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COMMUNITY BASED DISTRIBUTION
A GLOBAL REVIEW

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Community-based delivery (CBD) of family planning services began to develop in the mid-1960s. It had become apparent that the family planning needs of most couples in developing countries could not be met if delivery of services depended upon health professionals working in clinics and hospitals. Beyond that, early field trials showed that paraprofessionals with adequate training could safely deliver a variety of services, including insertion of IUDs and screening for oral contraceptives (Rosenfield et al., 1972). Over the years a variety of CBD approaches have evolved, but whatever the approach, the purposes are to make services easily available at the village or even household level, to make them more acceptable by reducing the social distance between provider and consumer, and to reduce costs. These efforts have proliferated in recent years, appearing in over 70 locations in some 40 countries, and they have been reviewed in several comprehensive treatments (Huber et al., 1975; Foreit et al., 1978; Kols and Wawer, 1982; Osborn and Reinke, 1981; and, for Africa, Ross, 1984).

Here we present first the elements of CBD programs, i.e. a number of conditions for their effective operation that have emerged from experience so far. Following this is an assessment of the contraceptive methods used, both actual and potential. We then review the global picture of CBD activity, with common data on a large number of countries. Finally, we offer suggestions regarding the evaluation of CBD programs.

CBD Program Components

We identify the following components of CBD programs as essential features for their effective operation. Not every program will be strong on every one, but weaknesses on any one of them will clearly impair effectiveness.

1. Approval by Medical Authorities. Since the idea that non-physicians can deliver family planning services is likely to raise objections, policy makers and officials have generally been informed of the basic program, at least informally, to avoid resistance. The "medical establishment" has needed to be persuaded that the CBD approach is both helpful and safe, and this has been accomplished in the Sudan, Egypt, and other places, by starting with a small and non-threatening pilot project, to demonstrate safety and effectiveness (Lauro, 1984 and Gadalla, et

al., 1980).

2. Community Preparation. Preparing the communities themselves to develop a sense of "owning" the project and to accept responsibility for it has been basic to the success of many CBD programs (Lauro, 1984). Community leaders, both political and religious, have been consulted and have been persuaded that such activities would not produce undesirable social consequences. In the Sudan, for example, a national Muslim leader was enlisted to convince village imams that this was the case (CPFH, 1983). Local headmen and other influential persons have usually been separately approached to be well disposed to the new activity, and other steps have been taken to create suitable explanations in the village grapevine.

3. Recruitment and Selection. Selection criteria for Community Health Workers (CHWs) have varied greatly in different CBD programs with regard to sex, age, literacy and educational level, marital and family status, and prior experience in health related services. (Osborn and Reinke, 1981, p. 76 give profiles of community health workers in 28 projects). It now seems apparent that women of the community who are older, married, mothers, and themselves practicing family planning are generally most successful. However men have worked effectively in some places, for example in Marrakesh, Morocco (Lecomte, 1982) and Oyo State, Nigeria (Lauro, 1984), and it has sometimes proven best when women deliver services to women and men deliver services to men, as at the workplace. In Egypt and Tunisia, female agents met with resistance when they attempted to distribute condoms. In Morocco, one female agent was severely beaten and another threatened with rape for distributing condoms. Conversely, in Bangladesh, condoms were not accepted by women from male workers and as a result female workers were given this task (Osborn and Reinke, 1981 p. 62 and p. 92). Open communication about family planning in the Oyo State, Nigeria Project, especially between the sexes, was found to be very difficult and as a result it was decided to have both male and female community agents introduce and promote contraceptives in rural areas (Lauro, 1984). Male/female teams have also been used effectively in Colombia, Guatemala, and Mexico (Maguire, 1984).

The optimum level of education of the CHW is a widely discussed issue; the answer appears to be largely dependent upon the local situation (Cuca and Pierce, 1977, p. 305; Osborn and Reinke, 1981, p. 97). Whether the workers are comfortably literate controls both their training and the record keeping systems that can be applied. Illiterate women have worked effectively in a number of places (e.g. Zaire, Nigeria, Sudan, Tanzania, Haiti) where illiteracy is the norm (Ross, 1984). When literacy requirements restrict the selection of CBD workers to younger, less respected members of the community or when their selection is based on caste, family, or political relationships, their effectiveness may be limited. In their review of different CBD programs Osborn and Reinke observed that "... agents with a wide range of characteristics have been excellent promoters,

while other women with similar qualifications have had rapid turnover rates. The tentative conclusion is that intangibles such as maturity, tact, perseverance and enthusiasm are equally effective."

4. Training. Together with selection, supervision, and rewards, training determines personnel quality and performance. CBD programs have probably varied more widely in the approaches used for training than in any other aspect. The length of agent training, for example, has ranged from a few days to a full month (see Osborn and Reinke, 1981, Table 9 for a summary of 28 programs), and the trainers have been of many types. The most effective trainers, with rare exceptions, are those who have done, in the field, what it is they are training CBD workers to do. The objectives of the training depend heavily upon how much expertise is required of the CBD worker, which in turn depends upon the supporting personnel and referral facilities. If senior and experienced supervisors are frequently available to assist with work problems, then the training can be less intensive than where workers must function independently for months at a time.

Of special importance, particularly at the outset of the program when damaging rumors may spring up, is expertise on each contraceptive method offered, its proper use, and its side effects. Generally, training programs attempt to prepare the CBD worker to discuss the advantages of family planning and birth spacing with their neighbors and peers, to describe the alternative methods that are available, to instruct clients properly in their use, and to deal with questions concerning side effects. Where a referral system is employed they must also be trained to provide advice on clinical methods: the IUD, sterilization and, where it is legal, abortion.

An overriding principle in training low-level personnel is to keep content and procedures simple and concrete, with stress on an experiential rather than a lecture approach. There is however evidence that CBD workers can be trained to provide more than one kind of service. For example, in the Sudan largely illiterate village midwives were trained to deliver oral rehydration supplies, contraceptive pills, nutrition education, and immunization and referral (El Tom, et al., 1984). It was learned there that an attempt to train workers at one sitting to provide a wide range of services leads to problems. The better method proved to be training in a phased manner, to teach new skills one at a time, with workers given the opportunity to apply their knowledge in the field before learning another duty. What matters is not so much the numbers of tasks or interventions the CBD worker is expected to carry out (although there is clearly a limit), but whether the worker can consolidate each new skill before going on to another. In Tanzania, the phased approach to training permitted CHWs to attend simultaneously to their ongoing domestic responsibilities, which they could leave only for brief periods (CPFH, 1984).

5. Supervision. Because CBD workers necessarily have

limited training and may work as volunteers, a system is needed to provide backup and support when problems arise. Links to the larger program also serve to provide fresh supplies, to watch for difficulties, and to collect figures on results. Supervisors need not only to have appropriate knowledge and experience, but also, and especially with volunteers, to take a supportive and encouraging attitude. As Baumgartner (1965, p. 290) observed in the mid 1960s, "... supervision must be of a creative type - not merely checking records in an office and filing reports, with another supervisor higher up, but finding out in the field what works, what does not work, and helping to develop those one supervises." Where supervisors see themselves as policing the workers rather than supporting them, their effectiveness appears to be limited and worker performance reduced. Thus supervisors themselves must be carefully selected, trained, and motivated.

A common problem is supervisor transport, and solutions to it are many. Effectiveness is greatest where supervisors can visit workers on site, and supporting agencies have provided horses, bicycles, boats, motorscooters, and even vehicles. A Thailand project made ownership of a motorcycle a prerequisite for employment, and a Guatemala project gave each supervisor financial assistance to purchase one. In Peru, eighty horses were to be used as a means of transportation for project supervisors (Osborn and Reinke, 1981 p. 84).

The use of vehicles, however, carries with it maintenance problems and other recurrent costs. In some CBD programs, the costs of supervisory travel, per diem, and salaries have been greater than any other component of the program (CPFH, 1981), and the Brazil CBD program discovered that quarterly instead of monthly visits reduced costs greatly without harming performance (Foreit and Foreit, 1984). In other programs breakdown of vehicles or impassability of roads during rainy seasons has made the reliable provision of adequate supervision almost impossible and has impaired the morale both of supervisors and of workers. Failing direct visits, alternatives such as gathering the workers at monthly meetings where problems can be discussed and supplies replenished has sometimes proven effective (CPFH, 1981).

6. Motivation and Compensation. CBD workers must be motivated, but not necessarily by monetary payments. The question of worker compensation has plagued program managers throughout the Third World. The two major constraints to providing monetary payments are the limited budgets available and the large number of CBD workers required for full population coverage. The combined effect of these two factors is such that even where programs provide only very limited cash compensation the available funds are often not sufficient. It has also become clear that when external agencies make funds available to provide cash compensation they are rarely willing to continue this indefinitely and, when national or local governments are expected to shoulder the burden, serious difficulties arise and programs sometimes flounder. In Oyo State, Nigeria, for example, monetary incentives for health workers were the most costly items in the

budget of the pilot project and when the government took over the project it could not accept this expense (Lauro, 1984). Similarly, in the Sine Saloum Rural Health Project, neither the government of Senegal nor the local communities could cover the costly incentive payments to departmental Ministry of Health personnel (Gov't. of Senegal and USAID, 1982 p. 14). In a Sudan project morale problems arose when small cash payments to CBD workers were discontinued.

In some CBD programs the communities themselves have been able to provide limited cash support to CBD workers. In the Maasai Rural Health Project two out of five communities provided monthly stipends while another gave food and assistance with domestic responsibilities to community health workers (CHW) who were in training or on home visits. However, the process of organizing the communities to provide this support required time and patience, and project staff observed that "... the issue of whether and how support will be forthcoming must be thoroughly discussed within the community and CHWs must be prepared to work without support until the community witnesses the benefits they bring" (Lauro, 1984). In other projects, for example the Bicol and PUSH projects in the Philippines (Parlato and Favin, 1982), "start-up" money provided by outside agencies provided the capital needed to initiate income-producing cooperative ventures that have successfully provided compensation.

Because of financial constraints, many CBD programs have developed around volunteer workers. Whether such programs work well depends upon a number of factors: whether a tradition of volunteerism already exists within the culture; whether the time and energy demands of the CBD program are modest as against other demands on the volunteer; whether an <u>esprit de corps</u> can be created through the support and enthusiasm of supervisors or whether similar results can derive from high worker prestige within the community. All these factors, and others, determine whether a system of volunteers works well. Overall, the evidence is sufficient to justify a tentative conclusion that where the demands of CBD programs on the volunteers are reasonable, where they are well supervised and sufficiently rewarded in non-monetary ways or with small local payments, they can work without the huge cost of regular program salaries.

7. <u>Delivery System.</u> Mechanisms for the actual delivery of supplies and services always exist, but the systems vary greatly. Transportation systems, population density, and settlement patterns all matter, as do local customs. Generally, programs seem to have been more effective where the CBD worker is able to go to the doorstep, i.e. where there is active outreach. Other successful programs, however, have required that the initial prescription and contraceptive supply be given in a fixed health facility by more senior personnel, with follow-up provision of supplies by CBD workers at their own homes, or from local mothers' clubs, or from local "depots". In other programs, CBD workers have made one or more rounds of home visits to introduce services and give the initial supply, subsequently requiring the

adoptors to obtain resupplies by going to the home of the CBD worker or to a nearby depot (for examples of this approach, see Table 8, p. 74 of Osborn and Reinke, 1981, and Table 7 in Foreit, et al., 1978). Still another approach uses a combination, with salaried health personnel going to some central point, such as a health post or a school, where they meet family planning clients who have been gathered there by the CBD workers. In the Chogoria Family Health Project in Kenya, MCH and FP services are provided through 25 delivery points and 6 mobile clinics. In addition, youth leaders make contact with students and youths who are not in school (and who do not belong to any organizations) at informal gatherings, market places, and weddings. Other outreach activities provide services to hard to reach areas through volunteer health workers, teachers, and peer group opinion leaders (Ross, 1984). This method, a variation of the "mobile clinic" approach, has been used not only to provide family planning services but also other simple primary health care services. In the PFPC ("Family Planning for Couples in Rural Areas") project in Tunisia, two rounds of household visits were followed up by weekly visits to select locations (generally schools) made by the PFPC medical director. During this visit he provided gynecological examinations, motivation and information on family planning methods, treatment of side effects, and pre- and post-natal care, as well as contraceptive supplies (Maguire, 1982, p. 9).

A dependable supply line is essential, and no CBD worker can function adequately without stocks of the contraceptives to be delivered. Logistics pose persistent difficulties throughout the Third World, as pipelines are long and can break down at any of many points. A primary culprit has been poor analysis of lead times and of the reserve stocks needed at each junction of the pipeline.

8. Mix of Services. Numerous programs, especially in Africa, have combined family planning services with a number of simple health interventions, including oral rehydration, malaria treatment, iron supplementation, etc. that lend themselves to the CBD format. Illustrative projects include (Ross 1984) PFPC in Tunisia, Bas Zaire in Zaire, Maasai in Tanzania, the Sudan CBD Family Health Project, Oyo State in Nigeria, Danfa in Ghana, and Calabar in Nigeria. In some countries, as in the Indonesian rural programs, a village infrastructure that was built to advance family planning is so effective that other programs, such as nutrition and infant care, are being channeled through it. There is new evidence from community-based programs over much of the world that community workers can indeed provide family planning, oral rehydration therapy, growth monitoring, nutrition education, and treatment of simple illnesses, as well as support for immunization programs (Bertrand, et al., 1984). Successful programs however keep the number of worker duties modest and concrete, and offer highly specific services that are quickly understood by the community.

9. Evaluation. A further component of importance is the

ongoing assessment of the program's operation and results. This is discussed in the final section.

To sum up these components of CBD programs, a basic infrastructure with its own characteristics has emerged that is generally required for the effective delivery of family planning services to rural populations. This system must include effective mechanisms for community preparation and participation, the identification and recruitment of low-cost personnel, adequate training for those individuals, satisfactory mechanisms for supervision and support, reliable logistic supply, and useful evaluation. We now turn to a consideration of the contraceptive methods that this system has typically delivered or can potentially deliver, as well as those it can provide by referral.

Contraceptive Methods

The overall effectiveness of CBD programs depends heavily upon the contraceptive methods offered. Most CBD programs, starting with the early programs in Korea, Brazil, and Colombia, have provided condoms and oral contraceptives, although in regard to the pill, there was some early controversy within medical circles (Foreit et al., 1978; Rosenfield, 1974). Since that time, CBD programs have become widely accepted in a large number of countries.

By far the most prominent method used by these programs has been the oral contraceptive. There is an extensive literature on the medical safety of the pill when given without prescription in developing country programs, and its general advisability in that context has been carefully considered (Rosenfield, 1971; Wortman, 1975; Rosenfield et al., 1980). Its safety as compared to its risks is felt by many health officials to more than justify its use without physician prescription.

Of great importance at the policy level has been the increasing availability of data showing two things: (1) that morbidity and mortality associated with the oral contraceptive is extremely low (except among women over age 35 who smoke, unusual in developing countries) (Ory, 1983; Ory, Forrest, and Lincoln, 1983), and (2) that maternal mortality in the Third World is extremely high (Rosenfield and Maine, 1985). It has been suggested, based on data from a number of sources, that the risks associated with the regular consumption of oral contraceptives are far below the risks associated with childbirth to women in much of the Third World, and dramatically less than the risks associated with illegal, induced abortion (Maine, 1983).

Throughout the Third World, family planning programs that provide oral contraceptives through non-physicians have shown risks to be minimal, and acceptability to remain high (Foreit et al., 1978; Rosenfield et al., 1980). It must also be noted that large numbers of so-called prescription drugs, including oral contraceptives, are sold over the counter in pharmacies

throughout the Third World. There are almost always laws against this, but the shortage of physicians, cost barriers to their utilization, and other factors have allowed the process to continue, and this also has contributed to increased availability of the method. Thus, one rationale for CBD programs is to make available to rural women what is available to urban women through non-prescription sales in pharmacies.

In some countries a simple checklist for paramedics to use has won acceptance, such as one developed in the late 1960s in Thailand (Rosenfield and Limcharoen, 1972). There are programs, however, where a written checklist is not feasible as for example with illiterate CBD workers, or in social marketing programs. The arguments generally given to justify such programs also relate to the substantial risk of pregnancy-related morbidity and mortality, compared to the very small risk of pill related complications.

Condoms have been offered in many programs, with occasional exceptions due to local sensitivity (Foreit et al., 1978). The traditional image problem that they have in some places can usually be overcome by persistent stress on the condom's advantages: its high reliability, safety, relative ease of use, and freedom from side effects. No pelvic examination is needed, and it enables the program to offer a male-controlled method. Costs to the supplier are low and modern versions are superior to those of a decade or two ago in terms of packaging, strength, and thickness.

Some CBD programs have offered various barrier methods such as vaginal foams, suppositories, and foaming tablets (Foreit et al., 1978). Good data are not available on these methods, and they have not gained any great popularity in most CBD programs.

As regards clinical methods, health officials generally doubt whether they should be delivered at village level through CBD programs. For example, medical opinion is not favorable to training village workers to insert the IUD in the home (Rosenfield, 1975). The potential for complications with such an approach appears to be too great to warrant experimentation along these lines, and to date there are no reports of attempts to implement such approaches in the village itself, except through the mobile clinic approach.

However, one semi-clinical method of contraception, the injectable depo-medroxyprogesterone acetate (Depo Provera), may hold promise for CBD programs (Liskin, 1983). Currently this method is generally limited to clinical programs at health center or hospital levels, or to programs in which services are brought to the community via a mobile clinic with medical personnel in attendance (McDaniel, 1980). However, there is good reason to consider the possibility of a more liberal approach. Most developing countries contain a range of traditional personnel who give injections (Cunningham, 1970). Some of the practitioners, untrained in the modern sense, make their living in the village

by being available to treat a variety of conditions by injection, sometimes using modern medications and sometimes other ingredients, including placebos. Selected personnel of these types can be identified by CBD programs and then trained to provide Depo Provera. Such an approach will probably be the object of future operations research studies, but there are no published reports to date.

For contraceptive methods that are considered definitely clinical, such as the IUD, male and female sterilization, and (where legally available) first trimester abortion, clinic-based services and medical mobile teams will continue to be essential. In many CBD programs, workers are taught to refer women to these clinical services (Foreit et al., 1978). In addition, through the provision of information and education, CBD workers can play a particularly important role in reassuring village couples about expected side effects and method alternatives. Because of their similar status they may be able to communicate more effectively than the more highly educated workers who normally work in Ministry of Health programs.

We now turn to a cross-national review of CBD activity in developing countries as of approximately 1984. The foregoing discussion focused on internal features of the CBD approach; the following section gives perspective on the extent to which this approach has been applied in the different regions of the world, and provides some information on various program types.

Cross-Country Comparisons

Except for one study, all data on CBD experience comes from uncoordinated examinations of individual programs. The exception is a cross-national investigation of program inputs (Lapham and Mauldin, 1985) that covers CBD activity, along with numerous other topics. Special tabulations of the CBD data from this study were kindly made available to us by the authors.

Briefly, data for the following analysis are based on 348 respondents in 93 countries, with a range of one to ten respondents per country. These respondents were selected to afford complementary viewpoints and information, with observers from inside the program, from independent universities or similar institutions, and from international donor agencies. Respondents completed a detailed questionnaire and this information was converted by Lapham and Mauldin into 30 items according to a set of scoring rules. These scores were then merged and combined with other information such as explanatory notes written in the margins of the questionnaire and the investigators' own assessment of the responses. The result was a final score for each country on each of the 30 items. The thirty were collected into four groups, to show the country's strength on four major dimensions of input: policy position, actual services rendered, evaluation system, and overall availability of contraception to the people.

1. CBD Scores. The data analyzed here come from the "CBD score," one of the 30 items generated by applying a set of scoring rules to the CBD questions. The CBD score comes under the services dimension, and ranges from 0 to 4.0, reflecting the responses to questions on the program's efficiency, on whether both initial supply and resupply are included, on whether the program operates in both rural and urban areas, and on what proportion of the population is covered within each sector. Together these give a reasonable measure of the extent to which a serious, effective CBD activity exists.

(A social marketing score was also calculated, similar to the CBD score, and some data are discussed below pertaining to it. All items were scored 0 to 4.0)

Each country was also classified by its overall strength of program effort (the simple sum of scores on the 30 items) to rate each country as follows: strong, 80 and above; moderate, 55-79; weak, 25-54; very weak or none, 0-24. This program effort level, along with regional identification, is used to classify the CBD scores presented in Table 1. This is an exceptional set of data, the most comprehensive and most recent available. From Table 1 certain summary findings emerge, and these are presented in Table 2.

Taking the developing world as a whole, the average CBD score of 0.7 (lower right) is rather poor, against the maximum possible of 4.0. In the best region, South Asia, it is only 1.3, and among the programs with the strongest effort (column 1) the mean is 2.3, a good deal higher but still only somewhat above midway in the possible range. On the other hand, countries do not have to do everything in order to achieve strong program effort, although they do have to carry out a substantial number of activities, and do so well, to achieve strong or even moderate program effort. Good examples of that emerge here: Hong Kong, Singapore, and Taiwan have developed strong family planning programs without CBD, but each have other service delivery avenues that make family planning supplies and services readily available throughout the country.

Table 1 also presents the information with population weights (shown in parentheses) which changes the summary picture considerably. The overall mean more than doubles, rising to 1.8. This however is still a modest level. The high scores of China and Indonesia greatly increase the average performance of East Asia and the strong programs, but the zero score of India damages the performance of South Asia and of moderate programs. We must note however that India stands out in its social marketing score (3.4 - not shown) so that villagers are not entirely without easy access to simple contraception (although only condoms).

The weighted figures reflect how most people fare, whereas the unweighted figures show how most countries fare. The latter has its uses, but it is very unbalanced as a guide to population

coverage. The thirty-three countries of sub-Saharan Africa weigh very heavily in the unweighted average of 0.7 simply because each country counts the same, whereas the individual provinces of China and India, many of which are larger than most countries, are merged into one national CBD score. (In the scoring rules applied in this study, a top score of 4.0 was given if an estimated 80% of the rural population was efficiently covered by CBD programs. Thus, top scores do not necessarily indicate CBD coverage throughout a country.)

A clear gradient in the CBD score exists across countries according to the strength of their overall program effort (total row), from 2.3 for the strongest group to 1.3 for countries with moderate effort, to 0.9 for those with a weak effort, and to 0 for those with very weak or no effort. This sequence is disturbed with the weighted figures; the gradient starts much higher, at 3.8 (again reflecting China and Indonesia), falls drastically (due to India), and then moves as before.

There is a slight circularity in relating the CBD and program effort scores, in that the CBD rating is one of the 30 items that are summed to produce the overall effort score. However, the CBD score by no means controls the total score, and so we can accept the presence of a relationship between the overall effort that a country puts into its family planning program and what it puts into the CBD component. This is encouraging in that it suggests that the better programs tend to perceive the opportunity present in the CBD approach and to act upon it.

A very clear gradient in the increase of the CBD score with the strength of program effort exists in five of the six regions (see individual rows of Table 1). This confirms the point just made, and documents the consistency and regularity of the relationship from one geographic region to another.

The regions themselves differ in their average CBD scores, (Table 2), and with unweighted means they differ in a way that basically makes sense. South and East Asia are higher at 1.3 and 1.0, reflecting a number of active programs, not only in China and Indonesia but also in the Philippines, Sri Lanka, and Bangladesh. The Caribbean and Central and South America regions rank about as high, with 1.1 and 1.2 averages. But the other regions, the Middle East/North Africa, and sub-Saharan Africa, fall into an entirely different category, at 0.4 and 0.3 respectively. Thus, in terms of the country (unweighted) data, there are two observations: the Latin American region ranks surprisingly high overall, and the world is divided into Asia and Latin America on the one hand vs. the Middle East and all of Africa on the other as regards CBD progress to date. Even so, however, the regional dimension does not differentiate nearly so well as the program strength dimension.

The regional patterns change somewhat when population weights are recognized (not shown in Table 2). East Asia

improves markedly (China and Indonesia again), and South Asia worsens (India, Pakistan, and Burma). The other regions stay about the same.

It is interesting that all countries with a 4.0 CBD score in Table 1 except one (Dominican Republic) fall into the first column; thus essentially no country has a strong CBD program unless it has a strong overall effort. The reverse is not true: several countries with strong or moderate overall programs get along without a good CBD program. These findings are shown in Table 3, where the number of countries with CBD scores of 3+ is compared with the total number of countries in each cell. Five of the nine strong programs have CBD scores of 3 or more but only 3 of 15 moderate programs and only one out of all the rest.

The particular countries of interest are China of course, and Indonesia, the strongest large programs in the world today. In both cases the deployment of the program out to the smallest hamlets is a highly significant feature, particularly as this is not merely a logistical extension but carries very strong impact in terms of community dynamics. Sri Lanka, Colombia, and Mauritius also have scores of 4.0, as well as the Dominican Republic.

Thus, from a global perspective there remains great potential for the expansion and strengthening of CBD programs. Programmatically this may be viewed as an opportunity, with the developing world essentially in midstream in the development of good CBD programs. There is considerable evidence, from experience so far, that the approach is culturally acceptable, of reasonable cost, and of significant impact. Further investment in it can be expected to yield a good return.

2. Ratios of CBD and Overall Services Scores. We now ask how large a role CBD plays within the dimension of "services rendered" (one of the four overall dimensions of input that together exhaust the 30 items). The services rendered score is the simple sum of scores on 13 of the 30 items that pertain specifically to the delivery of family planning services to the population. The ratio of the CBD score to the services dimension score was calculated for each country, to determine how much of services rendered was due to CBD activity.

This ratio is high where the CBD program is strong and the other elements only moderately strong, or where the CBD program is moderate and the other elements are extremely weak. The ratio may be low when CBD is poor and other elements are moderate to good. Thus the ratio does not tell the strength of CBD alone, but reflects both it and the other 12 components of the service rating. If CBD got the same emphasis as the others, it would be one thirteenth of the total, or 0.077.

In fact it is usually above that, as shown in Table 4, indicating that on average CBD is more prominent than the rest of

the service and service-related activities. The mean ratio is 0.11 and the median 0.10, well above 0.077, and the middle half of the 31 countries falls between 0.07 and 0.12. It is possible, especially in view of the rapid spread of the CBD approach, that countries that tend to be somewhat weak on other features of service implementation may be resorting to CBD programs to fill the gap.

(Countries with very high ratios are of interest, because in almost every case they have a poor services total combined with an ordinary or mediocre CBD score as, for example, in Gambia where the scores are is 1.8/8.7, giving a ratio of 0.21.)

3. Relation to Social Marketing Programs. The questionnaire for this study also asked about the existence and coverage of social marketing programs, again by residence. We therefore include here some interconnections between CBD and social marketing.

Of the 93 countries, 31 have a CBD program but only 17, about half as many, have a social marketing program (Table 5). Fifty six countries (28 of them in sub-Saharan Africa) have neither of the two programs. This is sixty percent, by far the largest grouping. However, if we entirely exclude sub-Saharan Africa, with its numerous small countries, the figure for the rest of the world is only forty-seven percent having neither program.

At the other extreme, only 11 countries of the 93 have both programs. But again, if sub-Saharan Africa is excluded, eleven of 60 countries or 18% have both, almost 1 in 5 countries across the rest of the developing world.

Of countries with CBD programs, only one third (11/13) have a social marketing program. On the other hand, among countries with a social marketing program, two thirds (11/17) have CBD programs. In part, this may be due to CBD programs having been promoted earlier by donor agencies and governments.

Because the cell sizes of Table 5 are small it is helpful to combine sub-regions. Then we see that Latin America taken as a whole is the most active, with 67% of the countries having one or both programs (i.e. 33% have neither, in col. 4). Asia comes next with 56%. Then there is a large drop to the rest of the world, just as before, with the Middle East/North Africa at 30% and sub-Saharan Africa at 15%. This drop is due to less activity in the "CBD-only and "Both" columns, not in the "SM-only" column. Of course the numbers are small and these patterns are tentative.

Thus, there are two regional patterns within the developing world: Asia and Latin America, with one or both programs in most countries, versus the Middle East/North Africa and sub-Saharan Africa, with neither program in most countries.

We turn next to the CBD-SM interrelations according to program strength (Table 6). Countries with very weak programs, or no program at all, rarely have either a CBD or a social marketing program. Forty of forty-two countries in the last row have neither program, and even if sub-Saharan Africa is excluded from that row, 15 of the remaining 17 countries have neither. Thus 95% of the weakest program effort countries lack both programs, while in the other three program strength categories, only 31% (average) lack both. Even among countries with weak programs (row 3), 63% have one or both programs, and the picture is even better for strong and medium countries. Countries with weak programs (row 3) tend more often to have only a CBD effort.

Where social marketing programs do exist the data clearly suggest greater activity in urban than in rural areas. Information drawn from individual questionnaires shows that 34% of respondents from countries where rural social marketing programs exist say that they cover over half of the population, 13% say they cover one-fourth to one-half, and 54% say less than one-half. In countries having urban social marketing programs the figures are just reversed, at 54%, 13%, and 33%, respectively. Moreover, as already indicated, more countries possess urban social marketing programs than rural ones. Indeed, the Lapham and Mauldin study expected that social marketing programs would be primarily urban, but still asked explicitly about rural efforts and increased the social marketing score according to the proportion of the rural population covered.

All of these findings are a kind of snapshot taken in 1983 and 1984 with 1982 as the reference year. We lack any trend data, except that we know that nearly all CBD and social marketing programs began at a zero base only about 10 to 15 years ago (with a few exceptions such as the Nirodh condom program in India). The study from which these data come is exceptionally valuable for comparative purposes and global review, and it will very much bear repeating in a few years.

Evaluation Features

The evaluation of CBD programs has taken several forms, one of which, that of reviewing global patterns, is illustrated in the previous section. For other kinds of evaluation, the following paragraphs present the main considerations to emerge from experience to date. These are couched partially as empirical results and partially as recommendations.

1. The timing of evaluation is important, since the public response to CBD programs may decline when home visits cease. A CBD program that makes only one or two home visits, and then directs couples to get resupplies thereafter at central depots, may receive good marks on prevalence as measured at the second home visit, or by an independent survey at about the same time. But contraceptive use can fade during the one or two years following the final visit as people must take the initiative to go to the resupply point (Phillips, et al., 1982). Little evidence on such time lags has so far been gathered, and longer term monitoring is needed. If fall-offs indeed occur, continued inputs to compensate may be necessary, perhaps through reinforcement home visits or greater dispersion of small depots. The accompanying costs will of course be higher but the alternative may be low effectiveness.

2. A related question is how evaluation can be properly done after escalation occurs from a small pilot project to a large scale operation. Statistics cannot be gathered in the same detail as before, and staff personalities cannot be known. "Process analysis" becomes unwieldy, and data quality may deteriorate. The key indicators must come more exclusively from service statistics, which while covering the whole program are relatively superficial. The Marrakesh experiment in Morocco for example grew in stages from one province to three, and then to about thirteen, covering 40% of the country's population (Weissman, et al., 1983). Statistics must also take a simpler form than in large clinic-based programs, since they are usually generated from semi-literate distributors, local women's clubs, depots, and the like. All these changes are part of the price of moving to large-scale programs, and the restricted opportunity for close evaluation in them is indeed a chief reason for first trying the approach through a pilot trial.

3. A methodological issue is that a home visitor may offer contraceptives and, in the same conversation, ask about current use to help measure prevalence. A courtesy bias is then quite possible, but equally serious, it is not always clear whether the current prevalence level as reported includes the supplies given at this visit. If so, that of course raises the prevalence figure, both by assuming future use and by counting new acceptances where actual use is uncertain. And if the interviewing procedures change from visit to visit, then the prevalence <u>trend</u> is confused. Both the interview and the report should clearly establish the status of contraceptive use prior to the visit, and should record separately whether supplies were

given during the visit itself.

A desirable though costly complement is the independent survey, with interviewers who are clearly distinguishable from service personnel. Another is to monitor the acceptance and re-acceptance record of each individual, assuming that persistently favorable responses imply actual use. The courtesy bias as regards acceptance of supplies at the doorstep can in some circumstances be reduced by making a token charge for supplies.

4. In general most CBD evaluation has been done by its partisans, and the published literature contains primarily favorable evidence (Ross, 1984; Foreit, et al., 1978). Unpublished reports and direct observations by persons close to field operations are often better sources for identifying problems, although these reports are not easily available for global reviews. This makes it difficult to sort out what works and what does not as regards more detailed program features. We are left mainly with what works, and that of course is helpful. It is also our impression that CBD evaluation is ahead of assessments of social marketing efforts, where sales past the wholesale level are very difficult to trace. (An ingenious Sri Lanka plan deserves mention however; it includes in each condom package a lottery slip to send in to win a large prize, carrying the name and address of the buyer. This creates the capacity to document the rough level and time trend of sales, with mapping by location to show which distributors are most active.) (Family Planning Association of Sri Lanka, 1982).

5. As to who does the evaluating of CBD programs, there appear to be four types. The first, most immediate type is the agency that is implementing the program; an example is a series of "mini-surveys" by the Population and Development Association in Thailand. The second is a local independent group that has developed a research capacity, e.g. Mahidol University in Thailand, that conducts its own studies, though usually with the acquiescence of the action agency, and sometimes at its request. The third is a donor agency (or a group contracted by it), as is common with USAID, and the fourth is the researcher who assembles international materials and compares characteristics and performance, as in Foreit et al. (1978) and Kols and Wawer (1982). These four actors, and the assessments they undertake, vary considerably in their purposes and outputs. A particular distinction exists between a focus on results and a focus on process. The former gives marks to the program as to whether it is doing the job for which it was created, at acceptable costs in resources. The latter studies program components, assessing training, supervision, delivery systems, etc. toward their improvement.

6. Beyond statistics merely on the clients, data on a population basis are feasible where it is possible to define the catchment area for each worker and hence the worker:population ratio. Coverage of the total population can be followed, especially where it is possible for the workers to prepare

rosters of the eligible couples for whom they are responsible and to maintain monthly (or periodic) records of their contraceptive status.

More commonly, however, surveys have been the method used to estimate the extent of population coverage, trends in contraceptive prevalence, and characteristics of acceptors. Sometimes, as noted above, a survey has been combined with the home visits that offer or resupply contraceptives, but this must be handled carefully to control certain errors. In other cases independent surveys representing the entire childbearing age population have been conducted; these are used to evaluate many types of programs, not just CBD.

In recent years inexpensive microcomputers have immensely facilitated the processing of survey data and have made it possible to obtain results quickly enough to give them to program managers in a timely fashion. As in recent Sudan studies, the survey team itself can immediately process the data rather than send it to some central facility. Moreover, data entry software for microcomputers now permits some edit checks (such as range checks) as each questionnaire is keyboarded, eliminating many cumbersome and time-consuming steps of the past (Weatherby, et al., 1985).

Conclusions

We have presented the essential features of effective CBD programs and reviewed the contraceptive and health services they typically deliver. We have also given a global overview of their prevalence and strength and their co-existence with social marketing. Finally we have suggested guidelines to their evaluation.

It is quite clear that the region that is currently receiving much international attention, sub-Saharan Africa, is indeed without the kind of village level services that non-literate workers could provide to make contraceptive practice feasible for the inhabitants. It is also clear that traditional childspacing customs, by themselves, have not and will not lead to reductions in the high population growth rates now prevalent in this region. Moreover, these customs are likely to weaken under the force of modernization. Deliberate efforts to provide broad population coverage of contraceptive services and simple health measures can contribute to declines in fertility and mortality. This elementary picture surely gives a sufficient guide for policy direction. The basic components of effective CBD programs are by now well understood, as are the elements of useful evaluation. Because CBD programs are not widespread throughout developing nations, greater program implementation is called for, with concurrent assessment toward improvement.

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TABLE 1: CBD Scores for 93 Countries Classified by Region and Strength of Overall Program Effort

STRENGTH OF OVERALL PROGRAM EFFORT

REGION	STRONG	MODERATE	WEAK	VERY WEAK OR NONE	TOTAL
East Asia	China 4.0 Korea 0.8 Singapore 0 Taiwan 0 Indonesia 4.0 Hong Kong 0 (3.8) 1.5	Thailand 1.3 Philippines 3.2 Malaysia 0 Vietnam 2.0 Fiji 0 (1.4) 1.3	Western Samoa 0 Papua New Guinea 0.2 (0.2) 0.1	Dem. Kampuchea 0 Laos 0 Mongolia 0 (0) 0	(3.4) 1.0 n = 16
South Asia	Sri Lanka 4.0 (4.0) 4.0	India 0 Bangladesh 3.0 (0.4) 1.5	Pakistan 1.2 Nepal 1.0 (1.2) 1.1	Afghanistan 0 Burma 0 (0) 0	(0.5) 1.3 n = 7
Caribbean & Central America		Mexico 1.8 El Salvador 2.0 Dom. Republic 4.0 Jamaica 2.0 Cuba 0 Panama 0 Trinidad & Tob. 0 (1.7) 1.4	Haiti 0.7 Costa Rica 2.0 Guatemala 1.0 Honduras 1.0 (1.0) 1.2	Nicaragua 0 (0) 0	(1.6) 1.2 n = 12
South America	Colombia 4.0 (4.0) 4.0		Chile 1.0 Brasil 1.3 Ecuador 3.0 Venezuela 0 Guyana 0 Peru 0 (1.1) 0.9	Paraguay 1.0 Bolivia 0 (0.4) 0.5	(1.5) 1.1 n = 9
Middle East & North Africa		Tunisia 0 (0) 0	Egypt 1.5 Morocco 2.0 Lebanon 2.3 Cyprus 0 Turkey 0 Algeria 0 (0.9) 1.0	Yemen, PDR 0 Jordan 0 Yemen, AR 0 Sudan 0 Syria 0 Kuwait 0 Mauritania 0 Iraq 0 Libya 0 (0) 0	(0.6) 0.4 n = 16
Sub-Saharan Africa	Mauritius 4.0 (4.0) 4.0		Kenya 0 Botswana 2.0 Zimbabwe 2.0 Gambia 1.8 Liberia 0 Rwanda 0 Tanzania 0 (0.3) 0.8	Zambia 0.1 Niger 0.3 Ethiopia 0.5 22 additional countries, all with zero CBD scores* (0.07) 0.04	(0.1) 0.3 n = 33
TOTAL	n = 9 (3.8) 2.3	n = 15 (0.7) 1.3	n = 27 (1.0) 0.9	n = 42 (0.1) 0	(1.8) 0.7 n = 93

Cells show CBD scores. Figures in parentheses reflect population weights.

* The other 22, listed in order of program strength, are Senegal, Uganda, Congo, Ghana, Nigeria, Sierra Leone, Mozambique, Zaire, Lesotho, Togo, Burundi, Mali, Somalia, Madagascar, Chad, Cameroon, Malawi, Ivory Coast, Upper Volta, Cen. African Rep., Guinea, Equatorial Guinea.

The 8 largest countries are underlined; they comprise two-thirds of the developing world.

B:TBL/CBD

TABLE 2

Mean CBD Scores Classified by Region and Overall Level of Program Effort

Region	Strength of Program Effort: Strong	Moderate	Weak	Very Weak or None	Total
East Asia	1.5	1.3	0.1	0	1.0
South Asia	4.0	1.5	1.1	0	1.3
Caribbean and Central America	--	1.4	1.2	0	1.2
South America	4.0	--	0.9	0.5	1.1
Middle East and North Africa	--	0	1.0	0	0.4
Sub-Saharan Africa	4.0	--	0.8	0	0.3
Total	2.3	1.3	0.9	0	0.7

Source: Table 1.

Mean scores not weighted by country population sizes.

Table 3

Number of countries in each cell of Table 1 that have CBD scores of 3 or more, compared with the total number of countries in that cell.

Region	Strength of Program Effort: Strong	Moderate	Weak	Very Weak or None	Total
East Asia	2/6*	1/5	0/2	0/3	3/16
South Asia	1/1	1/2	0/2	0/2	2/7
Caribbean and Central America	--	1/7	0/4	0/1	1/12
South America	1/1	--	1/6	0/2	2/9
Middle East and North Africa	--	0/1	0/6	0/9	0/16
Sub-Saharan Africa	1/1	--	0/7	0/25	1/33
Total	5/9	3/15	1/27	0/42	9/93

*Read: Of the six countries in this cell of Table 1, two have CBD scores of 3 or more.

Table 4 Countries with CBD Programs: Ratio of CBD Score to ACT Rating

Ratio	# of Countries
0 - 0.03	2
0.04 - 0.07	7
0.08 - 0.11	11
0.12 - 0.15	6
0.16 - 0.19	2
0.20 - 0.23	2
0.24 - 0.27	1
	31

Mean: 0.11

Median: 0.10

Table 5

93 Countries classified by region and by presence of CBD and Social Marketing programs.

Region	CBD Only	%	SM only	%	Both	%	Neither	%	Total	%
East Asia	6	30	1	9	1	17	8	43*	16	100
South Asia	1		1		3		2		7	
Caribbean/ Central America	4	33	1	5	4	29	3	33	12	100
South America	3		0		2		4		9	
Middle East/ N. Africa	2	12	2	12	1	6	11	69	16	100
Sub-Saharan Africa	4	12	1	3	0	0	28	85	33	100
Total	20	22	6	6	11	12	56	60	93	100

*Read: In Asia, 43% of countries have neither program. Thus 57% have one or both.

Table 6

93 Countries distributed by program strength and by presence of CBD and SM programs.

Program	CBD Only		SM Only		Both		Neither		Total	
		%		%		%		%		%
Strong	3	33	0	0	3	33	3	33	9	100
Medium	4	27	4	27	4	27	3	20	15	100
Weak	12	44	1	4	4	15	10	37	27	100
Very Weak or None	1	2	1	2	0	0	40	95	42	100
Total	20	22	6	6	11	12	56	60	93	100