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MULTIPLE INTERVENTIONS:

A LESSON ON UTILITY AND WEAKNESSES
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MULTIPLE INTERVENTIONS: A LESSON ON UTILITY AND WEAKNESSES

A question posed by intervention programs is the extent to which a combination of services provides a stronger incentive for adoption than a single intervention. The project described in this report was designed to test the extent to which one intervention promoted or inhibited adoption of others.

The range of services or information provided in multiple intervention programs cover the full spectrum of health needs (Arnold and Engel, 1980; Berggren et.al., 1981). Generally, there is a central focus with supplemental services intended to enhance that focus. The project described in this report had increased family planning as its primary objective. Family planning programs in developing countries have expanded beyond a network of clinics to reach clients in their homes through what is called "community-based" distribution programs (Fullam, 1975). The approach involves home visits by a health service worker or family planning motivator on a regular basis at which time family planning information is provided and contraceptives are made available to clients (Micklin, 1976). The clinic is used to render services which cannot be provided with home delivery. Community-based contraceptive distribution networks have proven to be effective in a number of countries. (Davis and Louis, 1975; Echeverry, 1975; Huber et.al., 1975). The project described in this report built upon the experience of community-based programs by including public health and nutritional information along with contraceptive supplies (see Taylor and Takulia, 1971 and Taylor et.al,

1976). The underlying theme posited that contraceptive distribution to the home has a basic negative connotation; the sole aim of contraceptive distribution is to reduce the number of pregnancies. When contraceptives are delivered along with public health and nutritional information, the thrust shifts from the negative pregnancy prevention objective to a positive maternal and child health theme. The central focus is upon health, with birth spacing viewed as a means by which improvements in health of the mother and other siblings can be achieved (see MacCorquodale and deNora, 1977).

DESIGN

The project was conducted in the Dominican Republic through the Ministry of Health under the direction of the National Council on Population and the Family (CONAPOFA). The 1,000 married women who participated in the project ranged in age from 16 to 44. Prior to the project, each woman had at least one pregnancy which resulted in a live born child.

Communities in four provinces were included in the project, with the range of services provided for participants varied by zone. The 250 participants in San Juan communities (Zone A) received three services: family planning, public health information and nutritional information. Participants in District Nacional (Zone B) received all services except nutritional information. For Peravia (Zone C) public health information was not provided but participants did receive family planning supplies and nutritional information; those in El Seibo (Zone D) received only family planning supplies and information. In effect, Zone D served as control with no interventions other than family planning, while each of the other zones received one or more interventions plus family planning. The model for service distribution by zone is shown in Figure 1.

FIGURE 1

FACTOR ANALYSIS MODEL ACCORDING TO DISTRICT AND
TYPES OF INTERVENTION

Zone	District	Interventions		
		<u>Family Planning</u>	<u>Nutrition</u>	<u>Public Health</u>
A	San Juan	Yes	Yes	Yes
B	D. Nacional	Yes	Yes	No
C	Peravia	Yes	No	Yes
D	El Seibo	Yes	No	No

A service worker designated as a promoter, was employed and trained for each community by the National Council on Population and the Family. Arrangements were also made for a supply source within the zone and additional training during the project. The additional training and briefings took place in Santo Domingo and were provided by medical school and public health faculty.

The promoter contacted each participant in her community on a monthly basis. Each participant was offered contraceptive supplies and family planning information. Zones A, B, and C received either or both public health and nutritional information. Nutritional information was designed to improve preparation and use of indigenous food items for the diet of children; public health information included prism viewer presentations on methods for coping with fever and diarrhea, the benefits of vaccinations and

innoculations, as well as material and discussion on waste disposal and water sealed toilets. For each case in Zones A, B, and C the central theme was presented as improvement in the health of mother and children. Participants in Zone D received no information or instruction on nutrition or public health. For Zone D, the only service provided was contraceptive distribution and information on family planning. In Zones A, B, and C, referrals to a clinic were made for family planning concerns as well as public health needs and, where necessary, for nutritional assessment of mothers and children. Zone D participants were referred to a clinic only for problems associated with contraceptive use and when sterilization was selected as a family planning method.

Hypotheses for the project proposed that: (1) The greater the range of interventions provided, the more likely participants would be to accept family planning and (2) the inclusion of public health and/or nutritional information would decrease the reported incidents of maternal and child health problems.

After an initial survey in which participants were identified, the delivery of services began in July 1979 and continued for a period of 18 months. Monthly reports were prepared on each participant and forwarded through field supervisors to the National Council on Population and the Family (CONAPOFA). Additional details on project design are available in the project completion report (Ballweg and Baez, 1982).

PROCEDURE

The factor analysis model afforded the opportunity to examine individual and collective variation according to intervention at the beginning and at the end of the project. The following procedure was used: each intervention

was coded as either a "1", or a "0" at the time of the initial survey and at the end of the project. For example, a value of "1", described a subject who used a family planning method and a "0" indicated nonuse. By dividing the sum of scores by the number of participants contacted at those two points in time, a mean was established. Changes in the mean number of users before the start of intervention and at the end of the project were tested for statistical significance by a paired variable t-test, with 0.05 or lower described as significant.

RESULTS

It is evident from data presented in Table 1 that a significant number of project participants adopted a family planning method. Family planning was provided in all zones, and all zones showed a statistically significant increase.

It was hypothesized that the inclusion of public health and/or nutritional information would influence favorably the number of family planning acceptors. The hypothesis was not supported. As shown in Table 1, the highest rate of increased family planning acceptance was in Zone D where only family planning was provided. Conversely, the smallest increase in the number of family planning acceptors was found in Zone A where both public health information and nutritional information was provided in addition to family planning. Offering only one intervention in addition to family planning also failed to produce a family planning acceptor rate as high as was found when family planning only was provided. When public health information was included with family planning (Zone C), the rate of increase was only slightly better than the combination of public health and nutrition,

Table 1
SIGNIFICANCE LEVELS FOR REPORTED CHANGES
IN FAMILY PLANNING ACCEPTANCE

<u>Zone</u>	<u>Mean Score</u>		<u>Change</u>	<u>T-Value</u>	<u>Significance</u>
	Beginning	End			
A	.1672	.2590	.0918	2.64	.032
B	.3678	.5960	.2282	4.72	.000
C	.3911	.4961	.1050	2.71	.005
D	.2685	.5933	.3248	5.99	.000
All	.2988	.4861	.1873	8.03	.000

Table 2
SIGNIFICANCE LEVELS FOR REPORTED CHANGES
IN CHILD HEALTH

<u>Zone</u>	<u>Mean Score</u>		<u>Change</u>	<u>T-Value</u>	<u>Significance</u>
	<u>Beginning</u>	<u>End</u>			
A	.2294	.0119	-.2175	4.99	.000
B	.6939	.3221	-.3718	6.22	.000
C	.3044	.2394	-.0650	0.78	.565
D	.7603	.6534	-.1069	1.18	.233
A11	.4970	.3064	-.1906	6.12	.000

despite the fact that the highest proportion of family planning acceptors at the beginning of the project were found in the zone. Nutritional information combined with family planning (Zone B) produced better results in family planning acceptance than any other combination intervention, although lower than family planning alone.

Failure to find support for the first hypothesis indicated that a combination of interventions was not as effective in the promotion of family planning acceptance as single intervention involving family planning information and contraceptive supplies only. An explanation might be that multiple interventions distracted participants from the family planning objectives.

CHILD HEALTH

The second hypothesis proposed that maternal and child health would be favorably influenced by multiple interventions. The same procedure was followed as with family planning. During each monthly home visit by the promoter, mothers were asked if one of her children was suffering from a physical ailment, including diarrhea or gastroenteritis, bronchitis or cold, malnutrition, intestinal parasites, laryngitis, or tonsillitis. During the first and last month of the project affirmative responses were assigned a value of "1" and a value of "0" was designated when no illness was reported. Results of the paired variable t-tests for child health are reported in Table 2.

In two of the four zones, significant decreases in illnesses among children were found. In Zone A where mothers received both nutrition and

public health information along with family planning and in Zone B where nutrition information was provided, the decreases were statistically significant. For Zone C where only public health and family planning was provided and Zone D where services were limited to family planning, the reported frequency of child illnesses was lower but not at the degree that was statistically significant.

The findings show that the nutritional information was more associated with decreased frequency of illness than was public health information. The availability of family planning did not appear to have a major impact on child health. (It should be remembered that, when family planning was provided in addition to public health or nutritional information, the approach was to describe family planning as an opportunity to promote better health for existing children).

MATERNAL HEALTH

The presentation of public health information failed to impact favorably on maternal health. These findings are presented in Table 3. Data indicated that zones where public health information was presented (A and C) showed the least reported change in maternal health. In fact, slightly more maternal health problems were reported in Zone C at the end of the project than at the beginning. At the same time in the zones where nutritional and family planning information were combined (Zone B) and the zone where only family planning was provided (Zone D), statistically significant improvements in maternal health were reported.

Table 3
SIGNIFICANCE LEVELS FOR REPORTED
CHANGE IN MATERNAL HEALTH

<u>Zone</u>	<u>Mean Score</u>		<u>Change</u>	<u>T-Value</u>	<u>Significance</u>
	Beginning	End			
A	.0598	.0171	-.0427	1.68	.096
B	.4441	.1857	-.2584	5.41	.000
C	.1419	.1448	.0029	-.07	.663
D	.5966	.1758	-.4208	8.53	.000
All	.3106	.1234	-.1872	6.32	.000

Data indicated a strong relationship between women who began use of a family planning method during the project and those who reported less health problems. It may be that the use of a pregnancy prevention method afforded the opportunity for the mother's body to recover from the last pregnancy or, it may be that health tends to improve when the threat of an unwanted pregnancy is removed.

The availability of nutritional information appeared to impact favorably on the health of both mother and child. While it is surprising that the same was not true for public health information, there may be several explanations. First, the mother has more direct control of food preparation and diet, particularly when information involves better use of indigenous foods. The same may not be true for public health information. While techniques for coping with diarrhea and fever may be under the control of the mother, many public health improvements require cooperation of the spouse or, in some cases, the community.

DISCUSSION

A number of lessons were learned during the implementation phase of the project. First, it is evident that personnel time required to provide multiple services to a client is greater than the time required for a single intervention. This results in less emphasis being placed on each component. If a community service worker is able to deliver a range of interventions as easily and effectively as a single item, the units must be so closely linked and interrelated that time devoted to one complements the others.

A second observation is that participants tend to be selective in the extent to which they identify with services. The extent to which they internalize the message has a great deal to do with success. It became

evident as the project developed that women found it easier to identify with nutrition information. It was possible to implement changes in their food preparation area with information received. At the same time, public health information, as it related to treatment of illness and measures to improve sanitation, could not be tested immediately. Sometimes additional financial resources were required if the woman wanted to use some of the information received. In other cases, the consent and support of the husband or other family members was required before use of the information could take place. For a multiple intervention program to be successful, it is important to identify not only needs of participants but also what the participant perceives as important to personal and family wellbeing.

Linked closely with the observation of selective perception by participants is the desirability for client involvement in project design. Two-fold benefits can be derived: First, the possibility of unacceptable or redundant services is reduced along with increased probability that items which are included are perceived as relevant. Second, and of equal importance, is the possibility for continuity of the project after the original term ends. Citizen involvement in design somewhat limits standardization but is rewarding at other levels.

Inclusion of family planning information and contraceptive supplies with the project described in this report attracted unexpectedly strong support and acceptance whether offered alone or in combination with other material. The original expectation was soon dispelled that a negative image of family planning might emerge if not incorporated with other health services. Whether offered alone or in combination with other material, family planning was well received. There appeared to be a knowledge vacuum--or at least a

deficit--despite media efforts and the availability of both government and private family planning clinics throughout the country. Providing one-to-one contact in the home appears to fill the need.

An interesting (and unexpected) relationship which emerged during the project was the association of improved maternal health with family planning acceptance. Women who used a contraceptive method reported less personal illness than those who were not acceptors. The association may or may not describe a cause-and-effect relationship. Negative "side effects" associated with contraceptive use may have a counterpart in positive effects. It is expected that extended intervals between pregnancies affords the body an opportunity to reestablish defenses against health problems. Whether the removal of the threat of an unwanted pregnancy manifests itself in a more positive psychological attitude, and whether this also is associated with improved physical health, was not a part of the project. The suggestion of psychological wellbeing and lower reported health problems emerges because participants who received only family planning demonstrated an improvement pattern similar to those who also received nutritional and public health information.

Costs associated with the delivery of services to the home are higher than those provided through the media or clinics. A benefit is that clients who are not subjected to the media or do not have access to clinics can be successfully contacted in the home. A measure of project success yet to be tested is the extent to which information delivered to homes diffuses within the neighborhood and community. Successful diffusion of program content can drastically reduce unit costs of home-delivery projects. Combining services delivered to the home also reduces unit costs. Evidence from the project reported here demonstrates both strength and limitations for multiple intervention approaches.

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