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COMMUNITY BASED DISTRIBUTION OF CONTRACEPTION

A REVIEW OF FIELD EXPERIENCE



Johns Hopkins Population Center
The Johns Hopkins University
School of Hygiene and Public Health

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edited by

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**Johns Hopkins Population Center
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This volume is the work of a number of persons working individually and in group sessions discussing various parts of the report in different stages of development. It is very much of a collective effort. Faculty from the Departments of International Health, Health Services Administration and Population Dynamics of the Johns Hopkins University, School of Hygiene and Public Health, were involved. They had the support of an able, energetic staff that was assembled specially for the project.

Overall direction in the preparation of the report was the responsibility of Professor W. A. Reinke. Professor R. W. Osborn, who is the chief coordinator of the project for which this report is a preliminary effort, shared the editorial chores with Dr. Reinke.

Because of the diverse nature of the material covered and the interactive way in which issues were identified and rounded through discussion, it is all but impossible to trace the parentage of the ideas set out in this review or to be precise in allocating credit. Special recognition is due, however, for major contributions to the final product by Dr. I. Ajami, Ms. D. Cebula, Ms. L. Knarr, Ms. P. Mandel and Professors R. H. Gray and P. A. Harper. Other contributions, sometimes critically important in defining areas of concern, were made by T. D. Baker, L. P. Chow, C. DeSweemer, C. D. Flagle, A. S. Golden, R. L. Parker, R. V. Rider and M. C. Thorne--all of the Hopkins faculty. Drs. K. Foreit and M. J. Waver also merit mention for their special contributions. Undergirding the entire enterprise was the excellent support from the project's technical staff: C. Buckley, J. Parry, B. Bowles and M. List.

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John F. Kantner
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PREFACE

Concerns over the impacts of changes in population size, composition and distribution have a long and strong intellectual history. Through the early part of the twentieth century declines in fertility triggered concerns in Europe and North America about productivity and the changes in the structure of social life which would eventuate. In the less developed nations (LDCs) the end of the Second World War saw the beginnings of a rapid expansion of the population due largely to reductions in mortality.

In LDCs population size increased, infants and children became a larger proportion of the population and urban areas grew as more people moved from rural agricultural situations to the rapidly expanding cities. Initially the consequences of these changes attracted little attention. Later efforts by voluntary and private associations encouraged governments to deliver family planning services as a direct response to the problem of rapid population growth. For over a decade these efforts had little visible effect on birth rates of these countries.

Most recently the discouragement over the population problem which was endemic throughout the twenty-five years following World War II has been tempered by qualified optimism based on fertility reductions linked in part to contraceptive use. Family planning programs evolved and in many countries measurable fertility declines are evident. Program evolution included increasing emphasis upon alternative methods for delivery of services and the spread of FP programs with significant health or other social welfare elements.

The United States Agency for International Development played a major role in these changes and the progress which is being seen. An important element

in the AID approach is support for projects with innovative delivery systems funded under the rubric of Operations Research (OR).

The present volume is a review and critique of A.I.D. funded OR efforts up to the beginning of 1980. We have chosen to organize the report in three main parts: a summary providing a concise statement of the findings and recommendations; second section, consisting of an introduction and an overview of the experience of these OR projects which presents basic data flowing from the systematic review of 30 projects funded during the review period; a final section considering in some detail issues arising from the review and containing critical comments and recommendations for further OR activities.

Critical evaluation is improved by continuing dialogue. It is our hope that the questions and recommendations provided in this report will lead to constructive comments from the research community, family planning workers and from AID staff. The content of future work arising out of the issues identified in this volume will be enhanced by these views and therefore are gratefully received.

**COMMUNITY BASED DISTRIBUTION OF CONTRACEPTION:
A REVIEW OF FIELD EXPERIENCE**

SUMMARY OF REVIEW: IMPLICATIONS AND RECOMMENDATIONS

It has been postulated that substantial unmet demand exists for effective methods of fertility control and that community-based contraceptive distribution (CBD) systems can make significant inroads in meeting this demand at reasonable cost. Experience to date clearly confirms the validity of the thesis. Contraception prevalence rates have typically doubled from 15 percent or less to roughly 30 percent within a year or two after CBD program initiation. The question is no longer the feasibility of the CBD approach; rather the issue is how the approach can be applied most effectively and efficiently. Since resolution of such issues is the essence of operations research, the role of the Research Division of the Office of Population in establishing future directions, priorities, and specific topics for research is crucial.

Historical Perspective

Definition of Principal Terms

In the past several years a wealth of experience has accumulated in the delivery of family planning services. This report is not meant to be an exhaustive review of that experience. Rather, it is focused upon findings from operations research in community-based distribution. It is necessary at the outset, therefore, to clarify the meanings of these terms for purposes of this review. Because of its close association with community-based distribution, there will be occasion to refer to the commercial retail sales (CRS), or social marketing program of AID. Accordingly, the scope of CRS is also defined and distinguished from CBD.

Operations research is considered generally to include any intervention designed to permit systematic appraisal of intended improvement in the organization and management of services. The term is not restricted to specific research designs (e.g., controlled trials) or techniques of analysis (e.g., linear programming). Instead, attention is directed to definitive assessment of results. The emphasis is on what works and why, regardless of how that knowledge was acquired. This is not to discount the value of scientific methods of procedure and analytical rigor in producing unambiguous results.

Community-based distribution is based upon the presence of a project provider of contraceptives (agent) within each project community itself. Distribution can take place either through a systematic canvassing of all households or through a village-based supply depot. Where initial contacts are made through household canvassing, re-supply is normally accomplished through a village depot system. Thus CBD projects are ultimately characterized by a village distribution point coupled with agent outreach. Some projects have, in addition, a carefully controlled and complete outreach feature initially. CBD projects can be either privately or publicly managed, although the latter is more common.

Social marketing schemes draw upon existing commercial marketing structures and methods. They are privately managed for profit, although they may be subsidized through public funds and regulated by quasi-public agencies. Because social programs cannot be expected to be financially self-sufficient initially, the term social marketing is used here in place of the alternative designation, commercial retail sales.

In social marketing programs commodities are often delivered through local shopkeepers who are closely identified with their communities. In practice,

therefore, they are similar in many ways to CBD programs with village depots maintained by community agents. The social marketing programs are distinguished, however, by the use of existing commercial outlets or distribution channels, the featuring of brand-name commodities, commercial advertising, or other approaches characteristic of commercial enterprises.

Development of the CBD Approach

By about 1972-3 it became apparent to AID/POP that the clinic model of family planning services centered around doctors and nurses was inadequate to the immense task of fertility reduction in the less developed world. The decision was made to develop more realistic and acceptable models for making contraception widely available at low cost especially for the rural and urban poor. The hypotheses underlying the decision were:

1. that a large unmet demand existed for family planning services; and
2. that lay persons with little formal education could be trained as distributors and to set up supply depots at the village level.

As is typical of innovative approaches, obstacles to implementation were encountered in the early stages. For example, oral contraceptive pills, the cornerstone of the new system, were prescription drugs in most countries. Ministries of health and other authorities were understandably reluctant to accept the presumed risks of such drugs being distributed by village agents. In spite of the obstacles, it was possible to initiate four projects which confirmed the basic merit of the new approach.

In 1976 the Research Division received approval of a Project Paper to develop, fund, and monitor ten CBD projects over the next five years with a budget of \$8.3 million. In May, 1975, a revised Project Paper was approved to expand the work through F.Y. 1984 at an increased budget of \$45.8 million. According to the philosophy and plan of action presented in the Project Papers, several demonstration efforts were to be undertaken to determine the most cost-effective way to deliver family planning services. In some instances, selected health services would be included. Three tiers of projects were envisaged: Tier I projects were described as small pilot endeavors; Tier II were larger, usually an expansion or replication of Tier I; Tier III projects were country-wide or nearly so. Projects were to be based upon household or village distribution.

In fact, after a relatively slow start, the number of projects initiated has exceeded expectations. Thirty were begun during the period 1974-79, and an average of 6-8 per year are currently being initiated. The overall CBD concept has gained wider acceptance, thereby leading to increased desire to apply the concept to the idiosyncratic needs of more and more countries.

Projects have increased in size as well as number. Current budgetary levels tend to be higher than in the past. The trend is toward larger populations to be covered. There is a greater appreciation for the advantage of including a broad range of fertility control methods in programs. Finally, it is becoming routine to include some form of health or other services in addition to family planning.

As the number and size of projects has grown, professional staff in the OR Division have been stretched exceedingly thin, calling attention to the importance of carefully selective monitoring and systematic comparative assessment.

Generalizations from Experience to Date

A favorite subject for debate and speculation in recent years has concerned planning programs specifically contributing to reductions in population growth. This is a demand/supply dilemma. An extreme school of thought contends that demand stimulated through the process of development, perhaps coupled with national policy favorable to family planning, will generate spontaneously a reduction in fertility.

A more moderate school of thought argues that development is a necessary stimulant to demand for family planning but that this by no means guarantees its practice. This position has been taken by the World Bank as follows:

"Socio-economic factors are the prime determinants of the demand for contraception and abortion, while program efforts are the basic determinants of the supply of services."¹

Thus, even where cultural and socioeconomic conditions produce a favorable climate of demand, fertility may remain high because of supply barriers. It follows that active family planning programs can be most effective under these circumstances, and this is where their focus of attention should be directed.

According to a third perspective, there exists in almost any society a significant latent demand for family planning, so that the potential impact of improved supply mechanisms is more general than is often assumed.

Although we must admit that the three arguments have been presented simplistically, it is not our purpose here to join the debate or refine the arguments. The point is that the CBD approach comes closest to the third

perspective, and experience reveals that it has considerable merit. Only one of the thirty projects (Philippines) has been terminated because of lack of performance. Measurable success under conditions as divergent as those found in Bangladesh, Haiti, Thailand, and Korea gives support to the generalizability of the approach. Furthermore, the limited success in Taiwan is largely attributed to the fact that contraceptive prevalence was already high there, suggesting that CBD programs may be most useful under precisely those circumstances not generally considered conducive to family planning efforts.

The conclusion is that CBD programs, public or private, have been found to be culturally acceptable, affordable, and effective in raising contraceptive prevalence to the 30-35 percent level. The first remaining issue is how to increase the level to the 50-60 percent range necessary, in the absence of abortion, to produce the needed impact on fertility. Beyond this the question is not whether the approach is feasible, but how to improve its efficiency under specified local conditions. The efficiency question is thus the second major area for future research. The two questions are inter-related in that further quantitative increases in family planning practice may require closer qualitative attention to more resistant target populations or an expanded range of services. Any additional complexities in project design in turn make the "how to" question of efficiency both more difficult and more important.

Nearly all of the projects have been either continued or expanded after termination of the original project. This not only gives further evidence of project success, but also suggests continued and widened impact on population growth. Moreover, as already noted, projects themselves are tending to become broader in scope. While encouraging in many respects, these trends emphasize

the increasing importance of operations research in guiding the efficient use of scarce resources. In this connection the following statement from the aforementioned Project Paper is noteworthy:

"... the data we have to date suggests that monetary considerations should not prevent national replication if the host country governments and international donors are sufficiently committed to the resolution of the population problem. Indeed, the financial resources are most likely less problematic than the organization and personnel resources that must accompany the funds."²

In summary, experience has verified the feasibility of CBD projects, as well as the need for larger, more complex efforts. Larger efforts can produce economies of scale and can lead to greater impact. They can also lead to more costly inefficiencies in the use of scarce resources. How best to use those resources to produce results already shown to be feasible is the central operations research issue.

The results cited generally above and in more detail in subsequent sections are based upon relatively limited evidence, little of which is strictly experimental. This shows that classical research designs are not always necessary to provide significant, policy-relevant findings. Our review of evidence also suggests the difficulty of merging policy, operational, and research interests. This difficulty increases as the size, scope and complexity of projects expands. It will become increasingly necessary in the future, therefore, to ensure that research questions posed, projects designed, data gathering provided, and analytical procedures employed are both realistic and likely to produce valid, definitive answers to the questions posed.

Review Format

In order to provide meaningfully concrete, substantive review of CBD project experience, we have proceeded through three stages of analysis. First, we summarized the vast documentation and undocumented insights available on individual projects. The project summaries provided a general exposition of the rationale, chronology, content, and principal results from each project. They also identified specific problems and insights gained within defined substantive areas of interest.

The second stage of review focused on these substantive areas for two reasons. First, this seemed to be the most useful basis for assessment. One is ultimately concerned with generic problems, for example, those encountered in the training of village agents, rather than in listing the host of varied experiences from Country X. The second reason for this approach was that it most effectively utilized the technical and disciplinary expertise available.

Seven substantive areas were identified for consideration. While the categorization is somewhat arbitrary, it seems sensible and manages to cover the subjects of interest. The topics include--

1. Efforts at Demand Stimulation
2. Services Mix and Methods of Delivery
3. Manpower Needs, Development, and Utilization
4. Organizational Arrangements
 - a. at the interface between the service and the community, and
 - b. between the project and other agencies: local, national and international

5. Services Support and Supervision
6. Research and Evaluation Procedures

Each topic was analyzed with two basic questions in mind: (1) What works and needs to be encouraged? (2) What recurring problems have been encountered that need further study? While results of the analysis are frequently not definitive, they are insightful in several respects, they delineate a number of unresolved issues, and they identify some total gaps in knowledge.

Individual papers covering each of the six topics were prepared as the basis for this report. In addition, a review of commercial retail sales (CRS) experience was conducted because of direct relevance to CBD projects. Finally, an overview of all projects was prepared to highlight and comment upon threads woven through the various projects. The individual papers were then reorganized somewhat to lend coherence to the final report presentation.

The first two review stages together form an information matrix describing substantive areas addressed in specific projects and projects contributing knowledge or questions in particular substantive areas. The third stage of review has been a further synthesis and interpretation of findings from the first two stages. This final review is the basis for the present overall summary. It is distinguished by three features. First, it highlights major points made in the individual topical papers. Second, it inter-relates those topics. For example, information systems employed can affect cost-effectiveness determinations, and financial transactions involving contraceptive sales may encourage maintenance of accurate records. Finally, this summary results in a series of recommendations for future action.

Headings in the following sections of the summary adhere to the sequence normally followed in project development. Consideration is first given to the general climate for project initiation. This largely determines the project scope, purpose, design and measures of success. This in turn leads to more specific considerations of services mix, manpower requirements, and financial arrangements, along with supportive mechanisms including supervision and information systems. We conclude the review with comments about research, evaluation, and monitoring procedures generally.

Climate for OR Project Initiation

Faced with a problem, the administrator seeks a satisfactory solution that is timely. The researcher, on the other hand, looks for the optimal solution and its scientific basis, regardless of the time necessary to produce the generalized understanding of principles. While these characterizations may be extreme, the basic distinction being made is real and universal. Recall that Herbert Simon received Nobel recognition for his observation that managers are in practice "sufficers" rather than optimizers. Moreover, administrators frequently reach positions of authority with little formal training in management or research methods. On the other side, academic researchers have seldom had to be accountable for operational results. The need to overcome this failure to blend pragmatic and scientific concerns is critical in operations research addressing field management issues in a service setting.

Ideally, the initial stimulus for project development should come from the host country institutions in which implementation is to take place. If ministry support is strictly for service purposes, however, it is unlikely that analytically

valid and replicable evaluative findings will emerge. Moreover, narrow interest in short-term project service support may raise questions about commitment to routine continuation.

Local universities are more likely to be attracted to research endeavors, but then concern shifts to the matter of university-ministry relationships, as well as the practicality and applicability of the research findings to routine service programs.

Other inter-institutional relationships may be important as well. These may involve agencies at state and national levels, organizations involved in related family planning programs, or Ministries of Health and Social Welfare. The number of associations and endorsements required in a project can become complex indeed. They might involve: (1) AID/W; (2) the AID country mission; (3) at least one agency in the host government; (4) a local university; (5) a U.S. university or other research organization; and (6) one or more professional associations. In addition to organizations that are directly involved, other intermediaries created by AID or other donor agencies cannot be ignored.

Involvement of six organizations produces 57 different relationships to be nourished, whereas three organizations lead to only four associations. While the latter arrangement is administratively attractive, it is foolhardy to think that exclusion of relevant agencies from a project will cause them to exert no influence on its success or failure. The possibly difficult task of enlisting their positive support and cooperation is preferable to risking negative obstructionism.

Two principles guide the handling of the resulting complexity of agency involvement. First, the legitimate interests of separate agencies should be recognized explicitly in project objectives. Enlistment of support through

artificial incentives should be discouraged, however. Because of the temporary nature of projects and the need to achieve tangible results quickly, for example, it is tempting to offer special incentives to attract competent people. This is understandable but can foster inter-agency jealousies and can prove misleading in judging reproducibility.

The second principle, which follows from the first, is that each participating organization's role be clearly and uniquely defined so as to minimize necessary interactions. It is understood that the success of single organizations is predicated upon the organization of effort in a way that satisfies individual goals while contributing to broader organizational objectives. The same principle applies to the mobilization of inter-organization effort toward the achievement of overall project aims.

Recommendations

Several specific recommendations follow from these observations. First, because of general disenchantment and low capability in research, AID/W should mount an educational effort that extends beyond a single country or project. Workshops should be conducted in management decision making, problem identification, and use of analytical methods in problem-solving. The workshops would serve to disseminate findings of practical value from actual projects. Perhaps such workshops would be regional so that several governments could be made aware of each other's experiences and plans.

Second, AID might give attention to alternative mechanisms for alerting countries of its research support capabilities. Although few unsolicited proposals

may be generated as a result until appreciation of the value of research is more common, the mechanism will be in place, and a limited number of new projects may be encouraged from the start.

Third, local institutional development should be an expressed aim of certain projects. Facilitation of host country university-ministry working relationships can be a worthwhile and lasting investment, just as benefits from training programs established by the project are expected to continue beyond project termination.

Fourth, increased stress should be placed on rapid feedback of research findings for practical decision making. Eventual publication may be of academic value to researchers but is hardly persuasive to administrators. For them, timely use of research results to their own benefit is undoubtedly the most convincing form of education. Although publication rights have not been a serious issue in CBD projects, there is a continuing need for vigilance over authorship and avoidance of charges of academic imperialism, along with assurance of reasonable criteria for granting permission to publish results.

Project Scope, Purpose, Performance Criteria

Local political conditions and research climate go far in molding the scope and purpose of the project ultimately launched. Moreover, the stated purpose is not always consonant with operational reality. Whereas U.S. interests are largely oriented to research and demonstration, political concerns for service may be dominant at the project site. This has sometimes led to reluctant acceptance of research goals in principle, followed by narrow adherence to service aims in

practice. While such an orientation could be justified under the circumstances, unrealistic research expectations must be avoided.

Project scope and purpose must also take cognizance of the existence of related programs. In Thailand, for example, there is a national family planning program, a quasi-private CBD project, the Lampang Health Development Project with a significant family planning component, and the World Bank Population Project, all supported in part by AID. Communication of findings among these projects has been incomplete at best, and duplications have been noted.

Commercial retail sales programs are a special case in point. They require the sponsorship of an agency of nationally accepted credibility. Under these conditions public family planning programs are often on the horizon, if not already in place. The CRS programs can serve a useful function in addressing particular population groups or in tapping existing resources and expertise. They have often succeeded, therefore, in supplementing, rather than duplicating other efforts. Nevertheless their unique role in each situation must be carefully assessed.

Project scope refers to the size of the geographical area and population covered, the identification of targeted sub-groups in the population, and the variety of services offered. The trend has been toward larger projects offering more services. This is understandable; as experience mounts the need for additional small pilot projects along similar lines is reduced. It is doubtful, however, whether the Tier I stage of project development can be bypassed altogether. It appears, for example, that the new project in Peru would develop more smoothly, with fewer costly errors, if a small-scale start-up phase were incorporated into the project design. The Lampang model is worth considering.

Although that project ultimately covered an entire province of 600,000 population, the first year of effort focused on training and services development in a single district of 40,000. This permitted refinement of training and operational procedures on a small scale prior to costly mass implementation.

Projects have typically succeeded in recruiting about one-third of eligible couples for family planning. Given this experience, two basic strategies are available for the future. Either this modest impact could be extended over a broader area, or effort could be concentrated on further improvements in coverage in limited areas. The first approach is most appropriately undertaken by national programs, while the second should be a high-priority OR effort. Division projects are therefore likely to become more intensive attempts to reach resistant sub-groups of the population, to promote continuation of contraceptive use by the larger number of acceptors, and to ascertain which service combinations are most cost-effective. Thus, while current trends are toward more extensive projects, emphasis in the future could usefully shift to greater intensity in projects of limited size and scope. This would lead to more focused attention on certain well-defined research questions rather than broader concern for service coverage and contraceptive acceptance. Data requirements would be increased as a consequence.

The preceding discussion has implications for the establishment of performance criteria and measures of success. There is the ever-present trade-off between reliance on readily obtained measures of acceptance and the more difficult determination of fertility change that is of ultimate interest. Realistically, projects must continue to rely in general on relatively crude measures of contraceptive prevalence, coupled where possible with reliable vital registration

systems or field surveys. Fortunately, Matlab has provided good information of the latter type to be correlated with statistics on contraceptive use in Bangladesh. Indirect implications for other settings are probably more relevant than direct reliance on locally inaccurate and incomplete vital statistics from those settings. The conclusion is that costly vital registration systems need not be a routine part of CBD projects; other sources of data should be capitalized upon, however.

While direct verification of fertility change is not always feasible, there is a need for more detailed information than is currently obtained in some cases. Better understanding of continuation of practice is needed along with contraceptive acceptance and prevalence rates. More careful analysis of differences in all these measures among population sub-groups becomes necessary as these groups are more closely targeted.

Increase in the range of services offered implies a corresponding extension of project objectives. Where health objectives are added, one is faced with verification of changes in health status, a task at least as difficult as confirming reductions in the birth rate. Yet it is misleading to ignore health indicators and totally charge the cost of health services to fertility benefits. The most reasonable compromise is to aim for services utilization. This parallels the measurement of family planning acceptance, and a good deal can be learned from analysis of joint use of family planning and other services among individual clients.

Regardless of the specific aims of a particular project, it is essential to consider the fundamental implications for measurement that arise from projects of increasing complexity. Multiple inputs are designed to serve multiple

objectives, and meaningful analysis requires appropriate separation of the inputs and outputs of interest.

Recommendations

The first major recommendation growing out of this aspect of the review is that adequate cognizance be given to real project objectives. Stated research objectives have not always been congruent with field practice. If meaningful results are to be obtained these differences cannot be ignored. They must be either resolved or accepted, with due recognition of the consequences for the content and form of evaluation.

Second, contrary to current trends, more projects in the future need to be rather narrowly focused on well-defined research questions. Repeated confirmation of CBD project effectiveness in increasing contraceptive prevalence at reasonable cost has now been obtained. Future attention needs to be directed beyond these broad service measures. Assessment must be made of the effects of an increasing variety of services on acceptance and continued use of family planning among clients of specified characteristics. This will require clarification and broadening of the meaning of cost-effectiveness to include consideration of relative efficiencies possible in achieving benefit trade-offs. For example, is a specified impact on the rural poor more important than a similar impact on urban wage earners? Even at twice the cost?

These comments lead to a third recommendation regarding specification of performance criteria and implications for data gathering. As projects become more complex and research questions become more detailed and specific, no one

project can be expected to provide all of the answers sought. Rather, a particular project should address a limited number of clearly defined issues and should provide for minimal, but adequate, data on these subjects. The Research Division, then, will have responsibility for combining and integrating individual findings into the overall mosaic that represents the composite of CBD experience. This role of AID is crucial because operations research is based on the principle of inter-relatedness; yet no single project has the capability or time to examine the many inter-relationships of concern. A single agency, AID, can establish the overall strategy for investigation, and can synthesize findings, recognizing local and regional idiosyncracies, but the actual investigation must be sub-divided into a number of discrete, inter-related projects. Specific research questions emerge from discussion in the following sections.

Services Mix and Delivery

What services should be provided to whom and by what means? This is perhaps the central issue in evaluating CBD projects. Experience to date provides a number of insights and impressions but few definitive answers. Remaining questions are therefore numerous. Among them it is important to underscore those most critical to future practical guidance in contrast to those that reflect simply an intellectual curiosity. The practical questions then need to be sharpened to permit rigorous analysis.

Demand Stimulation

The first level of consideration of services mix relates to the appropriate balance between motivational activities and direct provision of services to an already receptive clientele. CBD programs have not stressed Information and Education activities as much as CRS programs have. This is based upon one of two assumptions: either (1) general awareness of family planning exists leading to pent-up demand; or (2) motivation of clients through direct contact is more beneficial than general promotional messages.

There is scant evidence that success of CBD programs has been seriously hampered in reaching 30 percent prevalence levels by inadequate I and E effort, and in fact projects have generally shown that high awareness of family planning already exists. The main issue seems to be how best to convert passive approval of contraception into active practice.

Household canvassing, free distribution of commodities, client incentives, provider incentives, and attraction of other services have all been employed as motivating factors with results summarized in succeeding paragraphs. Generally, however, it is worth observing that if clients were sufficiently motivated to seek services on their own initiative, those services could probably be rendered at lower unit cost than ones based on provider initiative.

The underlying question, then, is whether the costs of generalized mechanisms for client motivation are effective in inducing use of family planning services at a cost reduction that more than offsets motivational costs. Household distribution, for example, is considered effective, but its cost-effectiveness has not been definitely established. Because CRS programs generally rely on client

initiation of sales, their marketing strategies have tended to promote social acceptance of contraception, method and brand loyalty, and attractive packaging. CBD programs, on the other hand, have tended to provide a more personalized approach through provider initiative relative to individual clients. More careful appraisal of these two approaches and their possible integration is needed. Regardless of the outcome of this assessment, CBD programs in the future will need to reassess motivational approaches in order to prevent plateauing of acceptance at undesirably low levels, to reach more resistant segments of the population, and to encourage continued use.

Supply Considerations

Another important area of concern in CBD programs is the range of contraceptives to be offered. Chief reliance has been placed on oral pills and condoms, and in some projects on the IUD. In some countries, however, an impressively large percentage of potential clients has expressed more interest in family limitation than child spacing, thereby suggesting the importance of permanent methods. When available, injectables have been found to be attractive to clients, and they have advantages over pills for lactating women. The effect of oral contraception on lactation is a factor that deserves more careful investigation. Finally, foams have been increasingly incorporated into CBD programs.

Based upon Research Division project experience, most notably in Bangladesh and Tunisia, it has been argued that range of contraceptive methods offered is the single most important factor contributing to project performance. While it is

impossible to confirm this contention conclusively from existing data, available evidence suggests that it has considerable merit. A large body of longitudinal information from Narangwal showed, for example, that the condom was useful in attracting large numbers of initial acceptors, while the availability of other methods both added early acceptors and permitted the upgrading of later contraceptive practice among initial users of the condom.

It seems plausible, therefore, to accept the desirability of broadening the base of program methods offered. This adds complexity, however, which should not be routinely accepted without confirmation of benefit derived. Qualifications required of agents are increased. A functioning referral system is needed. There must be adequate provision for handling complications and side-effects. The supply system becomes more sophisticated, creating greater risk of breakdown.

The conclusion is that the benefits and costs of additional contraceptive services must be evaluated incrementally. Such marginal analysis has been essentially lacking in the past. Whatever range of services is thereby justified, adequate provision must then be made explicitly to accommodate the resulting complexity in service delivery so that the potential benefits are, in fact, realized.

If these guidelines and precautions are valid in considerations of contraceptive mix, they are even more applicable to the inclusion of health and other services. One might even begin by asking: Why include such services at all? The child survival hypothesis, proposed as one basis for justification, does not seem to be particularly relevant to short-term CBD project. While improved chances for survival of children already born may in time persuade parents to limit future fertility, the Narangwal project failed to validate the child survival hypothesis in the short run in spite of intense, costly health efforts that produced dramatic reductions in mortality.

What the Narangwal project did show early on, however, was that services integration produced separate health and family planning benefits at reduced unit cost of each. Thus, synergism of effects was not observed, but efficiencies in organizing inputs were obtained. The lesson is that services that can be combined economically are likely candidates for integration. The services must have separately valued objectives, of course, that can be measured and costed if potential economies are to be confirmed.

The above reason for combining services makes sense from the provider perspective. Client considerations can also be important. Questions have been raised as to whether health and family planning go together naturally in the public's view. Perhaps family planning is more closely associated with certain aspects of community development or family and social life. This matter has received little attention and deserves much more. The ideal is to find one service that is spontaneously attractive to the community and that serves as a natural entry point for motivating acceptance of family planning. In investigating possible combinations it is important that utilization patterns of individual clients be ascertained. If, for example, eighty percent of the users of service X become family planning acceptors, then service X is a prime candidate for combination with family planning. The association is especially attractive if frequent use of service X encourages continued use of contraception.

Undoubtedly the greatest danger in broadening the range of services offered is the possibility of diluting effort in family planning. One worker cannot be all things to all people. Realistically, effort is likely to gravitate toward those activities for which there is the greatest demand and which provide the most tangible source of satisfaction to the worker. Under such conditions family

planning is not likely to receive high priority. Four alternatives are possible. First, the number of workers might be increased, but this has practical limitations. Second, workers might focus attention on selected sub-groups within the total population, but it is difficult to exclude some from services that are offered to others. Third, the number of categories of service offered may be limited. Fourth, the number of specific tasks might be limited within a broader range of service categories.

Focused research along the following lines is recommended to investigate these alternatives. First, categories of candidate services to be combined should be critically assessed for reasonableness from provider and client perspectives. This will require exploration of viable methods for obtaining community participation in the selection of services to be offered. Then, selected activities within these categories should be delineated in terms of cost-effectiveness and skill requirements. Functional activity and cost studies could be useful in this regard. Finally, a distinction needs to be made between client-initiated and provider-initiated services. Client-initiated services will have to be provided on demand. Certain population segments can be isolated for special attention, however, in giving provider-initiated services. Such detailed investigations can be time-consuming and must be undertaken selectively in response to clearly-defined research questions. However, they represent the only definitive means of resolving currently significant issues regarding optimal service mix.

Among the health components possibly to be included in service programs, oral rehydration and parasite control are two forms commonly used in the past and likely to be considered in the future. Even services as basic as these have possible medical ramifications that have not been fully assessed. While health services

should not be excluded automatically because of occasional side effects or untoward results, such rare events have a tendency on occasion to be magnified out of proportion. Conscious attention needs to be paid to benefit/risk considerations and provision made for minimization of risk discerned.

Embracing the question of services mix is consideration of the organization and delivery of services. A fundamental concern in this regard has been the matter of household canvassing in contrast to systems relying strictly upon village depots. Definitive analyses of the two approaches have not been conducted, and controlled comparisons are not generally feasible. Because of their apparent advantage, however, household distribution schemes deserve more critical appraisal. What is their relative cost in relation to effectiveness? Should canvassing agents be the same as those concerned with resupply from depots? What proportion of clients are resupplied from other than CBD project sources, and what implications does this have for the relative importance of initial canvassing and resupply? How many follow-up visits should be included in the systematic canvassing? Should this vary selectively according to client characteristics? Some of these questions can be partially answered from data analysis in existing projects. Others, such as those relating to the system of follow-up, must be incorporated into the design of future projects involving household distribution.

The importance of the community role in CBD projects is the final matter for consideration in this section. The most simplistic posture on the issue is that the project should do nothing that the community and its members are willing to do for themselves. This leads most directly to the question of charging for commodities and services. Experience has generally shown that charging a

modest price is not a serious deterrent to services utilization, although it may be in some population groups of growing importance in the future. The only experience to contradict this evidence comes from Thailand, where a policy of free distribution in the national program seems to have affected sales in the CBD program. It is apparent, therefore, that clients are willing to pay for services not otherwise available, but naturally if a free alternative is available, that is the one more likely to be chosen.

Even if charges are to be levied, complete program self-sufficiency is not to be expected at current levels of use. Charges in excess of subsidized costs of commodities may help to defray operating expenses, but some form of subsidization appears to be necessary. Charges do serve two other functions, however. They tend to enforce a system of record keeping that helps to validate evaluation of program performance and cost. In addition, differential charges for various items can encourage utilization or discourage misuse and abuse of medicaments.

Ascertainment of the maximum acceptable charge for commodities and services has been suggested as a topic for research. This would be of some value but it is noteworthy that free distribution is largely a political issue. Moreover, different sets of charges within the same project impose administrative difficulties that may be unnecessarily burdensome.

CBD project designs have tended not to emphasize the evaluation of mechanisms to achieve organized community participation, although Egypt and Tunisia are notable exceptions. Agents have sometimes been recruited with the assistance of the community, but the final decision normally rests with the project. In an approach that seems to have worked well in Kenya, three persons

acceptable to a village committee were chosen according to established criteria. One of these three persons was then selected by project staff for training as a community worker.³ To the extent that future projects operate within a broad framework of local development, organized community effort will become more important. For the most part, however, it is suggested that the Research Division be alert to findings from the numerous projects underway around the world to enlist community involvement, rather than giving high research priority to this subject within the Division itself.

Recommendations and Questions

In summary, the first consideration in the design of project activities relates to the amount and type of motivation effort needed to raise contraceptive prevalence to levels ultimately needed for desired impact on fertility. Do these efforts need to be targeted more specifically to hard-to-reach groups in the population? Should they focus more on initial acceptance or continuation? Should the messages be delivered to the community or based on individual contacts? Is the cost of general motivational activities subsequently recovered through client-initiated use of services at reduced cost? It is recommended that projects be designed with answers to these motivational questions in mind.

With respect to direct services mix, the general recommendation is cautious expansion based upon combinations that stimulate joint utilization by clients and economies of operation. It must be recognized that the addition of services has a multiplier effect on organizational and management complexity if potential benefits of integration are to be realized. More specifically, the

following questions need to be addressed through focused research. What are natural service combinations from the client perspective? What are the most critical activities to be performed in each of these service areas? How can these be combined most economically commensurate with agent skills? Should specific population segments be specially targeted? Which agent-initiated activities should be directed to the target population? What pattern and frequency of follow-up is most effective and efficient?

The final recommendation refers to community organization and participation and is based upon the premise that significant community resources are present to be mobilized effectively. In particular, client payment for services and community participation in agent recruitment should be encouraged. Beyond this, ongoing community experiments should be followed closely for evidence of practices that can usefully be adapted to CBD efforts.

Personnel Development and Utilization

Personnel requirements are dictated in large measure by the service program. On the other hand, design of service programs must be undertaken with potential personnel constraints in mind. In practice, therefore, the two factors must be considered simultaneously, even though they are more appropriately discussed separately. Under the personnel heading we review, in order, basic qualifications of agents, knowledge and skills imparted in training, and finally utilization of those talents in practice.

Agent characteristics have varied considerably, and analysis of the most important of these is scant. Much seems to depend upon the population at large.

For example, level of agent education is probably more important under circumstances in which most clients have had significant schooling. The conventional wisdom that emerges is that the agent should be a respected member of the mainstream of the community. The agent should probably be working among equals, but he or she should be somewhat "more equal," though this conclusion needs further verification.

Because of the nature of family planning, agent sex deserves special attention. Both males and females have been employed successfully, but some problems have been encountered. Females in Egypt, for example, encountered difficulties in distributing condoms. Recognizing that family planning is a concern of couples and that both male and female methods of contraception are employed, the Guatemala trial use of agents in pairs represents an innovation that bears careful observation and analysis for evidence of benefit not found in an earlier study in the Sialkot Project in Pakistan. In Bangladesh supervisors of both sexes have been employed successfully to perform different functions for different population segments. Similar separation, but coordination, of agent functions holds promise.

The duration and content of training depends to some extent on initial qualifications of trainees and even more on the job to be done. Again, substantial variability and little analysis are the two principle features of experience to date. The Peru project presents the opportunity to compare training programs of four weeks and six weeks duration, and more of this type of analysis is needed.

In any event it is evident that greater emphasis should be placed on in-service training, based upon systematic appraisal of field performance, appraisal

that has been conspicuously absent in most projects. How much of this continuing education should be individualized is uncertain, but periodic group discussions of selected topics is essential for purposes of morale and because of inevitable similarities of problems encountered in practice.

One aspect of training is the identity of the trainer. The importance of continuing education based on field experience under supervision, suggests that the supervisor be intimately involved in pre-service training as well. On the other hand, training courses conducted repeatedly by the same set of training specialists have certain advantages of quality and economy. The most satisfactory compromise seems to be to charge a training staff with prime responsibility for organizing courses and for enhancing the training competence of supervisors who actively participate in the training. Because of the continuing importance of training, it is recommended that each project employ a training officer whose area of responsibility would include supervisory training as well as agent instruction.

A point of continuing debate centers around the presumed advantages of uni-purpose and multi-purpose workers. In practice, the solution lies at neither extreme but somewhere along the continuum in between. Integrated services are a reality, and workers tend to lose interest in the repetitive performance of single tasks. On the other hand, workers overburdened with responsibilities will either perform none of them well or will ignore some of them, notably outreach activities, altogether. It is important, therefore, that selected tasks be clearly delineated, procedures for carrying them out be carefully formulated, and training be tightly knit around them. While this conclusion is quite obvious, it implies a disciplined attention to job specifications, training curricula, and monitoring of performance that is seldom present in projects.

Systems of agent remuneration should be designed to contribute to the intended mix of performance. Further trial of innovative commission schemes in comparison with salary payments is accordingly suggested. Commissions, however, tend to encourage commodity sales at the sacrifice of outreach and other services with less tangible effect. Systematic investigation of alternative remuneration schemes is called for, bearing in mind these possible ramifications.

Closely coupled to consideration of the range of tasks to be performed is the matter of population to be covered per worker. Population/agent ratios have varied, with no clear-cut evidence of an ideal ratio emerging. This is not surprising in view of the varied circumstances of employment of agents. Where the number of services is limited, the most important factor is probably client-agent accessibility. Targets based on geographical distribution are therefore more meaningful than population ratios. Increases in the range of services offered introduce workload considerations that suggest the need for activity studies. Such studies also contribute essential information for allocating inputs in cost-effectiveness analyses. In any case, arbitrary population/agent ratios should be avoided in both project design and evaluation.

Finally, experience with retention of agents is a significant factor in project performance that has been largely neglected. Do most agents continue to be active indefinitely? Do they remain nominally in place but fail to reach their full potential? Do large numbers leave the program altogether? The Lampang Project found the second condition to be most typical, but CBD projects generally fail to confirm or refute this experience. Rough answers to these questions should not be difficult to obtain and are needed. Trends in retention take considerable time to evolve in any one project, but the cumulative

experience to date from a number of projects of varying duration makes retrospective comparative analysis feasible and potentially rewarding.

Recommendations and Questions

Review of agent qualifications suggests that they vary according to characteristics of the local clientele. Agent sex is probably the most important characteristic bearing further analysis, and in this regard experience with paired promoters deserves close attention.

Appropriate duration of training also requires clearer definition, but more important is the increased emphasis needed on continuing education. This should be coupled with close monitoring of agent performance. The continuing importance of training for supervisors as well as agents suggests the need for clear designation of the project training officer role.

Innovative methods of remuneration other than salaries deserve more intensive testing in relation to defined performance criteria.

Projects providing integrated services require activity studies to determine appropriate workloads, effective population/agent ratios, and cost allocations.

Finally, assessment of success in retention of agents is required as a prerequisite for any remedial action that may be necessary.

Supervision and Support

An early tangible measure of project progress in implementation is in terms of numbers of personnel recruited and trained. It is always tempting to

exaggerate the importance of such quantitative indices at the sacrifice of equally important qualitative measures of performance. It is not surprising, therefore, that relatively little attention has been paid generally to supervision. This is especially unfortunate in the case of CBD projects relying upon minimally trained, part-time community agents not subject to traditional forms of control. The need for innovative approaches to the provision of agent motivation and support has been addressed in Nicaragua, Peru, Nigeria, and Sudan, but the issue deserves much more attention.

As a practical matter supervisors are likely to come from the ranks of workers with little or no previous experience or training in administration. There is a clear need, therefore, for intensive training in the basic principles of supervision as well as in specific procedures applicable to the program being undertaken. In fact, generally inadequate attention has been paid to the curriculum for supervisory training.

Just as agents have limited skills and are assigned a circumscribed set of defined tasks to perform, likewise the supervisors concerned cannot be expected to be broadly competent managers. Rather, expectations of what supervisors are expected to accomplish must be carefully specified and translated into procedural format analogous to training modules and standing orders for agents. Development of simple, practical supervisory manuals is a major priority for national programs and CBD projects can serve as significant developmental bases for associated procedures and for the manuals themselves.

Supervisory functions include monitoring of agent performance, training, and possibly resupply. A determination must be made as to whether these functions are most appropriately carried out jointly or separately. In either case

a balanced distribution of effort among them must be maintained. In particular, more time should be devoted systematically to refresher training than has been typical in the past.

Frequency of supervision has varied among projects and has been sometimes erratic within projects. Little guidance is available, therefore, regarding optimal frequency. It is apparent, however, that this will vary among agents according to their seniority, skills, special problems, and performance. More work is needed in establishing need criteria for selective supervision. In this regard, the use of supervisory checklists in accordance with defined procedures is recommended. Supervisory responsibility for agent performance should also be developed in some form to encourage attention where it is most needed rather than going through certain motions periodically. Underlying these recommendations, of course, is the presumed existence of a meaningful record system.

Another pre-requisite for effective supervision is adequate provision for transport. Various means of transport have been employed under different local circumstances, and in some cases supervisors have been asked to provide and maintain their own vehicles. In at least one extreme case (Nicaragua), neither project transport nor travel allowances were provided. Resulting infrequency in field visits was hardly surprising. The importance of supervisor mobility is obvious, and little that is profoundly insightful can be said. Nevertheless, the frequency of problems observed in this regard indicates that the issue can be by no means ignored.

Supply procedures represent another well-established area of management that is nevertheless a common source of difficulty. Maintenance of accurate

counts of supplies utilization is essential. This should be coupled with formal replenishment decision rules following inventory control procedures routinely employed in industry.

Apart from failures to apply appropriate decision rules at individual supply points, presence of an excessive number of such points in the system can lead to bottlenecks. Final distribution points have included village depots, mobile units, pharmacies, and markets. The most appropriate arrangements have to be investigated within the local context. The individualized nature of the problem does not mean that it can be left to chance, however. The supply system of a CBD project generally articulates with larger provincial or national organizations. The possible problems of supply linkages or bureaucratic blockages need examination.

Recommendations

Principles of supervision and support are well known. Yet their translation into specific practical procedures applicable to the CBD setting has been generally inadequate. As a result, inadequate supervision and logistical difficulties are among the most commonly cited project weaknesses. In general, what is needed is not sophisticated research but pragmatic attention to these matters in planning and implementation. In particular, development and dedicated use of supervisory manuals of procedure is much-needed. With such procedures in hand, such things as levels and frequency of supervision required would fall into place.

Project Economics

The complexity of project costing makes it difficult to compile meaningful cost data. Budgets proposed, approved, amended, and actually expended are sometimes difficult to distinguish from file materials. Actual project expenditures sometimes derive from several sources which become merged and are difficult to trace back. The problem is further compounded when two or more projects are operated by the same agency.

Project funds must ultimately be accounted for, of course, but analytical interest centers on true economic costs, which are not necessarily the same as bookkeeping charges. Direct costs of donated commodities are kept separate from project records, for example, and associated administrative or distribution costs may be hidden altogether. As another example, an individual's salary may come from a budget, the apparent purpose of which is not entirely consonant with the way in which that person actually spends his time.

Under the circumstances it is hardly surprising that an AID analysis could not find a distinct association between incremental changes in contraceptive prevalence and project cost. Comparisons between projects are hampered by further dissimilarities. Salaries of midwives in one location may differ from those in another. Opportunity costs are important in this case and are not determined. Moreover, performance in one area may derive from a densely settled semi-urban population, whereas the comparative area has a scattered rural population.

Cost accounting procedures necessarily vary widely among projects according to the specific nature of the endeavor and according to local government practices. Such variability, however, hampers analysis of research findings and creates

difficulties in comparative monitoring by AID and other donor agencies. This suggests the additional need for a model for uniform compilation and reporting of data. Although the model should be quite simple, minimizing the added workload imposed on project staff, it should have at least four features.

First, it should be based upon clearly defined and standardized measures of resource utilization so that, for example, the aforementioned midwives would be treated similarly if indeed they represent equivalent resources. Thus, manpower inputs might be reported in person-months of effort rather than dollar expenditures. Similarly, the costs of equipment, development of a cadre of trainers, and other capital expenditures would be amortized according to uniform procedures.

Second, the model should allocate expenditures among a defined set of functional categories. This would permit comparative assessment of inputs into training, supervision, supply, etc.

Third, the model should provide for the formation of a limited number of uniformly defined indices, e.g., cost per capita, cost per acceptor, cost per couple-year of protection, etc.

Finally, the reporting of required information should be completed with defined periodicity, annually at least. The report should contain cumulative data, as well as experience for the most recent period to permit incremental analysis.

Many complexities of the model, some undoubtedly unanticipated, would have to be worked out. Two elements clearly deserve attention, however. The first is the distinction between costs of research and costs of replication. These are difficult to disentangle and are subject to a certain amount of arbitrariness. Nevertheless, for projects in which research typically accounts for one-third of total costs, this is a necessary step.

The second noteworthy element is the distinction between start-up costs and continuation costs. High costs are associated with the procurement of vehicles and the establishment of training programs, supply points, and record systems. Amortization of these costs over the short life of the project as opposed to their total period of use obviously makes a considerable difference in cost analysis. Furthermore, once borne by the project they are of no consequence to the cost of continued operation after project termination.

The proposed model would serve several purposes. In the first place, as already suggested, it would permit meaningful comparative monitoring. Among other things this would encourage decentralized flexible funding. Because of the enhanced general ability to monitor centrally the impact of local expenditures, there would be no need to review expenditure requests on a highly individualized basis.

A second advantage of the model would come from the ability to extrapolate experience in one setting, with appropriate caution, to another setting. The resource requirements of a program in Country A could be used to judge the implications of launching such a program in Country B. Further, different service components in Countries A and B could be synthesized to produce estimates for a combined program in Country C. Such extrapolations are already undertaken in a crude way. The proposed model would merely systematize the procedure.

The model would also provide a data base for more meaningful cost-effectiveness assessments. For this, as well as other purposes, provision must be made for periodic cost reporting and incremental updating. Even with appropriate amortization, costs early in the life of a project are likely to be relatively high, whereas the momentum of performance has not yet been achieved. Thereafter,

project effects should accelerate faster than costs, thereby reducing the ratio of the two. It is important, therefore, that project maturity be considered in monitoring and comparing cost-effectiveness measures. Overall ratios after the fact are of limited value since they are, in effect, averaged over a series of distinctly different project phases.

In most cases it is expected that total project costs, and therefore costs per capita will exceed those of an existing system. It is hoped, however, that additional project benefits will more than compensate for the added costs, thereby reducing the cost per member of the population effectively served. Any economic analysis must consider total replicable costs to answer the question: Is it feasible, i.e., affordable? Assuming an affirmative answer, the analysis must then determine whether the project constitutes an efficient use of available resources.

Each individual project should provide its own detailed information, depending upon specific objectives and population served, to get at the efficiency question. As suggested earlier, the several inputs and outputs should be separated for analysis. Further, population segments of interest may have to be segregated. An urban population may be served more cost-effectively, for example, than a rural population. Given the importance of the latter to the program, however, the question is: Through what mix of services can the desired effect be achieved at minimum cost for that population?

This example suggests the possible importance of equity of coverage in addition to cost-effectiveness. One must guard against excessive reliance on economic indices simply because they are the most clearly and directly assessable.

Recommendations

We are left with a major challenge. Superficial economic appraisals are of limited value and may even be misleading. Yet meaningful analysis requires rather detailed information systematically collected and processed periodically. How can useful analyses be feasibly accomplished? From this dilemma two basic recommendations emerge.

First, the considerable time and effort required to develop and implement a model to serve as the framework for economic analysis, as opposed to budgetary review, would be well worthwhile.

Second, detailed guidelines for cost-effectiveness analysis are needed. These require a sharpening of project objectives, selective identification of key performance indicators, and innovative, parsimonious data gathering that avoids overwhelming the project with excessive detail.

Information, Evaluation, and Research Procedures

Throughout the report reference has been made to information and evaluation requirements, conditions, and shortcomings and to specific research questions. Rather than to recapitulate the points here, the purpose of the present section is to offer some general comments on the evaluation and research process and the information base supporting it.

The discussion proceeds on the premise that an integrated view of management, evaluation and research is essential. An isolated, static perspective on research is inapplicable in the politicized service environment in which OR projects

are conducted. A flexible posture of adaptation to local conditions is necessary without unnecessary sacrifice of analytical rigor. The project review has produced a number of useful insights, relatively few of which have come from conditions of experimental control in the strictest sense of research. Rather, many have come from appraisal of experience in project management and evaluation.

From this experience we conclude that routinization and standardization of basic data collection on a carefully selected, but expanded set of project parameters, coupled with rapid feedback of results could further strengthen the overall evaluation process and would, in addition, uncover problems in need of research that is admittedly ad hoc. Stated somewhat differently, there is need for greater comprehensiveness and analytical potential in the routine information base, but in the interests of simplicity, data should be limited to items of fundamental importance. More detailed investigation of specific problem areas would be undertaken selectively as the practical need arose. Contingency funds should be included in project budgets to cover these ad hoc studies. To illustrate the point, we cite the Indonesia and Thailand family planning programs which employ streamlined management information systems that highlight exceptional conditions for management attention and potentially for productive operations research.

Projects typically provide for pre- and post-surveys of contraceptive practice in project and control areas. Efforts should be made to simplify and standardize these surveys for the sake of comparability and avoidance of duplication of developmental effort. The surveys should include information on: client characteristics; previous and current fertility regulation practice; previous and current source of supply; reasons for use and discontinuation; and sources of satisfaction and dissatisfaction with the program and method. Project-specific

information, especially regarding service components other than family planning, could be added to the basic survey as appropriate.

Along with the cross-sectional surveys, more serious attention should be given to development of a uniform, streamlined data base reflecting the dynamics of project operation. The information system should record inputs and performance in relation to client follow-up, logistics, personnel deployment, and costs.

The use of client records is an especially problematical area in view of the limited education and training of agents and their volunteer status. Because such records are of substantial importance to client follow-up, supervision, and evaluation, every effort should be made to employ them in simplified form. The testing of pictorial records in Nigeria is a significant undertaking in this regard.

Throughout this process the role of local academic institutions deserves serious attention. While their operational role is generally suspect, they can provide significant technical assistance in designing and conducting surveys, assisting in evaluation, and addressing focused research questions. AID support in strengthening ties between operational and research agencies could in its own right make a worthwhile contribution apart from immediate project aims.

Recommendations

To summarize, high priority should be attached to the development of standardized, streamlined information systems that integrate concerns of management, evaluation, and research.

Limited control over the field experimental environment, combined with the meager interest in research per se in host countries, requires a degree of flexibility

and adaptability that leads to a second basic recommendation that provision be made for addressing highly-specific research questions as they arise in practice in the field. As objectives shift during the operation of a project, the evaluation must be free to shift as well.

Finally, institutional development and institutional relationships that facilitate sound operations research should be explicitly encouraged.

General Recommendations

Review of individual projects and drawing of conclusions under specific headings have revealed certain common threads that bear consideration in the overall development and administration of the OR program.

First, formalization of a periodic uniform project reporting system would be useful. This would facilitate central monitoring of projects, and compilation of results and problems from the field into periodic newsletters would serve as a mechanism for timely dissemination of experience back to the field on subjects of mutual interest to project staff.

Integral to the reporting system would be a uniform budgeting format. This would provide comparability between projects regarding balance of effort going into training, service delivery, supervision, transport, etc.

A closely related central effort should be the development of standard data collection instruments and data analysis systems, as well as guidelines for project development and administration. This would simplify and systematize the work of project officers in the field and would promote the uniformity alluded to above.

Uncritical acceptance of the above recommendations would, of course, fail to recognize the uniqueness of individual projects. Technical assistance from central staff, augmented by outside contractors, therefore, should be organized more consciously along functional lines. Having suggested the designation of training officers within projects, it follows that there be a training officer designated at the central level to deal with general procedures and specific issues in this area. Specialized expertise might also be identified in information systems, supervision, and other areas.

More broadly, concern has been expressed regarding the general lack of orientation to research and project management. The Research Division has already sponsored four workshops in Asia, the Near East, and Latin America, and proceedings of the meetings have been widely distributed. These efforts should be continued and expanded, utilizing the experiences, principles, and procedures developed through implementation of the preceding recommendations.

FOOTNOTES

1. Cuca, R., Family Planning Programs: An Evaluation of Experience. World Bank Staff Working Paper No. 345. Washington, D.C., World Bank, July 1979, p. vi.
2. U.S. Agency for International Development. Office of Population, Research Division. Project Paper. Washington, D.C., AID, 1979, p. 18.
3. Black, M., "Deciding in the Daylight: Community Care in Western Kenya." UNICEF News, Vol. 98 (4) 4-9, 1978.

INTRODUCTION

ASSUMPTIONS, PHILOSOPHY AND PROJECT HISTORY

Background

The basic challenge to family planning programs in developing countries is to reach the rural areas where some 80 percent of the population lives. It is recognized that the widely used clinic model of family planning services centered around doctors and nurses is inadequate to meet this challenge. Implicit in this approach is an assumption of a gradual diffusion of awareness and practices from urban centers and clinical facilities to areas of lower levels of services and contraceptive usage. One response to this dilemma has been to experiment with household and village-based distribution systems as an innovative approach to family planning services in order to reach the rural populations and the urban poor. To pursue this effort an Operations Research division was established within the United States Agency for International Development (AID), the purpose of which is to encourage and support promising approaches to the delivery of family planning services.

Starting in 1974, the Office of Population, AID has encouraged and supported the initiation of a number of household and village contraceptive distribution projects. The number of these "Operations Research" (OR) projects which are labelled Operations Research (OR) has expanded considerably in recent years. In 1976, the Research Division of the Population Office received approval of a project paper to develop, fund and monitor ten household community based distribution (CBD) projects over the next five years with a budget of \$8.5 million. In May 1979 a second Project Paper was approved with an additional budget of \$45

million to extend and expand the work through 1984. The philosophy and plan of operations of CBD projects as stated in the 1976 project paper reads as follows:

"All of the proposed activities will be based on a household or village contraceptive delivery system. Under these systems, couples will not be required to leave their communities in order to receive basic family planning services. The projects will use operations research methodologies to evaluate and to make modifications in the delivery systems. Various system components (such as type of fieldworkers, health integrated with family planning, types of fertility regulations methods) will be compared for their cost-effectiveness.¹

Underlying this statement of basic principles are the views that: (1) there is a need to test a contraceptive distribution system in its totality. Each part of a project is subject to modification and evaluation but the testing of desirability and practicality of community based distribution as a whole is the focus of OR studies; (2) while strong emphasis is placed upon the research and evaluation activities in these projects the creation and maintenance of a functioning delivery system receives higher priority, thus minimizing the possibility that evaluation requirements might overwhelm or misdirect the distribution of services; (3) the ultimate purpose of OR projects is to develop through programmatic research prototypical family planning delivery systems appropriate for adoption by other developing countries. It is expected that at the completion of a project a plan of action will be presented to the host country for the replication and expansion of the most cost-effective family planning delivery systems. Thus, OR projects function as a tool to change policies and programs in host countries by presenting alternative modes of delivery which have been shown to be feasible, practical and desirable.

In the 1976 and 1979 Project Papers the general OR project delivery systems are specified. A household type delivery system entails a systematic canvassing of all households in an area offering family planning services at which time contraceptives are offered to eligible couples. Contraceptive resupply is to be arranged through depots located in the community. A so-called village delivery system (VDS) is also based in the community but does not involve a systematic household canvass. In a VDS scheme village agents operate a supply depot and make household visits as required.

Three tiers of projects were envisioned in the project papers. Tier I are small pilot projects; Tier II are larger in terms of population serviced; and Tier III tend toward being country-wide in scope. The evolution of these projects provides an opportunity for testing the effectiveness of new approaches, demonstrating their operational feasibility and examining problems associated with their extension and expansion.

Assumptions, Objectives and Features

The OR projects are based on four major assumptions:

1. there is a large unmet demand for family planning services among the rural populations of developing countries;
2. lay persons with little education can be trained in the numbers needed to serve as distributors and to set up village supply depots;
3. family planning services can be made fully available to a large, predominately rural population; and
4. many couples will accept and use family planning services once these are available to them.

There is no single household or village contraceptive distribution model. Each of the projects has unique features due to the different conditions and research interests of host countries. However, there are three basic features common to all OR project: (1) all are designed to test alternative family planning delivery systems in order to determine the most cost-effective system, and the feasibility of community based distribution; (2) the research component of the projects is intended to contribute to the service component, and frequently takes the form of a field experiment either with experimental and test populations or with results evaluated using before-after measurements of outcome variables; and (3) the projects are designed to maximize replication and expansion of the delivery systems on a large scale.²

The household and village contraceptive distribution systems are not intended to replace the existing clinical services. They extend their usefulness by putting the most popular and easy to use contraceptive methods within reach of villages and households. To carry out their functions effectively, the CBD projects are supposed to be closely linked to the life of the community and designed specially to suit the convenience of the user and the cultural patterns prevailing in the community.

While some projects are established and operated by private family planning associations or by a local university, the majority are linked to government efforts mostly under the ministries of health. Regardless of the type of executing agency, the host government participation and support is sought throughout the life cycle of the project. Thus government involvement is insured in the initial negotiations, in planning, implementation and in the evaluation of the project.

At the local level, all the CBD projects have as an integral part of their design a preparation phase during which the community leaders are contacted. During these contacts, the project is explained and the leaders' support is elicited. The field staff for the distribution systems are recruited from the local community, or from a similar community in the general area. Thus the project is built on local participation and talent with the aim of improving the likelihood of its being viewed as a community effort or as congruent with perceived community needs.

In summary, the primary purposes of OR projects are twofold: (1) to test the socio-cultural acceptability of household distribution and to indicate to policy makers whether an intensive intervention could result in dramatic increases in contraceptive use; (2) to develop family planning delivery systems that are sufficiently cost effective to allow them to be replicated nationally. To be useful, the system must not only be demographically effective, but be within the wherewithal of a host country government typically faced with shortages of financial, material and personnel resources.

Historical Perspective

The rapid expansion of the Research Division from two projects in 1974 to nineteen active in 1978, placed an increasing burden of project development and monitoring on the staff. Earlier projects were reaching the point of providing valuable results which would be useful to new projects, thus calling attention to the need for comparative evaluation. The Division staff, which felt strongly that the time had come to review and evaluate project experience, were spread too thin to do any in-depth evaluation. They also wanted external opinions in the evaluation process and also in the provision of technical assistance. Thus convinced of the

value of external review and evaluation, the Division sought through the initiation of the Family Planning Operations Research Contract, an evaluation of family planning service delivery systems in LDC settings with special focus on the evaluation of their own Operations Research projects.

The Johns Hopkins Population Center, with input from the Departments of Population Dynamics, International Health, Maternal and Child Health, Health Services Administration, and Behavioral Sciences and the Population Information Program, was awarded the contract in the fall of 1979 and began to immediately provide technical assistance and to prepare a "comprehensive review."

Comprehensive Review

The first task to be accomplished under the terms of the Family Planning Operations Research Contract was a comprehensive review of the experience in projects initiated prior to December 1979.

In order to gain an initial comprehension of the complex history of the Research Division's projects, Hopkins and AID staff established strong communication channels. General meetings were held in both Baltimore and Rosslyn where the staff of both organizations met to discuss the projects, the Research Division's policies and their expectations for the contract. This gave the Hopkins staff an understanding of the complexity of the task ahead and allowed initial plans to be formed.

As the depth of inquiry grew, it became clear that extensive personal interviewing of project monitors and other AID staff was essential. Over 80 trips were made to Rosslyn for the purpose of interviewing and consulting with individuals in the Population Office and other AID offices. Information gathering trips were also made to the major contractors and other organizations involved in

CBD projects. The Population Council, Center for Population and Family Health, Columbia University, PAHO and IPPF were some of those consulted within the United States. Field trips to Guatemala, Egypt, Jordan, Mexico, Indonesia and Thailand brought first-hand knowledge. Some of these trips were taken for purposes other than the OR Contract, but valuable information for the Review was obtained. In retrospect, visits to additional project sites would have proven valuable with less reliance on project documents.

Gathering documentation on the projects was essential. A team of three systematically went through the files in the Research Division selecting and copying all documentation providing concrete information or indicating decision making factors in the projects. All files at the Division were open for examination, including proposals, contracts, findings, budget detail and trip reports. Approximately 450 documents were transported to Hopkins where they were organized into the Hopkins Population Center Document Collection. In order to provide optimum accessibility to the documents, staff was trained in indexing and abstracting. All documents were arranged by country, by project within country and then in chronological order. They were then classified, indexed, abstracted and put in the Document Collection. An indexing system was devised specifically for this project so that documents could be retrieved easily. Detailed indexing with terms specific to CBD and related areas made access to very minute but important information within the documents possible. Some items of a sensitive nature are marked "restricted" but are available to project staff.

Files were also established for non-project documents. Documentation was collected on other projects of a CBD nature that would provide useful information to those working on the contract. For example, files were set up on

the Narangwal and Danfa projects. Literature searches were done on special subjects pertinent to the Review and selected documents acquired for the collection. Some of the areas in which files have been established are oral rehydration, effects of low dosage orals on breast feeding, cost-benefit analysis of family planning programs, and antihelminthics. The Population Dynamics Library was used extensively to provide materials and on-line searches on MEDLINE, POPLINE and CPC Population Bibliography data bases. The interrelationship of the Document Collection and the Library proved very useful.

A system established between the Research Division and the Document Collection keeps all current documents moving to Hopkins. Documents are put in the Collection and routed to interested individuals, thus maintaining current awareness of project activities.

Project summaries were prepared based on a review of project documents and supplemented by interviews with project monitors and contractors.

In preparing to undertake the comprehensive review it was apparent that multiple authorship would be necessary because of the limited time available and the varied expertise required for analysis of project experience from several perspectives. The organized, indexed, and abstracted system of documentation proved invaluable for the efficient utilization of files. Beyond this it was decided that each country and project file should contain a summary report of project experience to date as detailed in the individual documents and from discussions with project monitors and others.

The project summaries served three principal purposes. First, they recorded the rationale, objectives, procedures, and chronology of major project events in an organized, coherent manner not readily discernible from review of

individual documents in the file. Second, the summaries highlighted real and potential problems and issues associated with particular projects. For example, if a project included diarrhea control in its design, this feature was underscored in the summary, along with major lessons learned. In this way the reviewers were led easily and without duplication of effort to those projects providing especially valuable insights into specialized areas of concern. By sorting project material in advance, reviewers were spared having to repeat the exercise for his own purposes. Finally, preparation of the project summaries served as a useful learning experience for the reviewers, most of whom had later responsibility for preparing sections of the final report. The overview gained through the project summaries permitted a sharpening of the final report outline around critical features of project experience.

The project summaries were prepared by nine different individuals, whose contribution varied depending upon time availability and familiarity with the countries and languages concerned. In order to minimize individual bias in the reporting and interpretation of project events and to enhance comparability in analysis a uniform format was devised for preparing the summaries. (See Appendix A.) Care was taken, however, to avoid inflexibility that might compromise the understanding of unique features and contributions of specific projects.

The prescribed format called for the summaries to be organized in four parts. First, a face sheet gave a capsule summary of project characteristics including site, population size, budget, main purposes, administrative and technical agencies participating, and basis for evaluation. The one-page face sheet permitted rapid comparison, albeit superficial, between projects.

The second section of the summary was a project content checklist. This served as a rapid reference for contraceptives used and methods of distribution, other services rendered, methods of payment, characteristics of agents and supervisors, and record systems employed.

The heart of each summary was a project narrative of 5-10 pages organized under the following headings.

1. Contextual background
2. Target population and its problems
3. Study organization
4. Project internal organization and its relation to national and international programs and agencies
5. Budget information
6. Personnel trained and utilized
7. Supporting services, including supplies and transport
8. Experimental and other variables, including modifications over time
9. Research methodology
10. Results and recommendations
11. Unresolved issues

Whereas the project narrative described the inter-related features of the project, the fourth part of the summary highlighted and interpreted specific problems and issues that arose. This section included a succinct statement of the problem, its contextual background, means available for appraisal, and results and recommendations. The number of problems developed in this way varied according to the length and complexity of project history.

To illustrate the use of project summaries in the subsequent topical analysis, consider a reviewer attempting to assess the effect of agent characteristics on project performance. He could refer to the problems and issues statements of the project summaries to ascertain the range of characteristics addressed and those presenting a recurring theme. Determining, for example, that sex and marital status were common concerns, he could review them in the context of individual projects through the project narratives, and he could investigate the matter further by referring to the document abstracts and then to details of relevant documents themselves.

While organization of information by project was a useful preliminary step, the main focus of interest in review was in categorical areas of experience. Hopkins staff members took responsibility for the subject areas according to their fields of expertise. For example, questions on services mix were viewed separately from issues of training and supervision.

Ultimately, of course, the range of services offered affects requirements for personnel and the complexity of supervisory support. It has been essential, therefore, to weave together the several categorical analyses into an integrated presentation of findings and recommendations. The resulting Summary of Comprehensive Review: Implications, and Recommendations forms the first section of this report. This is followed by sections dealing in greater detail with selected categorical problems.

In the interests of time and in recognition of the specialized expertise available, responsibility for this review has been distributed among approximately a dozen of the Hopkins senior staff. In order to secure the benefits of specialization while avoiding fragmentation, careful coordination has been necessary at two

levels. First, a Hopkins directorate, in consultation with AID staff, has guided the overall report preparation. Second, a five-member core staff has been assembled to assist individual investigators. This staff has screened AID documentation and organized the principal materials within the Population Center Document Collection. Staff members have then been available to assist investigators in retrieval of information needed for individual purposes, either at Hopkins or from the basic AID files.

Coordination has been facilitated immeasurably by the proximity of Hopkins in Baltimore and AID in Rosslyn. A complete, self-sufficient information center in Baltimore could not be created without unnecessary duplication. Continued access to AID files has therefore been necessary throughout the review process. Moreover, as already indicated, reference to undocumented information obtained through discussion with AID personnel has been a significant qualitative feature of the review. Availability of office space in Rosslyn for Hopkins staff has accordingly been a most welcome accommodation.

For the most part reported findings are based on AID documentation. Where reference is made to projects other than those supported by the Research Division, more explicit citations are given. Every effort has been made to interpret findings accurately and to clarify ambiguities in the files. AID staff have been most helpful in this regard. It is hoped that the report may lead to the highlighting of genuine family planning issues that will receive deserved attention.

FOOTNOTES

1. Agency for International Development, Office of Population, Research Division. Project paper. Washington, D.C., AID, 1976.
2. For more detailed information see: Gillespie, D. G. and Merritt, G. "Operations Research on Household and Village Contraceptive Distribution Systems." In: Gardner, J. S. (ed.), Village and Household Availability of Contraceptives: Africa/West Asia. Seattle, Washington, Battelle Memorial Institute, 1977.

OVERVIEW OF AID OPERATIONS RESEARCH PROJECTS

From 1974 through December 1979 the AID Research Division funded thirty OR projects, three conferences and sponsored a major contract with the Center for Population and Family Health of Columbia University to provide technical assistance for OR projects. Of the thirty projects, two have been excluded from the present review. A grant made to the Ministry of Health, Bangladesh, was intended to stimulate several small studies of family planning services. These studies are not a single CBD or OR demonstration project and will not be included in the review. A one-year grant was also made to APROFAM in Guatemala for an opinion survey of the staff of the 1977-79 APROFAM campesino project. No service component was included in this grant. The remaining twenty-eight projects were initiated between 1974 and 1979 and an examination of their size and composition highlights the development of the OR approach.

As of the review date there are 17 projects in operation and an additional 11 have been completed. As can be seen in Table 1, a large number of projects were begun in 1976, 1977 and 1979. Nearly all of those begun in 1976 are now completed and nearly all of those from 1977 will be finished in 1980. Since projects begun in a given year may require two or three years of preparation, no great significance is placed on the year of implementation. It is clear, however, that a high level of project activity was underway by 1977 and 1978. Throughout the six years under review there has occurred an increase in the average size of the project as seen in Population Served and Budget Cost (Tables 2, 3 and Appendix B). Only one project (Taiwan) of those now complete served a population greater than one million, whereas six of the currently active projects are of this magnitude. Of the active projects, 65 percent were funded at \$500,000 or more while none of the

Table 1

TWENTY-EIGHT AID/POP/OR PROJECTS BY CURRENT STATUS AND YEAR STARTED

Current Status (January 1980)	Year Started						Total
	1974	1975	1976	1977	1978	1979	
Completed	2	2	5	2	-	-	11
Active	-	-	1	5	3	8	17
Total	2	2	6	7	3	8	28

Guatemala APROFAM staff survey started and completed 1979 and Bangladesh, MOH small grants project 1977-1980 are omitted.

Table 2

TWENTY-EIGHT AID/POP/OR PROJECTS BY SIZE OF POPULATION SERVED
AND CURRENT STATUS

Current Status (January 1980)	Population Served (000)				Total
	100	100-500	500-750	1000-8000	
Completed	5	5	-	1	11
Active	2	7	2	6	17
Total	7	12	2	7	28

All completed projects were started in 1974-1977. Of the active projects, one was started in 1976, all others in 1977 to 1979--Appendix 1A and 1B.

Table 3

TWENTY-EIGHT AID/POP/OR PROJECTS BY COST AND CURRENT STATUS

Current Status (January 1980)	Budget (\$000)*			Total
	100-499	500-999	1000-4000	
Completed	11	-	-	11
Active	6	5	6	17
Total	17	5	6	28

*Does not include costs of contraceptives.

See footnote Table 2 for dates of completed and active projects.

11 completed projects exceeded that figure. In part the increasing cost is a reflection of worldwide inflation. In addition, the larger size of recent projects has tended to increase costs. A third factor which impacts on project cost is the additional complexity of a health component. Only 18 percent of the early projects, compared to 59 percent of those currently active, have included significant health components (Appendix B) in addition to contraceptive service delivery.

The information in Appendix B also makes it clear that the involvement by non-governmental organizations with AID in establishing these services in the earlier projects has given way increasingly to host country public sector participation in the active projects. This may mark an increasing acceptance of governments in LDCs to try CBD or OR approaches to contraceptive delivery services.

Oral contraceptives were universally used in both completed and active OR projects (Table 4). A higher proportion of more recent projects have included foam and referral for either IUD insertion or surgical sterilization among the services offered. Similarly, health interventions have increasingly been included in projects initiated since 1977. The proportion of projects delivering oral rehydration has increased to 65 percent. Over one-half of currently active projects include antiparasitic medication and a substantial number are using, or plan to deliver, other health services. The general trend, over time, has been to increase the range of both family planning and health services delivered.

Contraceptive Services in the Community

All projects have provided oral contraceptives. The usual AID policy has been to provide a single type or brand of oral contraceptive--a single

TABLE 4 Services Provided by AID/POP/OR Projects by Project Status and Country.

Country	FAMILY PLANNING COMPONENT						HEALTH COMPONENT					
	Orals	Condom	Foam	Inject- ibles	Referral IUD	Ster.	Rehydra- tion	Anti- Parasite	Immunization ^a Mother Child	Vitamins or Iron	Drugs	Health ^b Advice
COMPLETED												
1. Egypt-Shanawan	+	R										
2. Taiwan	+	+			+	+						
3. Bangladesh-CRL	+	+										
4. Korea-Euiryong	+	+			+	+						
5. Egypt-Menoufia 1	+											
6. Mexico-S.P. Autopan	+	+		+	+							
7. Nicaragua	+	+					+	+				
8. Philippines	+	+							+	+	+	
9. Tunisia-Bir Ali-PFAD	+				+	+						
10. Bangladesh-ICDDR	+	+	+	+	+	+			+	+		
11. Guatemala Aprofam Campesino	+	+										
TOTAL	100%	82%	9%	18%	45%	36%	9%	9%	9%	0%	18%	9%
ACTIVE												
12. Korea-Cheju	+	+			+	+						
13. Haiti	+	+	+		+	+	●	●		●	●	+
14. Morocco-Marrakesh	+	+			+							
15. Sri Lanka	+	+		R	+	+		+				
16. Thailand	+	+	●		+	+	●	●		+		
17. Tunisia-IFPC	+	+	+		+	+	+			R	+	+
18. Colombia	+	+			+	+		+				
19. Egypt-Menoufia 2	+		+		+	+	+		R			
20. Mexico-3 States, DF	+	+	+	+	+	+	+	+			+	+
21. Brazil-Piaui	+	P	P		P							
22. Brazil-4 States	+	P	P		P							
23. Guatemala-MOH	P	P	P		P	P	P	P			P	P
24. Guatemala-INCAP	P	P			P	P	P	P	P	P	P	P
25. Morocco-3 Provinces	P	P	P		P	P	P			R	P	
26. Nigeria	P	P	P		P	P	P	P	P	P	P	P
27. Peru	P	P	P		P		P	P	P	P	P	P
28. Sudan	P	P	P		P		P	P	P	P	P	P
TOTAL	100%	94%	71%	12%	100%	65%	65%	53%	24%	35%	47%	41%

+ = Service is provided by agents.

P = Planned that service will be provided

R = Service by clinic referred, often outside of community

a = Planned injections usually given by Supervisor

b = Advice on health interventions which agents have been trained

● = Service added after July 1, 1979

estrogen-progestin mix. Although systematic data are lacking, local physicians in LDCs have expressed the view that a small variety of mixes would avoid some of the side effects and increase both acceptance and continuation. AID reports that attempts to provide oral pills of differing estrogen-progestin content have encountered two main difficulties. One is that the supply line to each distributor is often fragile and new additions exacerbate occasional shortages. In addition, many end agents do not comprehend the differences between types of pills and have mixed packets of 80 and 50 mg. estrogen tablets in a single box, distributing them indiscriminately. The profusion of multiple packaging and brands of orals are sources of further field agent confusion. There is value in the argument that a single brand and strength of pill is useful with other formulations available from community health centers or drugstores.

All but three projects have provided condoms. In Egypt and Tunisia, it appears that there was resistance to having female agents distribute condoms. In Morocco, possible negative reaction to agents providing condoms or pills to members of the opposite sex prompted discussion of legal and insurance implications.¹ The proportion of projects providing foam (Neo Sampoo) has increased from 10 percent in completed projects to 70 percent in active projects. This provides a welcome addition of a contraceptive method with few side effects. In general, however, these barrier methods are not widely used.

Mexico is the only presently active project providing injectables at the community level; the Sri Lanka project referred clients desiring contraceptive injections to a clinic. This limited offering occurred despite the experience in Bangladesh-ICDDR and Thailand that many women prefer injectables and that the

method may have advantages for lactating women. The safety issue is discussed in greater detail in a later chapter on health integration. Although not supplied by AID the injectable contraceptive meets a sizable and continuing need in many populations.

In projects begun after 1977, the availability of referral services for IUD and sterilization methods has increased substantially. Attention should be drawn, however, to the need for clinical facilities in support of IUD insertion and sterilization. Required clinical back-up represents a large investment in training of physicians or other health staff and in equipment in what is otherwise a community sited activity. Little data are yet available on results achieved by these referrals from community agents for clinical services.

The Tunisia-Bir Ali experience shows what can be accomplished by a competent gynecologist who goes into the field and provides a completely new service to an isolated rural population. Contraceptive prevalence rates have increased from 7 to 20 percent in 12 months, and the CBD approach has been expanded country-wide. It has also demonstrated the influence of prominent local persons; acceptance was greatest in areas where someone like the mayor's wife decided on a sterilization operation. Women in Bir Ali district who opted for IUD or sterilization instead of oral contraceptives were given coupons which entitled them to an IUD insertion or sterilization at a specific clinic. Table 5 describes the results of that coupon experiment. The high rate of acceptance of sterilization at the first household canvass was unexpected, perhaps revealing an unmet demand in Tunisia. Sterilization accounted for half of all contraceptive practice. The preference for sterilization acceptance faded after the second canvass and IUDs

Table 5

RESULTS OF COUPON ACCEPTANCE BY HOUSEHOLD CANVASS ROUND,
BIR ALI BEN KHALIBA, TUNISIA, 1976-77

	First House- hold Canvass		Second House- hold Canvass		Third House- hold Canvass	
	No.	%	No.	%	No.	%
Number women visited	3,944		3,548		3,196	
Coupons accepted	200	100	172	100	112	100
Coupons redeemed		34		36		37
IUD		6		5		18
Sterilization		28		26		12
Other		1		5		7

From Tables 14 and 15 PFAD Family Planning a Domicile in Bir Ali Ben Khaliba.
International Fertility Research Program, Triangle Park, N.C., July 1979. Mimeo.

became the preferred method. Sterilization remained the most prevalent method of contraceptive use in the project with an 11 percent rate at the last follow-up in 1978.²

The Community Based Distribution programs have broadened contraceptive mix over the six years under review. Orals have been provided in all projects and condoms in all but one or two. Foam has been provided in three-quarters of the active projects; injectables in only 1 of 17, with another project making referrals for Depo Provera. Referrals for IUD insertion and for sterilization are increasingly available, although data on actual use are limited. The provision of clinical support for some methods is critical. In addition, the strong demand for sterilization in some populations suggests that the need for clinical facilities will persist.

Health Services--Integration with Community-Based Family Planning

Health services in less developed countries are largely clinic-based and variable in coverage and quality. There is little modern medicine in the rural areas of most LDCs and it is not feasible for ministries of health, with or without outside support, to change this situation rapidly. One alternative to the traditional system is to use lay or less scarce health personnel to provide CBD for selected primary health measures. Several project under review have combined these measures with family planning services. The Research Division has used the following criteria to select health interventions for trial in community based distribution programs:

1. Should meet a locally recognized health need
2. Should be within the capacity of the local agents and logistic system to deliver

3. Potential advantage should outweigh risk
4. Should have potential to improve health
5. Should promote acceptance of family planning
6. Should be congruent with desires and policies of host government

The selection of specific interventions which would meet each of these criteria required several steps. The Research Division, in cooperation with scientists from health centers (including Johns Hopkins), compiled a list of major causes of morbidity and mortality in LDCs. Each item on the list was reviewed and the availability of an appropriate health intervention preparation or procedure determined. The suitability of the health intervention technique for CBD was examined and a list of feasible items was developed.

Oral rehydration salts, broad spectrum antiparasitic drugs, immunization, iron and vitamins for selected groups have been considered to meet the above criteria. Immunizations are likely to be most effective in reducing some mortality, but the need may not be generally recognized. As with any inoculation these present problems of safety when given by partially or untrained village agents. Their value, however, may outweigh the risk associated with delivery of the treatment. According to one AID contract monitor, the usefulness of household drugs is unclear. This would be especially necessary in a country like Thailand where many medicines are available through drugstore and other sources. The use of multivitamins, antiparasitic medicine and other household drugs in Thailand, for instance, did not promote acceptance of family planning.

There has been a substantial increase in the number of projects which offer health interventions between 1974 and 1979. As noted earlier, over one half of the active projects now offer or plan to offer oral rehydration salts and broad spectrum antiparasitic drugs.

Other health interventions are uncommon. Bangladesh-ICDDR agents gave tetanus toxoid to pregnant women. Three projects (Guatemala-INCAP, Nigeria and Peru) have plans for immunizations to be given by non-physician supervisors; Sudan plans a mass campaign with qualified trained lay personnel. Another three projects are instructing their agents to make referrals for immunization. Eight projects give or plan to provide iron or vitamins or both.

Drugs were scheduled in the Haiti project but were two years late in arriving and are being introduced in one of the three study areas in 1980. Drugs are planned for the two Guatemala projects (MOH and INCAP) and also in Morocco and Nigeria.

Most of the above health interventions are recent and there are few data on their effectiveness. The drug dispensing effort in Thailand was interpreted as not cost-effective, but the plan was so poorly supported that conclusions are uncertain. The effect of these health interventions on either the health of the population or family planning acceptance is unclear and must await the evaluation of projects initiated during 1978 and 1979. Projects underway in Egypt and Guatemala will provide information on oral rehydration and nutrition, respectively, and with other projects will provide some data on health status changes. None of the projects reviewed have considered in great depth the evaluation of such changes.

OR Project Inputs and Stimulation of Demand

Defining and measuring project inputs has been difficult. These are assumed to affect contraceptive use and health status of the populations but difficulties in conceptualizing and measuring the level of effort or inputs have

inhibited assessment of success or failure within or across projects. Inputs include: provision of supplies, services and knowledge regarding fertility regulation, actions to increase use of supplies, services and information (including IE and C elements), and facilitation of feedback for decision makers throughout the system to improve provision of these services and methods.³

Particularly important are the distribution of a wide range of contraceptive methods at low cost with easily accessible high quality service.⁴ With regard to provision of services, not all these elements are variable in the OR projects reviewed here. In CBD programs services and supplies are provided at the village or household level, thereby offering less variability in accessibility, although it could be argued that a household delivery system provides initially more convenient services. Contraceptives are given at no cost in a majority of CBD projects and at a heavily subsidized price in those instances where a user charge is levied. Lacking measures of quality of services further reduces the elements which are of interest to that of the availability of a wide range of family planning and health interventions and the use of IE and C elements in project activities. The question of the mix of both family planning and health interventions thus takes on special importance in differentiating among the various OR projects.

We have made the assumption that demand is in part stimulated by a varied choice of contraceptives, by an Information and Education Program and by the extent and perceived value of the health interventions. As one means of looking at this assumption, selected components shown in Table 4 of projects have been scored as shown in Table 6. Each type of contraceptive and health intervention offered in a project was assigned a score of one with a maximum score of six on contraceptive mix and seven on health. The scoring is arbitrary and no attempt is

made to weight items within or across categories of inputs, but the information allows for comparisons over time and for consideration of where additional inputs could be made. The effect of pricing policy is discussed below but is not shown in Table 6 because little attempt has been made in OR projects to vary this input and the complexity of assigning weights to these items.

The weighted scores on Demand Stimulation in Table 6 for the completed and active projects may be summarized by comparing the bottom line averages. This tabulation shows the active projects scoring higher on Demand Stimulation than the completed projects.

The score of the contraceptive mix component has increased about one-quarter and currently is about three-fourths of its maximum. The health component score in the active projects is four times the score of the completed projects but still is a small fraction of its potential. Data are not yet adequate to score the I and E effort; it is included only because of its potential.

Contraceptive Mix

As noted, the contraceptive mix score in the active (more recent) projects is higher than in the completed projects but the average is only 72 percent of the potential and only one of the active projects has a score of 6/6. There is therefore little data on what may be expected from a maximum contraceptive mix and little likelihood of getting such data in the immediate future.

The exception to this is the Bangladesh ICDDR study which is the only project to receive a 6/6 contraceptive mix score; it provides some evidence about the potential effect of an improved mix of contraceptives. The pre-1970 program, where IUD was the chief method, achieved a prevalence variously estimated at less than 5 percent. The CRL program of 1975-77 provided household distribution of

Table 6

SCORES FOR OR PROJECTS INPUTS IN FAMILY PLANNING, HEALTH, AND
IE & C FOR COMPLETED AND CURRENTLY ACTIVE PROJECTS

<u>Completed</u>	<u>Contraceptive Mix</u>	<u>Health</u>	<u>IE & C</u>
Egypt - Shanawan	2		
Taiwan	2		1
Bangladesh - CRL	2		
Korea - Euiryong	4		
Egypt - Menoufia I	1		
Mexico - S.P. Autopan	4		
Nicaragua	2	5	
Philippines	2		
Tunisia - Bir Ali - PFAO	3		
Bangladesh - ICDDR	6	2	
Guatemala Aprofam Campesino	2		1
	<u>Total</u>	7	2
	<u>X</u>	0.6	-
	<u>% of Maximum</u>	9	-
 <u>Currently Active</u>			
Korea - Cheju	4		1
Haiti	5	1	
Morocco - Marrakesh	3		
Sri Lanka	5	2	
Thailand	4	1	1
Tunisia - PFPC	5	4	
Colombia	4	1	
Egypt - Menoufia II	3	2	1
Mexico - 3 States DF	6	4	
Brazil - Piaui	4		
Brazil - 4 States	4		
Guatemala - MOH	5	5	
Guatemala - INCAP	4	6	
Morocco - 3 Provinces	5	3	
Nigeria	5	7	
Peru	4	7	
Sudan	4	3	
	<u>Total</u>	45	3
	<u>X</u>	2.7	-
	<u>% of Maximum</u>	38	-

orals, condoms and referrals for IUDs; this achieved an initial prevalence of 18 percent, but with a high drop-out rate due primarily to side effects, reached a steady prevalence of about 13 percent.⁵

The ICDDR extension of the former program during 1977-79 added injections (DMPA), foam, menstrual regulation and referral for sterilization to the previous mix. It also provided village field workers who were better educated and specifically trained to give advice on side effects and on changing from one contraceptive to another. In addition, a limited number of maternal and child health services were added. The contraceptive prevalence reached 36 percent. The 18-month continuation rate was about 70 percent.

The following preliminary data and comments on the changing characteristics of couples accepting the various methods of contraception are from Dr. Shushum Bhatia, Medical Director of the program. The major factors associated with the 1977-79 increase in prevalence and continuation were improved contraceptive mix, more capable and better trained village workers, the favorable reaction to the health interventions, and the educational effect of a successful program. No relative weight is given to these factors. However, the following data suggest that methods are age selective and therefore that a wider contraceptive mix would appeal to a wider age and parity range of women.

The preference for injections and sterilization is arresting and perhaps instructive. Sterilization is usually a method of choice where completed family size has been attained; one-half of the DMPA users have four or more children, whereas other methods have appeal for women at lower parity levels. Broadening the contraceptive mix allows for both limitation and spacing to be achieved.

Table 7

PERCENT USERS, AGE AND NUMBER OF CHILDREN OF BANGLADESH COUPLES
ACCEPTING CONTRACEPTION BY METHOD*

Method	Percent of Users	Median Age	Median No. of Children	Comment
Vasectomy	3	37	5	Limitation is main purpose  Spacing is major interest
Female Sterilization	20	34	5	
Injections	50	30	4	
Pills	13	29	3	
Menstrual Regulation	5	28	3	
IUD	3	27	3	
Condom	5	27	3	
Foam	2	27	3	
All Acceptors	101	31	4	

*Data provided by Dr. Shushum Bhatia.

Household Canvassing and Village Depot Distribution

Altogether, 18 of the projects used household canvassing as a means of initial distribution and nine were depot based from the outset. One project, Philippines, is excluded from this classification due to early termination of the delivery system. Three of the eight project agreements signed in 1979 were for depot based systems--a higher than usual proportion.

AID staff expectations were that systematic household canvassing and subsequent depot resupply would have a greater impact than a depot based system without systematic canvassing. A trial-run comparison of changes in contraceptive prevalence after variable periods for the two types of community based distribution, as described in Table 8, is inconclusive. A sufficient number of cases are lacking in the depot category. Such comparisons are not yet helpful; only two countries with contraceptive prevalence information are in the depot category, and in one (Nicaragua) the project was aborted by revolution. The absolute percentage is shown in Table 8 to be higher for those projects that include a systematic household canvass. At present, five or more of the currently active projects are in the depot category (no organized canvassing) and it should be possible to obtain a better reading on this point as their experience becomes available.

Pricing Policy and Demand Stimulation

Ten of the 28 projects (Egypt 2, Guatemala-APROFAM, Korea-Cheju, Mexico, Nicaragua, Nigeria, Peru, Sri Lanka and Thailand) were to sell contraceptives at subsidized rates; others gave them without charge. Evidence from Egypt-Men-1, Korea-Cheju and Taiwan suggests that acceptance and continuation rates were not much influenced by small differences in price, e.g., free vs. \$.07/cycle in Egypt and \$.10/cycle in Korea.

TABLE 8

RANKED ORDER OF CHANGES IN CONTRACEPTIVE PREVALENCE*
HOUSEHOLD CANVASSING AND DEPOT VERSUS DEPOT SYSTEM ALONE

<u>Project</u>	<u>Household Canvassing + Depot</u>			<u>Village Depot Systems Alone</u>		
	<u>% Users Before</u>	<u>% Users After</u>	<u>Absolute % Change</u>	<u>% Users Before</u>	<u>% Users After</u>	<u>Absolute % Change</u>
Mexico, S.P. Auto	7	34	27			
Morocco-Mar	35	60	25			
Bangladesh-ICDDR	13	36	23			
Korea-Cheju	21	36	15			
Bangladesh-CRL	1	15	14			
Egypt-Shanawan	18	31	13			
Tunisia-Bir Ali	7	18	11			
Thailand				37	47	10
Egypt-Men-1	19	28	9			
Colombia	9	17	8			
Nicaragua				8	12	4

* Data from summary of Operations Research Projects, October 1979 and from Memo: G. Merritt to D. Gillespie, Overview of OR Projects, 3/80. Many prevalence figures are tentative.

The Thailand experience is difficult to interpret. Here the Operations Research private sector project, which sold contraceptives, competed with a government program that suddenly switched to free distribution in October, 1976. The government program increased its acceptor rate rapidly and significantly and the competing private sector project had a temporary drop in sales. Information in late 1979 indicated that the number of acceptors in the government program was high but that knowledge and use were slightly higher in the districts where the OR project was in operation.

On the negative side, it may be said that free contraceptives, if combined with incentives to agents to attain targets, can encourage the village agent to pad the list of acceptors. There was circumstantial evidence for this in a non-OR Caribbean project using CBD.⁶ This problem has been avoided when a fee is charged. The fee system sales records provide an index of use that can form part of a project monitoring system. This advantage is obviated, of course, in a situation where the price of orals is so heavily subsidized that it becomes profitable for the agent to purchase supplies and resell to off-project customers. The fee also has moved programs toward financial self-sufficiency, e.g., the urban CBD program of Profamilia in Colombia has come close to being self-supporting. The likelihood of replication or country-wide expansion is improved with a reduction on the dependence for foreign or governmental funds.

Agents

An attempt to develop data for an agent profile is shown in Table 9. Information in the files is most complete on sex, education, days of initial training, and method of payment. There is only scattered information on age, marital status, method of selection and details of training.

Table 9 - Agent Profile for AID/POP/OR Projects

+, item specified
 blank, no data
 a, total population

Country	Sex		Married	Age, median or avg. yrs.	Education		Selection		Training		Pay		Agent- Eligible Client Ratio	
	Female	Female - Male			Primary	Secondary	Community	Supervisor or Other	Initial (days)	In-service	Salary	Commission		Voluntary
COMPLETED														
1. Egypt-Shanawan	+					+				7		+		1:2000+
2. Taiwan	+		half							30		+		1:200
3. Bangladesh-CRL	+		most	39		+				3		+		1:50
4. Korea-Euiryong	+		most	30+						1		+		1:200
5. Egypt-Menoufia I	+							+	+	7		+		
6. Mexico-S. P. Autopan		+								5		+		1:1000
7. Nicaragua	+		most	50+						5	+		+	
8. Philippines	+		Pref							5		+		
9. Tunisia-Bir Ali-PFAD	+			21				+	+	10	+	+		1:200
10. Bangladesh-ICDDR	+			23				+	+	30	+	+		1:400 ^a
11. Guatemala Aprofam Campesino	+		most	32					+	5	+		+	1:50- 1:2000
ACTIVE														
12. Korea-Cheju	+		most						+	3	+	+		1:300
13. Haiti		+				+				30		+		
14. Morocco-Marrakesh		+								6		+		1:100
15. Sri Lanka	+											+		
16. Thailand		+	most			+				2			+	1:225
17. Tunisia-PFPC	+			22				+	+	6		+		1:125
18. Colombia	+									7		+		
19. Egypt-Menoufia	+											+		
20. Mexico-3 States, DF	+		most									+		
21. Brazil-Piaui	+									3			+	1:5000 ^a
22. Brazil-4 States													+	
23. Guatemala-MOH		+								15	+		+	1:300 ^a
24. Guatemala-INCAP	+					+			+	30	+		+	1:250
25. Morocco-3 Provinces												+		
26. Nigeria	+									10			+	1:500 ^a
27. Peru	+		Pref			+			+	15			+	1:200+
28. Sudan	+									20		+		

The great majority of village agents are females. Five projects used both males and females. Guatemala MOH will test the performance of male health promoters versus the success of couples (male and female). The Continuous Motivation Scheme in Pakistan, although not an OR project, used teams of male and female workers but there has been no acceptable data on performance of the teams.

Performance has been expressed by project administrators for married agents 25 to 30 years or older. But many younger women and some unmarried have been employed--post hoc observations suggested that the latter groups were more likely to be better educated and available for employment. Young married women were more likely to have personal experience with contraception than were older women.

Information is available on the educational level of agents in 16 projects. Eleven of these used agents with some secondary schooling. Five projects reported agents with 0-2 years of schooling which may limit their ability to keep written records. Other projects are being planned in areas with low educational levels and probably will use illiterate agents. Overall, it seems that the completed projects showed a preference for agents with secondary education; this is not so clear for the active projects.

A crude attempt to assess the effect of educational level on performance gave the results shown in Table 10. The highest increase in prevalence (28%) was found in Haiti, where agents were illiterate. The second highest change (23%) was found in Bangladesh, where agents had had some secondary education.

Observations from one project (Bangladesh-ICDDR) supports the view that education becomes more important as the duties of the agents are increased. As

noted above, in the initial CRL project using illiterate agents to dispense orals and condoms, the prevalence of contraception plateaued at about 13 percent. The illiterate agents were replaced by women with 6 to 7 years of schooling, average age 23 years, married, and having personal experience with contraception. These new agents were given more initial training plus one day per week of inservice training and a great deal of professional supervision and encouragement. They provided a larger contraceptive mix and some health interventions. The result of all this was a rise in contraceptive prevalence from the initial plateau of 9-13 percent to a level of 36 percent as of mid-1979. It was the opinion of the director of this project that these health interventions could not have been done with illiterate women but it is impossible to quantify the role of education in this change.

Little information is available on how agents were chosen. In seven projects it is stated that selection of village agents was by the supervisors in consultation with community leaders or officials and sometimes with the help of project staff. In some, it is merely stated that selection was made by the community without any details as to how this was accomplished. Several of the plans stated that the agent should be well regarded by her peers. Korea gave preference to women who had demonstrated leadership in the community, e.g., by heading a woman's club. In at least five projects, the agents were already associated with the health department, e.g., as nurses, midwives, health promoters (Guatemala-MOH) or family planning workers (Taiwan).

Table 10

INCREASE IN PREVALENCE OF CONTRACEPTION
TO SELECTED COUNTRIES BY EDUCATION OF AGENT

<u>Country</u>	<u>Illiterate Agents</u>			<u>Country</u>	<u>Some Secondary Education</u>		
	<u>% Users Before</u>	<u>% Users After</u>	<u>Absolute % Change</u>		<u>% Users Before</u>	<u>% Users After</u>	<u>Absolute % Change</u>
Bangladesh-CRL	1	15	14	Bangladesh	13	36	23
Haiti	2	30	28	Colombia	9	17	8
Nicaragua	8	11	3	Egypt M-1	19	28	9
				Korea-Cheju	21	36	15
				Tunisia-Bir	7	18	11

In Haiti, the initial plan was to give training to a larger than needed group of candidates and then to select those who performed best as trainees. It turned out that performance on the job was not directly related to accomplishments in the training program. The process was changed and agents were selected by a highly experienced supervisor after consultation with local leaders and his own staff.

The available information is that most of the training programs were brief. Eleven were for one to six days; twelve lasted one to six weeks. Most projects gave considerable attention to the initial training, but inservice or refresher training was relatively neglected. There are repeated notes in trip reports and other records of situations where there was no provision for per diem or travel to inservice training sessions, and other notes about inadequate planning of the inservice curriculum. This criticism of inservice training is difficult to assess; it may be that, in some cases, excellent supervision served the same function as inservice training, e.g., Tunisia-Bir Ali.

Anecdotal information suggests that evaluation of short-term training is very difficult, especially when the trainee is only semi-literate. Reports from Haiti indicate, for instance, that there was no correlation between performance in class or in examination and later performance in the service program. Verbal reports from Haiti also suggest that an apprenticeship with more experienced workers was valuable, perhaps more valuable than the initial training.

Most projects use paid agents although a few rely on volunteers.* Most paid agents are salaried; a few projects have put their agents on

*The "volunteers" in the two Brazil projects were usually full-time employees of the health department who added family planning duties to their regular work; the "volunteers" in the Guatemala INCAP project were expected to collect fees for injections.

commission. The following breakdown is reported:

<u>Category</u>	<u>Number of Projects</u>
Salaried Agents	19
Commissioned Agents	5
Volunteers	<u>4</u>
	28

Data on the absolute change in contraceptive prevalence by method of paying agents is available for 15 countries as follows:*

<u>Commissioned Agents</u>		<u>Salaried Agents</u>	
<u>Project</u>	<u>Absolute Change in Prevalence</u>		<u>Absolute Change in Prevalence</u>
Nicaragua	4	Average for	
Thailand	11	13 Projects	16

Obviously there are too few countries using the commission system to allow a valid comparison.

Supervisors

Project proposals and other documents often state that excellent supervision is the key to success, but there is little information in the files on the characteristics of supervisors or their work. The following description refers to field supervisors, who have direct and regular responsibility for the village agents.

*These results are similar to those on Table 8 Canvassing versus Depot System. It happens that Nicaragua and Thailand used a commission pay system and also a depot system. All of the projects listed in the Household Canvassing group are also in the group of 13 above who used salaried agents.

It appears that most supervisors are male. This is due in part to the difficulties and hazards of travel to isolated rural areas in all seasons. In Taiwan, where travel is not a problem, all the supervisors were women--chief nurses and qualified supervisors from the regular family planning program who were assigned to the Taiwan-OR study.

In Bangladesh-ICDDR there were four men and four women supervisors. The women were Lady Family Planning Visitors who provided technical supervision and did IUD insertions, menstrual regulation and sterilization. The men were supervisory level field agents of the old CRL program who did administrative and public relations work with village councils and similar groups. This combination performed effectively, according to reports.

Nine to twelve years of schooling was the range estimated from available information. This included those who already had training as a nurse or lady health visitor. In some LDCs people with this level of education are relatively rare and supervision by less well-schooled individuals may be necessary.

Projects directed by government agencies tended to use supervisors who were already employed by the health department or to use the established recruitment patterns of public agencies. Documents from Korea-Euiryong and Taiwan noted that the best of the family planning workers in the local government program were selected for the new household demonstration program. In general, there is little information on the quality or performance of these transferees. If expansion or replication of the OR approach is contemplated the supply of "best" workers will be rapidly depleted and other selection criteria will be necessary.

The private sector programs apparently used a variety of selection procedures, many of which are not described. The Thai program advertised a job

description which also required possession of a motorcycle; members of the central staff met with applicants and made selections.

Training of supervisors was variable but appears reasonably appropriate to the duties assigned. The training lasted only a few days for experienced family planning staff who merely transferred to a research project. In each case, the purpose was to inform the transferees of the details of the Operations Research Project and of their duties, especially for supervision and record keeping. Information on the training of newly recruited supervisors is scanty but suggests initial training periods of about two weeks. There is no evidence from project files that either more or less training is necessary.

In Thailand, the training period for supervisors was 15 days and covered both family planning and health intervention (drug sales) aspects of the project. The Thai supervisor was then given one week of work as apprentice to another experienced supervisor before starting to work in his own district. The Thai program was above average in its inservice training--each field officer was scheduled to spend five days in the field every three months with each of his six field supervisors. In addition, the field supervisor was given a week of refresher training in Bangkok after six months in the field.

The longest initial training was in Bangladesh-ICDDR where the Lady Family Planning Visitors were given up to six weeks of instruction, much of which was in operative procedures (IUD insertion and menstrual regulation). The Bangladesh-ICDDR project also had an unusual pattern of inservice training. It required one day a week of training in both family planning and maternal and child health for its village agents. The male supervisors arranged and participated in these weekly sessions and the Lady Health Visitors did the technical training, all with the help of the medical director.

There is little information about refresher training for supervisors. Some of it was given by more senior staff. The pilot project in Tunisia-Bir Ali, for instance, had only one supervisor who was visited in the field for two days each week by the gynecologist project director. Other project files have no information about refresher training; in some trip reports there were notes that suggested inadequate arrangements for inservice training of supervisors.

Available information indicated that all supervisors were paid a salary; some in addition received a small commission on sales in projects where goods were sold. There is no information allowing evaluation of the effect of these bonuses on performance.

The usual range was from one supervisor to six agents (Colombia) to one supervisor to 20 agents (Guatemala-INCAP, Taiwan, Bangladesh-CRL, Guatemala MOH). Thailand had a high ratio of 1 to 72.

Notes and personal observations indicate that travel is a major and continuing problem for the field supervisors, which could be expected from the terrain that has to be covered and the lack of good roads. Motorcycles have been tried in several projects, but maintenance is a continuing problem. The Thai program made ownership of a motorcycle a condition of employment. The Guatemala-MOH project proposes to assist its supervisors to buy their motorcycles. The Peru project budget calls for the purchase of 80 horses. Supervisors in some projects rely on public transportation, but this puts restrictions on travel and is not efficient in areas where buses run infrequently.

Record Systems

A preliminary attempt was made to catalogue and examine record forms in project files. Forms available in the files or described in reports are tabulated

in Table 11. Client intake and follow-up forms were found for about two-thirds of the projects. This is not a complete listing of forms used in project operation but reflects the information available at the time of the review.

Forms which are used by the agent or may be used to monitor the agents' work were found for half the projects; these include the first column under "Supervisory Forms" which is designated as "Agent Monitor Journal."

The latter may give some indirect information about the work of the supervisor. But only one project, Guatemala-MOH, had a form that directly monitors the work of the supervisors, "Guatemala-MOH: Supervisors Work Journal." It appears that evidence of supervisors' performance is not part of most information systems. If confirmed by field visits, this will be a disturbing observation in view of the importance of good supervision to agent performance.

A critical piece of information is a record of failures in supplies which are usually distributed by the supervisors to the agents. The Thailand project has a reporting system designed to record failure of the supervisor to make his regular visits to his agents. No other such recording was noted, but again this must be checked in the field.

It appears that most projects have developed their own record systems; there is little uniformity and the general quality of service records is such that AID/POP/OR tends to rely on base-line and follow-up surveys, especially studies by outside contractors of prevalence of contraceptive use to provide an assessment of progress and accomplishment.

A very simple and effective form for agents to record distribution of contraceptives to clients was in use in 1978 in Colombia. This form gave a visual record of contraceptive supplies by method to each client for a 12-month period

and showed which clients had an adequate supply. Another development which merits further observation is the proposed use in Nigeria of a pictorial system of recording agent activities.

Research and Evaluation

The original Project Papers outlined several delivery system components to be implemented and studied; those which have been implemented most often in the various projects include:

1. Charging for services versus free services
2. Cost-effectiveness of various delivery systems, especially family planning services integrated with health versus family planning services alone
3. Multi-purpose workers versus single purpose workers
4. Salaried workers versus fee-for-service workers

Other researchable questions which have been cited at various times include:

1. Effectiveness of different training programs
2. Logistical support, especially the question of supply shortages at community level
3. Different qualifications and roles for supervisors of village agents
4. Increasing the prevalence of contraception. CBD programs have raised prevalence of contraceptive use to a range of 15 to 35 percent. What needs to be done to get this to 50 or 60 percent?
5. Maintaining prevalence of contraception. What happens to contraceptive usage in a CBD area when external assistance ends?

Research was influenced by the policy stated in the Project Papers that "within the delivery systems to be tested ..., the host government will have a great deal to say concerning the type of delivery system components that are to be tested and about other aspects of research." In practice, the greatest difficulty was and is the lack of enthusiasm of representatives of host countries for research. Many countries already have established policies on some of the questions listed above, e.g., charging for services or integration with health. Consequently they are not interested in research on these topics. AID staff report that cost-effectiveness ..., etc. has been of little interest to many project directors and this has been reflected in the quality of bookkeeping. Many officials have no knowledge of the methodology of careful research or appreciation of its importance.

The emphasis upon demonstrating the feasibility of CBD rather than a research focus is clear from Table 12. As described in the Introduction, projects were reviewed with particular attention to organization and design. Definitions of research by the Hopkins faculty were not uniform but were assumed to be based on such criteria as clearly specified interventions in specified experimental and control groups, with precautions to avoid bias and with a predetermined time schedule. Of the projects reviewed, 17 had no experimental variables, and the remaining 12 planned to examine a total of 23 items. The most common experiment was an emphasis upon an aspect of service delivery or supply, with charging for services and health integration the next most popular choices. Many of those with no experimental emphasis were clearly demonstrations to determine if a CBD program would be accepted by the public and could influence the prevalence of contraceptive use.

Table 12 - Experimental Variables Tested, AID/POP/OR Projects

Country	Agents					Contraceptives			
	Health Integration	Selection	Training	Supervision	Payment	Charging for Services	Distribution or Re-supply	Contraceptive type	Cost Comparison
COMPLETED									
1. Egypt-Shanawan									
2. Taiwan									
3. Bangladesh-CRL									
4. Korea-Euiryong							+		
5. Egypt-Menoufia 1						+	+		
6. Mexico-S.P. Autopan							+		
7. Nicaragua									
8. Philippines									
9. Tunisia-Bir Ali-PFAD									
10. Bangladesh-ICDDR									
11. Guatemala Aprofam Campesino									
ACTIVE									
12. Korea-Cheju					+	+	+		
13. Haiti							+		
14. Morocco-Marrakesh								+	
15. Sri Lanka									
16. Thailand	+					+			+
17. Tunisia-PFPC	+						+		
18. Colombia							+		
19. Egypt-Menoufia 2	+								
20. Mexico-3 States, DF					+	+			
21. Brazil-Piaui									
22. Brazil-4 States									
23. Guatemala-MOH		+	+						
24. Guatemala-INCAP									
25. Morocco-3 Provinces									
26. Nigeria				+		+			
27. Peru									
28. Sudan									
TOTAL	3	1	1	1	2	5	7	1	1

Not all planned experiments were implemented. The reason for non-implementation or severe impairment of a planned research project were usually not explicit. They included:

<u>Presumed Reason</u>	<u>Projects</u>
Attitude of country staff that service takes precedence over research	Thailand - 2 proposals Morocco
Failure of supplies to arrive	Haiti, Sri Lanka
Project in initial stages	Guatemala-MOH - 2 proposals Nigeria, Peru, Sudan

A chief tool in evaluation has been the contraceptive prevalence survey. Demonstration projects were evaluated primarily by whether or not the local authorities and public reacted favorably to community distribution of orals and other contraceptives by lay agents. Expansion of the program within the country was the chief test of its success. An increase in contraceptive use was another test. Using these criteria all projects except those in the Philippines and Taiwan have been successful. The Philippine project was stopped. The Taiwan study concluded that Community Based Distribution had little to offer in a population that already had a high level of contraceptive acceptance.

Service Delivery: Concluding Remarks

This review of plans and accomplishments of 28 CBD projects has summarized material drawn largely from Project Agreements and Amendments, progress reports, trip reports, final reports, and similar documents, along with staff interviews. Certain features of the service delivery systems emerging from the analysis deserve re-emphasis and further interpretation. The features include variations in type of field structure, aspects of agent and supervisor functioning, and information requirements.

Projects have typically included condoms and oral contraceptives in the contraceptive mix offered. Recent projects have tended to broaden the mix according to local preferences. In no project, however, has the question of an appropriate contraceptive mix been investigated explicitly, although studies of different oral contraceptives have been considered. The project in Sri Lanka, for example, has sought to examine the acceptability of a 35 mg. oral contraceptive compared to that of a 50 mg. pill.

Eight of the projects reviewed have been concerned with contraceptive distribution only. The remaining projects have had a profusion of additional interventions ranging from soap distribution for personal hygiene to fairly comprehensive health services and community development efforts. Health interventions have centered upon problems of recognized significance, e.g., diarrhea, and upon simple services that can be provided readily by CBD agents.

Counting two pilot projects, only 2 of the 28 projects (Egypt-Shanawan and Menoufia I) limited contraceptive distribution to one type, oral pills. Six additional projects have limited contraceptives to those that could be distributed in the community (pills, condoms, and/or foam tablets), while the remainder have provided both clinic and community-based contraceptive services. Stimulation of the use of the clinic-based services has been generally through referral and distribution of "coupons."

In several projects, notably in Tunisia and Bangladesh, the range of services was initially limited and then consciously expanded to improve acceptance. In a few cases, e.g., Egypt, problems with acceptance early in the project caused particular methods to be dropped and others substituted.

In Bangladesh the original combination of pills and condoms produced difficulties that led to two revisions in implementing a second project. First, condoms were not accepted by women from male workers; thus their distribution was made a part of the female workers' job. Second, inadequate continuation rates for oral pills led to the introduction of IUDs, sterilizations, injections and foam tablets using a "cafeteria" approach. In addition to the contraceptive mix expansion, new workers with higher education and more training were introduced and also asked to provide selected MCH services. Under these conditions contraceptive prevalence climbed from a starting level of about 9 percent in areas previously receiving pills and condoms to a level of 34 percent in 18 months after the start of the wider mix and additional programs. The addition of Depo-Provera in this population contributed the most new acceptors of any of the new methods. Because of the simultaneous change of a number of variables, the effect of the expansion of methods may only be partially revealed by careful analysis of project data currently in progress.

In Egypt, condoms were dropped from the initial list of methods provided because of reluctance on the part of canvassers to distribute them, or housewives to accept them. Later, to increase the potential number of acceptors, referrals for IUD insertions and distribution of foam tablets were added. In this case the addition of more methods did not produce the expected rise in number of acceptors, possibly due to the expansion of the project from a pilot to a much larger demonstration area.

In a somewhat different setting in Taiwan pills and condoms only were distributed initially, while later in the project referrals for IUDs and sterilization were given if requested. The major finding in this case was that in a setting of

relatively high initial prevalence (47 percent) the concentration on pills and condoms decreased the number of women accepting IUDs and sterilization when compared with the controls. Overall acceptance was similar between study and control areas. This demonstrated the limitations of a contraceptive distribution program using a few methods in an area with significant pre-existing use.

Most projects have some data on the type of methods accepted and a few, including those mentioned above, have information on why specific methods were accepted or rejected. Data are available or should be forthcoming on the basic characteristics of the users of different methods (age, parity, etc.), but in any of the projects these findings may only be revealed in the final detailed project analyses and reports. It is fairly clear that these projects will generate primarily descriptive information on the appropriate balance of different types of contraceptives in community-based distribution systems.

Attention has been called to the increasing tendency to combine health services with contraceptive distribution. A critical discussion of potential problems with specific health interventions is given in Chapter VIII of this report. One of the most common health interventions in recent years has been the distribution of oral rehydration salts for mothers to use when their children or other family members have diarrhea. In a particularly well-documented procedure in Egypt, the distribution of Oralyte was selected as the major health intervention, with referral of mothers for tetanus toxoid immunizations included as the next most important and easily implemented activity.

Six of the projects (Ghana, Haiti, Thailand, Tunisia, Philippines, and Bangladesh) have attempted to include in their design the potential to compare the impact of combined health and family planning services with the impact of family

planning services provided alone in a control area. Because of field problems, different start-up times, lack of supplies, different initial contraceptive levels and varying population characteristics, internal comparisons between communities with and without health interventions have not been easy. Experiences with intensive field research projects such as Danfa and Narangwal have also demonstrated the difficulty of carrying out such studies with tight experimental controls. In spite of having these control areas, complex analyses were required to begin to sort out the effects of variables which could not be controlled.* These analyses have had limited success.

Several studies have evolved over time from "pure" family planning interventions to combined service projects. Results in these experiences are quite divergent to date, with marked positive results being reported in Bangladesh after the addition of health services and a greater contraceptive mix, while the impact of the addition of Oralyte to the contraceptive distribution program in Egypt, although not measured yet, has generated a number of secondary concerns and problems. These include the apparent negative linking by some women of the Oralyte to the contraceptive distribution: starting rumors that it was meant to sterilize or kill their children. Of greater importance was the identification of the need to have more and closer ties to the health system in order to have their backing and continued support and re-inforcement of this health intervention. Because of the simultaneous change in a number of important variables in these

*Regression analyses of the Narangwal data have defined the relative contribution of health services to increasing family planning use, and comparisons of different time periods indicate the probable importance of concurrent provision of health and family planning services. However, these findings need to be further refined by additional analysis.

projects, conclusions about the benefits of combined services will be difficult to determine precisely.

Inter-project comparisons lead one to even more tenuous conclusions. However, these types of comparative analyses may be the only means of providing some indications of the types of problems encountered in widely different settings when integrating services. Since most nations now are committed to some form of integration, any data that will assist in minimizing these problems in the future may be the most relevant findings that these projects can provide.

It is understandable that projects expressly designed for community-based contraceptive distribution tend to focus almost exclusively on measures of contraceptive acceptance and prevalence of use. Generally, health and other services have been added with the expectation that they will augment family planning practice. Although health interventions have been included with the hope that they will have a positive impact on health status, limited attention has been given to the measurement of specific health outcomes such as changes in mortality. In most cases utilization of health services is the primary measure. This limitation of the evaluation of health service impacts is understandable in view of the difficulty, cost and population size required for such efforts. Where measures of impact have been included, they often are "add-ons" to project evaluation designs, producing a whole new set of considerations such as different sample sizes, seasonal variations, new data collection methodologies, etc. The Egypt and INCAP projects have been the only ones able to undertake such measures seriously.

If integrated programs are to be evaluated for all their potential outcomes, then adequate plans and resources (including technical assistance and augmented budgets) must be added or built into them. Measures of health services

use and health status changes, along with contraceptive practice and changes in fertility, are particularly important if serious input-output analyses such as cost/effectiveness are to be made. In general, it is only logical that health and family planning costs should be separated and related to their specific outcomes. Allocation of all costs of an integrated service to family planning will probably lead to the conclusion that integration is less cost-effective than a family planning program without health services. Careful analyses need to be developed which will identify the costs and outcomes separately and then attempt some selective aggregation of the two taking into account the perceived value of the different outcomes. Much more effort needs to go into exploring and hopefully simplifying the approaches required for evaluation of these combined service programs.

Apart from questions of service components to be included, projects have differed in the method of distribution employed. Realistically, however, the two basic systems--canvassing and depot--have much in common. The canvasser establishes a depot as a re-supply base for her clients; the agent who starts with a depot is encouraged to make home visits as needed and also to hold small-group meetings in the homes of her neighbors.

One would expect that canvassing would help initially but that the long-term results would be more related to the ability and enthusiasm of the supervisor-agent teams than to the presence or absence of an initial canvass. A careful review of acceptor characteristics under each of these approaches would be useful in seeking to identify impacts on reaching low-parity women and on influencing continuation of use.

In practice, no single project has incorporated both approaches for comparative analysis in its experimental design. Inter-project comparisons are of

interest but are invariably influenced by the multitude of other dis-similar factors that are present. Moreover, virtually no attention has been given to the investigation of appropriate intensity and frequency of household canvassing according to family characteristics, needs, and attitudes.

Canvassing must be shown to be cost-effective in the long-run compared to a depot-only scheme if it is to be justified in the many areas where family planning is to be introduced. The capacity of a country to replicate an OR project and expand the approach to a larger regional or nationwide area is of importance not only to the countries but to USAID.

Evidence about desirable characteristics of village agents is largely anecdotal and impressionistic. Desirable traits will vary with locality and culture. The general practice of employing agents who live in the localities where they will work appears on the basis of such evidence to be supported.

The programs are largely directed toward women and it appears that women make better agents than men except where there is a plan to use agents of both sexes and to have men agents talk with men clients. There is anecdotal evidence that very young women, especially if unmarried, are not well accepted. It probably is an asset to be married and to have used contraception, but mature, unmarried women under excellent supervision have also performed well.

It appears that the educational level of agents is largely dictated by the local situation; illiterate women will be used where illiteracy is the norm and more educated women will be used where available. It may turn out that carefully selected and trained illiterate women can do surprisingly well as uni-purpose (family planning) workers but that more education is needed for success in a multipurpose job (family planning plus health).

The requirement that the agent come from a family of good reputation is a common sense criterion which probably needs no documentation. Agents with a wide range of characteristics have been excellent promoters, while other women with similar qualifications have had rapid turn-over rates. The tentative conclusion is that the noted characteristics are important but that intangibles such as maturity, tact, perseverance and enthusiasm are equally effective.

There are no data available regarding the relevance of the mode of selection to agent performance; in part this may be related to the importance of intangible qualities noted above. The problem is important especially for projects which need to select and train large numbers of agents in a short period of time in rural areas where this type of program is unknown. It seems that there is no alternative but to start with staff and supervisors who have some demonstrated ability in making judgments about personnel and to seek advice from people in the local communities who have similar abilities.

Training of agents should get priority because it is one activity which can be improved with reasonable expectation of better results.

This review agrees with an AID staff opinion that it would be desirable to have more projects use a commission system in order to test the hypotheses about the advantages of such systems.

Field Supervisors

A few visits to CBD projects in three countries suggest substantial variation in the ability, judgment and performance of supervisors. The job requires unusual ability--beginning with selection, training and supervision of village agents, helping the agent to develop community support, collecting and collating records,

helping with research and other initiatives. Travel is usually arduous in good weather; in bad weather it calls for reserves of determination to keep to a schedule. The supervisor must be prepared to spend the night in unexpected and inhospitable places where personal safety, at least for a woman, may be uncertain. The job is known to be of limited duration and so will not attract many persons with established abilities.

One of the most important duties for heads of projects is the selection, training, and retention of capable supervisors. The apparent lack of routine information about supervisors' performance has been noted, and if confirmed, this should be remedied.

Anecdotal information suggests that pay schedules are consistent with similar responsibilities in public or private enterprises. Some premium may be justified by the great importance of good supervision to these projects and by the limited job tenure. This creates problems, however, if a temporary job is later made part of the public bureaucracy.

A study of travel by field supervisors would be a useful Operations Research project. This would include a summary of current travel schedules, modes of travel and problems such as frequency of missed appointments and failures in the supply line due to travel problems. These issues are not unique to the CBD projects reviewed here and recommendations regarding the need to study alternative solutions to the travel problem were made to Pathfinder Fund in early 1978 for similar projects in the Caribbean. The experiences of the operation of CBD projects should be reviewed and compared to highlight common problems and the current state of knowledge of these and related problems of service delivery.

Information Requirements

There is a large accumulated experience which should be valuable not only to AID project monitors but to those responsible for developing new projects and for administration of active projects. The policy of having each country take a leading role in developing its own project does not mean that each project must repeat earlier experiences in their entirety. A loose-leaf document, as described below, on the planning and administration of CBD projects would provide administrators with information about problems and solutions, successes and failures of earlier projects.

The existing progress reports and trip reports are generally excellent but could be made more useful by agreeing on an outline of information to be provided at specified intervals. This outline should be kept to a minimum and should not inhibit discussion of other matters.

It would appear that the following documents or reporting systems would be helpful:

1. A document or manual which would be useful to persons developing new projects or administering old ones, which would describe the components of Community Based Distribution and alternative methods of doing the job.
2. A similar document on training.
3. A format for progress and trip reports that would provide some uniform information on the status of each project related to its size and stage of development.
4. Some mechanism like a newsletter for collecting data and experiences from the various projects and feeding this back to project personnel.
5. Improved and more easily available data on costs.

The first two publications would require preliminary collection of additional information on the above subjects from OR projects. This process would facilitate identification of a few individuals from the projects and AID staff to form two small working groups, one on Development and Administration, and one on Training, to prepare a draft publication for criticism by the working groups. Names of individuals in each working group would be listed in the document. The objective is to make each document a product of both host country field staff and AID staff.

The Progress Report and Newsletter would report current information, partly from service statistics and partly anecdotal, of important experience, problems and failures. This material should be useful in updating Documents 1 and 2 above.

FOOTNOTES

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AID AND HOST GOVERNMENT ORGANIZATIONAL RELATIONSHIPS

The operations of AID's CBD programs are facilitated by a complex set of organizational relationships. Although the CBD programs vary from program to program, essentially they all are based on an agreement between the Agency for International Development and the host government. AID usually takes the lead role in project initiation, although each project has unique organizational dynamics at the first stage of project formulation. The ten organizational structures which may be involved include AID/Washington, AID country mission, national government, government in project region, other donor agencies, other operating agencies, U.S. research institutes, local research institutes, professional associations and community groups. They interact at what may be defined as seven project stages. The dynamics of this interaction as well as the actors involved certainly has an influence on the quality of the project at any of these stages, and may also influence both project outcomes and project replicability. These seven stages will be examined in some detail, with reference to the lessons learned from AID's projects to date. These seven stages are:

1. Initiation and Endorsement of Project Idea
2. Explicit and Implicit Purposes of Project
3. Formulation of Project Design
4. Resources Contribution and Control
5. Project Execution
6. Technical Assistance
7. Evaluation

Initiation and Endorsement of Project Idea

A critical factor influencing organizational dynamics is project initiation. Where, how, and by whom was the project initiated? In nearly all cases, AID/Washington was the initiator of new projects. Project formulation may come about, however, in a variety of ways, informally through personal contacts, such as in the cases of Egypt, Tunisia, Sudan, and to some extent Morocco; or formally, through the AID mission or such intermediary institutions as Columbia University's Center for Population and Family Health (CPFH), Tulane University, the East-West Center, and/or Johns Hopkins University. Typically, the AID/Washington staff learns of a potential project through discussion with personal contacts, field staff or intermediaries. Apparently there is no set pattern, and project initiation and formulation may be more serendipitous than might be optimal for both quality of service delivery and research design. While a more analytic approach to choice of countries and projects would allow a more systematic design of service and research, the existing "non-system" is responsive to opportunities and innovations as they arise.

Within the host countries three patterns of cooperation with AID emerge among the 28 projects. That is, AID relates organizationally with the host country in one of three fashions - to the national government, to a local university or research institute, or to a local private organization. The most typical is cooperation with the national government, as in Mexico. Egypt (local university) and Thailand (private organization) typify the other patterns. Following these three examples through the process of project development will, to a limited degree, describe the organizational dynamics of AID's operations research projects to date.

National or host government involvement usually comes through the Ministries of Health or Social Affairs. In Mexico, the government is committed to expanding family planning throughout the country. It is attempting to achieve this through their Coordinacion, which is responsible for coordinating the monitoring of all family planning activities within Mexico. Through the efforts of the governmental organization, DGAMMIPF, the rural areas will be reached, while the urban areas will be served through two social security agencies, IMSS and ISSTE, and a private family planning association, FEPAC.

The Coordinacion and DGAMMIPF invited Columbia's CPFH to provide training, management, evaluation and general technical assistance under Columbia's contract with AID. In the "New Strategies Project," Columbia University had worked extensively in Mexico and served as a catalyst to project development with the Director General of Health of the Government. In addition, a local research institute, Desarrollo Investigacion en Planificacion Familiar (DIPLAF), was also involved. Both Columbia University and AID had had experience working with the Mexican government in the San Pablo Autopan Project, a community based distribution demonstration project begun in 1975. This project, now modified, has become part of the rural maternal child health and family planning program for the State of Mexico.

Mexico is not only committed to a strong family planning policy, but also to a balanced program of research and service. The research has to be practical and relevant to the national program. Other projects cooperatively initiated by their national governments include Bangladesh, Brazil, Colombia, Guatemala (MOH), Haiti, Morocco, Nicaragua, Peru, Taiwan, and Tunisia.

The second type of cooperation is exemplified by Egypt, where AID and a local university developed the project idea. In this case, the American University

in Cairo, Social Research Center, had had population and social services research since 1969, and AID had had a long-standing professional relationship with the director. The Menoufia Governorate, the government in the project region, endorsed the project through its Departments of Health and Social Affairs, as did the National Ministries of Health and Social Affairs. The latter supplied contraceptives for the Integrated Social Services Delivery System, while the majority of resources came from AID/Washington. In addition, UNICEF provided oral contraceptive supplies for the family planning and health intervention components of this project.

The Egyptian government has had a nationwide family planning program since 1965. It was designed to include all elements of the government - health services, education, social welfare and information. During the period 1965-1975, program activities of the government were carried out through the Health Ministry's network of clinics and hospitals, as well as through the Social Affairs Ministry's centers.

The Egyptian project is committed to both action and research in the integration of family planning, health, and social welfare services. The research function is primarily the responsibility of the American University in Cairo with backup technical assistance from Johns Hopkins. Other projects initiated by local research institutions include those in Nigeria and Sudan.

The third type of cooperation is exemplified by Thailand, where AID and a local private organization mutually initiated the project idea. The Royal Thai Government has had a National Family Planning Policy since 1970. Officially that policy is to reduce mortality and fertility and to adjust population distribution and internal migration. It also endorses direct intervention to modify demographic

variables in combination with economic and social restructuring. The Government's National Family Planning Program (NFPP) is clinic-based, working exclusively through clinics and hospitals. It also has carried out successful experiments using nurses and midwives to distribute oral contraceptives, to insert IUDs, and to give injectables.

The idea for a community based distribution program in Thailand originated from the efforts of a dynamic and charismatic Thai economist, Mechai Vivavaidya. The Family Planning Health and Hygiene Project (FPHH) grew out of the Community Based Family Planning Service (CBFPS), which was begun in 1974. In 1977, with AID support, FPHH was developed to supplement the governmental program and to undertake studies which might be of value to the Ministry of Health.

The community based distribution projects in Thailand are supported both by the International Planned Parenthood Federation (IPPF) in 76 districts, and by AID in 80 districts. Although the present Family Planning and Hygiene Project is conducted separately from the Government's programs, the personal and political connections between the two are strong. A local university, the Mahidol University Faculty of Public Health, has been involved in the evaluation phase of Thailand's FPHH, primarily through surveys. Guatemala's (APROFAM), Korea's (Euiryong and Cheju), and Sri Lanka's CBD projects were also initiated by local private organizations.

Experience in the 19 countries and 28 projects undertaken by AID shows that they have each been initiated by AID in conjunction with (1) the national government; (2) a local university; or (3) a private organization. Projects cooperatively initiated by the government would logically have the greatest chance

for nationwide replicability at a later date, as they already have national endorsement. Projects initiated with a local university or research institute are logically the strongest in terms of research capability, but perhaps weaker in service provision. Replicability may also be weak. Finally, projects initiated with local or international private organizations may have the most autonomy and may be most flexible in service provision. National replicability may be weaker than projects begun by the government.

Each of the 19 national governments has population policies which facilitate both governmental and non-governmental programs. Certainly these policies have tremendous implications for program development, implementation and success of both large and small projects. Governmental endorsement is an important factor for project success, and critical for project replicability.

Explicit and Implicit Purposes of Project

The explicit and implicit purposes of each project are developed for the specific country and setting of the project. The host country (government, university, or private organization) formulates the project's goals and purposes, incorporating AID's goals and purposes. AID plays an active role in project development, either directly or through its university intermediary, as reflected in the contractual agreements. These goals and purposes differ somewhat from project to project and reflect the host government's national population policy, the particular agency's concerns, the history of family planning and health programs, and the present level of family planning and health services within the country. AID's goals are essentially to facilitate community based distribution of family

planning services and to improve contraceptive acceptance and use in rural areas. They are committed to programmatic research aimed at determining the most cost-effective family planning and health delivery systems for replication at the national level.

Using the same three examples as cases in point, AID and Mexico's explicitly stated goals for the New Strategies Project included a

- (1) significant service component;
- (2) effective research component;
- (3) relevance to the national government;
- (4) utilization of village distribution of contraceptives;
- (5) crucial supervision component;
- (6) significant community involvement; and
- (7) specific target over 3 years to attract 39,000 new acceptors - (27% of fertile women or 40% of women at risk of pregnancy).¹

Egypt's project purposes, developed by AID and the American University in Cairo, were to "promote the population and family planning program through an action-research effort integrating family planning, health and social welfare services."² Their specific goals included:

- (1) an action component aimed at integrating and promoting the delivery and utilization of family planning, health and social welfare services in rural areas;
- (2) a training component aimed at upgrading the knowledge and performance of official personnel and community leaders related to family planning, health, social welfare and local administration services;

- (3) a family planning and health intervention component aimed at establishing household distribution and clinic resupply systems for contraceptive methods and oral rehydration salts; and
- (4) a research component aimed at evaluating the inputs, processes and outputs related to the above, and measuring their impact on efficient operation of the delivery systems.³

AID and Thailand's objectives, as expressed by the Family Planning and Hygiene Project are:

- (1) to demonstrate acceptability of CBD in rural Thailand;
- (2) to test relative cost effectiveness of four delivery systems in each of four study areas;
- (3) to compare quasi-commercial self-sufficiency of the four delivery systems; and
- (4) to get data on period prevalence of contraceptive use and pregnancy rates among new acceptors.⁴

The target population includes married women of reproductive age and sexually active men in a total population of 6.5 million in 80 rural districts of Thailand.

The government (RTG) also has some expectations from the project.

"At the end of the project, it is expected that there will be in operation a cost-effective delivery system that will have potential for national replication by the RTG and other countries of the developing world and which will have recruited 120,000 continuing family planning acceptors."⁵

The purposes and objectives of the projects differ according to the various factors involved in project development. AID's purposes, host country national

purposes, and local goals and purposes are all considered in project development. Negotiations occur prior to the signing of the agreement or contract. These purposes, both stated and otherwise, influence the project design and implementation. The variability of project components makes cross-cultural or cross-project comparisons very difficult, if not impossible. For research purposes, a model which is applied to several settings would possibly elucidate problems in both a programmatic and cultural context. Points of leverage for changes in strategies or program features might thus be more readily discerned.

Formulation of Project Design

The formulation of project design is included in the contract signed by AID and the host governments. In Mexico, AID and the Child Directorate of the Ministry of Health were responsible for project design. It was also influenced to a large extent by the earlier San Pablo Autopan Project developed by Columbia University and the Autonomous University of the State of Mexico. The New Strategies Project's design includes:

- (1) test of different methods of providing family planning/maternal child health in rural areas of three states and semi-urban slums;
- (2) comparison of house-to-house distribution with distribution from local depot;
- (3) comparison of distribution of contraceptives alone vs. contraceptives plus simple medicaments;
- (4) comparison of distributors working within the health system vs. those outside the health system; and
- (5) payment of a salary to distributors vs. other kinds of incentives.⁶

The project design underwent two major revisions within its less than three year lifetime, compromising the health component considerably. At least one of these revisions was partially due to the new government administration. In this case, as in others, local political realities necessitated project flexibility.

The project design in Egypt grew out of the American University of Cairo's historical experience in population and social services, and AID's involvement in Egypt for then over seven years (beginning in 1970). The four components of that project design are:

- (1) Family planning - household distribution of oral contraceptives and neo-sampoons (vaginal foam tablets) with resupply through the existing health units of the government. Women are also referred for IUD insertions to the health units. Neo-sampoons are offered primarily to lactating mothers;
- (2) Health - referral of pregnant women for tetanus toxoid immunization; household distribution of oralyte packets, liter containers and instructions, with resupply through health units;
- (3) Social welfare - establishment of nurseries, women's clubs, mother's councils, adult literacy programs, home industry, special workshops, vocational training and commercial development societies; and
- (4) Training - extensive training for all medical/health, social welfare and some community leaders.⁷

The project is targetted at 302 villages in the Menoufia governorate, a population of approximately 1.4 million people.

In Thailand, the project design also evolved from earlier projects, in this case the 1974 project funded by IPPF. The present project, begun in 1977, uses over 7,500 individual shopkeepers, farmers, teachers and housewives to distribute pills, other contraceptives, and to provide information. The new project design has as its goal to go beyond clinic-based services, to recruit new acceptors, and to emphasize household distribution and research.⁸

Project design is determined prior to signing the contract between AID and the host government. It is influenced by a variety of factors -- historical, political, social and economic -- and not only varies from project to project, but also within projects over time. Project design reflects both service and research objectives. Changes in project design which occur may be advantageous to service delivery, but certainly are handicaps to the research component of CBD projects. Clarifying the importance of the research component would better assure high quality research, while still allowing project design flexibility for optimal service in the field.

Resources Contribution and Control

In all of the operations research projects, funding has come from AID, sometimes preceded by other bilateral, multilateral or private funding. Agreements are sometimes made with governments, local universities, U.S. universities and others, to provide monetary resources, supplies or technical expertise. This is arranged on a project by project basis. This sharing may be an important aspect of resources contribution may be the sharing of resources contribution, allowing both flexibility and responsibility among the actors. For

instance, AID and the host country could share the costs of projects, which might (1) facilitate projects becoming nationalized; (2) reduce the possibility that these become perceived as American projects; (3) ensure continuity after AID's involvement is over; and (4) reaffirm national commitment to family planning and community based distribution projects.

In the case of Mexico, AID contributed 1.8 million dollars for the "New Strategies Program," with an earlier contribution of \$18,000 for San Pablo Autopan. Columbia University, under an AID contract, funded the operational research component in the urban and rural areas. The most striking aspect of AID's financial involvement with this project was the eight-month delay in project start-up caused by AID's audit requirement, and the subsequent government resistance to comply.⁹

The Menoufia project in Egypt is supported by AID for \$4,047,000. Other resources include contraceptive supplies from the Egyptian government, oral contraceptive supplies from UNICEF, and in-kind resources (a research staff of 44) from the American University in Cairo. AID/Washington's role has been decreasing, as has the role of AUC. Financially, AID was phased out at the end of fiscal 1977, when the AID mission took over. Both will phase out as the Menoufia project expands to other governorates in Egypt.

Thailand's CBD project is funded by 1 million dollars from AID, 74 percent of which goes to support the central organization. Initially, Mechai submitted a budget to the AID mission in Bangkok, who forwarded it to Washington. AID/Washington returned a counterproposal, a sum was agreed upon, and the mission worked out the final agreement with Mechai. AID's funding does not include household drug kits and contraceptives. AID is involved in 80 of Mechai's

160 districts, and, in addition, is contributing 5½ million dollars to the World Bank project with the Thai government for evaluation and training. The AID mission is responsible for fiscal management, disburses funds quarterly, and makes field visits once or twice a year. Mechai writes a semi-annual report to the AID mission and AID/Washington to share findings and assure that the study is being carried out as designed.

Mexico, Egypt and Thailand show both the strengths and weaknesses of AID resources contribution and control. AID's agreement with host countries usually involves an allocation of funds with a yearly renewal and quarterly disbursements. AID/Washington usually holds the initial contract, although sometimes either the AID mission or intermediary university may take over financial arrangements with the host country. National governments may also have partial financial responsibility or resources commitment to the projects. The Mexico project is the most visible example of the potential weakness of AID resources contribution and control, that being the reluctance of the government to comply with AID's audit requirements.

Project Execution

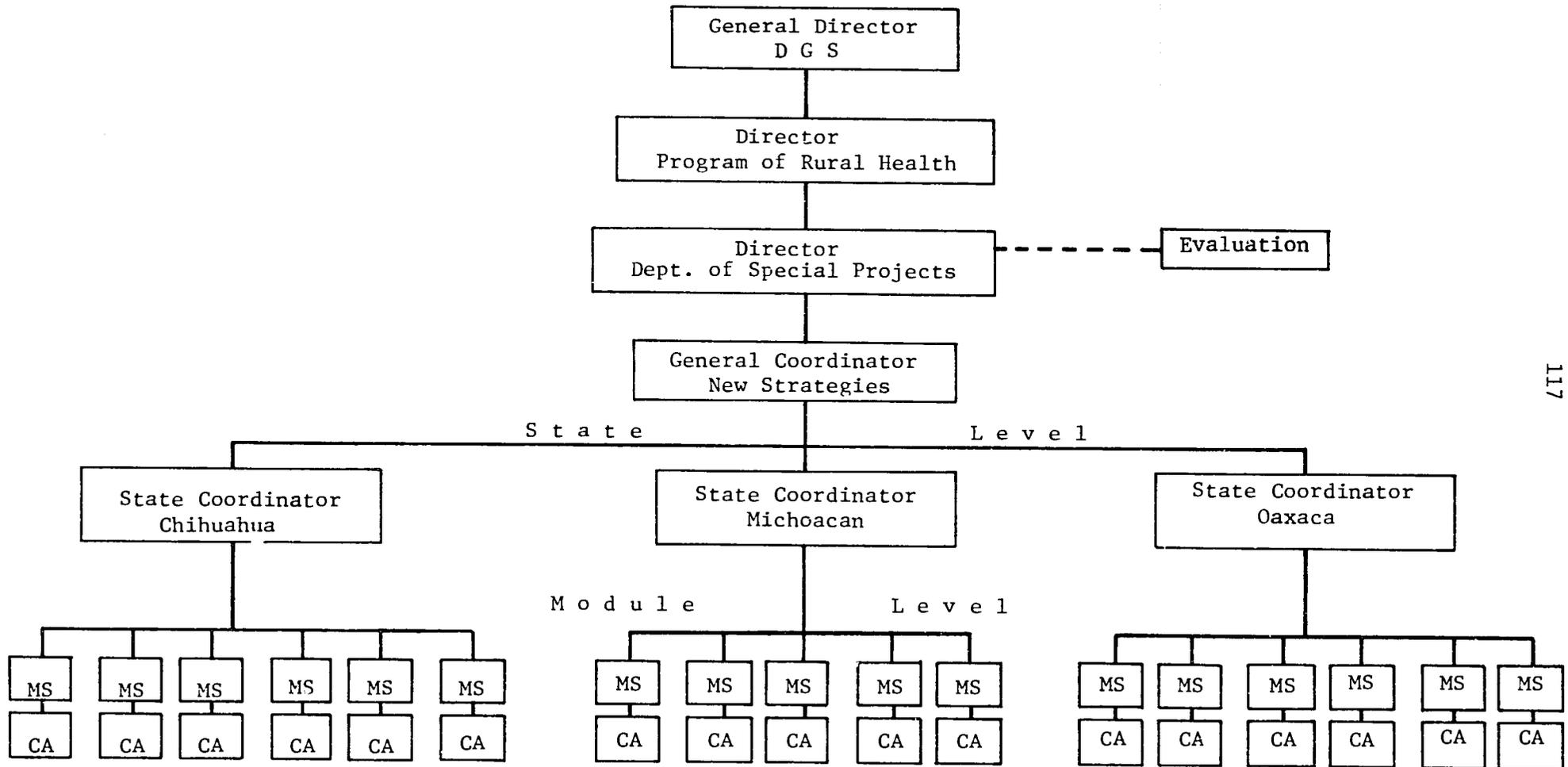
The organization of actual project implementation in the field again varies by project. National, state, local, and/or private organizations are responsible for implementation. The simplest way to view local organization is through organization charts. These charts are included for the three projects used as examples in this chapter. Although field reports may enhance one's view of project execution, field visits specifically for the purpose of evaluation are necessary.

AID/Washington's role in project execution usually includes field visits once or twice a year by the project monitors. In addition, there is contact by phone and mail, and with the intermediary university if one is involved. The monitors, university consultants or mission officers are readily available for consulting or "trouble shooting" if that seems warranted. There seems to be a clear commitment to making projects, at this stage, the responsibility of the host countries. Moreover, the present policy is to lesson AID and U.S. involvement as projects mature.

In Mexico, FP/MCH services were provided by 720 community agents, supervised by 18 unit directors and 3 state coordinators. (See Table 13) The CPFH staff from Columbia worked with rural and urban program staffs to assure that training of project supervisors and community agents was done thoroughly, competently, and consistently with project goals. They also assisted in developing curriculum and other training materials. Managerially, they assisted in the preparation of calendars for supervisory itineraries, service statistics, and the financial reporting system.

Organizationally, as noted in Table 14, project execution in Egypt was carried out by the local administration of the Menoufia Governorate, the action and training components; and by the American University in Cairo, the distribution, resupply and research components. AID and AUC are having increasingly less involvement in this project. AUC will assume a role of training trainers to train the people and will be involved primarily in technical assistance and evaluation. A shift to local and national government responsibility is taking place as this project expands beyond Menoufia to other local districts.

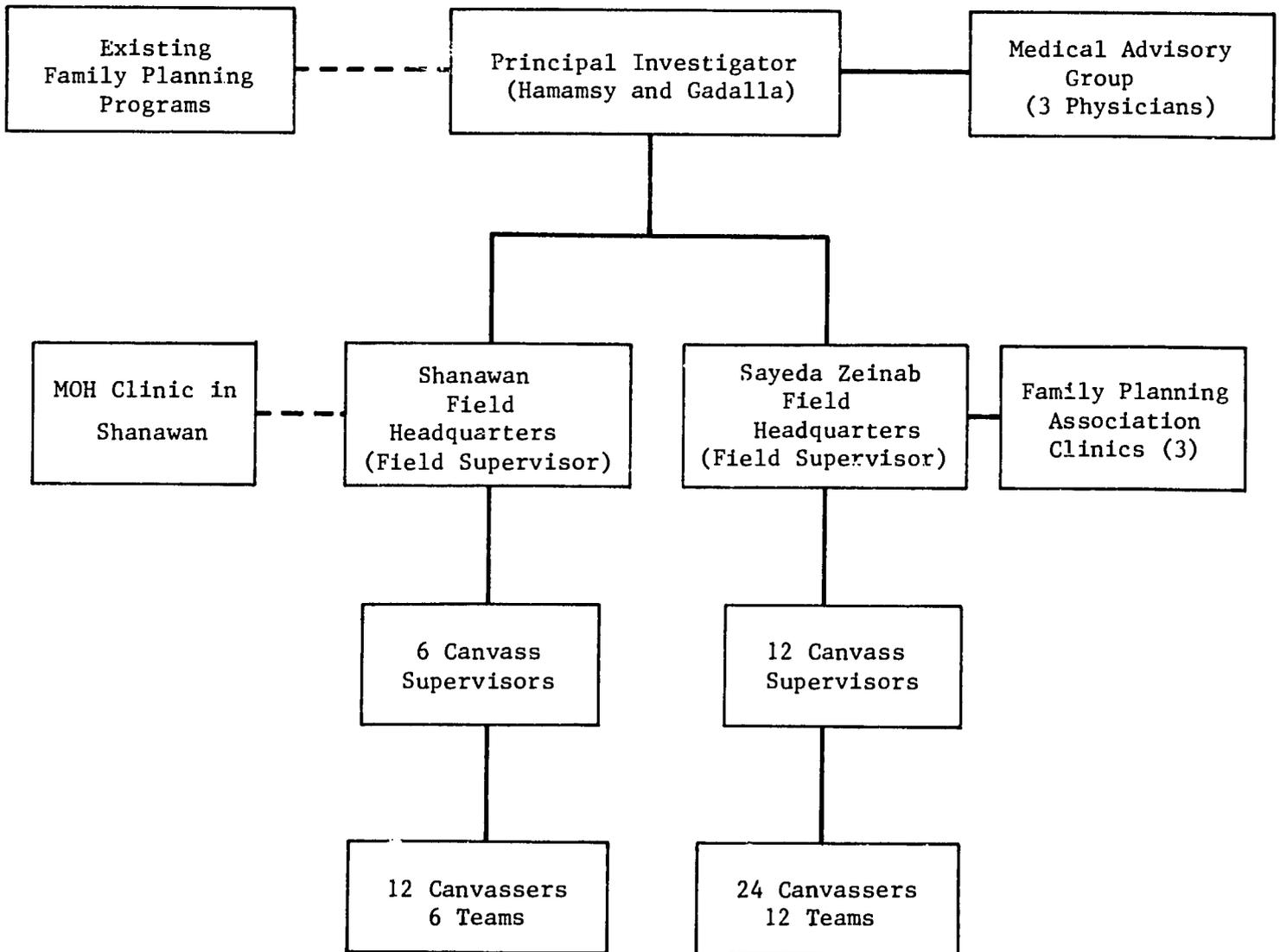
Table 13
DIAGRAM OF LEVELS OF SUPERVISION
Mexico



MS = Module Supervisor
 CA = Community Agent

Table 14

Simplified Organization of Household Contraceptive
Distribution System
Egypt



The internal organization of project execution in Thailand, as noted in Table 15, consists of a centralized operation of field officers and administration located in Bangkok. The Operations, Financial, and Administration Divisions are also located there. The 80 district supervisors and 6,000 village distributors are residents of the locality in which they work. Training is offered in family planning and health. The Ministry of Health and Mahidol University conduct the health aspects of the training, while the staff of the Community Based Family Planning Service gives the remainder of the curriculum. AID monitors the Thai program, and endorses the local concern that delivery systems should be especially designed for rural Thailand by Thais.

Formal organization at the local level, as well as project success, may be enhanced or destroyed by community involvement. While several projects seem to be aware of this factor, few incorporate concrete strategies for involving villagers in project execution.

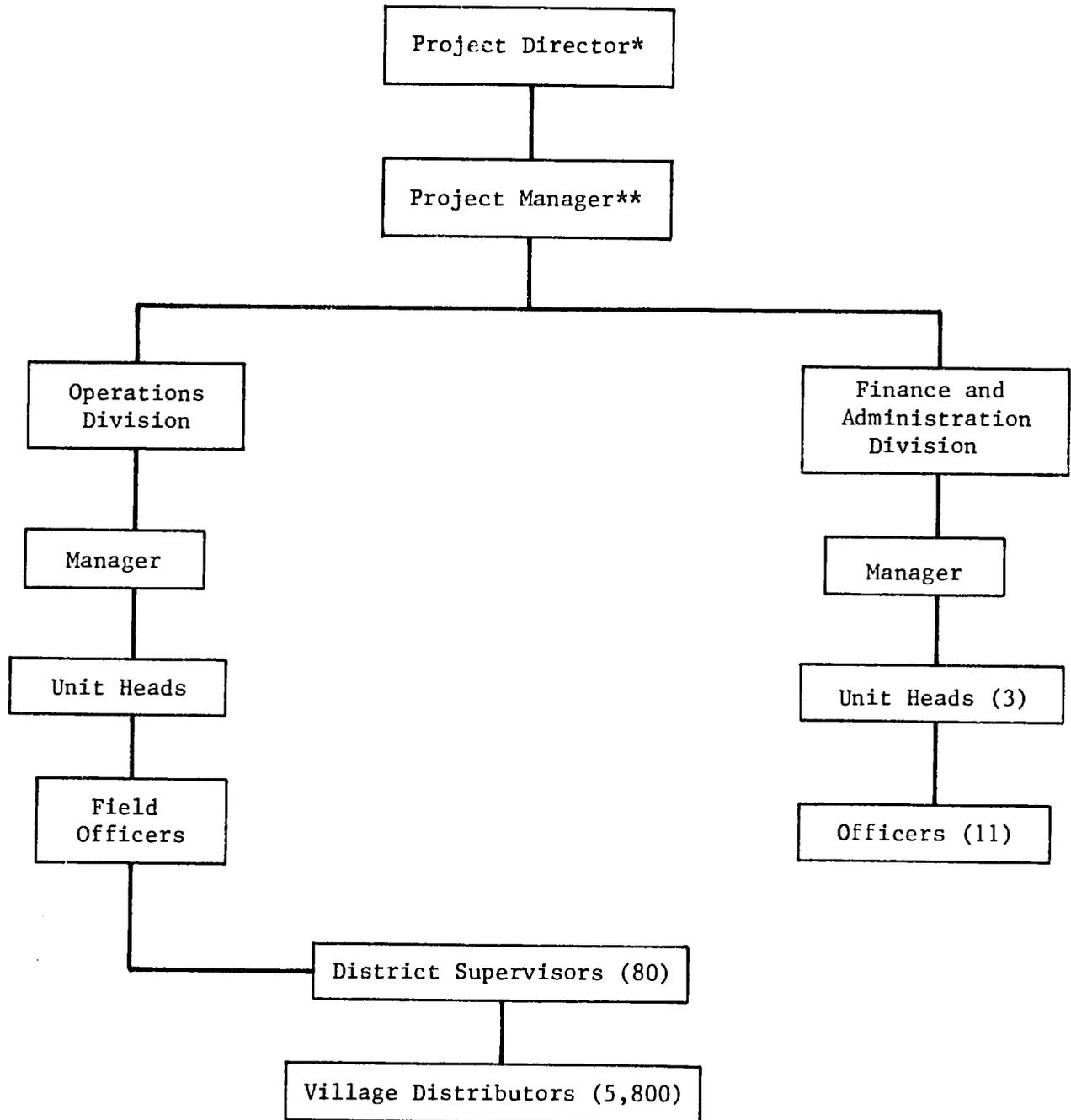
Mexico may be the best example of community involvement in a CBD project. The national government collaborated with local delegation, municipal and block leaders at all stages of the project, recognizing that community leaders were vital to program success or failure. They utilized town authorities, "ejidos," teachers and local policy officials to organize community meetings and to select community agents.

Egypt's commitment to community development is also apparent from informal discussions with AID personnel. Village community development committees prepare proposals which are then submitted to the country Project Committee. Usually, project evaluation and endorsement comes within one month of submitting of the proposal. Through mothers' clubs, nurseries and adult literacy

TABLE 15

CBFPS/FPFH Project Organization

Thailand



* Mechai Viravaidya

** Toratchai Traitongyoo

groups, the community is very much involved in selecting types of activities they will have and control. The local government now provides "productive" family grants, or interest-free loans, to families developing small industries such as beehives or chicken and poultry farming. Within the family planning and health sectors, an excellent referral network now exists from field workers to clinics and county hospitals.

This community participation factor is, according to AID sources, recognized as critical to project success. All projects work with community leaders and groups, and involve local people in project execution. The documentation of community involvement is sparse, however, and is one area which suggests further analysis for possible insights into program manipulation and managerial leverage. It seems that most projects are organized in a "top-down" fashion, where initially there is little input from the community. In later stages of project development and execution, the community's involvement seems to increase.

CBD projects are executed locally by project-specific organizational structures. Depending on the nature of the project itself and AID's contract with the host government, AID may interact with the project's organization at the national, state, or local level. AID/Washington, the AID mission, or university intermediary often serves in a monitoring capacity, and may also offer technical assistance, training, evaluation and/or other consulting services. No particular pattern emerges of AID's involvement at the project execution stage; rather they respond to the particular needs and demands of each project. Involvement generally consists of frequent communication and occasional field visits, depending on project needs and demands. Better reporting from the field as well as additional opportunities for field visits by researchers is necessary for critical evaluation and analysis of project implementation.

Technical Assistance and Evaluation

The technical assistance and evaluation components of these projects are conducted by AID/Washington, the AID mission, or under contract with U.S. universities. In some cases, notably in Bangladesh, Egypt, Korea, Nigeria, Sudan, Thailand and Tunisia, local research institutions have been involved in technical assistance and evaluation. In Mexico, the government evaluated both the San Pablo Autopan Project and the New Strategies Project.

Several questions pertaining to technical assistance remain to be answered. specifically (1) the value of a continuing role for a specific research institution; (2) the value of full-time vs. part-time consultants; (3) the value of utilizing indigenous expertise for technical assistance; and (4) the value of enhancing national capabilities in technical, research and evaluation skills.

In Mexico, technical assistance from Columbia University was conducted through short-term visits by CPFH. They, in fact, served as a catalyst to project development, with one member of that staff instrumental in setting up the project with the host government. She presently holds a position with the Ministry of Health in Mexico, as well as with Columbia University. The project was submitted to AID/Washington for approval and review, although the Washington office had no direct role in project development, execution or technical assistance. Members of Columbia's staff worked on the administrative and evaluation aspects, and are in frequent contact, either through visits by the project monitor, or with the population officer in the Embassy in Mexico City.

In Egypt, AID/Washington and the AID mission offered technical assistance and consulting to the Menoufia Project. Technical assistance to the "action" and

"training" components was offered by the American University in Cairo. Backup in evaluation and data analysis was offered by Johns Hopkins University. AUC will have less involvement in project execution and will offer more technical assistance and evaluation as the shift to increasing government responsibility takes place.

Technical monitoring in Thailand was offered by the Government's Ministry of Health, and evaluation, mostly in the form of surveys, was conducted by the Faculty of Public Health of Mahidol University. AID's concern is for a rapid information feedback system servicing the system's service component. Evaluation is taking place through a mini-census, population sampling, and evaluation conducted by Mechai. Columbia University has a resident advisor in Thailand, who spends at least 20 percent of his time directly on Mechai's project.

Technical assistance and evaluation to CBD projects comes from AID/Washington, the AID mission, a U.S. university intermediary, or from local indigenous institutions. Both the quantity and content of technical assistance and evaluation varies from project to project. The requirements of the service and research components of each project also vary, supporting AID's efforts to adapt to project requirements. The advantage of U.S. resident consultants in a particular project may facilitate project operations, although care should be given to the utilization of indigenous expertise wherever possible.

While technical assistance can adapt rather readily to current conditions as they arise, the evaluation component suffers when changes in project operations occur during the life of a project. Moreover, cross-cultural or multi-project comparisons are virtually impossible due to the extreme variety of project components and variables.

Conclusion

Analysis of the organizational dynamics of AID's CBD programs gives us little insight into its influence on program operations or outcomes. The great variability among program variables, contents and cultures makes it virtually impossible to compare organizational structures or dynamics among the projects. Certainly effective organizational linkages facilitate program operations, and lessons from project problems or hindrances suggest areas to avoid in future planning. A structural description has been suggested which may offer some insight into CBD project operations. Although no pattern emerges that any formal structure affects project operations either positively or negatively, the following points need to be taken into account in all AID-host government relationships.

1. Cooperation and sharing between AID and host governments of service, research and resource responsibilities might give host governments a greater stake in project success and replicability.
2. The realities of working in the field, as opposed to working in a laboratory setting, make rigorous research a difficult, and sometimes impossible task. Both AID and host governments could work more diligently to maintain research objectives.
3. Monthly or quarterly field reports from local organizations or supervisors would offer an ongoing perspective on project operations, and could point out organizational problems as they arise.
4. A serious commitment to community participation and involvement might substantially alter project operations and positively influence project acceptability and success.

5. Technical assistance by U.S. institutions should not only be designed to provide important expertise, but also to train local expertise where appropriate.
6. CBD projects could be an excellent means for institution-building within host countries.

FOOTNOTES

1. Columbia University, Center for Population and Family Health. "Report on New Strategies for the Delivery of Maternal/Child Health and Family Planning Services in the Rural and Semi-Urban Areas of Mexico." Progress Report. March 10, 1980, pp. 2-3.
2. Parker, R. Project Narrative Summary, Egypt: Integrated Social Services Delivery, March 1980, p. 1.
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REVIEW OF EXPERIENCE AND ISSUES IN SOCIAL MARKETING

Introduction

Varying combinations of service delivery patterns have been attempted in AID's CBD projects to date. They have primarily included two approaches--initially household canvassing followed by resupply at village depots, or village depot systems only. The Introduction and Overview have dealt extensively with these two systems as well as internal project comparisons regarding the value of multiple home visits and testing of different resupply sources and mechanisms. Household canvassing offers the advantage of offering motivation and education to clients, while depot systems alone require more individual initiative. The latter do offer advice and counseling in addition to resupply.

A third approach to delivery systems for family planning services is social marketing, or commercial retail sales. Social marketing is similar to the depot-only system in that the program or project administrations provide financial subsidies to underwrite the costs of contraceptive supplies, both require individual initiative, and neither visit households for motivation, education nor delivery of services. They differ primarily in that the depot only system does not use marketing techniques nor brand names, while social marketing does.

Social marketing experiments were begun as early as 1967 in India; there are presently 30 social marketing projects in 27 countries. Social marketing's unique role in the promotion of family planning, particularly in well-informed communities, can be documented from recent experience. Social marketing schemes are reaching up to 7 percent of the fertile population, a substantial proportion of contracepting couples. There are several advantages cited in combining social marketing with other service delivery systems.

Commercial retail sales (social marketing) schemes are usually feasible only when substantial awareness of family planning already exists. Such schemes are therefore likely to complement other family planning programs already in operation, rather than to serve as forerunners or substitutes. Nevertheless, the value of social marketing in producing incremental effectiveness is hardly doubted. The real issue concerns their unique role in the overall promotion of family planning.

Use of commercial channels affords access to technical expertise in sales promotion and distribution. It may also permit the tapping of established distribution systems that are wider than the existing network of health services. Finally, commercial efforts may be more acceptable than other program sources to certain population segments.

While the foregoing attributes are cited in support of commercial ventures, they also raise important concerns. For one thing, the substantial infrastructure required for the promotion, distribution, and sale of contraceptives implies levels of economic cost that are not likely to be commensurate with economic benefit. Sole reliance upon the profit motive and self-sufficiency are obviously inadequate. Consideration of social benefits that transcend economic concerns of the individual client or provider organization are admitted to be of genuine value but are attainable only at real cost. To factor social benefit into programmatic thinking is essential and requires more than the usual commercial expertise. Thus, there are more than semantic reasons for preferring the term social marketing to commercial retail sales.

The second concern relates to the use of existing distribution systems. Although they may reach further into the community than present government

health services, they may be inferior to government-sponsored CBD systems in making contraceptives widely available. One is faced with assessment of trade-offs. To what extent does the use of community agents in CBD programs yield lower costs without sacrificing the advantages of commercial expertise? In addition what are the comparative levels of agent motivation and productivity, as well as client responsiveness in government-sponsored, volunteer-based programs narrowly focused on family planning in contrast to more professional, private commercial endeavors to promote a wide range of products? Insofar as the answers to these questions do not lead to either-or alternatives, concern then turns to matters of multi-program coordination, complementarity, and integration through appropriate referral.

General Overview of Experience

Beginning with the Nirodh program in India, which began in 1967 and has continued to the present, experience has been gained with more than 30 social marketing projects in 27 countries. Programs which began in the early to mid-1970s are still increasing sales at rates of ten to thirty percent annually. The program in Bangladesh, which has operated less than five years under especially difficult circumstances, now provides about fifty percent more protection (in terms of couple-years of protection as a percentage of the sexually active population) than the India program.

Rapid program growth in Bangladesh has been made possible by large inputs of resources. According to one source¹ 1978-79 expenditures in Bangladesh were nearly as high as in India in spite of a seven-fold difference in population size. As a result, cost per couple-year of protection (CYP) was estimated to be three times as high in Bangladesh as in India.

Although the validity of this comparison is questioned, it is presented to illustrate two points. First, it emphasizes the importance of accuracy and comparability of data; if costs are allocated differently in different settings, comparative indices can be affected substantially.

Second, regardless of strict comparability, the calculations indicate the distinction between absolute levels of performance and cost-effectiveness. A relatively limited program can be quite cost-effective, yet not achieve the overall impact of another program that succeeds in meeting the needs of even hard-to-reach couples. To illustrate the point further, of two projects in Thailand,

"the urban Private Sector Program, selling primarily condoms, reaches only about half of one percent of the estimated sexually active population but is extremely cost-effective. The rural Village Program, selling primarily oral contraceptives, reaches a much higher percentage of the population in those areas but at a cost that is three times more per CYP than the urban project."²

Relatively little attention has been given to evaluation of the characteristics and patterns of continued use of family planning acceptors. Program quality is difficult to judge as a result.

In general, it appears that social marketing schemes have succeeded in reaching up to seven percent of the fertile population at a cost of less than \$5 per CYP. It is virtually impossible, however, to measure effects directly attributable to social marketing programs apart from activities of other programs. There is some evidence that promotion of family planning awareness through social marketing schemes has contributed to higher acceptance rates in government programs. On the other hand, data from Korea suggest that consumers may have

switched from higher priced commercial brands or clinic products to commodities sold by the social marketing project.³

In summary,

"social marketing offers a good bargain and a useful adjunct to existing family planning programs. Preliminary evaluation shows that social marketing projects have been successful in expanding contraceptive availability, in increasing product sales, in stimulating more extensive knowledge and greater use of the methods they promote, and in providing a substantial measure of protection against unwanted pregnancy. No program has yet succeeded in reaching as much as 10 percent of the fertile population, but most programs are still increasing sales."⁴

Timing, Scale, Relation to Other Programs

To be successful, social marketing schemes require a reasonably favorable climate of public awareness of family planning. Ideally, strong political support is likewise needed. Important barriers to success have included: absence of political commitment to family planning, customs regulations and high import duties on contraceptives, legal restrictions on advertising and marketing, lack of support from health professions and the pharmaceutical industry, and ignorance of non-drug retailers.

In reality, however, conditions are not uncommon in which public demand for fertility control outpaces political feasibility of formal adoption of a policy in support of family planning. Under such circumstances a reasonably viable social marketing program can be undertaken provided the aforementioned political constraints are recognized and circumvented insofar as possible.

This calls attention to the significant distinction between the sponsoring and distributing agencies within a particular social marketing program. The sponsoring agency is likely to be quasi-governmental in that it provides strategic credibility and must be willing to inter-face with the political base, but it is not operationally responsible for the program. Hence there must be at least minimal political support for the program to permit dialogue and policy direction at the inter-face. The operating agency is likely to be at least quasi-private and has tactical responsibility for promotion and distribution either through existing channels or through a special organization which it creates.

A special-purpose distribution network and sales force can be costly but may be highly desirable during the early promotional phases of a program. This suggests use of a small, mobile force that oversees the sequential phasing-in of services, one geographical area at a time. In some cultures, however, it may be necessary to rely upon local representatives who know the area and are accepted in it. Moreover, phasing removes certain benefits and efficiencies of national promotions. The resulting dilemma deserves more systematic study than it has received to date.

In addition to the issue of phasing of services within a program, there is the matter of timely inter-digitation with other programs. Social marketing schemes in themselves are not ideally suited to the follow-up of special client problems and side effects. Close association with more clinically oriented services is therefore desirable. Moreover, to the extent that client interest centers on family limitation rather than child spacing, provision for systematic referral to facilities offering sterilization and other clinical services should be a distinct feature of social marketing.

Program interactions are a continuing possibility that bear monitoring. Social marketing can either reinforce other family planning activities or, as in Korea, can lead largely to substitution of prior sources of acceptance. Furthermore, the social marketing scheme can both affect and be affected by other programs. For example, when the government program in Thailand removed the charge for contraceptives, sales in the concurrent social marketing program appear to have been adversely affected. The total of government plus private sales continued to climb, but evaluation of the direct effect of the private program was impaired.⁵ Perhaps more important in this regard is the possibility that free contraceptives from the government program may find their way into commercial channels, thereby reducing profitability and interest on the part of the legitimate social marketing organization. The point is that agency interaction can flow in either direction with net positive or negative results that are difficult, but necessary, to evaluate.

Target Population and Product Selection

Considerable stress has been placed upon the importance of market research as a basis for defining the target population, product mix, and promotional orientation of social marketing schemes. However, external evaluation of these efforts has been generally inadequate to establish definitively their true value and appropriate magnitude. It seems clear, though, that the lower-middle income groups which frequently form the target populations are often willing and able to pay more for commodities than has been conservatively established.

Under-served rural populations represent a likely target group, but it must be recognized that such clients are reached only at relatively high cost. As a matter of principle, market research efforts should be sufficiently vigorous to

permit selective delineation of target population segments and to judge the most cost-effective means of reaching each. Simplistic overall cost-effectiveness goals are likely to produce inequities and excessive competition for limited segments of the market.

Appropriate product mix is a function in the first instance of population characteristics and attitudes, but political, legal, and managerial considerations must enter the picture as well. For example, import barriers and potential for local manufacture can have important bearing on the product mix decision. The pressure of experience is on expansion of the range of products offered, and this correspondingly increases the complexity of management with respect to the variety of wholesale and retail outlets needed, breadth and depth of sales and follow-up expertise required, difficulty of maintaining adequate supplies, and competence of supervision. In any particular case there is a practical limit to the range and complexity of operations beyond which increased reliance upon collaboration and referral to other agencies becomes essential.

Promotion

One of the attractions of social marketing is that it is well-suited to coordination of promotional activities at three levels. At the first level, promotion is designed to encourage social and individual acceptability of the concept of family planning. Of recognized importance in this regard is education of the general public so that those committed to the small family norm can act without embarrassment in a socially acceptable way. Experience has shown the importance of directing promotional attention to selected sub-groups as well. Included in these are the medical profession, the pharmaceutical industry, and local retailers. Finally, promotional activities should be designed to improve the image of

particular methods of contraception. For example, condoms, which are invariably included in the product mix, have been found in several places to have negative connotations that must be overcome. As a corollary to this, the need is increasingly recognized to direct different promotional messages to males and females.

The second level of promotion is intended to convert favorable attitudes toward family planning into defined courses of action. Such promotional activities accordingly relate to product identification and packaging. They should be educational in pointing out the pros and cons of alternative products. Encouraging reference to brand names serves to reduce embarrassment at time of purchase by minimizing attention to the purpose of the sale.

The third level of promotion, at point-of-purchase, should stimulate both provider and consumer initiative to complete the transaction. Appropriate display materials can promote retailer credibility and can facilitate his education and interest. They also provide evidence of ready availability of the product which encourages a casual atmosphere, again minimizing embarrassment associated with the transaction.

In summary, all three levels of promotion are necessary, and their coordination is a key feature of social marketing. More needs to be learned, however, about the relative importance of each level, as well as specific techniques that especially contribute to promotional success.

Pricing Policy

Prices charged in social marketing schemes have generally ranged from 5-50 percent of existing commercial levels. Relation to government prices is also a consideration, especially in view of the widely prevalent notion that government

services should be free, or nearly so. Evidence has accumulated, however, that demand tends to be relatively price inelastic within the range under consideration. In fact, higher price is often associated with increased quality and value. It appears, therefore, that price increases could be made in some programs without serious consequence. Even so, additional motivational stimuli to retailers, through premium arrangements, for example, are essential ingredients of social marketing programs. Achievement of self-sufficiency is a difficult, if not mis-directed, goal.

Distribution System

The distribution system is crucial to social marketing and is an element that is especially suited to analysis through operations research. Yet analysis is complex, and ambiguous views are held regarding optimal arrangements in the absence of definitive investigation.

Clear advantages are cited in linking social marketing of contraceptives with existing distribution systems. Yet there is the admitted danger that limited interest in family planning and low profitability from contraceptive sales will result in inadequate attention being given to this product line. Indeed, space requirements for storage of contraceptives can be such as to cause them to be considered a nuisance, thereby leading to actual outages on top of reluctance to promote sales of whatever happens to be in stock. While this may represent an extreme point of view, it is noteworthy that one study revealed that sixty percent of drug outlets in the Philippines periodically run out of stock of oral pills.⁶

With these considerations in mind, some programs have developed their own sales forces. Adequate promotional attention may be achieved as a consequence, but such mechanisms are costly, the single inexpensive, low-profit product line requires unique forms of compensation for distributors, and the

temporary nature of concentrated promotional input forces modification of procedures once operational stability has been achieved.

In choosing between these alternatives first priority needs to be given to determination of the least costly means of achieving reasonable sales objectives. In particular, would added financial or other incentives to present distributors be expected to achieve the necessary level of motivation at less cost than creation of a special distribution system? Subsidization of whatever deficits result from this analysis then become a matter for separate consideration.

If existing sales outlets are to be tapped, the question arises as to whether they should be pharmaceutical or non-pharmaceutical. The answer depends to some extent upon local conditions and product mix. For example, drug stores sometimes have the advantage of a reputation for sound professional advice. On the other hand, medical connotations of family planning may disturb the public and reduce acceptance.

In general, pharmacies are fewer in number and more urbanized than other retail outlets, but their volume of contraceptive sales is higher. Other outlets, such as neighborhood grocery or general stores tend to be widely disbursed, but this breeds close familiarity between the retailer and the customer that can be disadvantageous in family planning.

On balance, it seems that increased emphasis should be placed upon small retail shops, provided this is accompanied by substantial promotion of social acceptability of family planning and education of retailers. In this connection it is noteworthy that street hawkers supplied by retailers are often an important source of contraceptive sales.

The preceding conclusion is not incompatible with encouragement of wider distribution of drug outlets. In the Philippines, for example, a number of community-sponsored drugstores have been successfully organized to distribute simple medicaments and contraceptives.

Evaluation Procedures

Social marketing programs have shunned collection of voluminous evaluative information and have focused on sales statistics and overall indicators of cost-effectiveness. Parsimonious collection of data should be encouraged, but evaluation procedures could be strengthened in several respects.

First, information on sales performance could be used more effectively for management purposes, notably in monitoring supply and in supervision.

Second, more needs to be known about outputs directly attributable to the social marketing program in contrast to interactive relationships between family planning programs.

Third, more detailed information on inputs should be obtained for better attribution of results in interests of program efficiency.

Fourth, more qualitative appraisal of program operation is needed. Several items of concern under this heading are cited in the PIP Report as follows:

"(1) previous fertility regulation practices, (2) previous and new sources of supply, (3) reasons for using and continuing or discontinuing a method, (4) regularity and correctness of use, (5) what is especially liked or disliked about the program and method, and (6) what influenced purchase."⁷

Fifth, clearer specification of target population is needed. Having only sales activity numerators without defined population denominators makes calculation and evaluation of rates virtually impossible.

Finally, careful use of cost-effectiveness comparisons within and between programs is advised. Absolute levels and equitable distribution of social benefits are important in their own right, even though they may be relatively costly to achieve in some target populations. More attention deserves to be given to the minimum cost of achieving a particular social benefit rather than placing excessive reliance on overall measures such as cost per CYP.

FOOTNOTES

1. Altman, D. L. and Piotrow, P. T. "Social Marketing: Does It Work?" Population Reports, Series J, No. 21, January 1980, p. J-422.
2. Ibid., p. J-423.
3. Ibid., p. J-419.
4. Ibid., p. J-424.
5. Ibid., p. J-419.
6. Westinghouse Population Center. Contraceptive Distribution in the Commercial Sector of Selected Developing Countries. Summary Report. Columbia, Maryland, Westinghouse, 1974, p. 60.
7. Altman, D. L. op.cit., p. J-421.

THE ROLE OF DEMAND STIMULATION IN COMMUNITY BASED DISTRIBUTION FAMILY PLANNING RESEARCH PROJECTS

Introduction

Throughout the 1960s and into the early part of the next decade an increasing proportion of LDCs instituted government sponsored family planning programs.¹ Many of these were initially supported by private organizations. As the need for fertility control became accepted, provision for family planning delivery services were introduced into government planning and operations. While conception control had been available to the wealthy urban dweller the new initiatives extended services to the less advantaged and rural population. Although some programs experienced marked increases in contraceptive usage, most attempts met resistance and apathy from the populace and encountered numerous internal and external obstacles.

Two major difficulties impeding the operation of these programs were the lack of effective demand for birth control and weaknesses in the contraceptive services delivery system such as contraceptives available only from a clinic and a narrow range of methods available. The first problem led to the inclusion of non-clinical components involving motivation, incentives, communication-information and education (IE+C) techniques with the intent of expanding the demand for services. The second difficulty was addressed in numerous ways, the most obvious being the attempt to remove barriers of cost and limited accessibility of services, i.e., by emphasizing the supply dimensions of family planning service systems. While all programs contain both supply and demand elements these can be separated into essentially demand or supply driven models of service delivery.

The Demand Side

Stated in simplistic terms the approach emphasizing the need for IE+C elements assumes that the number of couples in LDCs who will use contraception without special inducements will not be sufficient to achieve the desired degree of demographic impact. The perceived lack of demand for services is thought to be due to a combination of general social and cultural beliefs and practices, psychological and personal preferences and negative aspects of the contraceptive delivery system. Adequate use of family limitation is unlikely to occur without the use of "motivational" approaches to create or stimulate demand. In short, progress in these programs is constrained by a lack of sufficient demand.² The basic activities identified which would improve program effectiveness under these circumstances are motivation and IE+C elements which must be added to the delivery system to produce acceptance and continued use of contraception. These stimulation efforts could include direct and indirect incentives to clients, service workers and the communities to which the services are delivered.

The idea of motivation has had a somewhat uneven usage in family planning activities. As a social psychological concept it refers to a relatively strong and continuing disposition towards action. As found in the operation of family planning programs it refers to attempts to persuade people through usually simplistic statements to adopt or continue to use contraception. At its worst in the literature on family planning, motivation is seen as a "black box" through which reluctant or apathetic individuals become willing acceptors. At its best it describes a series of statements, usually from a rationalistic perspective, which are used to persuade people to use family planning. Seldom in the literature is there found a critical or coherent discussion of motivational aspects of these programs.

The effectiveness of IE+C components is problematic. It is difficult to estimate the relative contribution of these inputs to program achievements and appropriately designed experimental studies have seldom been undertaken.

The Supply Side

The results from KAP surveys, field observations, prevalence of abortion and post-abortion complications, and excessive demand confronting some clinic based programs suggested to researchers and program officials that, while some lack of demand may be present, major barriers to achieving fertility reductions arise in the operation of the numerous components on the supply side of the equation. Initially in many programs services were costly, available only through clinic sites which were inaccessible to a large portion of the population and with only a limited range of contraceptives. Near the end of the 1960s clinic based service systems were augmented by household, community and commercial distribution approaches with an emphasis on low cost methods not requiring medical intervention.

In a supply driven program initial demand is expected to be heavy, reflecting the unmet needs for services of those sectors of the population without prior access to assistance. It is anticipated that the example set by first acceptors will encourage others also to adopt family planning. The presence of users and the availability and low costs of methods is assumed to create further demand which will lead to higher levels of use.

Research Related to Demand Stimulation in CBD Projects

Among the countries in the forefront in instituting family planning programs were those with a history of social, economic and demographic research.

This is not surprising as countries which had sufficient human and material resources to mount research programs were also likely to have the capability of carrying forward family planning activities. Further, a research capacity permitted a recognition of the problem of population growth and allowed for the evaluation of programs. More importantly, research expanded the scope of family planning activities, helped define the market for services and assisted in promoting and testing new delivery systems which secured acceptance of innovative ideas in the field.³

The functions of research play an even greater role in Operations Research (OR) Projects. These are designed to be field experiments testing different facets of the delivery of family planning services. The OR projects use household, i.e., door-to-door village, i.e., promoter with supply depot, forms of contraceptive distribution. A third form of Community Based Distribution uses retail marketing outlets selling contraceptives at subsidized prices. In both household and village based projects one or more problems in the delivery of family planning services are studied with a before and after research design and the introduction and measurement of the effects of the test intervention. The primary outcome measure in OR projects to date is the prevalence of contraceptive use. Depending upon the particular feature of a CBD-OR project other outcomes are also assessed. A review of the 28 OR projects completed, presently operating or being implemented reveals the following grouping of principal research questions on factors influencing contraceptive use:

1. Effects of integration with health or social services.
2. Influence of variations in forms or levels of field worker compensation.

3. Changes in the varieties of contraceptives available, i.e., contraceptive mix.
4. Influence of differing types of field worker selection and/or training.
5. Differentials in pricing levels or charging for contraceptive or medical supplies.
6. Effects of differing forms of canvassing and of modes of resupply of commodities.

Several of these indirectly address ways of increasing demand, although the emphasis is mainly upon distribution and supply issues.

One of the few examples of the inclusion of demand stimulation elements within the research design of OR projects has been in the area of worker incentives. Two projects were explicitly concerned with incentives to service providers. The first test of performance based payment for canvassers vs. straight salary was carried out in the Korea (Cheju) project. Thirty-nine canvassers covering 12,000 households in one area were paid a basic monthly fee equal to half of the regular remuneration given to other canvassers. If the number of acceptors recruited exceeded 30 percent of the eligible women in the area, an additional 100 won was received by the canvasser. The experiment was discontinued in part due to the administrative burdens of accounting and bookkeeping felt necessary to closely monitor the undertaking. Another problem encountered in the three month test was the awareness on the part of the canvassers in the experimental group that their colleagues in other areas were receiving a higher fixed salary.

A second test of alternative schemes of worker compensation was conducted in the Mexican New Strategies Project. Four different models of worker

compensation were the chief independent variables in the 1978 redesign of both the rural and urban components. In the rural treatment areas the four methods of payment to be tested were as follows:

500 pesos	300 pesos + 50 pesos for IUD referral + sale of pills and condoms
<hr/>	
500 pesos of free medicaments to be sold by agents and freely replaced	500 pesos of free medicaments to be sold by agents and replaced at wholesale cost

In the urban areas different payment modules were constructed:

500 pesos	400 pesos + 50 for IUD referral
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Sale of contraceptives + 50 pesos for IUD referral	No compensation

Several problems arose in determining the effects of worker incentives from the above. First, those modules receiving medicines were troubled by incomplete supplies, poor sales and subsequently small profits. Thus, their effectiveness as an incentive was not large. In addition, a subsequent DGS policy provided that all rural agents would sell medicines. Secondly, the sale of contraceptives in both the urban and rural areas was seen as contrary to the policy of the Mexican government prohibiting the sale of contraceptives and consequently eliminated. To date, a long range test of worker incentives remains to be conducted. The BEMFAM proposal in Brazil suggested a reimbursement experiment of fixed salary vs. retention of a percentage of sales as a future area of OR study in 1979. In

Nigeria, small bonuses to be paid in addition to commissions for agents reaching their targets, and incentives paid to supervisors in the form of a percentage of funds generated by agent resupply have been suggested as incentives.

Two investigations have been made into the effects of differentials in the price of contraceptive supplies on client acceptors. In Taiwan, free distribution was compared to charging a small fee for supplies. This project was terminated by AID before results became available but there was probably no difference in contraceptive use between the two approaches.⁴ In Egypt an experimental intervention comparing free distribution to charging a small amount for contraceptives did not produce a difference in the prevalence level. In both the Egypt and Taiwan experience the monetary difference between free and purchased contraceptives was quite small, so it is unlikely that either project is a full test of the question as to the effects of pricing policies. The often stated argument that there will be more commitment to use a method if there is a personal financial involvement is therefore still untested. What is clear, however, is that a small fee does not deter use and if practicable may generate funds to offset program costs.

A third type of attempt to stimulate demand through motivational components was proposed in Nicaragua. However, political unrest in Nicaragua forced abandonment of the study on the use of mass media to increase level of awareness about the program. It is indicative of the strong supply-side orientation of OR projects that of the projects reviewed only one attempted to involve direct education and persuasion.

The most ubiquitous DS attempt in OR projects is the integration of health components with family planning services. Health interventions have their own inherent justification but their use in connection with family planning services is

fairly seen as an effort to improve the image of the program in the short run and in the long run to deepen the motivational base by enhancing the chances for survival of infants and children. Over two-thirds, 19 out of 28 projects, include health items. In many instances MCH or other services are offered in all phases of the project so there is no attempt to test experimentally whether such services stimulate contraceptive acceptance. The most ambitious undertaking thus far, the so-called Taylor-Berelson projects have yet to produce conclusive findings. They do reveal, however, the complex problems - economic and organizational - encountered in the development of health infrastructure. In Egypt a comprehensive health and social services model integrated with family planning is under study.⁵ Baseline data are becoming available but test results are unlikely before 1982. The effects of the absence or presence of health components on contraceptive acceptance is also under test in a second North African country.⁶ This study compares an integrated program area with two additional areas where only family planning is offered. In the health serviced area MCH interventions focused on prevention and treatment of childhood diseases. The project is completed and results are expected shortly on the effects of the 3-year intervention on contraceptive prevalence. In Haiti an integrated health FP project will be completed in 1981.⁷ Contraceptives were supplied alone or with simple medicaments in study areas. The results are not unambiguous due to difficulties in executing the project but it appears that the area scheduled for free household distribution of simple medicaments has the higher level of contraceptive prevalence.⁸ The experimental health area, Leogane, which had previously received no MCH or FP services, had a contraceptive prevalence rate of 48.7% compared to 16.4% and 14.1% in the remaining two areas at the end of the second

round of household distribution. Haitian staff assert that the Leogane area has a higher level of modernization and is more receptive to change.

The sole attempt among OR projects to study group incentives as a way to foster social and population change was terminated abruptly due to administrative disagreements. The project was to span three provinces in the Philippines and one-half of the monies generated from sales of hygienic commodities was to be deposited in a Community Development Fund. There are at present no other projects that explicitly and directly use community or group incentives that are linked to the development process.

Role of Demand Stimulation in CBD Projects

The projects reviewed above have made limited use of inputs to increase demand for contraceptive services. The three most commonly used items, incentives versus full salary for field staff, providing combined health and family planning services and varying the cost of contraceptives have not been introduced solely as ways of stimulating demand for family planning. Money received from contraceptive sales can reduce the level of government support necessary for a program. A piecework incentive system for paying workers' salaries may lead to lower costs, and health services have their own justification as an accepted governmental responsibility.

Even where demand stimulation ideas have been tried, they have not been subject to intensive testing. This is in keeping with the mild emphasis in demand creation in OR projects. The range of health services has been limited and variations in costs of contraceptives have been minor. As noted above, the one project that aimed at testing an IE & C component had to be discontinued. In short, there is little to be learned from these projects regarding the possible

strength of the demand creating intervention variables. Reviewing the projects, however, identified several problems which suggest a need to give further consideration to introducing DS elements into ongoing and new studies. These include:

1. Insufficient program penetration - In the Haiti project contraceptive prevalence seems to have reached a plateau at 14% in one setting and 20% of eligible women in the second area where family planning services only were delivered. In Tunisia prevalence reached 18% in one project (PFAD) and 24% in a subsequent one (Fernana). This same level (24%) was reached in Egypt (Shanawan) after three years of effort. A somewhat higher prevalence level is reported for Cheju Island, Korea, of 36% in the treatment area and 32% in the control area. In a test area of a multiple input project in the Matlab area of Bangladesh, contraception was adopted by 36% of the eligible women. Such prevalence levels, while in some cases gratifying to project managers and even surprising as in the case of Bangladesh, involving as they do some degree of substitution and promising nothing relative to the continuation of use, are sufficient to reduce the birth rate by 20 to 30 percent. This is not negligible but prevalence rates roughly twice as high as these are needed to bring the birth rate down to a level consistent with a rate of natural increase close to 1 percent.

2. Worker motivation - In the Korean (Cheju) project it was reported that after two years of service delivery 39% of the eligible women had not been contacted by a canvasser. Similar problems in other projects suggest the need for some form of worker incentive to stimulate productivity. This may be particularly useful in early stages of a project when the initiation of contact and provision of a basic field structure are most crucial.

3. Contraceptive continuation - The results from Tunisia (PFAD) show 45% continuation for all methods after 18 months from initial acceptance. In Bangladesh acceptance rose to 18% after three months of field effort but fell back to 13% after 18 months. A sharp decline in contraceptive prevalence was noted after four months in the Cheju Island (Korea) project. These data suggest that it is difficult to maintain motivation to use contraceptives in a CBD program, although it is possible that programs themselves go slack after awhile, so that a constant level of motivation yields fewer customers. The one-time-only field canvass may not provide sufficient support to maintain use, and further efforts to create and maintain demand would appear to be reasonable. A falling-off of interest after a period of initial adoption is typical of one-shot efforts to diffuse innovation.

4. Acceptor profiles - In Taiwan a review of acceptor characteristics shows the expected distribution: high levels of acceptance among women 30 years of age and over or those with three or more children. Of acceptors, 80% wanted no more children. Client characteristics are not available for most of the other 27 projects, but it is expected that acceptors would be older, high parity women. While it is useful to provide services to these groups, a greater demographic impact would be achieved from securing acceptance from younger, low parity women. Recent evidence from Bangladesh suggest that acceptor profiles can be modified toward younger, low parity women through program changes on the supply side (more varied mix of contraceptives, better trained personnel). This case needs further study as do efforts to devise motivational approaches to reach previously uninterested women.

5. Community support - Family planning delivery systems based in and oriented toward the community must depend upon greater local support than is

necessary for a clinical facility system. Contact is made with adult women in households and questions arise as to why visits are being made. Local residents may be recruited as workers and some involvement by village residents with construction or improvement of a health or social facility may be part of the OR project. Reports from the current and completed OR projects provide limited documentation on attempts to elicit broad community support among village elders, religious leaders or even the husbands of the women visited by the canvasser. In Indonesia efforts to include community members has been successful and have improved acceptance of the objectives of the FP program. In Egypt (Menoufia, Integrated Social Services) the village council selects and guides many of the development activities, including the preparation of the request for assistance in improving health and social centers. Where community support is lacking it would be desirable to use media, village assemblies or other types of MICE approaches to expand awareness and engender a sense of involvement with the population control activities.

Not all community residents are aware of the presence of a FP program in their area. In one OR project (Nicaragua Patera Empirica MCH Project) the level of knowledge was low among villagers and traditional birth attendants. So few of the TBAs knew of the program that when an attempt was made to hire them on the MCH project an insufficient number came forward to be recruited as workers. A communications program including the use of mass media was recommended.⁹ The termination of the project in Nicaragua precluded evaluation of the effectiveness of the communications program. While some care must be taken to articulate information-communications campaigns with the CBD of contraceptives, it is likely that field efforts would be reinforced by media support. Such information-communications inputs have not had a major role in OR projects.

6. Use of non-supply methods - Accompanying the growing prevalence of modern scientific methods is the use by some sectors of the population of less reliable techniques. This is particularly evident in the Cheju Island project. To convert these users to program methods will require additional education or information inputs which may not be available from a CBD project.

New Projects

The foregoing discussion has touched upon the supply versus demand approaches to the delivery of family planning services. Research in OR family planning projects has placed a larger emphasis on supply aspects of this problem. A number of difficulties in reaching the objectives of OR projects have been identified in the course of this review, some of which might be relieved through greater attention to DS. The following are offered as suggestions for extended OR research projects containing DS elements:

1. Two Phase Projects - The initial unmet demand in previously underserved areas can probably be met effectively through a CBD approach. Experience suggests that through village or household distribution about 30% of the eligible women can be reached. In a household based system a subsequent phase of the project could include IE+C elements designed to improve continuation rates* through providing resupply of contraceptives, answering questions about problems of the methods employed and giving other information and reassurance. A second objective of phase two would be to increase the level of acceptance from the 30%

*Implicit in this recommendation is greater attention to the measurement of continuation rates which have been largely ignored in OR projects.

plateau by (1) providing services to previously ineligible women who have recently married or were pregnant or lactating, and (2) emphasizing the value of conception control to those who did not accept a method in the initial household distribution.

The task of extending FP services to these households could be undertaken through the use of multiple inputs including personal and media approaches. Household canvassers, those workers who will provide continuing support and resupply of contraceptives or specially selected and trained service staff who have proven successful in distributing contraceptive services, could revisit those households where nonacceptance occurred. A phased media campaign using radio and local billboards or signs could supplement the direct contact. The content of the media material could reflect the special concern of those who are initially reluctant to adopt contraception.

It would be expected that the content of the motivational approaches would vary with client characteristics. Some careful experimentation as to the most effective ideas should be undertaken. Especially fruitful would be a study of the perceived value of the health intervention and its relation to the acceptance of contraceptive services. A second line of inquiry should examine the value of conception control in permitting women to obtain outside-the-home employment.

2. Integrated Incentives Projects - Isolated field trials have demonstrated the potential benefits of material incentives as an inducement to control fertility.¹⁰ A model for integrating incentives into other development activities has been developed¹¹ and expanded into a scheme for fitting incentives into the overall social and economic development process.¹² This approach could supplement CBD systems as it gives local communities a major role in setting development and population goals. Emphasis upon the involvement of the local

community is compatible with the use of local residents as canvassers in CBD projects. Of the OR projects now underway the ISS project in Egypt has immediate potential for inclusion of an integrated incentive approach into the broader development model. The presently existing community support network allows for active participation in the design and implementation of an incentive system.

It is clear that a thorough examination of the ways in which demand stimulation mechanisms can enhance the supply driven CBD model remains to be conducted. Coupling CBD efforts with women's development, community development, and new health intervention activities could explore areas of demand creation. In some populations the small family norm is non-existent and IE+C efforts are necessary before contraceptive demand would be felt. This may be particularly true in Africa. In Kenya both the number of children wanted and number of children ever born are in excess of seven. It is probable that low levels of demand are also present in several areas of South and Central America. While demand may be assumed to be present in large parts of Asia and the Middle East it is arguable that IE and C activities must precede or accompany CBD systems in other regions.

Specifically we recommend that the following demand stimulation approaches be given consideration.

(1) Introduction of small-family norm and child spacing IE and C messages to populations where contraceptive prevalence has reached an approximate plateau of 30 percent. In particular, these would be directed to younger, low parity women.

(2) Use of mass media to supplement CBD of contraceptives with special emphasis upon the radio as the source of information. The objective would be to examine the synergistic effect of CBD plus media.

(3) Experimental IE and C projects with an emphasis on household and village based contraceptive delivery in populations where demand is absent, e.g., Kenya.

FOOTNOTES

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4. Chow, L. P., Studies on the Feasibility and Effectiveness of Contraceptive Inundation Approach in Taiwan, Final Report (unpublished), Johns Hopkins University, Baltimore, 1980.
5. U.S. Agency for International Development. "Project Agreement between the Department of State, Agency for International Development (AID), an Agency of the Government of the United States of America and the Ministry of Health, an Agency of the Government of Egypt," April 19, 1978, p. 3.
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7. Columbia University, Center for Population and Family Health. Proposal for a collaborative operational research project between the Division of Family Hygiene, Ministry of Health, Haiti and the Center for Population and Family Health, Columbia University. New York, Columbia University, April 21, 1977.
8. Revson, J. and VanWie, B., Household Distribution Project, Port-au-Prince, Haiti. Field trip report, January 27 - February 1, 1980, to U.S. Agency for International Development.
9. Heiby, J. and Monteith, R., Year-End Evaluation of the Project, Community-Based Distribution of Contraceptives and Selected Health Supplies, Nicaragua, December 5-14, 1977 (unpublished). Atlanta, Georgia, Center for Disease Control, 1977.
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RESEARCH AND EVALUATION PROCEDURES

The Principal Issues

Application of traditional principles of research design to field studies is inherently difficult because of the limited control that can be exercised over the operational environment. Forces outside the direction of project administrators bring unanticipated changes into experimental and control areas and evolving knowledge from the project may be fed into the structured activities and thereby disrupt a previously established objective. Definitive research findings tend to emerge slowly and only as a result of considerable data collection and analysis. Personnel who are principally service-oriented and not particularly conversant with research methodology may harbor doubts concerning the value of a major effort that may eventually produce results that are neither timely nor definitive in view of substantial changes in uncontrollable field conditions that are likely to take place in the course of the study. The operations research projects of direct concern here have faced these difficulties further compounded by the varied political, operational, and research perspectives and priorities exhibited by the operating agencies, local academic institutions, U.S. academic and other technical support agencies, and U.S. government agencies associated with the studies.

The advantages of field studies are rooted in these same situational features of OR projects. While the researcher does not have full control over the situation, community organizations and groups can be involved as part of the forces of social development and population control. Unlike an artificial laboratory study a field experiment makes use of the influences of real community life.

An important element in OR projects is the close attention to an experimental research design. A review of the experimental designs of twenty-seven of the OR projects led to their classification into four groups (Table 16). The first group designated as true experiments attempted both random selection of treatment groups and distinct control areas. Three projects, Taiwan, Sri Lanka and the Menoufia Project in Egypt, fell into this category. The following control/test group comprised the largest grouping, encompassing thirteen of the projects. These undertakings made no attempt at randomization, but conducted pretests and maintained control areas. Two other projects, the four-state project in Brazil and VDMS in Morocco, lacked definitive pretest or baseline surveys, but did maintain controls and thus were designated as Control Only. Eight projects fell into the second largest grouping labelled Pretest. These projects lacked control groups, but conducted pretest or baseline surveys for measurement indexes.

A similar review done in 1977 by Cuca¹ of 96 "experiments" in the delivery of family planning services yields a different picture. Using essentially the same criteria the 96 projects produced 12 true experiments, 22 Control/Test projects, 6 projects with Controls Only, 21 with Pretests Only, and 35 projects with no randomization, no controls and no pretests. A comparison of the two groups of projects highlights the attempt made by AID to include at least a minimum of social science research elements in their initial research designs. As we can clearly see in the earlier group of the project review by Cuca, the single largest group contained no attempt towards a meaningful research design.

These considerations lead to two over-riding questions. What is the most appropriate evaluative research strategy for providing insights that are timely and practicable, yet adequately tested and generalizable? What institutional roles and

Table 16

CLASSIFICATION OF EXPERIMENTAL AND OPERATIONS RESEARCH
FAMILY PLANNING PROJECTS

	Operations Research/ AID	Program Experiments Cuca
True Experiment	3	12
Control/Test	13	22
Control Only	2	6
Pretest	8	21
No Pretest	0	35
	<hr/> 26	<hr/> 96

associations can most effectively contribute to this research strategy? We are not concerned here with research and evaluation findings as such. These are discussed in other topical sections of the report. Rather, our concern is with procedures for strengthening future findings.

Experience Relative to the Issues

Character of the Research

The nature and setting of OR projects places constraints upon the type of evaluation and research efforts which can be pursued. Most of the 28 projects reviewed here have an active life span of about three years. This is unarguably too short a period over which to measure reliable and valid changes in fertility status. Second, most less developed countries, including most of those in which OR projects are located, do not have an accurate or comprehensive vital statistics system. This precludes monitoring births, infant deaths and maternal deaths as covariates of project success. Third, service statistics in OR projects, and in family planning programs in general, are of limited usefulness in monitoring project impact. These statistics emphasize number of acceptors or contraceptives distributed. While these are important measures of field activity the prevalence of contraception, use from non-program sources, patterns of usage, and so forth must be examined from other types of data. Fourth, methodologies for measuring effects of project interventions on health status of the communities are less well developed than those for assessing family planning results. The evaluation of OR projects will be somewhat unbalanced until advances are made in measurement of health status.

The comprehensive, long-term nature of the Narangwal project makes it perhaps the richest AID-supported source of research findings regarding provision of health and family planning services. This richness was achieved at significant cost, however. First, the complexity of the various experimental cells in the research design precluded introduction of services in all cells simultaneously as would be desired in classical research design. Delays in initiation of services have also been encountered in some of the OR Division projects. In Bangladesh, for example, the introduction of specific MCH service components was staggered over poorly documented periods of time.

A second feature of the Narangwal project is that final analysis is only now nearing completion, more than a dozen years after the project began and six years after its conclusion.

Finally, the Narangwal project raises questions of replicability. Project control over the service program ensured documentation of efforts achieved, but did not guarantee that these effects would be sustained or expanded through transfer of functions and competence to the Ministry of Health.

During the life span of the Narangwal project initial objectives were found to be insufficient and were refined and new goals added. In field studies of this type personnel are not committed to the need for a rigorous specification of objectives, and changing circumstances and experiences during the project require altering the short-run and overall end points. Without a clear statement of measurable objectives at the beginning of a project and an effort to record changes in objectives throughout the life span of the study there is little chance for a successful evaluation.

The Danfa (Ghana) project was similar in many respects to Narangwal in basic design. The population covered through Danfa was larger, thereby imposing an even greater burden of data collection and analysis. The burden was so great, in fact, that the initial research objectives were eventually discarded and attention was focused on implementation and evaluation of services.

The Lampang Project (northwestern Thailand) has been conducted for demonstration, rather than strictly research, purposes. Nevertheless, its relatively sophisticated design, general importance as a prototype program, and large area of coverage (600,000 population), have imposed evaluative requirements on the project that have not been met adequately. Resulting delays in analysis and reporting of baseline conditions and project results have led to: (1) inefficiencies in the development and management of the project itself; and (2) incomplete transfer of Lampang experience to the expanded World Bank Population Project for which AID has taken on evaluative responsibility. Partial replication of Lampang prior to its full evaluation serves to emphasize the point that whether to replicate is not simply decided on grounds of objective evaluation of earlier results. However, a demonstration project should provide solid evidence of how best to replicate. For example, the Lampang Project has produced largely undocumented impressions that village-level communicators with ill-defined roles appear not to be very effective in promoting family planning. In the absence of clear evidence on this point the World Bank Project may be magnifying a previous error by training in excess of 100,000 communicators.

The Lampang Project is notable for present purposes in two other respects. First, it has operated under a cumbersome administrative umbrella involving project staff, the Ministry of Public Health, the University of Hawaii,

APHA, the AID mission in Bangkok, the Asia Bureau of AID, the Office of Health, and PPC. Nowhere in this array of organizational inputs has sustained competence in research and evaluation been evident. Yet each institution has exhibited sporadic interest in the subject from its own perspective. The result has been more confusion than clarity of intent and responsibility.

The other noteworthy feature of Lampang has been that project experience has revealed problems, albeit belatedly, that have led to design modifications on a focused, trial basis. In particular, services have been implemented in one district without the use of communicators, while a revised scheme for the training and supervision of Village Volunteers has been tried out in another area. This emphasizes the essential link between research, management, and evaluation. A simplified information system providing rapid feedback is necessary in the first place to monitor project progress and to document unanticipated changes in field conditions. This can lead to prompt acknowledgement of difficulties which can then be investigated more closely. The research is thus concentrated on problems of direct concern to field personnel and can produce uncomplicated findings quickly.

The latter point is reinforced by experience in Indonesia. That bi-lateral project has not had a research emphasis and has been characterized by a well-functioning, simplified management information system operating on the principle of management by exception, i.e., limiting scarce management effort to exceptional circumstances needing attention. The information system has served its intended purpose well and has in addition produced results of research value, or has at least identified timely research issues worthy of further investigation in a

relatively simple, straightforward manner. The potential is enhanced by the presence of an unusually flexible system of funding and administration.

While the initial discussion has focused mainly outside the OR Division projects under direct review here, the experience reviewed is considered highly relevant because of the relatively long histories of experience provided in projects heavily oriented to research and evaluation. As noted elsewhere, many of the projects within the Division have been more akin to demonstration projects in that they have not been characterized by explicit hypotheses to be tested, a clearly defined research design, or defined experimental variables. Objectives are not always stated in a form that permits quantitative evaluation. Moreover, in some cases planned experimentation has not been implemented because of lack of local commitment to research or because of difficulties encountered in the field. As a result, the bulk of insights gained from these projects has come from assessment of experience with factors carefully described and controlled in advance but not experimentally varied. In addition, significant findings have emerged serendipitously through variation that occurred by chance, e.g., in the age, sex, or occupation of agents. The wealth of information obtained from other than a strictly research setting suggests that while scientific investigation of phenomena should be pursued to the maximum extent feasible, at least as important is adequate documentation of whatever experience evolves, regardless of initial study design. For example, it is quite clear that imposing a modest charge for commodities does not seriously inhibit effective demand. Although more tightly controlled experimentation with alternative charging patterns is needed to establish optimal arrangements under varied circumstances, the evidence from less rigorous analyses should not be discounted.

Institutional Arrangements

In general, implementation through a government service agency encourages realism and enhances replicability but may compromise research interests. Implementation through a local academic base may have the opposite effects. The OR Division projects present a varied array of institutional arrangements including evaluation by operational staff and reliance on external evaluation.

In Morocco, where the government assumed responsibility for implementation, research and evaluation considerations were not given priority, with the result that measurement of project effects has been difficult. In Thailand, government involvement has been less direct in that a private agency has been the implementor. This arrangement has had distinct practical advantages, but conflicts with the National Family Planning Program and with the government-sponsored World Bank Project have impeded definitive evaluation. The Thai project has further involved Mahidol University in carrying out project surveys.

The Nigeria and Sudan projects are being undertaken through local universities. Although experience to date is limited, there is some question in Nigeria concerning the relevance of university research orientation to the type of project contemplated. In addition, a sound working relationship with the state Ministry of Health needs to be developed.

Guatemala and Bangladesh represent examples in which implementation with or through local research institutes other than universities has been tried.

Added to these local arrangements are varied levels of technical support and direction provided by Columbia University and other U.S. institutions. The present contract creates still another arrangement in which Johns Hopkins provides technical assistance from its research base in close collaboration with AID.

The particular arrangements are probably not as important as the local climate and personalities involved. It is impossible to generalize, therefore, to a single optimal set of relationships. What is apparent, however, is the need for government service agencies to strengthen their internal competencies in research and evaluation in association with local academic or research institutions adequately attuned to real operational problems. Such investment in institutional development is costly, time consuming, and not the direct aim of a single project. What priority to attach, if any, to an effort that may not be immediately cost-effective is a question that deserves consideration. The contribution of University X to Project A may be minimal, but the experience gained and the working relationships established as a result may pave the way for more effective associations in the future after the present project and AID support have terminated.

Research Design

As suggested in the preceding discussion, two features of operations research stand out above all others. First is the inability of the researcher to fully control the conditions of investigation. The second feature is the importance of rapid feedback of results in the interests of operational improvement. Remedial action must be taken even though the initial research design may be distorted as a result. Thus, for example, if the intended system of re-supply is found to be inadequate, alternative mechanisms must be found. The argument of classical research is that the study must run its course under static conditions to permit valid evaluation of end results, but this philosophy carries little weight in a service setting and is of small value in studying projects where program flexibility is necessary for survival.

These features have important implications for research design and analysis. In the first place, they call into question the usefulness of the traditional before-after model applied to experimental and control areas. The requirement that control groups be similar (in all respects but the intervention variables) to experimental groups is virtually impossible to satisfy in practice. Whatever similarities may exist initially cannot be guaranteed to remain. Even if similarities are identified, project staff may not have the freedom to designate areas to serve as controls. Bangladesh has used control villages, but it was admittedly impractical to assign them randomly. The twelve villages in Nigeria unwilling to participate in the study there have been designated "controls," a serious distortion that could lead to problems in meaningful analysis. Finally, even if all of the foregoing problems have been surmounted and adequate controls have been selected, problems in data comparability remain. The gathering of data where services are not provided in return can lead not only to ethical problems but under-reporting as well. The ethical difficulties may be mollified by a cross-over design or phased introduction of the project benefits to the control area. However, chronic under-reporting of vital events in control areas can lead to substantial difficulty in assessing impact in experimental areas.

Large data sets require a long period of collection and often longer time for data reduction and analysis. These consume excessive amounts of time from research personnel whose skills are in short supply in most LDCs. Typically, the interval between initiation of data collection and definitive results is measured in years rather than months; consequently, findings are often out of date and of limited use to project staff. One study from the current OR projects illustrates

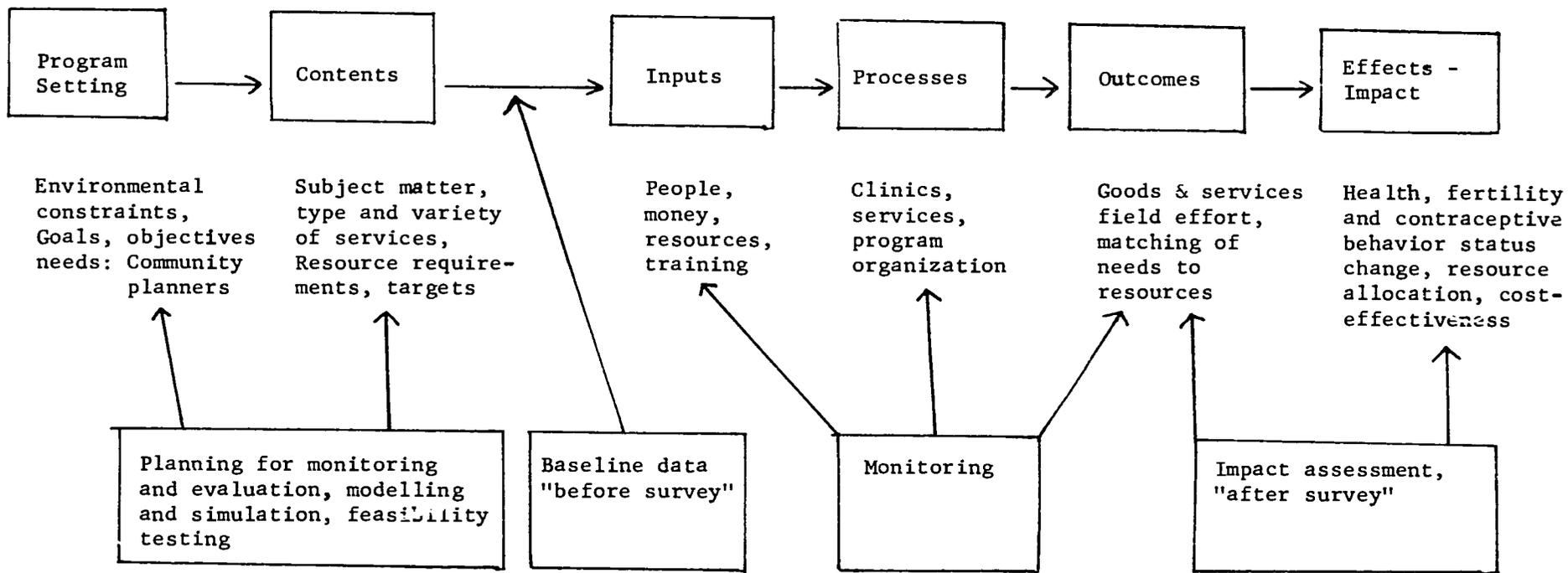
this point. In the Menoufia Project in Egypt the combined effects of a large sample size (6,500 respondents), lengthy interview schedule and less than optimal data processing facilities results in the initiation of second phase "after" surveys without an opportunity to examine the "before" data. The usual reasons for large sample sizes include a need for reliable data for small geographic areas and the notion that a generous number of cases allows for the introduction of necessary control variables in the analysis. The lack of specificity in objectives and hypotheses may lead to a larger sample requirement as the evaluators attempt to anticipate the broad range of items which may have an influence on the outcomes. However, it is preferable to mount a series of small studies, carefully focused on specified target groups, in a number of geographic areas. Not only can trained research staff be moved from one district to another to provide supervision over data collection but the smaller sample sizes will allow more rapid data processing and feedback to service staff.

Establishing Causal Relationships

We are led to the conclusion that reliance on baseline data so that study villages can serve as their own controls is useful. Comparison of control villages may strengthen the design but are likely to become subject to the treatment effects during some stage of the project life span. This is not to say, however, that simple pre- and post-surveys are all that are needed to assess project effect. Where there are no independent controls, it is dangerous to attribute observed changes in project areas to the project itself. More importantly, pre- and post-surveys give scant evidence of how the project was successful in achieving the observed impact. Continuous monitoring of project inputs and outputs is essential for this.

In short, we advocate continuous monitoring and periodic impact surveys along the model shown in Figure 1. Project monitoring and evaluation is most appropriately undertaken by a series of activities rather than a single large-scale survey. The approach discussed here divides into three phases: specification of objectives and baseline data survey, monitoring of activities during project operation and evaluation of impact with a re-survey late in the life of the project. At initial stages of project design specification of objectives and goals provide the guidelines for the subject matter of monitoring and evaluation activities. The model suggested here is a baseline survey after project objectives and content have been established. With implementation of project inputs, initiation of services and field efforts, monitoring of a limited number of elements should be undertaken. The essence of monitoring is the collection of data for the immediate management of the project and hence should focus on day-to-day activities and should provide information not only to program directors but also to the outreach field supervisors who assist in the initial acquisition of the monitoring data. The measurement of project impact is most efficiently accomplished by periodic evaluation surveys limited in content to the objectives and goals specified in the overall design. An applicable model here is the Contraceptive Prevalence Survey (CPS) currently used by the Center for Disease Control, Atlanta² and the Westinghouse Health Systems³ group. These evaluate at a national or state level contraceptive use, program management, decision making and design process in family planning programs. The CPS relies upon a standardized questionnaire which permits computer programs to be used without extensive modification. Uniform data processing and a judicious limitation of questions to direct evaluation of program objectives results in

FIGURE 1 OPERATIONS RESEARCH EVALUATION MODEL



foreshortening of the period from data collection to availability of information. Typically data are available within six months of the field work and the first report is issued before one year has passed.

The monitoring system must first record systematically the changes that inevitably take place in the course of project implementation. When and how were supply bottlenecks broken? What changes in supervisory patterns were instituted? Were there changes in the pricing structure for commodities?

Ongoing monitoring must further recognize that projects increasingly have multiple objectives to be achieved through multiple inputs. Depending upon project aims, both health and fertility indicators are likely to be important. The information system must then be capable of allocating costs, personnel effort, and other inputs to the varied project purposes appropriately. Inadequate measurement of input for cost-effectiveness analysis is especially notable in most projects at present.

The monitoring system must also recognize changing relationships over time between costs and effectiveness. Start-up costs are usually high and benefits come slowly. Then, as the project achieves a routine level of operations, additional benefits may be achieved at relatively low marginal cost. Eventually a plateauing may be reached, in which case unit costs can again be expected to increase. Obviously, cumulative data translated into averages give an inadequate picture of project dynamics.

In fact, project dynamics are even more complex, as illustrated in the following analysis based upon Narangwal data (Table 17). That project offered five methods of family planning: condom, pill, IUD, injectable depoprovera, and sterilization. The condom was by far the most popular method, being the initial

Table 17
 PERCENTAGE DISTRIBUTION OF CONTRACEPTIVE USERS
 - BASED ON NARANGVAL EXPERIENCE

Method	At Initial Acceptance	Three Years After Acceptance	% Distribution of Users
Condom	46.6	26.6	34.5
Pill	7.1	3.9	5.0
IUD	14.0	12.5	16.1
Injectable DP	18.0	14.0	18.0
Sterilization	14.3	20.4	26.4
Non-Use	-	22.6	-
Total	100.0	100.0	100.0

choice of nearly half the program acceptors. Subsequent shifting to other methods was common, especially to reliance on sterilization, and calculations showed that over a typical three-year period following initial acceptance of the condom, approximately forty percent of the effective protection achieved against pregnancy was attributable to use of other methods. Thus the condom was important for its direct effect in providing limited protection to large numbers of users and for its indirect stimulation of more effective contraception. Such analysis was possible because an accurate accounting was made of initial acceptance, duration of use, periods of break in use, and subsequent switching of methods.

While the illustration in Table 17 exemplifies the importance of the dynamic influence of a program, it does require an impressive data base. Consider in contrast the case of Haiti, where periodic information was collected by household, regardless of occupancy, because of the serious problem of migration. Serious consideration needs to be given to the development of practicable, streamlined methods of client follow-up in order to acquire meaningful measures of project effectiveness.

Simplification and Standardization of Data Gathering

Apart from project-specific needs to monitor performance, there are basic data requirements common to all projects. For example, certain items of baseline information are invariably of interest. Development of a standardized instrument would avoid duplication of effort and enhance project comparability. Data needs are not the same as in the World Fertility Survey or the Contraceptive Prevalence Studies, but are similar and the same principles of uniformity apply to the OR projects. Projects could supplement the simplified, streamlined survey

instrument with additional items of information deemed appropriate to individual projects.

During the preparation of a project proposal attention should be given to a systematic presentation of the evaluation modality which will be employed. The effort spent in specifying the evaluation steps at the beginning will more than be repaid in the clarity and simplicity of the analysis at a later date. Particular emphasis must be given to answering What are the objectives, Who are the target groups, When will the objectives be reached, How Many inputs of people and other resources will be used, and Which organizational processes, outcomes of field effort and behavioral effects are to be achieved? Answers to these questions provide a context for judging the appropriateness of the suggested research design.

Service oriented professionals are usually not well trained in research skills. To assist these individuals in proposing and executing the evaluation components of OR projects it is desirable that the following be undertaken:

1. A simple outline of basic evaluation questions should be prepared which will assist in reviewing whether sufficient thought has been given to the research design.
2. An evaluation research handbook should be prepared expressly for OR-CBD type projects. This could be used by present as well as future project personnel in designing and carrying out evaluation studies.
3. Consultants should be involved in the formulation of projects with explicit terms of reference including detailed plans for project evaluation. There is limited value in the use of evaluation consultants after a project has been formulated and in operation for some time with limited emphasis on the design and monitoring of elements which would make an evaluation possible.

Overall Summary

In summary, review of operations research procedures and problems has underscored three major principles. First, an integrated view of research, management, and evaluation is essential. An isolated, static perspective on research is inapplicable in the politicized service environment in which OR projects are conducted. A flexible posture of adaptation to local conditions is necessary without unnecessary sacrifice of analytical rigor. Competent project management produce important insights into successful operation, even if conditions for analysis produce contamination of a pure experimental design. Moreover, prompt and careful evaluation can uncover problems in need of research that is admittedly ad hoc.

Second, institutional roles and relationships need to be assessed on a case-by-case basis in order to ensure an appropriate balance between pragmatic service needs and research competence.

Finally, for research, management, and evaluation purposes, a more comprehensive, yet simplified, information system is needed than has been employed to date in most projects. Particular attention should be devoted to the monitoring of project performance in a dynamic environment.

FOOTNOTES

1. Cuca, R. and Pierce, C. S. Experiments in Family Planning, Baltimore, Johns Hopkins University Press, 1977.
2. Morris, L. and Anderson, J. E., The Use of Contraceptive Prevalence Survey Data to Validate Family Planning Program Service Statistics. Paper presented at Seminar on "The Use of Surveys for the Analysis of Family Planning Programs," Bogota, Colombia, IUSSP, October 28-31, 1980.
3. Lewis, G. L. and Novak, J. A., An Approach to the Measurement of Availability of Family Planning Services. Paper presented at Seminar on "The Use of Surveys for the Analysis of Family Planning Programs," Bogota, Colombia, IUSSP, October 28-21, 1980.

HEALTH COMPONENTS OF COMMUNITY BASED DISTRIBUTION PROGRAMS

Introduction

The overview of AID Operations Research Projects presented in Chapter III highlighted the fact that most country projects now contain some health intervention components. The objectives of these components are to enhance family planning acceptance by meeting locally recognized health needs and to improve the health of the population, thus providing better rapport between the worker and local community. The most widely used health interventions in CBD projects have been oral rehydration therapy (ORT) and antihelminthic therapy. "Clinical" contraceptives such as the pill are used in all programs.

The overview of the country projects as well as site visits revealed considerable variation in the health interventions selected, and a lack of clear guidelines for the mode of use of different interventions or the related administrative needs, and training required for community workers. Moreover, some aspects of the health interventions are still controversial and there is a need to address areas of uncertainty which affect the utilization of these measures in the field.

With these considerations in mind, it was felt that there was a need for a technical manual which would describe the components of the community based distribution program and provide information on the nature, mode of use, logistical and administrative requirements, and problems associated with each health intervention. This manual would draw upon the experience gained in earlier OR projects and provide the basis for training manuals and training procedures suitable for the trainers and the community workers. In addition, having specified the value of each health intervention and the tasks entailed in its delivery, one could clarify

the possibilities and the problems involved in the combination of health interventions under field conditions.

The rationale for the present chapter is to provide a bridge between the overview presented in Chapter III and the development of technical and training manuals and workshops on the health interventions.

The specific objectives of this chapter are to summarize the main features of selected health interventions, focusing on their value and potential problems in a community based setting, and raising the issue of controversy or uncertainty which impinge upon the utilization of these technologies. In addition, it is hoped to identify areas for research, and the criteria and methodology that may be used for the evaluation of the efficacy and safety of the health components.

Contraceptives as a Component of Health Interventions

Introduction

Steroidal contraceptives given either as pills or injections, IUDs and sterilization are equivalent to other health interventions in that the providers must possess technical knowledge and skills in order to give the initial counseling and continuity of care necessary for their safe and efficacious use. The primary objective of family planning is to provide couples with an efficient means of achieving their desired spacing of births and number of children. The most appropriate contraceptive to achieve these ends will vary, depending on the stage of family formation, the subjective preferences of the user and medical considerations. In order to meet the varied and changing needs of couples, it is necessary to provide a mix of contraceptives, and studies in Bangladesh have demonstrated that a wider choice of methods can enhance the prevalence and continuity of contraceptive use.¹

There has been extensive experience with the delivery of simple contraceptives through a CBD system, but the evaluation of many projects has been far from satisfactory. With respect to the OR project, the most important concerns are: (1) the training and supervision required by the field workers, with particular emphasis upon counseling of clients, the initial provision of the methods and follow-up, the diagnosis and management of contraindications and complications, and the need for referral; (2) the logistic procedures for resupply, storage and forward ordering of contraceptives; and (3) a consideration of such complex issues as the timing and safety of contraceptive use during lactation and the appropriate management of bleeding problems associated with injectable contraceptives.

These issues will be considered in background papers for a workshop and in the development of technical and training manuals, so the present report will only briefly cover some of the problem areas.

It has been suggested that oral contraceptives containing differing doses of estrogen might be advantageous in the treatment of pill related side effects. This is of questionable relevance, since there is no clear evidence that varying the estrogen dose will significantly reduce the discontinuation rates in a CBD context, and the addition of different dosage schedules will only create confusion for the providers. Rather than emphasizing alterations in pharmacological preparations, attention should be focused on support and continuity of care by the field worker as a means of enhancing contraceptive continuation.

The use of steroidal contraceptives during lactation is a problematic issue, both because estrogen containing pills may be associated with a reduction of milk volume, and because steroids can be transferred via the breast milk to the child. There is evidence to suggest that pills containing more than 50 mcg of

estrogen may suppress milk volume sufficiently to have an adverse effect on lactational performance and child growth and development. Also, the changes in lactation induced by the pill may constitute a reason for women to discontinue contraceptives. It is not clear whether the lower dose (30 mcg) pills have a significant effect on lactation.²

Both estrogens and progestagens are transferred by the breast milk to the growing infant. There is no evidence in humans that this steroid transfer has any deleterious effects upon the child, but there is indirect evidence from animal studies which suggest that high doses of steroids may be associated with certain functional abnormalities, especially in sexual behavior. However, studies of animals given very high doses of hormones are often not appropriate models for the evaluation of drugs used at lower clinical dosage levels in humans.³

Since breastfeeding is widespread in most developing countries and is of fundamental importance to the health and welfare of the child, it is important to minimize any potential risks associated with contraception. In addition, women with lactational amenorrhea have a minimal risk of conception at least for the first six months postpartum.⁴ Therefore, it would seem prudent to delay the introduction of steroidal contraceptives for as long as possible, to avoid any potential effects on milk volume or on the growing infant, and to minimize the unnecessary use of contraception. The optimal timing for the introduction of contraceptives postpartum will vary from culture to culture, depending on the intensity and length of breastfeeding, the average duration of amenorrhea, and practices such as post-partum sexual abstinence. In general, it would be advisable to delay the introduction of steroidal contraceptives until at least six weeks postpartum when lactation should be well established and the infant's metabolism is mature enough to handle the low doses of steroids transferred via the milk.⁵ In

societies where protracted amenorrhea is the norm, introduction of steroidal drugs could be delayed even further so as to avoid the unnecessary use of contraceptives in women who are at minimal risk of pregnancy.

Injectable contraceptives have only played a limited role in the OR projects because FDA regulations restrict the provision of these drugs by AID, although they have proven to be acceptable methods in a number of family planning programs. The major issues surrounding the use of injectable contraceptives in CBD programs are whether the village agent can be trained to properly give injections, whether there are facilities for the preparation and storage of sterile syringes, needles and drugs, and whether the village agent can be trained to manage bleeding problems or amenorrhea by using either oral contraceptives or estrogen. All of these procedures place a considerable demand upon the time and the skills of the field workers, and it is important to determine whether this interferes with or precludes the introduction of other potentially valuable health interventions.

Oral Rehydration Therapy

Introduction and Background Issues

The most widely used health intervention in CBD projects has been oral rehydration therapy (ORT); this choice finds its rationale in the importance of diarrhea to the health of children, the efficacy and simplicity of fluid replacement therapy, and the need to provide this therapy early in the disease process and preferably in the home. ORT is clearly beneficial in the treatment of diarrhea and has proven to be safe under proper supervision. Results of a number of ORT studies are summarized in Table 18. This is not a new therapy, but the community based delivery system is an innovation which promises considerable benefits, but

also entails certain risks. It is important to monitor the benefits and to minimize risks.

The OR projects use "oralYTE" which contains 90 meq/L sodium, 25 meq/L potassium, 80 meq/L chloride, 30 meq/L bicarbonate, and 110 mmol/L glucose in a three layer foil package. This formula was proposed by the World Health Organization and is generally considered an effective and physiologically appropriate mixture for the replacement of the salt and water loss associated with diarrhea.⁶ Although this is a good solution for initial rehydration, it may not be the most suitable solution for the subsequent maintenance of fluid and electrolyte balance because of the high sodium content which may lead to a hypernatremic state, especially in young infants in hot tropical climates.⁷

The risk of hypernatremia is not merely a hypothetical one, and it is necessary to take considerable precautions in the preparation and the administration of ORT, as well as in the provision of food during the acute phase of the diarrhea. A further important and possibly competing consideration is the need to maintain the nutritional status of poorly nourished children during an acute illness, since an episode of diarrhea is frequently a precipitating factor in the onset of a clinical protein calorie malnutrition syndrome. In addition, it is necessary to avoid contamination of the ORT solution by organisms that may exacerbate the diarrhea.

Preparation of Oral Rehydration Solution (ORS)

Each packet of oralYTE should be diluted in one liter of clean water. Problems have arisen because people do not have liter measures or a satisfactory substitute, and studies in India, Bangladesh and Honduras and Jamaica have shown that mothers may inadvertently mix hypertonic sodium solutions that significantly

increase the risk of hypernatremia.⁸ To avoid this hazard, it is important that the community workers are trained in the proper dilution of the oralyte, and that they identify a household vessel in each home that contains one liter of fluid, or that can be marked with indelible ink to indicate the level of one liter.

The need for a large number of oralyte packages, as well as the cost and the difficulty of delivering these to the home has led to the suggestion that mothers should be trained to prepare their own salt and sugar mixtures either with the help of specially designed spoons, or by a "finger pinch and scoop" method.⁹ There are considerable differences of opinion with regard to the potential benefits and risks of these homemade preparations. Cutting (1979) and Levine conducted careful studies of ORS prepared by mothers using measuring spoons. Both investigators reported a wide range of sodium concentrations and expressed concern about excessively high concentrations which could lead to hypernatremia. This is especially the case if mothers make a solution suited to their own taste in terms of saltiness or sweetness. Cutting and Levine found that solutions prepared by the "pinch and scoop" method were so unreliable that this method was dropped from both studies.¹⁰ Until the safety of homemade solutions can be demonstrated in field settings, it would be inadvisable to use this approach in the OR projects without very careful monitoring for potential complications.

It is imperative that the water used for dissolving the salt and glucose should be as clean as possible, since a dilute glucose solution is an excellent culture medium, and one must avoid feeding contaminated fluid to an already sick child. There is debate as to whether it is necessary to boil the water prior to preparation, but given the difficulties of boiling water and of cooling the solution in rural tropical settings, this may be impractical.¹¹ The solution should not be allowed to stand for long periods of time at room temperature to avoid growth of bacteria,

and this risk can be decreased by making up fresh solutions every 8-12 hours.¹²
There are differences of opinion on these matters that need to be resolved.

Mode of ORS Administration and Feeding during Acute Diarrhea

It is imperative that rehydration commence as early as possible after the onset of diarrhea, and this makes it desirable that the oralyte be readily available in the home. Recommendations on the regimen of use for ORT must take into account the need for rehydration and fluid maintenance, the risks of hypernatremia and the nutritional requirements of the child. The following outline is an attempt to balance the therapeutic benefits with the iatrogenic risks, and at the same time to maintain a simple set of procedures which can be followed by field workers or mothers in the CBD context. Of necessity, this involves a compromise between conflicting schools of thought on the safety precautions required for field use of ORT.

The following regimen is suggested as an interim recommendation for the acute phase of the diarrhea:

1. If the child is breastfed, ORS should be given initially and then alternated between one breastfeeding and one feed of ORS. Even if the amount of breast milk is small, the mother should be encouraged to breastfeed as much as possible. If children are also on soft foods, then such foods should be omitted for the first 24 hours, after which, if the child is improved, the soft foods may be cautiously reintroduced again as tolerated. (There is consensus that this regimen should be adequate to accomplish rehydration without untoward risk of hypernatremia because breast milk provides a low sodium load, and at the same time satisfies the child's nutritional needs. Also, this avoids the undesirable consequences of premature weaning.¹³

2. If the child is not breastfed, and is receiving a diet of non-human milk or soft foods, the following regimen is recommended: ORS should be started immediately. Children under two should be given two feeds of ORS followed by one feed of plain water to reduce the risk of hypernatremia. Older children can be given ORS alone. If vomiting occurs, the ORS should be given frequently in small amounts as tolerated.¹⁴

In moderate or severe diarrhea (i.e., more than three fluid motions in 12 hours), care must be taken to ensure that ORS intake is greater than the fluid loss in the stools. Some experts recommend that solid food and non-human milk should be continued during the early stage of diarrhea,¹⁵ whereas others recommend cessation of feeding for 6-8 hours, up to 24 hours or more, particularly in cases of moderate or severe diarrhea, and cases with dehydration.¹⁶ If the diarrhea has improved, after a period of food deprivation (6-24 hours), foods such as half milk and half water or soft foods should be resumed.

The rationale for withholding food is two-fold: (a) non-human milk and many solid foods can exacerbate the diarrhea because the infectious organisms (particularly ROTA viruses) can injure the intestine and impair digestion and absorption. In some cases there is also milk intolerance due to a lactase deficiency. However, preliminary studies from Bangladesh suggest that, at least in developing countries, continued feeding does not have a deleterious effect on the duration of diarrhea.¹⁷ (b) Non-human milk and some solid foods have a high sodium load which increases the risk of hypernatremia, and also contain a high concentration of solutes which may be in excess of the excretory capacity of the infant's kidneys.¹⁸

There are major differences of opinion about the length of time that food should be withheld, the potential risks of early feeding and the potential hazards of starvation. These issues must be clarified at consultations and workshops, so that simple guidelines can be given to the community workers.

3. If the diarrhea has improved in either the breast-fed or the artificially-fed infant, then ORS should be continued for up to 48 hours after the start of treatment. Failure to improve is considered below.

Criteria for Referral of Children

In all projects, some back-up referral mechanism should exist to assist the village worker in the management of problem cases. The criteria for referral are:

1. Any child with blood in the stool (this is indicative of amebic or bacillary dysentery).
2. Children with signs of severe dehydration or acidosis as indicated by:
(a) dry mouth, absence of tears, sunken eyes, sunken fontanelle in infants, and loss of skin turgor (dehydration); and (b) deep breathing, lassitude and apathy (acidosis).
3. Vomiting, severe enough to impair the intake of fluid, or a moribund state in which the child cannot drink.
4. During the course of ORT any child under six months who has not improved in 24 hours of treatment, or any older child who has not improved within 48 hours of treatment should be referred.
5. Hyponatremia is difficult to diagnose clinically but is often associated with irritability and a "doughy" consistency of the skin, as well as some signs of dehydration.

Administrative and Logistic Needs

1. There is a need to develop simple procedures for estimating the number of oralyte packets required. These estimates can be derived from the number of children under the age of five, the average number of diarrhea episodes per year (e.g., four), and the average duration of each episode (e.g., 2-3 days requiring one packet per day). Simple tables could be constructed for planners and project supervisors.

2. Guidelines should be developed for the ordering and resupply of oralyte packets, storage requirements and methods of distribution to households. This could be incorporated into the training manuals.

3. Need for supervision and continuing in-service training of the community worker.

4. Need for a mechanism of referral for complicated cases. This entails the identification of local referral facilities and mechanisms, and a clear set of criteria and guidelines for referring cases.

5. The need for support from the local medical and health professionals. (Community workers cannot be expected to introduce new health innovations such as ORT without the support of health professionals. Many doctors and other health workers may not be acquainted with ORT and there will be a need to educate them with regard to the value and problems of this therapy.)

The Cultural Context

In each country, project care should be taken to define the attitudes of the community towards diarrheal diseases, the local method of treatment used, normal feeding practices during acute diarrhea, and the perception of diarrhea as a cause of ill health in the community. Simple descriptive studies could also be

conducted to assess the views of the women or the village workers with regard to replacement therapy. For example, do they regard ORT as a form of medicine or of feeding? Is there a temptation to dispense ORS by the "teaspoonful" as one might with other liquid medicines, or to feel that if enough is good, then more would be better (i.e., is there a risk of overdose)? If women perceive ORS as food, are they tempted to withhold ORS because they withhold other forms of food during diarrhea? Other factors to be considered are the methods of preparation, dilution and storage of ORS, women's compliance with the ORS/feeding regimens and other cultural factors which may influence the utilization of ORS (e.g., do women make up the solution to suit their own taste?).

Research Needs

1. There is a need for clinical and epidemiological research to evaluate the nutritional advantages and disadvantages of different ORS/feeding regimens in the non-breast-fed child. This may involve balance studies, as well as field studies on growth and development.
2. There is a need to monitor the use of ORS in a number of field settings. This would involve descriptive epidemiological studies on the utilization of ORS (population coverage, packets per person, per episode, etc.), on changes in diarrhea morbidity and possibly mortality, and in referral of cases with complications. In addition, there is a need to examine clinical factors such as the diseases which may occur in association with diarrhea (e.g., measles, respiratory infections, etc.), the timing of ORT initiation and the course of the diarrheal illness. There is also a need to develop simple reporting systems and epidemiological surveillance procedures.
3. Research on locally appropriate methods of training mothers and community workers in the procedures of the utilization of ORS.

Mass Treatment with Anthelmintics

Introduction

The majority of CBD programs have or plan to include mass treatment of children with anthelmintics. Mebendazole is the drug most commonly used. The rationale for the mass treatment of intestinal helminths is that worm infestations may have deleterious effects on nutrition and the available therapy is effective against a wide variety of parasites.

To decide upon the most appropriate regimen of therapy for intestinal infestations, it is necessary to evaluate the evidence for (a) the potential nutritional benefits of deworming; (b) the value and limitations of available drugs, and the need for repeat treatment; and (c) the subgroups in the population most at risk of worm infestation and nutritional disorders, and who constitute the major target group for mass anthelmintic therapy.

Nutritional Effect of Intestinal Parasites

Hookworm and ascaris are the two parasites which are most likely to be associated with nutritional problems of public health importance. Hookworm is transmitted through the skin from fecal contamination of the soil, and causes focal bleeding from the intestinal mucosa which leads to iron deficiency anemia. Massive infestations may also impair intestinal absorption of nutrients. Ascaris is transmitted by the fecal oral route. Ascaris can lead to respiratory symptoms associated with the migration of larvae through the lungs, and intestinal infestation may have an adverse effect on growth and nutrition of children. In most societies hookworm disease occurs mainly in older children and adults, and heavy ascaris infestation is most frequently seen among children. The effects of hookworm on iron deficiency anemia has been clearly demonstrated, but the causal association

between hookworm or ascaris infestation and malnutrition is not unequivocally proven.¹⁹

A number of studies have evaluated the effect of antihelminthic therapy on nutritional status. Treatment of hookworm infestation can reduce blood loss, but the most effective means of treating the iron deficiency anemia is to provide oral iron supplementation.

Studies of the nutritional impact of ascaris treatment are more difficult to evaluate. Three nutritional balance studies have reported short-term improved absorption of nitrogen (protein) or fat after treatment of ascaris in small numbers of children with heavy worm loads.²⁰ Other investigators have failed to confirm these findings.²¹ A number of studies have examined the effects of antihelminthic therapy on growth and weight gain in larger samples of children for periods of 6-12 months. The results suggest that weight gain in treated children with moderate to heavy worm loads was significantly greater than among untreated children, but the differences are relatively small in magnitude.²² These results are not definitive and further research is required. In this context, a distinction must be made between helminth "infection" which is common in developing countries, and helminth "disease" which may be relatively infrequent and depends both upon the parasite load and the host's nutritional reserves. Health benefits can only be expected in the case of helminth disease.

Choice of Antihelminthic Drugs and the Need for Repeat Treatment

Mebendazole is the most widely used drug in the OR projects because it is effective against a broad spectrum of intestinal parasites and is said to have low toxicity for children over two years of age. The most common dosage schedule is 100 mg twice daily for three days. Other regimens have been used, but it is not clear whether they are efficacious.²³

There are a number of disadvantages to the use of Mebendazole. The treatment regimen is relatively complex, it is expensive, it should not be used by pregnant women because it is teratogenic in animals, and there is relatively little information on its toxicity in children under two years of age. Furthermore, Mebendazole is only effective against the adult worms in the intestine and does not prevent the migration of larval forms of ascaris or hookworm which may be associated with respiratory symptoms.²⁴

Another related single dose, broad spectrum antihelminthic, Levamisole, has not been employed in the OR projects. Information on its use will not be considered here.

Piperazine, which is effective against ascaris but not against hookworm, has not been employed in the OR project. The advantage of Piperazine is that it entails a simpler, single dose regimen and is cheaper than the other compounds. In addition, Piperazine is safe in all age groups and in pregnant women.²⁵

A single treatment with an effective antihelminthic can markedly reduce the worm load or achieve a complete cure. However, because of environmental contamination, reinfection is inevitable and there will be a need for repeated treatments to achieve any long-term reduction in parasite load. The optimal interval between treatments is difficult to evaluate because the reinfection rate varies with the parasite and the environmental conditions. The most frequently employed dosage schedule is once every three months. This prevents serious infestations, but does not stop transmission.

Groups Most at Risk

Young children under the age of five and pregnant women are particularly at risk of nutritional disorders. In many Third World settings ascaris is ubiquitous,

whereas hookworm infestation tends to be relatively infrequent or at low levels in children under the age of two because their restricted mobility reduces the risk of contact with contaminated soil. Therefore, children under the age of two are mainly affected by ascaris and could be treated with Piperazine rather than a broad spectrum such as Mebendazole which may have toxicity problems in this age group. Pregnant women are most at risk from iron deficiency anemia which may, in part, be associated with hookworm infection. Mebendazole should not be used in this group because of the teratogenic hazards, and the anemia can be best corrected by iron supplement. Therefore, Mebendazole only has an important place in the treatment of older children or non-pregnant adults.

The Place of Antihelminthics in CBD Projects

Further consideration should be given to the role of mass antihelminthic treatment in CBD projects because: (a) studies of the nutritional benefits associated with therapy are equivocal, and even if there are some nutritional advantages, the results suggest these are of relatively small magnitude; (b) Mebendazole, which is the most widely used drug, involves a relatively complex treatment regimen and is only appropriate for limited groups in the population. The psychological effect of a drug which leads to the expulsion of a large number of worms may be important in enhancing the credibility of the field worker. However, balanced against these possible advantages of antihelminthic therapy, one must consider the additional burden it places upon the field worker in terms of training and subsequent work load which may preclude the introduction of other more efficacious health interventions.

Combination of Contraceptives and Health Interventions

As shown in Table 4, Chapter III, projects have used or plan to use different mixes of contraception and health interventions. More recent active projects have tended to incorporate a larger number of health and family planning activities.

Consideration must be given to the most appropriate mix of services, both in terms of their value as health or family planning measures, and in terms of the added burden placed upon the field worker.

Decisions on the value of an intervention can only be made in the context of local health needs and priorities. Having decided on a potential mix of health and family planning services, it is then necessary to consider the skills, knowledge and tasks that these entail in relation to the educational background, training needs and work loads of the village providers. It is essential that a proper task analysis be done since it would be counterproductive to overload the providers with too many responsibilities, or to increase the risk of medical complications by incorporating too many complex interventions.

These concerns will be taken up at the Workshop on Health Components and will form part of the planned technical and training manuals.

Table 18

Studies of Oral Sugar-Electrolyte Therapy for Children with Diarrhea Since 1973
with Notes on Feeding Regimens, and Percent Needing Intravenous or Other Special Treatment
HOSPITAL BASED GROUP

Article	Number Patients	Age	Percent Needing I.V. Rx	Feeding in Acute Phase	Complications and Comment
Hirschorn, N., et al.: Oral Glucose electrolyte therapy for acute diarrhea in Apache children. <u>J. Pediatrics</u> , 83:562-570, 1973 (White River Indian Hospital) USA.	47	<6 yrs.	11	ORS ad libitum Start formula after fluid replacement is complete and after total (stool) output had diminished: 4 to 48 hours	Most pts. took ORS in amounts appropriate to needs for dehydration and maintenance. Transient problems occurred in pts. who drank excessive amounts of ORS: 3 had periorbital edema, 1 had alkalosis.
Nalin, D., et al. Comparison of sucrose glucose in oral treatment of infant diarrhea. <u>Lancet</u> , 270-279, 5 August 1978.	51	3-12 months	4	ORS only until skin turgor is normal then start half strength milk, increase to full strength milk as stools become pasty. Milk withheld 6 hours or more in all but 5 patients.	ORS therapy successful in all of glucose group and in all but 2 (8%) of sucrose group: due to sucrose malabsorption. Either sugar can be used for most pts but glucose is preferable.
Nalin, D., et al. Oral rehydration...of children with rota virus and bacterial diarrhea. <u>Bull. WHO</u> , 57(3):453-459, 1979. (Costa Rica)	62	3-15 months	6	ORS and H ₂ O = 2:1. When skin turgor is normal, start half strength cow's milk, increase as above.	ORS successful in 94% of patients. One had glucose malabsorption, 2 who had refused ORS arrived with severe hyponatremia, 1 severely ill with pneumonia.
Chatterjee, A., et al. Oral Rehydration in Infant Diarrhea. <u>Arch. Dis. Child.</u> , 53:284-289, 1978. (Calcutta Med. Research Institute)	39	4 mos. to 4 yrs.	0	ORS only until hydrated-- 12-24 hrs. Then dilute milk and/or breast milk. Older children given some solid foods in 24-48 hours.	Group A had 90 mmol Na ⁺ /L. Group B = 50 mmol Na ⁺ /L. Hypernatremia: 3 in Grp A; 1 in Grp B. Periorbital edema: 7 in Grp A, 3 in Grp B. Low Na solution reduces risk. 2 deaths.

Table 18 (continued)

Article	Number Patients	Age	Percent Needing I.V. Rx	Feeding in Acute Phase	Complications and Comment
Sack, D.A., et al. Comparison of glucose and sucrose electrolyte solutions. Rota virus diarrhea. <u>Lancet</u> , 5 August 1978:280-283 (CRL)	57	5 mos. to 2 1/2 years	0	ORS, water and breast milk. Also food without free sugar.	All very successfully treated by oral route. Either glucose or sucrose is effective; the former may be preferable.
Sack, D.A., et al. Rx of children with cholera. Comparison of sucrose and glucose electrolyte solutions. <u>J. of Ped.</u> , 96: 20, 1980. (ICDDR)	111	7 mos. to 4 yrs.	25	ORS, water and bread and butter on day of admission. Rice and curry on subsequent days.	1 sucrose intolerance, 1 refused ORS. Both sucrose and glucose ORS were effective in about 75% but must be combined with I.V. in severe diarrhea.
Pizarro & Nalin. ORS for neonates. <u>Lancet</u> , 1209-1210, Dec. 8, 1979. (Nat'l Children's Hosp. Emergency Rm., San Jose, Costa Rica)	40	<1 mo.	3	ORS and H ₂ O until rehydrated, then human or half strength cow's milk	5 patients needed admission after rehydration for severe acidosis and hypertremia, profuse diarrhea or poor oral intake.
Palmer, D.L., et al. Sucrose and glucose in oral electrolyte Rx of cholera and other severe diarrhea. <u>N. Eng. J. Med.</u> , 297:1107-1110, Nov. 17, 1977 (CRL)	122	5+ yrs. includes adults	14	All had 4-6 hrs. of I.V. Rx, then I.V. stopped and started on ORS. 53 had ORS with glucose, 69 had ORS with sucrose. Pts. were fed as soon as vomiting stopped.	Double blind study - Sole criterion of success = ability to maintain adequate hydration without returns to I.V. fluids. Both groups had 86% success rate.
Thomas, K., et al. Oral rehydration Rx in childhood diarrhea. <u>Indian Pediatrics</u> , 15:791-796, 1978.	1200	820: 0-5 380: >5 yrs.	7	ORS No other details.	The ORS group had lower mortality and fewer complications and needed less I.V. fluids than did the group given mainly I.V. therapy.

Table 19

Studies of Oral Sugar-Electrolyte Therapy for Children with Diarrhea Since 1973
with Notes on Feeding Regimens, and Percent Needing Intravenous or Other Special Treatment

COMMUNITY BASED DISTRIBUTION						
Article	Number Patients	Age	Percent Needing I.V. Rx	Feeding in Acute Phase	Complications of ORS Therapy	Comment
Kielmann, A. and McCord, C. Home Rx of Childhood Diarrhea in Punjab Villages. <u>Envir. Child Health</u> , August 1977, pp. 197-201. (Narangwal, India)		0-3 yrs.	2 pts. in 81,000 child days	ORS, stop milk supplement for 24 hrs., but continued all other foods. If exclusively breastfed, stop one feeding.	NR	Deaths from diarrheal disease dropped from 1971 levels by half after introduction of ORS.
Mujibur Rahman, et al. Diarrheal mortality in 2 Bangladeshi villages with and without ORS. <u>Lancet</u> , 2:809-812, Oct. 20, 1979 (Tecknaf Dysentery Project of CRL)	14,294 person years	all ages	N.R.	ORS, continue breastfeeding and normal intake of food.	NS	Est. deaths 0.5/100 test area vs. 2.4/100 control. But (1) different Rx of 2 villages, (2) deaths attributed diarrhea by exclusion, (3) 54% increase in diarrhea cases in control vs. 14% in treated village.
International Study Groups. Effect on nutrition of Philippine children of ORS given at home. <u>Bull. WHO</u> , 55:87, 1980.	519	0-5 yrs.	N.R.	ORS, continue foods--breast milk, bread, banana, fish, rice, tea, soft drinks, diluted cow's milk.		Average weight gain during attack +129 g in study community, +74 g in control community. Daily visit to home.
Chen, L., et al. Village based distribution of ORS packets--Bangladesh, CRL. <u>Am. J. Trop. Med.</u> , 29:285-290, 1980	Est. 157,000 total population	all ages 24% 0-4 yrs.	N.R.	ORS, encouraged breastfeeding and continued feeding during diarrhea. No details.	NS	Estimated 29% reduction in hospitalization.

Table 19 (continued)

Article	Number Patients	Age	Percent Needing I.V. Rx	Feeding in Acute Phase	Complications of ORS Therapy	Comment	Results				
							Referred to Hlth. Center	Weight Gain 16 Mos.	Duration Illness (days)	Use of Anti-biotics	
Egeman, A. & Bertan, M. Study of oral rehydration therapy by midwives in rural areas near Ankara. <u>Bull. WHO</u> , 58: 333-338, 1980.	1,237 746 Rx 491 Con- trols	0-4 yrs.	N.R.	Continue breastfeeds, give enough yogurt and H ₂ O and low residue foods. Give ORS in 12 treatment villages, not in 11 control villages.	NS						
							<u>Group</u>				
							Treatment	4%	230 gm	2.6	9%
							Control	39%	190 gm	5.0	77%

*Generally harmful

N.R. = Not reported
N.S. = No surveillance

FOOTNOTES

1. See especially Rahman, M., et al. "Contraceptive Distribution in Bangladesh: Some Lessons Learned." Studies in Family Planning, 11, 1980; Bhatia, S., et al. "The Matlab Family Planning-Health Services Project." Studies in Family Planning, 11:202-212, 1980; and Community Based Distribution of Contraception: A Review of Field Experience. Chapter III, p. 73.
2. World Health Organization. The Effect of Female Sex Hormones on Fetal Development and Infant Health. WHO Technical Report Series, 657, 1981.
3. Ibid.
4. Van Ginneken. "The Chance of Conception During Lactation." Journal of Biosocial Sciences, Supplement, 4:41-54, 1977.
5. See especially Nilsson, S. and Nygren, K.G. "Transfer of Contraceptive Steroids to Human Milk." Research in Reproduction, Vol. II(1):1-2, Jan. 1979; and World Health Organization, op. cit.
6. World Health Organization. Treatment and Prevention of Dehydration in Diarrhoeal Diseases: A Guide for Use at the Primary Level. World Health Organization, Geneva, 1976.
7. See especially Finberg, L. "The Role of Oral Electrolyte-Glucose Solutions in Hydration for Children--International and Domestic Aspects." Editors Co'urnn, Journal of Pediatrics, 96(1):51-54, 1980; and Keusch, G., Cash, R. and Hirschorn, N. "Management of the Diarrheal Diseases at the Community Level." Committee on International Nutrition Programs, Food and Nutrition Board, Assembly of Life Sciences, National Research Council. National Academy of Sciences, Washington, D.C., pp. 1-33, 1981.
8. See especially Cutting, W.A.M., et al. "Can Village Mothers Prepare Oral Rehydration Solution?" Tropical Doctor, 9:195-199, 1979; Chen, L., et al. "Village Based Distribution of ORS Packets--Bangladesh, CRL." American Journal of Tropical Medicine, 29:285-290, 1980; Levine, M.M., et al. "Variability of Sodium and Sucrose Levels of Simple Sugar/Salt Oral Rehydration Solution." Journal of Pediatrics, 97:324, 1980; and Erasmus, P.S. and Harland, G. "Composition of Oral Solutions Prepared by Jamaican Mothers for Treatment of Diarrhoea." Lancet, 1:600-601, 1981.
9. Population Information Program. "Oral Fluid Therapy for Childhood Diarrhea." Population Reports, Series L, No. 2, 1980.
10. See especially Cutting, op. cit. and Levine, op. cit.
11. Population Information Program, op. cit.
12. Keusch, op.cit.

13. See especially World Health Organization. "The Control of Acute Diarrheal Diseases: WHO and UNICEF Collaborate in Country Programs." WHO Chronicle, 33:131-134, 1979; and Population Information Program, op. cit.
14. See especially World Health Organization, 1976, op.cit.; and Population Information Program, op.cit.
15. World Health Organization, 1976, op. cit.
16. See especially Population Information Program, op. cit.; and Keusch, op.cit.
17. Molla, A.M., et al. "Intake of Nutrient During and After Recovery from Diarrhoea in Children." International Centre for Diarrhoeal Disease Research, Bangladesh, Dacca, Bangladesh. Working Paper No. 20, pp. 1-22.
18. Keusch, op. cit.
19. Hunter, G.W., Schwartzwelder, J.C. and Clyde, D.F. Tropical Medicine, 5th Edition. W.B. Saunders Co., Philadelphia, 1976.
20. See especially Venkatachalam, P.S. and Patwardhan. "The Role of *Ascaris Lumbricoides* in Nutrition of the Host; Effect of Ascariasis on Digestion of Protein." Transactions of the Royal Society of Tropical Medicine and Hygiene. 47:169, 1953; Tripathy, K., et al. "Effects of *Ascaris* Infection on Human Nutrition." American Journal of Tropical Medicine and Hygiene, 20:212-218, 1971; and Brown, K.H., et al. "Absorption of Macronutrients from a Rice Vegetable Diet before and after Treatment of Ascariasis in Children." American Journal of Clinical Nutrition, 33:1975-1982, Sept. 1980.
21. See especially Brey, B. "Nitrogen Metabolism in West African Children." British Journal of Nutrition, 7:3, 1953; Teotia, S.P.S., et al. "Fat Malabsorption in Intestinal Parasitic Infestations in Children." Journal of the Indian Medical Association, 53:577-582, 1969; and Freij, L., et al. "Ascariasis and Malnutrition. A Study in Urban Ethiopian Children." American Journal of Clinical Nutrition, 32(7):1545-1553, 1979.
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23. Keystone, J.S. and Murdoch, J.K. "Mebendazole." Annals of Internal Medicine, 91(4):582-586, 1979.
24. See especially Delatour, P., et al. "Proprieter Embryotociques et Atitmitotiques du Parbendazole, du Mebandazole et de Cumbendazole." Comptes Rendus Hebdomadaires des Searces de l'Academie des Sciences; D: Sciences Naturelles (Paris), 282(5):517-518, 1976 (French); and Keystone, op. cit.
25. Hunter, op. cit.

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ISSUES AND PROSPECTS

The comprehensive review of CBD Projects has raised numerous issues about current and future program and research activities which have been delineated throughout the text. We have summarized these issues under eight headings:

- A. Linkages between U.S. and Host Institutions
- B. Beyond Supply Systems to Demand Creation
- C. Delivery Systems
- D. Program Effectiveness for Family Planning
- E. Integration of Health Services
- F. Cost-Effectiveness Evaluation
- G. Information Systems and Feedback
- H. National Replication

It is our intention to pose a number of questions which remain unanswered at the present time. To raise them will, we trust, be useful to future work, and more particularly to the Research Division as it considers its strategies and initiatives. Few of the questions are new in the sense of not having been voiced or discussed previously. To organize them in some fashion should bring greater clarity and creativeness to future work.

A. Linkages between U.S. and Host Institutions

Several issues related to U.S.-host country relationships have been discussed within the Comprehensive Review. These issues can be grouped within three major categories: (1) AID Central Coordinative Support, (2) Technical Assistance, and (3) Host Country Institution-Building.

(1) AID Central Coordinative Support. Since the uniqueness of each CBD project is well recognized, what can the AID Operations Research Division develop to evaluate the general CBD approach? Related to this is the question of what can be done to promote wider acceptance of the importance of research on program operations in host countries? What forms of assistance should be provided to develop guidelines for uniform data gathering and reporting; for the preparation of training and supervisory manuals; for project development and administration; and for financial accounting?

(2) Technical Assistance. Presently, most technical assistance to CBD projects comes from U.S. universities. Is it cost-effective to use outside consultants? Is long-term consultation preferable to short-term consultations? How do governments and program managers respond to outside consultants? How can host country expertise be fully utilized in project development, implementation and evaluation?

(3) Host Country Institution-Building. What should AID's policy be regarding local institution-building? How do host governments feel about developing indigenous resources? Where is it possible? What is the appropriate balance between internal and external expertise?

B. Beyond Supply Systems to Demand Creation

The Comprehensive Review confirms the validity of the initial assumption that the CBD approach can meet a substantial demand for family planning services. The question is no longer the feasibility of the CBD approach, at least on a limited scale; rather the major challenge is to increase contraceptive prevalence to the level needed for significant reductions in fertility. An emphasis on creation and

maintenance of demand, and the socio-cultural settings of the program are two areas which have been given inadequate explicit attention. Analysis of these critical areas may help reduce the gap in perceptions between those who design and develop contraceptive programs and those for whom they are intended. CBD programs to date have been developed basically from a public health management perspective; some resolution of CBD problems may be achieved by aggressively examining factors related to the client's perspective and socio-cultural setting. The latter play a significant role in acceptance and sustained use of contraceptives.

The CBD projects, in order to prevent plateauing of acceptance at low levels, to reach resistant segments of the target population, and to encourage sustained use, must meet the perceived needs of the clients and address their problems. The projects should monitor the reactions of the users and design appropriate responses. To do this, effective mechanisms for feedback and program modifications are required. For instance, an information program incorporating local community and individual views of risks and benefits of different contraceptive methods might be developed. Decentralization and greater community participation in CBD operations might also be suggested.

Considering that the CBD approach depends heavily on its community agents (CAs) as family planning promoters and service providers, there is a strong need for trust and credibility of the personnel as perceived by the community. In assessing the agent's role and work performance, community evaluation of the agent's credibility is vital. The CA's ability to establish inter-personal communication and to gain the trust of the clients are important factors, affecting the acceptance and use of contraceptives. After securing initial acceptance of

contraceptives, CBD programs are faced with the problems of continuation and reinforcement. Investigation of the potential roles which could be played by opinion leaders, peer groups, and other local community groups in reinforcing program efforts is a possibility. Follow-up household visits and surveys might be conducted in areas which have had either low initial acceptance rates or low continuation rates. Medical or health complications can be monitored and addressed by health personnel, while problems embedded in socio-cultural-psychological conditions can be addressed by educational materials, programs and individual counseling. Field experiments designed to test approaches to improve continuation levels should be undertaken in test and control communities with an appropriately balanced research design.

While most OR projects to date have been designed to serve rural couples as the main target population, some projects have been targeted toward both rural and urban couples. Considering the relatively high residential mobility among urban couples and the availability of modern health facilities in the cities, a major issue is whether the CBD approach, except for clinically based and professional services, would succeed in attracting an adequate number of the urban poor to be cost-effective. What adjustment should be introduced in the CBD delivery system and its components to reach urban vs. rural populations? Which population subgroups among the urban poor deserve special attention and how can they be identified?. How can community participation in the project be secured? Who are the local leaders and how can they be involved in supporting the project? Are CBD agents accepted and trusted by the urban couples as a source of good information and service? What is the contribution of commercial retail sales programs to CBD efforts in urban settings?

Projects have been distinguished according to whether they employ household canvassing or rely on village distribution points. Some projects make no attempt at systematic, complete canvassing. Others emphasize this aspect and rely largely on existing health units for re-supply. Still other projects present varied mixes of canvassing and village-based distribution. In no case has general motivation effort through IE and C activities been a major project component. What are the relative costs and benefits of generalized versus individualized motivational efforts? To what extent should these efforts be varied for defined population groups? Do some members of the population require more follow-up visits than others? What is the effective balance between demand stimulation efforts through information and education in contrast to supply-oriented project features such as service mix and prices charged? What are the relative merits of schemes for provider motivation in contrast to client motivation?

The potential impact of Information, Education and Communication efforts in increasing the acceptance level and improving continuation rates in OR projects calls for more in-depth investigation. The use of multiple inputs including personal and media approaches as supplementary efforts in CBD programs raises a number of challenging issues. As the content of the media material would vary with client characteristics, some experimentation regarding the most effective ideas and approaches should be undertaken. The issue of health interventions as potential factors influencing the acceptance of contraceptive services would constitute a special research problem in this respect.

The dynamics of IE and C efforts in expanding community awareness, support and involvement with the family planning activities should be further explored in OR projects. It is contended that IE and C inputs through media,

personal direct approach or group dynamics will reinforce household canvassing activities in demand stimulation for acceptance and sustained use of contraceptives.

C. Delivery Systems

Differences in political, historical and environmental situations produce CBD delivery systems which are extremely varied and complex, and raise numerous management and organizational issues. The most salient include: (1) balance between service and research; (2) testing whole delivery systems vs. discrete components; (3) household vs. village depot delivery; (4) centralization vs. decentralization; (5) personnel questions; and (6) supervision.

(1) Project Balance. What is the appropriate balance between service and research? Who should decide? When should research guidelines be compromised for the sake of program effectiveness? Can a dynamic and flexible research design be developed for CBD field projects? What would the components of that research look like? Can a systematic design be applied in all settings, for evaluative comparability?

(2) Testing Whole Delivery Systems vs. Discrete Components. AID's philosophy and practice to date has been to evaluate the contraceptive distribution system in its totality. Having demonstrated the limited feasibility of CBD projects, future research and evaluation should address discrete project components. What is not clear is whether the Cl. approach, which has been viable in small areas with a high level of input, can be extended to larger populations at a reasonable cost. In addition, it is not clear that continued project success can be predicted from the successes of the three-year life span of projects to date.

(3) Household vs. Village Depot Delivery. Various combinations of household and village depot delivery systems have been implemented in CBD projects. A general tendency for higher contraceptive prevalence rates is associated with multiple household visits. There has been inadequate research on this topic, however. In which cases would household follow-up make a critical difference? How should groups with either a high potential for child-bearing or a high risk of contraceptive complications be treated? How do different combinations of home visits, various resupply sources and backup services affect contraceptive acceptance and continuation?

(4) Centralization vs. Decentralization. Adaptation to local needs and the importance of community participation are oft-cited principles. Yet centralized direction cannot be discounted, particularly when project expansion to other areas and eventual national replication is envisioned. What functions are most effectively centralized? What is the operational meaning of community participation, i.e., what degree of local initiative and responsibility does it entail? What are the most effective means of overcoming possible community inertia to planned change?

(5) Personnel Development. The question of personnel development is extremely broad and clearly impinges on other issues. Since fertility control is a matter of concern to both husband and wife, what is the balance of attention to be devoted to each, and what does this mean regarding the sex of agents and supervisors and the nature of their work assignments? What skills are required, and, given low levels of education, how can these be imparted? What is the appropriate balance between pre-service and in-service training? To what extent should in-service training be a part of individualized supervision, and what is the

place of group education? What forms of remuneration and supervision contribute most to agent morale, productivity, and retention?

(6) Supervision. Effective supervision is obviously important and frequently lacking. There is an apparent need to routinize both supervisory and service functions. The importance of the individualized interpersonal dimension in supervision needs to be respected. Within this context is a need to develop supervisory training curricula, supervisory manuals and checklists, continuing education programs, criteria for frequency and selectivity of supervision, and workable transport systems and supply networks.

In addition, future research on delivery systems needs to focus on three questions related to prevalence, efficiency, and resources.

(a) Prevalence - How to raise the contraceptive prevalence and continuation levels to 50 or 60 percent, to produce the needed sufficient impact on fertility reduction in the absence of abortion. It should be noted that many developing countries have preindustrial levels of nuptiality and lactational amenorrhea.

(b) Efficiency - How to improve efficiency of service delivery under specified local conditions.

(c) Resources - How best to use scarce resources such as funds, transportation and personnel to produce results already shown to be feasible in OR projects.

D. Program Effectiveness for Family Planning

CBD programs vary in effectiveness for family planning services. What factors seem to be associated with effectiveness? Where programs have not been effective, have there been cultural constraints to which the programs were

insensitive? What additional approaches to fertility reduction through increased contraceptive use might be tried? For instance, how effective is it to combine family planning with other socioeconomic development projects such as cottage crafts for women, non-formal education, or women's groups? What are the best ways of doing this? What roles can the communications media take in promoting family planning? Do CBD programs work better among rural populations than among the urban poor?

One of the most important issues related to program effectiveness for family planning is the optimal mix of contraceptive methods. The advantages of providing a broad range of contraceptive services is not the critical issue. What is of concern is how to provide these services safely, effectively and efficiently. What clinical backup and referral systems are needed? How can individual clients be simply and effectively monitored for continuation and for medical complications? What are the barriers to contraceptive acceptance and continuation and are these socio-cultural or inherent to the methods?

Injectables are becoming increasingly important in discussions of contraceptive mix. How are injectables presently used in CBD programs? What are the indicators of community demand for injectables? What role can external agencies play? What role are they likely to play in the future? What are the health considerations in recommending or supporting injectables? Can AID politically promote injectables as part of the service mix in CBD programs considering their unacceptability in the U.S.? How acceptable are injectables compared to other contraceptives in the field? Are continuation rates better or worse? What side effects need to be monitored?

E. Integration of Health Services

The integration of family planning with other health services is generally accepted for policy reasons. The question is which services to integrate. Have services other than health interventions been given adequate attention? What combinations are most acceptable to clients? Which services can be most economically packaged together? What are the implications for training, supervision and supply? What activity studies are needed? Which service components are least problematic with respect to medical risks and skill requirements? How can family planning and other combined objectives be evaluated? What simple indicators are appropriate for evaluation, and how can component costs and benefits be separated in integrated programs?

With respect to health interventions, some guidelines have been formulated. For example, AID's policy has been to integrate health interventions only when:

1. the intervention is compatible with policies and programs of the host government;
2. the intervention is known to be effective, meet a local health need, and be delivered by local agents;
3. its advantages outweigh known risks; and,
4. it helps to promote the use of contraceptives.

Additional questions include: What is the cost of adding health services to ongoing CBD family planning projects? Do health interventions dilute the program focus on family planning?

Specific medical interventions which have been introduced in CBD projects pose special problems. Four, in particular, point to issues which need

further research. These include (1) nutrition education; (2) oral rehydration; (3) immunization; and (4) antihelminthic drugs.

(1) Nutrition Education. Should nutrition education be part of the package of health interventions included in CBD projects? What is to be taught? Can nutrition education be part of the training that lay workers receive in addition to family planning? How would nutrition education combined with family planning be received in the field? How effective is it in improving health?

(2) Oral Rehydration. When should oral rehydration be included in CBD projects? How would it be distributed? What are the cultural barriers to oral rehydration? Can lay village workers be utilized to deliver oral rehydration salts? Should a CBD oral rehydration program have a clinical backup?

(3) Immunization. Should immunizations be included in CBD projects? Which ones? What was learned from CBD projects presently incorporating injections? Can lay village agents be trained to give such injections safely? What are the risks? How much clinical backup is necessary?

(4) Antihelminthic Drugs. Which antihelminthic drugs should be considered for distribution in CBD projects? What are the consequences of use of drugs on a mass scale by lay village agents? What are the contra-indications for women of childbearing age? What are the risks and benefits of treating children under two years of age? What, if any, are the nutritional benefits to children? Should AID continue to use these drugs?

Running through the discussion of health interventions are questions of risk and broad health planning strategy. The assessment of acceptable risk is in the nature of things relative to the general health context. What might be seen as involving unacceptable risk in one health setting might be appropriate in another,

in which epidemiologic parameters such as prevalence, virulence, or case fatality were of a different order. The point is commonplace: one takes risks in some situations which would be unthinkable in another. It depends on the alternatives. Thus, while it is incumbent on us to point out known hazards of certain health interventions and to note that those might not be advocated in a population with low morbidity and mortality and readily accessible curative services, the reverse recommendation might be justified in the face of other conditions.

With respect to health strategy more generally, it might be that a given health intervention does not represent the most effective approach to a given health problem. Mass campaigns, large-scale programs of eradication, control or prevention might be indicated as the main approaches. Health interventions as part of CBD programs may be congruent with such efforts, but are seldom coordinated with them, and may often work along quite different lines--passing out worm pills rather than working at environmental sanitation and dress codes. Nonetheless, if the intervention can be said to be effective within its own limits, acceptable and feasible to implement, and cost-effective, it is justified in its own right. If it also helps to promote family planning, then it is a candidate for inclusion in a CBD contraceptive program.

F. Cost-Effectiveness Evaluation

Projects have been generally marked by abhorrence for data gathering. Because newer projects have tended to be more costly, complex, and multi-faceted than earlier ones, the importance of careful evaluation has increased, and the inadequacy of information for evaluation has become more apparent. While the need for better cost-effectiveness analyses has been felt most keenly, evaluation needs are obviously broader than this. Moreover, within the cost-effectiveness

area clearer specification is required regarding the meaning of terms and the intended purposes of analysis.

Absolute magnitudes and comparative levels of effectiveness are important in their own right. A 10 percent increase in contraceptive prevalence from 40 percent to 50 percent in one population subgroup may not have the same utility as an increase from 20 to 30 percent in another. Fertility benefits must be weighted against health and nutrition impact. These analyses require consideration of social and political, as well as economic, benefits.

Multiple project objectives must be made explicit and feasible indicators of performance established. Costs need to be identified and appropriately allocated over time and among project components. Understanding the process whereby certain effects were achieved at a cost is as important as the costs and benefits themselves. In particular, more needs to be known about the relative productivity of various worker activities.

How can the necessary information be obtained parsimoniously? What is the relative importance of before-after information in comparison to monitoring during the project? What is the value and accuracy of special surveys in contrast to routine statistics? To what extent can data gathering be standardized for the sake of comparability and in order to avoid duplication of developmental effort? How can rapid feedback of results for project management purposes be ensured? What information is needed for overall evaluation as opposed to intensive investigation of narrow research questions?

G. Information Systems and Feedback

Management, monitoring and evaluation are three critical areas whose success relies to a large extent on the quality and timeliness of information and

feedback systems. These systems and their operations must be relevant and responsive to the needs of AID, project administrators, and university researchers. Much of the collection, processing and utilization of data needs to be specifically tailored to individual project needs, while an overall basic data collection system should be developed for all OR projects. Initially, a baseline survey would collect demographic information, health and contraceptive histories, and existing access to family planning and health services. Records of program activities, interventions, and client responses would further augment the information system. Discussion of the utilization of this information is more fully elaborated in the Comprehensive Review. Several issues were raised there, including:

1. Summary of existing projects and their information systems. How were they designed? By whom? What problems were encountered? What were the lessons learned? Were they useful? To whom?

2. Client monitoring and follow-up. Which clients need resupply and remotivations? Has there been an assessment of present contraceptive choice?

3. Health services mix. Are adequate records being kept? Are additional health services appropriate and efficacious in a particular setting? Is there feedback to project monitors and administrators of problems which arise?

4. Charging of fees. What problems were encountered? How are records and inventories kept? What is the impact of differing price policies on acceptance and choice of methods?

5. Distributor performance. What information is available on time and travel constraints? How could the constraints be alleviated? What information could improve distributor efficiency? What training needs exist? How can volume of activity, number of new acceptors, methods adopted, and number of revisits best be recorded?

6. Supervisory decision-making. How can feedback from the field be facilitated, both from clients and distributors? How can supervisors best utilize this information?

7. Data gathering and analytic tools. How can surveys, questionnaires, client records, computerized information systems, distributor and supervisory records best be utilized? How can rapid feedback of results be assured?

There are a few of the most salient issues regarding information and feedback systems. More careful examination and analysis of existing systems needs to be undertaken, as well as specific recommendations developed for future OR projects.

H. Prospects for National Replication

National replication of the CBD projects raises two types of issues: (1) quantitative questions related to financial and manpower requirements; and, (2) qualitative questions concerned with organizational and management capabilities. The quantitative issues can be dealt with in light of the overall financial and manpower resources of the host countries once the most cost-effective delivery system is determined. The organizational and management aspects of replication poses more complex issues, which generally do not yield to cross-cultural generalization. Most of these issues emerge as a result of the CBD transfer from project status to a government delivery system. Since CBD projects by nature are grass-roots operations which are carried out under local administrative structures, major issues emerge as how to merge decentralized CBD project operations with existing highly centralized national family planning delivery systems. National replication of CBD projects calls for the resolution of the structural integration of the project operations with regular government administration without jeopardizing

the performance of the projects. This raises a number of questions: Which functions are most legitimately centralized and which decentralized? What degree of local initiative and participation are called for? How can project operational units be designed to be integrated with the regular government administration?

Replicability, in addition to project cost-effectiveness, calls for greater attention to the major factors in the OR project design: (1) availability of trained manpower and the steps required to increase supply; (2) the degree of integration of project organizational structure with the existing government administrative system; and (3) access to an institutional base at the community level to secure continuity in the decentralized program operations. The preceding factors have to be considered in the initial stage of OR project formulation in order to avoid development of elitist projects which demand disproportionately large shares of financial and manpower resources, and managerial expertise that is beyond the capabilities of the host governments to provide.

MASTER SUMMARY

Face Sheet

GENERAL	Country					
	Sites					
	Title					
	Start Date			Finish Date		
	Project Status as of (Date)					
POP.	Total Population			Rural/Urban		
	Selected Target Groups					
PURPOSE	Main Current Objectives of Project (If for Demonstration Only, So State)					
Methods	Eval. Criteria*:	S	A	D	CE	F
		Other (Specify)				
	Data Sources	Records			Spl. Surveys	
	Basis for Comparison	Baseline		Control		2+Exp.Gps.
RES	Results	None		Preliminary	Final	
ORGANIZATION	Executing Agency					
	Tech. Monitor. Agency					
	Admin. Monitor. Agency					
	Local Univ. Involved					
\$	1979-80 Budget			Total Budget to Date		

*Codes

S - Sales Contraceptives
 A - No. Acceptors
 D - Duration of Use

CE - Cost-effectiveness
 F - Fertility

PROJECT CONTENT CHECK LIST

**Planned, Implemented

O - Not Described

D - Described, but not Varied Experimentally

E - Experimental Variable to Be Tested

S - (D) + Serendipitous Finding

***Findings

Y - Yes

N - No

NA - Not Applicable

	** Planned	** Implement.	*** Findings	Comments
1. Demand Stimulation				
a. Charges for Contraceptives				
(1) Free				
(2) Initial Free, Then Charge				
(3) Charge (Subsidized)				
(4) Varying Charges				
b. Contraceptive Distribution				
(1) Household Visits + Re-supply in Village, Clinic, or Both				
(2) Village Depot System Only				
c. Major I + E Effort (Specify)				
2. Contraceptives				
a. Mix - Two or More				
b. Trial of One Type				
c. Referral for Clinical Method				
3. Integration of FP with Health				

PROJECT CONTENT CHECK LIST (Continued)

	** Planned	** Implement.	*** Findings	Comments
4. Agents				
a. Sex(es)				
b. Selection-Recruitment				
c. Type of Training				
d. Payment-Methods				
e. Education				
f. Other (Specify)				
5. Supervisors (of Agents)				
a. Sex(es)				
b. Selection-Recruitment				
c. Type of Training				
d. Ratio-Supervisors/Agents				
e. Education				
f. Other (Specify)				
6. Record System				
a. Individual Client Records				
b. Service Statistics ± (a)				
c. Other (Specify)				

PROJECT NARRATIVE SUMMARY

Title _____

Author _____ Date _____

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PROJECT NARRATIVE SUMMARY - Page 3

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Additional Insights and Questions

PROJECT ISSUE SUMMARY LOG

Title _____

No.	Specific Issue	Author	Date
1			
2			
3			
4			
5			
6			
7			
8			
9			
10			
11			
12			

PROJECT ISSUE SUMMARY

IDENTIFICATION

Country/Project:

Issue Category:

Specific Issue:

No.:

CONTEXTUAL BACKGROUND:

ISSUE STATEMENT:

MEANS OF APPRAISAL:

RESULTS AND RECOMMENDATIONS:

References

APPENDIX B

Twenty-eight AID/POP/OR Projects in Eighteen Countries by Year of Start, Size, Cost, Sector Type and Client Charges

<u>Number</u>	<u>Country</u>	<u>Designation</u>	<u>Start</u>	<u>End</u>	<u>Population (000)</u>	<u>Cost (\$000)</u>	<u>Sector Type (1)</u>	<u>Significant Health Component</u>	<u>Client Charges *</u>
<u>PART I. Eleven Completed Projects</u>									
1	Egypt	Shanawan	'74	'77	14	180	Non-public	No	No
2	Taiwan		'74	'78	1000	331	Public	No	(Yes)
3	Bangladesh	CRL-Matlab	'75	'77	125	160	Non-public	No	No
4	Korea	Euiryong	'75	'75	21	203	Non-public	No	No
5	Egypt	Menoufia, 1	'76	'77	200	278	Non-public	No	(Yes)
6	Mexico	San Pablo Auto	'76	'77	8	42	Non-public	No	Yes
7	Nicaragua		'76	'78	500	400	Public	Yes	Yes
8	Philippines		'76	'78	500	200	Non-public	No	No
9	Tunisia	Bir Ali (PFAD)	'76	'79	30	145	Public	NO	No
10	Bangladesh	ICDDR	'77	'78	160	140	Non-public	Yes	No
11	Guatamala	APROFAM Compesino	'77	'79	80	80	Non-public	No	Yes
<u>PART II. Seventeen Active Projects</u>									
12	Korea	Cheju	'76	'81	400	652	Public	No	(yes)
13	Haiti		'77	'81	32	160	Public	No**	No
14	Morocco	Marrakesh	'77	'80	1200	470	Public	No	No
15	Sri Lanka	2 Projects	'77	'80	120	353	Non-public	(No)	No
16	Thailand		'77	'81	6500	980	Non-public	Yes	Yes
17	Tunisia	Jendouba	'77	'80	144	110	Public	(No)	No
18	Colombia		'78	'81	300	663	Public	Yes	No
19	Egypt	Menoufia 2	'78	'81	1400	3993	Non-public	Yes	(Yes)
20	Mexico	3 states	'78	'81	750	1600	Public	Yes	No
21	Brazil	Piaui State	'79	'81	2300	1100	Non-public	No	No
22	Brazil	4 states	'79	'81	8000	570	Non-public	No	No
23	Guatamala	MOH	'79	'82?	120	350	Public	Yes	No
24	Guatamala	INCAP	'79	'81?	150	1800	Non-public	Yes	No
25	Morocco	3 provinces	'79		2200		Public	Yes	No
26	Nigeria		'79	'82	20	150	Non-public	Yes	Yes
27	Peru		'79	'82	635	1800	Public	Yes	Yes
28	Sudan		'79	'82	150	755	Public	Yes	No

* Some programs require small charges for service fees or commodities.

** Added in 1980.