

**USING OPERATIONS RESEARCH TO SOLVE
REPRODUCTIVE HEALTH PROGRAM PROBLEMS**

MEXICO CITY, MEXICO

A

OPERATIONS RESEARCH FINAL REPORT

USING OPERATIONS RESEARCH TO SOLVE
REPRODUCTIVE HEALTH PROGRAM PROBLEMS

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SUMMARY

The Instituto de Seguridad y Servicios Sociales para los Trabajadores del Estado (ISSSTE) provides health services to approximately nine million beneficiaries and to about 45% of current contraceptive users in Mexico. In 1992, as part of the Service Delivery Expansion Project, the ISSSTE started receiving international funds to strengthen its reproductive health program. Within this context, the ISSSTE thought that an operations research program could help test strategies for scaling up in a second phase.

To implement the operations research program, ISSSTE circulated a call for operations research proposals among clinics and hospitals in nine Mexican states. Fourteen proposals were received, and four were selected for funding of approximately US \$5,000 each. Two proposals intended to study the effects of systematically offering reproductive health services in out-patient clinics, one proposal tested strategies to establish services for adolescents, and the fourth proposal sought to decrease the high incidence of C-sections and increase the use of post-cesarean family planning.

The results of these projects were presented in an end-of-project workshop in February, 1997. This report presents these results.

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USING OPERATIONS RESEARCH TO SOLVE REPRODUCTIVE HEALTH PROGRAM PROBLEMS

I INTRODUCTION

In 1992, Mexico's National Population Council (CONAPO), and the United States Agency for International Development (USAID) signed a Memorandum of Understanding to collaborate in the implementation of the Service Delivery Extension Strategies project (SDES). As part of this agreement, the main providers of family planning services, both public and private, started receiving funds to increase access to and quality of family planning services.

The Instituto de Seguridad y Servicios Sociales para los Trabajadores del Estado (ISSSTE) provides services to approximately nine million beneficiaries and plays a prominent role in the provision of family planning services. In 1994, ISSSTE provided family planning services to 133,469 new users and 678,000 active users, mainly hormonal methods (22%), the IUD (34%) and surgical methods (44%). Its resources include 1,174 service delivery units and 35,983 employees, including 7,630 general practitioners, 5,954 specialized physicians, 17,405 nurses and 4,994 paramedics.¹

To strengthen its reproductive health services within the SDES project, ISSSTE created a new Direction of Reproductive Health and Maternal Child Health and, with funding from Pathfinder and AVSC, a wide variety of activities were initiated including training service delivery personnel on contraceptive methods and counseling techniques, increasing the availability of IUD and vasectomy services, and extending the use of female sterilization performed with local anesthesia and sedation. ISSSTE also provided clinics and hospitals with new equipment and with IEC materials for clients. These efforts have been concentrated in nine states identified in the Memorandum of Understanding as having the most acute health and poverty conditions in Mexico.

II PROBLEM STATEMENT AND PROPOSED SOLUTION

In February, 1995, ISSSTE held a meeting to evaluate the Service Delivery Extension Strategy (SDES) project. State reproductive health coordinators and the medical subdirectors responsible for all health programs and services at the state level attended and the main results of 1994 were discussed.

¹ It should be pointed out that the General Population Law requires ISSSTE and all other public institutions to make family planning services available to any person that requests them, regardless of whether he or she is affiliated with the institution. In 1994, approximately 28% of all new users were not affiliated to the ISSSTE.

Meeting participants identified several obstacles to the expansion of the family planning program, ranging from the insufficient motivation of service providers and outreach efforts, to lack of training, saturation of service delivery areas and lack of supervision of program activities. Meeting participants proposed many different and often contrasting solutions to the problems they faced.

Given the diversity of possible solutions to the large number of problems identified, the Reproductive Health Director at ISSSTE thought he could benefit by testing some of the different strategies that had been proposed, in order to choose and scale-up only those that proved effective. For this reason, he requested technical assistance from the Population Council and the Department of Family Medicine of the National Autonomous University of Mexico (UNAM), and financial assistance from Pathfinder to establish an operations research program to help identify strategies to increase the effectiveness of the SDES.

III OBJECTIVES

The objectives of this project were the following:

1. Establish a family planning operations research program and implement up to four sub-projects at the ISSSTE.
2. Test strategies to improve the quality, effectiveness and/or cost-effectiveness of family planning service delivery strategies at the ISSSTE.
3. Help institutionalize operations research at ISSSTE by creating research teams in different states of Mexico and by involving a local agency in the provision of technical assistance.

IV ESTABLISHMENT OF THE OPERATIONS RESEARCH PROGRAM

4.1 Design of Operations Research Program

The first step to establish the operations research program was the development of a strategy to guide program efforts. ISSSTE's staff thought that the research should be conducted by service providers in its clinics and hospitals, specially by those general practitioners who were studying the specialization in family medicine, a semi-open two year program offered to all general practitioners working in the institution, in which physicians periodically meet with a tutor to discuss assigned readings and tasks for the week. As part of the study program, participants must implement a research project related to their daily activities. Usually, these research projects are conducted by teams of students working in the same site. At the beginning of the project, about 270 physicians in 31 states were registered in this program.

The second decision made was that grants should be given to researchers on a competitive basis. These involved making a general call for proposals for operations research projects of up to US \$ 5,000, establishing a committee to review and award the proposals, and setting up mechanisms for giving technical assistance.

4.2 Call for Proposals

A call for proposals and a text explaining the requirements for participating in the operations research program were written and distributed in July, 1995. Appendix 1 presents a copy of these texts.

The call invited teams of physicians of ISSSTE clinics and hospitals to present proposals on family planning topics, including linkages with other reproductive health services. It also specified a budget of up to US \$ 5,000. The requirements for participation detailed who could participate, the type of projects that were allowable, priority themes, budgets and the requirements, including the structure of proposals. The text also explained how the proposals were to be judged, the commitment that were expected from participants, and a time-table of activities.

These documents were sent to the different State ISSSTE offices, who were asked to send them to the different clinics. In visits to the different clinics it was observed that this had happened very rarely. Most of the clinic directors and service delivery staff did not know about the operations research program and had not been able to present the proposals.

4.3 Revision of Proposals

A total of 12 proposals had been received by October 1, 1995. This low turn out can be explained by the very limited dissemination that the ISSSTE State delegations made of the call for proposals. Table 1 presents a list of the proposals received. Except one proposal from Veracruz, the pre-proposals did not comply with the requirements, either because they did not deal with family planning or because they did not include an operational component.

The Operations Research Review Committee (ORRC, made up by 4 ISSSTE officials, one representative from the National University and one representative from the Population Council) decided to send a letter explaining what were the limitations of the proposals and inviting the authors to make revisions. They also made concrete recommendations about how they could be modified to comply with the requirements and the commentaries made by the members of the ORRC. Appendix 2 presents a copy of a letter and the comments of the ORRC members.

TABLE 1

SUMMARY OF PRE-PROPOSALS RECEIVED

CITY/STATE	TITLE
Comitan, Chiapas	Causes of the low demand for the IUD
San Cristobal, Chiapas	Individual and family profile of women susceptible to accept family planning
Guanajuato, Gto	Glucose screening test for the detection of gestational diabetes
Guanajuato, Gto	Maternal lactation and its relation with previous births
Guanajuato, Gto	Factors affecting the incidence of C-sections
Pachuca, Hidalgo	Factors affecting adolescent pregnancy
Pachuca, Hidalgo	Knowledge and attitudes about sexuality among university students in the State of Hidalgo
Pachuca, Hidalgo	Characteristics of women attended for incomplete abortion
Xalostoc, Mexico	Quality assurance in reproductive risk and prenatal care programs
Mexico, D F	Evaluation of strategies to collect reproductive health information from primary sources
Veracruz, Veracruz	A reproductive health and family planning service delivery model
Jalapa, Veracruz	Family planning in rural areas ¿the same as in urban areas?

At this stage, only four proposals were eliminated from further consideration, either because no way to link the theme to family planning was found (as in the case of the Glucose test to screen for gestational diabetes), or because the topic just wasn't interesting enough, as in the case of a proposal that sought to carry out a survey to assess contraceptive prevalence to see if they were different in urban and in rural areas

4.4 Site Visits

To assess that local conditions were favorable for conducting an operations research project (i.e., support from clinic directors, availability of basic resources, etc) and to provide technical assistance to those who had submitted the pre-proposals, visits were made in October, 1995, to five different cities (Pachuca, Xalostoc, Guanajuato, Veracruz, and Tuxtla Gutierrez, where researchers from Comitán and San Cristobal de las Casas were met) Visitors to the clinics included ISSSTE staff members and one INOPAL member

During the visits, the projects were discussed with clinic directors, the services were observed, and changes to the proposal were discussed. In these workshops, two participants from Pachuca, two participants from Chiapas and two participants from Guanajuato agreed each pair to conduct one single operations research project as a team. In Veracruz, the pre-proposal had been originally submitted as a team effort

4.5 Operations Research Workshop

On the basis of the visits, four teams of researchers were invited to participate in a one-week operations research workshop. This was completely a hands-on workshop, in which the focus was to prepare the complete final proposals, with budgets, a description of design, activities, and even the development of data collection instruments and project instruments

Appendix 3 presents a copy of the four proposals. The proposals are the following

A Loyo and Manuel Training as a strategy for the systematic supply of reproductive health services in Veracruz

This project would test an adapted version of the Algorithm for comprehensive reproductive health care tested by the Council in Guatemala. However, instead of a three-day training, they proposed to provide only two two-hour training sessions on the use of the algorithm to all service delivery staff

B Hernandez and Gomez Effects of training the staff in the systematic offering of reproductive health services in Chiapas

This project also proposed to test the effects of using the algorithm for systematic offering of reproductive health services. They would train the staff of seven clinics and conduct a survey of clinic patients

- C Salvador and Sanchez Promoting sex education and contraceptive services for adolescents in the Pachuca Clinic/Hospital

This project would seek to train adolescent promoters, school physicians and nurses and establish an adolescent family planning service in the Pachuca clinic/hospital

- D Mozqueda and Alonso A strategy to decrease the incidence of C-sections and increase birth spacing in the Guanajuato Hospital

This proposal sought to decrease the current proportion of C-sections (50% of all births) and to increase the proportion of C-section patients who left the hospital with a contraceptive method To achieve this, they proposed to conduct a survey of physicians to study the conditions under which C-sections were performed, to hold a workshop of representatives of the different health institutions to agree on appropriate criteria under which C-sections should and should not be performed, to develop a care model for c-section patients, with a strong emphasis on contraception, to train pre-natal care providers to teach their clients to demand vaginal births and request explanations for a c-section, and to disseminate and train service providers

4 6 Implementation and Supervision of Subproject Activities

Projects started to be implemented about four months after the workshop ended These delay in the start up of projects was caused by the need to establish mechanisms for the financial management of the subprojects

During the course of the project, one technical assistance-supervision visit was made to the four sub-projects (with the exception of Pachuca, where two visits were made) Visitors included either the Population Council or the UNAM technical advisors, and one ISSSTE staff member

In the case of Veracruz, where the project was being very enthusiastically implemented, this visit was very useful for providing technical assistance to the researchers In the case of Chiapas, this was also the case, but unfortunately, the principal investigator resigned from ISSSTE and the project was left unattended In the case of Guanajuato, the researchers were enthusiastic, but a lack of commitment from the clinic director was obvious Finally, in the case of Pachuca, the technical assistance consisted mostly in trying to keep project activities within the scope of work set by the proposal Serious delays were observed here, a lack of commitment from the researchers, and little support from local authorities For each visit, a supervision report was prepared for the Director of Reproductive Health of ISSSTE Appendix 4 presents an example of a supervision report

V SUB-PROJECT RESULTS

In February, 1997, an end-of-project workshop to present sub-project final results was held in Mexico City. Appendix 5 presents a copy of the final reports that were presented. In what follows we present a brief English language summary of these projects.

5.1 Loyo and Manuel *Training as a Strategy for the Systematic Supply of Reproductive Health Services in Veracruz*

The staff of the clinic/hospital of Veracruz tested training in the use of the algorithm developed by the Council in Guatemala as a means to provide comprehensive reproductive health care, as mandated by the new National Family Planning and Reproductive Health Program.

The first step was to conduct interviews with 399 women of reproductive age after they had received outpatient services in June, 1996. In July, they conducted a meeting with service directors and other top managers to inform them of the research, and meetings with four groups of service delivery staff of the two shifts of outpatient clinics. For each group, two sessions were held. In the first meeting, an explanation of the research project was given, the materials to be used were reviewed, and role playing exercises were conducted to exemplify their use. Finally, a copy of the algorithm and the manual were given to the physicians, who were asked to review it carefully and to prepare comments for the following session. The second session was held one week after the first one. Most physicians had read the manual with care and gave valuable comments to review the algorithm and the contents of the manual, including 1) a change in the algorithm to incorporate breast and cervical cancer prevention services and STD services, 2) offer services to women 13 years of age and older (instead of 15 years, as recommended in the manual), 3) modify the section on injectables to include Noristerat, the one used at ISSSTE, instead of Depoprovera, 4) Exclude withdrawal as a method to be offered, 5) change several words used in Guatemala, but not in Mexico, 6) to recommend breast-feeding in the first half hour instead of at the first two hours, as recommended in the manual. In general terms, the manual was well liked and praised for its easiness of use, good presentation and simple language. After the second session, the physicians started using the algorithm.

The intervention was evaluated by means of monthly follow-up rounds of exit interviews, and by changes in service statistics. Table 2 presents changes in the percent of women who were offered services in the baseline period and the follow-up period. As it can be seen, the proportion of women screened for the need of different reproductive health services or information rose dramatically in the following five months after the intervention was introduced, and of those screened, a large proportion received the service in the follow up period (unfortunately, in the baseline survey, it was not asked if the service or information had been given). This was true even in the case of priority programs such as cervical cancer prevention.

TABLE 2

PERCENT WOMEN WHO WERE OFFERED SERVICES OR INFORMATION ABOUT THE DIFFERENT REPRODUCTIVE HEALTH SERVICES BEFORE AND AFTER (MEAN OF FIVE MONTHLY FOLLOW-UPS) THE INTERVENTION

SERVICIO	BASELINE	MEAN OF MONTHLY FOLLOW- UPS	
	SERVICE OFFERED	SERVICE OFFERED	SERVICE RECEIVED
PRENATAL CARE	5 8	25 0	14 4
IMMUNIZATION OF CHILDREN	4 2	33 1	20 4
WELL BABY CARE	2 1	15 9	15 4
PAPANICOLAOU	31 6	65 7	51 3
BREAST EXAMINATION	7 9	58 7	47 1
FAMILY PLANNING	3 1	35 4	22 2
SEXUALLY TRANSMITTED DISEASES	1 8	21 4	11 6
BREAST-FEEDING	2 6	24 6	17 0

A comparison of service statistics in the four months before and after the intervention of four different services failed to show any large differences in the number of new users. Presumably, this means many women felt they needed information, so the intervention seems to have increased the quality of the service (see Table 3, the periods were selected in order to avoid the atypicality of December and January)

TABLE 3

NUMBER OF NEW USERS OF FOUR DIFFERENT REPRODUCTIVE
HEALTH SERVICES BY PERIOD

SERVICE	PERIOD (1996)	
	MAR-JUN	AUG-NOV
Prenatal care	326	328
Vaccination of children	257	390
Pap test	378	376
Breast examination	418	404

5 2 Hernández and Gomez *Effects of training the staff in the systematic offering of reproductive health services in Chiapas*

This project proposed to test the effects of using the algorithm for systematic offering of reproductive health services that INOPAL developed in Guatemala. They would train the staff of two clinics and five dependent mini-clinics, and conduct a survey of clinic patients. Unfortunately, at the beginning of the implementation of project activities, the principal investigator left ISSSTE, so that initially the activities started to be implemented in August in one clinic in Comitán and two mini-clinics in nearby towns. Activities began in December on the second clinic in Tuxtla Gutierrez (the state capital), which substituted one clinic in San Cristobal de las casas and two mini-clinics in nearby towns. Training was programmed for February, 1997, after the end-of-project workshop was held.

In Comitán, service delivery staff were trained in the use of the algorithm in a five-hour session. Before the training session was conducted, a baseline of 62 exit interviews with women of reproductive age were conducted in Comitán and the miniclincs in Soyalo, Margaritas and Frontera Comalapa. In October, after the training, 35 exit interviews were made, and a second follow-up round of 31 questionnaires was conducted in January, 1997.

At the time of the end-of-project seminar was held, the data had not been analyzed. The impressions of the investigators was that the algorithm had been very useful as a tool to teach how to provide comprehensive reproductive health services.

5 3 Salvador and Sanchez *Promoting sex education and contraceptive services for adolescents in the Pachuca Clinic/Hospital*

This project proposed to test and evaluate the following interventions a) recruiting and training adolescent health promoters, b) establishing an adolescent service module in the clinic in Pachuca, c) giving talks on sexuality, family planning and sexually transmitted diseases in high schools

The staff requested the help of CORA (an agency devoted to adolescents) to form teams of adolescent promoters. A training of 10 adolescents recruited in High School 1 of Pachuca, four physicians, one nurse and one social worker was conducted August 26-30, 1996. Three teams were formed. The teams conducted seven sessions in gathering places of adolescents (theaters, cafeterias, schools, etc). In these sessions, printed material was distributed and face to face information given to those who contacted the promoters. In these sessions, the adolescent clinic was promoted. After three months the teams were disintegrated because the promoters felt they did not have time to conduct these activities given their school schedule.

To establish the adolescent service module, the help of one nurse of the preventive medicine department, two social workers and one physician previously trained by CORA was obtained. The service opened on the morning and afternoon shifts. It was operational from September to November, 1996, when it closed because only 10 adolescents requested services during this period.

Two talks in a private high-school in Pachuca were given on adolescent sexuality. The clinic was promoted in the talks. However, the talks were stopped given that the two researchers really did not have the time to sustain the effort, and they could not obtain the help from other staff members to conduct these activities.

5 4 Mozqueda and Alonso *A strategy to decrease the incidence of C-sections and increase birth spacing in the Guanajuato Hospital*

This project sought to decrease the high incidence of C-sections in the hospital in Guanajuato (50% of all births), and to increase the proportion of C-section patients who left the hospital with a contraceptive method. To achieve this, the researchers conducted a survey of physicians to study the conditions under which C-sections were performed, they held a workshop of representatives of the different health institutions in the city to agree on appropriate criteria under which C-sections should and should not be performed, they proposed a care model for c-section patients, with a strong emphasis on contraception, and they disseminated the results to service providers.

An analysis of service statistics showed that during the period January-December 1996 46.6% of all deliveries were C-sections. A survey of 59 obstetric patients who delivered in

May, 1996, showed that 31% of the 59% who had had a C-section were primiparous, 34% had one previous C-section and 17% had two previous C-sections. Fifty seven percent were told they needed a C-section because they had had one before, and 37% were given no explanation for the procedure. Although 94% had received education during prenatal care, 77% had received no information on the advantages and disadvantages of C-sections or about family planning. Only 31% had received a contraceptive method during their hospital stay.

A survey of 27 physicians of the 43 who are involved in prenatal and birth care showed that 74% of them did not know the percent which the Official Mexican Norms present as the maximum allowable. Nearly 30% considered that the high incidence of C-sections in their hospital was caused by poor screening of the patients' need, and 26% felt that it was a cause of "lack of time" to supervise labor work. An additional 15% mentioned fear of legal suits or institutional pressures. Over half of the physicians felt a C-section was justified when female sterilization was also to be performed. Seventy four percent believed C-section patients did not receive contraceptive methods because of lack of information, although nearly all considered that spacing a birth following a C-section was "very important."

Among the most frequent reasons given to decide on performing a C-section, the physicians mentioned acute fetal suffering, premature detachment of the placenta, two previous C-sections, pelvic presentation, distocias, pre-eclampsia, short intergenetic period and overdue pregnancy.

Two workshops (in June and August, 1996) were held with Ob-Gyns of the different institutions in the city (IMSS, SSA) and private physicians to review the criteria to indicate a C-section and protocolize management of candidates for C-sections. Participants agreed that among the reasons for the high incidence of C-sections were inadequate follow-up of high-risk patients during prenatal care and mistaken referral to higher levels of care, a lack of education during prenatal care, incorrect use or interpretation of diagnostic aids, fear of legal suits, lack of time to follow-up labor and combining C-sections and female sterilizations.

To decrease the number of C-sections, workshop participants recommended 1) providing education during pre-natal care, 2) establish clear guidelines for the management of patients with such diagnostics as previous C-sections, hypertension, etc, train the staff in the adequate use of these protocols, and create mechanisms for the continuous supervision of their compliance.

During the period April-June 1997, the researchers proposed to test a strategy to decrease the incidence of C-sections. The model to be tested will 1) add education about C-section to women attending prenatal care, 2) Not programming patients with a previous C-sections except in cases the attendant Ob-Gyn obtains consent from the patient and justifies the operation in the clinical record. For this purpose, a new prenatal care format will be used, that the woman will carry it to the hospital, and they physician will use to justify C-sections, 3) not accepting patients in labor with less than 4 centimeters of cervical dilation, 4) monthly meetings to analyze the evolution in the proportion of C-sections with hospital authorities.

VI DISSEMINATION, INSTITUTIONALIZATION AND LESSONS LEARNED

The results of this project were presented and discussed in the 1997 Operations Research Workshop held during the National Reproductive Health Meeting of ISSSTE, conducted at Cocoyoc, Morelos on February. The results of the project in Veracruz were also presented in the 1997 National Public Health Congress held in Cuernavaca, Morelos, on March 1997. The results of this project were also presented in the Spring 1997 issue of *Alternativas*.

The results of this project have already affected national policy at ISSSTE. Based on the results of the project on Pachuca, they have decided to modify the proposed extension of the model tested (in collaboration with CORA) and study other alternatives that may prove to be more effective in providing services to adolescents.

Finally, AVSC and Pathfinder have given a second grant of US \$ 90,000 to ISSSTE to conduct four operations research projects with technical assistance from INOPAL III. Given that the model to conduct research proved to require too much technical assistance, and that some of the projects conducted had a difficult time conducting activities because of lack of support from clinic directors, in this new phase of the operations research program, ISSSTE has prepared proposals that are being circulated among clinic directors. Those wishing to participate will be invited to do so. At the state level, the state's reproductive health coordinator will help supervise activities. In this fashion, for every project, it is expected that four or five clinics will participate, and that activities will be coordinated from the central level.

The projects that will be conducted in this new phase of the program are: 1) strategies for post-abortion care. The collaboration of IPAS for this project has already been achieved, 2) A survey of contraceptive prevalence and lost opportunities for the delivery of reproductive health services among women attending ISSSTE clinics in nine States (this project was requested from participants of OR Workshop in Cocoyoc in February, 1997). 3) strategies for promoting no-scalpel vasectomy, and 4) strategies to promote reproductive health services in communities.

VII LIST OF APPENDICES IN VOLUME II

Appendix 1 Call for proposals

Appendix 2 Example of letter from the OR review committee to authors

Appendix 3 Project proposals that were selected for funding

Appendix 4 Example of supervision reports

Appendix 5 Copy of final reports