospitals had already received training by PROALMA I.

Since the observations of the regional and area hospitals suggests that practices were similar there to the PROALMA I hospitals, it appears that the interventions may have led to improvements in hospital practices throughout the country. The lesser improvements in breastfeeding rates during the period of PROALMA II may have been due to a less intensive hospital effort, and to the limitations of a breastfeeding promotion model restricted primarily to hospitals. Expansion of activities to include more community support (as through peer counseling and peer groups) and through mass media campaigns may be needed to extend the impacts available from hospital based approaches.

Since PROALMA was preceded by a nationwide mass media campaign, it difficult to isolate the impact of health professional training interventions that were the main focus of PROALMA from the combined efforts of mass media campaigns. Because of the nature of project evaluations and the overall difficulty of documenting causality of change, it is difficult to separate out which interventions were responsible for improvements in breastfeeding noted in the national surveys and program evaluations. However, it is evident that the

Country Study: Honduras

combined activities were associated with enhancements in breastfeeding.

Economic Aspects

Financing of Project:

The expenditures reported by PROALMA I were \$365,000 for the 2 1/2-year project. The major costs were for the staff of PROALMA that provided training to health professionals and support to breastfeeding women in the hospital.

The cost of the 3-year PROALMA II project was \$816,660. As with PROALMA I, the major costs of the national expansion phase were for PROALMA staff. Cost breakdowns for both PROALMA I and II are shown in Table 2. These costs include some but not all of the costs of MOH and Social Security staff running the breastfeeding clinics or working on breastfeeding promotion within their normal routine.

Hospital Related Cost Savings:

In the Maternal and Child Hospital in Tegucigalpa, where over 1000 births occur monthly, representing 80% of all low-income births in the city, changes in hospital practices and policies has resulted in cost savings in the following areas:

- ***Use of Infant Formula***

A decrease in formula purchased from 4752 pounds in 1982 to 2217 pounds in 1984 resulted in a decrease in expenditure from about \$11,500 to \$5,000 even though the number of births

was greater in 1984 (Mothers and Children, 1987).

- ***Oxytocin Use***

Savings of about \$1,000 per year have resulted due to the termination of the routine use of the oxytocin Methergine, as breastfeeding results in the natural release of oxytocin (Mothers and Children, 1987).

- ***Baby Bottles***

A decrease in the purchase of bottles between 1983 and 1984 resulted in savings of \$7,500 per year (Autotte, 1985).

- ***Glucose Solution***

While in 1982, 1200 liters of glucose solution were administered to newborns, this practice was discontinued in July 1984. Estimated savings were \$1,500 per year (Autotte, 1985).

- ***Additional Savings***

While not quantified in the report, additional savings were expected from reductions in the use of bassinets and antiseptics to clean them, because of increases in rooming-in with infants sharing their mothers beds (Autotte, 1985).

The total direct cost saving to this hospital was almost \$17,000 per year (Autotte, 1985). These savings on a per birth basis are about \$1.20 in infant formula, \$.60 in bottles, and \$.10 in glucose solution.

In the Social Security Hospital in San Pedro Sula, with 3000 births annually, bottled milk feedings had been entirely eliminated for normal and ill infants, with donated breastmilk used when needed. In 1982, this hospital spent \$42,500 in formula purchases compared to only \$6,200 in 1985: a savings of over \$36,000 (Canahuati, 1990). These figures exceed those in the larger hospital in Tegucigalpa probably because some of the purchases by the Social Security Hospital are used in Well Child Clinics (Autotte, 1985).

Cost savings were estimated at \$17,000 per year and \$36,000 per year in two of those hospitals, with an average cost savings of \$26,500 per year. Over the 2-1/2 year project, the estimated savings would be \$198,750 for the three hospitals. Given that the total project costs excluding the evaluation for PROALMA I was \$332,459, estimated savings in hospital costs alone, represent more than half of the total project costs. These estimates do not take into account the savings to families, the improvements in nutritional status of infants, or the reductions in morbidity also observed in the project, and their associated costs (Autotte, 1985; Canahuati, n.d.; Martorrell and O'Gara, 1985). The reduction in disease burden to hospitals and health centers, though not calculated, would provide considerable savings due to reduced number of visits for diarrhea treatment.

Table 2.

FINANCING OF PROALMA

Component	PROALMA I (July 1983 - Dec. 31, 1985) Expenditures \$US	PROALMA II (1986 - 1988) Expenditures \$US
Personnel	245,184	469,936
Office Supplies	8,171	43,819
Education Materials	4,879	--
Training	--	34,442
Promotion and publications	--	19,678
Equipment	7,611	33,719
Evaluation	32,095	44,452
Transportation	--	43,378
Administration	56,614	127,143
TOTAL	\$364,554	\$816,667

VI. Conclusion

A significant increase in the incidence and duration of breastfeeding occurred in Honduras between 1981 and 1987 with most of the increases occurring between 1981 and 1984. Increases were particularly noticeable in urban areas, where hospital practices influence breastfeeding patterns more than in rural areas where there are lower proportions of hospital births. While other factors, such as mass media campaigns conducted in 1981 through 1983, and an economic crisis that discouraged the use of infant formula may have contributed to the overall improvement in breastfeeding practices, the documented changes in hospital practices and health worker behavior, the targets of the PROALMA project, highlight the significant contributions of PROALMA efforts.

The PROALMA project, which is one of the few to be adequately evaluated, is an example of how breastfeeding promotion activities can influence feeding practices. This project shows that the duration of breastfeeding can be extended when hospital practices are changed and health professionals are trained in appropriate breastfeeding management techniques.

Prior to the PROALMA project, most health professionals were supportive of breastfeeding but their knowledge of breastfeeding management was limited. By providing training for physicians, nurses and other health professionals, PROALMA was able to increase health professionals' knowledge of how to help breastfeed. Changes such as eliminating the routine use of supplemental formula and encouraging rooming-in resulted in

successful initiation of breastfeeding within the hospital. Substantial increases in the average duration of breastfeeding and in the age of initial introduction of supplements have been documented.

The PROALMA project model is one of initiating project activities in major hospitals in the larger cities and then expanding activities throughout the country. This model seems to have been effective in helping to develop and promote changes in national norms, and to train large numbers of health professionals who have contact with the large urban hospitals either during medical training or through other contacts with these hospitals.

It is surprising however that more institutional changes had not been made after the 6 year project. Only about half of the breastfeeding related norms had been met by the hospitals. This suggests that the institutionalization of the project was only partially successful. In order to attain a sustainable impact, more is needed. How this can be affected and the constraints to this process in Honduras is unclear and not discussed in the evaluation reports. Perhaps in future evaluations, more in-depth interviews with policy makers would be useful to discern why and how the institutionalization process does or does not succeed.

COUNTRY STUDY

PANAMA: Breastfeeding Promotion Project

I. Introduction

Nationwide surveys conducted in the late 1970s and early 1980s in Panama showed relatively short durations of breastfeeding, and especially of exclusive breastfeeding. In 1979, a national survey reported that in urban areas only 45% of infants were being breastfed at 1 month of age, and at 12 months, only 13% (Millman, 1986). In rural areas, these figures were 73% and 42% respectively.

The National Nutrition Survey conducted in 1980 noted very low rates of exclusive breastfeeding. Only 16% of infants were breastfed more than 2 months and not supplemented with other foods after the age of 2 months (Figure 10) (Franklin and Harrell, 1983). From the same study, Ramirez (1987) reported that water was introduced to more than 90% of infants during the first 2 months of life; 77% received water in the first month.

Concern for the health consequences of these patterns led to developing the Panama Breastfeeding Promotion Project (El Proyecto Panameño de Promoción de Lactancia Materna) by the National Commission for the Promotion of Breastfeeding. The project was funded by the U.S. Agency for International Development (USAID), conducted through the Ministry of

Health, with technical assistance provided by Instituto Nutricional de Centro America y Panamá (INCAP) and Pan American Health Organization (PAHO). The project operated from September 1983 through 1987.

II. Goals and Objectives

The goal of the project was to increase the incidence and duration of breastfeeding, and to increase the duration of exclusive breastfeeding throughout the country. The project was designed to be executed by local inter-sectoral commissions in each of 11 regions throughout the country (Figure 11). Project activities included:

- educating the public and training professionals;
- establishing milk banks in hospitals in six regions;
- developing a working women's component through the Social Security Commission;
- disseminating information through PROLACMA, the private breastfeeding support organization; and

Country Study: Panama

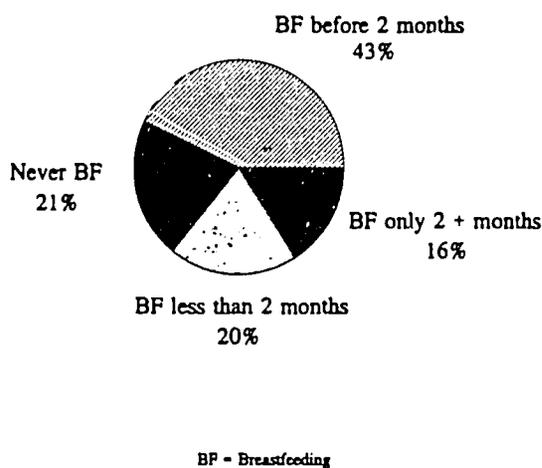
- implementing mass media campaigns.

Two national one to two day training seminars were held in January 1984, with professionals from the Ministries of Labor, Agriculture and Education, as well as with health personnel from the Ministry of Health. The principal intent of the training seminars was to teach the benefits of breastfeeding, provide technical information on breastfeeding and appropriate ages of weaning, and in general to focus more attention to the need for enhanced breastfeeding. Little clinical training, if any, was provided on the management of breastfeeding problems.

Within each region, an inter-sectoral commission was established, generally meeting at least once a month to plan activities for the project. Activities were conducted by regions through the Maternal and Child Health; Division in the Ministry of Health with the help of regional commissions on lactation. The staff within the regions designed and produced local teaching and promotional materials. In some regions mass media campaigns including radio programs, posters, and billboards, with some in local languages, were developed. Some regions conducted research on factors associated with various breastfeeding practices.

Figure 10.

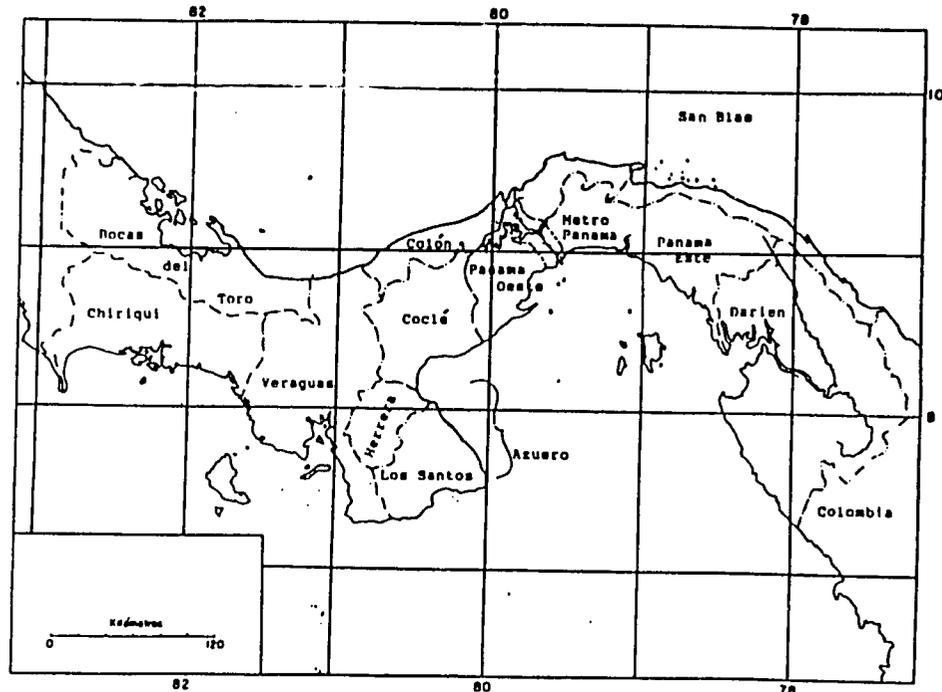
**Infant Feeding Practices
Urban Panama**



Ref: Franklin D. and Harrell L. (1983) "Cost and Determinants of Infant Feeding Practices." Sigma One Corporation. Raleigh.

Figure 11.

Map of Panama



III. Project Implementation

Training:

The number and type of activities within the regions varied but most local interventions were based primarily on training and changes in hospital practices. Over 49,000 people received talks ("charlas") from the regional activities and over 4000 health personnel were trained through regional workshops. Additional health personnel were trained through local training activities such as through on-site training or staff orientations.

Milk Banks:

In six of the 11 regions, a milk bank was established within one hospital in the region. Each hospital milk bank received a refrigerator, two pumps, office equipment, baby bottles, adaptor kits for the milk pump, timers, and gowns for women to use. In some cases, funds were provided for installation of electrical outlets, modification of space, and other structural changes required by the bank.

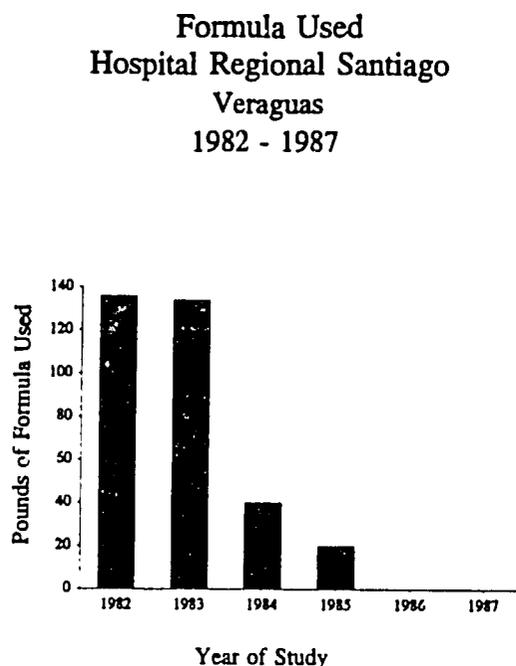
A report of the milk bank at the Hospital de Santiago (Veraguas) illustrates that there was a reduction in the number of newborns with diarrhea and NEC and a reduction in the number of formulas prepared in the milk lab (Figure 12) (National Evaluation Workshop, 1987). The majority of the banked milk was used for premature infants.

Country Study: Panama

Mass Communication and Information Dissemination:

The Ministry of Health produced educational materials, stickers, and flip charts in which a program logo was used. These materials were distributed to the regions. There were a few radio and television spots developed, but these were not coordinated closely with the project. The local La Leche League affiliate, PROLACMA, developed a center to distribute information on breastfeeding and produced and distributed two volumes of a journal on breastfeeding (LACMA).

Figure 12.



Ref: *Boletín Estadístico*. (1985). Panamá: Patronato del Hospital del Niño. Departamento de Estadísticas, Ministerio de Salud, Government of Panama.

Working Women's Component:

Legislation supporting breastfeeding had been passed prior to the implementation of the project. These laws included a three month maternity leave, creches at the work site, and nursing breaks for working women (either three times a day for 15 minutes each, or two times per day for one half-hour each). Staff of the agency responsible for this component (Departamento de Relaciones con el Usuario (DRU), within the Social Security Commission) reported that these laws were however seldom, if ever, enforced. As an example, the Social Security Commission, the agency responsible for enforcement, did not have a creche on site at its main office in Panama City.

A training seminar was held for 21 women directors of 4 major labor unions (centrales obreras CNTP, CRRP, CATI, CITI), 2 independent federations, and representatives of the Celeste Brigade (who clean the streets in Panama City.) The five-day seminar focused on basic aspects of breastfeeding and legal rights of working mothers. The participants produced a plan of action for the working mother component of the project (Departamento de Relaciones con el Usuario, April 1986).

Using the women trained in the first stage, 90 working groups of about 10 women each (1,033 in total) were formed in the various factories. During four months, project staff visited each working group to distribute information and discuss breastfeeding issues with the union members (*Avances de Supervivencia Infantil*, 1987).

Following these motivational meetings, staff held focus group discussions with the working groups to identify breastfeeding practices, biases, and constraints to breastfeeding.

Results obtained from focus groups with 20 working groups illustrated the major problems women face with breastfeeding: 100% of women reported the absence of creches at their work sites to be a problem; 70% of women reported that little information was available on the importance of breastfeeding; and 70% that there were no facilities for expressing breastmilk at work. All women (100%) suggested that such problems could be resolved by the establishment of creches at the work site, with 65% suggesting the provision of a site for pumping breastmilk, and 55% suggesting that encouragement for women to express milk at work for their infants would help (Quarterly Report, September - December, 1985).

In these focus group discussions with working women, many reported that it was a "dream" to assume they would ever get nursing breaks or creches. Even within the Social Security Commission (CSS), the agency enforcing this legislation, there was only one creche, serving only the staff of the CSS Hospital. The union also felt other issues, principally salary levels, were more important to pursue than breastfeeding support.

While working with industries was part of the promotional plan, with management attending the working group sessions in some cases, the only documented case of a change that a business made due to the program was the purchase of a refrigerator for storage of pumped milk by GAGO, a supermarket chain, at one of its stores. However this was only available while the GAGO social worker was working at that site. Once she was transferred, it was no longer available for use by breastfeeding women. Unfortunately, no data are available to suggest whether the availability of a refrigerator facilitated breastfeeding.

The working women's component of this project is one of the first to examine the problems working women face in breastfeeding. The findings point to the importance of teaching and supporting mothers how to maintain breastmilk output when they are separated from their infants due to employment. There is also a need to assess whether the enforcement of laws on maternity leave and creches at the work site will enable increased rates of breastfeeding among working women. The results also suggest that the working groups were not a sufficient means to promote changes to enhance breastfeeding. The reasons for this failure however are not clear.

IV. Impact on Breastfeeding

A comparison of nationwide data from the 1979 and 1984-85 national surveys suggests that the mean duration of breastfeeding may have increased from 9.5 to 10.1 months (Figure 13). The increase in the mean duration of breastfeeding, was from 6 months to nearly 8 months in urban areas (Figure 13), while remaining at about 12 months in rural areas. Because the 1984-85 data were collected during the first year of the project and not at its completion, it is difficult to determine if the changes were directly related to the project.

While several evaluation methods were planned to assess the impact of the project, because of political problems none of the initially planned evaluations were conducted in full. Some regions conducted their own evaluations that assessed changes in hospital practices and/or breastfeeding rates.

Country Study: Panama

To make up for the lack of nationwide data on hospital practices, a post-project evaluation was carried out using surveys of health professionals in hospitals. These surveys were conducted in 1987 within 21 hospitals throughout the regions. Within each region, 1-3 hospitals or health centers where deliveries occurred were included.

The information provided below first discusses those regions that documented effects of their programs and subsequently we discuss the results of the surveys of hospitals.

Regional Evaluation Results

Cocle:

In one of the most successful regions, Cocle, over 2000 health professions were trained, rooming-in began in June 1984 in the two hospitals in the region, a milk bank was established in one hospital, and local mass communications activities were carried out. Data were collected during three months (May through July) in 1984, 1985 and 1986 in a random sample of one-third of all infants ages 2-4 months attending a well child clinic to assess the impacts of these interventions. The proportion of children being exclusively breastfed increased from 30% in 1984 to 57% in 1986 (Figure 14). Hospital records also revealed substantial decreases in the number of bottles of formula prepared for newborns (Figure 15). No data were available on incidence of breastfeeding.

Chiriqui:

The lack of rooming-in was seen as one of the major obstacles to breastfeeding promotion at the beginning of the project in Chiriqui. Rooming-in was established in 1985

for 90% of births in one hospital (Jose Domingo de Obaldia) and 30% in Hospital Dionision Arrocha. Data are not available on the proportion with rooming-in prior to this. Infants were brought to their mothers within 1-2 hours after delivery, instead of being kept separate from them until discharge, as had been the previous practice. Breastfeeding education was given to mothers whereas previously they received no information.

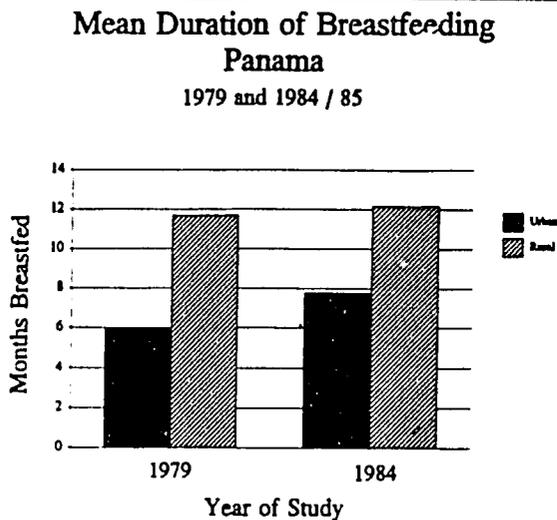
Records from the Department of Nutrition in one hospital in David, reported substantial decreases in the number of bottles prepared, which was reported to corresponded with increases in rooming-in and establishment of the milk bank (Figure 16). Pre- and post-tests were conducted during the first four seminars held in 1984 in which 129 professionals were trained. The results of the tests showed substantial improvement in knowledge of breastfeeding, from 30% to 93%, "good" knowledge, from 30% "regular" compared to 7%, and from 40% "poor" to 0%. Unfortunately, no data were collected on the proportion of women leaving the hospital breastfeeding before or after the project, to indicate what impact the changes in hospital practices or training had on breastfeeding rates.

Hospital Surveys in Regions

Aside from data collected by the two regions described above, a review of the hospital surveys within the 11 regions suggest the impact of the project on hospital practices on a national level. Unfortunately however, they are unable to provide information on the impact on breastfeeding behavior in general. Neither could the surveys soundly document that project catervenbryo were responsible for the reported changes in hospital practices. Seventy (70%)

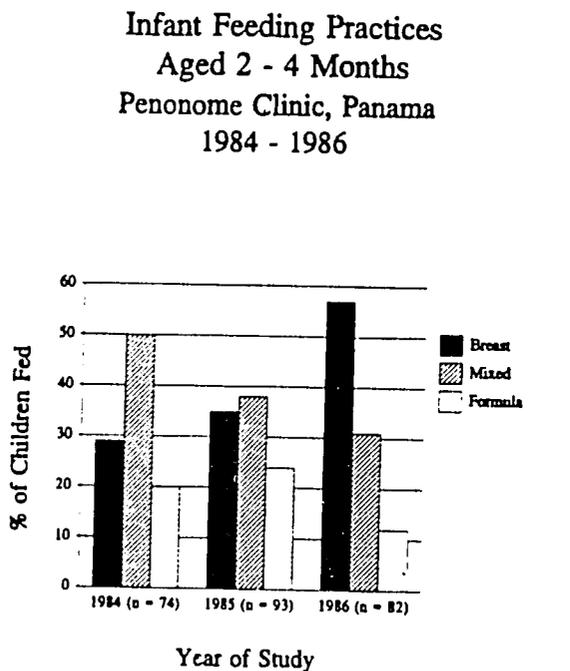
percent of the sites reported that they had at least one staff member who had been a member of the regional breastfeeding commission. Seventy-five percent (75%) had at least one staff member that had attended the national seminar.

Figure 13.



Ref: *Encuesta Nacional de Salud Maternal Infantil y Planificación Familiar*. (1986) Departamento de Estadística, Departamento Materno Infantil, Ministerio de Salud, Panama; and Centers for Disease Control, Division of Reproductive Health, Atlanta.

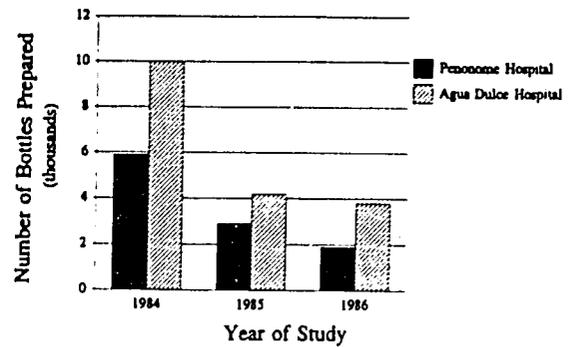
Figure 14.



Ref: "Report from Cocle: national Evaluation Workshop". (1987). Panama Breastfeeding Promotion Project. Held in Daid, Chiriquí.

Figure 15.

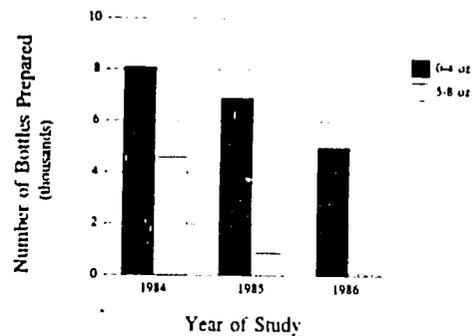
**2 oz Bottles Prepared for Newborns
Cocle, Panama
1984 - 1987**



Ref: "Report from Cocle: National Evaluation Workshop". (1987). Panama Breastfeeding Promotion Project. Held in David, Chiriquí.

Figure 16.

**Bottles of Formula Prepared
Jose Domingo de Obaldia
David, Panama
1984 - 1986**



Ref: *Boletín Estadístico* (1985) Panama Patronato del Hospital del Niño. Departamento de Estadística, Ministerio de Salud, Government of Panama.

Country Study: Panama

The hospital surveys found changes were reported in hospital practices related to breastfeeding since 1984. These changes included increased rates of rooming-in and an increase in breastfeeding by the staff and mothers. Problems mentioned in making changes included lack of staff and administrative support, maternal attitudes and beliefs, and problems in making changes for caesarian births. The major motivations given for making changes included an increased understanding of the benefits of breastfeeding (53%), enforcement of norms and supervision (30%), and training received (23%).

In 90% of the sites, it was reported that rooming-in existed, with the other two sites not providing any information. In 25% of the cases, structural changes in the building were reported to have been made to facilitate rooming-in. This principally included making enlargements in the postpartum area or removal of cribs. In 20% of the sites, rooming-in previously was not an option prior to the project, but subsequently was; in another 20% of sites, earlier rooming-in or an increased number of cases with rooming-in existed. The major change appeared to be that previously in many hospitals, even with those with rooming-in, infants were sent to the neonatal ward and kept there for some time before they were taken to the mothers. After the project, infants were less likely to be separated from the mothers in the early postpartum period. Breastfeeding education was also more likely to be given in the delivery room than previously.

In 95% of the sites, premature and sick infants received breastmilk, either from a milk bank or from the mother directly. Most sites did not currently use oxytocin, however 33% (6 hospitals) reported still using them. Three hospitals had never used oxytocin, and one had

stopped using them in 1981. All the other eight hospitals had stopped since 1984.

Water was reported to never be given in 50% of the sites. Formula was reported to never be given in 70% of hospitals. As a means of verifying the results reported in the hospital surveys, the interviewers observed practices in the wards. Newborns were seen with bottles of water in 30% of the sites, and only in one site was an infant seen with a milk bottle. This relatively low use of water and formula in the hospital probably represents a reduction compared to practices prior to the project, as was reported in several of the hospitals surveyed.

The major sources of journals and other published information on breastfeeding for hospital staff came from outside Panama with 71% reported receiving information from INCAP, 62% reported receiving the publication *Madres y Niños* ("Mothers and Children" from the Clearinghouse of Maternal and Infant Nutrition, American Public Health Association), and 48% received at least one of the two produced volumes of the journal LACMA, published as part of the national program.

More than half of the sites reported that pamphlets promoting breastfeeding were given out to mothers (57%). These came primarily from the Ministry of Health or the hospital staff. In 20 of the 21 sites, breastfeeding posters or murals were seen on the walls of the hospitals. A common problem mentioned by all regions was the lack of printed material to use in talks and for promotion. To address this problem, generally each institution produced materials for promoting breastfeeding, including pamphlets, brochures, flyers, posters, flip charts, and even slide shows.

V. Economic Aspects

Financing of the Project

The total expenditures for this four-year project were \$720,000. As shown in Table 3, the major costs were for the regional training activities. While an ex-patriot advisor from INCAP was hired full-time for three years of the project, because he played a major role in the development of all child survival activities in Panama, the cost of his salary support perhaps should be excluded in estimates of the actual costs of replicating a program such as this. Additionally, the advisor spent much time in preparation of detailed implementation plans for AID and plans for the evaluation of the project, that would not need to be included in all projects.

Table 3.

FINANCING OF THE PANAMA BREASTFEEDING PROMOTION PROJECT

Component	Expenditures \$US
Training	205,998
Mass Media	110,969
Milk Banks	47,316
Information Center	45,953
Working Mothers	17,593
Evaluation*	42,000
Management*	166,670
Overhead	82,745
TOTAL	\$719,245

Hospital Related Cost Savings

Some data on savings in hospitals are available based on reductions in the formula and bottles for newborns. While the principal hospital (with over 12,000 births annually) in Panama City had started a milk bank prior to the project, data from this hospital are illustrative of savings in a major metropolitan center. The average expenditures for 2 oz. bottles provided to infants in the Hospital del Niños in 1980-1981 is estimated at \$23,710, compared to \$12,490 in 1984-1985 -- a savings of over \$11,000, or about \$1.00 per birth.

Data from two small regional hospitals with less than 1,000 births each per year show a similar trend, though of a much smaller magnitude because of the lower number of births. Comparing the data from two hospitals in Cocle, using a similar cost of \$.20 per 2 oz. bottle of formula, as reported in the Hospital del Niño, an estimate for savings associated with the project was between \$800-1250 per year per hospital, about \$1.00 per birth.

Country Study: Panama

Expenditures were reported for evaluation and management combined and totaled \$298,670. Based on the proposal \$42,000 out of a budget of \$232,000 for evaluation and management was allocated for evaluation costs. This does not include any of the INCAP project manager's salary, but includes survey costs. The \$42,000 was subtracted from the total reported for evaluation and management.

These calculations of savings underestimate the overall economic impact of the programs because they do not take into account institutional savings from the reduction in ARI and diarrheal morbidity directly associated with improvements in breastfeeding practices. Savings at the community and family level are difficult to quantify and are far beyond the scope of this project.

VI. Conclusion

The Panama National Breastfeeding Promotion Project differed from many other national breastfeeding promotion programs in that it consisted of separate and distinctive regional programs. Each region submitted plans for activities and received funds to conduct its own programs. The project also was unique in its focus on supporting milk banks in 6 of the 11 MOH hospitals. Initiating these milk banks helped reduce the use of formula and therefore hospital costs.

Training was a major component of the project, both through national and regional seminars and through local staff training conducted by members of the regional commissions. More than 4,000 health professionals were trained and nearly 50,000 of the general public directly received information

about breastfeeding. Other people were reached with information through local mass media campaigns.

The project appeared to have substantially increased the knowledge of the benefits of breastfeeding and to have significantly changed hospital practices. Training, combined with enforcing of national norms for hospital practices related to breastfeeding, brought about many important changes in hospitals' breastfeeding practices. Rooming-in increased and duration between delivery and the first breastfeed shortened. Despite project activities, some differences remain in hospital practices. In some hospitals, infants still receive dextrose water; in others no supplements are given. At some sites, mothers with caesarian deliveries breastfeed shortly after delivery. At others, they are separated from their infants for more than 24 hours.

The working women's component of the project was one of the first to examine the problems working women face in breastfeeding. The findings emphasized the need for training health professionals and educating the public about methods for maintaining breastmilk output when mothers are separated from their infants due to employment. Findings also showed that there was need to learn if enforcing current laws that mandate nursing breaks and creches at the work site will encourage increased rates of breastfeeding among working women.

Despite the relatively low cost of the project (\$240,000 per year), it appears to have had impressive impact. The lack of nationwide evaluation data however limit a clear delineation of which aspects of the activities were most important. This again illustrates the importance of baseline data collection and follow-up surveys to adequately assess impacts.

COUNTRY STUDY

CALMA: El Salvador Breastfeeding Promotion Project

I. Introduction

National surveys conducted in El Salvador suggested that there had been declines in breastfeeding (Demographic and Health Survey, 1985). In 1981 only 10% of infants had been exclusively breastfed for the first six months and 50% of mothers did not breastfeed their infants until the second or third day, both due to poor hospital practices and beliefs concerning colostrum.

High rates of malnutrition and high levels of morbidity and mortality among infants were believed to be related to these breastfeeding practices. Previous studies have shown a strong correlation between premature weaning and high rates of infant mortality (Puffer and Serrano, 1973).

Most of the child survival interventions in El Salvador have focused on oral rehydration therapy and expanded programs of immunization. Breastfeeding promotion was also seen as essential to reduce infection and malnutrition. This is particularly important because 55% of infants 6-11 months of age in El Salvador are malnourished; this age group also

has the highest rate of severe malnutrition among all age groups. Malnutrition has risen in El Salvador over the last decade (INCAP, 1987).

The Formation of CALMA

In 1979, to address the issue of declining breastfeeding rates and increased morbidity and mortality, La Leche League International (LLLI), with support from the US AID, established CALMA (Centro de Apoyo a la Lactancia Materna), the Center for the Support of Breastfeeding, in El Salvador. CALMA operated under management of LLLI until 1981 after which a national project director was hired. CALMA became a fully autonomous local PVO in 1983.

CALMA staff included a general and executive director (a pediatrician and nurse, respectively), an administrator, a nutritionist, a health educator and two promoters, plus five support staff. In addition to the diverse staff, an active board of directors was formed, consisting of professionals and prominent Salvadoran citizens. Five professionals associated with CALMA participated in the Wellstart training program.

II. Goals and Objectives

The main goal of CALMA was to change hospital practices in favor of breastfeeding, improve health professionals' knowledge and attitudes on breastfeeding, and enhance mothers' breastfeeding practices, with the ultimate goal of improving infant health.

III. Project Implementation

The major focus of activities within the project was on training of health workers and other professionals concentrated in low-income urban, marginal and rural areas of El Salvador. Training materials were developed using La Leche League information, techniques and support. Seminars, workshops and small group sessions were held, with teaching efforts emphasizing group participation, so that the content was modified when deemed necessary by the mothers.

Urban: Training in urban areas was targeted at health care professionals, social workers and nutritionists, with most material presented in the form of seminars and workshops. The significance of breastfeeding (including colostrum) was discussed, as well as lactation management and the importance of establishing milk banks and changing hospital policies to allow rooming-in.

Rural: The training used in marginal and rural areas was to community level workers rather than those working in hospitals, with courses given for social and rural promoters. Education of mothers and community youth groups was also a part of the program. In addition to breastfeeding promotion, other health education was provided and included the following items:

- (1) Care of mother and child (including training on the significance of breastfeeding, and lactation management);
- (2) Nutrition education (including infant feeding and nutritional needs of pregnant and nursing mothers);
- (3) Sex education;
- (4) Child stimulation and development (including vaccinations and oral rehydration);
- (5) Information on hygiene, first aid, home gardens, and education techniques.

Training:

CALMA exhibited an excellent training record. More workshops and seminars were held than originally planned, and thus more people were reached and trained. There were 15 seminars and 11 workshops held by CALMA, for doctors, nurses, health educators, social workers and nutritionists between 1979 and 1983 (King, 1988).

According to the mid-term evaluation prepared by King (1988), about 8,400 persons were trained by CALMA between 1981-1988.

The following is a list of the major direct trainees of CALMA personnel:

Community Leaders	4482
Doctors	164
Nurses	1436
Social Workers	118
Promoters	1093
Home Econ. Educators	95
Teachers	738
Health Educators	67
Co-op Workers	300
Nutritionists	49
Auxiliaries	263

King estimated the total number of multiplier trainees (those persons who have been trained not directly from CALMA trainers, but from people who had been trained by CALMA) as between 1981-1988 is 6400 with an estimated coverage of 700,000 including the direct beneficiaries (mothers, fathers, children, students, market vendors). With El Salvador's total population of 5.4 million in 1988 (Population Reference Bureau, 1988), nearly one-sixth of the population was reached by CALMA. In addition to the training and health education mentioned above, CALMA has provided training to 85 promoters in urban marginal areas with each promoter serving about 25 mothers. CALMA promoters worked in San Salvador, San Miguel, Santa Ana, San Juan de Dios, and in marginal areas of San Salvador, the Occidental region, San Martin and Sonsonate (Figure 17).

Milk Banks:

Milk banks have been established in three hospitals (Maternity/San Salvador, Santa Ana and San Miguel) under CALMA guidance

(Countryman, 1988). Fifteen or more milk banks were in the planning phase in 1988. Many hospitals that do not have milk banks have lactation areas where mothers of ill or premature infants can visit to breastfeed their infants.

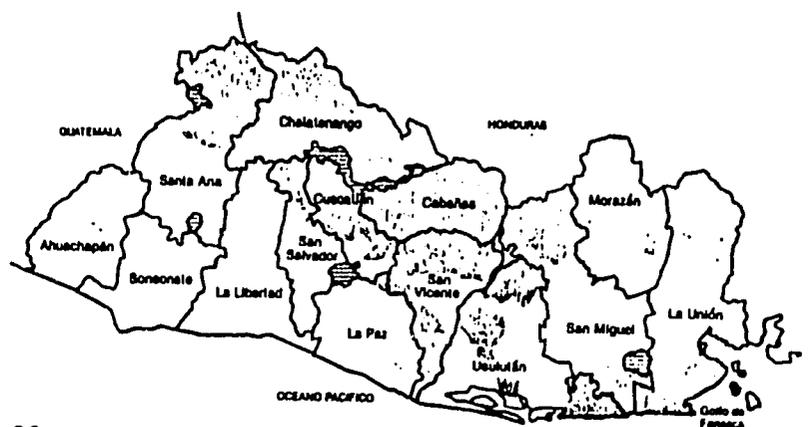
Mother Support Groups:

Breastfeeding support groups called "usuarias satisfechas" (satisfied users) were established by CALMA. The breastfeeding support groups were led by successful breastfeeding mothers who are interested in promoting breastfeeding to their peers. The women had been selected and trained by hospital staff in a five day training course, using material developed by CALMA. Training included the advantages of breastfeeding, how to promote the practice, and help with problems that arise (King, 1988).

In the 47 bed (with usually two women per bed) Maternity Hospital in San Salvador, 11 peer counselors gave 100 talks and conducted 175 individual counseling sessions to postpartum women.

Figure 17.

Map of El Salvador



Country Study: El Salvador

The peer counselors were expected to help in the hospital for one year, but it was thought that their training would help them outside the hospital as well in their informal contacts with pregnant and breastfeeding mothers.

Another form of mother support groups used by CALMA was through the training of volunteer promoters. Volunteers received token per diems and transportation to the training site. In one site (Sonsonate) the majority of the 25 promoters were men who gave informal talks to mothers who came to CARITAS centers for food rations. At Another site, included 38 women from San Salvador barrios were trained to support working women to breastfeed. The promoters discuss milk expression and other issues relevant to working mothers. Each promotor served an average of 25 women, providing them with general nutrition and health counselling in addition to specific breastfeeding support.

IV. Impact on Breastfeeding

Hospital Practices

To evaluate the impact of CALMA on hospital practices regarding breastfeeding, baseline and follow-up surveys were conducted in two hospitals in Santa Ana and San Juan.

These results, summarized in the mid-term assessment by King (1988) show that colostrum is now routinely fed to infants and rooming-in has become common practice in many hospitals. There was a significant increase

in the number of infants breastfed within the first hour. There also was an increase in the incidence of breastfeeding such that in San Juan, 100% of infants were being breastfed at discharge. Data were not reported on the rates prior to the project.

V. Economic aspects

Financing of Project

CALMA received two grants from US AID for a total of \$762,000. This is small when compared to the US AID health budget for El Salvador which was approximately \$20 million for family planning, and \$48 million for overall support of the Ministry of Health om 1987 (King, 1988). Table 4 gives the sources of funding to CALMA. King (1988) estimates the cost of training conducted in the second AID grant at \$44 per trainee and \$.73 for each beneficiary.

Table 4.**FINANCING FOR CALMA**

Sources of Funding	USAID Funds (\$US)	Non-USAID Funds (\$US)	Period Covered
USAID	480,495		Dec/79 - Jan/83
Own Funds* United Methodist Women		70,985* 10,000	Feb/83 - Sep/84
USAID	6,500		Sep - Nov/84
Own Funds* Canadian Emassy		12,000* 3,000	Dec/84 - Jan/85
USAID	54,725		Feb/85 - Jun/86
USAID	220,000		Jul/86 - Jan/90
Canadian Hunger Foundation		41,000	Mar/87 - Feb/89
Own Funds*		10,220	Jul/86 - Jun/87
Grand Total: \$908,835	\$761,720	\$147,115	

* CALMA funds - received from the sale of services and educational materials.
Ref.: Primary Source, CALMA files and staff interviews as reported King, 1988.

Hospital Related Cost Savings

Changes in hospital policies and practices in favor of breastfeeding have resulted in cost savings to the hospitals through (King, 1989):

- (1) A shorter hospital stay for the mother,
- (2) The establishment of milk banks, (Before a milk bank was established at San Salvador Maternity, the average length of hospital stay for a premature infant was 9 days; afterwards, this declined to 6 days.)
- (3) Rooming-in, resulting in a decline in the number of bassinets needed. (In San

Juan de Dios the number decreased from 60 in 1982 to 11 in 1988).

- (4) Reduced costs for medications, and oxytocin, glucose solutions and bottles which were formerly given.

In San Juan de Dios, where the average number of births remained the same, the number of bottles required declined from 500 to 50 per month. In San Salvador Maternity, the amount special milk needed per month was reduced from 60 to 6 tins after the establishment of a milk bank. In San Salvador Maternity, rooming-in has resulted in a decrease in the number of tins of milk required from 450 to 150 per month (King, 1988).

Country Study: El Salvador

In San Juan, following CALMA activities, there was a reported change in the distribution of causes of morbidity and mortality among infants. In 1982, the leading cause of illness was neonatal sepsis, followed by diarrhea. Between 1983-1988 no cases of diarrhea among newborns were reported and neonatal sepsis was no longer a leading cause of death. In El Salvador Maternity, there was a decrease in mortality of premature infants after the establishment of a milk bank. Before the milk bank in 1984, it was 66%; in 1985 it was 30%, and by 1988 it was 12% 1988 (King, 1988).

There may have been other contributing factors that were responsible for this improved survival as well.

Sustainability

Recognizing the significance of breastfeeding, US AID, awarded a grant to LLLI in 1979 to establish CALMA. However, the grant was awarded with the understanding that CALMA become self-sustainable after the three-year grant period. Although unrealistic expectations were set, CALMA staff worked hard to try to fulfill this condition, with much of their efforts focused on fund raising and proposal writing (with no experienced proposal writers or fundraisers as part of the staff). The staff experienced difficulties in securing other sources of funding, resulting in hardships for personnel, with many of them leaving due to pay cuts. In 1987, CALMA personnel were receiving the lowest salaries among public service agencies.

While little money is needed to promote breastfeeding, compared to other child survival interventions, a minimum level of money and

experience is required before an organization such as CALMA can become self-sustainable. Much time was spent searching for funding, thus taking away from direct project activities.

VI. Conclusion

In addition to financial hardships, program implementation was difficult due to political unrest in the country. CALMA training often was interrupted and staff turn over high due to dangerous conditions which probably reduced project impact.

Despite economic and political hardships, CALMA training efforts resulted in significant changes in hospital practices and health professionals' knowledge and attitudes regarding breastfeeding. Unfortunately, data were not collected to track project impacts on breastfeeding durations or incidence. Because no evaluation component was included in the project design, except the programmed mid-term assessment by an external consultant, little information is available to assess the impact of the project on a larger scale. Had more information been available of the effectiveness of CALMA in improving breastfeeding rates, more funding may have been forthcoming. This reinforces the importance of evaluations for breastfeeding promotion projects.

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