

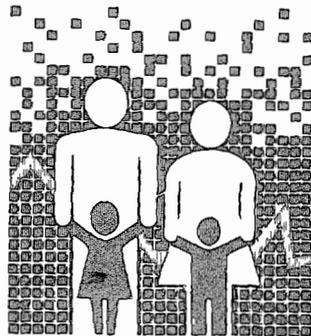
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INOPAL I

FINAL TECHNICAL REPORT

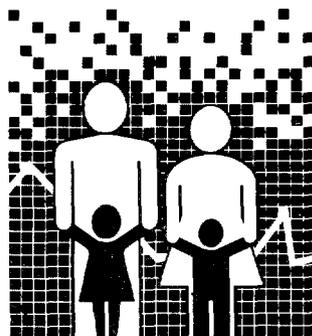
OPERATIONS RESEARCH TO IMPROVE FAMILY PLANNING AND
MATERNAL CHILD HEALTH SERVICE DELIVERY SYSTEMS
IN LATIN AMERICA AND THE CARIBBEAN
(USAID CONT NUM DPE 3030 C 00 4074 00)



THE POPULATION COUNCIL

INOPAL I

**FINAL TECHNICAL REPORT
VOLUME I
OPERATIONS RESEARCH
FINDINGS IMPACTS, AND LESSONS LEARNED IN
PROJECT DEVELOPMENT**



THE POPULATION COUNCIL

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I INTRODUCTION

INOPAL I ("Investigacion Operativa en Planificacion Familiar y Atencion Materno-Infantil para America Latina y el Caribe") conducted family planning operations research (OR) activities in Latin America and the Caribbean between 1984-1990. The program was supported by funding from the United States Agency for International Development, Office of Population, and through a buy-in from U S A I D Barbados and the Eastern Caribbean.

This is the first volume of the INOPAL I final report. It presents major findings from the six-year project and discusses impacts and lessons learned. The second volume contains summaries of all studies conducted under INOPAL I.

Operations research seeks to improve family planning programs by studying factors that are under the control of managers. INOPAL I's objective was to use OR to improve the availability and cost-effectiveness of family planning and maternal and child health service delivery systems. Forty-four projects were conducted in fourteen countries. Participants were mainly private, non-profit family planning organizations, but government and private for-profit organizations also participated.

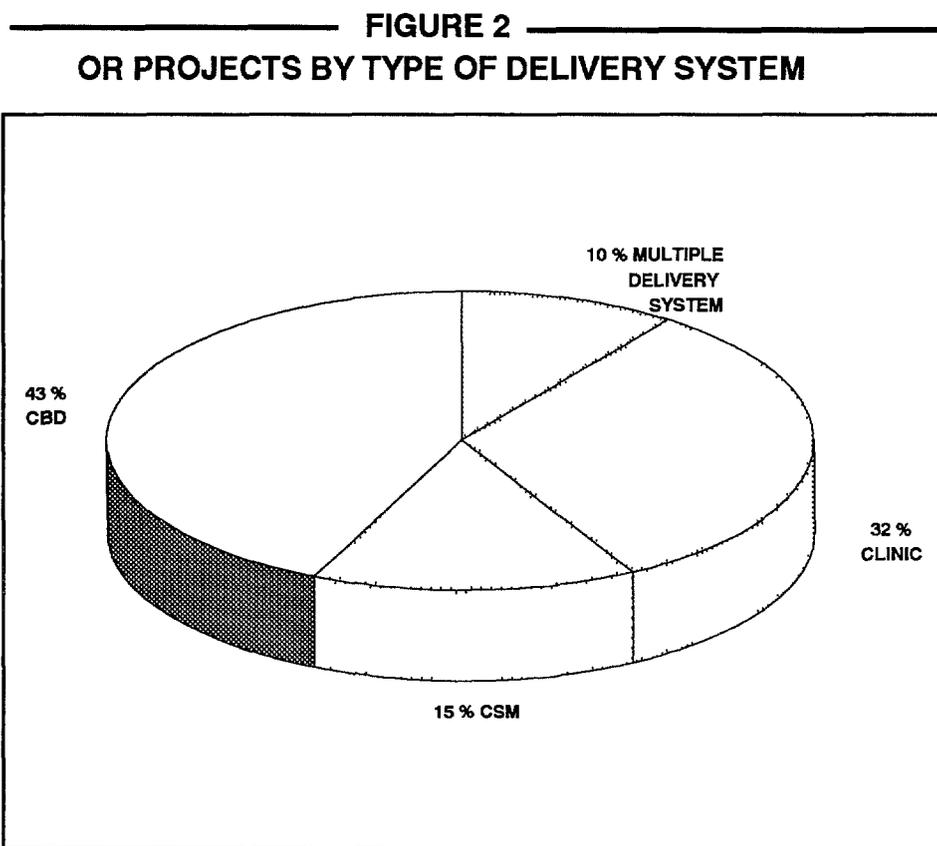
FIGURE 1
INOPAL I GEOGRAPHICAL COVERAGE



INOPAL I worked with virtually all the types of family planning delivery systems found in the region, including clinics, community based distribution (CBD), and contraceptive social marketing (CSM) programs. Specific research topics ranged from improving the middle management of family planning agencies to the delivery of services to under-served groups such as men, adolescents, and indigenous populations. INOPAL I also sought to increase the use of underutilized methods and to improve program operating systems such as supervision and training. Figure 2 shows INOPAL I projects by type of delivery system studied.

Operations research strives to help individual family planning organizations solve problems affecting service delivery. INOPAL I found that many agencies faced similar problems. Therefore, despite a focus on individual agencies, INOPAL I also produced generalizable results.

Section II of this volume is devoted to the discussion of project findings that have broad implications for family planning programs in Latin America and the Caribbean (LAC). Topics include



- 1) training, supervision, and recruitment of CBD workers,
- 2) promotion of vasectomy,
- 3) integration of family planning with other health interventions,
- 4) the provision of family planning services postpartum,
- 5) reproductive risk as a framework for promoting family planning,
- 6) design of programs for adolescents and young adults, and
- 7) information, education, and communication (IEC) campaigns to present AIDS.

Section III discusses INOPAL I impacts on family planning programs on a country by country basis. Section IV presents lessons learned by INOPAL staff about how to identify operations research opportunities, design projects, provide technical assistance, and utilize results.

II FINDINGS

A COMMUNITY-BASED DISTRIBUTION OF CONTRACEPTIVES PROGRAMS

Projects incorporating CBD programs yielded important lessons about training and supervision, distributor drop-out, and the effects of distributor characteristics on program method mix and client characteristics. INOPAL I demonstrated that improvements in supervision and retraining can result in greater CBD knowledge and output among distributors and in improved cost-effectiveness and quality of care. The key to these improvements is the use of reliable and valid instruments by distributors and their supervisors.

1 TRAINING AND SUPERVISION

On-site retraining of CBD distributors by supervisors using diagnostic and teaching instruments results in higher levels of family planning knowledge than does group retraining. On-site retraining is also less time consuming for distributors and less costly for institutions than refresher courses.

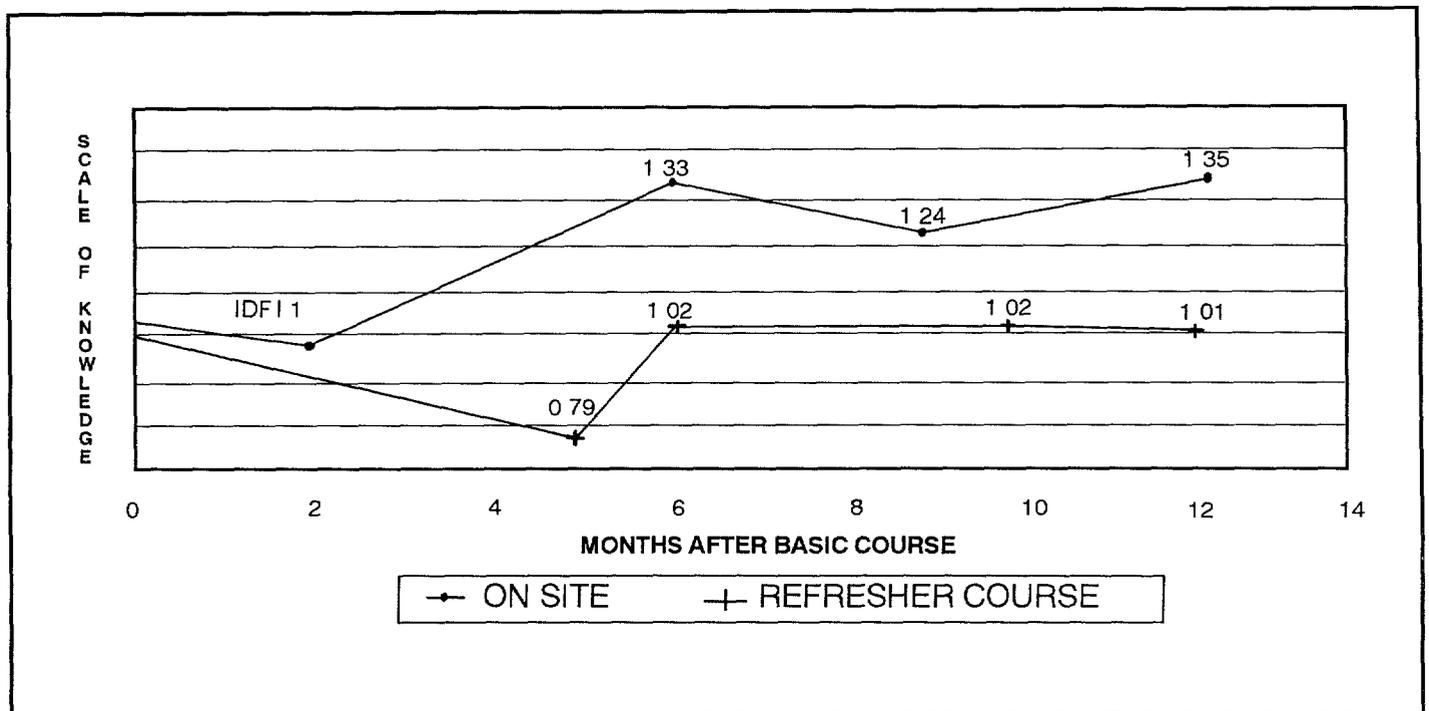
Traditional CBD supervision emphasizes collection of service statistics and the resupply of contraceptives to distributors. In most programs, retraining is done by specialists and takes place during periodic refresher courses. The weakness of this system is that distributor knowledge of family planning declines between the time of original training and retraining. In addition, group retraining courses are not only expensive, but are often poorly attended. Operations research projects in Peru, the Dominican Republic, and Guatemala produced more effective and cost-effective CBD training and supervision systems. The success of these systems is based on the development and use of diagnostic and retraining instruments.

In Peru, an OR project introduced individualized on-site retraining of CBD distributors by specially trained supervisors using an Individual Diagnostic and Feedback Instrument (IDFI). The instrument permitted supervisors to identify specific knowledge weaknesses and immediately correct them. The study compared the knowledge levels and costs achieved by the individualized retraining system with results from a control group who attended a traditional three-day refresher course given by professional trainers (19).

The distributors in the control group worked for five months before taking the refresher course. During that time they lost 21 percent of the knowledge they had gained during the basic course. The refresher course caused a recovery of the losses plus a two percent improvement in knowledge over the basic training course.

The experimental group also worked five months after taking the same basic course as the controls, however, ten weeks after basic training they began receiving on-site retraining by supervisors using the IDFI. At month five, the distributors in the experimental group exhibited a 33 percent increase in knowledge above what they had learned in the basic course. As shown in Figure 3, twelve months after the basic course, the experimental group's knowledge levels were still significantly higher than the control's.

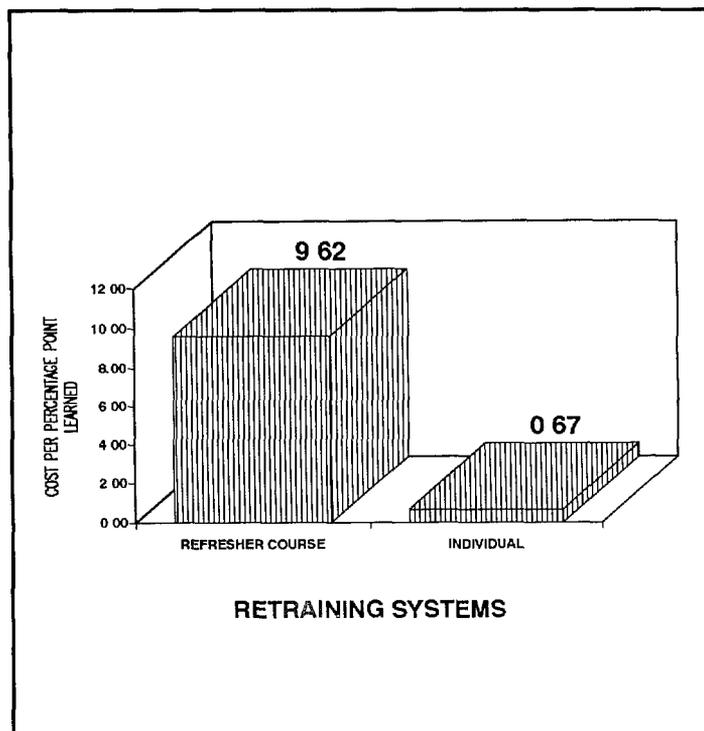
FIGURE 3
KNOWLEDGE LOSS AND LEARNING UNDER
ALTERNATIVE RETRAINING SYSTEMS
PERU



The IDFI permitted supervisors to focus on individual knowledge deficiencies while skipping over areas where the distributor possessed adequate knowledge. Retraining of the average experimental group distributor took only three hours and sixteen minutes compared to twenty-one hours for controls. The IDFI's cost per point of distributor knowledge gained above the basic course was \$0.67. In comparison, the cost of the refresher course was \$9.62 per point of distributor knowledge gained (see Figure 4).

In Guatemala, APROFAM's routine CBD distributor training and supervision system consisted of a three-day course given every six months. Supervision was monthly and visits focussed on administrative activities and logistics. An OR project compared the routine system with a competency-based supervision model that focussed on improving distributor knowledge and performance (35). The competency-based system was similar to the IDFI approach used in Peru. The competency-based supervision system employed an instrument containing indicators of the distributor's knowledge and competence. The instrument served as a guide for immediate on-site training and reinforcement. As in Peru, distributors receiving the experimental treatment had significantly higher knowledge than controls who received the routine system of training and administrative and logistic-focussed supervision.

FIGURE 4
COST-EFFECTIVENESS OF RETRAINING
IN TERMS OF LEARNING OUTCOMES
PERU



Selective supervision of CBD distributors increases their family planning knowledge and the amount of contraceptives they distribute

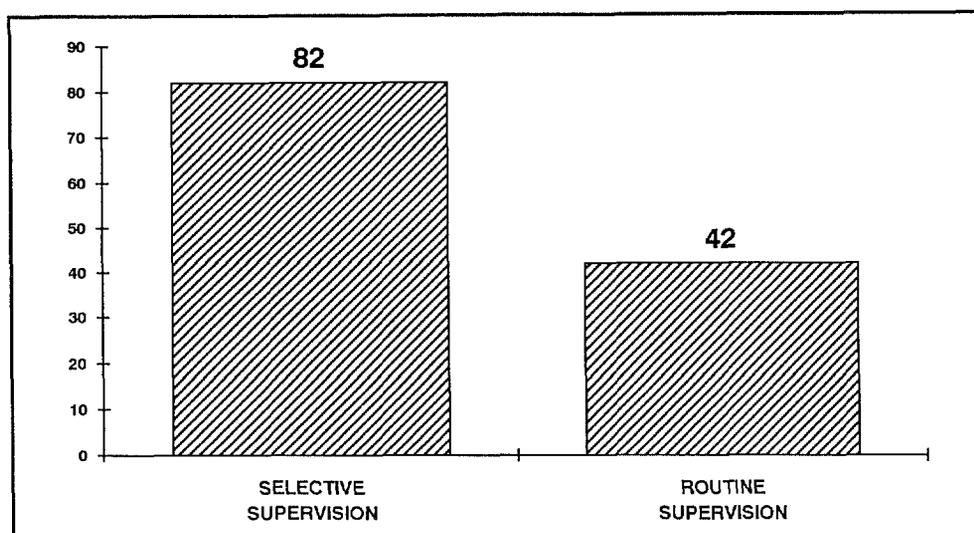
In CBD programs selective supervision is the principle of expending more supervisory resources on distributors whose performance deviates greatly from the average. More frequent or longer visits to the lowest performing distributors is hypothesized to increase their output, thereby increasing overall program performance.

In the Dominican Republic, PROFAMILIA found that CBD distributors receiving selective supervision had greater family planning knowledge than those who received group refresher training (5). The group of distributors receiving selective supervision also improved their output of couple months-of-protection (CMP).

by 45 percent. In comparison, a control group not receiving selective supervision increased output by only 12 percent. The difference in output between the two systems is illustrated in Figure 5.

During the experiment, nearly half of the distributors, originally targeted for selective supervision because they produced fewer than 60 CMP per month, improved their output to more than 60 CMP per month. As predicted, selective supervision increased program output by improving the performance of the weakest distributors.

FIGURE 5
MEAN CYP PER PROMOTER FOR THE SELECTIVE SUPERVISION
AND ROUTINE SUPERVISION GROUPS DURING 1988
DOMINICAN REPUBLIC



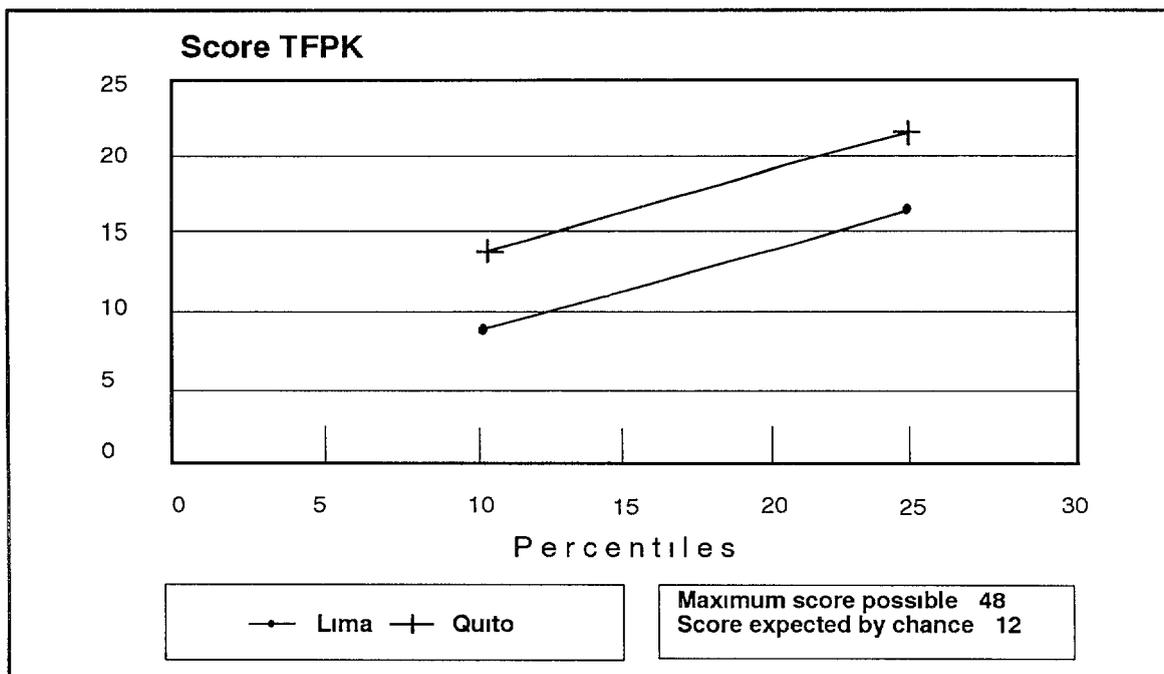
INOPAL developed effective instruments to test CBD workers' knowledge of family planning and to evaluate contraindications for contraceptive use

INOPAL I found little consensus among programs about what constituted essential family planning knowledge for CBD distributors. Training programs emphasize many different topics ranging from demography to the history of the parent organization.

Evaluation of training is also inadequate. Most tests used to evaluate the performance of CBD distributors cannot reliably discriminate between workers with adequate and inadequate knowledge. Improvement in CBD training, therefore, requires more standardization of course content and evaluation techniques.

In response to the need for better evaluation, INOPAL I developed a standardized test (FPK) to measure a CBD distributor's family planning knowledge (19). The test is a valid and reliable instrument that

FIGURE 6
FPK SCORES BY PERCENTILE
CBD DISTRIBUTORS - LIMA AND QUITO

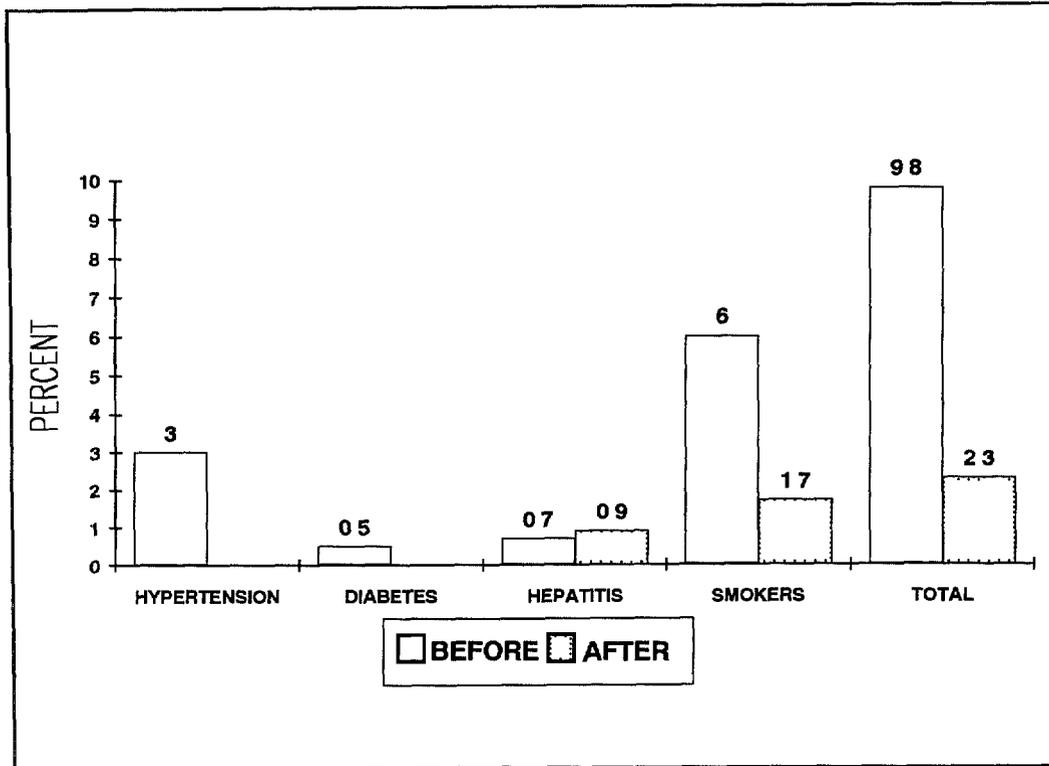


allows managers to compare trends in distributor knowledge over time, across courses, programs, and between countries. For example, applications of the test in Lima, Peru and Quito, Ecuador revealed that 15-20 percent of the distributors (see Figure 6) achieved test scores that were no better than could be achieved by chance. The results indicate that many CBD workers are not trained well enough to explain how to correctly use the contraceptives they distribute.

Donor agencies can use the test to emphasize to local agencies the core knowledge that needs to be transmitted in distributor training courses. Inside local agencies, supervisors can use the test to identify individual distributors in need of retraining. The multiple choice test was evaluated in different versions and contexts. It was found that CBD distributors with limited literacy could successfully complete the instrument and the test's simple, standard Spanish terminology can be understood by distributors in many different Latin American countries.

In the Dominican Republic, PROFAMILIA developed a form to help CBD distributors detect contraceptive risk. The distributors were trained in the contraindications of each method and the use of the form to score clients on their risk factors for oral contraceptives. Over time, as shown in Figure 7, use of the form reduced the proportion of pill acceptors with serious contraindications from ten to two percent (5).

FIGURE 7
PERCENT OF PILL USERS WITH CONTRAINDICATIONS
BEFORE AND AFTER INTRODUCTION OF SCREENING INSTRUMENT
DOMINICAN REPUBLIC



2 CBD DISTRIBUTOR RECRUITMENT

In Latin America, the typical market woman or street vendor is not a better CBD distributor than women from any other background, such as housewives or community leaders

A project with ADIM, a women's development group in Lima, Peru, tested market women and street vendors as CBD distributors (4) While ADIM recruited 131 women, just four distributors accounted for 81 percent of all CYP sold, and three of the four wholesaled condoms to shops and even to CBD workers from programs that offered their distributors less attractive profit margins. Among non-wholesalers, fifty eight percent sold less than three CYP per year and distributor drop-out rates were comparable to those found among other types of CBD distributors. Table 1 compares drop-out rates of market women with those of other types of distributors.

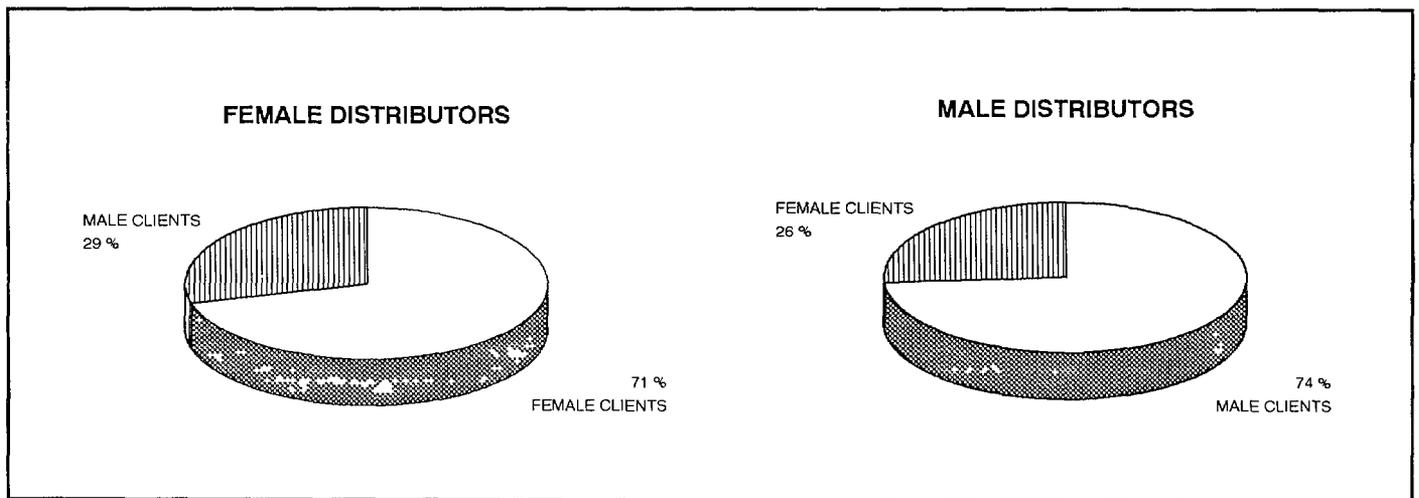
TABLE 1

CBD DISTRIBUTOR DROP-OUT RATES IN FOUR SOUTH AMERICAN PROJECTS	
PERU	CUMULATIVE DISTRIBUTOR DROP OUT RATE
ADIM (Lima market women) N = 131	47% (11 MONTHS)
INPPARES (Cities of Tacna Ilo students auxiliary nurses housewives) N = 104	44% (12 MONTHS)
INPPARES (Cities of Piura Talara Moquegua students auxiliary nurses housewives) N = 101	27% (12 MONTHS)
BOLIVIA	
CIES (City of El Alto housewives members of campesino s union) N = 42	66% (13 MONTHS)

Male use of family planning methods can be increased by recruiting men as CBD distributors

A study in Peru found that male distributors were more likely to sell condoms and serve male clients, while female distributors were more likely to sell oral contraceptives and serve female clients. Men sold approximately twice as many condoms as women, while women sold roughly twice as many pills. Training of male distributors is a potentially low cost way to extend family planning services to men (17)

FIGURE 8
COMPARISON OF USERS GENDER BY DISTRIBUTORS GENDER
CENPROF - TRUJILLO/PERU



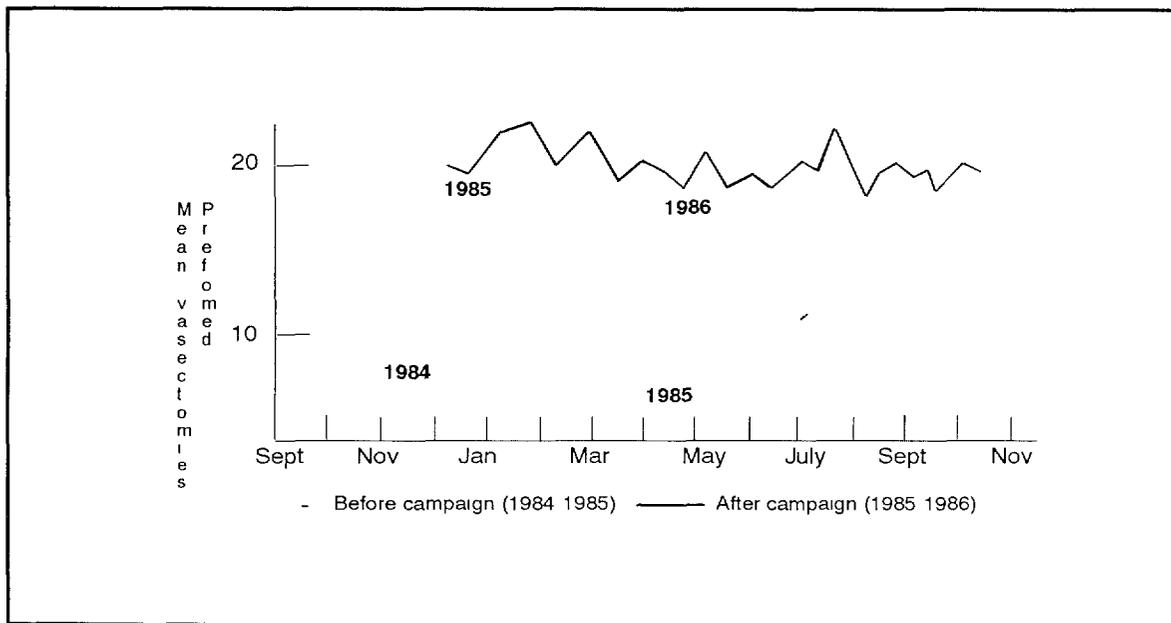
B VASECTOMY PROMOTION

Several INOPAL I projects concentrated on vasectomy promotion. Findings suggest that mass media is both effective and cost-effective in increasing awareness and use of the method. In contrast, talks on vasectomy to workers at industrial sites are costly and ineffective. "Male only" clinics have proved to be successful in Brazil and Colombia, but INOPAL I found that smaller clinics serving both sexes can attract vasectomy clients when they add special programs for men.

In promoting vasectomy, agencies should consider a mass media strategy for providing information to potential users

Mass media promotion of vasectomy in Latin America is acceptable, effective, and cost-effective. In Brazil, a campaign by PRO-PATER using advertisements in mass circulation magazines generated no negative response from readers and also attracted widespread comment in other media (9). Figure 9 shows the number of vasectomies performed in the PRO-PATER clinic before and after the campaign. The number of vasectomies rose 76 percent from the baseline to the campaign period and then stabilized at a level 54 percent higher (from 3,403 to 5,388 per year) than the baseline during the post-campaign period.

FIGURE 9
CLINIC PERFORMANCE BEFORE AND AFTER AN ADVERTISING CAMPAIGN
TO PROMOTE VOLUNTARY STERILIZATION, SAO PAULO, BRAZIL



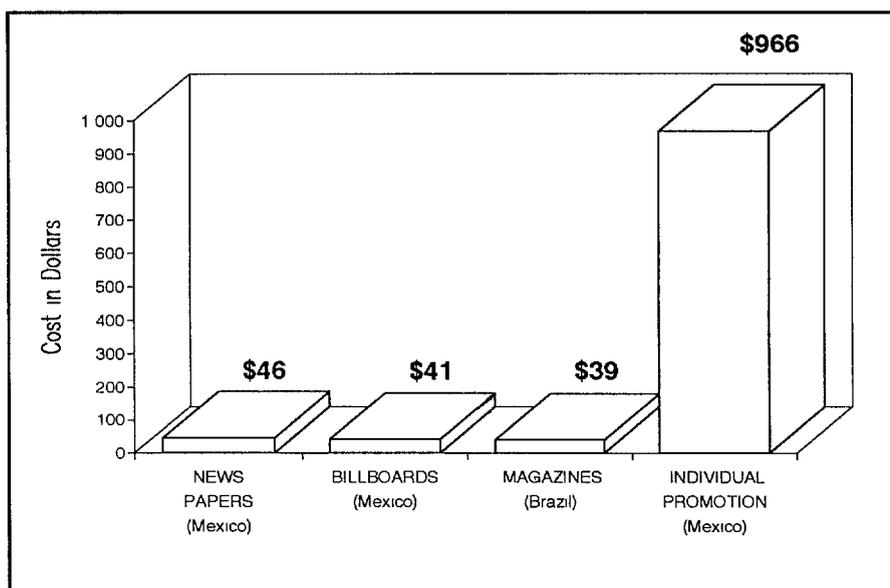
This emphasizes that mass media can be an important stimulus to the growth of sterilization programs. Unlike programs offering temporary methods, those offering permanent methods rely on essentially one-time patient contacts. Once the client has been sterilized, he/she does not return. For a sterilization program to remain active (maintain equilibrium), each acceptor must be replaced by a new acceptor, and to grow, each acceptor must be replaced by more than one new acceptor.

Interpersonal communication by satisfied users with prospective clients appears adequate to maintain equilibrium. In Brazil, on average, every vasectomy acceptor recruits one more user. At PRO-PATER, this resulted in performance plateaus that remained stable over relatively long periods of time. Mass media campaigns can expand the user base that serves as the interpersonal referral source for new clients, thus raising program output to a higher plateau.

Compared to mass media approaches, talks in factories are costly

Figure 10 shows the cost-effectiveness of mass media approaches compared to individual promotion (talks in factories). All the mass media approaches studied produced a lower cost per client than did factory talks (9,10,25).

FIGURE 10
COMPARISON OF VASECTOMY PROMOTION STRATEGIES
COST PER NEW CLIENT



It is important to note that the cost figures refer only to those contacts resulting directly from the campaigns and do not take the interpersonal multiplier effect into account. Amortizing the impact of the campaigns over a two or three-year period would result in substantially reduced costs per new client.

Messages promoting vasectomy must be carefully targeted

To be effective, messages should be directed at men who have all the children they want and should emphasize the husband's concern for his wife's health. Otherwise, mass media projects can result in large numbers of ineligible or weakly motivated clients contacting the vasectomy service. In INOPAL I projects, the advertisements that were most successful in reaching the target audience, without attracting ineligible clients, promoted only vasectomy and clearly delineated the intended recipient of the message as men who had all the children they wished and were potentially interested in a permanent method of contraception.

An operations research project with PROFAMILIA in Colombia found that vasectomy had the greatest appeal for men who showed the most concern for their wives (39). In Brazil, the most popular magazine ad showed a woman with two daughters and included a caption that read, "Now that you have all the children you want, will you stop loving your wife? (9)"



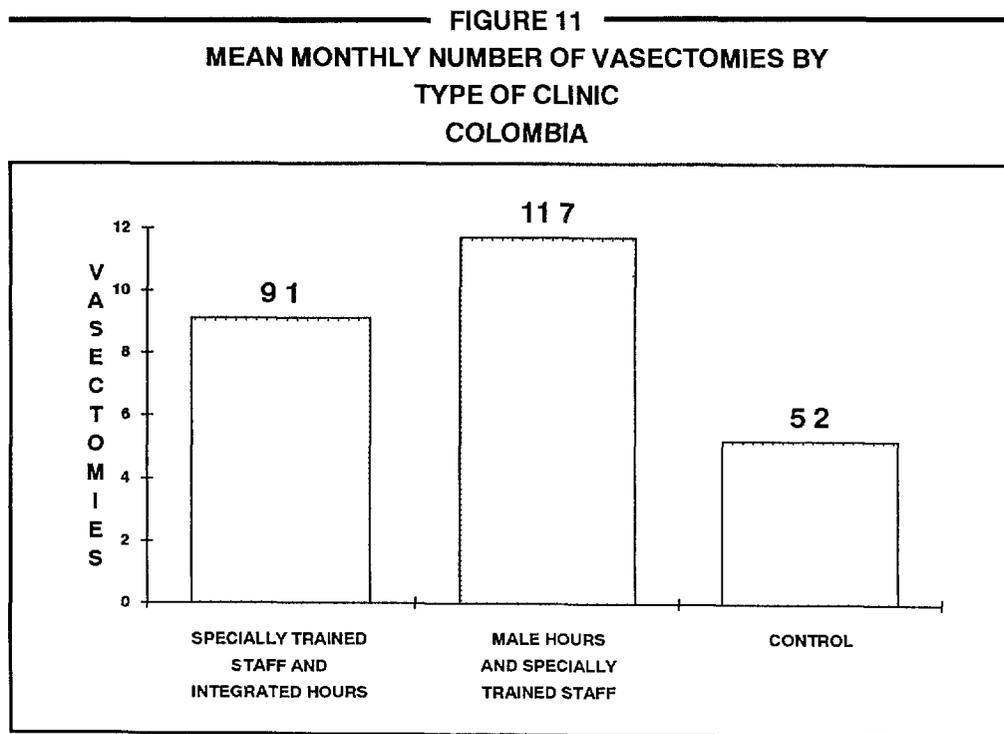
Specialized services make vasectomy more acceptable to men

PROFAMILIA, in Colombia, had limited success offering vasectomy at its traditional female oriented clinics, but it has had excellent results with facilities restricted to men. Because it is not always possible to establish exclusively male facilities, PROFAMILIA conducted a study designed to increase vasectomies in clinics that serve both sexes. The project tested two strategies. The first offered vasectomy and female family planning

services at the same time, but used special staff to provide males with counseling and services. The second used specially trained staff to work with males and offered vasectomy during hours when the facility was restricted to men only. Each strategy was tested in two clinics. A two clinic control group offered vasectomy but did not have specially trained staff or male only hours(39)

Figure 11 compares the effectiveness and the cost effectiveness of the three models. Differences in mean vasectomies performed per month between the two experimental strategies are not statistically reliable and differences in cost-effectiveness are also very small. Both experimental strategies, however, produced significantly more vasectomies than the control group.

The FEMAP project in Mexico also adds support to the importance of special staff for men. In that study, potential vasectomy clients had more confidence in the information provided by male social workers, than in the information provided by equally trained female social workers (13)



C INTEGRATED PROGRAMS

Advocates often claim that programs that integrate family planning with other health care interventions are more acceptable and effective than services that offer family planning alone. INOPAL I s

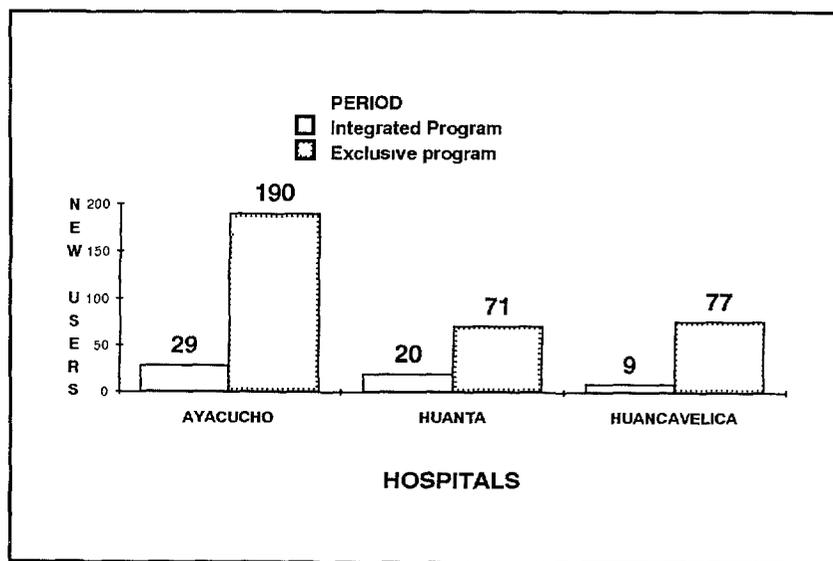
experience suggests that the results of integration are, in fact, situation specific. Some studies found that single purpose family planning services were more effective than integrated services, while the results of others verified the hypothesized advantages of integration. Underlying program dynamics appear to determine the success or failure of an integrated approach. Adding tasks to a weak service delivery system or one without excess capacity, is unlikely to yield positive results and may interfere with pre-existing services. On the other hand, when underutilized capacity exists, or the opportunity costs of adding an intervention are low, integration can be successful.

Exclusive family planning clinics can be more cost-effective than integrated services

In Peru, Ministry of Health policy required the physical and temporal integration of family planning with gynecological and obstetric services in multi-purpose reproductive health clinics. Most of these clinics had low family planning output, leading the Ministry to experiment with single purpose clinics in three hospitals that were already served by reproductive health clinics.

Once the hospitals installed single purpose clinics, almost no women desiring family planning opted for the integrated clinics. The study, therefore, compared the output of the single purpose clinics with the output of the multi-purpose clinics during the year prior to the study. Figure 12 shows that the number of new family planning users in the exclusive family planning clinics was between three and nine times as great as in the integrated reproductive health clinics during the previous year (38).

FIGURE 12
INTEGRATED VERSUS EXCLUSIVE PROGRAMS
MONTHLY AVERAGE OF NEW USERS IN THREE
PERUVIAN HOSPITALS

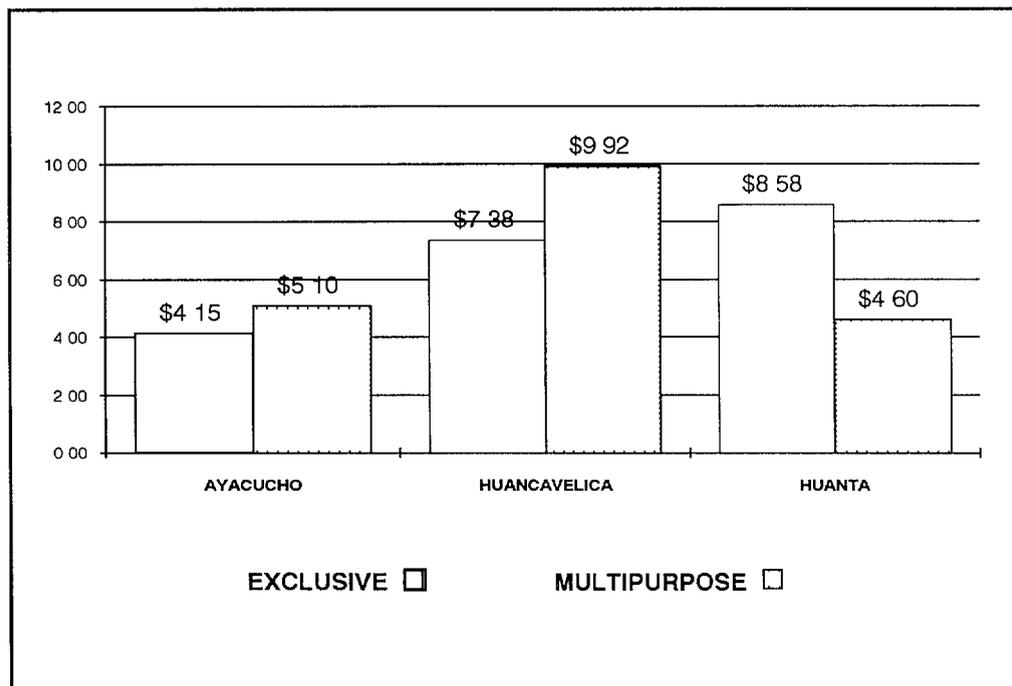


Removing family planning from an integrated setting not only increased output, it also changed the client profile. While no men ever visited the reproductive health clinics, over 30 percent of new acceptors in the exclusive clinics were men.

Hospital staff gave many reasons for the ineffectiveness of the reproductive clinics. First, they were overcrowded and often turned patients away even before family planning was added as a priority. Second, many staff members rotated through these clinics but only a few were trained in family planning. The result was that patients interested in contraception were unlikely to encounter a trained provider, even if they were not turned away due to lack of space.

The greater effectiveness of the exclusive clinics produced favorable cost-per-unit of output ratios in the two larger, 100 bed, hospitals. In the smaller 40 bed hospital, the exclusive clinic was less cost-effective than the integrated because of the smaller number of clients.

FIGURE 13
COMPARISON OF COST PER NEW ACCEPTOR IN EXCLUSIVE AND MULTIPURPOSE CLINICS IN THREE PERUVIAN HOSPITALS



The exclusive family planning clinics were effective and cost effective because they were convenient for the client. They turned no one away and the waiting time was shorter than in the reproductive health clinics.

Integration can increase the number of clients in underutilized family planning clinics

In contrast to the overcrowded clinics in Peru, integration in underutilized clinics in Bolivia appears to have had a positive effect on family planning use. The Centro de Investigacion, Educacion y Servicios (CIES) in Bolivia established five small clinics in and around the capital city La Paz. These clinics offered family planning integrated with obstetrics, gynecology, and pediatric services. CIES believed that many women first attracted for another service, would learn about family planning while at the clinic and return to become an acceptor (29).

All women of reproductive age (15-44) received family planning counseling regardless of service requested. Clinics, staffed by a physician, receptionist, and a family planning educator, were open 3.5 hours per day. For many months they were seriously underutilized, averaging only 5.3 visits daily. About 54 percent of all visits were for obstetrics and gynecology, 23 percent for pediatrics, and 33 percent for family planning.

CIES reviewed the records of 740 married women of reproductive age to determine the probability that a woman whose first visit was for another service would return to accept contraception. Approximately 21 percent of pediatric and 18 percent of gynecological clients returned to accept family planning within one year. The existence of adequate personnel and uncrowded clinics appears to have been a key to the success of the integrated services approach employed by CIES.

Integration of family planning with other health services may not be necessary to make contraception acceptable to indigenous groups

It is sometimes suggested that the acceptability of family planning can be increased if programs serving populations with low demand for contraceptives offer integrated services. Non-Spanish speaking indigenous groups are one such population. They display some of the lowest rates of contraceptive use in Latin America. In rural Ecuador, the Centro Medico de Orientacion y Planificacion Familiar (CEMOPLAF) compared integrated and non-integrated service delivery in 40 indigenous communities of the sierra (mountainous region) (3).

For the first six months, the CBD program distributed family planning only. During the second six months, volunteers added the distribution of oral rehydration salts (ORT) to their duties. It was hypothesized that integration would increase the recruitment of family planning acceptors. The study, however, failed to confirm the hypothesis.

During the family planning-only period, volunteers recruited 167 new clients. During the second six months, after the addition of ORT promotion, the number of family planning acceptors dropped to 63. The difference was statistically significant and the drop in family planning recruitment coincided with the introduction of ORT. Integration also increased the cost per couple year of protection (CYP) by 11 percent, from \$30.13 to \$33.85, and cost per new program user by 9 percent, from \$20.62 to \$22.38.

The volunteer CBD distributors in the study were housewives and small traders who devoted only a limited amount of time to program activities. It is likely that the time required to promote a new health intervention resulted in their having less time to devote to family planning and, consequently, to a reduction in output. After the experiment, CEMOPLAF discontinued promotion of ORT. Distribution of family planning recovered and several community leaders spontaneously requested that the exclusively family planning program be extended to their villages.

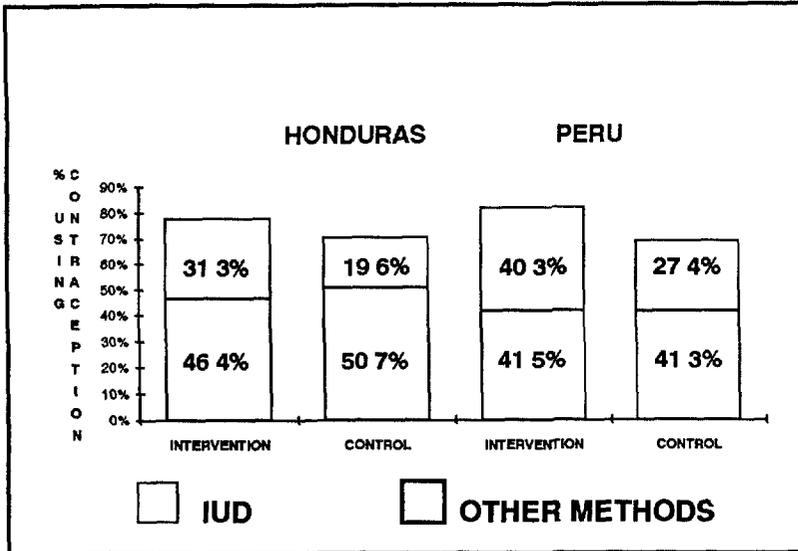
D FAMILY PLANNING SERVICES POSTPARTUM

INOPAL I experimented with adding family planning to postpartum services in Honduras and Peru. Adding family planning to other postpartum services was found an acceptable, effective, and cost-effective form of integration.

Both projects used similar designs and produced similar results (8,18). Women delivering in social security hospitals in Tegucigalpa and Lima were randomly assigned to experimental and control groups. Women in the experimental group were offered contraceptives prior to hospital discharge, while women in the control group were not (although they were available from outpatient clinics in the same hospitals). In both studies, women in the experimental group showed significantly higher contraceptive prevalence at six months postpartum than women in the control group.

FIGURE 14

HONDURAS AND PERU
COMPARISON OF CONTRACEPTIVE PREVALENCE
SIX MONTHS POSTPARTUM
INTERVENTION AND CONTROL GROUP



In Peru it was also found that women who accepted an IUD immediately postpartum were significantly more likely (78 - 59 percent) to return for their forty-day postpartum health check-up than controls

Postpartum family planning proved highly cost-effective in each country. In Honduras, the cost per point of additional contraceptive prevalence attributable to postpartum services was estimated at \$772. In Peru, the cost of an IUD inserted prior to hospital discharge was only \$9.38, compared to \$24.16 for an outpatient insertion.

Two factors influenced the success of the integrated postpartum family planning programs. In each case, adequate resources were available and the opportunity costs of adding family planning were almost non-existent. Both projects also employed family planning educators and staff trained in the provision of contraception appropriate for the postpartum period. Educators counseled women while they waited either to make prenatal visits or for discharge after delivery. Contraceptives were provided either in the delivery room (in the case of the IUD) or while awaiting discharge. In the case of an in-hospital IUD insertion, the resource used was the operating room. Since the operating room normally is not used 24 hours a day, the opportunity cost of an IUD insertion in the hospital was almost zero.

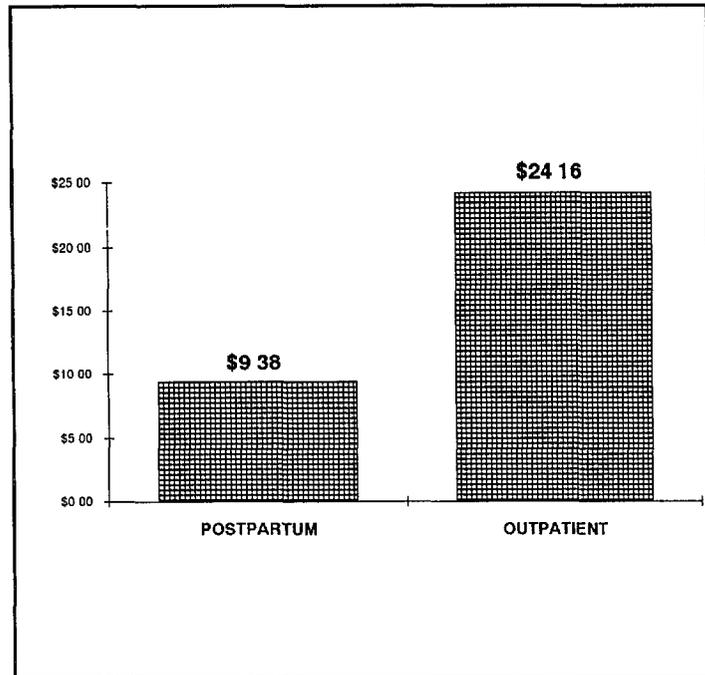
E REPRODUCTIVE RISK

In Latin America, the concept of reproductive risk has been important in convincing governments to include family planning as a public health intervention.

Researchers have developed many scales to evaluate obstetric risk. Among the most commonly cited risk factors are age (below 18 and over 35), high-order pregnancies, short birth intervals, and biomedical indicators like diabetes and hypertension.

Some controversy surrounds the utility of the reproductive risk approach. Risk scales tend to have low predictive validity and there are concerns that use of risk criteria can result in denial of services to low risk women. Findings from INOPAL projects with social security health systems in Mexico and Honduras suggest that the risk approach can increase physician participation in family planning and contribute to increases in contraceptive prevalence.

FIGURE 15
PERU
COMPARISON OF COST PER IUD INSERTION
INTEGRATED POSTPARTUM PROGRAMS VS SINGLE PURPOSE OUTPATIENT FAMILY PLANING CLINIC



Training in reproductive risk can increase physician participation in family planning

Operations research in the Honduras (IHSS) social security system trained physicians in reproductive risk concepts and provided health care providers with a checklist to help identify women's risk status. IHSS had no formal family planning program when the risk approach was inaugurated. It was chosen because IHSS felt it would be the most acceptable way to introduce family planning to medical staff. In both projects, providers increased family planning activities. In IHSS only 50% of women interviewed prior to the reproductive risk program mentioned that a doctor offered her a contraceptive method. This increased to 80% following physician training (7).

Reproductive risk programs can increase contraceptive prevalence

The Mexican Social Security Institute (IMSS) tested the impact of the risk strategy on contraceptive prevalence among postpartum women. Prevalence among women rated at high risk increased by 11% while prevalence among normal-risk women increased by 13%. In comparison prevalence among a control group of high and normal risk women increased by 1% and 4% respectively (21). Contraceptive use among low risk women actually increased after the introduction of reproductive risk strategies in Mexico and Honduras (7,21). The reproductive health perspective appears to encourage providers to offer appropriate family planning services to all women.

PROGRAMS FOR ADOLESCENTS AND YOUNG ADULTS

Increases in fertility among adolescents and young adults is of growing concern in Latin America and the Caribbean. In most of the LAC region, large cohorts have entered their reproductive years. More than 20 percent of the region's population is now between the ages of 10 and 19. While fertility has declined among older women, unwanted fertility remains high among adolescents. Survey data indicates that in most LAC countries 50-60 percent of unmarried women have had sexual intercourse by age 20, but have low levels of contraceptive use. Unmarried young women with children suffer negative social and economic consequences from unintentional childbearing. In response to the problems of adolescent fertility in the region, INOPAL I conducted research on sex education, preventing unwanted first births, and helping teens avoid subsequent pregnancies.

Life planning education programs can increase contraceptive use among sexually active young people, while not affecting age of sexual debut

A study conducted by the Instituto Mexicano de Investigacion de Familia y Poblacion (IMIFAP) in secondary schools in Mexico City tested the impact of a sex education course called **Planeando tu vida** (Planning Your Life) (28). Course contents included reproductive anatomy and physiology, physical and psychosocial

aspects of sexuality, and contraception and sexually transmitted diseases. The participatory techniques used in the course encouraged development of self-esteem, communication abilities, value awareness, and decision-making ability. Students in two schools were randomly assigned to two groups. The control group received no formal sex education in school. An experimental group studied **the Planeando tu vida** course.

Adolescents with no previous sexual experience who took the course were no more likely than controls to initiate sexual activity during the six-month study period. However, sexually active students from the experimental group were more likely to use contraceptives than were sexually active controls. The course also produced a positive change in the experimental group's attitude towards contraceptive use. The cost of the course was also sustainable. In the first year, the cost per student was \$12.62. It was estimated that the marginal cost of offering the course throughout Mexico would be as low as \$1.36 per student.

Different approaches have been used to help adolescents and young adults avoid unwanted pregnancies. These approaches can vary greatly in cost-effectiveness. Integrated youth centers were the most costly alternative tested.

In Monterrey, Mexico, Pro-Superacion Familiar Neolonesa (PSFN) compared two strategies for providing family planning to unmarried adolescents (36). The first was a community youth program that trained young adult volunteers to refer their peers to special PSFN adolescent clinics. The second alternative was an Integrated Youth Center that provided academic tutoring and classes, sports, and other recreational activities as well as family planning. The PSFN's regular CBD program served as a control for the two interventions (33).

During nine months of field testing, the community youth program recruited 112 users aged 15-22 while the integrated center served 45, and the CBD program, 249. Cost per user in the community

TABLE 2
Profile of contraceptive users 15 to 22 years of age in the experimental and control groups Monterrey, Mexico, May - 1986

Characteristic ^a	PERCENT OF USERS		
	Experimental Community Youth Program (N=122)	Experimental Integrated Youth Centers (N=45)	Control CBD Program (N=249)
Sex			
Female	5	60	94
Male	95	40	6
Age (years)			
15-17	63	47	17
18-22	37	53	83
Married	14	7	78

^a All differences between groups are statistically significant, p < .05

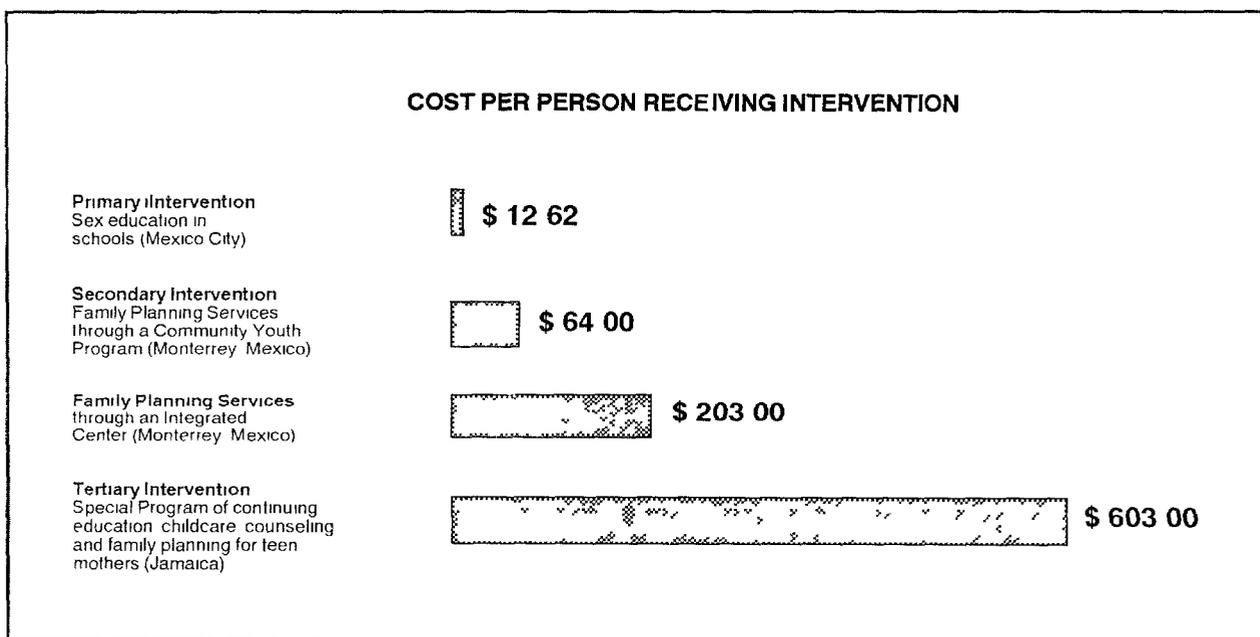
youth program was \$64, compared with \$203 in the Integrated youth center, and \$5 in the CBD program. The much lower cost of the CBD program has to be balanced against the fact that it served many fewer unmarried users and fewer young adolescents than the alternatives.

The Centro de Orientacion para Adolescentes (CORA) modelled the cost-effectiveness of three approaches to providing services to young adults in Mexico City (24). Holding output constant across approaches, a school-based model that relied on informal networks of student promoters was about 54 percent less expensive than talks on family planning at the community level. Factory-based recruitment of working adolescents was about five times as costly as student promoters and four times as costly as community family planning talks.

Programs to help delay second or repeat pregnancies among young adults have been successfully tested

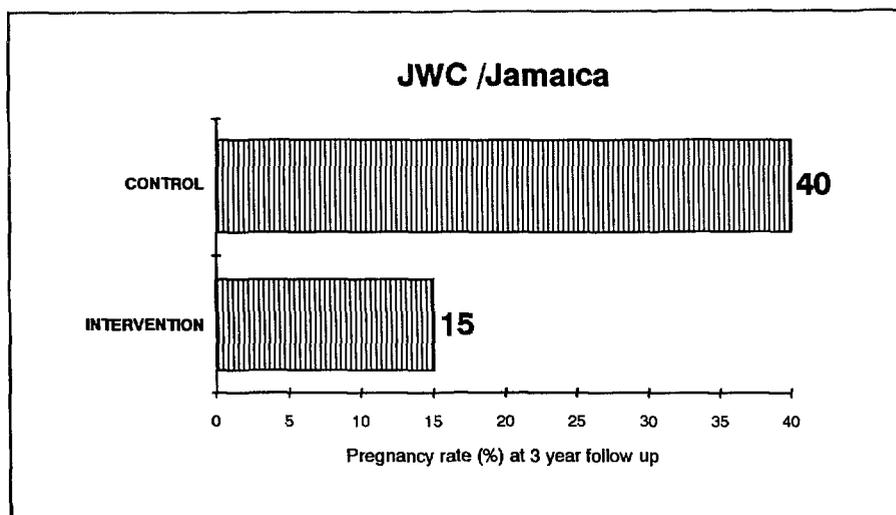
The Jamaica Women's Centre evaluated its program for young women who become pregnant while still in school. The Centre's goal is to help these young women return to school after the birth of their children. The program provides family planning counseling, continuing education, and child care for teenage mothers between the ages of 12 and 16 (22).

FIGURE 16
COMPARING THE COST OF THREE LEVELS OF INTERVENTIONS
TO HELP ADOLESCENTS AVOID UNWANTED PREGNANCIES



The evaluation compared women who had graduated from the program within the past three years and a control group who had also had children during the period but had not participated in the program. Program graduates were more successful in avoiding subsequent pregnancies and in completing their educations than non-participants. Only 15 percent of graduates had a second

FIGURE 17
TARGETING ADOLESCENT WOMEN TO POSTPONE
SECOND BIRTHS



pregnancy during the three-year period compared to approximately 40 percent of non-participants (see Figure 17). A total of 55 percent of Centre participants returned to school after their pregnancies compared to 15 percent in the comparison group. Total cost per program participant was \$603 per year, including the school program, nursery and day care, outreach, family planning, and loans to participants.

G AIDS

Incorporating AIDS educational activities into family planning service delivery has been positively received by agency staff and clients

In Mexico, MEXFAM found that AIDS prevention could be added to the organization's existing clinical and CBD programs without disruption of their regular work and without opposition from staff. Also, based on client interviews, no negative effects on MEXFAM's image could be traced to the agency's new activities. In fact, clients welcomed the involvement of MEXFAM in AIDS (27).

In Colombia, PROFAMILIA found that CBD workers who dedicated a fixed percentage of their time to AIDS-related activities were able to maintain the same levels of contraceptive sales, while establishing condom distribution posts in meeting places of individuals with high risk behaviors (26).

Mass media projects are effective in improving knowledge about AIDS transmission and prevention, but are less successful in changing behavior, unless they target individuals with high risk behaviors

In Colombia, PROFAMILIA conducted a mass media campaign on AIDS and STD prevention (26) The general population's knowledge of condom use for AIDS prevention increased from 9% to 30% In general PROFAMILIA's institutional image did not suffer any negative effects from its association with the campaign In fact, the public attitude towards condoms was actually more positive after the campaign, although use did not change significantly

A mass media campaign in Peru in collaboration with the Ministry of Health was also able to reduce misconceptions about AIDS transmission although it had no impact on condom use (15)

In contrast, in Mexico a mass media campaign sponsored by CONASIDA the National Council on the Prevention of AIDS, was able to increase knowledge about AIDS, decrease misconceptions about the disease, and produce shifts to safer sexual practices among university students, homosexual men and prostitutes (37) Condom use increased from 21 to 33%, 27 to 43% and 44 to 57% in these respective groups The reason for success appears to be careful targeting of messages to individuals with high risk behaviors

III IMPACT ON FAMILY PLANNING SERVICE DELIVERY IN LATIN AMERICA AND THE CARIBBEAN

The purpose of family planning operations research is to improve service delivery systems. Most stringently, it can be argued that the only success indicator for an OR project is expansion or, at least, continuation of the intervention by the family planning organization. Thirty-seven INOPAL I projects had interventions designed to change delivery systems. A total of 25 (71 percent) of the 37 interventions were continued (partially or completely) and 17 (48 percent) were expanded within the original institution, or across institutions, some internationally. The following sections discuss some of the projects that changed family planning service delivery in countries around the region.

Barbados

The Barbados Family Planning Association (BFPA) tested two alternatives for providing contraceptives to factory workers. In one group of factories, BFPA trained volunteers to distribute contraceptives. A second group of factories received periodic visits from paid promoters. Visits from paid promoters were more effective in recruiting new clients and were more cost-effective than training, supplying, and supervising the larger group of volunteers permanently on-site. BFPA expanded the system of visits from paid promoters to additional factories (2).

Bolivia

The Centro de Informacion, Educacion y Servicios (CIES) tested planning posts that offered services in trade union facilities. Family planning is still controversial in Bolivia, and unions are important in shaping public opinion. The posts had only modest success, but were continued with Family Planning International Assistance and CIES' own funds. The major achievement of the project was to obtain a commitment to family planning from the factory workers, teachers, peasants, and university students unions (29).

Brazil

In Brazil, INOPAL I worked with AMICO, a Health Maintenance Organization (HMO), to determine if it would be cost-beneficial to add family planning to services provided to subscribers. The study demonstrated that family planning would become cost-beneficial in less than three years (16). The methodology used in the study became the basis of the Technical Information on Population for the Public Sector (TIPPS) model. The TIPPS project continued to work in Brazil with the result that 17 HMOs adopted family planning by 1990.

PRO-PATER of Sao Paulo is the largest vasectomy service in Latin America. The organization relied on word of mouth advertising to attract clients. An OR project demonstrated that magazine advertising could attract large numbers of new users (9). PRO PATER changed its policy to include mass media advertising. The agency followed the magazine project with a successful television promotion campaign conducted in collaboration with Johns Hopkins University.

Colombia

PROFAMILIA of Colombia wished to increase the number of vasectomies. A project compared male only clinics, clinics that served men and women, and integrated facilities whose staff was trained in vasectomy counseling. The exclusive model was the most effective (39). As a result, PROFAMILIA opened additional male clinics in the cities of Barranquilla and Cartagena.

Dominican Republic

PROFAMILIA of the Dominican Republic conducted a project to improve supervision of CBD workers. The study demonstrated that distributors receiving selective supervision sold more Couple Years Protection than distributors receiving routine visits (5). PROFAMILIA now uses selective supervision in all CBD programs. A second project tested different counseling options for provider-dependent contraceptive methods. Cost-effectiveness analyses led PROFAMILIA to institutionalize small group counseling (6).

Ecuador

CEMOPLAF, an IPPF affiliate, developed a model for serving indigenous groups in rural areas. The model consists of using community leaders as CBD distributors, paid home visitors, and small clinics in district capitals (3). The success of the project led IPPF to expand the model to other villages. World Neighbors also added support for CEMOPLAF activities in indigenous areas.

Grenada

The Planned Parenthood Association (GPPA) undertook a project to increase contraceptive use among postpartum women. The intervention consisted of home visiting and the offer of contraceptive services by field workers. Two home visiting schedules (one visit only vs. four visits) were compared. A control group received no home visits. Both experimental groups had significantly higher contraceptive prevalence than the controls. However, there were no differences between intervention groups. GPPA continued the project using the more cost-effective single visit strategy (14).

Guatemala

APROFAM, another IPPF affiliate, conducted a study to test new training and supervision strategies in an effort to improve the performance of CBD distributors in indigenous areas. The study compared competency based supervision and on-site retraining to a traditional system. The intervention was successful in increasing distributor knowledge and contraceptive sales. APROFAM adopted the new supervision system for its CBD programs (35).

Honduras

The Honduras Social Security Institute (IHSS) experimented with an in-hospital program that integrated breastfeeding education with contraceptive services. Contraceptive prevalence and duration of breastfeeding were higher among the experimental group than among controls. There were fewer subsequent pregnancies in the experimental group and children of experimental group mothers also had lower levels of morbidity and mortality (7). IHSS extended the integrated project throughout the social security health system.

Mexico

INOPAL I influenced policy in some of the country's most important family planning providers, including the Social Security Institute (IMSS) and MEXFAM, an IPPF affiliate. The IMSS tested a risk approach to family planning. Pre-natal clients were oriented in reproductive risk. There was a significant increase in family planning knowledge and acceptance (21). IMSS extended reproductive health services to all hospitals and health centers. The Institute went on to provide training on reproductive health to seven other Latin American countries.

INOPAL I helped MEXFAM institutionalize cost-effectiveness analysis in management training. Middle managers who received training and information on costs were able to improve the cost-effectiveness of their units (20). MEXFAM adopted the new system and now conducts routine service management training.

A sex education project for young adults was conducted with Pro-Superacion Familiar Neolonesa (PSFN) in Monterrey. The study compared the effectiveness and cost-effectiveness of the existing CBD model with an integrated youth center approach that provided many services other than family planning. The CBD model was more cost-effective (36). At the end of the project, PSFN placed youth services under the CBD program. With U S A I D funds, PSFN expanded the project to other areas.

PROFAM, a marketing group, conducted an OR project in supermarkets that compared pharmacy department shelf display with shelf plus checkout counter display. Sales in the shelf and check-out displays were nearly four times greater than in the shelf only displays. The supermarket chain began condom sales at checkout counters in 38 stores (11).

Paraguay

CEPEP, the IPPF affiliate, worked with INOPAL I to extend their program to rural areas. OR tested three delivery systems for effectiveness and cost-effectiveness: clinics, rotating family planning posts and CBD distributors. Based on the results, CEPEP adopted a model that mixes all three elements (23,40).

Peru

Projects in this country influenced policy in both the public and private sectors. INPPARES, the IPPF affiliate, with INOPAL I help, improved the effectiveness and efficiency of CBD medical back-up posts, and determined the most cost-effective frequency of post functioning (32). The post system was adopted by other Peruvian private voluntary organizations.

The U S A I D /Peru Population Sector Strategy included two INOPAL I projects as models for additional replication. The Vecinos Peru project demonstrated the effectiveness of public/private sector collaboration in improving family planning services in the Ministry of Health. The project also demonstrated that exclusive family planning clinics in larger hospitals were more effective and cost effective than integrated services in the same settings (38). The project paper specifies the development of up to 50 exclusive family planning clinics in MOH hospitals.

A project with the Peruvian Social Security Institute (IPSS) demonstrated that postpartum IUD insertion increased contraceptive prevalence and reduced family planning costs. IPSS extended the model to other hospitals in 1991. The Mission strategy encourages the expansion of postpartum services (18)

AIDS projects

The INOPAL I project conducted some of the first AIDS mass media prevention campaigns in Latin America, including those in Mexico and Peru. INOPAL I staff also contributed to the preparation of AIDS Medium Term Plans for WHO, and helped introduce social science research techniques to AIDS prevention strategies.

In Colombia, PROFAMILIA experimented with training CBD promoters to work with groups at high risk of AIDS (26). The agency developed a video about AIDS that is still shown, and continues to provide education and condoms at places where high risk groups congregate.

INOPAL helped the Mexican government to develop an AIDS prevention campaign using radio, TV, and newspapers. The campaign generated controversy which attracted additional media coverage for the message "use condoms." Survey results suggested that the campaign increased condom use among members of high risk groups (15).

In Peru, an AIDS prevention project involving over 600 registered prostitutes increased condom use and reduced the annual incidence of gonorrhea in the group from 20 percent to 3 percent. The project is being continued by the San Marcos University (1).

IV LESSONS LEARNED IN PROJECT DEVELOPMENT

A Identification of OR Opportunities

INOPAL staff identified opportunities for operations research projects by visiting service delivery agencies, U S A I D Missions, and other donors. The most important lessons learned about identifying opportunities included

■ **It is important to visit service delivery sites and talk to agency staff at all levels. Service providers often have the clearest understanding of problems and make the most practical suggestions for solutions.**

It often takes several visits to develop a proposal. The proposal development process is most rapid when project staff have previous experience with the client. The proposal development process is usually faster when the U S A I D Mission and other donors help identify priority agencies and topics.

B Research Designs and Methods

INOPAL defined operations research as the study of factors that were under the control of managers. It focussed on the processes that produce outputs. Most studies examined program operating systems such as the training of personnel or concentrated on factors such as the location and frequency of services. The lessons learned include

■ **Rigorous methodologies are possible to apply under field conditions, but interventions should be as simple and low cost as possible. Elaborate interventions are difficult to implement and reduce the probability of scaling up.**

Surveys are costly and feedback slow. The use of service statistics permits rapid feedback of results, makes OR less costly, and more accessible to agencies.

C Provision of Technical Assistance

The quality of an OR project often depends on the quantity of technical assistance provided. INOPAL I was able to provide large amounts of TA by using the following mechanisms:

■ **U S graduate fellows and local researchers can be used to provide routine technical assistance**

The budgets of INOPAL projects included funds for researchers. Most agencies preferred to have a researcher on staff than to hire consultants. Research supervisors were often hired permanently after the project ended, furthering the goal of institutionalizing OR.

Original designs of OR projects are often compromised, requiring modifications along the way. It is better to change the intervention than continue a futile service delivery exercise.

TA should include periodic seminars with agency staff. Managers most closely identified with the project should receive regular briefings.

Collaboration with other agencies makes it possible to provide expert TA to projects in areas other than operations research.

D Dissemination

INOPAL I learned that dissemination was key to both increasing acceptance of OR as a program activity, and applying lessons learned on a wider scale.

■ **Interpersonal communication plays an important role in getting projects scaled-up. Researchers must be able to explain projects to managers and to lobby for their expansion.**

OR seminars often stimulate requests for projects from new groups.

Videos can be effective in communicating about OR, but only a limited number of opportunities arise where they can be shown.

E Scaling-up

Almost half of the projects conducted by INOPAL were replicated on a larger scale. Project continuation, scaling-up, and adoption by other agencies depends on (a) the relevance of the research conducted, (b) dissemination of research results, and, (c) the existence of replication mechanisms.

The more control a manager has over an independent variable, and the more important the dependent variable, the greater the potential for replication.

A successful project will have low potential for replication if administrators see it as excessively costly, complicated, or irrelevant to priorities.

Program decision makers must be made aware of the results of a project before it can be replicated. Dissemination must be carried out informally and formally, and must be frequent.

Replication between agencies is facilitated by incentives from donors.

Organizations often need TA to successfully replicate a project on a larger scale. This can be done by involving original project staff as consultants.

Involvement of other CAs and donor agencies is a good way of insuring continuation and scaling-up. Organizations are willing to continue programs they helped develop.

F Institutionalization of Operations Research

Institutionalization of OR is a long and complex process. It includes convincing managers of the value of OR, strengthening the research capacity of agencies, exposing local researchers to OR, and persuading donors to support program research activities.

Family planning organizations come in different sizes and varying degrees of sophistication, and institutionalization goals must vary by agency. In countries with strong government programs, it may be possible to add OR to already existing research units inside public sector organizations. In a large private organization like PROFAMILIA of Colombia which has a long tradition of operations research, little more is necessary than

the continued funding of research projects. In contrast, in smaller agencies, the goal should be to teach managers to use data for decision making. Important lessons are



Do multiple projects with organizations that incorporate OR lessons into agency policy

Involve managers in all stages of OR project design

Create an OR community. Use newsletters so agency staff can read about their own and other projects.

Hold conferences where they may meet others involved in OR.

The location of INOPAL I staff in LAC countries was the most important factor in program success. Staff were in close contact with service delivery agencies, and were familiar with local family planning needs and OR opportunities. Being headquartered in regional countries also allowed staff to devote large amounts of time to technical assistance. Establishing field offices is probably the most important recommendation that INOPAL can make to the Office of Population about conducting operations research.

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