

CHILE
 Project N° 513-I5-560-271
 Child Nutrition - CRS/Caritas Breastfeeding

PAR N° TQ-5
 PAR N° TQ-5
 2.

| A. Action (x) | | | B. List of Actions | Proposed Action |
|---------------|-------|-------------------------|---|---|
| USAID | AID/W | CONPANI/ CRS/Caritas | | C. Completion Date |
| | | x | 3. The final analyses and reports should give special attention to: a) the problem of dropouts--the length of time dropouts breastfed so that a more accurate estimate of average breastfeeding time can be made and so that percentages at each month interval can reveal danger points; b) collecting and analyzing data on the control clinics so that it is available at the same time the other data are being analyzed. | 10/76 Completed |
| | | x | 4. Appropriate bookkeeping transfer (or reduction in budget should the projectors not be needed for the second stage) should be made to delete costs of educational items in CRS/Caritas grant for the present project. | Completed |
| | | x | 5. Pregnant women should participate in the program since the period before childbirth and immediately following are strategic times for breastfeeding motivation. | 10/76 - to be included in loan-funded second stage. |
| | | x | 6. Study carried out to follow-up on infants who have been breastfed for six months under first stage. | 6/77 to be included in 2nd stage loan-funded agreement. |

EVALUATION
of
CRS BREASTFEEDING PROJECT

Prepared by Joyce King, Consultant
May 15, 1976

INITIALS, ACRONYMS, DEFINITIONS

| | |
|--------|--|
| CONPAN | Consejo Nacional para la Alimentacion y Nutricion, National Nutrition Planning Council |
| CRS | Catholic Relief Services |
| SNS | Servicio Nacional de Salud, Public Health Service |
| OPG | Operational Grant |
| PROP | Project Proposal |

Malnourished Status

1st degree - 10-25% below standard weight for age
2nd degree - 26-49% " " " " " "
3rd degree - 50% or less

IOWA Standard - See TABLE A, III.

SEMPE Standard - 3-4% less demanding than IOWA.

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I. BACKGROUND AND TIME FRAME

The "breastfeeding program" was originally designed as an OPG request. It included Title II inputs and a study of groups with component variations to determine a) the most efficacious mix of motivational ingredients that would prolong the duration of breastfeeding; and b) the actual effects on child morbidity and nutritional status. The CIOC decided not to request AID/W funds for this purpose since they were already vitally interested in undertaking a nationwide program following some test efforts, and could fund it under the Nutrition Loan.

COMPAN then developed a work plan along the lines of the OPG draft PROP, dividing the activities into stages and units, only the first of which USAID would fund and CRS/CARITAS with COMPAN technical direction would carry out. That was stage one of two testing stages of nine months each. The Nutrition Loan is to cover all subsequent stages described in the Work Plan.

II. GRANT PROVISIONS AND ADHERENCE

A grant to CRS/CARITAS in the amount of \$15,380 was signed on June 30, 1975 from funds in the Child Nutrition Project, #513-15-560-271.

The first stage was to be completed in nine months, but in fact the first measurements did not get taken until August-September of 1975 which meant that the first six months data were not available in the clinics until March 30. In order to include more data in the final report and to allow for its computerization and analysis, ORS/CARIAS requested an extension of the grant period from April 15 to June 30, 1976.

Two of the progress reports required by the grant are on hand, but a third one now due calling for recommendations on stage two of the testing, had not been prepared. The report was to have served as background for the present evaluation. The six months data on morbidity were collected and computerized in the final days of the evaluator's visit. Data on nutritional status may or may not be completed; if so it will be added as the last table. The Grant did not specify a timetable for data collection related to its availability or for computerization and analysis, but it appears that an inordinate amount of time is being required for these steps.

The two program coordinators worked closely with the SNS in laying out the program and very good cooperation was given in the clinics (though, as see elsewhere, the volunteers are physically separated from the clinic activities and do not have an understanding on access rights to the pregnant and immediate post-birth mothers.) The SNS infrastructure did not include the special buildings, equipment, etc. that were needed for the project, and these were funded by CONPAN.

The control cards that were to have been used in the program were not utilized because an alternative gathering system was developed. These however have been found to be unwieldy (up to eight-foot long sheets flow off clinic tables to the floor), and cards will be used for the next phase. The planned test group with didactic materials was not set up during stage one. Thus, some \$5400 from the CRS/CARITAS budget have not been used against this project (\$500 for control cards which will be used in stage two; \$400 for slide projectors which may or may not be used in stage two; and \$4500 for a teaching manual which will be used in the tele-education program.

Lines of responsibility between the CRS/CARITAS and CONPAN coordinators have not been drawn, and there appear to be misunderstandings about who should be doing what. The recommendations propose a basis from which agreement might be reached between CONPAN and CRS/CARITAS. The CONPAN Coordinator is financed by CRS/CARITAS but, besides his first stage project work, he devotes time to other breastfeeding programs within CONPAN. This makes it important that the coordinator's responsibilities for the present project be clearly stated and understood by all parties. The role of the Technical Director is also unclear, and her responsibilities vis-a-vis those of the CONPAN Project Coordinator should be clarified, especially as they relate to developing proper testing procedures.

During the evaluator's visit, the SNS displayed keen interest at the national and clinic level, in the data being developed and it is suggested that USAID and/or the voluntary agency assure that the MCH and Nutrition Offices of SNS who are working on breastfeeding programs, be brought up to date and that clinic and province officials be made aware of the statistical results obtained.

Scope. The work plan and grant foresaw the participation of 8500 mothers in 12 health clinics in the Oriente, divided into four groups: one control, and three of varied inputs (interpersonal alone; interpersonal and didactics; didactics alone). It developed that five of the clinics had no space for the special consulting rooms to be constructed, so three of these were kept for the control group; one was already running a similar program; and it was decided to go with the remaining six rather than begin negotiation with another Province. Thus the built-in maximum was all newborns in the six clinics. There were 1371 mothers in the program by the end of the six months period (March 30, 1976) with data available on 380 infants--all those who had reached six months of age.

By June 30, data on 932 children will be available at a six months interval and will constitute the basis for the final study. The number of mothers who will have participated in the breastfeeding motivation program will be about 2400 (calculated on previous monthly rates of new births) but data will be collected only on babies born through December 1975, or the 932 stated above.

Record keeping. Calculations of nutritional status normally made in the clinics are not a source of error in this program since raw data on weights are taken. However, there is probably a 5-10% error made in copying (as was found in other clinics in the Malnourished Program according to a recent sampling). In discussions with CONPAN and CRS/CARITAS, alternative means were explored for collecting data on morbidity such as photocopying in order to eliminate such error and, at the same time, provide a permanent record for the CONPAN library or memory bank so that raw data can be called up for other purposes than those serving a specific project at a specific time.

USAID Comment: CONPAN will consider this and similar proposals at such time that it initiates a formal memory bank and reference source in approximately one year.

ACTUAL PROJECT AND FINDINGS

Under a small USAID grant of \$5000 effective July 1, 1974, a small pilot program, to motivate prolonged breastfeeding and test results, was started in one Santiago area clinic (hereafter referred to as Lo Barnechea). In the Appendix are excerpts from the final report on this program. It describes the method used in that program and in the present one, and summarizes literature on the history of Chilean breastfeeding, and the meaning of the program results. Very high success in motivation and in positive effects on infant health is evident as shown in Table A. Compared with the control group (meaning performance data for the preceding year in the same clinic and same months of the year),

when only 20% of the women breastfed exclusively up to six months (and this was higher than the national average of 11.1%). 72% of the motivated or program group breastfed up to six months. Reduction in morbidity within the program group constituted a 77% improvement in incidence compared with the control group. Diarrhea, notably, showed a 32% incidence in the control group and 1.2% in the program group, an improvement of 96%. % of Clinic time required for illnesses dropped from 26 in the control group to 3.8 in the program group. Table A also shows the improvement in nutritional status among the breastfed group, starting off slightly lower than the IOWA Standard, regaining and surpassing it by the second month.

It was suspected, however, that the program had super-deuper inputs that could not be replicated on a larger scale: i.e. program management was under the doctor in charge resulting in unusually high motivation on the part of all clinic personnel. The assisting nurse was strongly La Leche League oriented. The program made use of the full range of didactic materials including special slides. To come up with less ideal results, USAID and CONPAN felt that a further study should be made in similar circumstances, but without the unusual motivation, and has developed into the present six-clinic study in the Oriente under CRS/CARTAS management.

Six-Clinic Study. The inter-personal method alone was used (See Appendix for description) without didactic materials, slides, or teaching tools. Initially, because there was uncertainty about the performance of volunteers, the clinics were divided into three clinics each with volunteers and three clinics with auxiliary nurses. Table B shows that the volunteers achieved even better results than the paid volunteers. Table C shows overall success by months in the six-clinic study and Table D shows a comparison of motivation achievement against the national figures and the control group, as well as the project expectation. The results were well above the targets set, far above the control group and the national figures, and below results obtained in Lo Barnechea. 51% of the mothers were breastfeeding at six months which was calculated at an average duration of breastfeeding of over three months.

Dropouts. The reasons for dropouts are still unclear. The usual clinic guess is that the mother has transferred to another clinic (and in one case this was confirmed since the second clinic happened to be in the program). The volunteers are now following up with the main part of the clinic to determine more accurately the reasons. There has been a pattern developing in the rate, which is about 10% in the first months and 30% after three months. The mother above who transferred was still breastfeeding and we have no reason to assume they have all stopped, but do not know whether

they are. . . The comparison of motivation success in the different programs shown in Table D is uniform; none of the figures cited reflects the dropout factor. Benefits might accrue for the dropout whether she is a continuing breastfeeder outside the program or not because of the nutrition education received. Therefore, all women exposed to the program who are by choice or necessity non breastfeeders and those who may be continuing should be followed to the extent possible so that these benefits too are considered when computing cost benefits.

Effect on Morbidity. Child diseases, principally infectious were reduced in the program group by 70% from the incidence in the control group. The correlation with LoBarnechea results shows up as follows.

| | <u>Six Clinics Oriente</u> | <u>Lo Barnechea</u> |
|--|----------------------------|---------------------|
| % of mothers who breastfed to 6 mos. | 51 | 72 |
| % Morbidity reduction improvement over control group†† | 70 | 77 |
| and, | | |
| Spec. Diarrhea | 79 | 96 |

†† In the Lo Barnechea control group, 20% breastfed to six months, while 17% in the Six Clinics control group breastfed to the same period.

Table E gives the complete picture of morbidity reduction in the program group vis-a-vis the control group. Besides diarrhea, the bronchial-related diseases were substantially reduced.

The only analyzed data on nutritional status were weight for age statistics and the graph shown in Chart #1 for a small number of babies born in the first two months of the program. It is apparent that those who were breastfed exclusively, while off to a slightly slower start, were by one month up to the Sempe standard and had surpassed it by two months. Graph, if available on the babies to six months will be included as Chart #2.

Comments on program advantages and disadvantages are included for possible usefulness to the nationwide teaching program. In the six clinics, volunteers do not see the mothers until an average 11-13 days following childbirth. Since the period before childbirth and immediately following it are strategic times for breastfeeding motivation, it could be of very great significance if this could be attempted in the nationwide program. It was done at Lo Barnechea. All the mothers in this program and in the Lo Barnechea program had privacy, something that may be difficult to duplicate all over the country, but its possible enormous importance should be clear.

IV. THE FUTURE

Stage Two.

According to the work plan and the grant provisions, a second nine months study was to test the effects of adding Title II to one of the test groups to learn what might be the health benefits to the pregnant and nursing mothers, who are low consumers of the milk distributed, and effects on birth weight. The rationale was that it might counteract the present seemingly paradoxical combination of inputs, i. e., more appealing rations of milk given to the mothers who do not breastfeed plus a motivational program to encourage her to breastfeed longer. (Mothers receive 12% milk if she is breastfeeding because of the extra protein and 26% milk-PURITA with a commercial value image as it is found in all of the stores -- because of the extra calories intended for her baby.

But good reasons for deciding against such an input on a nationwide basis made such a study of scientific value only. The good reasons for leaving it out of a nationwide program are: 1) the motivational techniques tested are sufficiently successful with their present components which, it should be remembered, include substantial milk rations; and 2) should the SAWS/OFASA malnourished program go nationwide, and even with present magnitude of 25,000, it would be difficult to avoid duplication of Title II inputs, entailing extra attention to inter-agency coordination and, almost inevitably, some overlap.

The revised second stage proposed by CONPAN to test the use of didactic materials against inter-personal techniques would also seem to be of scientific value only, since the nationwide tele-education program will include both inputs. However, the rationale of that project was not fully developed at the time of the evaluator's visit.

It is proposed that, with or without the second stage proposed above, that a subsequent study be done to determine the follow up on infants who have been breastfed for six months:

- 1) Particularly to follow the children in the six clinics where full cooperation can be expected up to 12 or 18 months; and if possible,

- 2) To analyze clinic data on the 100 Lo Barnechea children through 23 months. (The children are now . . . years old.)

Tele-Education Program

Tele-education is a tested teaching method in Chile and will now be used as a teaching and motivational program on a nationwide basis to encourage prolonged breastfeeding. A three month period of training will provide 15 minutes a week of tele-education and one repetition and the content will be printed in the newspapers.

The content will be a more complete version of the curriculum tried out in Lo Barnechea and the six clinics. Auxiliaries and volunteers have already been invited to enroll for the course which will terminate in September 1976. Performance will be evaluated by the University of Chile in October and by December, clinics will have been selected for receiving assistance. Priority is given to those most deficient in personnel. All types of voluntary and private agencies will be invited to help. E. g., CARIAS has already responded favorably to a request for 1500 volunteer applicants around the country. If they complete the training successfully, they will then be asked to assist the clinics in the areas in which they live.

A valuable corps of competent, experienced volunteers is available to CARIAS and could be used more profitably to reinforce the countrywide program than merely to continue their present clinic work. These are the 16 volunteers selected from a group intensively trained for a month in Santiago last year who now have good experience from the work they have been doing in the six clinics.

Proposal. It is suggested that the 16 volunteers cover the CARITAS network of volunteers and assisting as otherwise requested locally to bolster efforts of local volunteers and to reinforce the delivery of correct motivational techniques. They would respond to special problem areas where positive results are not being achieved and feed back weaknesses that might be corrected through further tele-education refresher courses. The program could be centered around the Dioceses of La Serena, Temuco, Concepcion and Valparaiso where will be located the greatest concentration of enrollees. Support for the travel and per diem of visiting two-volunteer teams and for training in Santiago of selected field volunteers would cost about \$20,000 a year. If the USAID has funds for this purpose, and there is accord with CONPAN and SNS, this would seem to be an efficient use of human resources.

USAID Comment: Proposal not acted upon due to unavailability of required funds on a timely basis and desire of CONPAN to evaluate impact of Tele Education course without use of volunteers in order to study variables.

TABLE A
SUMMARY OF LO BARNECHEA RESULTS

I. Achievements in Motivation

| | 130 children in <u>control group</u> | | 100 children in <u>pilot program</u> | |
|---|---|-----|---|-----|
| Breastfed exclusively to six months..... | 26 | 20% | 72 | 72% |

II. Reduction in Morbidity

A. Use of clinic time

| | <u>Control Group</u> | <u>Pilot Program</u> | <u>Target</u> |
|--|----------------------|----------------------|---------------|
| Percentage of Drs time required for illnesses of 0-6 mos | 26 | 3.8 | 34 |
| Percent presence in clinics for healthy children..... | 73 | 96 | 76 |

| B. <u>Incidence of common diseases...†</u> | <u>Cont. Grp</u> | | <u>Pilot Grp</u> | | <u>% Inprevent Pilot</u> | <u>% Inprevent Con</u> | <u>Target</u> |
|--|------------------|----------|------------------|----------|------------------------------|----------------------------|---------------|
| | <u>No.</u> | <u>%</u> | <u>No.</u> | <u>%</u> | | | |
| By disease, ‡ | 131 | 81 | 31 | 19 | 77 | 60 | |
| Diarrrhea..... | 52 | 32 | 2 | 1.2 | 96 | | |
| Broncopneumonia . | 10 | 6.2 | 2 | 1.2 | | | |
| Otitis..... | 24 | 14.8 | 7 | 4.3 | | | |
| Bronchitis, etc... | 45 | 27.7 | 20 | 12.3 | | | |

III. Nutritional Status (weight for age)

| <u>Age</u> | <u>Bottlefed in Control</u> | <u>Breastfed in Pilot</u> | <u>Iowa Standard</u> |
|------------|---------------------------------|-------------------------------|----------------------|
| 1 month | 3850 grams | 4000 grams | 4300 grams |
| 2 months | 4400 | 5070 | 5000 |
| 3 months | 5350 | 5930 | 5700 |
| 4 months | 6200 | 6650 | 6300 |
| 5 months | 6860 | 7070 | 6900 |
| 6 months | 7050 | 7540 | 7400 |

† 15 started in the program, of the 15 who dropped, 10 transferred to other clinics.

‡ Program vs. Control

TABLE B
 COMPARISON OF VOLUNTEERS AND PAID
 AUXILIARIES IN MOTIVATIONAL SUCCESS
 PROLONGED BREASTFEEDING

| <u>I. At Three Months</u> | <u>% of Women Breastfeeding Exclusively</u> |
|-----------------------------------|---|
| <u>A. Auxiliaries</u> | |
| La Faena | 75.0 |
| Rep. Uruguay | 68.6 |
| Peñalolén | 55.4 |
| Average..... | 66.3 |
| <u>B. Volunteers</u> | |
| Apoquindo | 62.5 |
| Salvador Bus- | 87.6 |
| Sta Julia | 65.5 |
| Average..... | 71.9 |
| <u>II. At Six Months</u> | |
| <u>A. Auxiliary</u> | |
| Rep. Uruguay..... | 41.7 |
| <u>B. Auxiliary and Volunteer</u> | |
| Peñalolén..... | 38.6 |
| <u>C. Volunteers</u> | |
| La Faena | 71.7 |
| Apoquindo | 45.5 |
| Salvador B | 75.8 |
| Sta Julia | 50 |
| Average..... | 60.7 |

TABLE C
 SIX CLINIC STUDY
 PERCENT OF BREASTFEEDING SUCCESS
 BY MONTH

| <u>No. of Mothers</u> | <u>Month</u> | <u>Breastfeeding Exclusively</u> | <u>Breastfeeding With Bottles</u> | <u>Total Breastfeeding</u> |
|-----------------------|--------------|----------------------------------|-----------------------------------|----------------------------|
| 1371 | First | 86.8 | 12.3 | 91 |
| 1163 | Second | 76.9 | 19.1 | 96.0 |
| 932 | Third | 68.2 | 24.4 | 92.6 |
| 746 | Fourth | 60.3 | 29 | 89.3 |
| 531 | Fifth | 55 | 29.8 | 84.8 |
| 320 | Sixth | 50.5 | 31.1 | 81.6 |

i This increase was verified by the coordinator who stated that there were cases of mothers who dropped breastfeeding at the time of the control and then resumed, as a result of the motivational efforts.

TABLE D

COMPARISON OF MOTIVATION

| Age | National Figures | ACHIEVEMENT (in percentages) | | | |
|----------|---------------------|---------------------------------|-----------------------------------|-------------------|------------------------|
| | | Lo Barnechea Pilot | Clinic control group (records) | 6-clinic Study | Project Expectation |
| at birth | 60 | 92 | 52 | 87 | 80 |
| 3 mos. | 30 | 81 | 33 | 68 | 65 |
| 6 mos. | 11-19 | 72 | 17 | 51 | unstated |

+ an overall goal of prolonging breastfeeding to an average 2.8 months was set. In that context, the six-clinic results of 51% at six months would suggest an average three months.

TABLE

SIX CLINIC STUDY IN THE ORIENTE - INCIDENCE OF MORBIDITY

| | <u>PROGRAM GP</u> | | <u>CONTROL GP</u> | | | |
|--|-------------------|-------------------|-------------------|-------------------|-----------------|---------------|
| I. Sampling Size | 90 children | | 60 children | | | |
| II. Use of Clinic Time for 0 through 5 yrs | | | | | | |
| % for illness..... | 7 | | 31 | | | |
| % for health check..... | 93 | | 69 | | | |
| ----- | | | | | | |
| Incidence of Total Morbidity (Program vs. Control) | <u>PROGRAM GP</u> | <u>CONTROL GP</u> | <u>PROGRAM GP</u> | <u>CONTROL GP</u> | Prog v. Con | Imprt |
| | <u># cases</u> | <u>% incid.</u> | <u># cases</u> | <u>% incid.</u> | <u>% Imprv.</u> | <u>Target</u> |
| Total..... | 42 | 23 | 141 | 77 | 70 | 60 |
| Diarrhea..... | 12 | 6.6 | 57 | 31 | 79 | |
| Bronchial- Related | 22 | 12. | 75 | 41 | 71 | |
| Otitis (ear inflamm.).. | 8 | 4.4 | 9 | 5 | | |
| Adenitis (gland inflamm. and Other | | | | | | |

Includes bronchopneumonia, bronchitis, bronchitis obstructiva, pharyngitis, rhinopharyngitis, pharyngo bronchitis.

CHART # 1

