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MEMORANDUM

TO : See Distribution
FROM : ST/POP/R, Elizabeth S. Maguire *ESM*
SUBJECT: Annual Report of Columbia University's Center for Population and Family Health (CPFH), Cooperative Agreement AID/DSPE-CA-0043

The attached report reviews overall program objectives and activities carried out during the fourth year (7/1/82-6/30/83) of the Cooperative Agreement. For each of the following ongoing CPFH activities, the report includes a project summary, activities update and list of principal findings:

- Bolivia: Industrial Settings and Family Planning Promotion and Services (pp. 17-19)
- Brazil: BEMFAM Community-Based Project (pp. 19-30)
- Nigeria: Community-Based Distribution Project (pp. 31-39)
- Sri Lanka: Operational Research in Social Marketing of Contraceptives (pp. 40-42)
- Tanzania: Masai Health Services Project (pp. 43-46)
- Haiti: Operations Research on Low-Cost Delivery of MCH/FP Services (pp. 58-67)
- Sudan: Community-Based Family Health Project (pp. 52-57)
- Thailand: Operations Research and General Technical Assistance (pp. 58-67)

During the reporting period, CPFH staff devoted a substantial amount of time to technical assistance as well as to new project development in Burundi, Senegal and Togo.

Also included in the attached document is a progress report on the Library/Information Program and recent increased efforts to document and disseminate project experiences, through the CPFH Working Paper Series, publications and conference presentations, as listed in the Bibliography Appendix (pp. 74-93). In May, the Center sponsored an Operations Research Workshop (attended by ST/POP/R staff and representatives of key organizations involved in operations research) to discuss lessons learned to date, research methodologies and operations research priorities in the future.

A separate report, published by APHA, is available on the evaluation of the Cooperative Agreement carried out by an outside team of experts in April 1983. The team's overall evaluation of CPFH activities was very positive, stating that "the Center has carried out and in many instances exceeded the tasks and expectations outlined in the 1979 Cooperative Agreement." The report cites CPFH as a "unique resource in the field of family planning operations research" and recommends continued A.I.D. support. Among the constructive criticisms and recommendations for improving operations in the future, the report calls for the development of more standardized and systematic approaches to project development, implementation and analysis as well as greater emphasis on the documentation and dissemination of CPFH's overall experiences to date. CPFH staff are currently actively involved in following up on the report's recommendations.

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1982 - 1983

ANNUAL REPORT

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I. SUMMARY

On July 1, 1979, the Center for Population and Family Health of Columbia University and the Agency for International Development, International Development Cooperation Agency entered into a Cooperative Agreement (AID/DSPE-CA-0043) to support a broad range of activities aimed at the improvement of family planning and primary health care service delivery in developing countries. This Annual Report provides details of activities and accomplishments during the fourth year of the Agreement, July 1, 1982 - June 30, 1983.

Three primary objectives are mandated by the Cooperative Agreement, each with a number of associated activities. These objectives and activities are presented below, followed by a summary of related accomplishments during this reporting period.

COOPERATIVE AGREEMENT OBJECTIVES

Objective 1

"To provide technical assistance to developing countries to initiate public and private sector family planning programs, or to solve operational problems in existing programs, with special focus upon nonclinical, community-based service delivery, to also include technical resources for programs that involve maternal/child health and/or basic public health service.

a. To respond to needs for short-term technical assistance to developing country (LDC) public or private sector program managers for the improvement of components of family planning delivery systems, and/or for the design of new systems...

b. To provide resident technical advisors to national programs in Haiti, Thailand, Peru, Guatemala and approximately three additional countries, with emphasis on the Sub-Saharan Africa region (both Anglo and Francophone.)

c. Both resident and short-term advisors may assist AID/DS and local USAID Missions in identifying and designing promising family planning or family planning/basic health initiatives in developing countries...

d. Where possible, the above assistance and research will be coordinated with existing or potential clinical service infrastructure and will be coordinated with other international agencies whose focus is upon clinical service (e.g., IPAVS and JHPIEGO.)"

During this reporting period, CPFH continued ongoing efforts and initiated new activities in the provision of technical assistance to family planning and basic public health programs in more than 10 developing countries. New York-based staff travelled extensively (see Appendix D) in response to the needs of ongoing projects, and in response to requests from local USAID Missions and host country counterparts for assistance in designing or modifying service programs. Resident advisors in Brazil, Haiti, Nigeria, Sudan, Tanzania and Thailand continued to provide valuable services to programs in those countries. Recruitment was initiated for new resident advisors to be placed in Burundi and Sudan. Also during this period, the development of new programs, especially in Africa, continued to be a high priority. An innovative project in Bolivia is nearing the completion of its first year, while what will be the first community-based primary care/family planning project in Burundi is about to begin. In addition, a proposal has been prepared to add health and family planning activities to the cooperative activities of established rural women's groups in Togo. In cooperation with local USAID Missions, Center staff have provided technical assistance to institutions in Senegal and Zimbabwe, and are exploring the possibility of long-term assistance to programs being contemplated in those countries. The extent of CPFH cooperation with other international agencies continued to increase during this period, as evidenced by new joint efforts with, or the provision of consultants to, the Pathfinder Fund, PRICOR, UNFPA and IPAVS.

Objective 2

"To provide subagreement funding support to implement operations research towards testing delivery system components and otherwise overcoming impediments to more efficient and cost-effective service delivery, with special focus upon urban slum and poor rural areas of Latin America and Sub-Saharan Africa, but not to exclude assistance and research in other regions.

a. To assume responsibility for subagreement support and short-term technical assistance as necessary to programs initiated previously under Contract AID/pha-C-1107.

b. To develop approximately five (5) new subagreement activities for directly supporting implementation of operations research on family planning or family planning/basic health service delivery..."

This reporting period was characterized by significant developments in operations research projects funded through the subagreement mechanism. Two subagreement projects, which had been funded since the July 1, 1979 initiation date of the Cooperative Agreement, came to successful conclusions.

CPFH assistance to the BEMFAM family planning program in Brazil ended on June 30, 1983. This operations research project, which focussed on the search for more effective and efficient service delivery systems, has left BEMFAM with a skilled evaluation unit and with valuable documentation of the program variations which were tested.

In Sri Lanka, a four year program of CPFH assistance to the Family Planning Association ended on March 31, 1983. This project, which provided for a research component within the FPA's Commercial Retail Sales program, has contributed to increased sales of contraceptives in an increasingly self-sustaining distribution system. The operations research sponsored by CPFH has also provided the impetus for new research activities planned by the FPA.

Two ongoing subagreement projects were continued and expanded during this reporting period. In Nigeria, CPFH assistance to the Community Based Distribution Project of University College Hospital, University of Ibadan, has contributed to expansion of project activities to additional administrative regions within Oyo State. These expanded efforts are indicative of the project's success to date, and of the interest of the Nigerian government in utilizing the project's experience in improving the country's health care delivery system. In Tanzania, the Center has been providing financial and technical support to the Masai Health Services Project of the Lutheran Synod. Efforts of Center staff have centered around the collection of baseline data, training of trainers and volunteer health workers, and the initiation of service delivery. This project is beginning to produce a body of data and experience concerning the obstacles and routes to success in the delivery of basic health and family planning services to pastoral and agrarian populations in the Arusha Region of Tanzania. During this year the Phase I period of pilot study that was completed and approved and revised to extend project activities into the additional 6 areas indicated in Phase II.

One new subagreement was initiated during this reporting period. The Center for Social Investigations in Bolivia expressed interest in CPFH support for their efforts to introduce family planning services through industrial labor unions in La Paz. The operations research component of this project will measure the cost of employee pregnancies to employers and to the country's Social Security Institutes as well as the impact of family planning education and services on those costs. During the first eight months of activity, project staff developed educational materials, began conducting educational seminars for union members, began collecting baseline data on pregnancy costs and made plans for introduction of services.

Plans to initiate additional subagreement projects during this period moved more slowly than was anticipated. Two projects which have been in development in Togo since early 1982 have yet to receive the necessary approvals from the Togolese government. It is believed that reticence among the Togolese concerning the introduction of family planning services accounts for the delay. Negotiations continue, and it is hoped that one or both of these projects will be initiated in 1983 - 1984. In Burundi, an alternative source of funding has been identified for what was initially developed as a subagreement-funded community-based distribution project. This project, scheduled for implementation in the autumn of 1983, will receive substantial technical support from CPFH.

In addition to the subagreement activities described above, CPFH has provided major support to family health/operational research projects funded directly by AID/Washington or local USAID Missions through the provision of resident advisors and technical assistance from other Center staff. These efforts have proven particularly effective in the Sudan and Haiti, where both projects entered phases of new, expanded research and service activities.

Objective 3

"To improve developing country capabilities for evaluation and internal management of program operations research, and to improve the availability of information about international experience in family planning operations research.

- a. To assume responsibility for technical literature library indexing and information retrieval in the field of family planning and basic health program evaluation and operations research, to be integrated with the multicenter computerized population information system, POPINFORM.

b. To provide occasional short-term and long-term training, at the recipient's headquarters, for developing country technicians in the fields of program design, management, and evaluation, especially as such training complements other assistance and activities of the recipient in specific countries.

c. To assist AID/DS and AID/Africa Bureau in the development of an African Regional Conference on community-based family planning programs, probably to be held during the third year of the Agreement.

d. To produce and disseminate (publish or otherwise distribute) results of technical analyses of operations research performed under this Agreement, and to convene seminars in LDCs which will bring to the attention of the political and professional leadership the benefits of fertility regulation and family planning/basic health delivery systems."

During this reporting period, the CPFH continued to demonstrate its commitment to the improvement of developing country capabilities to effectively manage and evaluate their own programs of family health service delivery and operations research. This is a principal objective of all the subagreement and technical assistance activities described above. Other activities are designed specifically to meet this program objective. The CPFH resident advisor in Thailand is assigned to the National Family Planning Program, Ministry of Public Health, for the purpose of assisting in the evaluation of a wide variety of program activities. His efforts continue to enhance the research and evaluations skills of Ministry staff. Another example of CPFH efforts to improve local research skills is the placement of microcomputers and associated software at project sites. One such computer was placed during this reporting period (in Bolivia) and plans are underway to place and train local staff to operate three additional microprocessor units.

A major activity in addressing the objective of improving the availability of information has been the CPFH library's compilation and dissemination of literature related to family planning and health care programs, as well as technical literature related to operations research. The library, both independently and in conjunction with other library/information programs, provides a world-wide audience with ready access to the most recent literature in the multidisciplinary areas of population and family health.

Increased attention during this period was given to the documentation of the various projects and experiences which are common to more than one project. The CPFH Working Paper Series, which was introduced during 1981 - 1982, now consists of 4 titles reflecting the broad range of Center activities and interests. Dissemination of findings through conference presentations and journal articles continues to be a major priority and will represent a large percentage of staff effort during 1983 - 1984. A complete bibliography is attached as Appendix C.

In May of this year, the Center hosted a one-day workshop in operations research to which the major U.S. intermediaries involved in operations research in family planning and primary health care were invited. A report on that meeting has been prepared for distribution as an additional Working Paper of the Center.

CPFH also contributes to developing country capabilities through various training activities. Host-country project personnel often undergo formal training as part of their participation in project development and implementation activities. On occasion some project staff members will also receive training at other project sites or in New York. For example, during this reporting period, 3 people from 2 projects supported with Cooperative Agreement funds received training at the annual CPFH training program for developing country family planning and health professionals (principal funding from the AID Africa Bureau).

II. INTRODUCTION

The Center for Population and Family Health (CPFH) of Columbia University is an organization devoted to the provision and evaluation of basic health and family planning programs both in the U.S. and in the developing world. Formally established in 1975, the Center presently has a staff of 40 professionals with a wide variety of skills, experiences, and training. The interdisciplinary mix of its staff allows the Center to be actively involved in a broad range of activities including the management of ambulatory care and family planning services at the Columbia Presbyterian Medical Center, administration of a graduate training program in the School of Public Health, implementation and evaluation of family planning and maternal child health outreach programs in New York City, conducting a short course for developing country participants in the design and management of community based programs to deliver family planning and other basic health services, and provision of financial and technical assistance to family planning programs in a number of developing countries.

Since 1979, the major source of the funding for CPFH international activities has been AID Cooperative Agreement. The overall purpose of the Cooperative Agreement is to provide assistance to developing countries in initiating and assessing public and private sector family planning programs. Particular emphasis has been placed upon developing non-clinical community based approaches to family planning delivery and to applying operational research methods for assessment and evaluation.

Over the first four years of the Cooperative Agreement a total amount of \$2,302,652 has been obligated to 8 subagreement projects in developing countries. Technical assistance has also been provided to three additional projects funded to a total amount of \$1,514,712 from Office of Population central funds. In the last year of the Cooperative Agreement an additional amount of approximately \$275,000 will be obligated to 4 subagreements in developing countries.

Technical assistance in the design, management, and evaluation of these projects is provided by New York based and resident overseas staff. At present 6 professional staff are resident advisors to programs in the countries of Brazil, Haiti, Nigeria, Sudan, Tanzania, and Thailand. The New York based staff involved in the international program include 6 professionals full-time and 9 part-time. All of these staff travel extensively to provide technical assistance to developing country projects.

In fulfillment of the specific objectives of the Cooperative Agreement CPFH has, over the last 4 years, participated in the development, implementation, and evaluation of 10 community based family planning projects in Latin America and sub-Saharan Africa. In Asia activities funded under the Cooperative Agreement have

included the provision of support for a commercial distribution program in Sri Lanka and a resident advisor for the evaluation unit of the National Family Planning Program of Thailand.

All of the projects supported by CPFH have been designed within an operations research framework and most have been relatively small in size and of short duration. Consequently in evaluating these projects emphasis is placed upon analysis of the processes of service delivery, implementation and management with the expectation that the results can be used for larger replication. In most cases, natural variations or quasi experimental designs have been utilized to allow comparative analysis of alternative approaches to service delivery. To provide a rational basis for deciding among alternative approaches, results are usually measured in terms of cost-effectiveness. Throughout the entire process of project development, implementation, and evaluation, careful and sustained efforts are made to assure that capabilities for undertaking program evaluation and operations research studies are transferred to the local institutions.

The provision of appropriate backstopping for Cooperative Agreement projects has necessitated considerable long- and short-term technical assistance. The efforts of resident advisors are supported and complemented by regular visits from New York based staff. Each project has a New York monitor who, in consultation with both project officials and senior members of the international staff, determines the technical assistance needs of a particular project. New York based staff provides a wide ranging resource pool from which individuals are selected to provide assistance as appropriate for particular project needs. At times, such assistance can be provided in New York as, for example, in formally reviewing a project proposal or in helping with the analysis of project data. Often such assistance entails a 2- to 4-week visit by the appropriate staff member to assist with some specific aspect of the project. When the required expertise is not available among New York staff, outside consultants are utilized. In addition, the Center, from time to time, provides technical assistance to projects outside of the Cooperative Agreement. The most recent example of this was a request from AID/Dakar to provide assistance to the Bakel Project in Senegal. In response, two-short term consultations were provided during this reporting period.

CPFH staff work in close collaboration with AID mission officials to develop new projects and to monitor on-going activities. On occasion, informal assistance is provided to meet particular professional needs of local Missions. Recent efforts to develop projects in Bolivia, Burundi, and Togo provide good examples of the positive results that can be achieved when CPFH staff establish sound cooperative relationships with AID officials.

All CPFH projects have been developed within existing health and/or family planning systems. For example, the recently completed projects in Brazil and Sri Lanka were undertaken

directly within the principle private family planning organizations operating in those countries. Where projects have been developed outside an established system, careful efforts have been made to link project activities to services being provided within an existing system. The projects in Sudan and Nigeria are parallel examples of University managed projects that have operated within the existing government system of health care delivery. In both instances, the success of initial efforts has led, during the past year, to expanded programs of activities for which the government is taking more managerial and administrative responsibility.

In addition to the working relationships that have been established with local AID missions and host country organizations, CPFH has developed cooperative ties with several international agencies. For example, within projects mutual benefit has been derived from cooperation with CDC contraceptive prevalence survey efforts that have been undertaken in Brazil and from UNICEF participation in the oral rehydration component of the Sudan project. On occasion collaboration with other agencies has led to direct financial contribution to CPFH project activities. During this reporting period, the Pathfinder Fund provided the cost of service delivery in both the Brazil and Nigeria projects. As a result, CPFH can devote greater amounts of Cooperative Agreement funds to the conduct of evaluation and operations research activities.

Efforts to develop and evaluate projects under the Cooperative Agreement have been supported and complemented by CPFH participation in POPLINE, a computerized library information system that is the successor to Popinform. Using both project and field staff and their involvement in the process of family planning project design, management, and evaluation, CPFH is able to directly contribute to and benefit from the bibliographic reference service provided by POPLINE. The expanded use of this service by developing country counterparts is attributable in large part to the international activities made possible under the Cooperative Agreement.

Some short- and long-term training opportunities have been funded through the Cooperative Agreement. However, a much more significant development in this regard has been the extent to which Cooperative Agreement activities have provided CPFH staff with the experiential base necessary for providing training relevant to the programmatic field oriented needs of developing country programs on a regular basis. A curriculum derived largely from lessons learned during Cooperative Agreement activities is the core element of a one-month course entitled the "Family Planning, Nutrition and Primary Health Care in Developing Countries: Program Design, Management and Evaluation" that has become an established feature of Center activities. This course was funded initially by the Rockefeller Foundation, with some participant funding provided by the Cooperative Agreement. Within the last year funds have been made available through the Africa Bureau of USAID to continue the course in New York and to

conduct five in-country workshops in Africa. The New York course during this project year was limited to Africa participants and was carried out in English and French simultaneously. The first of the in-country workshops was undertaken in the Sudan in December of 1982 and provided an excellent opportunity for dissemination of lessons learned from the Sudan project. In a similar fashion, most of the remaining workshops will be built around CPFH project activities in Africa. We believe that this training program in family planning/primary health care is perhaps the only such one in which a U.S.-based training institution is able to link training so closely to its own collaborative field projects.

As a result of its active involvement in projects in 12 countries, CPFH staff, in collaboration with developing country counterparts, have produced an extensive number of published articles, conference papers, and other reports. To facilitate rapid dissemination of some of its findings, a number of papers have been produced within the CPFH Working Paper Series that was expanded during this year. As many of the projects are still underway a number of additional papers are in progress.

In April 1983, CPFH activities financed under the Cooperative Agreement were evaluated by an AID-sponsored team of experts in the fields of operations research and population/health technical assistance. The purpose of the evaluation was to assess the Center's performance in achieving Cooperative Agreement goals and objectives, as well as to make recommendations for future program directions. While the final report of the evaluation team was not available for synopsis in this Annual Report, certain general conclusions were presented at debriefing meetings at the Center and at the Research Division of the Population Office of AID. Overall the Center was judged to be a unique resource in the field of operations research and technical assistance for family planning and related health programs in the developing world. The evaluation team concluded that the Center had satisfactorily met the requirements of the scope of work of the Cooperative Agreement, and recommended that the specific ongoing sub-projects as well as general support to the Center be continued. In the process of evaluating the Center, the team made many constructive criticisms and recommendations for improving the operations of the Center. A number of these were related to the development of more standardized and systematic approaches to project development, monitoring, evaluation, and documentation. It was felt that the Center's program of work could be carried out more efficiently and effectively if the various processes involved in conducting projects were made more explicit and consistent. Even in advance of receiving the final evaluation report, Center staff are responding to these and other recommendations. For example, a series of "protocols" and "checklists" are being developed which will provide staff with common guidelines for virtually all aspects of a project's design, from proposal writing to health interventions to evaluation activities.

III. FINANCIAL STATEMENT

	Funds Awarded 7/1/79-6/30/84	Expenditures 7/1/79-6/30/83	Estimated Expenditures 7/1/83-6/30/84
Salaries	\$3,384,785	\$2,583,511	\$823,000
Consultants	106,783	69,457	30,600
Fringe Benefits	827,705	622,535	213,980
Travel/ Transportation	900,949	651,172	235,500
Allowance	540,816	370,197	175,250
Other Direct Costs	706,153	572,557	140,590
Equipment/Supplies	160,707	120,667	50,000
Subagreements	2,751,842	2,167,614	553,110
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TOTAL DIRECT COSTS	\$9,379,740	\$7,157,710	\$2,222,030

Financial Summary

Subcontract #1 (Brazil)
7/1/82 - 6/30/83

<u>Category</u>	<u>Budget</u>	<u>Expenditures</u>
Research Administration	\$45,955	\$45,955
Projects		
Alternative Rural Delivery	30,254	30,254
Survey	6,000	6,000
Supervision	24,665	24,665
Service Statistics and Inventory	19,337	19,337
Postpartum, Midwife and Clinical	8,420	8,420
	<hr/>	<hr/>
TOTAL	\$134,631	\$134,631

Financial Summary

Subcontract #8 (Bolivia)
11/1/82 - 6/30/83

<u>Category</u>	<u>Budget*</u>	<u>Expenditures</u>
Consultant and Professional Fees	\$27,448	\$17,705
General Administration	10,550	5,264
Commodities and Equipment	12,400	9,365
Transportation	2,400	649
	<hr/>	<hr/>
TOTAL	\$52,798	\$32,983

* For 1-year period 11/1/82 - 10/31/83

Financial Summary

Subcontract #2 (Nigeria)

7/1/82 - 6/30/83

<u>Category</u>	<u>Budget</u>	<u>Expenditures</u>
Supplies	21,408	24,411
Salaries and Per Diem	47,594	52,707
Consultants	5,532	2,916
Office Expenses	20,036	10,441
Baseline Survey	16,196	3,738
Conference	3,738	3,619
Travel	27,027	25,232
Miscellaneous	2,243	846
Indirect	700	0
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TOTAL	\$144,474	\$123,910

Financial Summary

Subcontract #4 (Sri Lanka)
7/1/82 - 3/31/83

<u>Category</u>	<u>Budget*</u>	<u>Expenditures</u>
Personnel	\$0	
Office Expenses	5,000	5,001
Travel and Per Diem	0	
Promotional Expenses	7,500	7,289
Packing and Distribution	5,000	5,097
Evaluation	500	294
Training	0	
Administration	0	
	<hr/>	<hr/>
TOTAL	\$18,000	\$17,681

*Prorated from project budget

Financial Summary

Subcontract #7 (Tanzania)
4/1/82 - 6/30/83

<u>Category</u>	<u>Budget</u>	<u>Expenditures</u>
Salaries and Benefits	\$8,294	\$3,009
General Administration	2,363	473
Data Processing	1,712	0
Travel	6,178	2,141
Training	2,777	2,952
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TOTAL	\$21,324	\$8,575

V. Project Activities -- 7/1/82 - 6/30/83

A. Subagreements

1. Bolivia: "Industrial Settings and Family Planning Promotion and Services."

Project Summary

The Center has provided technical and financial assistance to the project, "Industrial Settings and Family Planning Promotion and Services in Bolivia", being conducted by the Center for Social Investigation. The objectives of the project are: to promote the acceptance and effective use of modern contraceptive methods among urban labor union members in La Paz; to measure the cost of employee pregnancies to employers both before and after the introduction of family planning services; and to study, in coordination with the Social Security Institute, the cost of employee pregnancies for that Institute.

The Center for Social Investigations (CIS) will conduct seminars on family health and family planning for union members and their spouses. In connection with the seminars, CIS will offer individual counseling on health and family planning. Those interested in family planning services will be referred to two private clinics or to clinics run by the employer or the union. Where possible, CIS will offer training in contraceptive technology for the health personnel at existing clinics. The family planning and contraceptive services components of the project are financed through a cooperative arrangement with Pathfinder.

Among the specific tasks that CIS will undertake as part of this project is the development of training materials for use with union members. These materials, to be pretested with union members, are expected to be useful for others in Bolivia. CIS will also conduct interviews to measure attitudes, knowledge, and practice among seminar participants prior to the beginning of the project and again six months to one year later. Interviews with employers and employees will also be conducted to measure attitudes regarding family planning and to investigate current labor policies regarding employee pregnancies. During these interviews CIS will lay the groundwork for introducing a system to collect information prospectively regarding pregnancy costs.

Activities Update

CIS initiated project activities November 1, 1982 but did not receive the first grant payment until February 1, 1983. CIS devoted the first several months to development of seminar content, training materials, and research instruments. In March, CIS held trial seminars in an evening adult school, where most participants were domestic employees. These seminars elicited

considerable enthusiasm among the participants and the school administrators, who invited CIS to return.

In April, CIS began offering seminars in several textile and plastic factories. They also made plans for seminars with a union of truck drivers, who have recently developed their own health cooperative. This health cooperative has a trained physician, who will provide family planning services with CIS contraceptives. CIS has also received invitations to give seminars from the municipal street cleaners and office workers unions, the largest brewery, and the national confederation of road workers unions.

With the endorsement of the Bolivian Chamber of Industry, CIS began interviewing employers in April and has conducted about 20 interviews. These interviews have laid the basis for collecting prospective data on pregnancy costs. CIS has also conducted interviews with seminar participants prior to the seminars to obtain measures of their knowledge, attitudes, and practice relevant to health and family planning. To analyze the data and prepare reports, CIS has installed a Zenith-100 microcomputer (compatible with the IBM-PC). The computer will run programs for data entry, cleaning, and tabulation developed by Henry Elkins.

For the second year of the project it will be necessary to import additional contraceptives. With these needs in mind, CIS has developed a proposal for the creation of a new non-profit institution similar to SOMEFA of Colombia to import and distribute contraceptives at low cost to physicians and medical institutions throughout the country.

Principal Findings

To date CIS has conducted seminars for about 170 participants. Of these some 60 have requested counseling. About 20 of the counselees have requested family planning services, and 4 of these have asked for sterilization. It is certainly too early to predict how well the project will perform, but it appears that there is strong demand for family planning services from labor union members in La Paz and that the major constraints on the number of family planning acceptors will be the number of seminars that CIS staff can conduct.

Among the research reports anticipated from the project are the following:

1. Profiles of labor union members in La Paz, and their attitudes, knowledge, and practice of family planning;
2. Labor practices and costs of employee pregnancies for industry;
3. Pregnancy costs to employers in selected industries, before and after the introduction of family planning services;

- 4 . Costs to the Social Security Institute of medical services for pregnancies of labor union members and their spouses.

2. BRAZIL: "BEMFAM Community-Based Project"

Project Summary

Since its inception in April 1979, the Integrated Family Planning and Community Health Education Program in Piaui has become a strong and unique project. It has an excellent record for meeting the demand for non-clinical contraception in the poorest state in Brazil through its network of 300 distribution posts which have recruited 72,000 new clients through December 1981.

In addition to its service orientation, the program incorporates a major operational research and evaluation component which makes Piaui a laboratory for all state CBD programs. Operations research projects yielded many results of practical and policy significance to BEMFAM administrators, including: (1) a new system of program launch; (2) a baseline contraceptive prevalence survey; (3) an investigation of the cost-effectiveness of different types of posts; (4) an assessment of household distribution; (5) a trial of additional contraceptive methods; (6) a test of the feasibility of extending service delivery to remote villages; (7) an experiment to reduce supervisory frequency without harming post performance; (8) the development of new supervisory materials; (9) an evaluation of the contribution of physicians to the program; and (10) a survey of physicians' interest in receiving training in clinical family planning methods.

Operational research projects have included:

- (1) Analysis of post dynamics;
- (2) Alternative posts,
- (3) Program impact module of follow-up survey,
- (4) Improved supervisory function,
- (5) Test of new supervisory and inventory systems,
- (6) Post partum project,
- (7) Involvement of parteiras (traditional birth attendants),
- (8) Development of a clinical component to include IUD insertion and voluntary surgical contraception.

The findings from operational research in Piaui have been applied in Piaui and in other state programs and some of the materials developed in the Piaui laboratory have found their way to Morocco, Indonesia, and Guatemala.

The conduct of these operational research activities from April 1979 to the present time has served to create and maintain an operational research and evaluation capability at BEMFAM.

Activities Update

This reporting period was the final year of CPFH assistance to BEMFAM under this subagreement. Consequently, much of the Center's work with regard to the project was focussed on the analysis of data and dissemination of results. Activities during 1982 - 1983 included analysis of supervision experiments and results, the addition of clinical and post-partum family planning components to the CBD model and increased rural coverage. The CPFH also provided funds and advice for a simplified BEMFAM service delivery system. In May 1982, Piaui OR results were disseminated at a seminar in Brazil, as well as at a conference in the United States. The project continued to serve large numbers of users in 1982 - 1983 and CPFH/BEMFAM OR activities attracted additional family planning funds from international donors.

Principle Findings

1. Supervision Experiment

During 1981, operations research activities were concentrated on a supervisory experiment to determine if reducing the frequency of field supervision from monthly to quarterly would harm program performance. The purpose of the experiment was to improve BEMFAM cost-effectiveness and to free supervisors for more productive activities. The experiment was successful and quarterly supervision was extended to 4 northeast Brazil CBD programs in 1982. Final analysis of the experiment was concluded in the third quarter of 1982. Separate analyses of medical posts and non-medical posts, and old and new posts were performed. Dependent variables included: new acceptors, revisits, and distributor drop-out rates. No statistically reliable differences between monthly and quarterly supervision were detected. Total savings from the adoption of the new system were estimated at between \$94,000 - \$112,000 per year. In Piaui, quarterly supervision also made such innovations as the post-partum and clinical services projects possible without increased staff (see pages 22 - 25).

A simple general model of projected costs and savings from transferring a program from monthly to quarterly supervision, suitable for use by administrators, was developed. The model (Figure 1) demonstrates that the ratio of savings to costs increases with lower population density but is unaffected by

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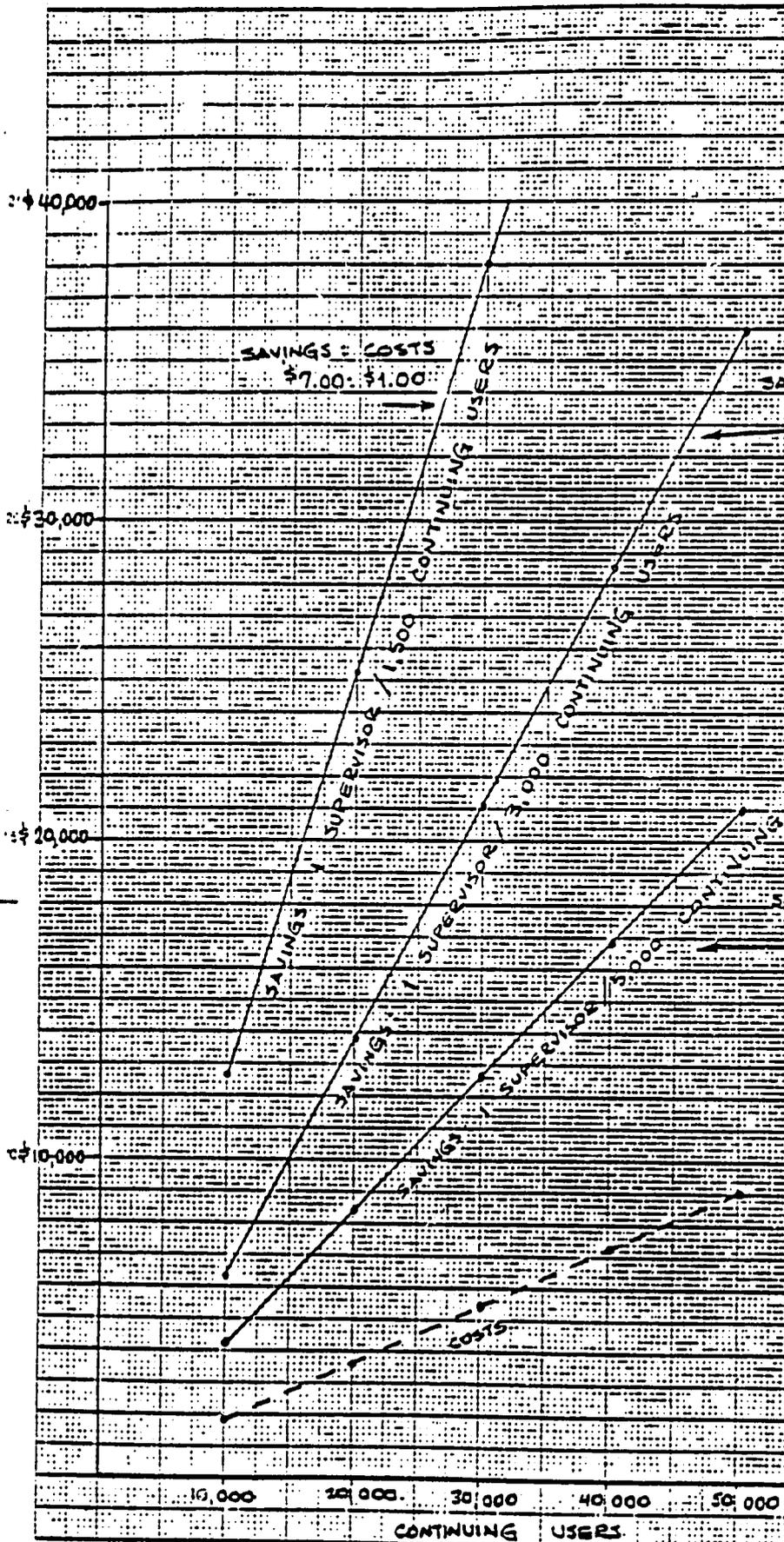


FIGURE 1
EFFECTS OF SWITCHING TO QUARTERLY SUPERVISION
FIRST-YEAR SAVINGS AND COSTS

program size. However, absolute savings increase with increasing program size since savings in supervisors' salaries increase faster than the costs of additional supplies. Since no additional costs are incurred after the first year, the ratio of savings to costs increases if costs are amortized over two or three years.

2. Clinical Services Project

In early 1982, BEMFAM decided to experiment with the addition of clinical methods (female sterilization and IUDs) to the Piaui project. A model clinic and physician training facility were envisioned for Piaui. As a first step in the development of a clinical family planning services and training project, a survey of 244 physicians in practices relevant to family planning was conducted in Piaui State. The purpose of the survey was to determine the demand for such a program among relevant sectors of the local medical community. Specific objectives included obtaining information about: (a) physician attitudes about the importance of family planning to maternal and child health; (b) the number of family planning services currently provided; (c) desire for training in various contraceptive methods. Belief in the importance of family planning was nearly universal. Over 95% of respondents stated family planning was either "very important" or "important" to maternal and child health. Current involvement in family planning, however, was low with over 48% of respondents seeing fewer than 6 family planning clients per month. Desire for training in long-term clinical contraceptive methods was high: over 57.4% wished to receive IUD training, 67.7 % wanted mini-laparotomy, and 52% requested vasectomy training. Results suggest that a family planning training program for physicians would be well-received in Piaui.

As a second step, Pathfinder, which had agreed to support Piaui service delivery activities in 1982 - 1983, financed the training in clinical family planning methods of ten physicians from five regional Piaui hospitals. The physicians were selected by the Piaui Secretary of Health and marked a strengthening of relations between local health authorities and BEMFAM. The objective of the training was to establish five satellite clinics in regional hospitals that would provide clinical family planning to clients referred by BEMFAM distributors. It was decided that evaluation of the training program and results of the satellite clinic project would become a major focus of operations research activity because of the potential significance of having a CBD program linked to a clinical component.

Evaluation of training was stressed because the ten Piaui physicians were the first large group to be trained in the BEMFAM model clinic in Rio de Janeiro. The project assumed additional importance when AVS agreed to fund the model clinic in Teresina, the State Capital. This donor agency was attracted by the

prospect of a direct relationship between the model clinic and a CBD program, and by the prospect of close monitoring of trainee activity.

The catchment areas of the five regional hospitals contain approximately 38% of all eligible women in Piauí state. Therefore, from the point of view of potential provision of IUD and female sterilization services, the sites appear satisfactory. Mapping indicates that hospitals in Parnaíba, Floriano and Campo Maior should be the highest priority for receiving the next group of satellite clinics. The directors of all 5 hospitals seem supportive of the new services. Indeed, three directors were among the trainees. With the exception of the regional hospital in Barras, physical facilities are satisfactory in all hospitals. The problem in Barras was due to a lack of space.

The physicians who were trained practiced different specialities. Gynecologists and former BEMFAM physicians, the two groups with the greatest background in family planning, constituted a minority of trainees. Prior to training, physicians performed an average of 13.5 female sterilizations and zero IUD insertions per month. The weakness of the selection process was its political nature. Some trainees were selected on what appears to be purely political grounds (a trip to Rio de Janeiro is a substantial political favor). The most obvious failure due to the political selection was the physician who returned to his hospital and refused to participate in the program.

Eight of 10 trainees fulfilled Pathfinder mini-lap training requirements and 9 of 10 fulfilled IUD insertion requirements. Unfortunately, both physicians who performed less than 5 mini-lap procedures were from the same regional hospital, Oeiras. The overall evaluation of the course was favorable. The strongest aspect appears to have been the IUD insertion training given at the Meier clinic. Weakest aspects appear to have been orientation for the trainees and a series of problems at Moncorvo Filho Hospital, site of mini-lap training, including lack of supplies, lack of patients, and lack of a training routine.

The clinical project's service delivery phase did not really get underway until the last quarter (April - June, 1983) of the BEMFAM/CPFH Agreement. Plans originally called for training of distributors in making referrals in January, 1983. Supervisors were also to publicize the project during the same month. Administrative changes in Rio, however, delayed implementation until April. First quarter results have been modest, and analysis suggests that the reason is that distributors are making very few referrals. In three months only 49 IUD and sterilization referrals have been made, while 23 IUD insertions (82 percent of those referred) and 11 mini-laps (52 percent of those referred) have been performed. In most cases, it also appears that sterilization requires two visits on the part of the client.

To improve utilization of clinical services, BEMFAM should focus on the distributor and discover why so few referrals are made.

3. Post-partum Project

The post-partum/post-abortion project began in mid 1982. The project consisted of giving post-partum women a lecture on family planning, and a breast-feeding promotion talk. After the lectures, women were offered condoms and/or foam and a referral to the BEMFAM post most convenient to her. Post-abortion women were counselled individually. The objective of the project was to add a more active element to the passive (distributors wait for clients to seek them out) BEMFAM CBD delivery system. Secondly, a post-partum project had the potential of reaching, cheaply and efficiently, a large proportion of the target population, as roughly half of all Piaui women deliver in hospitals. Third, post-abortal complications comprise a significant proportion of hospital caseload in Piaui. Finally, mean duration of breast-feeding is moderate in Piaui (3.3 months in Teresina, 9.1 months in the interior), and prolongation of breast-feeding was the focus of both national and state-wide campaigns. Critical to the feasibility of the project was the availability of supervisors to participate in and monitor the project. The switch from monthly to quarterly supervision had provided the time needed to pursue new program initiatives.

The project was originally planned for 5 regional hospitals beginning in 1982. Due to the condom shortage, and later to BEMFAM administrative changes that temporarily prevented the release of research funds and delayed the printing of the necessary service statistics forms, only one post-partum, post-abortion post was opened in 1982, in the maternity hospital in Campo Maior. In early 1983, a second post was opened in the regional hospital of Picos, but never functioned. In April 1983, posts were opened in the regional hospitals in S.R. Nonato and Valenca. Another was scheduled to open in Piripiri in July. The slow pace in 1983 resulted from the state elections held in November 1982. BEMFAM lacked contacts in the new administration and influence with the new secretary of health. Also, the state of Piaui experienced a funding crisis that resulted in severe staff reductions in the state hospitals, thereby depleting the manpower available for the project in many hospitals. Thus, it was impossible to open the post-partum project in the hospitals of Floniano and Barras. (A lack of a suitable distributor also resulted in a lack of program functioning in Picos.)

The post-partum project recruited 324 new acceptors in 11 post-months of operation, a rate more than three times as high as the average Piaui post. Moreover, between 70 - 80 percent of the women attending lectures accepted. Operating with one part-time distributor/lecturer per post, between 40 - 50 percent of all women delivering or hospitalized for complications of abortion

participated in the program. Only 24% of acceptors were former BEMFAM clients indicating that the project reached a group of women different from that reached by the regular CBD program.

4. Rural Coverage Project

BEMFAM posts in Piauí as in the other state-wide programs are located in the small towns of the interior, but not in rural villages. Consequently we assumed that rural coverage was less than urban coverage. The operations research project approached the problem of rural coverage directly by opening posts designed to serve the rural population, and through a more general research program into the relationships between post location, size, and rural coverage. A criterion for opening rural posts was developed: new posts were in villages of at least 1000 population and located at least 10 km away from any existing BEMFAM post. Using this criterion, more than 30 new rural posts were opened in Feb. - March, 1981. Performance data indicated that these posts averaged about 18 new clients per year during 1981, compared to a 1981 average for all posts of 100 new clients per year. Rural posts not only had lower performance than other posts, they were considerably more costly to supervise. The average travel cost to reach a rural post was \$28.74 versus \$5.73 to visit a town post. The implication was that the marginal cost per acceptor would increase very sharply with greater expansion into rural areas. Mapping of acceptors at the rural posts also revealed that virtually all program users came from within the precincts of the villages in which they were located, and very few came from the surrounding farms and ranches. The results suggested that opening a large number of additional rural posts would be very costly, and that these posts would probably not serve the sizable rural population that lives outside the villages. A number of solutions were proposed: 1) to have the state secretary of health assume some of the additional costs of rural coverage; 2) to offer an integrated service (family planning plus oral rehydration salts) to produce a lower cost per unit of service; and 3) to open posts in urban locations patronized by rural people. Finally, an attempt was made to gather additional information about the rural population of Piauí by adding a third (rural) stratum and a rural module to the 1982 Piauí impact prevalence survey.

The state secretary of health requested that family planning services be made available in about 125 rural, "mini" health posts located in villages of 500 inhabitants. While placing family planning in the mini-health posts would have increased availability, it was estimated that such posts would receive only about one family planning visit per week. To increase cost-effectiveness and provide the rural population with a second much needed service, the integration of oral rehydration and family planning was proposed on a trial basis in 24 mini-posts in a single supervisory region.

The integrated services trial was never conducted. BEMFAM had grown disenchanted with an integrated anti-parasite family planning project sponsored by the Japanese family planning organization JOICFP, and was unwilling to commit itself to a second integrated project. Family planning services were never expanded into mini-posts in Piauí because the state was unable to assume any of the extra costs, and because a large number of the mini-posts existed only on paper.

During phase two, a study of program dynamics had begun which included determining the rural draw of urban posts. Most urban posts drew a disproportionate number of clients from the immediate urban area. The exception to the rule was a post located in a restaurant in the market in the regional center of Campo-Maior. This post was one of the highest volume posts in the state with 1077 cumulative new acceptors, and over 70% of its acceptors were rural. During phase three an attempt was made to learn if other posts located in areas of high rural traffic would be successful in attracting rural users.

A total of fourteen alternative posts were opened. Eight were located in markets, two in bus stations, one in a restaurant, two in food stores, and one in a hotel. Service statistics indicated that most alternative posts recruited very few clients, and that posts located in urban places frequented by rural people cannot be considered a solution to the problem of rural coverage. During 75 post-months of observation the 13 alternative posts recruited 612 new acceptors, for an average of about 8 per month. However, when the two largest posts were removed from analysis the number drops to an average of less than 4 new acceptors per month.

It was hoped that alternative posts would draw primarily from the rural areas. Outside of Teresina the state is only 31% urban and 69% rural, but the clients of BEMFAM posts are 49% urban and 51% rural. Overall, in 1982, alternative post clients were 47% urban and 53% rural.

The most successful alternative posts were located in two large towns, Campo-Maior (population 24,000) and Picos (population 33,000). Three relatively successful posts were located in Campo-Maior. One is located in a restaurant, near a bus station. Formerly, it was located in the town market. In 1982, this post recruited 309 new clients, of whom 67% were rural women. The second post is also a restaurant and is located in the town market. In 4 months this post recruited 85 new clients of whom 75% were rural. The third post is a souvenir stand in the bus station. In 4 months this post recruited 54 clients of whom 18% were rural. In Picos, the successful alternative post is also in the bus station, in the ticket office of the bus company. The distributor suffered a serious injury and was unable to work for almost three months, and secondly, the post experienced a condom stock-out during the state wide condom shortage. Nevertheless, the post managed to recruit 97 clients in 9 months.

The weakest posts were located in small towns and counties with relatively small populations. For example, the alternative post in the market of the town of Beditinos has recruited 3 clients in three months of operation. Beditinos is a small town of 2,663 persons. The total population of the county is 12,869 of whom about 79% are rural dwellers. In Alto Longa, the county seat of an area 85% rural, the market post has recruited only 6 clients in 3 months. Thus, alternative posts are performing poorly in exactly those areas where we expected them to perform well--small towns located in the most rural counties. On the other hand, alternative posts seem to function best in large towns. Consequently, alternative posts should only be regarded as one of several approaches that need to be combined to provide adequate rural coverage. Finally, no negative impact on established posts was observed as a result of opening alternative posts.

The final operations research approach to the problem of rural coverage was a feasibility study of involving parteiros (traditional birth attendants) as distributors in the BEMFAM program. The study consisted of interviews with Piaui health department staff active in parteira training. (Training of parteiros is a priority of the state secretary of health who wishes to see them more active in community health activities.) Piaui keeps a registry of parteiros. In 1982, 126 had been registered in five of the state's 14 health districts. After registration, all TBA's attended a 40 hour course that concentrated primarily on prevention of infection during the birth process. Registered midwives were also taught to report all attended births to the nearest health post. Upon completion of the course, WHO home birth kits were distributed. Future courses in basic health care are planned for the parteiros.

According to the 1979 Piaui Prevalence Survey, about half of all women resident in the interior of the state deliver with the assistance of parteiros. Aside from this, little is known about these birth attendants. For example, the registry maintained by the secretary of health, according to the director of personnel, lists only the parteiros' names and addresses. Fortunately, BEMFAM Piaui staff located a nurse had participated in the initial training of parteiros and who had put together biographical files on several. According to the information on file, parteiros are fairly old. In Teresina most are over 50, while in the interior most are over 40. Most are illiterate or nearly illiterate. Most became birth attendants in one of two ways: a) through inheritance from the mother, or b) through necessity--they were forced by circumstance to assist at a birth, and decided they liked it. Most attend only a few births. The range seems to be from less than one birth per year to about two per month. Usually, they are summoned to the woman's home when labor commences. Usually, they are paid in kind: fruit, chickens, etc.

The above information suggests that most parteiras would not make good BEMFAM family planning distributors. Major disqualifying factors include their age and lack of literacy. Also most are passive. They wait to be summoned rather than aggressively recruiting clients. Although most may not make successful distributors, they may play a useful auxiliary role in the family planning program. For example, all could be provided with BEMFAM referral cards and condoms to distribute to the women they attend. An inexpensive 1 - 2 day course could teach them to talk about the importance of child spacing and family planning in general. It would also be possible to add breastfeeding promotion to the training course at virtually no additional expense.

5. Results of Other Activities

Funding and technical assistance was provided to the BEMFAM evaluation division to produce new service statistics and inventory systems. Unfortunately, the subagreement expired before the new system could be evaluated (the test of the new system was scheduled for July 1982, but due to administrative decisions, was not cleared for trial until April 1983) and was not finally in place until June 1983. The objectives of the new system were:

- 1) To reduce the total number of forms and records;
- 2) To reduce clerical man-hours spent on inventory and service statistics;
- 3) To reduce printing costs and shipping/postage costs for forms and records.

Given the lateness of the year, evaluation responsibility for the new system was left with the BEMFAM evaluation department.

The Piaui impact survey (conducted by CDC and Westinghouse) was completed in August 1982, but results are not yet available. A rural stratum, and rural and infant/childhood diarrhea modules were added to the survey by the CPFH. When compared to the results of the 1979 baseline survey, it will be possible to evaluate BEMFAM's CBD strategy of free temporary methods offered in urban areas. The amount of prevalence increase will suggest if the strategy is correct, or if it requires revision. The rural stratum and module will provide the first insight into contraceptive use by the rural population of Piaui.

Dissemination of Piaui OR results in 1982 included submitting the report of the physician survey and the supervisory experiment to the CPFH working paper series. In addition, the supervisory experiment was also submitted to Studies in Family Planning. A paper on the service delivery aspect of the project was also presented at the 1982 American Public Health Association Convention held in Montreal.

Before the conclusion of the OR project, AVS and Pathfinder were attracted by the OR innovations, and have agreed to support various service delivery activities in Piauí. The state secretary of health became a supporter of family planning, and in 1982 - 1983, Piauí became one of the first Brazilian states to include family planning as an essential activity in its maternal and child health norms. The state secretary of health also agreed to assume more of the program's costs. However, a recent change in government in Piauí and the financial crisis within the state government make additional local financial support problematic.

Service statistics for the first half of 1983 are not available, but in calendar 1982, as in previous years, the CBD program continued to provide a large volume of services as shown in Table 1. In 1982, Piauí recruited 28,207 new clients, compared to 30,353 in 1981. The slight (7%) decline in acceptance is the result of lower acceptance of barrier methods. Overall there were 11,197 barrier method acceptors in 1981 and only 8,382 in 1982.

In contrast, the number of pill acceptors was higher in 1982 than in 1981: 19,825 vs. 19,156. Lower barrier methods acceptance can be ascribed to a shortage of these methods which began in Piauí in mid-1982. The effects of the shortage were most severe in the final quarter of 1982 when only 1,330 barrier methods acceptors were recruited compared to 2,166 in the third quarter of 1982, and 3,073 in the final quarter of 1981. The shortage also effected the estimated number of active clients. December actives were estimated at 32,969 compared to 35,396 in September 1982.

TABLE 1

**PIAOT PROGRAM PERFORMANCE .
NEW CLIENTS, REVISITS, SUPPLIES
1979-1982**

METHOD	NEW CLIENTS				REVISITS				SUPPLIES			
	1979	1980	1981	1982	1979	1980	1981	1982	1979	1980	1981	1982
PILLS	21966	19519	19156	19825	26088	62789	72539	80230	100,230	207,886	236,773	260,515
CONDOMS	-	-	8569	6414	-	-	6438	9332	-	-	335,659	497,996
FOAM	-	-	1408	1559	-	-	1512	1919	-	-	4,112	5,658
TABLETS	-	82	966	244	-	88	1151	359	-	-	59,248	20,400
FOAM + CONDOMS	-	-	188	153	-	-	188	92	-	-	-	-
TOTAL	21,966	19,601	30287**	28207	26088	62877	81828	91923				

* UNITS = PILLS 1 CYCLE; CONDOM = 1 CONDOM = 1 CONDOM ; FOAM : 1 CAN TABLET = 1 TABLET

SUPPLIES GIVEN TO FOAM AND CONDOM USERS ARE LISTED SEPARATELY UNDER FOAM AND CONDOM

** INCLUDES 12 ACCEPTORS OF UNSPECIFIED " OTHER " METHODS.

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3. Nigeria: "Community Based Distribution Project"

Project Summary

The Community-based Distribution Project in Oyo State, Nigeria is coordinated through the University College Hospital (UCH), Department of Obstetrics and Gynecology, under the direction of Professor O. A. Ladipo. Project activities began in the original project area in March of 1980. In December of 1982, the project was expanded into four other regions of Oyo State in collaboration with the State Health Council.

Based in the Akinyele North Local Government Area, the original project utilized mostly illiterate male and female volunteers to deliver low-cost family health care and family planning services to rural communities. The program has trained 165 village volunteers in the areas surrounding eight maternities or health centers which serve a population of approximately 85,000 persons.

The volunteer workers were chosen by local village leaders and were trained in basic health care (including oral rehydration therapy, maternal/child care, and family planning). Training activities were conducted over a six-month period during the first year of the project. Since that time, two refresher training courses have been held at six-month intervals. These have reinforced the concepts learned during the original course.

A pre-program survey was carried out to provide baseline data. Ongoing evaluation of day-to-day activities is also performed. A pictorial service record form was devised on which the CBD workers mark each treatment of a minor illness, birth attended, family planning acceptance, and home visit. These sheets are turned in monthly for recording and analysis at UCH. In conjunction with this, the amount of drugs distributed is recorded at the maternity centers. This functions as a running check on supplies distributed which can be compared to treatments recorded.

The expanded program, which is now in the early stages of implementation, has been developed as a collaborative effort of the Oyo State Health Council, the Pathfinder Fund, UCH, and CPFH. During the project, the Oyo State Health Council will gradually increase its financial responsibility, moving the project towards self-sufficiency. Within the expanded project, operations research will be conducted on volunteer selection and incentive payment policies.

In each of the four health zones of the expansion area, one Primary Health Center (PHC) has been identified as the training and supervisory center. A Field Director (a senior nursing sister) has been posted to each PHC to supervise the nurse midwives of four maternity centers and the PHC. In turn, 5 nurse midwives will supervise 100 village level health workers. The Field Director provides technical assistance to the village

program and to the nurse midwives, and is in charge of the local training program. A small staff at the State Health Council provides overall administrative support. When the program is underway in all four new areas, a total of 465 voluntary health workers will be providing services.

UCH provides two types of assistance to the State Health Council:

1. Those who have developed and supervised the pilot project in Akinyele--Professor Ladipo of the Department of OB/GYN and the staff of the Family Planning Unit--provide assistance in setting up the program, in training, and in on-going supervision. At the end of the two-year period, UCH will withdraw and the State Health Council will take over all aspects of the project.
2. Studies will be conducted by UCH (in collaboration with the Statistical Unit of the State Health Council) to measure the impact of the program and to identify the most cost-effective and practical form of administration and supervision of the services. Large pre- and post-surveys, as well as mini-studies, will be carried out in the selected areas.

Activities Update: Original Project

The Akinyele service area has seen many changes in the past year, especially with regard to documentation and delivery of services. In November, two members of the CBD staff conducted a mini-study in the Ikereku area of Akinyele concerning supervision and family planning services. Following the study, supervisory visit reporting forms, minimum drug requirement forms for each maternity, monthly meeting report forms, and a revised CBD worker reporting tally sheet were introduced to help ensure more accurate recording of services, of supervision, and to point out problem areas.

The use of contraceptives in the rural areas has increased significantly (see Figure I) while vocal opposition to their use has decreased, especially on the part of males. A November mini-study revealed that male CBD workers can be successful motivators. It found also that some female workers require assistance from supervisors to effectively approach potential female acceptors. Condom and foam tablet acceptance has been surprisingly high, though of the three contraceptives offered oral pills are used by approximately two-thirds of the acceptors.

The timely distribution of drugs continues to be a problem in the project. A system has yet to be achieved which assures that supplies will be distributed as needed rather than supplying the same amount to everyone. A "minimum drug supply

requirement," form that was designed for each maternity center is helping the local supervisors to determine their own resupply needs.

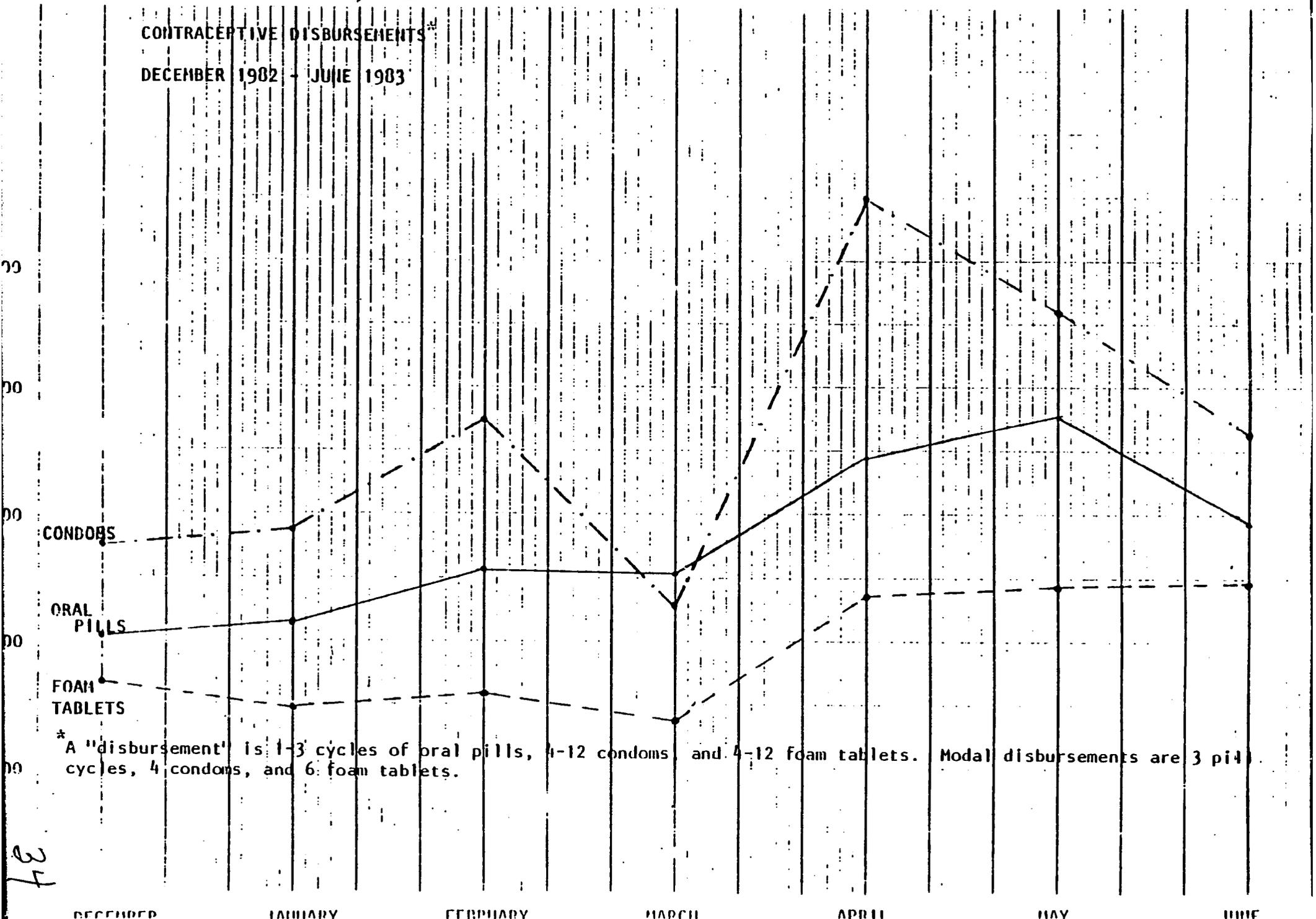
Services, including the treatment of illnesses (malaria is the most common), disbursement of prenatal capsules, deliveries, and health education talks have continued at about the same rate (see Table II). During 1982, a total of 47,547 services were rendered at a cost of \$68,194 (excluding documentation and research costs). The number of services given per month recently by each CBD volunteer averages 22.1 (for the typical group of 20 who work in each maternity area, this would equal 442 treatments or other services per month).

Figure 1

CBD PROJECT - IBADAN, NIGERIA

CONTRACEPTIVE DISBURSEMENTS*

DECEMBER 1982 - JUNE 1983



* A "disbursement" is 1-3 cycles of oral pills, 4-12 condoms and 4-12 foam tablets. Modal disbursements are 3 pill cycles, 4 condoms, and 6 foam tablets.

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Table I

IBADAN CBD PROJECT

a. PROGRAM PERFORMANCE, 1982

<u>SERVICES</u>	<u>Jan-June</u>	<u>July-Dec</u>	<u>Total</u>
TREATMENTS	16,503	17,275	33,778
CONTRACEPTIVE DISBURSEMENTS	2,147	4,245	6,392
PRENATAL PILL DISBURSEMENTS	1,051	1,000*	2,051*
DELIVERIES	275	300*	575*
HEALTH TALKS	2,351	2,400*	4,751*

ALL SERVICES:			47,547

* ESTIMATES

Program Cost (1982): \$68,194
 Cost per service: \$1.43

b. Average Number of Services Provided Per Month by CBD Workers
 January-May, 1983

	Total Monthly Average	Number of CBD Workers	Average Per CBD Worker/Mo.
Treatment of common illnesses	2,504	164	15.3
Antenatal care	169	164	1.0
Childbirth	50	103*	0.5
Family planning	872	164	5.3
TOTAL	3,595	164	22.1

* TBA's only.

A most significant change in the Akinyele project has been the establishment of self-help projects. In lieu of paying a travel reimbursement to each worker every month, the annual budgeted amount is loaned to each group of CBD workers to be used in establishing a community workers' project. After submitting a detailed proposal to UCH supervisory staff, each area will begin either a farming or a poultry project. All earnings will be divided equally among the workers, allowing the project to be self-sufficient and truly community based. The small client fees will be used for purchasing drugs when the project is no longer funded by external sources.

Activities Update: Expansion Areas

Many activities have already taken place in the expansion of the project to the other four health zones. Following a decision by the Oyo State Ministry of Health as to which Local Government areas were to be included, Primary Health Centers and surrounding maternity centers were identified. Personnel to be trained were chosen at the levels of nurse midwives, CHAs and wardmaids. The evaluation director, Prof. O. Ayeni, began village documentation surveys to obtain population estimates and carried out KAP Baseline Surveys using locally trained interviewers. Village heads have been included in decision making, especially in the selection of CBD workers in each catchment area.

The Training of Trainers program for the nurse-midwives was thorough and positively evaluated. The subsequent training of wardmaids became a cooperative effort of the State Health Council, UCH, and the area coordinators and was localized in each zone's primary health care centers. The training of the CBD workers, also localized, has been redesigned in a phased format. The first training period of three weeks focuses on treatments and delivery care, the second phase includes family planning and oral rehydration, and a third phase addresses simple first aid.

Each of the zones has progressed to a different degree. Oyo South, the first implementation area, by the end of June completed the training of two groups of CBD workers (the first phase) who have been enthusiastically received in their villages, thanks to the involvement of village leaders. Irewole East, in Oshun zone, has been the second focus of activities where the training of wardmaids has been completed, and the selection of workers has begun. A few problems arose concerning population estimates and Local Government Areas to be included because of political loyalties, but these were resolved within the SHC itself. Training of the Volunteer Workers was expected to begin by August, 1983.

The Ife/Ijesha zone was divided into two separate zones following a political decision by the SHC. Each area was assigned a coordinator. The Ijesha zone's documentation was expected to be completed by the beginning of August, while that of Ife was not to begin until September. Plans for wardmaid

selection had begun. Their training is scheduled for the end of August.

Village documentation and sample enumeration studies have been carried out in all areas except Ife. These have proved extremely valuable in providing population estimates, and an accurate mapping of the villages and hamlets, which, in turn, have allowed appropriate catchment areas to be drawn around the health centers. Unexpectedly, two of the areas showed significantly less population than anticipated, increasing the planned density of CBD workers. The KAP Baseline Survey was also completed in all areas except Ife.

For decision making and better coordination between the two governing bodies, two different committees were organized: (a) Coordination Committee, made up of the four SHC area coordinators, the SHC Project Coordinator, an SHC administrator, the UCH Deputy Director, and the UCH administrative officer -- this group will meet bi-weekly to deal with problems that come from the field; (b) Administrative Committee -- senior persons from both the SCH, Ministry of Health, and from the UCH/CBD staff -- this is to insure that state policies are being followed along with proposal guidelines, meeting weekly or as needed for immediate decision-making.

Principle Findings

Some of the more important findings are outlined below:

1. As demonstrated by the pre-survey, the families of the project area practiced almost no modern family planning (2% ever use), knew very little about it, and had no access to family planning services.
2. Postpartum sexual abstinence is universally practiced, typically for two to three years in the rural communities. Most (but not all) use of modern family planning is as a substitution for abstinence; as such, it has a very strong taboo attached to it. Open and cross-sex (male/female) communication about family planning is very difficult. Thus, it is important to have both male and female community agents introduce and promote modern contraceptives in these rural areas.
3. Over 10,000 disbursements (one to three month supplies) of modern contraceptives have been made by the voluntary health workers and TBAs since the initiation of community-based services over two years ago. Most acceptors have used oral contraceptives, though use of condoms and foam tablets is growing (currently 33% of acceptors).
4. Much has been learned about supervision. It is suggested that CBD projects limit the number of community agents

to be supervised to no more than 20 at each health center; train auxiliary staff at the health centers (ward maids) to be additional supervisors; maintain the same nursing staff over time (normally, a change takes place every two years or so); develop written assessment/supervision forms to be used on a routine basis; provide either vehicles or travel allowances for supervision visits to the villages.

5. The distribution and re-supply of drugs and contraceptives is a major program element. The initial use of imported medicines proved impossible to continue due to the project's being out of supplies for unacceptable periods of time. It has been found that the local purchase of almost all items is possible at a reasonable cost. Nursing staff, however, were unfamiliar with a system of differential resupply -- giving each field worker what he needs, when he needs it. The ingrained tradition is to give everybody the same thing at standard intervals. The project has developed a recording system that indicates differential use and appropriate resupply.
6. The development of a mechanism to record the activities of the fieldworkers, most of whom are illiterate, has been a notable achievement. A pictograph-based sheet, turned in once a month, has been developed. It is simple, usable by illiterates, records the type of service and the type of patient. A series of mini-studies has assisted in the evaluation and consequent improvement of this "tally sheet".
7. The project has been very well received by the community and the state government. Thus, a request for assistance in expanding the project was made, and this expansion is now in progress. This will facilitate the testing of certain key elements of the CBD program: type of fieldworker, use of ward maids for family planning education, centralized full-time supervision, and the effectiveness of volunteers not receiving small monthly emoluments.
8. Illiterate villagers have been taught to effectively diagnose and treat a few common illnesses. Use of pictographs for instruction and labels help ensure correct dispersement of treatments. Nevertheless, indications are that literate fieldworkers are more effective in community education.
9. Villagers willingly pay small fees (30-80 U.S./cents) for CBD services. However, it is the belief of the political party in power that medical services should be free. Thus, future services will be provided without charge.

10. This is a large CBD program (165 community agents). It requires full-time administration, with full-time personnel for financial and logistical activities. It cannot be adequately administered by people who have other jobs and are given the management and supervision of the CBD program in addition.

Research and evaluation activities in the original project include the collection of pre- and post-survey data and routine service statistics. Mini-surveys of service users and providers were conducted as a means of quickly answering specific questions about program performance.

The original operations research design was to investigate various intensities of supervision, different fees for services, and the differential impact of community agents based at the health center versus those in hamlets some distance away. This was to be carried out by assigning various combinations of the different program elements to each health center. However, this design could not be adhered to. The population served was three to four times larger than anticipated, requiring a much larger service delivery system. Because of the proximity of the centers to each other, the utilization of the same supervisory personnel throughout, and the tremendous difficulties encountered in implementing the services it was not possible to have carefully controlled variations and a similar program was introduced at all of the centers. However, because of unplanned variations which have occurred, and the evolution of others through a trial-and-error procedure, quite a bit has been learned as shown above.

In the expanded project, survey, mini-survey and service statistics data will continue to be relied upon to monitor and evaluate activities. In addition, an experiment has been designed which will allow for the testing of several key program variables. The service package will be systematically varied in each of the four new (separate) health zones of the project. The effects of monetary incentives paid to fieldworkers, the level of supervisory personnel, and the type of fieldworker (TBA, male volunteer, female volunteer) will be examined. The results should provide a useful basis for health planners in Oyo State to expand the CBD program throughout the state, as the government has indicated that it wishes to do.

4. Sri Lanka: "Operational Research in Social Marketing of Contraceptives"

Project Summary

The Center has assisted the Family Planning Association of Sri Lanka (FPASL) in a three-year project designed to improve the commercial marketing of condoms and pills. This project supported a commercial sales research project of the FPASL during a period when market conditions were changing rapidly and long-term funding for the program was in question.

In the original project design, Sri Lanka was divided into 10 districts. In all 10 districts, FPA Marketing Officers and other staff carried out promotional and educational activities, and village-level projects. The FPA also carried out all advertising. Only the distribution system varied. Five districts were assigned to the experimental (commission agent) system managed directly by the FPA. Five districts continued the system which has been in operation since the beginning of the project in 1973. Under the new commission agent system, the FPA assumed responsibility for the distribution of contraceptives; appointed a marketing officer (FPA staff member) in each of the 5 experimental districts; and selected commission agents (wholesale commercial outlets) in each district to distribute contraceptives to retail outlets.

In the control area (Principal Agent System), which operated in 5 districts, the FPA supplies contraceptives to one commercial agent in Colombo. This principal agent then supplies contraceptives as well as a large line of other products to wholesale distributors in each of the 5 districts. This wholesale distributor in turn supplies contraceptives to retail outlets in the district. FPA staff are not involved in this chain of distribution.

The design for the comparison of condom sales remains the same as the original, but the sales program for oral contraceptives has been changed. In 1980, the FPA took over nationwide distribution for all oral contraceptives for its marketing officers and through a part-time Medical Representative added to the FPA staff. In addition, during the past year, the FPA has introduced several new products, and has begun development of several new strategies for strengthening the program and for linking it more closely to community based activities.

Activities Update

The project was completed as scheduled March 31, 1983. During the last year the FPA added two new oral contraceptives to its product line including one low-dose pill, and several new condoms. New sales outlets were opened and sales of contraceptives, while slightly lower in 1982 than 1981, were recovering from the low point in late 1981 following price

increases. The FPA solved some of the problems encountered in recruiting and keeping good marketing officers by establishing a new systems of commissions and allowances and by adding one extra marketing officer.

As a member of the Working Group on Contraceptive Distribution, the FPA is also playing an important role in the development of an improved national distribution system for contraceptives. This is a standing interagency committee, chaired by Mr. Thissa Devendra, Secretary, Colombo Group of Hospitals and Family Health, Ministry of Health, and including representatives of the Family Health Bureau, and the Evaluation Unit of the MOH, the Census Bureau, the Family Planning Association of Sri Lanka, Community Development Services, Population Services International, USAID/Colombo, and UNFPA.

The Working Group is currently reviewing contraceptive distribution in Sri Lanka - focused on pills, condoms, foam and injectable contraceptives. The purpose of this review is to assist the Government of Sri Lanka in developing a long-term (3-5 year) plan which will permit the principal family planning programs to improve the effectiveness of pill, condom, foam and injectable contraceptive distribution efforts in an appropriate, complementary, and coordinated way.

The FPA is exploring a number of new project activities. These include some experimental village-level programs in integrated health and family planning which would rely upon community level workers. The FPA is exploring these activities and developing a proposal for submission to the Center and to AID.

Principal Findings

As market conditions changed in Sri Lanka, the FPA has developed and maintained its own distribution system for contraceptives, and has improved its cost recovery for operating expenses. Because the social marketing program of the FPA has been dependent on free contraceptive commodities--as all contraceptive social marketing programs have been--and there is no long-term assurance of such support, FPA officials have developed a viable in-house distribution system and have sought to cover their operating costs, while exploring options for improving distribution.

In addition to developing a commission agent system for distributing contraceptives through existing retail outlets, the FPA has experimented with a variety of village level programs and other innovative sales schemes. A variety of village level development programs, strengthened by the recently decentralized FPA structure have provided opportunities for small scale distribution in rural communities. In another rural scheme, the FPA has adapted the sales approach used by hawkers of traditional medicines and other products in village markets.

The principal findings may be summarized as follows:

1. The FPA has demonstrated the feasibility of establishing a contraceptive delivery system under its own management, and has developed a practical record system for monitoring this program. This was particularly important during the changing market conditions following removal of import restrictions in 1977. Though the principal agents for oral contraceptives withdrew, the FPA was able to continue nationwide sales of pills without interruptions.
2. Sales of both pills and condoms in the project increased through late 1981. There was a small decline in sales in late 1981 and early 1982, attributed to price increases, an increase in sterilization and some sales of low priced products by other suppliers. The FPA is participating in a national review of contraceptive distribution in Sri Lanka, to set up a more comprehensive monitoring system to help analyze needs and problems in distribution.
3. The comparison of condom sales between the principal agent system and the commission agent system has not produced major differences. The FPA (commission agent) system has been successful in opening (and reopening) outlets in rural areas, but these outlets do not account for substantial sales. The FPA has been able to recover a larger proportion of its operating costs through the commission agent system. A third alternative, direct distribution in a district by the marketing offices, is being tried out in the Galle/Matara District.
4. One of the major difficulties of establishing a separate sales network for contraceptives--particularly under the changing market conditions of the last five years--is the recruitment and maintenance of a competent sales force. The FPA experienced personnel turnover and vacancies in its sales force, which it has reduced by developing a system of compensation--commissions and allowances--which is more competitive with private sector practices.

5. Tanzania: "Maasai Health Services Project"

Project Summary

The Center for Population and Family Health began providing technical assistance to the Maasai Health Services Project of the Synod in Arusha Region, Evangelical Lutheran Church of Tanzania, in April 1982. The Maasai Health Services (MHS) Project is focused upon improving the primary health care services available to pastoral and agricultural Maasai in seven distinct rural areas of Arusha Region. In May 1981, the program began to train Village Health Workers (VHW), retrain existing dispensary staff and MCH Aides, and make MCH and birth spacing activities community based. The project also plans to train traditional birth attendants in basic maternal child health and birth spacing services.

CPFH technical and financial assistance is directed at strengthening the training and supervision component, adding an evaluation component to the project, and improving the delivery system through operations research (OR) studies. The MHS project has close ties with the Ministry of Health (MOH), especially the regional office encompassing the project. This project provides timely information on particular approaches and strategies that are, or that could be, utilized by the national PHC plan.

CPFH assistance has been divided into two phases. During Phase I (April 1, 1982 - November 30, 1982), detailed implementation plans were completed, project staff recruited, training procedures and materials developed, a short course for trainers was carried out and evaluation and OR activities planned. In addition, project training and services were initiated in the pilot area of Engasmet.

On the basis of experience in the pilot area, the project has been divided into two groups, pastoral semi-nomadic areas, and settled mixed agricultural areas. Local studies and observations during the pilot phase of the project indicate that the population in the settled areas has better access to dispensaries and other modern health facilities and greater interest in birth spacing. In the division of the project, the settled areas will receive more emphasis on referral networks and on birth spacing education and services.

Activities Update

During the past year two seminars were held for training central project staff to be trainers of VHWs in the seven project areas. Upon completion of the first seminar central project staff conducted a training program in the first project site, Engasmet Village. This was undertaken in phases during the period August to December 1982. The training involved two-week formal training sessions in Engasmet village followed by four

weeks of supervised practical experience. Originally 15 trainees were selected from two villages. An indication of the difficulty of working in this area is that one village in the Engasmet area lost its water supply and dispersed. Subsequently, seven villagers began training, four successfully completed the training, and are now providing services to the 1200 people in Engasmet village. In February 1983, meetings with villages in four additional project areas were initiated. These meetings will result in the selection and training of approximately 70 trainees, which will be undertaken during the coming year.

The experience of training VHWs in the first area reaffirmed the need to conduct refresher courses for the dispensary staff. In addition to reviewing their curative service responsibilities these dispensary staff will be trained to conduct community based outreach into the surrounding community. They will also be instructed about the support/supervisory roles they will be required to play in relation to VHWs. The VHW curriculum was revised to reflect what was learned during training in Engasmet. A new module was created for family planning activities in settled agricultural areas.

The future will see a more decentralized approach to training. Dispensary workers will be trained as trainers of village health workers. Training of villagers will begin in July 1983 in four different project areas with half of the training being done by local dispensary workers. During 1984 it is hoped that selected dispensary staff will be able to conduct training programs alone, with supervision/support from central project staff.

Principal Findings

This project provides the Ministry of Health with an intensive pilot effort to meet rural health needs in a very traditional population. Through close collaboration with the Regional Health Office, the project emphasizes current issues and priorities of the government's program to extend health services to rural communities, and lessons learned in this project should prove valuable for the national program, and for other health providers in traditional areas.

In the Maasai setting, village acceptance of a training program and trainee selection demands repeated meetings and considerable staff time. Meetings are best conducted when central staff act as facilitators to direct villagers into discussions about the selection of VHWs. The following has to be stressed during these meetings: It is their village program; support is the responsibility of the village; and both men and women should be selected as VHWs. A realistic appraisal is that about half of the trainees will have to drop out before completion.

Staff found that training should take place in the trainees own village rather than at a central location. Trainees have other responsibilities to perform daily and would be unable to spend weeks away from their homes. In addition, training is more relevant when done in their own environment where they will have immediate opportunities to apply the skills learned.

The major difficulties encountered during training were that 3 of 7 trainees dropped out due to other responsibilities and one entire village could send no trainees. Absenteeism is a problem because of the trainees' other responsibilities in their villages. The project clearly demonstrates that, while it is possible to train VHWs from this semi-nomadic population, trainers need to be flexible and realize many will drop out and others will be absent periodically.

One of the training modules is a session on clinical/diagnostic skills. The four weeks allotted for this module was too long. In addition, some of the VHWs left this module perceiving themselves to be "clinical doctors" rather than village health workers responsible for preventing diseases. It may also be significant that this was the only module conducted at a formal training center away from the trainees village. In the future, staff will shorten this module and have two of the four next scheduled training sessions conducted locally during this module.

As mentioned above, community support of the VHWs needs to be stressed during initial village meetings. This support needs to be spelled out during these meetings and trainers need to be catalysts during and after training to ensure that a support system is designed and implemented by the village. Support can be provided in the form of money, food, assisting in daily work, livestock, or privileges.

A baseline survey was conducted during training at the pilot village of Engasmet. Principle findings from the survey are summarized below:

1. The first finding was that by using local people as interviewers people are open and give information freely. Information from mothers concerning past pregnancies is difficult to obtain and a better set of questions needs to be designed. Age determination is a problem as birthdates are not known and age in terms of years is not traditionally important.

2. The survey found that less than 20% of the women use ORT to treat diarrhea and only 3% knew how to prepare it correctly. VHWs will return to all mothers periodically to ensure that they know how to prepare and administer ORT.

3. The survey also found that 66% of the married women had a 1/2 liter beer bottle to measure ORT solutions and 100% of the housing compounds have a beer bottle. Sugar is available in only

26% of the houses. This has led staff to look for alternative ORT solutions. Diarrhea is perceived by the village elders as the biggest health problem.

4. Another finding is that presently the Maasai have areas that are permanent locations for them but they may move temporarily to find pastures for livestock. This movement is usually by only a few men and women to care for livestock; the rest of the housing unit stays in the permanent area.

5. The baseline survey found very high levels of mortality and fertility, which suggest crude birth and death rates over 60/1000 and an infant mortality rate in excess of 300. These figures are based on a survey in a population of only 1200 people and are subject to all the problems of recall error, small area fluctuation and birth interval phasing. The high levels reported do indicate that local residents are willing to discuss mortality and fertility with project personnel.

6. The survey identified some health practices that are harmful. For example, 20% of the women said they use veterinary medicine to treat eye diseases.

A post evaluation was done of the training of VHWs. This showed that the VHWs know the theory well but some are not performing as hoped. The teaching and prevention aspect is known in theory but not always practiced in the field. During training and supervision this will be continually stressed.

Dispensary Workers are proving to be a vital link in this program. They are often long established members of the community and know the people of the village and their problems. In order to capitalize on their participation they need refresher courses, training in preventive medicine, family planning, and supervision, and training in being trainers of VHWs.

Findings in the pilot area of Engasmet provide the basis for future activities in the other pastoral areas, and for the modified design for the more urbanized areas of the project. Project staff share findings with the regional health office and are collaborating in regional training programs for community health workers.

B. Support to Family Health Projects

1. Haiti: "Operations Research on Low-Cost Delivery of MCH/FP Services"

Project Summary

The Center for Population and Family Health has assisted in the development, implementation and evaluation of two distinct operations research projects in Haiti. The first, Operations Research in Household Distribution (HHDP), sought to make family planning services available in rural areas using a community-based, household delivery approach. This project was conducted during the period January 1978 through December 1981. The second project, Operations Research on Low-Cost Delivery of Maternal and Child Health and Family Planning, was approved for implementation in October 1981 and is presently ongoing. This project builds upon the experience of the HHDP in that proven community-based delivery schemes are utilized. At present, community volunteers in an existing government malaria treatment program are utilized as vehicles for MCH and family planning service delivery. Plans have been made to utilize workers in nutrition surveillance in a similar fashion.

Both projects are summarized below:

Household Distribution Project (1978 - 1981)

The Division d'Hygiene Familiale (DHF) of the Ministry of Health in Haiti was established in 1971 and given the responsibility for operating or coordinating all MCH and FP activities in Haiti. Their programs actually began in 1973 and were initially hospital- or clinic-based and thus had limited outreach and effectiveness. The Haitian Fertility Survey, carried out in 1977, showed, however, that there is widespread interest in family planning. In response to this, the DHF began a household distribution project (HHDP) in collaboration with the CPFH in January 1978. The principle purpose was to determine whether a non-clinical delivery system could provide FP services in rural areas. Eighteen community members were recruited and trained in three districts (Fond Parisien, St. Marc and Leogane) of rural Haiti to distribute OCs and condoms on a door-to-door basis to a population of 30,000.

Three rounds of household distribution of contraceptives ended in Fond Parisien in January 1979, in St. Marc in August 1979, and in Leogane in March 1980. Results showed large numbers of acceptors and high rates of contraceptive prevalence after each distribution and significant declines in pregnancy prevalence, especially in the two areas where the distribution was the most liberal. Detailed analysis of the project data showed no apparent interference with traditional prolonged durations of breastfeeding, since postpartum women, following the

distributors' instructions, did not begin use of oral contraceptives until they were over one year postpartum. Studies were also done on contraceptive continuation rates, effectiveness in preventing pregnancy and cost-effectiveness of the project.

Operations Research Project (1981 - Present)

Dr. James Allman, who had served as the resident advisor for the Haitian Fertility Survey, became the CPFH representative in July of 1979 and participated in the monitoring and evaluation of the HHDP, as well as providing other technical assistance to the DHF. Given the success of the HHD project, Dr. Allman and DHF officials, in cooperation with USAID and CPFH staff, drew up the current operations research project, entitled "Operations Research on Low-Cost Delivery of Maternal and Child Health and Family Planning in Rural Haiti." This proposal was approved in October 1981, and was to provide for initiation and evaluation of various non-clinic-based approaches to service delivery in the South Region.

The initial phase of the project was designed to institutionalize DHF capacity to carry out operations research activities by providing opportunities for personnel, both in Port-au-Prince and the South Region, to participate in the selection and design of projects. These were to be based on the results of a series of workshops and field studies. Preliminary discussions led to focusing initial efforts at analyzing and evaluating the FP/MCH services provided by the community-based activities and health centers in Arniquet, a model program of the South Regional Health Bureau (SRHB). The first DHF-SRHB operations research workshop was held in May 1982 to launch the idea that paramedical distribution of FP/MCH could be done very successfully. The HHDP findings (presented by the DHF staff responsible for the project) clearly illustrated this point. Participants made specific recommendations concerning the nature of an in-depth study designed to analyze the Arniquet program.

Activities Update

The analysis of the Arniquet program was carried out during July - September 1982. The study included careful examination of the knowledge, attitudes and field practices of community health workers, as well as supervisory and training personnel. In addition, a survey was designed and prepared to elicit public knowledge, attitudes and practices concerning health and family planning from participants in nutrition rally posts in October 1982.

A second OR workshop was held September 29, 1982 with key personnel from the South Region, from DHF, CPFH and AID Washington. At this meeting, reviews were conducted of the health status and demographic data from the South Region, and the

service norms of the DSPP and DHF. Problems were specified concerning the adequacy of training, supervision, and logistic support as well as the actual coverage of services. The participants identified priority MCH/FP problems on which to focus OR activities, and identified some feasible approaches to solving these problems.

As a result of this second workshop, two specific OR projects were designed. The first of these, entitled "Integrating Family Planning into Nutrition Surveillance Rally Points" is to be carried out in Les Cayes. The second, "Integrating Family Planning into the SNEM Community Volunteer Program" is to be carried out in Miragoane. These projects are briefly described below:

a. Family Planning in the Nutrition Surveillance Rally Points.

The Nutrition Surveillance Program (NSP) has trained 26 Agents de Sante to carry out nutrition surveillance activities through rally points and rallies are now held monthly at seven sites in Les Cayes district, including Arniquet, Cabailon and St. Louis. In Arniquet a number of Collaborateurs Volontaires (CVs) have been trained in previous programs and are participating in the rallies. The OR proposed here will be undertaken in those districts by retraining these community workers in family planning and community development skills, providing for reliable supply and supervision systems, and evaluating the effectiveness and costs of service delivery. A series of problems including funding and transportation, have improved the effectiveness of the nutrition surveillance activities in the South Region. To date, the Medical Director of the region has postponed implementation of the family planning activities. For that reason, consideration is being given to introducing family planning activities in the nutrition surveillance program in another part of Haiti.

b. Family Planning in the Service National des Endemies Majeures (SNEM) Community Volunteer Program:

The SNEM is focusing on the treatment of malaria, a serious problem at altitudes less than 500 meters throughout Haiti. The primary approach is based on the training of CVs who are supplied and supervised by Agents de Campagne (ACs). To date over 6000 CVs have been trained and are in place; a number of ACs have also been trained and are at work.

It is readily apparent that if the SNEM network could be used for distribution of contraceptives significant progress could be made toward meeting the family planning needs of the roughly 50 percent of Haitian

women (and men) who want no more children. The intent of this OR activity is to test the feasibility of this approach by addressing the following operations research questions:

- How best can new (even though simple) services be added to those provided by an existing, extensive, but rather weak system?
- What are feasible and effective ways to motivate and/or provide incentives to CVs in such programs? Certificates? Performance bonuses? Prices?
- What are the characteristics of the CVs who do perform well? How can such individuals be identified and recruited?
- How can a program like SNEM's, which is essentially vertical, be linked effectively to the DSPP health service for back-up?
- Is it possible to use such a vertical program to extend significantly the delivery of FP services or ORT?
- Is it possible to convert a program based on volunteers of uncertain motivation who play a passive role to one with active outreach to achieve more extensive population coverage?

A series of working groups were held in Port-au-Prince, Miragoane, and Les Cayes to plan and coordinate the DHF/SNEM contraceptive distribution using SNEM community volunteers between October 1982 and March 1983. The active participation of the DHF Director and Assistant Director, the SNEM Director and his south region staff, the Director of the South Regional Health Bureau, and the Director of the Miragoane Health District, as well as the OR project team should assure that problems in conducting the project will be given prompt attention and project successes will lead to replication.

Initially over 30 SNEM cadres, 6 Miragoane health agents, and others interested in community development were trained in Miragoane by the OR project staff and 3 nurses from the Miragoane district. Subsequently a total of 109 CVs were trained in May - June 1983. Door-to-door distribution of OCs and condoms got underway in May. Results will be evaluated using a short form similar to the one used in the Household Distribution project. Initial results obtained by the end of August 1983 showed that over 50% of couples in some neighborhoods accepted condoms or pills in the first round by the SNEM.

In Haiti, the CPFH has also provided technical assistance in project design, survey research methodology, computer

acquisition, and information systems development and management. A project utilizing TBAs to deliver family planning services, supported by the Office of Population, was approved in May 1983. Training of the TBAs in family planning promotion was carried out toward the end of this report period and family planning services are now being offered at the project center. A PRICOR supported project to study the impact of TBAs on pregnancy outcome will begin in July 1983. CPFH was instrumental in developing these projects and will continue to provide technical assistance during implementation and evaluation.

In addition to these activities, CPFH has been asked to provide technical assistance to a proposed program of family planning activities in Cite Simon, an urban slum area. Dr. Carlo Boulos, a former Minister of Health, has over the past several years developed a health care program serving a population of 106,000 in this urban slum district just north of Port-au-Prince. Briefly, the Cite Simone Project includes two large health centers, a 50-bed hospital, a 70-bed nutritional rehabilitation unit side-by-side with a vocational training program for the mothers of the malnourished children, a center for teenagers, and other community development activities. Support for this array of activities comes from a variety of sources, private and public, including USAID/Haiti. Recently a proposal has been developed for an OR project to test various ways of utilizing TBAs in the delivery of family planning services in the four districts of Cite Simone. The Cite Simone group feel that they could benefit from CPFH technical assistance in overall OR project planning, in re-training TBAs and CVs, in planning baseline and other evaluation activities and in processing and analyzing the data.

Summary of Principal Findings

The main purpose of the HHD project was to test the hypothesis that improved availability would increase contraceptive acceptance and use. The initial impact was impressive: use of oral contraceptives and foam increased from less than three percent in the first area (Fond Parisien) to almost 10 percent; from less than 2 percent in the second area (St. Marc) to over 15 percent; and from less than 1 percent in the third area (Leogane) to over 50 percent at the final distribution and survey interview, eight months after the first round of visits. Acceptance rates for condoms by both women and their partners was also high. Acceptance and use of modern contraception appeared to be directly related to the liberalness of distribution. As the program went on and rural people welcomed the distributors, the field staff became more comfortable with the idea of a broadscale distribution of contraceptives by non-medical personnel. All methods were supplied more generously in St. Marc and Leogane compared with Fond Parisien. There were substantial declines in pregnancy prevalence in St. Marc and Leogane, the spontaneous formation of family planning acceptor groups occurred. From field observation it was apparent that these greatly facilitated the process of

resupply and likely contributed to sustained interest in contraceptive practice. Many of these groups meet on a regular basis and make the whole idea of family planning practice much more visible and acceptable in these communities. Encouraged by this, DHF staff has subsequently promoted the idea in all three areas.

In a more general way, the project has clearly demonstrated that household distribution of contraceptives is a viable and effective strategy for use in rural settings in Haiti. In part because of this project, the climate towards the acceptability of family planning services has changed among many health professionals in Haiti. The much broader scale of activities scheduled to occur with the current project provides an opportunity for further testing and demonstrating the efficiency of the community-based approach for delivering family planning and basic health services.

2. Sudan: "Community Based Family Health Project"

Project Summary

The Sudan Community-Based Family Health Project is funded by a grant from the AID Population Office Research Division to the Faculty of Medicine of the University of Khartoum. The project is administered by the chairman of the Department of Community Medicine, Dr. Abdel Rahman El Tom, in close collaboration with the Ministry of Health. The goal of the project is to test a model of maternal and child health and family planning service delivery utilizing government trained village midwives as service providers.

The Community-Based Family Health Project began operation in April 1980. Originally budgeted for three years and now extended through August 1983, this project has trained a total of 103 midwives and 50 rural health workers in family planning, oral rehydration therapy, nutritional education, and immunization. Service delivery began in March 1981, with three rounds of household canvassing by the midwives. Village women are being provided oral contraceptives and oral rehydration salts through the project. Pre-test and post-test surveys of village women have been performed and are being analysed. Considerable efforts have also been devoted to planning a lower cost replication of the project in a neighboring area to the north of the current project site. It is expected that this expansion will be initiated in September, 1983.

Activities Update

Over the last year, the activities of project staff have centered on processing and analyzing data from the project's past research activities and developing a proposal for expanding service delivery activities. Project data from a number of sources are currently being analyzed and incorporated into several papers on various aspects of the project. An overview paper, "Introducing Integrated Health Services in a Traditional Society: The Sudan Community Based Family Health Project", is currently being prepared for presentation at the annual APHA meeting to be held in November, 1983. In addition, papers on training, supervision, and family planning activities in the project are being prepared for publication.

Extensive planning has been underway for the proposed expansion, now in the final stages of approval. The expansion, to be undertaken in 50 villages just north of the original project area, is to build on the experiences gained in the original project. The changes being planned are with a view to increasing effectiveness and enhancing further replicability by greatly reducing service costs and by having all training and supervision of midwives and local health workers be performed by regular, Ministry of Health personnel (i.e. without direct supervision by the project's own staff). In the new project, training will be decentralized and rural-based, the midwives being trained by nearby medical assistants who themselves will have been trained by their district-level supervisors and regional training personnel.

In the expansion area, IUDs and contraceptive foaming tablets will be provided in addition to oral contraceptives. Immunization will be routinized through the establishment of rural immunization centers, each equipped with a refrigerator. Growth monitoring will be incorporated into the nutrition component. In addition to lowering costs through a decentralized approach to training, further reductions will be achieved by not providing regular incentive payments to health workers and thus treating the program as an improvement of the existing structure rather than as a distinct "project."

Planning for the new program has entailed a series of visits to the proposed target area to meet with various officials. A draft baseline evaluation survey form has also been developed, and a complete enumeration of the target area population has been completed.

Haytham Matthews, the Center's resident advisor to the Sudan Community Based Family Health Project, has been working with Project Director Dr. A.R. El Tom and other members of the project staff since April 6, 1980. During this reporting period, he has played an important role in coordinating several research activities including the post-test survey, base-line data processing, cost analysis, mini-survey and a community health worker study. Mr. Matthews has also assisted the Project

Director in a variety of budgeting and financial planning activities, as well as in maintaining communications with the local AID office in Khartoum. He has now returned to the U.S. but will continue to analyze data and prepare papers through December, 1983.

In-country technical assistance will be provided over the next year through the combined efforts of Dr. Abdul Aziz Farah, a Sudanese demographer who has been working as a consultant to the project since March, 1983 and Willa Pressman, a recent MPH graduate who has been assigned to the project as an international health intern of the Center. Backstopping from the Center will continue to be provided principally by Dr. Joe Wray and Dr. Don Lauro.

Principal Findings

Summarized below is basic information on numbers of acceptors, users, dropouts, etc. by month for the first fourteen months of family planning service delivery. The data were compiled from the records of 93 midwives who are defined as "active in family planning" by virtue of having had one or more acceptors during the 14-month period. Six east bank midwives and one west bank midwife had no acceptors during the period. For three of these, the reason is known to relate to their advanced age. The data for three west bank midwives known to have family planning acceptors were not available at the time of analysis and hence are excluded.

In recording the dispensing of oral contraceptive cycles, no more than one cycle was recorded as having been dispensed to an individual user for a calendar month. When the user received two cycles in a calendar month, one cycle was recorded as having been dispensed to cover the following month. Subsequent supplies for such a user would be recorded in the month following supply receipt. It should be noted that the data presented herein are derived from an experimental recording system used by village midwives, the large majority of whom are non-literate. Errors can safely be assumed to occur mostly on the side of under-reporting.

A few explanatory notes on the following tables are presented here. In Table 1 women who did not return for a resupply to cover the following month are recorded as "Dropouts". Also on Table 1 "Turn-over Rate" means the percent of active users (including new acceptors) at the end of a month who were not active users at the beginning of the month [i.e. New Acceptors - (Cycles Distributed - Dropouts)]. In Table 2, "Potential Users" are new acceptors who could have been program users for the specified length of time within the study period. Thus potential users for the five month continuation rate calculation were all new program acceptors who began at least five months before April 1982, i.e., who began in December 1981 or before. Since the period of observation does not extend

TABLE 1

Month	Cycles Distributed	New Acceptors* Dropouts		Average No. of Active Users		Program User Turnover Rate
				Number	No. Per Midwife Active in F.P.	
3/81	155	155 (-)	7	151.5	1.6	N.A.
4/81	684	536 (-)	76	646	6.9	88%
5/81	830	220 (2)	176	742	8.0	34%
6/81	777	122 (1)	108	723	7.8	18%
7/81	770	101 (-)	69	735.5	7.9	14%
8/81	785	80 (4)	90	740	8.0	12%
9/81	827	120 (12)	94	780	8.4	18%
10/81	848	108 (7)	76	810	8.7	15%
11/81	867	91 (4)	100	817	8.8	12%
12/81	826	56 (3)	163	744.5	8.0	9%
1/82	818	143 (12)	53	791.5	8.5	20%
2/82	819	51 (3)	54	792	8.5	7%
3/82	812	37 (10)	102	761	8.2	7%
4/82	759	41 (8)	Unknown	Unknown	Unknown	Unknown
				Median: 765.5	Median: 8.0	Median: 14.5%

*Includes small numbers of re-acceptors (in parentheses)

TABLE 2

Oral Contraceptives Months of Use	Actual Users	Potential Users	Continuation Rate	Rate of Decline of Continuation Rate
2	1,681	1,820	92%	—
3	1,285	1,783	72%	22%
4	1,086	1,732	63%	13%
5	883	1,589	56%	11%
6	783	1,533	51%	8%
7	659	1,442	46%	11%
8	545	1,334	41%	11%
9	456	1,214	38%	8%
10	361	1,134	32%	15%
11	310	1,033	30%	6%
12	245	911	27%	10%
13	158	691	23%	15%
14	30	155	19%	15%

beyond April 1982, women who began using the pill in February could not have been observed for a 5-month period -- and hence were not included in the 5-month continuation rate calculation.

Numbers of new acceptors were highest during the household visitation period, March through May 1981, particularly during the peak of the family planning service introduction period in April 1981. Active users per midwife rose steadily to peak at 8.8 in November 1981. Initially high turnover rates appeared to decline progressively over the 14-month period possibly reflecting the emergence of a more stable clientele. Overall, these data reveal the importance of individual contact through a household visit approach such as was undertaken during the project's service implementation phases. Having the midwives conduct periodic rounds of household visiting could be a way of improving on these family planning service utilization rates, although the costs of implementing such an approach could be high. More emphasis could also be put on structuring the integration of birth-spacing messages into the midwives' routine antenatal and, especially, postnatal service protocols.

The largest decline in the continuation rate, in both relative and absolute terms, occurred between two and three months of use. This is a consequence of the large number of acceptors during the household visitation phase who, after receiving an initial 2-month supply of oral contraceptives, failed to return for a resupply.

The overall median length of use, based on the continuation rates above, was six months. Excluding new acceptors who failed to return for a resupply, the median was 9 months (1 or 2 cycles was given as an initial supply; cycles were dispensed one at a time thereafter). Such relatively short continuation rates suggest that many acceptors used the pill to lengthen the space between pregnancies. This is consistent with the approach adopted by the project.

The most striking impacts of the Sudan Community-Based Family Health Project have been in its diarrheal care intervention. Among the preliminary results of the post-intervention evaluation survey, performed eight months after the introduction of the diarrheal care service, is that as many as 78% of currently or previously married women with a child under five reported having a bowl marked at the one-liter level, by the midwife, for use in preparing oral rehydration solution. Three quarters (76%) of women, one of whose children under five had had diarrhea within two months of the survey, reported having given him oral rehydration solution (made from the UNICEF ORS packets supplied by the midwives). Almost half (47%) of respondents with a child under five or who were pregnant at the time of the survey also indicated that the midwife had spoken to them about nutrition. However, because the nature of nutrition education varied depending on local conditions, its impact was not well measured.

The project staff are now looking forward to the proposed expansion as an opportunity to apply the lessons of past experience in a new context. At the same time, services will continue in the original project area, and new interventions strategies will be tried there, in selected villages, before being put to the test in the new project. In sum, the Sudan Community-Based Family Health Project is entering what could potentially be its most constructive phase -- that of transforming its valuable experience into the development of an improved, replicable model for integrated maternal and child health and family planning service delivery in rural Sudan.

3. Thailand

Project Summary

CPFH technical assistance to Thailand consists of a resident advisor assigned to the Research and Evaluation Unit of the National Family Planning Program (NFPP). The NFPP encompasses (a) all government family planning services, (b) university-based activities in support of family planning, and (c) the major private sector family planning service providers. The resident CPFH staff member is involved in the design, implementation, analysis and reporting of selected research projects in each of the three groups of NFPP service providers. In response to the priorities of the NFPP and the local AID mission, the CPFH advisor also participates in program evaluation activities by helping develop an internal computerized service statistics system and commodities management system, as well as a general purpose management information system.

Activities Update

In the one year period between July 1982 and June 1983 the type of research activities with CPFH input are exemplified by the following:

(a) Analysis and report writing of the multi-media project which tested which of four combinations of IEC media was most cost-effective in increasing contraceptive aptitude.

(b) Analysis and report writing of a study to determine which factors were causing a continuous decline in acceptance of mobile vasectomy services.

(c) Analysis and report writing of a study of two models of integrated population and development in the private sector.

(d) Correlation analysis of Ministry of Public Health (MOPH) outlet distribution and inputs with the resulting outputs of acceptance and couple year protection.

(e) Completion of the final report of the ASEAN population project national survey. Among other findings, this study revealed dramatic new patterns of MCH behavior among Thai rural women. For example, traditional birth attendants play a much less important role in maternity care than was previously assumed.

(f) Completion of the final report for the drug cooperatives/family planning project. This project was a pilot operations research effort to demonstrate the feasibility of

collecting a fee for the pill and to use this local income to obtain re-supply and supplement a village drug fund. Based on the success of this project, the concept is being expanded from 22 villages to 150 villages in Thailand's poor northeast region.

(g) Produced a paper reviewing the 10 years of continuation rate analysis in Thailand for the pill, IUD, injectable and subdermal implants. These data may represent one of the richest collections existent of multi-method, time series data on continuation and termination of modern contraception.

Principal Findings

Given the breadth of the studies undertaken, it is necessary to be selective in the presentation of principal findings. In the following, brief summaries are presented from three of the studies during the past year.

1. Comparative Study of the Impact of Combinations of Media on Family Planning Knowledge Levels of Thai Rural Married and Single Men and Women.

The simplest design which would yield useful results involves the application of four "treatments" to randomly selected villages. The media channels which formed the four treatments include radio spots, posters, leaflets, a mobile family planning promotion unit, and village health volunteers and communicators. These inputs were arranged in the following way to yield four combinations:

<u>Treatment</u>	<u># of Villages</u>	<u>Sample Size</u>	<u>MEDIA CHANNEL</u>				<u>VHV/VCH</u>	<u>Cor</u>
			<u>Radio Spots</u>	<u>Posters</u>	<u>Pamphlets Mobile Unit</u>			
A	6	120	X	X	X	X		
B	4	80	X	X				
C	6	120	X		X			
D	6	120	X				X	
TOTAL	22	440						

Perhaps the most direct evidence of the impact of the project's media inputs is the survey question which asks respondents whether they have ever heard FP messages through various media. Table 1 presents the response to this item by media channel, marital status, test and control area and round.

In sum, only posters and the mobile unit recorded a significant impression in the minds of test area respondents; both marital groups report equally impressive increases. The control areas show no marked increase in visibility for any media channel. (See Table 1).

Multiple Classification Analysis was applied to assess which combination of media increases knowledge most after controlling for associated variables such as education, economic status, use of birth control and marital status. Treatment A (all inputs) increased adjusted knowledge scores by the highest amount, followed by treatments B, C, D, and the control.

Marital status, education and treatment explain a significant amount of variance in the dependent variable. According to the "Beta" values from the Round 2 MCA table statistics, marital status is most influential in explaining score differences (Beta = .24) followed by education (Beta = .22) and treatment (Beta = .17). All five variables together explain about 14% of the total variance (r^2).

Last, we compared the achievement of the model inputs with the costs that were required to produce the improvements. Table 2 shows the different budget requirements for the inputs. The Mobile Unit is by far the most expensive single input as costs include a per diem for the unit driver and health educator and gasoline. On the other hand, the use of the promotional services of the VEVs and VHCs required virtually no expense.

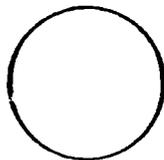
The percent increase in the adjusted scores for Treatment D is not significant and for this reason ought to be excluded from the cost comparison. Treatment A, while showing the most impressive knowledge gains is the most costly Treatment per percentage point increase at B207 or just under US\$10.00 per point. Treatment C is considerably less expensive than Treatment A, however, its relatively low score increase (19%) makes it a doubtful choice as the optimum model. Finally we are left with Model B which combines strong knowledge increases (unadjusted score increases are significant for both single and married respondents) with the least expensive cost per point increase of the three models.

In the final analysis, the program manager must consider other factors such as irreversible investments in IEC mobile units and equipment as well as the versatility of the various media for long term program use. As NFPP priorities change, for example, how easy will it be to modify favored IEC media to conform to the new priorities? Nevertheless, for this limited study in 22 villages, it would appear that contraceptive awareness "priming" with colorful promotional posters, followed up by more detailed radio spots is an effective and inexpensive way of increasing simple knowledge of which contraceptives are available and how they are used among both pre-marital and married men and women.

Table 1

% of Respondents Citing Channels as a Source of Family Planning Information by
Marital Status, Area and Round

	Friends & Relatives		Prov. Health Staff		Paper-T.V.		Radio		Poster		Pamphlet		Mobile		VHV-VHC	
	R-1	R-2	R-1	R-2	R-1	R-2	R-1	R-2	R-1	R-2	R-1	R-2	R-1	R-2	R-1	R-2
<u>Single Men and Women</u>																
Test	49.	29.	28.	34.	6.	6.	26.	12.	2.	24.	6.	9.	4.	40.	2.	3.
Control	72.	42.	32.	30.	12.	14.	30.	24.	8.	10.	6.	6.	3.	7.	2.	1.
<u>Married Men and Women</u>																
Test	44.	34.	50.	51.	6.	2.	34.	8.	4.	16.	4.	9.	4.	30.	6.	4.
Control	61.	45.	56.	60.	8.	8.	28.	26.	5.	7.	4.	4.	3.	4.	21.	1.



Indicates large and probably significant increase over rounds.

II. Continuation Rate Surveys in Thailand: Results and Policy Indications, 1971-1981.

Toward a Model for Continuation Rate Analysis

Ideally, researchers would like to know all the factors that determine variation in continuation rates (CR). In this way it would be possible to predict exactly what level CRs would be in different settings and circumstances. In fact, one can rarely explain much more than 10% of the variance with the variables investigated in follow-up surveys.* It is recalled that in the Thai 1981 follow-up survey, which examined pill use, only 7% of the variance in the CR could be accounted for by the survey data.

While it is possible that random effects might account for a large part of the variance in CRs it is still worthwhile to consider a general model through which to examine CRs. From the experience of the many CR surveys done in Thailand it is possible to categorize the tested variables in the following manner. Some of the more likely predictors are included for illustration.

Selected Predictors of Continuation

<u>A. Socio-demographic</u>	<u>B. Method-related</u>	<u>C. Program-related</u>
@ Age	@ Experience of side effects	@ Sex of service provider
@ Number of living children	@ Theoretical effectiveness	@ Proximity of service provider
@ Desire for more children	@ Ease of termination	@ Cost of resupply
@ Education		@ Ability to obtain resupply outside clinic hours

Table 3 summarizes results from the most recent Thai CR surveys for these predictors.

*See James Phillips, "Continued Use of Contraception Among Philippine Family Planning Acceptors: A Multivariate Analysis," Studies in Family Planning 9, no. 7, (July 1978).

Table 2

Cost Analysis of Model Inputs

	<u>Models</u>			
	<u>A</u>	<u>B</u>	<u>C</u>	<u>D</u>
Mobile Unit	₱ 2,700	-	₱ 2,250	-
Posters	₱ 4,860	₱ 2,700	-	-
Radio	₱ 100	₱ 100	₱ 100	₱ 100
VHV/VHC services	free	-	-	free
Total	₱ 7,660	₱ 2,800	₱ 2,250	₱ 100
% Increase in Knowledge Score	37	27	19	13
Cost per Percentage	₱ 207	₱ 103	₱ 118	₱ 7

Table 3

12-Month Net Cumulative Continuation Rates

	<u>Pill ('81)</u>	<u>IUD ('77)</u>	<u>Injectable ('78)</u>	<u>Norplant ('82)</u>
A. <u>Socio-demographic Predictors</u>				
1. <u>Age</u>				
Under 20	.53	.72	.44	
20 - 24	.58	.71	.56	
25 - 29	.63	.73	.64	
30 - 34	.74	.78	.60	
35 - 39	.76	.80	.72	
Over 40	.66	.95	.46	
2. <u>Number of Living Children</u>				
0 - 4	.60	n.a.	.57	
3 - 4	.67	n.a.	.68	
5 - 6	5+ {	n.a.	.58	
7 +		n.a.	.52	
3. <u>Desire More Children</u>				
Yes	.58	.76	.54	
No	.67	.74	.63	
4. <u>Education</u>				
None	.82 ¹	*	n.a.	
1 - 4 yrs.	.72 ¹	.76	n.a.	
5 - 7 yrs.	.74 ¹	.69	n.a.	
8 -10 yrs.	*	.70	n.a.	
11 + yrs.	*	.75	n.a.	
5. <u>Previous Use of Contraception</u>				
Yes, ever	.70	n.a.	.57	
No, never	.61	n.a.	.61	
B. <u>Method-related Predictors</u>				
1. <u>Experienced Side Effects</u>				
Yes	.58	.67	n.a.	
No	.75	.96	n.a.	
2. <u>Theoretical Effectiveness</u>				
Highest	-	-	.59	
High	.64	-	-	
Less High	-	.75	-	
3. <u>Ease of Termination</u>				
Easy (Pill)	.64	-	-	-
Moderate (Injectable)	-	-	.59	-
Difficult (IUD)	-	.75	-	-
More difficult (Norplant)	-	-	-	.79

Pill('81) IUD('77) Injectable('78) Norplant('82)

C. Program-related Predictors

1. Cost of Resupply

free	.67	n.a.	n.a.
1 - 5 Baht	.65	n.a.	n.a.
6 - 8 Baht	.52	n.a.	n.a.
15 Baht	n.a.	n.a.	.59

2. Can obtain Resupply After Clinic Hours

Yes	.65	n.a.	n.a.
No	.64	n.a.	n.a.

3. Sex of Service Provider & Proximity

Midwife (female & proximal)	n.a.	.84	.69 ²
M.D. (male & distant)	n.a.	.74	.51 ²

n.a. Data not available; category not applicable.

* Number of cases is less than 30.

(1) Data from 1977 survey

(2) From 1976 Comparative Study.

Unfortunately, the eleven predictors shown above were not combined in a single data set and cannot be analyzed in a composite model to assess relative influence on CRs. However, as a guide for future follow-up efforts, the following conclusions can be drawn.

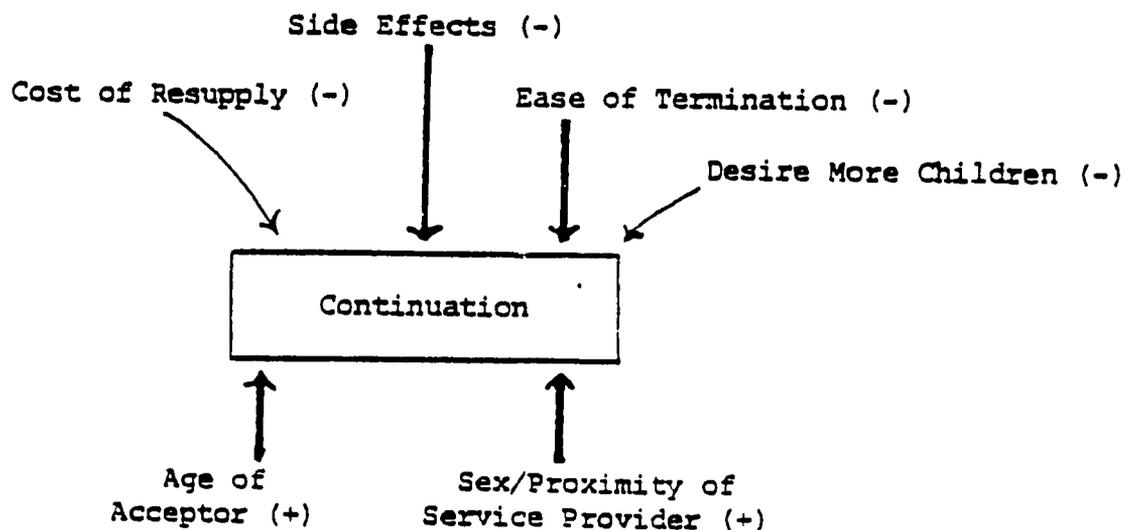
(1) Age of client at the time of acceptance, education, experience of side effects, sex and proximity of service provider have the largest independent effects on CR and may prove to be the strongest predictors of CRs in a multi-method analysis. Ease of termination and theoretical effectiveness also appear to be related to differences in CRs across methods, although the direction of this relationship is unclear.

(2) Some of these variables, such as education and theoretical effectiveness may derive their association with CRs indirectly through more important predictors. Therefore, these variables could potentially be omitted from a predictive model.

(3) Cost of resupply, desire for more children and/or parity seem to have predictive value and should be included in any model but may be of secondary importance.

(4) Previous use of contraception and ability to obtain resupply after clinic hours have no apparent association with CRs and, again, could probably be omitted from the model.

From the eleven selected predictors we are left with four strong predictors and two weak predictors as depicted below:



III. Analysis of the Input-Output Relationship for Studying the Efficiency of the Thai Family Planning Program

Measuring the efficiency of national programs like the Thai Family Planning Program provides a rational basis for effective planning and management. To this end the techniques of simple correlation analysis were applied to measure relationships between program inputs and outputs at the national level. The purpose is not to obtain definite findings but to assess general association between these variables. In Table 4, the results are shown on a preliminary basis. This table shows that measures of CYP are positively and significantly related to the presence of district hospital, size of the hospital and to health personnel especially with regard to doctors and nurses. The positive relationship is especially true regarding female sterilization and other permanent and semi-permanent methods.

In general, the multivariate analysis presented in Table 4 a positive association between program inputs and outputs controlling for relevant environmental factors. The weighted number of health personnel is found to be significantly related to program outputs in terms of gross new acceptance and the program outcome in terms of the CYP relative to the eligible population. This program input of health personnel clearly affects performance in sterilization services. Other temporary methods of contraception are less associated with the number and quality of personnel. The acceptance of pill, for example, may not entirely depend on the quantity and quality of personnel as much as in the case of sterilization and IUD insertion. An increase in personnel will lead to broader acceptance of family planning and finally to greater CYP and fewer births.

The negative relationship between socio-economic conditions and program acceptance is another important issue. Program acceptance is found to be higher in the more remote areas. This generally contradicts conventional knowledge that socio-economic factors should influence contraceptive usage. Our findings are contrary to this line of thought and generate a number of reconsiderations of the contraceptive behavior among current generations. First of all, these findings reflect the government's effort and success in promoting family planning, primarily among the remote population. Secondly, unfavorable socio-economic conditions may act as an accelerator of and a motive for family planning. This is especially true when government services are inexpensive and accessible. The gap between higher and lower socio-economic status in terms of the prevalence rate has also been narrowing. It is therefore not surprising that the government program is accepted largely by the remote population.

Table 4

Multivariate Correlates of Family Planning Acceptance
in Thailand

Dependent Variable	<u>Independent Variables</u>					R ²
	<u>Constant</u>	<u>Weighted Health Personnel</u>	<u>Socio-Economic Status</u>	<u>Distance to Hospital</u>	<u>Distant</u>	
1. Total New Acceptors	296.45	198.68	245.82	160.36	149.01	.37***
2. New Acceptors	.04	.001	-.029	.018	.026*	.10*
3. IUD Acceptance Rate	-.013	.002*	-.005	-.0009	.003	.14**
4. 1-Year Pill Acceptance Rate	.081	-.006	-.018	.01	.008	.07
5. 3 Year Pill Acceptance Rate	7.937	-.512	-1.079	.945	.953	.05
6. Female Sterilization Rate	-.022	.004***	.003	-.006	.006*	.23***
7. Vasectomy Acceptance Rate	-.004	.002	.009	.002	.131	.10*
8. PCTDMPA	-.001	.001	-.009	.014	.003	.12*
9. CYPNA	106.2	21.906**	24.287	-20.332	28.976	.18***
10. CYEMWRA	-16.979	4.845**	-2.046	-1.24	11.376**	.22***

*** P .001

** P .01

* P .05

C. Other Technical Assistance and Project Development Activities

1. Burundi

Project development activities in Burundi, initiated in early 1982, have culminated in a broad proposal for operations research and technical assistance in the development of a community-based family planning/primary health care project. As this will be the first such project to be initiated in Burundi, finalization of the proposal and implementation plan has been a lengthy process. In June 1983, however, a detailed proposal received tentative approval of the Government of Burundi and a funding mechanism was agreed upon among AID/Washington, USAID/Burundi and the CPFH. A CPFH resident advisor, Ms. Therese McGinn, was sent to Burundi to assist in the implementation of project activities, anticipated around September 1, 1983. Recruitment is underway for a public health physician who will also be posted in Burundi.

The objectives of the project are as follows:

1. To develop and demonstrate in the selected medical sector (Gitega) a coordinated approach to family health utilizing community health agents to provide education to the population in a limited number of health interventions, including family planning.
2. To develop a program of health education, including family planning, that is effective and acceptable to the Government of Burundi.
3. To provide a conceptual framework and practical training in community medicine for medical and nursing students.
4. To evaluate the acceptability, the implementation, and the cost-effectiveness of the different components of the program (including education as well as service delivery).
5. To provide the Ministry of Health with continuing information on all aspects of the project in order to contribute to the development in Burundi of effective and low-cost community health services.

2. Senegal

At the request of USAID/Senegal, Ms. Susan Nalder made two visits to Senegal during this reporting period in order to provide technical assistance in design of the MCH training program of the Bakel Project. This project features a village

based primary health care system and a parasitic disease surveillance program. Twenty-three villages in an area of 40,000 population along the Senegal River in the Bakel department participate in the project, which is directed by a physician and nurse supervisor. The purpose of CPFH technical assistance was to design MCH training modules for project personnel covering the areas of prenatal and well child health supervision, identification of high risk mothers, oral rehydration and malaria prophylaxis.

During the course of these visits, discussions were held with USAID staff concerning possibilities for operations research activities in Senegal. These discussions will be followed up in 1983 - 1984.

3. Togo

Since late 1981, CPFH staff have invested substantial time and effort in project development activities in Togo. Two proposals (one involving the promotion and delivery of MCH/FP services through women's income generating groups, and the other an operations research collaboration with the Togolese Ministry of Health) were developed and submitted to Togolese authorities for consideration. Despite several site visits during this reporting period designed to finalize both projects, neither proposal has received necessary approval of the Togolese government. Although appropriate authorities were informed and involved throughout proposal development, it appears that the government is reluctant to allow projects with explicit family planning components to proceed. Center staff continue negotiations and are optimistic that one or both projects may be implemented during 1983 - 1984.

D. Information Dissemination and Training Activities

1. Library/Information Program

The activities of the CPFH Library/Information Program have continued to center on contribution to and retrieval from POPLINE. POPLINE-related statistics are displayed in Appendix A, which illustrates the increase in library functioning since the commencement of the Cooperative Agreement in 1979.

To briefly summarize these data, the Library collection has expanded (since July 1, 1979) to approximately 3000 books (+50%), 182 journal subscriptions (+82%), and over 17,300 documents (+104%). Requests for computer searches have increased from 315 in Fiscal Year 1978/1979 to 2709 during Fiscal Year 1982/1983 (+760%). More than 83% of searches performed during the last fiscal year were provided to requestors from developing countries or those affiliated with international organizations. The geographical distribution of literature searches completed during the course of the Cooperative Agreement is displayed in Appendix B. Of particular interest is the significant increase in the number of searches performed for African requestors (from 8.1% or 26 searches in 1979/1980 to 24.5% or 664 searches in 1982/83) and the decrease in the number of searches performed for North American requestors (from 49.7% or 159 searches in 1979/1980 to 13.9% or 377 searches provided in 1982/1983).

Requests for interlibrary loan of documents in the CPFH collection have increased from 62 items in FY 1978/1979 to 338 in the last fiscal year; an increase of 445%. Photocopies of approximately 1641 CPFH documents were distributed in the last year. Relative to other POPLINE contributors, a joint study undertaken by the Johns Hopkins Population Information Program and CPFH revealed that CPFH performed 2059 computer searches or 26.9% of the 7656 searches performed by all POPLINE contributors during 1982; and provided 1668 documents or 41.5% of POPLINE documents requested.

The Library also continues to produce a monthly acquisitions list (now distributed to over 105 requestors internationally) and 160 copies of a bimonthly listing of journal tables of contents (POP/FAM Alert). In all over 93,705 photocopy exposures were distributed including copies of documents and issues of the Acquisitions List and the Alert.

POPLINE is now directly accessible by over 1900 libraries and search centers within the United States and Canada and through 13 regional nodes in Europe, Latin America, Asia, and Africa. The primary North American users of the database appear to be hospitals, government and international agencies, research, academic, and medical institutions, and health-related commercial concerns.

To further promote use of the database, POPLINE contributors have exhibited the database for audiences interested in population studies. During this fiscal year, exhibits took place at the Annual Meetings of the Population Association of America, the Medical Library Association, and the National Council for International Health. This strategy has proven to be relatively successful in that usage has increased from approximately 30 hours per month in 1979 to an average of 173 hours per month in the beginning of 1983. Exhibits have also encouraged subscription by several population institutions, e.g., Family Health International, the Carolina Population Center, the Population Crisis Committee, the Johns Hopkins School of Hygiene and Public Health, University of Michigan Population Studies Center, the Population Reference Bureau, and the Population Research Center at the University of Texas in Austin.

The exhibit conducted at the National Council for International Health meeting also afforded the opportunity to publicize the availability of the new CPFH Working Paper Series. Audience reaction to this series was so positive that plans are underway to reorganize the POPLINE exhibit booth display so as to add an area for display of the Working Paper Series and other CPFH publications.

Other library activities include work on the production of a second edition of the POPLINE Thesaurus which is tentatively scheduled for publication in mid-1984. Work has recently been completed on a POPLINE Thesaurus Geographical Supplement which is to be published during the summer or fall of 1983. This publication represents an effort by the POPLINE Thesaurus Working Group but has also been adopted for inclusion in the POPIN Population Multilingual Thesaurus as well. Population Index and CPFH have been appointed to membership in the United Nations Population Information Network (POPIN) Thesaurus Management Group and act within this context to represent the interests of the POPLINE Thesaurus Working Group. Additionally, the CPFH Head Librarian has been a member of the POPIN Working Group on the Inventory and Evaluation of Training Materials which, in late 1982, published the Inventory and Evaluation of Training Materials for Population Information Services. She was also recently appointed as a member of the POPIN Working Group on the Establishment and Strengthening of National Population Information Services. Collaboration with POPIN has been beneficial for POPLINE, affording the opportunity to ensure and increase compatibility and uniformity of population descriptors and to advertise the availability of POPLINE information dissemination services.

The Library staff continues to participate in APLIC activities; particularly those sponsored by the APLIC International Activities Committee. At the Annual Conference in April 1983, Susan Pasquariella was elected APLIC president. Her principal involvement will be the coordination of an automated

International Population Information Reference Centre; a joint POPIN/APLIC project for the 1984 World Population Conference in Mexico.

There have been several library staff additions over the course of the past year. In January 1983, a new Abstract Editor (Carole Oshinsky) was hired to concentrate on POPLINE input. Carole is paid on a piecework basis. In March, a new Bibliographic Assistant, Hallie Robbins, joined the staff and, because of her fluency in French, was instrumental in providing library assistance to June Training Course Francophone students. The Library has also employed two high school students (paid by the New York City Board of Education) to assist in AID contract-related activities, such as filling document delivery requests and performing other clerical functions. These students work approximately 20-25 hours per week.

2. Project Documentation

Increased attention was given during 1982 - 1983 to recording and disseminating project experiences in a variety of media. The maturity of several projects and the associated increase in data flow has provided Center staff with the resources necessary to produce significant additions to the literature available in family planning/primary care service delivery and operations research. These activities will continue and intensify during 1983 - 1984. Two former resident advisors, James Foreit and M. Haytham Matthews, have been retained on a part-time basis to prepare reports and papers from Brazil and Sudan projects, respectively. Other staff will devote increased percentages of time to data analysis and writing.

The CPFH Working Paper Series continues to provide a mechanism for the dissemination of data and observations related to CPFH projects in advance of formal presentation or publication. A complete listing of the Working Paper Series, as well as an up-to-date list of publications and conference presentations, appears in Appendix C.

3. International Staff Retreat/Operations Research Workshop

As has become customary, CPFH field staff joined New York staff in late May 1983 for three days of discussions, presentations and working sessions. This year's Retreat agenda included: 1) Workgroup meetings to discuss anticipated recommendations from the recently concluded evaluation; 2) Presentations by field staff members on specific observations/experiences arising from their work abroad; 3) Discussions and planning meetings to expand activities which disseminate project findings; and 4) Planning for the Operations Research Workshop held in conjunction with the Retreat. The Retreat served to enhance the flow of information among staff,

especially with regard to experiences that are common among all projects and which deserve additional attention as the staff focusses on project documentation.

The final day of the Retreat was devoted to a workshop designed to review the present state of operations research in health and family planning, and to suggest potential future directions for those engaged in the discipline. The Workshop, sponsored by the Center, was attended by representatives from the key organizations involved in OR. These included: Johns Hopkins University, the Population Council, PRICOR, the Research Division of AID's Office of Population, Tulane University and the Association for Voluntary Sterilization. The workshop provided an opportunity for people from these organizations to discuss what has been learned and what needs to be done in operations research. While individual researchers and institutions varied in their emphasis, a surprising degree of agreement was evident. A number of ways to pursue the discussions begun at this Workshop are under consideration.

Bringing together representatives of a number of organizations involved in OR on FP/PHC programs was a first step in establishing links and communication between the different research groups. All agreed that such informal exchange is truly important and needs to be continued. A complete report of the Workshop has been prepared and is presently circulating among participants. This report will be published as a Working Paper of the Center.

4. June Training Course

During June 1 - 24, 1983 the fourth annual training course in design, management and evaluation of family planning, nutrition and primary care programs was held in New York. With primary funding from the Africa Bureau of AID, this year's course concentrated on the needs of participants from 11 African countries. Three participants were from projects supported in part by Cooperative Agreement funds, and an additional nine were from countries in which Cooperative Agreement projects are ongoing. Thus, the Course continues to provide a mechanism for disseminating information from and reinforcing lessons learned within CPFH project activities.

A major new direction for this established training program is the conduct of in-country follow-up workshops. These workshops are attended by wide audiences of program managers, trainers and researchers and are held in conjunction with in-country institutions. The first workshop was held in December 1982 in Sudan in cooperation with the Department of Community Medicine, University of Khartoum. The Department's experiences in the Community Based Family Health Project were drawn upon to form part of the course curriculum. The second such workshop is planned for Kenya in August, 1983.

Appendix A

CPFH LIBRARY STATISTICS

1978 - 1983

<u>Library Activity</u>	<u>FY 78/79</u>	<u>FY '79/80</u>	<u>FY '80/81</u>	<u>FY '81/82</u>	<u>FY '82/83</u>
<u>ACQUISITIONS:</u>					
Monographs Received	308	302	228	301	325
Number of Journal Issues & Newsletters Received	1131	1173	1468	1451	1442
<u>INDEXING & ABSTRACTING:*</u>					
Number of Documents Sent for Keying	1192	1512	1731	1808	1832
<u>REFERENCE:</u>					
Computer Searches	315	320	909	1616	2709
<u>CIRCULATION:</u>					
Interlibrary Loans Processed*	62	163	322	386	338

*Abstracting Program was begun in November 1978. All documents sent for keying thereafter were indexed and abstracted

**Reporting system for recording interlibrary loans changed in 1980

Appendix B

1979 - 1983

COMPUTER SEARCHES PROVIDED

GEOGRAPHICAL DISTRIBUTION OF REQUESTERS

Region	FY '79-80	FY '80-81	FY '81-82	FY '82-83
U.S./North America *	159 (49.7%)	253 (27.8%)	272 (16.8%)	377 (13.9%)
EUROPE	3 (0.9%)	21 (2.3%)	104 (6.4%)	82 (3.0%)
ASIA	57 (17.8%)	274 (30.1%)	686 (42.5%)	1153 (42.6%)
AFRICA	26 (8.1%)	150 (16.5%)	297 (18.4%)	664 (24.5%)
LATIN AMERICA	23 (7.2%)	78 (8.6%)	127 (7.9%)	288 (10.6%)
INTERNATIONAL AGENCIES	52 (16.3%)	133 (14.6%)	130 (8.0%)	145 (5.4%)
<u>TOTAL</u>	<u>320</u> (100%)	<u>909</u> (100%)	<u>1616</u> (100%)	<u>2709</u> (100%)

*includes searches performed for CPPH staff, students, visitors and other North American requesters exclusive of those affiliated with international agencies.

Appendix C

CPFH Publications 1979-1983

BRAZIL

Articles and Books

1979

Gorosh, M., J.A. Ross, W. Rodrigues and J.M. Arruda. "Brazil: community-based distribution in Rio Grande do Norte." International Family Planning Perspectives 5(4):150-159, Dec. 1979.

1981

Rodrigues, W., J.M. Arruda, L. Morris and M. Gorosh. Pesquisa sobre Saude Materno-Infantil e Planejamento Familiar, Piaui 1979. Rio de Janeiro, Sociedade Civil Bem-Estar Familiar no Brasil (BEMFAM), Mar. 1981.

In Press

Foreit, J.R., et al. "A cost-effectiveness comparison of service delivery systems and geographic areas in Piaui State, Brazil." In Evaluating Population Programs: International Experience with Cost-Benefit and Cost-Effectiveness Analysis, I. Sirageldin and D. Salkever (eds.) Boston: M.I.T. Press (in press)

Conference Papers

1979

Rodrigues, W., J.M. Arruda and M. Gorosh. "New directions for CBD (community-based distribution) in Brazil." Paper presented at American Public Health Association Annual Meeting, New York, Nov. 1979.

1980

Rodrigues, W., L. Morris, J.M. Arruda, M. Gorosh, J.E. Anderson and H.C. Chen. "The importance of conducting a baseline survey prior to the initiation of community-based distribution program." Paper presented at American Public Health Association Annual Meeting, Detroit, Oct. 1980.

1981

Rodrigues, W., J.M. Arruda, L. Morris, B. Janowitz, M. Gorosh and H. Goldberg. "Contraceptive practice and CBD program impact in northeast Brazil." Paper presented at American Public Health Association Annual Meeting, Los Angeles, Nov. 1981.

1982

Morris, L., B. Janowitz, W. Rodrigues, J.M. Arruda, M. Gorosh, H. Goldberg and D. Covington. "Contraceptive practice and community based distribution program impact in northeast Brazil." Paper presented at the American Public Health Association Annual Meeting, Montreal, Nov. 1982.

Rodrigues, W., J.M. Arruda, C. Valladao, M. Thome, E. Reis, J. Foreit and M. Gorosh. "Piaui State Brazil: Growth of a program for community based distribution of family planning." Paper presented at American Public Health Association Annual Meeting, Montreal, Nov. 1982.

Papers in Progress

Foreit, J.R., Foreit, K.G. and Rodrigues, W. "Improving the cost effectiveness of community based family planning programs by reducing the frequency of routine supervision: An experimental study."

Foreit, K.G., et al. "A multivariate areal analysis of the determinants of family planning programs acceptance in Piaui State, Brazil."

Foreit, K.G. "Performance feedback for family planning workers."

Rodrigues, W., et al. "Piaui physicians, current participation in family planning service delivery and desire for additional training in contraceptive technology."

Rodrigues, W., et al. "The results of the 1982 Piaui follow up survey."

GUATEMALA

Articles and Books

1979

Bertrand, J., M.A. Pineda and R. Santiso G. "Ethnic differences in family planning acceptance in rural Guatemala." Studies in Family Planning 10(8/9):238-245, Aug.-Sept. 1979.

1980

Bertrand, J.T., M.A. Pineda, R. Santiso G. and S. Hearn. "Characteristics of successful distributors in the community-based distribution of contraceptives in Guatemala." Studies in Family Planning 11(9/10):274-285, Sept.-Oct. 1980.

1982

Bertrand, J.T., R. Santiso G., R.J. Cisneros, F. Mascarín and L. Morris. "Family planning communications and contraceptive use in Guatemala, El Salvador, and Panama." Studies in Family Planning 13(6/7):190-199, Jun.-Jul. 1982.

HAITI

Articles and Books

1979

Allman, J. and J. May. "Fertility, mortality, migration and family planning in Haiti." Population Studies 33(3):505-521, Nov. 1979.

Allman J. "Intermediate variables affecting fertility levels in rural Haiti." Washington, D.C.: Battelle Population and Development Policy Program. Working Paper No. 10, 1979.

Allman, J. "Natural fertility and associated intermediate variables in some Arab countries. Washington, D.C.: Battelle Population and Development Policy Program. Working Paper No. 7., 1979.

Allman, J. "Patterns of sexual union formation in rural Haiti. Washington, D.C.: Battelle Population and Development Policy Program. Working Paper No. 12, 1979.

1980

Allman, J. "Sexual unions in rural Haiti." International Journal of Sociology of the Family 10(1):15-39, 1980.

1981

Allman, J. (in collaboration with Institut Haitien de Statistique and Division d'Hygiene Familiale staffs) Enquete Haitienne sur la Fecondite: Rapport Principal. London, World Fertility Survey, 1981.

1982

Allman, J. "Age at Menarche and Fertility in Haiti." Human Organization, Vol. 41, Winter 1982.

Allman, J. "L'Emigration Haitienne vers l'etranger de 1950 a 1980." Conjonction, Revue Franco-Haitienne, No. 157, mars 1982, 65 - 81.

Allman, J. "Etude sur les attitudes concernant la diarrhee." In: Bulltin d'Information Medico-Santaries, Departement de la Sante Publique et de la Population, Port-au-Prince, Haiti. September 1982.

Allman, J. and M.P. Louise. "The health center and the rural community - a case study in evaluation of Arniquet, Haiti." Published in proceedings of the Operations Research Workshop in Les Cayes. September, 1982.

Allman, J. "Fertility and Family Planning in Haiti." Studies in Family Planning 13 (8/9), 1982.

Allman, J. "Haitian migration: Thirty years assessed." Migration Today 10(1):6-12, 1982.

Allman, J. and G.F. Celestin. "Use of family planning in Haiti: A comparison of survey data and service statistics." In The Role of Surveys in the Analysis of Family Planning Programs: Proceedings of a Seminar held in Bogota, Colombia, 28-31 Oct. 1980, A.I. Hermalin and B. Entwisle (eds.) Liege, Belgium: Ordina Editions, published for the International Union for the Scientific Study of Population, 1982, pp. 197-211.

Allman, J. and M. Pierre-Louis. "Practical advice series: gathering information in the community." Diarrhoea Dialogue, No. 9. London: AHRTAG, May 1982.

Bordes, A., J. Allman, A. Verly. "The impact on Breastfeeding and Pregnancy Status of Household Contraceptive Distribution in Rural Haiti." American Journal of Public Health 72 (8), August 1982.

Bordes, A., J. Allman and A. Verly. "Haiti: the experimental rural household distribution project of the Division d'Hygiene Familiale." In Planificacion Familiar en America Latina: Programas Comunitarios y Comerciales, A. Estrada, ed. Washinton, D.C.: Battelle Population and Development Policy Program, 1982.

In Press

Allman, J. "Conjugal union in rural and urban Haiti." Social and Economic Studies (submitted)

Allman, J. "Estimates of Haitian international migration, 1950-1980." Caribbean Review (in press)

Allman, J. and S. Allman. "Women's status and fertility in rural and urban Haiti." International Journal of Sociology of the Family (in press)

Bordes, A., J. Allman, M.P. Louise and A. Verly. "Household contraceptive distribution in rural Haiti, some lessons learned." Studies in Family Planning (in press)

Graitcer, P., J. Allman, M. Gedeon and E. Duckett. "Current breastfeeding and weaning practices in Haiti." Journal of Tropical Pediatrics (in press)

Allman, S. and J. Alman. "Childbearing and the training of traditional birth attendants in rural Haiti." Health Care in Developing Societies: A Reader in Social Science and Medicine (in press).

Conference Papers

Allman, J. "Natural Fertility in North Africa and the Middle East." Paper presented for the Population Association of America Annual Meeting, Denver. April, 1980.

Allman, J. "Estimates of Haitian international migration for the 1950 - 1960 period. Paper presented at the Conference on Caribbean Migration, Florida International University, Miami. August 1980.

Allman, J. and G.F. Glestin. "Use of family planning in Haiti: comparison of survey data and service statistics." Paper presented at the International Union for the Scientific Study of Population Seminar. October 1980.

Allman, J. "Les facteurs qui determinent la fecondite en Haiti." Paper presented at Division d'Hygiene Familiale-Battelle Population and Development Policy Program Seminar on Population and Development, Port-au-Prince, Apr. 1981.

Allman, J. and J. Rohde. "Infant mortality in relation to the level of fertility control practice in developing countries." Paper presented at the International Union for the Scientific Study of Population Conference. Manila. December 1981.

Allman, J., J. Rohde, and J. Wray. "Implementing selective primary health care in developing countries," Paper prepared for IUSSP Seminar, Paris. February - March, 1982.

Papers in Progress

Allman, J. "A household survey of health and illness in rural Haiti."

Allman, J. "Childbearing and breastfeeding in rural Haiti: a household survey."

Allman, J. Population and Society in Haiti.

Allman, J. "Prevalence and cost of illness episodes in rural Haiti."

Allman, J. and J. Rohde. "The use of demographic and epidemiological data in setting primary health care priorities, case studies of Haiti, Indonesia."

Allman, S. and J. Allman. "Attitudes towards menstruation in rural and urban Haiti - implications for the introduction of modern contraceptives."

Bordes, A. "Problems in community-based contraceptive distribution in rural Haiti."

INDONESIA

Articles and Books

Suyono, H., N. Piet, F. Stirling and J.A. Ross. "Family planning attitudes in urban Indonesia: Findings from focus group research." Studies in Family Planning 12(12 pt. 1): 433-442, Dec. 1981.

Conference Papers

Rahardjo, P., H. Suyono, J.A. Ross and N. Piet. "The use of surveys for program guidance in Indonesia." Paper prepared for International Union for the Scientific Study of Population, Committee for the Analysis of Family Planning Programmes Seminar on the Analysis of the WFS Family Planning Module, Genting Highlands, Malaysia, Dec. 1-4, 1981.

KOREA

Articles and Books

Ross, J.A. and S. Madhavan. "A Gompertz model for birth interval analysis: A Korean example." Population Studies 35(3):439-454, Nov. 1981.

MEXICO

Articles and Books

1979

Shedlin, M.G. "Assessment of body concepts and beliefs regarding reproductive physiology." Studies in Family Planning 10(11/12): 393-397, Nov.-Dec. 1979.

1981

Shedlin, M. and P. Hollerbach. "Modern and traditional fertility regulation in a Mexican community: Factors in the process of decision-making." Studies in Family Planning 12(6/7):278-296, Jun.-Jul. 1981.

Shedlin, M.G. "Notes from a field log: Dona Bernarda at work." Medical Anthropology 5(1), 1981. (Special Issue: Midwives and Modernization).

1982

Shedlin, M.G. Anthropology and Family Planning: Culturally Appropriate Intervention in a Mexican Community. Doctoral Dissertation, Columbia University, 1982.

In Press

Correu, S., H. Elkins, S.L. Isaacs, M. Shedlin and J. Wray. "Field supervision of community health and family planning workers in Mexico." Studies in Family Planning, (in press).

Shedlin, M.G. "The traditional practitioner: A resource in the provision of modern health services." History of Medicine in Mexico. Universidad Autonoma de Mexico (in press)

CPFH Working Papers Series

Elkins, H. and L.F. Macias. Component Cost-effectiveness in the Mexican New Strategies Project. New York: Columbia University, Center for Population and Family Health, 1983 (CPFH Working Paper Series, No. 3)

Conference Papers

Shedlin, M.G. "Anthropology and human fertility." Paper prepared for Workshop on the Anthropology of Human Fertility, National Academy of Sciences, Washington, D.C., 1981.

Papers in Progress

Elkins, H., et al. "Attitudes of rural and low-income urban and rural Mexican women toward breastfeeding."

Elkins, H., et al. "Differential use of community health agents and alternative health service providers among rural and low income Mexican families."

Elkins, H., N. Weatherby, T. Lyman-Fenn and J. Wray. "Infant growth, mortality, contraception, breastfeeding and food supplements."

Hollerbach, P. and M. Shedlin. "The impact of method acceptability on unmet need for family planning in Mexico."

Shedlin, M., N. Weatherby, T. Lyman-Fenn and J. Goldzieher. "Method change in the rural Mexican family planning program: Cultural, biological and programmatic considerations."

Shedlin, M., N. Weatherby, T. Lyman-Fenn, K. O'Reilly. "Health and family planning issues on both sides of the U.S. - Mexico border."

NIGERIA

Articles and Books

1981

Weiss, E. and A.A. Udo. "What we have learned about family planning." In Workshop on Population and Economic Development in Nigeria in the Nineteen Eighties: Proceedings of a National Workshop held at the University of Lagos, 12-14 Sept. 1979. New York: United Nations, Department of Technical Co-operation for Development, 1981. TCD/SEM. 81/2, pp. 220-246.

Conference Papers

1981

Weiss, E. and J. Musoke. "The effect of feeding practices on children's health in rural Nigeria." Paper presented at American Public Health Association Annual Meeting, Los Angeles, Nov. 1981.

Weiss, E., G. Udofia and B. Madunagu. "The use of modern family planning in rural Nigeria." Paper presented at American Public Health Association Annual Meeting, Los Angeles, Nov. 1981.

1982

Weiss, E., O.A. Ladipo, G.E. Delano and J. Revson. "Community-based delivery of low-cost family planning and maternal and child health services in rural Nigeria." Paper presented at Workshop on Family Planning and Health Interventions in Community Based Distribution Projects, Charlottesville, Va., Jan. 1982.

1983

Weiss, E. and P. Randall. "Qualitative research as a means of program feedback in the Ibadan (Nigeria) community-based health and family planning project." Paper to be presented at Population Association of America, Psychosocial Workshop Annual Meeting, Pittsburgh, Pa., Apr. 12, 1983.

Papers in Progress

Randall, P. "Selection and training of illiterate traditional birth attendants and voluntary health workers for use in community-based services."

Weiss, E. "Common approaches to MCH/FP operations research projects in the African cultural setting."

Weiss, E., et al. "The measurement of child growth and its role in the planning and evaluation of operations research projects in health and family planning."

Weiss, E. "Reporting of service statistics with non-literate fieldworkers: Experience from Ibadan and elsewhere."

SRI LANKA

Articles and Books

1981

DeSilva, V. and D. Abeywickrema. Survey of Dealers and Potential Dealers of Contraception. Sri Lanka: Family Planning Association of Sri Lanka, Research and Evaluation Division, 1981.

1982

DeSilva, V. and D. Abeywickrema. Mithuri User Survey. Sri Lanka: Family Planning Association of Sri Lanka, Research and Evaluation Division, 1982.

Conference Papers

DeSilva, V., D. Abeywickrema, H. Elkins and W. Van Wie. "A survey of condom users in Sri Lanka." Paper to be presented at American Public Health Association Annual Meeting, Nov. 1983.

SUDAN

CPFH Working Papers Series

El Tom, A.R., M.H. Matthews, D. Lauro, N. Mubarak and S.Wesley. Training Community Midwives: The Sudan Community-Based Family Health Project. New York: Columbia University, Center for Population and Family Health, 1983 (CPFH Working Paper Series, No. 2)

Bennett, T., A.R. El Tom, D. Lauro, D. Maine, M.H. Matthews and M. Varavaidya. Mini-survey in Matrix Format: An Operations Research Tool. New York: Columbia University, Center for Population and Family Health (CPFH Working Paper Series, No. 4)

El Tom, A.A., A.A. Farah, T. Lyman-Fenn, D. Lauro. "Community Acceptance and Individual Acceptors: An Analysis of Family Planning Services." New York: Columbia University, Center for Population and Family Health, 1983 (in press).

Conference Papers and Presentations

El Tom, A.A. "Oral Rehydration Therapy in the Sudan Community Based Family Health Project." Presented at the International Conference on Oral Rehydration Therapy, sponsored by WHO, UNICEF and AID, June 7-9, 1983.

Papers in Press

El Tom, A.R., N. Mubarak, S. Wesley, M.H. Matthews and D. Lauro. "Sudan: Training non-literate midwives in primary health care." (Being reviewed for publication in World Health Forum.)

Papers in Progress

El Tom, A.R., A.A. Farah, T. Lyman-Fenn, D. Lauro. "Contraceptive use and family planning services in the Sudan: an analysis of community, individual and project-related factors."

El Tom, A.R., M.H. Matthews, D. Lauro et al. "Experiences with vertical and lateral supervision in the Sudan CBFH project."

El Tom, A.R., M.H. Matthews, D. Lauro, S. Wesley and N. Mubarak. "Introducing integrated health services in a traditional society: The Sudan Community Based Family Health Project." To be presented at the APHA Annual Meeting, November 1983.

El Tom, A.R., M.H. Matthews, S. Wesley, N. Mubarak, D. Lauro. "Oral rehydration in an integrated rural MCH project in Sudan."

El Tom, A.R., M.H. Matthews et al. "Phasing the introduction of community based MCH services."

El Tom, A.R., S. Wesley, A.A. Farah, M.H. Matthews. "Nutrition education in an integrated rural MCH project in Sudan."

Farah, A.M. "Report on data analysis from baseline and follow-up survey."

Lauro, D., A.A. El Tom, M.H. Matthews, N. Mubarak. "Family planning in an integrated rural MCH project in Sudan."

Matthews, M.H. "Service delivery patterns and program inputs in an integrated rural MCH project in Sudan."

Matthews, M.H., A.A. El Tom. "Cost-effectiveness analysis of an integrated rural health and family planning project in Sudan."

Yusuf, S. and N. Mubarak. "Islam and family planning."

TANZANIA

Papers in Progress

Rowberg, E. "An algorithmic approach to training VHWS in curative medicine."

Rowberg, E. "Birth spacing practice in Masailand."

Rowberg, E. "Village health worker selection in Masai villages."

THAILAND

Articles and Books

1979

Viravaidya, M. and M. Potts. "Involving the community - Thailand." In Birth Control: An International Assessment, M. Potts and P. Bhiwandiwalla (eds.) Baltimore: University Park Press, 1979. pp. 71-91.

Viravaidya, M. "Self reliance and local support of CBD projects: The Thai experience." Concern No. 13:1-2, Mar. 1979.

1981

Narkavonnakit, T. and T. Bennett. "Health consequences of induced abortion in northeast Thailand." Studies in Family Planning 12(2):58-65, Feb. 1981.

1982

Rosenfield, A., T. Bennett, S. Varakamin and D. Lauro. "Thailand's family planning program: An Asian success story." International Family Planning Perspectives 8(2):43-51, Jun. 1982.

1983

Bennett, T. "Drug Cooperatives and Family Planning--A pilot project in Khon Kaen Province." A Final Report for the Planning Section, Family Health Division, Department of Health, Ministry of Public Health, January, 1983.

In Press

Carter C., J.E. Revson, N. Bhlapipul and R. Bunnag. "Professional women as volunteers: A case study of the Nurses Association of Thailand." Studies in Family Planning (in press)

Narkavonnakit, T., T. Bennett and T.P. Balakrishnan. "Continuation of injectable contraceptives in Thailand." Studies in Family Planning (in press)

CPFH Working Paper Series

Bennett, T., A.R. El Tom, D. Lauro, D. Maine, M.H. Matthews and M. Varavaidya. Mini-survey in Matrix Format: A New Tool for Operations Research. New York: Columbia University, Center for Population and Family Health (in press) (CPFH Working Paper Series, No. 4)

Papers in Progress

Bennett, T. "Development of logistics monitoring system for commodity procurement management."

Bennett, T. "Mobile vasectomy services: An assessment."

Bennett, T. "National survey of health and family planning

service accessibility and perceptions."

GENERAL

Articles and Books

1979

Darabi, K., S.G. Philliber and A. Rosenfield. "A perspective on adolescent fertility in developing countries." Studies in Family Planning 10(10):300-303, 1979.

Gorosh, M. and D. Wolfers. "Standard couple-years of protection." In Methodology of Measuring the Impact of Family Planning Programs on Fertility. New York: United Nations, 1979. United Nations Publication ST/ESA/SER.A/66.

Rosenfield, A. "Health, nutrition, and population: Problems and possible solutions." In Contributions of Science and Technology to National Development: Proceedings of the Asian Regional Seminar, New Delhi, 1978. New Delhi: Indian National Science Academy, 1979, pp. 187-195.

Ross, J.A. "Declines in the age and family size of family planning program acceptors: International trends." Studies in Family Planning 10(10):290-299, Oct. 1979.

Solimano, G. and P. Hakim. "Nutrition and development: The case of Chile." Journal of International Health Services 9:495-510, 1979.

Solimano, G. and J. Sherman. "Public health considerations in human lactation." In Breastfeeding and Food Policy in a Hungry World, D. Raphael (ed.) New York: Academic Press, 1979, pp. 149-153.

Valentine, C.E., and J.E. Revson. "Cultural tradition, social change, and fertility in Sub-Saharan Africa." Journal of Modern African Studies 17(3): 453-472, 1979.

Watson, W., A. Rosenfield, M. Viravaidya and K. Chanawongse. "Health, population and nutrition: Interrelations, problems and possible solutions." In Population and Development: Challenges and Prospects, P. Hauser (ed.) Syracuse, N.Y.: Syracuse University Press, published for the United Nations Fund for Population Activities, 1979, pp. 145-173.

Wilkinson, J., editor. Guide to Population/Family Planning Information Sources. Clarion, Pa: Association for Population/Family Planning Libraries and Information Centers--International, 1979. (APLIC Special Publication, No. 2)

Zuga, C., and S. Pasquariella. "Summary report of APLIC

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Appendix D

Bolivia

Staff Member	Date	Purpose
H. Elkins	10/5-10/19/82	To collaborate with members of the CIS; to develop training materials and plans for educational seminars; to design questionnaires for seminar participants; to plan for the collection of cost of pregnancy data from employers and the Social Security Institute.
H. Elkins	2/1-2/10/83	To collaborate with the members of the CIS; to develop training materials and plans for educational seminars; to revise questionnaires for seminar participants and employers; to make further plans for the prospective collection of pregnancy data from employers and the Social Security Institute; to develop a proposal for the creation of a non-profit institution for the importation and distribution of contraceptive supplies and literature to private physicians and medical institutions.
H. Elkins	3/16-3/31/83	To collaborate with CIS members in the further development of training materials and seminar curriculum; to pre-test questionnaires for seminar participants and employees; to develop further plans for prospective data collection in industries and the Social Security Institution; to install and train CIS members in the

use of statistical computer programs; to meet with Pathfinder fund representatives re pending proposal for the establishment of a non-profit association SOBOMEFA for the importance of contraceptives and other medical supplies and to discuss collaboration on other projects.

Brazil

Staff Member	Date	Purpose
J. Ross	8/13-8/27/82	Development of questionnaire for assessment of physician training in sterilization; methodological assistance on ongoing operations research projects in Piaui and other states; coordination with Brazil Pathfinder office in Bahia on relevance of Piaui sterilization training evaluation for the sterilization in clinics funded by Pathfinder.

Burundi

Staff Member	Date	Purpose
N. Cunningham E. Weiss	10/18-11/4/82	To gather data and to hold discussions to enable a final proposal to be prepared.
C. Aguiillaume (consultant) E. Maguire E. Weiss	2/12-2/23/83	To assess reaction of government to proposal and to resolve all funding, administrative and program issues.

G. Weiss	5/10-5/21/83	To discuss with Burundi officials suitability of specific candidates for Resident Medical Advisor and Program Coordinator positions for Burundi project.
T. Hardy	6/23-7/3/83	To consult with AID and REDSO staff re preparation of Burundi Project Agreement.

Haiti

Staff Members	Date	Purpose
S. Nalder	8/27-10/12/82	To provide technical assistance in the evaluation of the community health project at Arniquet with emphasis on the Traditional Birch Attendant.
E. Maguire J. Wray	9/27-10/5/82	To participate in the second Operations Research Workshop designed to review the findings of the FP and MCH activities in Arniquet; to identify problems with FP service delivery and design OR projects that can help develop solutions; to review the present budgetary situation of the Haiti OR project; to develop a workplan for the next year.
J. Wray	1/24-1/29/83	To discuss the OR project intended to test the effectiveness of various ways of using TBAs to facilitate FP in Cite Simone; to review progress in getting the other two principle OR

projects underway; the use of SNEM community volunteers to provide FP services, and to test the delivery of FP services through the nutrition surveillance project rally points. To investigate and discuss the best approach to selection of mini-computers for use in data processing in various OR projects in Haiti.

J. Wray

4/4-4/8/83

To review in detail and complete the operations research study design for the Cite Simone TBA family planning program; to review progress toward the initiation of operations research activities in Miragoane and the south Region; to review, again, the data-processing situation and other CPFH activities in Haiti.

T. Lyman-Fenn

5/2-5/6/83

To assess microcomputer needs of Complexe Medico-Social in Cite Simone; to examine various micro-computers which would meet data processing and analysis needs and to make appropriate recommendations to the Complexe; to discuss future computer needs of the OR Haiti.

Mexico

Staff Member

Date

Purpose

J. Wray
M. Shedlin

1/31-2/2/83

At the invitation of Dr. Jorge Martinez Manautou, to discuss the possibilities for the collabora-

tion of the CPFH in the project "Menos y Mejores"; to provide input into the project design; to contact the health and family planning officials of the new administration; to resolve the pending matter of the Chihuahua funds with the new director of DIPLAF.

M. Shedlin

6/24-7/3/83

To review and discuss proposal with IMMS central staff, making changes in research design as required; to establish a calendar of activities; to finalize budget items; to visit the project area and field team; to meet state-level IMMS personnel; to make living arrangements in the project area (Tula).

Nigeria

Staff Member

Dates

Purpose

E. Weiss

7/28-8/12/82

To review the status and functioning of the current CBD project and the plans for an expansion of the project, to be carried out in collaboration with the Oyo State Health Council and the Pathfinder Fund.

E. Weiss

10/7-10/19/82

To develop the operational details of project planning and evaluation activities; to review the plans for the expanded project with relevant staff at both UCH and the State Health Council; and to bring to Ibadan the funds for a short-term cost extension.

E. Weiss	1/26-2/10/83	To review plans for implementation of various project extension activities; and assist in the Village Documentation Study for Oyo South.
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Sri Lanka

Staff Member	Date	Purpose
W. Van Wie	12/4-12/20-82	To review progress and findings of project; to discuss project final report; to discuss future direction of FPASL program and possible CPFH assistance; to assist FPASL in developing draft scope work for outside review of contraceptive retail sales in Sri Lanka.

Sudan

Staff Member	Date	Purpose
J. Wray	7/24-7/30/82	To discuss strategies for strengthening the nutrition components of the project.
D. Lauro	9/25-10/7/82	To assist in plans for analysis of service statistics and survey data; and make additional plans for project expansion.
D. Lauro J. Wray M. Gorosh T. Hardy	11/17-12/20/82	To participate in the workshop on Design Management and Evaluation of PHC programs, and monitor progress of project activities.

Tanzania

Staff Member	Date	Purpose
S. Nalder J. Wray	7/31-8/15/82 7/31-8/14/82	To carry out a TOT course for Dr. Nangawe, E. Rowberg, and selected members of the MHSP staff; to prepare them to train Boma Health Workers and to develop plans for Phase II of the MHSP.
W. Van Wie S. Nalder	9/16-10/2/82 9/25-10/2/82	To review project implementation particularly data collection; to review evaluation and operations research options; and to assist in development of a plan of Action for Phase II.
S. Nalder	9/25-10/24/82	To participate in ongoing evaluation of training and service delivery design; to assist in first stage evaluation and preparation of continuation document; and to participate in follow-up TOT of training team using family planning as content.
S. Nalder	3/26-4/24/83	To provide TA to evaluate training and supervision of project; to provide TA; to develop and implement FP aspects of project in settled Masai areas; to develop in-country training proposal (on that project account).

Togo

Staff Member	Dates	Purpose
S. Nalder E. Weiss	7/16-7/29/82	To continue work on development of the OR pro-

posals with the Ministere des Affairs Sociales et de la Condition Feminine and the Ministere de la Sante Publique.

S. Nalder	9/18-9/23/82	To continue work on development of the OR proposals and to discuss these proposals with members of USAID/Washington Africa Bureau.
S. Nalder J. Allman	2/17-3/15/83 3/6-3/16/83	To finalize negotiations for the women's group project and to continue development of the Ministry of Health project.
J. Wray S. Nalder	4/25-4/29/83	To review final details of the DGCF and Ministry of Health OR projects with appropriate Togolese officials and USAID/Lome staff; to finalize negotiations on the design and administrative details of both projects.

Zimbabwe

Staff Member	Dates	Purpose
D. Lauro	3/23-4/2/83	To visit the Zimbabwe Child Spacing and Fertility Association for the purpose of discussing their short- and long-term needs for technical assistance.

Appendix E

Percentage Level of Effort toward Cooperative Agreement Activities of CPFH Professional Staff for Period 1 July, '82 to 30 June, 1983

	<u>QUARTERS</u>				Average **
	1	2	3	4	
	%	%	%	%	%
Allman	100	100	100	100	100
Baldi	72	72	72	72	72
Bennett	100	100	100	100	100
Elkins	90	90	90	90	90
Elmeshad	30	30	30	---	22.5
Foreit	100	100	100	100	100
Gorosh	10	10	10	15	11.25
Hardy	100	100	100	100	100
Isaacs	20	10	15	20	16.25
Lauro	100	100	100	100	100
Lyman-Fenn	---	---	---	100	25
Maine	100	100	50	50	75
Matthews	100	100	100	100	100
Nalder	100	95	50	50	75
Pasquariella	83	83	83	83	83
Randall	100	100	100	100	100
Rosenfield	50	50	50	50	50
Shedlin	90	65	65	75	73.75
Thomas	50	50	50	50	50
Van Wie	60	50	60	60	57.5
Weatherby	60	60	60	60	60
Weiss	100	100	100	100	100
Wilkinson	100	100	100	100	100
Wray	50	45	55	45	48.75

* Computed over entire year even though some staff worked only part of year.