

# A.I.D. EVALUATION SUMMARY PART I

(BEFORE FILLING OUT THIS FORM, READ THE ATTACHED INSTRUCTIONS)

FA 6-796

IDENTIFICATION DATA

<b>A. REPORTING A.I.D. UNIT:</b> <u>USAID/Guatemala</u> <small>(Mission or AID/W Office)</small>  (ES# <u>90-05</u> )	<b>B. WAS EVALUATION SCHEDULED IN CURRENT FY ANNUAL EVALUATION PLAN?</b> yes <input checked="" type="checkbox"/> slipped <input type="checkbox"/> ad hoc <input type="checkbox"/>  Eval. Plan Submission Date: FY <u>89</u> <input type="checkbox"/> <u>4th</u>	<b>C. EVALUATION TIMING</b> Interim <input checked="" type="checkbox"/> final <input type="checkbox"/> ex post <input type="checkbox"/> other <input type="checkbox"/>			
<b>D. ACTIVITY OR ACTIVITIES EVALUATED</b> (List the following information for project(s) or program(s) evaluated; If not applicable, list title and date of the evaluation report)					
Project #	Project/Program Title <small>(or title &amp; date of evaluation report)</small>	First PROAG or equivalent (FY)	Most recent PACD (mo/yr)	Planned LOP Cost ('000)	Amount Obligated to Date ('000)
520-0339	Immunization and Oral Rehydration Therapy Services for Child Survival Project.	85	12/91	\$16,418	\$16,418

ACTIONS

<b>E. ACTION DECISIONS APPROVED BY MISSION OR AID/W OFFICE DIRECTOR</b>  Action(s) Required	Name of officer responsible for Action *	Date Action to be Completed
<ul style="list-style-type: none"> <li>o A Board of Directors should be created to monitor project progress and to make decisions on project improvement.</li> <li>o Management Sciences for Health should intensify its technical assistance to improve planning, logistics, and supply management skills.</li> <li>o Technical assistance should be provided to improve the financial management of the project.</li> <li>o Tetanus toxoid coverages should be expanded to include all women of fertile age.</li> <li>o The EPI/ORT revolving Fund should be made more flexible through a program of technical assistance in which a consistent and more flexible interpretation of national auditing rules would be applied through the Project Administrative Unit.</li> <li>o Reporting forms and their distribution should be revised/improved in the mid-1990s for the MOH's H/MIS to make it more responsive and less of a burden to operational level personnel.</li> </ul>		
(Attach extra sheet if necessary)		

APPROVALS

<b>F. DATE OF MISSION OR AID/W OFFICE REVIEW OF EVALUATION:</b> mo ___ day ___ yr ___			
<b>G. APPROVALS OF EVALUATION SUMMARY AND ACTION DECISIONS:</b>			
Signature <u>Liliana Ayalde</u> Typed Name Liliana Ayalde	Project/Program Officer <u>Lynn Gordon</u> Typed Name Lynn Gordon	Representative of Borrower/Grantee *** Signature <u>[Signature]</u> Date: <u>5/21/90</u>	Evaluation Officer Signature <u>[Signature]</u> Date: <u>2/8/90</u>
Date: <u>5/21/90</u>		Mission or AID/W Office Director Signature <u>[Signature]</u> Date: <u>[Signature]</u>	

\*The Mission sent a letter and copy of the mid-term evaluation to the Director General, MOH on December 18, 1989. To date no response has been received. Due to project suspension, recommendations will not be followed up at this time.

\*\*\* Due to mention of project's suspension, Mission prefers not to get Counterpart signature.

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H. EVALUATION ABSTRACT (do not exceed the space provided)

The Immunization/Oral Rehydration Therapy Services for Child Survival Project (520-0339), implemented by the Ministry of Health, proposes to reduce infant/child morbidity and mortality due to immuno-preventable and diarrheal diseases throughout Guatemala. University Research Corporation (URC) conducted the mid-term evaluation (8/14/89-9/14/89) to determine the project's effectiveness in increasing to 70% the immunization coverage and the use of ORT, as well as increasing to 60% the tetanus toxoid coverage in pregnant women. Also evaluated was the project's impact on the health management information system, administrative development and training. URC reviewed various project documents, visited 5 health areas, and conducted interviews with MOH and AID personnel to determine project advancement. The principle findings, principle recommendations and lessons learned are:

Findings

- The project contributed greatly in the area of prevention of immunopreventable diseases current MOH data show coverage rates of 53% for polio, 49% for DPT and 59% for measles for children under one year of age.
- The project has also had an impact on improvements in the cold chain, training, capability, decentralized financing and the health management information system.

Principle recommendations

- A Board of Directors should be created to monitor project progress and to make decisions on project improvement.
- Management Sciences for Health should intensify its technical assistance to improve planning, logistics, and supply management skills.
- Technical assistance should be provided to improve the financial management of the project.
- Tetanus toxoid coverages should be expanded to include all women of fertile age.

Lessons learned

- An overall MOH maternal-child health strategy which includes donor participation and coordination is essential to individual agency project impact.
- Internal Ministry of Health coordination and program/project review and commitment is essential to project success.
- Administrative and financial structures which are well conceived and responsive to operational level realities are essential to project success.

ABSTRACT

L EVALUATION COSTS

1. Evaluation Team		Contract Number OR TDY Person Days	Contract Cost OR TDY Cost (US\$)	Source of Funds
Name	Affiliation			
Thomas Bossert	URC	34	\$14,997	Project
Jack Galloway	URC	26	13,512	Project
Bruce Newman	DataPro-URC	15	4,653	Project
Ruth Finerman	URC	20	5,304	Project
Ava Navin	DataPro-URC	14	2,275	Project

2. Mission/Office Professional  
Staff Person-Days (estimate) 30

3. Borrower/Grantee Professional  
Staff Person-Days (estimate) 60

COSTS

# A.I.D. EVALUATION SUMMARY PART II

## J. SUMMARY OF EVALUATION FINDINGS, CONCLUSIONS AND RECOMMENDATIONS (Try not to exceed the 3 pages provided)

Address the following items:

- Purpose of activity(ies) evaluated
- Purpose of evaluation and Methodology used
- Findings and conclusions (relate to questions)
- Principal recommendations
- Lessons learned

Mission or Office: OHRD, USAID/Guatemala

Date this summary prepared: 04/10/90

Title and Date of Full Evaluation Report: \_\_\_\_\_

Mid-term Evaluation Immunization/Oral Rehydration Therapy Services for Child Survival, USAID Project No. 520-0339, Guatemala, September, 1989.

The Expanded Program for Immunization (EPI) and Oral Rehydration Therapy (ORT) Services for Child Survival Project (520-0339) goal is to reduce infant/child morbidity and mortality due to immuno-preventable and diarrheal diseases throughout Guatemala.

This project is responsive to overall Ministry of Health and AID Mission strategies.

The Mid-term evaluation was undertaken to review project progress to date and to make recommendations for project improvement. The University Research Corporation team comprised of a health planner, a management/logistics/finance specialist, a health/management information specialist, an anthropologist, and an editor evaluated the project over a month's period of time in the fall of 1989. The team interviewed personnel at the Central level and AID staff, visited field sites, and reviewed numerous documents. Prior to field visits the team developed question guides to address the issues of EPI/ORT coverage, attitudes towards EPI/ORT, finance, logistics, and H/MIS.

Major findings and conclusions of the mid-term evaluation were as follows:

- o. The Project has made a significant contribution toward achieving the objectives of improving immunization coverage for children under five years of age and pregnant women and use of ORT in children.
- o. The Project has had an impact on improvements in the cold chain, training capability, decentralized financing, the health management information system, logistics and administrative development.

Principle recommendations are as follows:

- o. A Board of Directors, composed of all Project component heads, the Project Coordinator, Contractors (MSH, Healthcom) and operational level MOH personnel should hold regular meetings to review project progress.
- o. Technical assistance should be provided to improve the financial management of the project.
- o. Management Sciences for Health should provide immediate technical assistance to improve planning, logistics, and supply management skills.
- o. Participation in the official decentralization and administrative reorganization process and efforts to coordinate donor activities should be made a priority of MSH.
- o. Designing appropriate strategies for improving tetanus toxoid coverage should be strongly emphasized. Project goals should be changed to target all women of fertile age.
- o. ORS should be distributed to the homes, rather than only to children with diarrhea.
- o. A routine distribution capability to the Health districts and posts, should be provided. Either (1) a program of using private carriers should be initiated, or (2) additional vehicles should be purchased.
- o. Feasibility studies for private sector maintenance of cold chain and vehicles should be conducted.
- o. Decentralization to Regional and Area levels of the H/MIS should be considered.
- o. Priority should be given to pedagogic methods and training of trainers in the training element of the project.

Lessons learned or reconfirmed:

- An overall Ministry of Health Maternal-Child Health Strategy which includes donor participation and coordination is an essential ingredient to individual agency project impact.
- Internal Ministry of Health coordination and program/project review and commitment is essential to project success.
- Administrative and financial structures which are well-conceived and responsive to operational level realities are essential to project success.

**K. ATTACHMENTS (List attachments submitted with this Evaluation Summary; always attach copy of full evaluation report, even if one was submitted earlier)**

ATTACHMENTS

Evaluation Report

**L. COMMENTS BY MISSION, AID/W OFFICE AND BORROWER/GRANTEE**

The Mission was in the process of negotiating these recommendations with the Ministry of Health when an audit by Price Waterhouse covering the period October, 1987 - June, 1989 discovered that back up documentation from 169 of 200 checks reviewed was unavailable. The audit therefore classified all expenditures during this period as questionable. As a result of this audit finding, the project was suspended on March 16, 1990.

MISSION COMMENTS ON FULL REPORT

Mid-Term Evaluation

Immunization/Oral Rehydration Therapy  
Services for Child Survival

USAID Project No. 520-0339



GUATEMALA

77-111-566-A  
19A 67798

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September 1989

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## ACKNOWLEDGEMENTS

We would like to thank all the patient officials of the Ministry of Health, USAID/Guatemala, and other donors, as well as the mothers who answered our questionnaires, spent time with us, and helped us gain an understanding of the achievements and problems of the EPI/ORT Project. We appreciated their commentary, explanations, ideas, and proposals, and we hope that this exercise has been useful for them as well as for us.

In particular we want to express our appreciation for the support that the Minister and Director General gave us, assuring easy access to all officials and giving our conclusions and recommendations a fair review. The National Coordinator of the Project Implementing Unit was fully supportive of our effort, giving us all the requested materials, freely discussing problems as well as achievements, and providing a vehicle and driver for our field visits.

All members of the USAID team were extremely helpful. The Mission Director, the Director of the Office of Human Resources Development, the outgoing and incoming Health and Population Officers, the Project Manager, Project Liaison Officer, and Project Purchasing Officer gave freely of their time and documents. Secretaries of the Office of Human Resources Development cheerfully struggled with the phone system to make our appointments, collected documents, and made copies so that our lives were a little easier.

The consultants of Management Sciences for Health and HealthCom were also very informative and open with us. The voluminous documentation from MSH helped us understand both the current situation and ideas for the future. HealthCom gave us important perspectives, even though we were not evaluating their efforts.

The evaluation team also received strong secretarial, documentation, computer and logistics support from the DataPro staff, for which we are more than grateful.

## EXECUTIVE SUMMARY

As of July 1989, the Expanded Program for Immunization and Oral Rehydration Therapy (EPI/ORT) Services for Child Survival Project (520-0339) has provided over \$6,500,000 in support of activities designed to increase to 70% the immunization coverage for six immunopreventable diseases and the use of ORT in children under five years of age and to 60% the tetanus toxoid coverage in pregnant women. The Project has provided training, promotion, logistics, vaccines, and technical assistance for a variety of strategies for EPI, including channeling, National Vaccination Days, and Accelerated Vaccination Programs. The Project provides similar support for the ORT activities of the Ministry of Health (MOH). This support is organized through a Project Administrative Unit (PAU), which administers Project funds (other than direct USAID/Guatemala purchases) for the implementing units in the Health Areas and for the national level components: EPI, ORT, the Health Management Information System (H/MIS), and administrative development. Technical assistance is provided by HealthCom (Supervision and Training for Health, a centrally funded project) for promotion and by Management Sciences For Health (MSH) for administrative development, training, information systems (H/MIS), and logistics. Significantly, the EPI/ORT Project funds an estimated 65% of the nonsalary MOH operating funds for the national primary health care system. According to the highest officials of the Ministry, it is a priority program of the MOH.

The EPI/ORT Project has made a significant contribution toward achieving the objectives of improving immunization coverage for children under five years of age and pregnant women and use of ORT in children. Current MOH data show coverage rates of 53% for polio, 49% for DPT, and 59% for measles for children under one year of age. The Project has also had an impact on improvements in the cold chain, training capability, decentralized financing, the health management information system, logistics, and administrative development. By its end the Project may achieve its quantitative targets for polio, DPT, measles, and BCG, although it is unlikely that the ambitious targets for tetanus toxoid coverage and ORS utilization will be reached.

### THE CURRENT CRISIS

Despite these advances, the Project is currently in administrative crisis. The PAU, which was initially effective in managing an increase in spending and an innovative decentralization of funding to the Area level, is now a major bottleneck. In the last two trimesters it has significantly reduced spending of Project-managed funds and inhibited implementation of component and Area Project activities. These problems are due largely to the impact of five separate audits, some routine and others requested by the MOH, which forced financial control procedures to be revised and resulted in a reduction in personnel in the PAU.

The funding bottleneck and the lack of effective coordination by the PAU have also limited the effectiveness of long-term technical assistance. This situation has resulted in significant frustration for everyone involved in the Project and has placed it on the policy agenda at the highest levels of USAID/G and the MOH.

The crisis has set in motion major efforts to seek options to improve the situation. We support these options and reiterate the need to ease the bottleneck in ways that assure institutional strengthening and sustainability. The original intent of the Project to achieve a greater integration

of the PAU into the MOH administrative structure should be restored, while at the same time allowing a more flexible means of decentralizing budgetary control and programming.

#### RECOMMENDATIONS:

Resolving the crisis, as we see it, should involve the following steps:

First, we think it necessary for both USAID/G and the MOH to treat this Project as a major priority, even to the extent of sacrificing other activities. Attention by the highest levels of both agencies should be sustained throughout the process so that key decisions can be made quickly and follow-up achieved.

As soon as possible, but not later than October 30, 1989, an organizational development team-building exercise should be held with an outside, highly skilled, native Spanish-speaking facilitator. The purpose of this exercise would be to review the history of the crisis from all perspectives, directly address all concerns, set out joint tasks for improving relations, and schedule any additional inputs necessary to resolve key problems.

The *Junta Directiva (Board of Directors)*, which is composed of all Project component heads, the Project coordinator and (when contracted) the administrator, chiefs of party of the technical assistance teams, and representatives of the Area and Region chiefs, should establish a regular routine meeting schedule, and the MOH should make these meetings highest priority. Reports of these meetings should be monitored by the General Director, Minister, USAID/G Project Manager, and USAID/G Mission Director.

Active and significant technical assistance should be provided to improve the financial management of the Project. This could be done either 1) by hiring a highly qualified private accounting firm or 2) through some other mechanism to provide a professional team of short-term technical advisers. This technical assistance should immediately develop a flexible financial control system, train PAU counterparts and the Administrative unit of the General Directorate of Health Services (DGSS), and train the Regional and Area controllers and auditors.

MSH should provide immediate technical assistance to improve planning, logistics, and supply management skills in all departments of the PAU.

The MOH should make a firm commitment to provide and maintain full staffing of the PAU.

The PAU should be physically moved to the General Directorate Building. Auditors of the program should be located with the Directorate's own Department of Administration. Efforts should be made to find office space for MSH in the MOH building as well.

As is emphasized in all the following sections, the current crisis should not obscure the significant achievements of the Project to date.

## **TECHNICAL ASSISTANCE**

Technical assistance by MSH has been constricted by the current administrative crisis. In addition, the promotional efforts of HealthCom have not yet been fully implemented.

Nevertheless, the MSH team has made significant advances in working with counterparts, doing diagnoses, and designing appropriate systems, training materials, and strategies. In a short time (11 months), the team has achieved significant progress in the Central level H/MIS, effective implementation of a major self-directed training program, development of logistic systems, initial diagnostics of donor coordination, a variety of administrative improvements, and a work plan, jointly developed by MSH and component counterparts.

The MSH team has been less effective in initiating a broader planning process and has not yet participated directly in the official decentralization and reorganization process. In part, this problem has been due to other time pressures on the administrative development consultant, who is also Chief of Party of the MSH team. It is also due to the lack of clear counterparts for this activity.

## **RECOMMENDATIONS:**

Participation in the official decentralization and administrative reorganization process and efforts to coordinate donor activities should be made a top priority for MSH, especially the Chief of Party.

Counterparts from the *Unidad Sectorial*, the Programming Office, and the Office of International Affairs should form a working group with the MSH Chief of Party and design an MOH planning process for both national and donor coordination.

## **USAID/GUATEMALA**

This Project has been a difficult one for USAID/G to manage. Design problems, major amendments, complex internal administrative processes, fragmented and highly politicized conditions in the host country, staff shortages, illnesses, and the usual array of purchasing restrictions and incompatible fiscal processes and cycles have plagued the Project. Although individuals have accomplished their tasks effectively, the Project needs more coordination and stronger relations with the MOH and the institutional contractors.

We feel that USAID/G should assure stronger Project coordination and administration in the future. An USAID/G project manager with top technical abilities, strong interpersonal and managerial skills, and experience working with both policy level officials and technical staff in both AID and host countries is needed. This manager, reporting to the USAID/G Health Officer, should develop more systematic monitoring mechanisms and strengthen coordination among other responsible USAID/G staff.

## **RECOMMENDATION:**

Within USAID/Guatemala, this Project should be managed by a professional with a Ph.D., M.B.A., and/or M.D./M.P.H. and experience in managing large projects in Latin America. The manager's sole responsibility should be the coordination and management of this Project. This position should probably be a personal services contract with an appropriate salary level.

## **STRATEGIES FOR DELIVERY OF SERVICES**

As noted above, the Project has provided the bulk of financial support for effective efforts to improve coverage levels for six immunopreventable diseases and ORT. In some Health Areas, coverage levels for some vaccines have surpassed the national targets. For polio, measles, DPT, and BCG, there is a strong chance that 70% coverage of children under five years of age can be reached by the end of the Project. Nevertheless, greater efforts are necessary to assure that these coverage rates can be maintained and that targets for tetanus toxoid for pregnant women and for ORT coverage in children be achieved.

The Project has provided support for a variety of technical strategies for delivery of immunizations and ORT. Considerable uncertainty exists regarding the effectiveness of many of the strategies. The economic and technical benefits and costs of the National Vaccination Days, channeling, mini-concentrations, and accelerated vaccination programs have not been sufficiently evaluated. Much effort, time, and financial resources are being spent in possibly overlapping, duplicative, and competing strategies that should be better evaluated. Such an evaluation should provide guidance for decentralized Regional and Area immunization strategies.

Although significant progress has been made toward achieving coverage goals for polio, measles, DPT, and BCG, coverage of tetanus toxoid still remains extremely low in most Areas.

Confusion over the role of homemade solutions for ORT should also be addressed. Currently training includes a variety of homemade solutions, which if mixed improperly may be toxic. Recent studies should be utilized to help develop national policy and provide a clear message on the role of homemade solutions in ORT.

The fact that most health promoters are men has limited their effectiveness. Women are reluctant to have a man visiting their homes or to seek help in the homes of men. Men are not viewed as understanding the health needs of women and children. Midwives, who have wide community acceptance, could play an expanded role in health promotion.

Addressing the particular problems of the Mayan population requires attention to beliefs about "hot" and "cold" illnesses and remedies, in addition to health education messages adapted to various languages and to illiterates.

## **RECOMMENDATIONS:**

USAID/G should support a cost-effectiveness analysis of the different strategies for delivering immunization to assist the MOH in designing overall national strategies and plans of action and providing a basis for decentralized Regional and Area programming.

Designing appropriate strategies for improving tetanus toxoid coverage should be strongly emphasized. Project goals should be changed to target all women of fertile age.

ORS should be distributed to the homes, rather than only to children with diarrhea.

More efforts should be made to recruit and train women health promoters and to use midwives for promotion and for delivery of ORS.

## **FINANCE**

Major innovations in decentralized financing mechanisms were initiated in this Project with the creation of an Area-level EPI/ORT Revolving Fund. This fund initially provided a flexible funding mechanism used largely for per diem/travel expenses and maintenance and repair of vehicles and refrigerators. As previously noted, the administrative crisis of the PAU has limited the effectiveness of this innovation and caused considerable resentment at all levels.

## **RECOMMENDATION:**

The EPI/ORT Revolving Fund should be made more flexible through a program of technical assistance in which a consistent and more flexible interpretation of national auditing rules would be applied through the PAU.

This change can be achieved with the technical assistance of an accredited private accounting firm or through a team of short-term technical advisers. The firm or consultants would be responsible for developing appropriate and consistent interpretations of procedures and for training counterparts in the PAU and in the MOH auditing departments. It would also be responsible for a major training program in financial procedures for Regional, Area, and District officials.

USAID/G officials have been concerned about the early slow disbursement rate of the Project. Current estimates of absorption rate and additional future costs indicate that the Project is likely to disburse the entire grant by the end of Project. However, given the large contribution of USAID/G to the MOH budget for primary care (60% of nonsalary MOH operating funds), future Projects will have to be designed with great attention to the development of financing mechanisms for sustainability.

## **LOGISTICS**

The effectiveness of both the immunization and ORT components depends on the delivery of adequate supplies of commodities to Health Centers and Posts and to health promoters. The Project has provided vehicles, ORS, and refrigerators and other cold-chain equipment, as well as broader logistic system development and discretionary funds for repair and maintenance through the Area-level EPI/ORT Revolving Fund. Our field visits in five Health Areas, during which six Health Centers and eight Posts were observed (half with "good" and half with "poor" reputations among health officials), found a functioning cold chain and sufficient supplies of most vaccines and ORS at the Health District and Post levels.

The crisis of the PAU has limited the availability of funding through the EPI/ORT Revolving Fund, imposing severe restrictions on the capability of the Area Chiefs to repair and maintain vehicles and refrigerators. The distribution system relies heavily on appropriate vehicles and on initiatives from lower levels to obtain supplies. Either a program which allows the use of private carriers or the purchase of more vehicles for the Area level is necessary to establish a regular routine of deliveries. In addition, for sustained improvement of the logistics system, a more decentralized system of vehicle maintenance and repair at the Area level needs to be developed.

### **RECOMMENDATIONS:**

To provide a routine distribution capability to the districts and posts in each Area, either 1) a program of using private carriers for distribution services should be initiated, or 2) additional vehicles, in particular pickup trucks, should be purchased and assigned to the Area level.

Feasibility studies of the cost effectiveness of licensing private-sector maintenance and repair facilities for both cold chain and vehicles at the Area level should be implemented. These studies should evaluate the potential for these services to be funded through the Area Revolving Fund and the normal Central maintenance budgets.

## **HIS/MIS**

The Project began supporting H/MIS activities in the MOH in 1988. It provided funds and technical assistance to strengthen the Information Unit (IU), which is charged with developing a Unified Health Information System (*Sistema Unico de Información en Salud -- SUI*S).

The Project has assisted in eliminating enormous backlogs in data processing by providing hardware, developing software, and supporting training at the Central level IU. The approach has emphasized establishing consistent Central programs before reaching out to the Regional and Area levels. Plans should now be made for purchasing and installing equipment at the Area level. This does not contradict current plans to equip the Regions with computing power; however, the Area continues to be a critical link in the data flow and supervision system.

The IU should capitalize on gains made to date with Project support. Although the system software is not yet ready for release to the Regions and Areas, the SUI S can now offer products

of its activities that begin to fulfill the promise of timeliness, reliability, and usability. For example, the SUIS has designed and distributed new reporting forms, based on designs from a pilot project in Zacapa. These new forms are now being used at all levels of the MOH. The system software should continue to be polished and instructional materials developed for field-level personnel.

Despite these achievements, major problems in the information system remain, and some additional burdens have been imposed on the operational level by new reporting forms. Current forms are excessively cumbersome and require inappropriate calculations, consolidation, and data transfer at the field level. The forms are designed without attention to monitoring and supervisory needs and do little to support local level programming. Moreover, logistical systems have not been able to provide sufficient and timely delivery of forms, and little feedback is provided by the higher levels in the system.

Unfortunately, the current system is being developed without much interaction with the Regional, Area, District and community level. The Area statistics personnel should be taken advantage of, because of their closer contact with Health Center/Post personnel. Data aggregation and feedback should also be performed at this level, providing a relief from unnecessary manual totaling and consolidation and retaining Center/Post level data in the system without overburdening Central IU data processing facilities.

The planned date of June 1990 for the review and redesign of the SUIS forms is appropriate. However, the necessary field studies of the SUIS in operation should be performed in order to effectively determine the improvements to be made.

A technical assistant (programmer-analyst) is needed to relieve the unrealistic overload faced by the H/MIS Adviser. The problems of personnel turnover in the IU, the need to consolidate the software development process, and the very large demands decentralization of the SUIS will generate require additional technical input and backstopping.

Finally, the sustainability of the revised H/MIS will depend on sufficient investment in start-up costs for designing, implementing, and training during the next two years.

#### **RECOMMENDATIONS:**

Form distribution processes should be improved with assistance from the MSH logistics adviser.

A local technical adviser should be hired as soon as possible to support software development and decentralization to the Regional and Area levels.

Current reporting forms should be revised in mid-1990 to reduce the burden on operational and community personnel and to make them more responsive to monitoring and supervisory needs.

## **TRAINING**

The training component has been one of the more effective technical aspects of the Project in reaching its goals. The Project has supported the development and distribution of training curricula, manuals, and guides. It has funded many EPI and ORT courses using the "cascade" methodology for both community volunteers and institutional health workers at all levels. It has also supported participant overseas training.

Although skills and knowledge among health providers appear to have improved throughout the health system and among beneficiaries, many weaknesses remain. Serious deficiencies exist in efforts to test materials, evaluate training, and provide supervision. Pedagogic methods are not being taught effectively. Appropriate means of educating mothers (especially from the Mayan communities) have not yet been implemented.

The fact that the Project has focused only on EPI and ORT has led to problems of integration with other components of the National Child Survival Strategy, e.g., Acute Respiratory Infections (ARI) and growth monitoring. Courses funded by the EPI/ORT Project often have to restrict their curricula to these subjects or risk losing funds.

### **RECOMMENDATIONS:**

Priority should be given to teaching appropriate pedagogic methods throughout the cascade system. Technical assistance--both long- and short-term--should be focused on training of trainers throughout the system.

Through a working group formed with the Department of Maternal and Child Health, Department of Community Training MSH Training Adviser, the Department of Health Education and HealthCom resident adviser, the Project should develop appropriate programs for educating mothers. Audiovisual modules, using cassette tapes and slides, should be developed to accompany these programs and assure more systematic coverage.

The EPI/ORT Project funds should be made available for any EPI/ORT courses covering other activities included in the National Child Survival Program.

## **I. INTRODUCTION**

### **A. PROJECT OVERVIEW**

The evaluation team was asked to assess the Expanded Program for Immunization/ Oral Rehydration Therapy Child Survival Project (520-0339) (for convenience called the EPI/ORT Project), whose goal is to reduce infant/child morbidity and mortality due to immunopreventable and diarrheal diseases throughout Guatemala. Because the Project is at mid-term, the major focus of the evaluation is on process. The team was asked specifically to address the following Areas:

- \* Immunization coverage to date and improvements in usage.
- \* ORT coverage to date and improvements in usage.
- \* Achievements in reaching target populations, especially the Mayan population.
- \* Scope and effectiveness of training programs.
- \* Adequacy of logistics systems.
- \* Project administration by both the Project Administrative Unit (PAU) and USAID/Guatemala.
- \* Decentralization of project activities.
- \* Financial management by the PAU and USAID/G.
- \* Adequacy of the H/MIS system.
- \* Effectiveness of technical assistance (HealthCom and Management Sciences for Health).
- \* Capacity of the Ministry of Health (MOH) to implement EPI/ORT and an expanded child survival program.
- \* Potential private sector role.
- \* Adequacy of Government of Guatemala (GOG) counterpart contributions.
- \* MOH health planning and local programming capability.

### **B. EVALUATION METHODOLOGY**

To assess the above components adequately, the team interviewed personnel at the Central level, visited field sites, and reviewed numerous documents. To select a cross-section of health sites in different geographic and cultural regions of Guatemala, the team met with the PAU, USAID/G, and MSH to discuss alternatives based on operations research methodologies. A decision was reached to visit the Health Areas of San Marcos, Totonicapán, Sololá, Escuintla, and Chiquimula.

Prior to the field visit, the team developed question guides to specifically address the issues of coverage, attitudes toward EPI/ORT, finance, logistics, and H/MIS. In the Areas, the team selected the Centers and Posts jointly with the Area Chiefs. Within the five Health Areas, the team visited six Health Centers and eight Health Posts and also interviewed 54 mothers in their communities.

Each Health Area was visited for approximately one day. Area Chiefs, physicians, nurses, statisticians, accountants, maintenance technicians, auxiliary nurses, health promoters, rural health technicians (técnicos en salud rural or TSRs), midwives, and mothers of Mayan, Spanish, or mixed Spanish and Mayan descent were all interviewed during these visits.

At the Central level, the team interviewed key MOH personnel, USAID/G, the PAU, Management Sciences for Health (MSH), HealthCom, other donor organizations, LAPROMED, and the Institución de Nutrición de Centroamérica y Panamá (INCAP). (See Contact List)

Documents reviewed included concept papers, Project papers, grant agreements, Project Implementation Letters, Technical Assistance monthly, quarterly and special reports, KAP surveys, Audit reports, PAU Organization and Procedure Manuals, USAID/G Financial Reports, and other donor reports.

The evaluation team is composed of a health planner, Thomas Bossert, Ph.D.; a management/logistics/finance specialist, Jack Galloway, Ph.D.; a health/management information specialist, Bruce Newman, M.A.; an anthropologist, Ruth Beth Finerman, Ph.D.; and an editor, Ava Navin, M.A. Three members of the team worked in-country for approximately 5 weeks, one for 4 weeks and one for 3 weeks during the period August 14 to September 14, 1989.

## II. EPI and ORT COVERAGE

### A. EPI

#### 1. ACHIEVEMENTS

The EPI/ORT Project was initially designed to support efforts by the MOH to improve coverage of six immunopreventable diseases (diphtheria-pertussis-tetanus, polio, measles, tuberculosis) in children under five years of age and tetanus toxoid in pregnant women. The Project was amended in 1986 to include an oral rehydration therapy component to reduce infant mortality from dehydration. The Project goals originally were to increase immunization coverage from 27% to 80% for children under five years of age and from 0.4% to 80% for pregnant women. ORT coverage was planned to reach 80% of cases of diarrhea in children under five years of age. In Amendment No. Three in 1987, these objectives were reduced to 70% for child immunizations and ORT and to 60% for tetanus toxoid for pregnant women. In many Health Areas significant progress clearly has been made toward these Project goals.

The Project supports five major strategies for vaccinations: routine daily vaccinations for children who attend Health Posts and Centers; "channeling" through house-to-house promotional and case-finding visits, followed by one-day immunization at local sites; National Vaccination Days (*Jornadas Nacionales de Vacunación*), mass campaigns twice a year at 6-week intervals; accelerated vaccination activities to reach those children who have not been reached by other methods; and a "Mop-Up" ("*Barrido*") Campaign for polio in municipalities with significantly low coverage.

These different strategies have emerged over time as additional programs to supplement the routine immunizations at Health Posts and Centers. Channeling, introduced by the Panamerican Health Organization (PAHO), was derived from a positive experience in Colombia. It involves the use of all health service personnel, along with village volunteers, who make house-to-house visits several times a year to identify health problems, do health promotion and education in many primary-care activities, including ORT, and "channel" mothers and children to specific vaccination services in local areas -- "mini-concentrations" held in schools or other local facilities.

The National Vaccination Days began in 1986 as part of a PAHO initiative to eradicate polio in the hemisphere by 1990. In 1986 Guatemala held three National Vaccination Days, with support from the EPI/ORT Project, UNICEF, Rotary International, and PAHO. Various factors led to the suspension of the National Vaccination Days in 1987; however, in 1988 and 1989 two Vaccination Days were implemented each year.

To augment the effort to achieve higher immunization coverage rates and especially to achieve the goal of polio eradication, an Accelerated Vaccination Program was initiated in the last two months of 1988. This pilot effort utilized an innovative decentralization of funding, in which funds from PAHO were provided directly to Area health officials. These

funds implemented the immunization activities programmed by Area officials in coordination with the Department of Epidemiology to reach the population which had not been reached by the strategies of routine services, channeling, and National Health Days. This approach was again implemented in June 1989 with the support of USAID/G and UNICEF.

USAID/G has provided the bulk of support for the overall immunization program of the MOH through the bilateral and regional Accelerated Immunization Program funded through PAHO. Its contribution in 1989 is programmed to be US \$2,161,576, with an additional \$65,763 provided through PAHO. This total represents 76% of the programmed budget. (*República de Guatemala, Plan de Acción de Inmunizaciones, 1989*) The contributions of other agencies, particularly UNICEF, have in prior years been applied mainly to the National Vaccination Days; however, USAID/G still contributes over 50% of the funding for these mass campaigns. (*División de Vigilancia y Control de Enfermedades. Informe Final, Jornada Nacional de Vacunación, 1988*)

According to MOH coverage data, based on service statistics provided by the health information system (SUIS), these strategies have resulted in significant increases in immunization coverage since the project began in 1986.<sup>1</sup> The percentage of children under one year of age who have received all three doses of polio vaccine has increased from 9.2% in 1985 to 58.1% in 1988. (*Unidad de Informática, Centro de Cómputo, 1989*).<sup>2</sup> The percentage of children receiving DPT vaccine has shown a similar increase, from 9.3% to 48.5%; and measles vaccine coverage has increased from 23% to 59.4% in three years.

The bulk of the increase occurs during periods of the National Vaccination Days and the Accelerated Vaccination Plan (Table 1). The National Vaccination Days, which were reinitiated in 1988, appear to have restored the coverage levels reached in 1986; however, these increases were attained during only two months of accelerated activities (November-December 1988).

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<sup>1</sup> The project was signed in August 1985; however, funding for local spending was held up by delays in meeting Conditions Precedent until 1986.

<sup>2</sup> The MOH uses the target group of children under one, since these data are more reliable than the figures for the under-five group.

**IMMUNIZATION COVERAGE<sup>3</sup> IN GUATEMALAN CHILDREN UNDER ONE YEAR OF AGE  
1985-1987, JANUARY-SEPTEMBER 1988, AND 1988**

Vaccine	PERCENTAGE OF CHILDREN VACCINATED <sup>4</sup>					Percentage
	1985	1986	Jan-Sept 1987	1988	1988	Increase <sup>5</sup>
Polio (Three doses)	9.2	34.9	17.6	36.4	53.1	59.6
DPT (Three doses)	9.3	33.3	15.8	35.5	48.5	36.6
Measles (Single dose)	23.0	48.8	24.3	43.8	59.4	35.6

<sup>3</sup> Source: Information Unit Computer Center, D.G.S.S., Ministry of Health.

<sup>4</sup> Based on official population figures from the National Statistics Institute (INE).

<sup>5</sup> The increase in coverage between January-September and the end of 1988 was achieved through the Accelerated Vaccination Program, which took place during October-December 1988.

For reasons that will be discussed in detail later in this report, service data cannot be relied on completely for accurate coverage estimates. Better estimated sources for coverage are population-based surveys. The most recent survey, the Demographic Health Survey of 1987, showed the following results: among children under one who had health cards (only 54% of the sample), 22.3% had received all three doses of polio vaccine; 19.5%, all three doses of DPT vaccine; 12.9% had received the measles vaccine (one dose); and 60.9% BCG (one dose). (*Encuesta Nacional de Salud Materno Infantil*, 1987). If we make a worst-case assumption (which would not be realistic) that only children with health cards have been vaccinated, these findings suggest that coverages in 1987 could have been markedly lower than reported in the health services data. Even under the best-case assumption that children without cards have coverage levels similar to those with cards, the inconsistencies between survey and report data, especially for measles, suggest caution in reliance on health service coverage data.

No current survey data exist for evaluating the MOH immunization coverage data. Later this year, an immunization coverage survey, with technical assistance from the U.S. Centers for Disease Control in Atlanta, is planned to evaluate impact and to identify "missed opportunities."

Morbidity and mortality data also provide an indirect measure of the impact and achievement of Project coverage goals. These data suggest a significant reduction in the incidence of polio among children under five years of age, which is down from 38 cases in 1988 to only 1 local case reported so far in 1989. (*Situación de la Poliomieltis*, 1989) The incidence of measles in children under five years of age has also declined, although outbreaks of measles have occurred among the unimmunized adult and adolescent population. These data, which are based on a weekly reporting system, are likely to be more accurate than other routine HIS reports.

These advances have not yet reached the levels of the Project goals. As we will discuss below, particularly in the section on community relations, significant barriers must be overcome before coverage can be expanded beyond the levels already achieved. However, the rate of gain in the last four years has been significant and, with appropriate continuation and strengthening of the immunization program as suggested in this report, the reduced target of 70% coverage may be achieved for polio, DPT, BCG, and measles vaccines.

## **2. WEAKNESSES AND RECOMMENDATIONS**

Despite this progress, some significant areas of weakness exist in the immunization program.

A short-term problem, caused by a faulty batch of BCG from France, has led to a shortage of BCG. Initial use resulted in severe reactions and scarring, which led the MOH to withdraw the supply and seek other sources. This decision was appropriate to limit the damage to the entire vaccination program that would have resulted from widespread adverse reactions. New supplies from Japan are expected in the coming months.

A more difficult problem is the low coverage of tetanus toxoid among pregnant women. As will be discussed below, significant cultural barriers limit the acceptance of

any vaccinations. Until recently, the policies of the immunization campaigns have also restricted coverage. The National Health Days have not included tetanus toxoid because of fear that, given the general resistance of women to vaccinations, mothers would not bring in their children if they themselves were also to be vaccinated. This policy has been partially changed by the emphasis in the current Accelerated Vaccination Program on immunizing all women of fertile age. This shift in policy avoids the problems of not reaching women until late in their pregnancy and is likely to increase coverage. However, these policies may not succeed in bringing about significant gains in tetanus toxoid coverage, and even the reduced target of 60% coverage is unlikely to be achieved in the next two years.

#### **RECOMMENDATION:**

- \* Major emphasis should be placed on designing appropriate strategies for improving tetanus toxoid coverage. The Project goals should be changed to target all women of fertile age. Perhaps lower, more realistic targets should be adjusted for end-of-project.

The Project has provided support for a variety of technical strategies for delivery of immunizations and ORT. Considerable uncertainty exists about the effectiveness of any of the strategies. The economic and technical benefits and costs of the National Vaccination Days, channeling, mini-concentrations, and accelerated vaccination activities have not been sufficiently evaluated. Much effort, time, and financial resources are being spent in overlapping, duplicative, and competing strategies, which should be better evaluated. Understanding effective strategies would assist local Areas, especially in designing approaches to the vaguely defined Accelerated Vaccination Plan.

In the Health Areas visited by the evaluation team, we found that the competing strategies caused considerable confusion. In many cases the National Vaccination Days disrupted the routine "channeling" efforts. Part of the problem arose from the lack of sufficient lead time to plan both activities. The National Vaccination Days are not planned to synchronize with local channeling activity.

A second complaint was that the National Vaccination Day policy of giving polio vaccine to all children, regardless of whether they had already received the complete series of three doses, sent a confusing message to mothers who had been told that three doses was sufficient. Other complaints reiterated the more common issues of disruption of routine services and high cost per vaccinated child.

Channeling methodologies also varied from Health Area to Health Area. In San Marcos, where channeling appears to have been most systematically and energetically implemented, all health workers from each Post and Center were each individually responsible for a "Sector" composed of 10-12 "Areas," each containing no more than 25 houses. Each institutional worker, from physician to janitor, was responsible for coordinating with local health promoters and doing a house-by-house census and follow-up visits four times a year in their "Sector." In other Health Areas the schedule was two to three times a year for a similar area of responsibility.

However, in some Health Areas with greater population-to-health worker ratios, different strategies were pursued. In Chiquimula, where severe shortages of human resources are a major concern, the system relies on health promoters for the house-to-house visits. In Totonicapán, all District health workers visit a "Sector" as a team, rather than assigning individual responsibility.

Neither the effectiveness of these variations on the general channeling approach nor the impact of competing and duplicative strategies has been evaluated. Although national policy on channeling and on the Accelerated Vaccination Program should be decentralized to allow each Area to program its own process, the Area teams need greater guidance to make cost-effective choices for their local conditions.

#### **RECOMMENDATIONS:**

- \* In coordination with PAHO and UNICEF, the Project should fund cost-effectiveness and/or operations research on the vaccination strategies now being implemented in different Areas. This research should entail a major national study which could tap short-term technical assistance from centrally funded projects (e.g., PRICOR or PRITECH) as well as funds for Area-level investigations.
- \* Research results should be disseminated to all Area levels, with follow-up workshops on the implications for local programming.

Other recommendations related to EPI are included below in the section on Provider-Community Relations.

## **B. ORT**

### **1. ACHIEVEMENTS**

Progress in ORT coverage has been less promising than that in EPI. It has been clear for many years that achieving more widespread and effective utilization of ORT is a complex and difficult process. Improving coverage involves establishing clear national and local norms, developing effective training programs to teach both health workers and mothers appropriate diagnosis and treatments, active promotion, strong supervision, and an ample supply of ORS at the community level and in the homes.

The Project activities have supported the Department of Maternal and Child Health as the major national level component counterpart for ORT. The activities supported include design and implementation of training of health workers, logistics and supply of ORS (including local production -- see section on logistics), and the development of ORT units in District Hospitals.

Recent statistics on the availability of ORS and the use of ORT are limited. The last surveys were done in 1987. According to DHS data, utilization rates are low, with only 15% of children under one year of age having been given ORT during the most recent episode of diarrhea. (*Encuesta Nacional de Salud Materno Infantil*, 1987). Similar findings appeared in the nationwide Community KAP survey of the same year. (*Encuesta Nacional Comunitaria de Conocimientos, Actitudes y Prácticas de Salud Materno Infantil*, 1987). The KAP survey found that only 7% of all cases of diarrhea reported were treated with packaged ORS, and that only slightly more, 7.8%, received ORS when treatment was sought from health services or promoters. Only 23% of the respondents had heard of ORS.

Since these surveys, the availability of ORS has significantly increased, and with the technical assistance of HealthCom the MOH has initiated additional promotional activities. This year over three million ORS packets have been distributed throughout the health system. Our field study found packets available in all facilities and in all communities.

Our study also found that levels of knowledge have increased among mothers. Of our sample of 54 mothers, 83% knew about ORS. However, only one of the mothers had ORS packets in her home and only two sought packets from local health promoters, while the others sought it from the Health Posts or Centers.

Other recent studies suggest that problems in the correct utilization of ORS continue. These studies indicated that potentially toxic solutions are being prepared in the homes, both with packets and with homemade solutions. (de León et al. 1989; Ward et al. 1989; Enge and Hewes de Calderón 1988)

With improvements in logistics and promotional activities, knowledge about and utilization of ORT have already improved significantly and future improvements are likely.

In other sections we make recommendations for changes in ORT policy:

- \* ORS should be available in the home (Provider-Community Relations);
- \* The color and taste of ORS should be changed to accommodate local beliefs about bodily humors (Provider-Community Relations);
- \* Training programs should address mothers' practices (Training);
- \* Logistics changes should be made to assure availability (Logistics).

With these changes and with the increased promotional activities by the Health Education Department of the Human Resources Division (supported by the EPI/ORT Project and HealthCom), coverage can continue to improve. However, without current survey data, progress toward the goal of 70% coverage of ORT cannot be evaluated accurately.

### **III. PROVIDER-COMMUNITY INTERACTION**

#### **A. METHODOLOGY OF FIELD STUDY**

As discussed in the Introduction, the evaluation team visited several Health Posts and Centers in urban and rural Regions throughout the country to get a comparative view of health facilities with reputations for being either successful or unsuccessful. Each Health Post, Center, and individual community was visited for half a day. Area chiefs, doctors, nurses, auxiliary nurses, health promoters, TSRs, midwives, and mothers of Mayan descent and Spanish or mixed Spanish and Mayan descent (Ladinos) were interviewed during these visits. Eighteen Ladino mothers and 36 Mayan mothers were selected on the basis of willingness to participate in interviews. Because of time limitations, most of the women interviewed lived within immediate access of Health Posts. These women tended to be more acculturated and progressive in their approach to health care. However, the team also visited smaller, isolated Mayan communities to interview more traditional Mayan mothers with limited access to Health Posts and EPI/ORT services.

Questionnaires were developed to evaluate each person's knowledge and use of EPI/ORT and cultural factors influencing participation in the program. The Rapid Assessments Procedures for Nutrition and Primary Health Care (RAP) developed by Susan Scrimshaw (UCLA) and Elena Hurtado (INCAP), and the Community Knowledge, Attitudes and Practices (KAP, 1987) survey conducted by INCAP were used as sources in developing the questionnaires. The forms were then administered with standard ethnographic interview techniques. In this approach, questions are used as prompts for open-ended responses. When individuals express interest in a topic, they are encouraged to develop their responses in detail. Consultations were also observed at several Health Posts to monitor relations between providers and beneficiaries of the EPI/ORT program.

#### **B. BACKGROUND**

Mayans already possess their own intact medical system and therapeutic options (Enge and Harrison 1987; INCAP 1987; Orellana 1987). Patients can select treatment from a range of traditional therapies as well as Western medical services. This portion of the EPI/ORT evaluation addresses factors that influence decisions to participate in the EPI/ORT program, and to make effective use of services provided. We examined receptivity to EPI/ORT from a cost-benefit perspective, in which individuals select and comply with programs that are perceived to provide health benefits at the least cost.

The costs of using health services include manifest factors such as financial expenses, time constraints, transportation and geographic access, convenience of services, and language barriers in communicating with health providers. Other, less tangible costs include suspicion, fear, or resentment caused by unfavorable experiences or by conflicts between medical programs and traditional health beliefs and values. Dependence on medical services may also represent an

intangible cost to individuals who value autonomy and empowerment in health care. Coerced participation in compulsory medical programs also produces costs in terms of suspicion and resentment (Young 1980), while positive incentives reward users, reinforcing decisions to employ those services in the future.

In Guatemala, as in most cultures, mothers (female heads of household) tend to make most of the initial health care decisions in the family (Cosminsky 1979; Cosminsky and Scrimshaw 1980; Enge and Harrison 1987). They must weigh personal considerations of perceived cost against the health needs of family members. The adequacy of their decisions, and their ability to make effective and accurate use of services can be diminished by factors such as lack of awareness of services, lack of personal experience, or inability to make rational choices due to emotional stress caused by concern for family members who are ill.

### C. CULTURAL DIMENSIONS OF COMMUNITY RECEPTIVITY TO ORT

The evaluation team found that overall use of ORT remains low in all Regions despite high public awareness of the program. Restricted use can be attributed to limited confidence in the effectiveness and appropriateness of ORS for diarrhea, belief in the value of ritual healing for diarrhea caused by supernatural agents, intolerance of the taste of the solution, limited access to ORS packets, and perceptions of the salts as a delicate and dangerous medication. Inadequate instruction and resources for accurate mixing further exacerbate the situation, diminishing the effectiveness of the program.

Anthropologic research and information collected by the evaluation team demonstrate the persistence of indigenous beliefs about diarrhea among contemporary Mayans (Adams 1955; Logan 1973; Cosminsky and Scrimshaw 1980; Enge and Harrison 1987; Orellana 1987). The evaluation team found that traditional views about the causes, prevention, and treatment of diarrhea are prevalent throughout the Guatemalan highlands, even in those areas populated by the more acculturated or "progressive" Mayans interviewed. Some of these traditional beliefs and practices about diarrhea have had a negative impact on community response to the ORT aspect of the child survival program. Although ORT is gaining acceptance, traditional views of treatment continue to slow the pace of ORS use.

Mayans describe diarrhea as both an illness and a symptom of other disease syndromes. Recent studies by INCAP and by Victoria Ward, Bruce Newman, Lydia de León and Carmen Dárdano (DataPro, Guatemala) confirm information from site interviews with Mayan mothers, which suggest that Mayans attribute diarrhea to natural and supernatural disease agents. The mothers interviewed by the evaluation team identified factors such as poor hygiene, consumption of spoiled food or polluted water, and parasitic infection as frequent causes of diarrhea. They suggested that household hygiene and proper nutrition are the most effective ways to prevent the condition, and they use a combination of homemade herbal remedies, purgatives, and antiparasitics purchased at pharmacies and shops to treat cases of diarrhea. Although the team did not evaluate the efficacy of these teas and medications, the mothers expressed faith in these treatments.

Many of the Mayans interviewed believe that evil eye sickness (*ojo or mal de ojo*) causes diarrhea in young children. Evil eye is brought on when jealous individuals deliberately or inadvertently direct their envious and malevolent attentions on children whom they covet (Cosminsky 1987; Enge and Hewes de Calderón 1988). Mayan families protect young children from diarrhea and the envious gaze of others by covering infants faces in public and by placing amulets on them. Suspected cases of evil eye are usually presented to ritual healers (*curanderos*) for diagnosis and treatment. Physicians, auxiliary nurses, and health promoters interviewed in site visits at three Health Posts stated that many families first consult healers rather than health workers for treatment of diarrhea. These health workers expressed concerns that initial reliance on ritual curing might unnecessarily delay treatment of diarrhea and dehydration.

Nearly all Mayans also trace diarrhea to an imbalance of body humors. The humoral theory of illness has been extensively documented throughout Latin America in the anthropologic literature (Foster 1953; Logan 1973). In this system illness is attributed to an excess of "hot" or "cold" forces. These pervasive humoral elements can be found in foods and beverages, medicines, climate, colors, physical activities, and emotional states. The categorization of specific items as "hot" and "cold" varies within and between communities, but individuals consistently state that an excess of "hot" humors produces "hot" illnesses such as infections and fevers, while "cold" imbalances result in "cold" disorders such as *gripe* and respiratory infections.

Mayans identify both "hot" and "cold" forms of diarrhea, although the vast majority of episodes are attributed to "cold." They suggest that diarrhea can be prevented by avoiding exposure to rapid change in climate, diet, and physical exertion. Treatment of diarrhea from humoral excess follows allopathic principles; that is, "hot" diarrhea is alleviated with "cold" remedies, while "cold" diarrhea is cured with "hot" preparations. Medicinal plant teas are widely used, although many families administer them in combination with pharmaceuticals thought to possess appropriate humoral qualities.

Awareness of ORT was high in all Areas visited. Forty-five of 54 women interviewed in site visits were able to identify oral rehydration solution. Even Mayan-speaking mothers in isolated rural communities knew about the salts. Nevertheless, these women more often needed additional prompting or reminders before identifying ORS than did the urban mothers, and eight of the nine women unfamiliar with ORS were Mayan women living in isolated villages. This finding suggests that although awareness of oral rehydration therapy is increasing throughout the country, the program's progress in accessible areas may be outpacing that in rural populations. Similar findings are reported by Enge and Harrison (1987), INCAP (1987), and Ward et al. (DataPro, Guatemala, 1989). These findings suggest that ORT education needs to be enhanced in rural areas throughout Guatemala.

Interviews with mothers and earlier research by Enge and Hewes de Calderón (1988) indicate that virtually all Mayan mothers can recall the proper preparation of ORS with a high level of accuracy. Almost every woman who knew about the salts said that the entire packet should be mixed well in one liter, or four glasses, of boiled water that has been allowed to cool. Only one woman in a more isolated part of Totonicapán erred in recalling the preparation instructions. She reported that the entire packet should be added to ½ liter of boiled water. All mothers who knew about ORS said that the solution must be discarded after 24 hours.

While accuracy in recall of preparation instructions is high, other recent studies point out that skill in the actual preparation of ORS is quite poor (Ward et al. 1989; de León et al. 1989). Liter measurements vary widely by household and in repeated individual performance. Discrepancies in preparation knowledge and ability seem to be linked to inadequate instruction on ORS preparation and inconsistencies in instruction on measures. While nearly all health workers claimed that they demonstrate the mixing of ORS, not one mother interviewed in site visits had seen a demonstration; in each of these cases health workers had merely "advised" or "explained" how to use the packets. Mayan women are not given sufficient information to properly identify liter bottles, and those told to use four cups of water are often confused by the variability in the size of cups sold in the country. Providers also advise mothers to mix homemade oral rehydration solution (*suero casero*) when they lack salt packets, but they fail to demonstrate its preparation. Skill-enhancement education and monitoring of ORS preparation could resolve problems of inaccurate mixing the solution.

A major impediment to proper use of ORS is associated with local beliefs about the therapeutic function of ORS in diarrhea. Nearly all mothers interviewed in site visits assumed that ORS is a cure for diarrhea. Only four of 54 women identified ORS as a treatment for dehydration, and all four of these women were Ladinos. Failure to distinguish between dehydration and diarrhea treatment may have contributed to a general lack of confidence in the efficacy of ORT, since diarrhea persists despite ORS treatment. Mothers must be made aware of the differences between diarrhea and dehydration to reassure them about the efficacy of ORS.

The perceived value of ORS could be further diminished by apparent discrepancies between the perceived humoral qualities of diarrhea and ORS (Ward et al. 1989, Enge and Hewes de Calderón 1988, Logan 1973). Mayan women identified most cases of diarrhea as humorally "cold." Consequently, episodes should be treated with "hot" remedies. Mayan mothers consistently identify ORS as "cold" and therefore inappropriate for the treatment of diarrhea. These women associated ORS packets with "cold" because the ingredients (water, salt, and sugar) and the color of solution (white) and the packets (white with blue writing) are all humorally "cold." More acculturated women appear somewhat less bothered by the humoral inconsistency, although all Mayan women are confused by it. Although Mayans treat diarrhea with numerous herbal teas (Logan 1973, Orellana 1987), ORS seems to represent to them the wrong type of liquid remedy for this illness. Most women who knew about ORS had used it for some cases of diarrhea, but many failed to see its value. These women also associated the "cold" quality of ORS with its failure to cure diarrhea. The color and contents of ORS could be altered to dispel the image of the salts as humorally "cold."

Mayan and Ladino mothers have had additional problems using ORS because of its flavor. Our evaluation was unable to determine whether taste problems reflect the actual flavor of ORS or whether the excessively salty taste is a product of overconcentration in mixing. Nevertheless, most mothers reported that their children did not like the salty taste of the solution, and ten mothers said their children have refused to drink it. Although most mothers appear unlikely to abandon ORS solely because of concerns about its taste, some mothers have had to force feed the solution to their children, making its use more problematic. Ways to improve the flavor of ORS should be studied. Problems with the salty taste of ORS could also be exploited as a mechanism for reducing toxicity risks; mothers could be advised to avoid overconcentration to improve the flavor of ORS.

Access to ORS packets appears to be one of the greatest impediments to consistent use of ORT. Only one of the 54 mothers interviewed in the team evaluation had a packet of ORS in her home. This mother had kept a spare packet when a previous episode of diarrhea ended quickly. All the other women stated that they had to visit a Health Post or Center and request packets of salts when their children had diarrhea; only two mothers stated that they could obtain ORS packets directly from promoters. No women were given packets if their offspring were healthy. Perceptions of Health Posts as the sole distribution centers for ORS and the policy of restricted distribution have proven inconvenient even for women living close to Health Posts. Mothers noted that they often wait several hours to see a health worker and receive only one or two ORS packets, a quantity insufficient for the duration of many diarrhea episodes. In some cases, women were forced to return to the Center or Post repeatedly to obtain more salts. In some Areas, the mothers were required to bring in empty packets to exchange them for refills. Health promoters in more remote communities reported that they rarely had enough packets to distribute to mothers and referred their clients to Health Posts. Others stated that community members seemed unaware that the promoters had ORS packets. Women in these isolated areas reported that they had spent a full day walking to Health Posts, waiting to consult health workers, and returning home. Many of these women ran out of packets before the diarrhea episode ended.

At present, mothers are dependent upon providers for attention. Access to information and materials is therefore subject to the availability of a provider. When access to providers is disrupted (e.g., health strikes, travel for training, transfers, retirement) so is treatment.

Beneficiaries face hardship from restricted access to treatments, making women less willing to seek health care assistance (also see Cosminsky 1989; Cosminsky and Scrimshaw 1980). Health workers questioned about the distribution of salt packets insisted that mothers know the correct procedure for mixing ORS. Nevertheless, these same providers stated that they do not freely distribute the packets because mothers might "misuse" them. Providers therefore withhold ORS packets from potential beneficiaries, slowing the progress of the ORT program. These policies of restricted access to ORS have also "mystified" treatment, that is, providers inadvertently convey the message to potential beneficiaries that rehydration salts are a dangerous and difficult-to-use medication to be employed only in severe cases of diarrhea and administered under medical supervision.

Interview data and research by INCAP (1987) indicate that inaccuracies in the preparation and use of ORT are associated with lack of access to ORS packets. All providers interviewed in site visits stated that they advise mothers to produce homemade ORS whenever they lack salt packets. Since mothers commonly lack ORS packets, they probably mix home preparations regularly. Unsupervised use of homemade ORS may increase risks of overconcentration or dilution of rehydration salts, since mothers are given only limited instruction on preparing home solutions and they lack resources to measure all the ingredients accurately and consistently. Home preparation instructions also permit ingredients to be substituted, creating a potential for overconcentration or drug interaction between the ingredients. Increased access to salt packets and improved instruction and monitoring in the use of homemade ORS could eliminate many of these problems. The effectiveness of ORT depends on transferring the base of information to mothers. Since mothers train their own daughters in family care, ORT could persist for generations, and

women would gain a degree of autonomy and empowerment in family health care. Restricted access to ORS packets, perceptions of Health Posts as the sole sources of packets, and views of ORT as powerful medicine need to be corrected.

#### RECOMMENDATIONS:

- \* The availability of oral rehydration salt packets needs to be greatly expanded. Mothers with young children (especially residents of more isolated communities) should be given ORS packets even when children do not have diarrhea. This policy would help to reduce delays in treating the early stages of dehydration.
- \* Women who seek help for children with diarrhea should be given as many as five ORS packets in their initial visit, so that rehydration therapy does not have to be disrupted to make repeated visits to Health Posts.
- \* Beneficiaries should not be required to present empty packets to receive ORS refills.
- \* Campaigns should be initiated to promote ORS as a simple-to-use home remedy to be used even in mild cases of diarrhea, especially in more isolated, rural communities (HealthCom, 1989).
- \* Receptivity to ORT should be addressed through culturally appropriate means. Promotional campaigns should associate ORS with the traditional use of herbal teas.
  - Perceptions of salt packets and solutions as humorally "cold" should also be altered by changing the color of ORS salts and packages. Salts and envelopes could be tinted in colors such as orange, yellow, or red, to convey images of "heating" for the majority of diarrheal cases judged to be "cold." Limited quantities of white salts and packaging should also remain available for those diarrhea episodes attributed to "heat."
- \* Research needs to be undertaken to improve the flavor of the solution. Although the flavor should not be sufficiently pleasant to encourage misuse, the salty taste should be disguised enough to make ORS easier to administer to children.
- \* The accuracy of ORS preparation by mothers should be improved to reduce the potential for salt toxicity. Providers should demonstrate mixing ORS packets as well as homemade solutions, and they should monitor individual women on the preparation and use of ORT. Promoters should be given posters and other educational materials on the proper preparation and use of ORS. These materials would increase public awareness, and they would also serve as reference guides for the promoters themselves. Health promoters and midwives should also be encouraged to mix ORS for mothers.

- \* Ritual healers who treat diarrhea caused by evil eye should also be trained to recognize and treat dehydration. The healers could be encouraged to advise patients about ORT and might also be trained to make ORS for clients. Although the healers are likely to resist efforts to discount evil eye sickness, they may respond favorably to programs that draw them into the therapeutic process.
- \* Mothers should be made self-sufficient in controlling diarrhea and dehydration. Beneficiaries should be trained to recognize and treat the early symptoms of diarrhea and dehydration. This process requires intensified efforts to train mothers in the preparation of ORS as well as homemade solutions, so that they can treat dehydration without delay.
- \* Substitute ingredients such as orange juice or corn starch should be developed to provide safe and viable options for mothers with limited time or access to standard rehydration solution ingredients. Mothers should also be encouraged to use standardized and readily available resources for measuring and mixing ORS (e.g., the liter-sized *guacal* used in laundries).
- \* Instruction provided to mothers should also include an enhanced diarrhea prevention component, so that rehydration will gradually prove less necessary.

#### **D. CULTURAL DIMENSIONS OF COMMUNITY RECEPTIVITY TO EPI**

Anthropologic research and interviews conducted in site visits indicate that, as with ORT, participation rates in the child survival immunization program are higher in more acculturated and accessible regions. By contrast, participation rates in traditional, more isolated communities vary widely. A majority of children have received an initial vaccination, but the series is less likely to be completed in culturally conservative areas. Poor compliance appears to be associated with fear caused by conflicts between traditional health beliefs and perceptions of immunization, negative experiences of individuals who participated in earlier vaccination campaigns, lack of information about the purpose, scheduling, sequencing, and appropriate age for immunization, and resentment over inconvenient access and the negative incentive of mandatory participation in the program.

Mayans have a long history of beliefs associating blood with health (Adams 1955). The human body is thought to contain a fixed quantity of blood, so that any loss caused by injury, surgery, menstruation, pregnancy and childbirth, or sickness cannot be replaced. Blood loss is thought to produce long-term debility and lowered fertility. Consequently, Mayans try to avoid blood loss, and women are particularly careful to watch for excessive blood loss during the childbearing years. Contemporary Mayans believe that blood can also become polluted by foreign matter, including spirits and disease. These impurities are also thought to cause persistent debility or sterility and in severe cases may result in death. Mayans traditionally prepare a number of medicinal plant teas and purgatives to cleanse and strengthen polluted blood.

Interviews with Mayan mothers and earlier research by INCAP (1987) and Enge and Hewes de Calderón (1988) suggest that traditional Mayan beliefs about blood have profound implications for EPI. Awareness of the program was found to be high in all Health Areas visited. All 54 women interviewed in site visits were fully informed about the EPI program and its goal of reducing infectious disease in young children and tetanus in pregnant women. Despite widespread awareness of the program and general approval of its stated goals, culturally conservative Mayans nevertheless demonstrated resistance to the program. Most of these women expressed the opinion that vaccinations make children ill or sterile. Nineteen of the 54 women interviewed in site visits reported that vaccinations injure children. Thirteen of the 19 who associated injury with vaccination were from isolated communities in the Departments of Sololá and Totonicapán. One woman insisted that the vaccinations cause sterility, while another said that the shots kill children. Some of these fears may also be derived from unfavorable experiences. Ten of these mothers stated that the vaccination had made their children sick or had given the children fevers, and two women noted that vaccinations sometimes leave large and unsightly scars.

The most traditional and culturally conservative Mayan women appear to be particularly unwilling to undergo tetanus toxoid vaccinations during pregnancy. Only 28 of the 54 women interviewed in site visits had been vaccinated for tetanus toxoid, and 18 of these 28 women were Ladino or more acculturated Mayans living in accessible regions around Health Centers. Seventeen women specifically stated that they did not want to be vaccinated, especially during pregnancy. These women all insisted that the shots kill or deform the fetus and leave women sterile. Eleven of the 17 who feared vaccination were from more isolated communities around Sololá and Totonicapán. These findings parallel those of previous studies, which indicate that adult tetanus toxoid vaccination rates remain low in the rural Mayan population (HealthCom 1989)

Low adult tetanus toxoid vaccination rates cannot be attributed solely to fears raised by traditional culture beliefs. Access to immunization also continues to pose a significant problem for those interested in the vaccination program. Seven of the 26 women who had not been vaccinated during pregnancy stated that the serum had simply not been available during their last pregnancy, and many of the Mayan mothers who were vaccinated had received only one dose. In these cases, failure to complete the tetanus series can be attributed largely to problems of limited access and inconvenience, rather than to fears about the effect of immunization.

The notion that vaccinations produce illness, sterility, or death appears to be linked to a number of factors, including traditional beliefs about blood. Given concerns about the purity and potency of blood, Mayan women seem to fear that the introduction of foreign substances (especially viruses) in vaccinations will cause illness, impurity, or infertility. INCAP reports that some vaccine bottles labeled "sterile" inadvertently contributed to the impression that the vaccine causes infertility (personal communication, Mireya Palmieri, 8/30/89). In these cases, promotional and educational campaigns need to be enhanced in rural Areas to dispel fears about the effects of immunization.

Other Mayan women have been influenced by the experiences of family, friends, or neighbors who had suffered fevers, scars, or even death from improper inoculation. Gossip and rumors about the failures of earlier vaccination campaigns circulate widely throughout these communities. The accounts have convinced some women that the current immunization program is dangerous. In some cases, children have become ill despite vaccination. Immunization failures

convince these mothers that immunization is ineffective at best and potentially quite dangerous. In many instances, health workers failed to inform mothers about the normal side effects of immunizations. These mothers were unprepared for the resulting fever in young children and felt the vaccination program had done more harm than good. As with traditional beliefs about blood, gossip and rumors generated by unfavorable experiences can be countered most effectively by community health education and promotional campaigns.

Mayan and Ladino women are all poorly informed about immunization scheduling. Only the more acculturated women living near Health Centers in the San Marcos and Chiquimula Areas could recall that children receive three vaccinations in the EPI series. In other Regions, women's estimates on vaccination ranged from two to nine. Many simply stated that children need "a lot" of shots, or as many as they're told to get. Mayan mothers also have limited knowledge about the proper age for immunization. Notions about proper age for vaccination ranged from one day to eight years of age. Most mothers said they took their children in when they were told to do so, but they did not understand why children must be vaccinated at those times. Confusion and lack of awareness about schedules do not seem to have created fear or suspicion among mothers, but women uninformed about the importance of proper vaccination timing and sequencing may pay little attention to immunization schedules (Enge and Hewes de Calderón 1988, HealthCom 1989). More intensive effort may be necessary to advise mothers about immunization schedules, and to remind them of upcoming vaccination appointments.

Mayan and Ladino mothers recognize that children must be immunized before they may register for school. This policy has been highly effective in assuring compliance with EPI, but interviews conducted with mothers in site visits indicate that the policy has also produced considerable resentment in the indigenous population. Mothers who described fears about the dangers of vaccinating their children stated that they nevertheless feel compelled to immunize them, so that the children can go to school. Several of these women described the program as an imposition; they referred to the process as something they "had to do" rather than as an opportunity to improve the health of their children. Although the mandate does motivate parents to vaccinate offspring, such negative incentives have broader implications for the long-term viability of programs. Individuals forced to comply with mandatory health programs often refuse to use nonobligatory services such as ORT, growth monitoring, or family planning (Lock and Schepers-Hughes 1988; Wise 1988). Parents may eventually recognize the benefits of immunization for child survival, but this process will take several years, and many individuals will attribute improved health to improvements in nutrition and child care. The use of positive incentives could greatly mitigate the negative response to policies of compulsory immunization.

Access to the EPI program was found to vary dramatically by Region. Not surprisingly, immunizations are readily available in more urbanized areas with acculturated beneficiaries, while immunization programs remain extremely inconvenient for residents in traditional, rural communities. National immunization days are not generally scheduled to coincide with local community events, so parents are usually forced to abandon work to take children in for vaccinations. Most of the Mayan mothers described the trip to the Health Post as a nuisance. Mothers from some communities, such as Xetimit, must walk for one to three hours to reach the Health Post. Since they cannot arrive early when traveling this distance, these women usually have to wait one to four hours to have their child vaccinated, and they must then make the long trip home. Even mothers living near Health Centers said they had to wait several hours for a

consultation. The average estimated wait for a consultation was two hours among the 54 women interviewed in site visits. A few women spend their limited cash resources on transportation to Health Posts or Centers to save time waiting for consultations. Some of the women who did not speak Spanish were also confused by information provided on immunization and scheduling. Some women pointed out that the long and frustrating trip to the Post seemed particularly unnecessary since their children were not sick at the time they were vaccinated (INCAP 1987; Cosminsky 1989).

The recent shift to channeling appears to reduce some of the access problems for families in more isolated communities, although the program is not yet fully operational in many Areas. In this process, health workers from Centers and Posts visit individual families with rural health promoters to advise them about immunization and arrange their vaccination schedule. Vaccinations are then given at a local meeting. Most of the children in isolated areas visited by the evaluation team were vaccinated in a meeting at their village school or meeting house. This program helps women avoid making "unnecessary" trips to Health Posts when children are not sick. The easier it is for individuals to participate in the program, the more likely they are to complete the full vaccination series.

Although channeling resolves some of the problems of information dissemination and access to services, several difficulties with the system remain to be worked out. Channeling is time consuming and laborious, and its success depends largely upon the motivation of rural health promoters. Many women interviewed in site visits had never been contacted about immunizations. Others were unable to understand the point of the visit because of language barriers. Others ignore the visits, and some miss the group immunizations and delay immunization until the next scheduled vaccination day. Although some of these women realize that they can go to Health Posts to complete the vaccination series if they miss a national vaccination day, many state that such trips often prove frustrating or futile; many had gone to Posts only to find them closed, and others had to wait for several hours to get their children vaccinated.

Mayans are beginning to recognize the value of immunization, but the full impact of the program on child survival will not be apparent for at least one generation. Consequently, short-term incentives should be developed to attract participants to what is, at present, a highly inconvenient and seemingly risky program.

#### **RECOMMENDATIONS:**

- \* Access to immunization should be improved in rural areas. Flexibility should be permitted in scheduling special immunization days, so the event can coincide with community activities that draw parents and children. For example, vaccination days could be scheduled around village market days, Sunday mass, village meetings, school or community festivals, or during health education meetings.
- \* Health Posts should continue to make vaccinations available at any time for those unable to attend scheduled immunization days. Women would still need to travel to Health Posts, and even though providers may waste serum to vaccinate individual children, this process helps "capture" individuals who might otherwise fail to complete the series.

- \* Since most traditional Mayan women are illiterate and face language barriers, mothers should be personally informed about immunization dates and visited to remind them about the schedules, in their own language whenever possible.
- \* Perceived health risks of immunization should be diffused in a culturally sensitive manner. Educational campaigns could link traditional beliefs about blood and health to EPI. Immunization might be promoted as a blood-fortifier that purifies blood by cleansing it of infectious diseases. Similarly, pregnant women could be advised that tetanus shots will improve their overall fertility, since the vaccinations increase the survival rate of both mother and infant.
- \* Educational promotions are essential to distinguish EPI from earlier, unfavorable immunization campaigns. Providers should advise beneficiaries that the current program is new, improved, and highly successful in warding off infectious disease (HealthCom 1989).

The EPI program should develop positive, short-term incentives for beneficiaries. A number of alternative short-term incentives might be made available to provide positive reinforcement for participants. For example, special immunization days might be linked with food distributions or CARE allotments. National Vaccination Days might be held as festivals, or children receive small immunization "prizes" for participating (e.g., balloons advertising EPI). Some countries award parents with inexpensive vaccination "diplomas," which they proudly display as a demonstration of filial responsibility. Such rewards give parents tangible evidence that vaccination efforts made on behalf of their children were worthwhile.

#### **E. PROVIDER-BENEFICIARY RELATIONS: PROMOTERS AND MIDWIVES**

Rural health promoters, midwives, and mothers were interviewed to evaluate the relationship between the health providers and the communities they serve, and to assess the potential for expanding the promoter's role in health education. Although promoters and midwives play a crucial role in the EPI/ORT program and community health, the evaluation has identified some problems in the selection, motivation, and use of promoters and in women's receptivity to them. Failure to take advantage of the skills, experience, and reputations of midwives presents further limitations to health education, and the midwives face problems with inadequate supplies and peripheral status in EPI, ORT, and other aspects of the child survival programs.

Enge and Hewes de Calderón recently completed a comprehensive study of health promoter responsibilities (1988). They note that the volunteer promoters assume numerous duties in the communities. They may treat patients suffering from minor illnesses, make referrals in more life-threatening cases, record patient data and perform community health censuses, administer prescribed injections, monitor patient compliance with treatment regimens, and educate the community on first aid, accident prevention, and health care. Although most of their tasks are treatment related, promoters also participate in preventive health care programs, including

environmental sanitation, maternal-child health education, ORT, and immunization. The promoter's duties in ORT include distribution of ORS packets and instruction on the preparation and use of the solution. Responsibilities in EPI include advising families on vaccination schedules and assisting Health Posts with channeling and organizing special immunization days.

Many of the promoters interviewed in site visits confessed to a lack of motivation in fulfilling their responsibilities. These promoters pointed to the large number of tasks they may be expected to undertake and note that it is difficult to take on the burden of community health and development as an unpaid volunteer. Some of the male promoters said that they have had to sacrifice wages from paid employment and neglect subsistence farming to complete their duties as rural health promoters. This problem was less severe for the few female promoters interviewed, although all promoters identified lack of motivation as a crucial factor hampering their work.

In contrast to rural health promoters, midwives or traditional birth attendants maintain only a limited role in community health promotion. Their duties focus primarily on assistance in childbirth and postpartum care. They are trained to refer problem labors and deliveries to Health Centers. Midwives affiliated with Health Posts and Centers also help to register new births and record all pertinent birth information. These records are later used to schedule immunizations in the EPI program.

Health promoters are trained and supervised by TSRs. Six promoters who were interviewed in site visits all felt that their training had been helpful and important, and none identified problems with courses. Some felt that additional refresher courses and more extensive supervision would be useful to keep them up to date on the latest health information, although all promoters indicated that they were sufficiently trained to perform their duties.

Midwives are trained and supervised by professional nurses at Health Centers. Three midwives were interviewed during site visits. They all appeared quite satisfied with their training and identified few major conflicts between course instruction and traditional birthing beliefs and practices. However, they did express interest in obtaining additional information on family and maternal-child health care, and they stated that they are given virtually no equipment or supplies to help them perform their duties (Jordan 1978).

Promoters tend to be volunteers, although some are recruited for the position by Health Centers. Most promoters are men, and some communities have only male promoters. Men are usually selected to be promoters since they tend to be literate and because men are perceived as having greater freedom to travel and visit houses alone. In addition, community leaders given the opportunity to select promoters tend to appoint their male acquaintances. Enge and Hewes de Calderón found that rural health promoters usually maintain good relations with beneficiaries, community leaders, and other promoters. Their reputation as healers is usually established through their affiliation with Health Posts or Centers, participation in local sanitation and development projects, and the ability to mobilize the community for health programs.

In contrast with rural health promoters, midwives are usually recruited through supernatural channels. For example, signs such as a caul birth are thought to predict a girl's future role as midwife. Some midwives experience birth-related dreams and visions, while others inherit the role from kinswomen. This mystical recruitment process gives midwives special status and

freedom in the community, although the responsibilities associated with the role can also cause friction in the family (Cosminsky 1977; Putney and Smith 1989). Midwives gain recognition as skilled birth attendants over time. Their reputation increases with each successful delivery. Fully 80% of all births in Guatemala are estimated to be attended by traditional midwives (Putney and Smith 1989). Enge and Hewes de Calderón point out that relations between rural health promoters and midwives tend to be strained, and the activities of the two providers are not coordinated.

Although Enge and Hewes de Calderón found overall promoter-community relations to be positive, site visits and interviews with individual women reveal substantial friction between mothers and rural health promoters. This tension appears to be linked to conflict over traditional gender roles in family health and male-female relations. Mayan and Ladino women alike consistently stated that men know nothing about child care or health. They suggest that mothers are the only individuals who know how to care properly for children. Nearly half of all women interviewed stated that they lack confidence (*"falta confianza"*) in the advice given by male promoters. Many women also stated that they felt ashamed or embarrassed (*"me da vergüenza"*) when male promoters came to their homes. Although this problem appears widespread, it was most acute among more traditional Mayan mothers in isolated, rural communities, who are the very individuals in greatest need of access to health providers.

Although many of the women interviewed in site visits state that they lack confidence in male promoters or feel embarrassed around them, these women nevertheless express interest in learning more about health and child care. They simply note that they would prefer to be instructed in these matters by other women. When questioned about gender preference, no women expressed a preference for male promoters. In contrast, 30 of the 54 women questioned stated a clear preference for female rural health promoters. Gender preferences were found to be stronger among Mayan women. Twenty-three of the 30 mothers preferring female promoters were Mayan women. Twenty-four women expressed no opinion about the gender of promoters, but 12 of the 24 women with no clear opinion were Ladino or acculturated Mayans living near Health Centers. These findings suggest that, although preference for female promoters is not universal, it is nevertheless a major concern for many women. Although trained male promoters continue to contribute extensively to community health and education, greater emphasis should be placed on recruiting and training more female rural health promoters.

Midwives could also be used as rural health promoters. Currently, medical services are wasting the talents of highly experienced and trusted health workers by minimizing the activities of midwives. Older, more respected midwives tend to be culturally conservative and less receptive to new health care and birthing strategies. However, older midwives are trusted by the community, and they can be used as "culture brokers," or initial agents of change, to draw more traditional Mayan mothers into ORT, EPI, and other child survival programs. Younger midwives have proven highly responsive to training and recommendations and have successfully integrated many Health Center recommendations into traditional birthing strategies. Although younger midwives do not possess the same stature as older, more experienced midwives, they will gain enhanced reputations within a few years. Midwives recruited and trained in community development and health education now will serve as highly effective conduits for community participation in new programs. Such promoters would be able to gain admission to the homes of more traditional women and make contact with those mothers who are most resistant to child survival programs.

## **RECOMMENDATION:**

- \* Health Centers should recruit more women as rural health promoters. Hiring criteria should be developed to expand recruitment beyond self-selection (Enge and Hewes de Calderón, 1988) and encourage enrollment of more women and of men who are trusted by women in their community. Literacy requirements should be reevaluated in light of the low education levels of indigenous Guatemalan women and of the need to expand the current pool of female promoter candidates. Literacy has not proven to be a major obstacle in training midwives; rural health promoters should not be rejected solely on this basis.
  
- \* The role of midwives in community health should be expanded. Midwives should receive more extensive training in family health, child survival, and community development. The midwives should be given a more extensive role in EPI, ORT, and health promotion activities (Cosminsky 1989; Jordan 1978; Putney and Smith 1989). Midwives could also serve as translators for Health Center clients who cannot speak Spanish. The midwives would also protect Mayan women's reputations and alleviate their embarrassment when being tended by male health providers. Midwives should be better equipped and supplied to assist with births and to participate in child survival programs.

## **IV. ADMINISTRATION**

### **A. GENERAL ADMINISTRATIVE ORGANIZATION**

Project support is organized through a Project Administrative Unit (PAU), which administers Project funds (other than direct USAID/G purchases) for the implementing units in the Health Areas and for the national level components: EPI, ORT, H/MIS, and Administrative Development. Technical assistance is provided by HealthCom for promotion and by MSH for administrative development, training, H/MIS, and logistics.

The PAU is a separate administrative unit that currently is not well integrated into the formal administration of the MOH. Directly responsible to the Director General, the PAU administers most of the local funds, Central purchasing, and warehousing for the Project. The PAU, which is headed by a national coordinator to be designated by the Minister, is designed to have a local administrator, financial units, and purchasing and warehousing units. There have been five national coordinators since the start of the Project; the current coordinator has occupied the position since April 1988. There have also been three Administrators. Currently the post is vacant, awaiting final processing through USAID/G.

Over time the PAU grew to approximately 30 people in December 1988. Because of the auditing problems to be discussed below, the PAU shrank to a low of 14 in early 1989, seriously impairing its functioning. Now, although its staffing has increased to 48, several key positions still have not been filled. Currently, the PAU is dangerously dependent on the Project for staff salaries. Of the 48 staff members, only 6, 4 of whom are drivers, are on GOG salary. Even if the PAU were designed to provide a mechanism for strengthening the capabilities of MOH salaried staff so that their skills could be sustained in the MOH after the Project ends, it is currently unlikely to do so.

The PAU is designed to provide a more flexible means of managing funds than is available through the normal MOH administration. It also provides a means of following the reporting and financial control requirements of both USAID/G and the MOH. As such, it is a vehicle for funding that does little at the national level to assure institutional strengthening and sustainability. Given the current legal structures of Guatemala, it may be the most flexible means to provide Project funding. However, the PAU should be viewed as a temporary expedient that should evolve toward a more integrated and sustainable mechanism within the formal MOH structure.

As if to reinforce the vertical and separate nature of the PAU, early this year its offices were moved from the General Directorate Building in Zone 1 to Zone 2. Coordination that had been established between the PAU auditors and the DGSS Auditing Department was also severed.

## B. THE CURRENT CRISIS

Despite the advances discussed in the coverage sections above, the Project is currently in administrative crisis. The PAU, which was initially effective in managing an increase in spending and which provided an innovative decentralization of funding to the Area level, is now a major bottleneck that in the last two trimesters has significantly reduced spending of counterpart funds, inhibited implementation of component and Area Project activities, and generated discontent at all levels.

There are a variety of unfortunate reasons for this situation. A series of audits culminated in findings of significant financial irregularities. These audits led to the firing or resignations of over 60% of the PAU staff during the first six months of 1989, causing a significant shortage of personnel during a critical period of Project implementation. In addition, the audits led the PAU staff to impose very strict controls on the paperwork necessary for disbursement. These additional burdens on the much-reduced staff contributed to lack of coordination, lack of responsiveness, and the slowdown of disbursements. These problems generated misunderstandings and resentment from most officials who depend on Project funds for implementing EPI/ORT activities. The misunderstandings and ill will led to a series of meetings with officials from MOH and USAID/G at all levels. These meetings are providing a constructive forum for addressing the problems. A positive aspect of the crisis is that as a result the Project has become a priority for decision-makers.

Part of the current problems stem from several significant deviations from the original intent of the amended Project. First, the PAU has moved its office far from the building of the General Directorate, and the MSH offices are also distant from both. The physical separation has exacerbated the problems of coordination and communication. Second, the PAU staff has not been replenished with the speed necessary to prevent it from becoming a bottleneck. Third, the Project has supported increasing numbers of staff who should be provided by the Ministry. Fourth, as problems arose, key actors failed to utilize assistance and cooperation from available sources.

Several options have been proposed to resolve this crisis. We attempt here to present a sequential strategy that incorporates several options and discusses the positive and negative implications of these options.

### RECOMMENDATIONS:

- \* First, we think it necessary for both USAID/G and the MOH to treat this Project as a major priority that may entail sacrificing other activities to be put back on track. Attention by the highest levels of both agencies should be sustained throughout the process so that key decisions can be made quickly and follow-up achieved.
- \* The *Junta Directiva*, which is composed of the Director General, all component heads, the Project coordinator and (when appointed) the administrator, and chiefs of party of the technical assistance teams, should establish a regular routine meeting schedule, and the MOH should make these meetings highest priority. Reports of

these meetings should be monitored by the Director General, Minister, USAID/G representative, and Mission Director.

As soon as possible, but not later than October 30, 1989, an organizational development team-building exercise should be held with an outside, highly skilled, native Spanish-speaking facilitator. The purpose of this exercise should be to review the history of the crisis from all perspectives, directly address all concerns, set out joint tasks for improving relations, and schedule any additional inputs necessary to resolve key problems.

**Following this exercise, which should improve communication among the parties, the following strategy should be considered:**

**Strengthen and Improve the Capability of the PAU:**

This option means that the MOH must commit itself to fully staffing the PAU and that the selection of an Administrator be accelerated. The PAU should be moved back to the General Directorate Building as a priority program, displacing other departments if necessary. Auditors of the program should be located with the Directorate's own Department of Administration. Efforts should be made to find office space within the General Directorate Building for MSH as well.

Active and significant technical assistance should be provided to the PAU through either 1) hiring a highly qualified private accounting firm or 2) some other mechanism to provide a professional team of short-term technical advisers. This technical assistance should immediately develop a flexible financial control system, train PAU counterparts and the Administrative unit of the DGSS, and train the Regional and Area controllers and auditors in the revised system.

MSH should provide immediate technical assistance to improve other management skills in all departments of the PAU.

These immediate steps should be taken within a broader perspective of the need to integrate most of PAU into the ongoing administrative structure of the MOH, in particular the DGSS Administrative Department. A major long-term objective should be to utilize improvements in the PAU to strengthen the capabilities of this department. With this goal in mind, some staff of the PAU, particularly the auditors, should be reassigned to the DGSS Administrative Department, and additional staff should be added.

The central role of the option to provide technical assistance in financial control, either through a private consulting firm or through a team of short-term consultants, should be underlined. This team should strengthen the capabilities of the PAU and MOH to provide timely, flexible, and decentralized funding.

The accounting firm option needs much more study and clarification before it can be fully considered. However, the use of alternative financial control processes should be

considered, primarily with the objective of strengthening the long-term viability of the decentralized system. The desire to get funds flowing rapidly again -- either for pipeline or for achievement of target goals, or even for the most humanitarian desires to save lives immediately -- should not obscure the need to make this system a long-term, effective, and sustainable program so it can save more lives in the future.

As technical assistance, the option of seeking outside advisers should not be seen as, nor evolve into, a replacement for the PAU financing function. If a private firm were to assume functional responsibility for financial control, its activities would not be sustainable. It would create the impression that decentralization means circumventing the national financial system. We already have examples of financing that avoids the national system: the use of PAHO funds for Accelerated Vaccination Campaigns, which have a much less rigorous financial control system so that auditing involves only checking signatures and is done by PAHO without national auditors or accountants involved in any stage. This example is often cited as a preferred option because it is so fast and simple. However, any system that avoids the national public sector financing system would not be sustainable with national funding in the future. When the USAID/G funding stops, there would be no national mechanism to replace it. None of the officials at the PAU, Area, and lower levels would have learned how to manage national funds with their requirements. With such a large portion of the operational level funding in the hands of an alternative system, dangerous pressures on the national institutions might be generated, threatening their already fragile stability.

As noted below in the section on finance, this program is an integral part of the MOH's primary health care system, providing the bulk of the nonsalary resources to the operational levels. If the PAU is to be at all sustainable, it must be integrated more fully into the administrative structure of the MOH. Decisions were made last year and early this year that have made the PAU even less integrated: it was physically removed from the DGSS Building; and its staff has become almost entirely funded by USAID/G, with only 6 staff members on government salaries. A temporary period of integration with the auditing unit of the Administrative Division was terminated. Its Consultative Committee of component chiefs has not been called to meet again since its initial meeting.

Every effort should be made to reverse these decisions and to put the Project back in its central and priority role in the MOH.

#### **RECOMMENDATIONS:**

- \* The PAU should be moved back to the General Directorate Building as a priority program, displacing other departments if necessary. Auditors of the program should be located with the Directorate's own Department of Administration. Efforts should be made to find office space for MSH as well.
- \* MOH should demonstrate its commitment to the Project and reinforce its capacity to strengthen the institutional structure of the MOH by transferring key MOH salaried personnel to the PAU to strengthen its capabilities.

Coordinating meetings of the *Junta Directiva* and working groups for Project activities should be given formal precedence over all other time requirements of the officials involved.

### C. USAID/GUATEMALA

This Project has been a difficult one for USAID/G to manage. Design problems, major amendments, complex internal administrative processes, fragmented and highly politicized host country conditions, staff shortages, illness of a key official, and the usual array of purchasing restrictions and incompatible fiscal processes and cycles have plagued the Project.

Despite these problems, all the USAID/G officials have been effective managers of the Project. Each individual has carried out her or his responsibilities well. The Project is logically managed, with a clear division of labor among the four responsible officials.

However, the Project has taken more of the time of the Chief of the Office of Human Resources Development and the Health and Population Officer than it should have. These positions have many other responsibilities in the USAID/G structure and should not have to assume the central coordinating role nor provide the constant contact with MOH officials, consultants, and other donors necessary to strengthen the Project.

The position of Project Liaison Officer, recommended by the Concept Paper (Cross 1987), is designed to provide a link between USAID/G and the PAU, MSH, HealthCom, and the MOH. However, it does not currently assume responsibility for coordinating the overall Project within USAID/G. The Project Liaison Officer, the Project Manager, and the Purchasing Officer are all directly responsible to the Health and Population Officer.

We think that the position of Project Liaison Officer should be upgraded to assume overall responsibility for coordinating the Project within USAID/G and a stronger technical and managerial coordination role with the MOH and the institutional contractors. A project manager with top technical abilities, strong interpersonal and managerial skills, and experience working with policy-level officials and technical staff in both AID and host countries could provide the leadership necessary within USAID/G and assume a stronger role in coordinating with the MOH and the institutional contractors. This manager should develop more systematic monitoring mechanisms and strengthen coordination among other responsible USAID/G staff.

#### RECOMMENDATIONS:

- \* Within USAID/G, this Project should be managed by a professional with a Ph.D., M.B.A., and/or M.D./M.P.H. and experience in managing large projects in Latin America, whose only responsibility would be the coordination and management of this Project. This position should probably be a Personal Services Contract with appropriate salary level. This Project Manager would assume responsibility for coordinating the USAID/G Project staff and for coordinating with MOH and the institutional contractors.

## V. TECHNICAL ASSISTANCE

### A. BACKGROUND

Technical assistance through this Project has been provided through two major contracts: one with HealthCom for promotion and health education support and another with Management Sciences for Health (MSH) for support for administrative improvement. The HealthCom component was the subject of a previous evaluation and will not be examined in depth in this evaluation.

As noted in each component section, MSH consultants have contributed to the development of finance, administrative, logistics, and H/MIS systems, as well as the development of training materials and programs. A major effort in developing a work plan for MSH provided a model of participatory planning that may be useful in future planning efforts in the MOH.

However, this technical assistance has been particularly affected by the administrative crisis of the PAU. Recently the team of long-term consultants has been stymied in its efforts to provide and implement needed changes and activities in the MOH. There are a variety of reasons for this unfortunate situation, which we will review here. The crisis is being reviewed by USAID/G, the MOH, and Project officials, and we hope that the observations of this evaluation team can support their efforts to find solutions to these problems.

MSH has provided support relatively recently, having been added in the third amendment and beginning its field activities in September 1988. This technical assistance was added to the EPI/ORT Project to support Project activities and wider MOH needs in administrative development, H/MIS, logistics, and training. The bulk of this support is provided by a team of four long-term expatriate consultants: 1) administrative and management expert and Chief of Party; 2) logistics expert; 3) H/MIS expert; 4) training/supervision expert.

MSH began its activities in September 1988 by focusing on the initial needs of establishing contacts, office space, and internal administrative routines. This process involved the lengthy legal and administrative procedures expected in this kind of activity.

Finding office space became an early problem. The anticipated location of the team within the offices of the General Directorate was deemed to be impossible because of limited space. Searches for appropriate office space near the DGSS were also in vain. However, the team was able to locate in the center of Zone 1, halfway between the DGSS and the National Palace, where the Minister's Office -- including the two vice ministers -- is located. This location has only minor advantages, since most of MSH's activities are with operating units in the DGSS or other normative divisions located far from the National Palace. Shortly after the office space was obtained, the EPI/ORT PAU was moved to another location quite far from both the DGSS and the MSH offices.

This chain of events has unfortunately resulted in the physical isolation of both MSH and PAU from the rest of the MOH and from each other. The original design of the Project had emphasized the objective of integrating both units more firmly into the MOH and anticipated that

greater facility of communication, contact, and interchange would come out of physical proximity. With the current situation, the Project replicates and even exaggerates a general problem of the physical fragmentation of the MOH. The problem is exacerbated by the weak telephone communications of the city, resulting in delayed communications, missed meetings, etc.

Although the space is conducive to many work activities, with relative quiet, adequate support staff and materials, and appropriate furniture, it also has the disadvantage of appearing to be a privileged oasis for foreign technicians.

The TA team established contacts with counterparts that initially appear to have been quite good. The best relations seem to have been established between the H/MIS consultant and the Information Unit of the MOH. The training consultant also established good working relationships with different units in the Division of Human Resources, first with the unit preparing a correspondence course for auxiliary nurses and later with the promoter training program of the Community Health Department. Prior commitments had delayed the full-time presence of the Chief of Party, so during the first two trimesters the logistics consultant not only established contact with the Administrative Development Department but also assumed temporary responsibility for supporting the PAU in its reorganization plan, developing financial systems for the petty cash program, and administrative responsibility for the MSH team. This consultant's skills were appropriate for all these multiple tasks, although his time was limited by having to respond to so many needs.

The logistics consultant and the Chief of Party were effective in supporting the PAU's early reorganization plan and initiating a planning workshop. The reorganization plan was worked out internally with the PAU and the consultants and was presented as a proposal to responsible officials of the MOH. However, no action has been taken to implement the plan.

A workshop to develop a work plan for MSH technical assistance was held in Panajachel in May 1989. It was attended by the members of the PAU (with the exception of the Project Coordinator) and counterparts in the major components of Epidemiology, Information, Human Resources, and Sectoral Planning and Programming. The workshop reviewed Project objectives, developed a situation and problem analysis, proposed and evaluated solutions, and prepared a workplan for technical assistance and counterparts in an effective participatory process that was well received by the participants.

The early cooperation and good relations between MSH and the PAU, however, began to show signs of strain in April-May. It is impossible for the evaluation team to evaluate fully the responsibilities for this change in relationships between the PAU and the MSH team. Clearly mistakes were made by both sides, and personality incompatibilities may also have exaggerated broader problems.

## **B. IMPACT OF ADMINISTRATIVE CRISIS**

What is clear, however, is that this relationship is now blocking implementation of many activities that were planned and programmed in the MSH workplan. Many of the consultants' activities have remained in proposal form, with no MOH officials willing or able to take

responsibility for implementing them. The conflict has limited the access and responsiveness of officials of other component parts to the technical assistance. The MSH team has become demoralized, and currently its available time for providing technical assistance is limited by the need to address the conflict.

This problem is crucial now and may not plague the Project over the long term if appropriate action is taken by all parties involved. The current process of involving the highest levels of the MOH and USAID/G as well as representatives of the operating units at the Area level in a dialogue and negotiating process may result improve the situation. However, the history of technical assistance in Guatemala is peppered with similar conflicts. A recent seminar on technical assistance sponsored by PAHO suggests that this experience is not isolated. Many technical assistance teams and counterparts have been frustrated by the unfulfilled expectations of this delicate relationship. In this context it is unwise to expect an easy or enduring resolution to the current crisis.

If, however, the process set in motion to resolve the crisis that we discussed in the Section on Administration bears fruit, the MSH team can probably begin to be more effective. The assignment of appropriate counterparts, the collective decision-making implied by the Managerial Committee, and the responsibility for component heads to control financing should all improve access and support funding for the MSH team efforts.

As noted above and in the sections on finance, logistics, H/MIS, and training, the technical assistance of all individual MSH team members has been very appropriate. Their qualifications and the professional quality of their work are to be commended. They have established good working relationships with most counterparts and have dealt with most problems with sensitivity and resourcefulness.

### **C. WEAKNESSES AND RECOMMENDATIONS**

We feel, however, that insufficient attention has been given to developing a broad approach to planning and administrative strengthening of the MOH. Although the administrative aspects of logistics and finance have several strong initiatives and some of the administrative aspects of H/MIS and training are also being identified and addressed, the broader approach envisioned in the last amendment has not been initiated.

There are a variety of reasons for this weakness. First, the responsibility for this activity is with the Chief of Party, who has had several "start-up" responsibilities for the MSH office, continuing managerial responsibility for the office, and a variety of "diplomatic" responsibilities in establishing and maintaining contacts throughout the MOH and with the donors. In addition, much of his time has been involved in the design and implementation of the Planning Workshop, which was essential for the overall effectiveness of the team, but which did not allow him to focus on the component of administrative development and planning. Finally, he has been preoccupied during the last two or three months by the need to deal with the current administrative crisis of the PAU.

Second, the counterparts for this activity have not been well established. Originally much of this activity was to be addressed by the SAM, a program within the Administrative Development Department under the Director General of Health Services. However, many officials initially

assigned to this department have been reassigned to other units within the MOH. Lack of commitment to planning and administrative development in the MOH is reflected in its fragmented approach to this process. No clear decision has been made within the MOH about which officials and which administrative units should take the initiatives and be given the resources to approach administrative development and planning.

Nevertheless, a current ad hoc process of administrative development and planning is supporting the national process of decentralization and regionalization. This effort is a national and MOH priority, as it should be. It provides a strong framework for administrative reform and for planning initiatives and will be strengthened by a World Bank Health Sector Program in the near future.

This ad hoc process is led by the Vice Minister for Technical Affairs through a Management Committee, with responsibilities shared by the Sectoral Planning Unit, Administrative Development, the Administrative Division of DGSS, and the Office of International Affairs. This process is being supported by PAHO technical assistance and has developed proposals for reorganization of the *Despacho Ministerial* and for the establishment of Regional offices. To date it has not received sufficient resources, personnel, or priority to fulfill its mandates.

#### RECOMMENDATIONS:

- \* It is essential that MSH make involvement in the MOH process of regionalization and decentralization a top priority. The Chief of Party should devote more time to establishing contacts with the different units responsible for decentralization. Working groups including technical members of each unit in the Management Committee and PAHO consultants should be formed to take initiatives in this process. The MSH Work Plan in this area should be revised and strengthened to focus specifically on these issues.
- \* Additional resources should be applied from the Project (through reprogramming) or other sources to strengthen the planning capacity of the MOH. This support would initially involve per diem and other conference costs for initial planning workshops and for preparing materials, reports, and investigations. Later costs might be incurred as planning process is implemented.
- \* MOH should assign personnel to the planning and administrative development process.

Finally, there are a variety of reasons, outlined above, for the location of the current MSH office. Like many decisions in this Project, this decision was made in part to effect immediate implementation needs but may not have been the best choice from a long-term perspective. The decision, however, is not irreversible. Office space can be sublet if other opportunities for a more integrated location can be created. We feel that the original intent of the last Amendment was to have technical assistance as thoroughly integrated into the MOH as possible and to avoid the appearance of an unsustainable privileged oasis separate from the MOH.

**RECOMMENDATION:**

- \* As with our recommendation that the PAU be moved back into the General Directorate Building, we feel that MOH, USAID/G, and MSH should make every effort to find appropriate space within MOH facilities, preferably within the DGSS, or in another location much closer to these facilities.

## VI. FINANCE

In reviewing the financial aspects of the EPI/ORT Project, the evaluation team looked at both:

- \* macro issues of sustainability and GOG/MOH commitment to EPI/ORT and
- \* micro issues related to the day-to-day funding of the EPI/ORT Project.

We found major problems on both levels that could jeopardize both the short- and long-term success of the Project. Concern about Project financing was pervasive at all levels, and the associated problems repeated themselves over and over. Our analysis began in the Areas in order to determine what was working and what was not.

### A. HEALTH AREAS

The Area Chiefs and Area-level accountants had common concerns in all five Health Areas visited:

The MOH budget at the Area level is too small and is not based on the needs of the Area. (In the Areas visited, the MOH has assigned its own separate "rotating fund," which is only about 20% of the Project's "revolving fund.")

The first funds of the calendar year budget were not available until May.

The EPI/ORT revolving fund/*caja chica* (to be discussed below) is an excellent, in fact, critical idea, but it is not currently functioning. The guidelines are too rigid and are not designed to facilitate Project support. There is too much paperwork. Reimbursement is delayed for months. Area personnel are not adequately trained in the procedures of the revolving fund.

Area Chiefs insisted that other donor projects have much more flexible spending guidelines and that the EPI/ORT guidelines could be equally flexible.

The Area personnel felt that they should be more involved in programming and administering the revolving funds for their Area.

As emphasized throughout this paper, the Area level is critical to the success of the EPI/ORT Project. In the section that follows on the revolving fund, we present a number of recommendations to decentralize funding to the Areas and improve Project procedures.

The more flexible policies and procedures utilized by other donors for funding Area level health activities should be reviewed to see which might be applicable to the EPI/ORT Project.

## **B. HEALTH DISTRICTS (CENTERS)**

Except in rare cases, the revolving fund has not been decentralized to the Health Center level. The Centers all have very limited budgets and do not benefit as much as they could from the revolving fund. Health Centers have almost no discretionary funds, except for patient fees that are held by the District government and programmed for the following year, if the Center chooses to use them. The amounts collected and available are minimal. The six Centers we visited collected on the average Q 518 (\$186) each year. These funds are used for medicines, gasoline, electricity, maintenance, kerosene, supplies, laundry, per diem, and spare parts. At this level, the budget from the National revolving fund for these items is minimal and for some items nonexistent.

The District level is critical to the EPI/ORT Project in that it provides the principal support to the outreach program.

### **RECOMMENDATIONS:**

- \* The Centers should be reinforced with training in basic bookkeeping/financial management and should receive limited funding from the EPI/ORT revolving fund. This could be achieved with technical assistance from a private accounting firm (see below).
- \* The next step in the decentralization process should be emphasizing the decentralization of the revolving fund to the Districts. Cost recovery/fee-for-service alternatives should be tested in selected Areas.

## **C. HEALTH POSTS**

Health Posts depend almost entirely on the Health Areas and Centers for resources. Occasionally a Health Post will have minimal excess funds from the sale of CARE food. This excess, which was reported in two of the eight Health Posts we visited, was fortuitous in that both Posts used the funds to pay the electricity bill and copy needed forms. For the most part, money is not an issue at the Post level and should not be.

What is critical to the Health Posts is that the Health Centers have adequate resources to support the Posts and the local health workers.

All these levels depend totally on the Central MOH and the PAU. When systems and procedures break down at the Central level, the Areas, Centers, and Posts suffer the most, and it is at these levels that the EPI/ORT services are delivered.

#### D. REVOLVING FUND (*CAJA CHICA*)

The revolving fund represents a significant, innovative accomplishment of the EPI/ORT Project and the technical assistance component. It has channeled important resources to the Areas and was fast becoming the principal resource for primary health care activities in the Areas. Unfortunately, its implementation has been beset with problems. The major problem that has limited the effective implementation of EPI/ORT activities and has alienated Area health personnel is the PAU's long delay in processing Area vouchers and reimbursing the Areas' revolving funds. In some cases, this delay has halted spending, either because no funds are available or because the Area Chief wants to save his remaining funds for an emergency. The primary reasons for the delay are the following:

- \* A four-month backlog of vouchers built up from January to April 1989 when the PAU was still located in the MOH Administrative Services Unit and relying on MOH auditors. These vouchers were apparently not processed because of the uncertainty of a pending move by the PAU, which would transfer responsibility for voucher processing from the MOH auditor staff to a newly formed PAU audit staff.
- \* Only two auditors were assigned to the PAU in spite of the backlog, and they have just managed to keep up, meaning the processing is still four months behind. (This information comes from the PAU auditors and is confirmed by most Area Chiefs, who said they are still waiting (in September) for payment of April/May vouchers).
- \* Approximately 80% of the revolving fund vouchers submitted have been for per diem/travel. Of these, approximately 80% have had errors, as determined by the auditors. The most common error or omission occurs in the report (*Informe de Comisión*, Report of the Commission) that must accompany per diem vouchers.
- \* Vouchers with errors must be returned to the originator for correction, and this is a lengthy process. The mails are not used because they are too uncertain. The Area or individual must be contacted by telephone or personal message. The auditors, who are isolated in the tower of the PAU office, do not have a secretary to help them with this process. When the individual receives his returned voucher, he usually does not know specifically what he omitted. He corrects the form and resubmits it. Because of the lack of a system or secretarial help, when the voucher is returned to the PAU office it most likely is returned to the bottom of the pile for another long wait.

The procedure and the problems are basically the same for MOH per diems, which are funded through the MCH Division or through the Area level National revolving fund. Both MOH and Project auditors seem to have tightened up the per diem review/approval process, perhaps in response to recent audits. Auditors with whom we spoke indicated that the per diem process within the government has a long history of misuse (charging for trips not taken, charging

extra days, etc.) and that many employees have viewed and continue to view per diems as a justified salary supplement.

The problem appears to have far wider implications. In a separate discussion with the Chief of the Transport Unit of the MOH, during which we questioned him about the availability of trained mechanics in the Health Areas, he indicated that many trained auto mechanics in the Health Areas have taken positions as drivers so they can earn per diem.

If a conscious effort is indeed being made to control the misuse of per diems, we support it and commend the PAU in principle (especially in view of the proposed per diem rate increases). However, it is essential that other actions be taken immediately to remedy the delays and improve the efficiency of the revolving fund.

Another problem that should be addressed immediately is centralized purchasing. Under the present guidelines, the Areas cannot use the revolving fund to purchase vehicle or cold chain parts locally, resulting in long delays and inability to carry out necessary Project activities.

In summary, the current PAU administration of finances has been ineffective for a number of reasons, which we list below:

- \* The PAU is overly burdened with audit/liability concerns.
- \* The amount of money (and power) is too great as a percentage of overall MOH non-salary operating funds for an individual MOH employee to manage.
- \* The effort to control spending has resulted in cumbersome, unworkable policies and procedures.
- \* The PAU has been unable to develop an effective working relationship with the key operative units (especially below the Central level) responsible for carrying out the EPI/ORT Project.

#### **RECOMMENDATIONS:**

To alleviate the problems with the revolving fund and the overall administration of Project funds, we recommend that USAID/G consider the following two alternatives and select one or a combination of the two and implement the change quickly:

The first alternative is to reinforce the existing PAU with more staff, technical assistance, and training, especially in financial management. This alternative should be based on a common agreement to decentralize more programming and spending authority to the Areas. In addition, for the PAU to effectively administer the revolving fund, the following measures should be implemented:

- \* More auditors should be hired or assigned to the PAU. (This is already in process.)

- \* The MOH and USAID/G should fill the vacant PAU positions immediately, especially the Administrator position.
- \* PAU audit procedures and the flow of documentation between the Central PAU and the Areas should be reviewed and revised. The automated financial information program developed by MSH for the PAU should be given a high priority and implemented as soon as possible.
- \* A secretary should be hired or assigned to the audit department.
- \* Area, District, and Municipal MOH staff should be trained in the correct way to submit travel/per diem vouchers.
- \* A standardized trip report (*Informe de Comision*) with clear criteria should be developed; Circular 10-89 provides an outline. Trip reports approved by Area Chiefs should be reviewed with greater flexibility in the PAU. The present review/approval process should be carefully analyzed. It is now too subjective in terms of what is required to justify the per diem.
- \* Auditors should be hired for the Health Regions. If the MOH is unwilling or unable to pay the salaries, USAID/G should provide real currency funding to pay them initially, as part of a broader plan to assist the Ministry in decentralizing its support services, with an understanding that USAID/G funding of those positions will be phased out at an agreed-upon annual rate.

**The second alternative is to:**

Reduce the role and authority of the PAU.

Reintegrate it into the Administrative Services Unit of the MOH.

Utilize the regular audit staff of the MOH for Project auditing.

Hire additional auditors or relocate existing Central MOH auditors to the Regions.

Emphasize direct funding to the Areas and to selected Central-level MOH component units.

To facilitate the direct funding process to the Areas and Central component units and develop mechanisms to make the revolving fund more flexible, agile, and responsive to the needs of the Areas, we recommend the following:

- \* Increase the amounts of the Area revolving funds. (These amounts should be based on new criteria developed jointly by the PAU, Area Chiefs, and technical experts from MSH and the CPA firm (see below).

- \* Give the Area Chiefs much greater discretion in the programming and spending of local funds. (Criteria should be developed as described above.)
- \* Establish a revolving fund mechanism for selected MOH Central-level components, and determine the amounts and uses of the fund.
- \* USAID/G should contract with an accredited local CPA firm whose responsibilities could be either in technical assistance to the PAU/MOH or direct administration of Project funds. This decision will depend largely on resolving the present crisis between the PAU and the Area Chiefs.

The evaluation team favors an intensive technical assistance role rather than the development of a new administrative unit. The technical assistance should focus on making the PAU more flexible and responsive, which will require a careful review of PAU procedures and National auditing rules and regulations. Assistance should be provided in implementing the financial information system and revising cumbersome procedures. Finally, the CPA firm should take the lead in training the Central component personnel, Regional auditors, and Area and District health officials responsible for budgeting and accounting.

Of the two alternatives, the evaluation team strongly endorses the second. This option would facilitate Project disbursements, speed up Project implementation, promote and facilitate decentralization of MOH activities and spending, and encourage greater Regional, Area and District programming and decision-making.

Regardless of which is selected, we emphasize the importance of decentralizing programming and spending authority to the Areas and auditing to the Regions.

## **E. THE PIPELINE ISSUE**

The evaluation team has analyzed USAID/G's concern that Project funds are not and will not be executed/expended within the time constraints of the Project. Our findings indicate that concern by USAID/G is no longer warranted. Quarterly expenditures/disbursements during three of the past four quarters have averaged approximately \$900,000. (Spending in the first quarter of calendar year 1989 was lower because of delays in 1989 Project budgeting and processing of the first quarter's funding request.) The Project pipeline as of June 30, 1989, totaled \$9,906,454, to be expended over the remaining 10 quarters of the Project, a spending rate of \$990,645 per quarter. As noted above, the average quarterly spending is already near that level.

In addition, several new developments in the Project will have a major impact on spending and could in fact result in a funding shortfall. These proposals will, at the very least, necessitate careful consideration of Project priorities during its final two and a half years. These potential developments include:

A proposed increase in MOH per diem, which will greatly increase the Project per diem amount if utilized as programmed. (See the MSH report entitled "*Alternativas de Políticas de Viáticos-Proyecto PAI/TRO, Sept. 5, 1989*," "Alternative Per Diem Policies for the EPI/ORT Project, Sept. 5, 1989")

The likely need to extend and perhaps expand the MSH technical assistance contract to develop adequate administrative and information systems for the successful implementation of the existing and future child survival Projects.

The extension of the HealthCom technical assistance contract.

A new contract with a local CPA firm to administer EPI/ORT funds and/or provide financial and accounting technical assistance to the PAU and the Areas.

Extending and perhaps increasing the budget for the AID/PSC Project Manager/Liaison position.

Possible funding of Regional/Area auditors.

The purchase of additional vehicles for the Health Areas and the technical assistance team. (See Logistics section.)

Increases in Area revolving fund accounts.

## **F. ESTABLISHING PRIORITIES**

The overall management of Project funds during the remaining two and a half years will require a delicate balance and attention to local program needs and Central administrative needs. Funds should be channeled toward strengthening systems and skills and decentralizing the management of the Project.

Funding decisions, both in terms of what to fund and how to administer the funds, should take into account the issue of sustainability and recurrent costs and the fact that the accomplishment of specific objectives (especially with regard to administrative reform, information systems, and decentralization) will require a long-term commitment that far exceeds the anticipated completion date of this Project. MOH funds available to meet these objectives will continue to be scarce.

The MOH commitment to primary health care, no matter how eloquently expressed, is limited by its resources. The MOH budget, which is increasing in numbers of Quetzales and as a percentage of the overall GOG budget (approximately 10% in 1988), still has a minuscule operating allocation for Projects like EPI/ORT. The following analysis, based on data from the 1988 MOH budget and other economic/financial analyses done for USAID/G during the past two years, provides a rough estimate of available nonpersonnel counterpart funds for primary health care (PHC) projects:

1988 MOH Operating Budget (1)	Q 207,731,161
Estimated % allocated to PHC..16.5% (2)	Q 34,275,642
Estimated % allocated to personnel..80% (2)	Q 27,420,513
Balance of PHC budget for nonpersonnel	Q 6,855,129
Est. (nonpersonnel) budget execution. 56% (3)	Q 3,838,872
MOH funds (nonpersonnel) avail. for PHC	Q 3,838,872
AID EPI/ORT grant funds provided in 1988	Q 6,929,547
Total AID/MOH funds (nonpersonnel) avail. for PHC	Q 10,768,419
USAID/G contribution as % of total available PHC funds	65%

Sources:

- (1) 1988 GOG Budget
- (2) Private Sector Health Care Alternatives, Stonybrook, August 1988
- (3) AID Project Paper for Amendment #3, August 1987.

The above rough analysis demonstrates that USAID/G is providing approximately 65% of the MOH's nonpersonnel funds applied to primary health care activities. Some of the percentages used in the calculation may have changed, but not significantly, and the financial reality of the USAID/G contribution as a percentage of the total PHC budget will probably not change in the foreseeable future. USAID/G-provided monies will continue to be the basis for the successful implementation of child survival activities.

What is important, however, is that USAID/G resources also should form the basis of a sustainable, decentralized primary health care system managed by competent MOH components with well-trained personnel and well-functioning management and information systems. At this point priorities become critical. Spending must focus on institution-building and sustainability, as well as accomplishing specific Project objectives.

The MOH must give child survival activities a higher priority, demonstrated in tangible commitments. Examples of such commitments would be;

Facilitating the integration of the PAU (and technical assistance at some later time) physically into the Central MOH facility

Moving ahead with decentralization by placing auditors in the Regions.

## **G. USAID/G FINANCIAL MANAGEMENT**

Concerns were expressed to the evaluation team that the process for reimbursing the Project for funds expended takes too long and that the size of the advance or the amount of funds available to the PAU at any one time is too restricted.

Clearly, USAID/G's financial procedures are cumbersome and lengthy, as is the process for reimbursing the PAU. The annual Project budget approval process includes approximately 12 steps (reviews and approvals):

- 1) Budget submitted to USAID/G;
- 2) the Office of Human Resource Development (OHRD) prepares the Project implementation letter (PIL)
- 3) the PIL goes to the Program Development Support Office (PDSO)
- 4) the PIL goes to the Controller's office;
- 5) the PIL goes to the Deputy Director's office;
- 6) the PIL goes to the OHRD (final draft prepared)
- 7) the PIL returns to Controller;
- 8) the PIL goes to USAID/G Director;
- 9) the PIL returns to the OHRD;
- 10) the PIL goes to the PDSO;
- 11) the PIL goes to the mailroom, where copies are made;
- 12) the PIL returns to the PDSO for distribution.

This process, with its many checks and balances, usually takes 6 to 9 weeks. Since, this is not likely to change, USAID/G and Project management should allow for this delay in planning the budget and in programming the expenditure of funds.

### **RECOMMENDATION:**

- \* We recommend that the CPA firm selected review this procedure and assist the PAU in the planning and control of funds to allow for this delay.

The delay in Project reimbursement for funds expended is largely beyond the control of USAID/Guatemala. Reimbursement is requested from USAID/Mexico, which also processes requests from many other USAID Missions. The delay resulting from the backlog in Mexico is unpredictable. We were told that reimbursement can and occasionally does take months. According to the Controller's office, this process should be improved and delays reduced by the implementation of a new automated system during the next 18 months.

The control of Project advances allowed to be outstanding is based on a formula that should provide adequate funds based on the Project spending rate but not excessive funds sitting in the Project account. This control is necessary and seems to have adequate flexibility. In light of this, the evaluation team recommends that:

#### **RECOMMENDATION:**

- \* If the Project revolving fund for the Areas is increased significantly as we anticipate (and recommend), USAID/G should review the current formula used for the EPI/ORT Project and, in collaboration with the PAU and the CPA firm, adjust the advance amount accordingly.

Project personnel within the USAID/G Health Adviser's Office appear to be adequately handling Project purchasing, financial monitoring, and control. Records, budgets, etc., are up to date. The USAID/G Controller indicated that the health adviser's financial management is efficient.

Concern was expressed that the USAID/G financial management staff does not adequately coordinate/collaborate with PAU and MOH personnel in Project budgeting and financial management.

#### **RECOMMENDATION:**

- \* We recommend that, as the above recommendations are being implemented, the USAID/G Project financial management staff should begin to collaborate much more closely with the PAU and Area Chiefs in programming, budgeting, and control of Project funds. The CPA firm should also be involved in these activities.

### **H. LONG-TERM CONSIDERATIONS**

The above recommendations focus primarily on actions to be taken during the term of the EPI/ORT Project. Looking further ahead, the evaluation team believes that USAID/G should consider providing child survival funds directly to the MOH as a viable long-term alternative. Following the logic of Sector Program loans, such funding could come in segments, with each segment conditioned on the achievement of selected indicators, or, in this case, the maintenance of funding available for decentralized program activities. Technical assistance for improving administrative and information systems, combined with providing auditors at the Regional levels and training in budgeting/financial management at all levels, could make this alternative feasible. USAID/G should be able to routinely measure Project accomplishments on the basis of jointly (AID/MOH) defined agreements, objectives, and activities. If the MOH chooses to allocate USAID/G-donated funds to non-agreed-upon activities and if objectives are not met, USAID/G could exercise the option of discontinuing funding.

Such an innovative long-term goal would provide additional incentive for everyone involved in the Project to accomplish the objectives of EPI/ORT and the subsequent child survival project. The need for an intermediary to administer Project funds would be eliminated, and the possibility of a sustainable primary health care project would be improved.

## VII. LOGISTICS

### A. BACKGROUND

The logistics history of the Guatemalan Ministry of Health (MOH) reads much like that of most developing country health ministries. Of the very limited resources allocated to the MOH over the years, a minuscule amount has been assigned to items such as transport, maintenance and repair, storage, and inventory control. As recently as 1988, MOH allocations for logistics-related activities were too low to maintain or repair anything beyond the most critical needs. For example, the Department of Transport budget for maintaining and repairing all MOH vehicles was \$20,000 (excluding salaries); the gasoline available for all MOH vehicles was \$251,800 (50% of the budget four years ago); the maintenance budget for all health facilities and equipment, including parts and tools, was \$65,900 (excluding salaries, the amount available was \$35,200). Obviously, only a small percentage of these funds is allocated to primary care activities.

The MOH logistics system for primary health care activities is an USAID/G-funded system that also receives assistance from other donors. Through the EPI/ORT Project, USAID/G has provided 35 four-wheel-drive vehicles, 46 two-wheeled motorcycles, 70 four-wheeled motorcycles, two 10-ton trucks, four boats, six pickup trucks, 392 refrigerators, 27 freezers, and all other required cold chain items, plus spare parts for the vehicles and equipment listed. In addition, USAID/G has invested approximately \$230,000 in ORS production equipment and supplies and is also providing the necessary funds for maintaining the vehicles and equipment during the life of the Project. With necessary vehicles, cold chain equipment, gasoline, spare parts, per diem, and technical assistance provided, the following analysis addresses how well the system is functioning, which parts are functioning and which are not, and what will be required to keep it functioning.

### B. CURRENT SITUATION OF EPI/ORT LOGISTICS

The success of the EPI/ORT logistics system depends on a successfully functioning revolving fund/*caja chica* and the decentralization of critical logistic components: transport, maintenance and purchasing. At present the revolving fund is not functioning well (see finance section); transportation is inadequate at the Area, District, and Municipal levels; and maintenance and purchasing are too centralized. Immunization and ORS coverage depend on adequate quantities of commodities being in the Centers and Posts and with promoters and on MOH personnel getting out to do their outreach and supervision.

We mentioned early in the report that, despite numerous problems, conflicts and the current administrative crisis, important improvements have been made in the EPI/ORT Project. This statement is also true with regard to logistics. Our brief visit to five Health Areas indicates that major accomplishments have occurred. Overall, the cold chain is functioning well at all levels, and ORS packets are available in most health facilities and in many communities.

On the negative side, the transport system and the cold chain are beginning to show signs of breaking down, and maintenance and maintenance plans for vehicles are sporadic at best

and often nonexistent. Distribution seems to be working well from the Central level to the Area level, but beyond that point the system begins to fail. Supplies have been distributed to the District and Municipal levels through the ingenuity, creativity, and dedicated efforts of many District and Municipal level staff members, who walk or use public transport to collect their supplies from the next higher level.

Area Chiefs are aware of the transport problems, but feel their hands are tied by the limitations and regulations of the Project related to transport and maintenance. Project funds are available at the Area level for basic preventive maintenance only. When a vehicle or refrigerator/freezer breaks down, the procedure for soliciting mechanical assistance approvals, and spare parts from the PAU is lengthy and creates major gaps in the transport and delivery system and problems for the cold chain.

The transport problem manifests itself in a variety of ways. In one Health Area, the Area maintenance technician responsible for refrigerator maintenance has available for his use only a motorcycle, which often is not functioning. He has approximately 90 health sites with refrigerators to visit. The cold chain maintenance plan calls for him to visit each site once a month. Without reliable transport, he now visits only those sites whose refrigerators are not working. Often he is unable to repair the refrigerator on site, but with only a motorcycle he is unable to transport the refrigerator to the Area where it could perhaps be repaired.

In addition, the gasoline quota for this technician is 20 gallons a month, which he says is enough to visit 20-30 sites. He estimates that approximately 70 of the 90+ refrigerators in his Area are functioning. He indicated that he has no spare parts for either refrigerators or motorcycles and that he has sent ten requests to the PAU since January for parts and technical assistance. The PAU's response was that they are awaiting approval from the technician in the MOH Engineering and Maintenance Department.

In other Areas where electricity is unreliable, many Health Posts use kerosene refrigerators. The wicks of some of these refrigerators have worn out. The Area technicians have requested replacements from the PAU and have been advised that the wicks are not available in Guatemala. During a subsequent visit to the EPI/ORT warehouse, we discovered that the wicks are not in fact available in Guatemala because they are imported from England, but that they are available in the warehouse. When the warehouse chief (who has since been replaced) was questioned about this inconsistency, he replied that because there is no communication between the warehouse and the PAU, the PAU usually goes directly to the retail market to buy replacement parts without checking to see what is available in the warehouse. The PAU has a warehouse inventory list that was done in May 1989 but apparently does not refer to it, perhaps because of difficulties in verifying or confirming the existence of requested items.

Below is a summary of our findings at the District (Health Center) and Municipal (Health Post) levels, where we visited six Centers and eight Posts:

#### HEALTH CENTERS

- All six had necessary cold chain equipment.
- All six refrigerators were functioning.

- \* The five refrigerators we checked were set at the correct temperature.
- \* The five Centers we checked stored their vaccines correctly.
- \* All six had adequate stocks of needles, syringes, vaccination cards, ORS packets, and polio and measles vaccine.
- \* Five of the six had adequate stocks of DPT and miscellaneous forms and supplies.
- \* All six had functioning autoclaves or an adequate supply of disposables (one for each person vaccinated).
- \* All six had vehicles.
- \* Five of the six had some type of inventory system, either a kardex or inventory book.

On the less positive side:

- \* Two of the six Centers did not have functioning vehicles.
- \* Only three of the six had adequate supplies of BCG and educational materials.
- \* Only four of the six had an adequate supply of tetanus toxoid.
- \* None of the six had any kind of routine maintenance program for vehicles or cold chain.

#### HEALTH POSTS

- \* Five of the eight had the necessary cold chain equipment.
- \* Six of the eight had working refrigerators.
- \* Five of the eight refrigerators were set at the correct temperature.
- \* Seven of the eight had an adequate stock of polio, DPT, and measles vaccine.
- \* Five of the eight had an adequate supply of ORS packets. (An adequate supply of ORS packets at the Health Post means that there are also enough for the local promoters.)
- \* Five of the eight had an adequate supply of vaccination cards, some method of recording their inventory, and a functioning autoclave or adequate stock of disposables.

Problems we encountered:

- \* Only four of the eight had tetanus toxoid.
- \* Only four of the eight had an adequate stock of needles and syringes.
- \* Only one Post had a functioning vehicle. (One other Post had a vehicle that was not functioning.)
- \* Only two of the eight Posts had BCG vaccine.

As mentioned in a previous section, promoters usually have enough ORS because they are so careful or cautious in their distribution. They give out packets only when a child has diarrhea. This conservatism is in part a reaction to their previous situation, when they could not depend on an adequate supply of ORS. To change this attitude, ORS supplies in the Centers and Posts need to be ample enough so that all promoters realize that they can give extra packets to mothers to keep on hand in the home.

Many of the logistic successes observed in our brief survey were realized in spite of, rather than because of, the transportation system. Lack of transport was noted as a major problem at all three levels visited and by personnel from almost every health facility. In almost all cases, this situation will have to be corrected at the Central PAU/MOH level.

#### RECOMMENDATIONS:

We recommend the following measures to ease the transport problem:

- \* USAID/G should purchase additional pickup trucks so that each Area has one.
- \* Reliable vehicle maintenance systems should be implemented in each Area. (See next section for details.)
- \* The PAU should identify private carriers in each Area who could be licensed to transport supplies, refrigerators, etc. to Health Centers and Posts as needed. This measure would provide the Area with a backup when Project vehicles are broken down or in use elsewhere. The technical assistance team, in collaboration with the PAU and Area Chiefs, should investigate this alternative and determine the criteria and procedures to be followed.

To get a complete picture of the logistics issues, we also reviewed the Central level looking for successes, problems, obstacles, and suggestions. We reviewed the technical assistance that has been provided to the EPI/ORT Project and to the MOH in logistics. During this first year, most of the technical assistance has been provided at the Central level and has focused on assessing the overall MOH management/logistic system and identifying elements in need of strengthening. With regard to vehicle maintenance, purchasing spare parts, and executing the revolving fund (*caja chica*) as it affects logistics, excellent work has been done by the MSH logistics adviser. The evaluation team believes strongly that the future success of the logistics system will depend greatly on the input of the logistic adviser and the utilization and implementation of his suggestions by the PAU and MOH at both the Central and Area levels. We refer to analyses done by the logistics adviser in this paper and suggest that they be reviewed in conjunction with our recommendations. In the sections that follow, we highlight our principal findings related to Central level logistics.

#### C. VEHICLE MAINTENANCE AND REPAIR

The Department of Transport office, garage, supply depot, etc. is the MOH entity responsible for maintaining the MOH/EPI/ORT fleet of vehicles. It is understaffed and lacks funding (its budget is \$20,000 in a good year). The garage has almost no tools or equipment, very few functioning vehicles, and a chief who is not trained to organize, plan, or manage a nationwide transportation system. Most of the vehicles in the department garage at the time of our visits were personal, and the two EPI/ORT vehicles in for repair were neglected for different but equally disconcerting reasons. A Jeep Cherokee had been in an accident in which the roof was damaged. The bulk of the vehicle was in good shape and the roof could under normal circumstances be repaired at a reasonable cost. It has been sitting for six months awaiting a decision from the PAU.

The second vehicle, a four-wheeled motorcycle, has brake problems and the mechanics do not know how to repair this type of vehicle.

On the basis of these observations and discussions with the Chief of the Department of Transport, the Department clearly lacks the resources to maintain and repair MOH vehicles from all over Guatemala, nor are they prepared to coordinate or provide mechanical assistance to the various Health Areas. The current centralized system does not function, nor does the PAU-recommended procedure for repairing vehicles, which works as follows (assuming the vehicle cannot be driven):

- 1) The Area sends a repair request to the Transport Department (usually in person with an Area vehicle).
- 2) Transport sends a mechanic (when available) to the Area to evaluate the vehicle and prepare a report.
- 3) Transport sends a request to the PAU for parts.
- 4) If the parts cost less than Q. 1,000, PAU's purchasing chief buys them in the market. He should first check the EPI/ORT warehouse inventory but often does not.
- 5) If the part or parts cost more than Q. 1,000, the PAU must solicit three bids. According to the PAU auditors, the major bottleneck occurs at this point. Rather than soliciting the bids immediately, the PAU accumulates requests so that it can purchase in large quantities and receive a discount. (There is some question as to who benefits from the discount.) This practice often results in months of delays.
- 6) The bids are reviewed, a selection is made, and the parts are purchased.
- 7) The parts are delivered to the EPI/ORT warehouse.
- 8) The Transport Department is advised that parts are available.
- 9) Transport advises the Area Chief.
- 10) If a Transport mechanic is required, the mechanic takes the parts with him to the Area and repairs the vehicle. If there is a qualified Area mechanic, he picks up the parts at the EPI/ORT warehouse and repairs the vehicle.
- 11) If neither mechanic can repair the vehicle, a written request is sent to the PAU to send the vehicle to a private garage.

These required procedures cause extensive delays, waste fuel, and cause unnecessary wear and tear on the Project vehicles.

In spite of the many transport-related USAID/Project inputs, transportation is a weak link in the logistics system, and as the vehicles age the link will grow weaker. The decision to decentralize this logistic component should be easy. The Areas must be able to maintain and repair their own vehicles, or the vehicles will not be maintained. The investment required to bring the Central transport organization up to a satisfactory level would not be cost effective and would be far beyond the scope of this or any future project whose focus is outside Guatemala City.

#### RECOMMENDATIONS:

- \* A maintenance and repair capability should be developed in all Areas. Two alternatives (which could also be combined) should be considered for vehicle maintenance:

- 1) Contract with the private sector for maintenance and repair. This would entail identifying the best local capabilities and entering into contracts or licensing agreements to service the Area vehicles. This alternative is probably more sustainable and requires no initial investment in infrastructure or equipment. (However, because of the payment history of the MOH to garages and gas stations in certain Areas, the MOH may have to guarantee payment through some special arrangement for an initial period.)
- 2) Develop a simple, inexpensive maintenance and repair facility in each Area with funds from donors for construction and equipment and a commitment from the MOH for adequate staffing. (The Chief of Transport indicated that there are mechanics in the Areas, usually working as drivers for the MOH, who could be encouraged to return to their trade.) The maintenance facility need be little more than a cement slab with a hole in the middle and a carport-type roof. If properly developed, the MOH could perhaps "sell" the services to other Area government entities. The advantage of this alternative is access and availability. The disadvantage, in addition to the start-up costs, is that the MOH would have to maintain the facility, tools, and equipment.

The evaluation team believes the first alternative is the most viable in the long run and should be investigated and tested in one or two Areas.

A procedure should be developed for purchasing certain vehicle parts in the Areas. It should address the following:

- \* which vehicles will be covered by Project funds
- \* which parts are critical and/or under what circumstances local purchases should be made
- \* which parts should be bought centrally
- \* what inventory is on hand in the Central warehouse; the Areas should have an updated inventory list from the Central EPI/ORT warehouse.
- \* which repairs are considered major and which minor (refer to the MSH Report of Aug. 22, 1989, "*Sugerencias para Agilizar la Compra de Repuestos*," "Suggestions for Expediting the Purchase of Spare Parts")

The critical need is for Areas to have the flexibility to purchase parts under certain circumstances, which, within specific guidelines, should be the decision of the Area Chief.

For additional recommendations about vehicle maintenance, refer to a comprehensive report prepared by MSH, entitled "*Observaciones Preliminares en Referencia a Mantenimiento de Vehiculos a Nivel de Area de Salud*," "Preliminary Observations in Reference to the Maintenance of Vehicles in the Health Sector."

## **D. COLD CHAIN**

The cold chain is an important success of the Project. As noted above, it is in place throughout the country, with cold chain technicians in most Areas. This success now creates both challenges and problems for the Project and many of the problems relate to logistics. Primary responsibility for the cold chain rests with the Department of Epidemiology. Maintenance of the cold chain, however, is the responsibility of the Department of Engineering and Maintenance. Distribution and coordination of the Project's cold chain activities lie primarily with the PAU. The principal problems/weaknesses at the Central level appear to lie with the latter two entities.

The Department of Engineering and Maintenance is responsible for maintenance countrywide. Part of their task is to supervise and support the Area cold chain technicians. Unfortunately, like the Department of Transport, their resources are very limited, transport is totally inadequate to provide support and supervision to the Areas, and the necessary tools and parts for maintenance are lacking.

The PAU plays a critical role in facilitating the successful maintenance of the cold chain. Unfortunately, procedures recently developed by the PAU will hinder rather than help the cold chain system. Health Areas are not allowed to purchase any spare parts for the cold chain locally. All requests must be made through the PAU's cumbersome process, primarily because the spare parts acquired by the Project are stored in the Central EPI/ORT warehouse.

One hundred new refrigerators are now sitting in one of the Central MOH warehouses, although numerous sites need refrigerators. The PAU's lack of staff and poor communication with the Areas prevent it from determining where these refrigerators should be located. PAHO is completing a major study of the cold chain nationwide, which will provide a data base that will be very useful to the PAU.

Another problem in many Areas is the lack of adequate storage space. Supplies, CARE food, etc. are often stacked in the waiting room, corridors, offices, or any available spot.

### **RECOMMENDATIONS:**

Solutions that we recommend for the cold chain problems (partially addressed above in the transport section) are the following:

- \* Improvement of the transport system through one or both of the methods we suggested above: more pickup trucks for the Areas or contracts with private transport companies in the Areas.
- \* Analysis of both storage space and inventory control systems to determine the specific needs of each Area level facility. Estimates should be done of the cost and amount of work required to renovate existing space or build a limited addition.

- \* Overall assessment of cold chain needs, using the PAHO analysis as the starting point.
- \* Decentralization of purchasing to the Areas. Criteria and procedures must be developed for this decentralizing, focusing on:
  - \* Which parts are critical and/or under what circumstances should local purchases be made;
  - \* Which parts should be bought centrally;
  - \* What inventory is on hand in the Central warehouse; (the Areas should have an updated inventory list of the Central EPI/ORT warehouse.)
  - \* What ceiling should be put on Area expenditures;
  - \* Which repairs are considered major and which minor.

The MSH logistics adviser should be given much more responsibility and freedom to work on these solutions at both the Central and Area levels.

Both USAID/G and the MOH have expressed interest in exploring the need for and/or value of adding solar-powered refrigeration units to the cold chain. This idea was discussed with the technical assistance team, who indicated that they have obtained materials and brochures from companies in the U.S.A. and passed them along to the appropriate people in the MOH.

We feel that the need for these units depends on the success of the logistics system that is being developed. The MOH/Project now has an adequate supply of refrigerators. Whether they can be serviced, repaired, and maintained depends on local transportation and maintenance and local availability of parts for both gas and electric refrigerators. Solar units require fewer parts and less maintenance, and if it becomes clear that the MOH/Project cannot maintain and repair the existing refrigerators, the solar alternative should be explored in more detail by the MSH logistic specialist.

If most of the above recommendations are implemented, the evaluation team believes that the indicators of success established for the cold chain in the Project design will be met:

85% of all health facilities will have an adequate quantity of a viable quality of the following vaccines; BCG, DPT, polio, measles, and tetanus toxoid.

90% of all health facilities will have a functioning refrigerator.

## **E. ORS ACQUISITION, DISTRIBUTION, AND PRODUCTION**

From a logistics perspective, the ORS component to date has been quite successful. Approximately seven million packets have been purchased, imported into the country, and stored in the EPI/ORT warehouse, and many of these packets have been distributed to the Areas. The Areas have adequate supplies, as do most Health Centers and Posts (see above survey results).

The two large trucks purchased for the Project appear to be adequate for distributing ORS packets to the Areas and were even being serviced in the Transport garage during one of our visits.

The EPI/ORT warehouse is currently stacked to the ceiling and almost wall to wall with boxes of ORS packets, which limits the efficiency of the warehouse. A plan is being considered to remodel the present facility or construct a new EPI/ORT warehouse in Guatemala City. An analysis of the plans with recommendations has been done by the MSH logistics adviser. These recommendations should be carefully reviewed in light of the critical need to decentralize storage to the Areas. Additional expenditures at the Central level may only exacerbate the problem of overcentralization.

USAID/G has made a commitment to develop a local ORS production capacity. Thus the MOH has entered into an agreement with LAPROMED (*Laboratorio de Producción de Medicamentos*)/University of San Carlos Faculty of Chemical and Pharmaceutical Sciences. The purpose of the agreement is to develop a more affordable alternative (one that does not require foreign exchange) when AID and other donor funds are no longer available. Approximately \$230,000 has been invested by USAID/G in equipment and materials, which have been purchased and are now sitting in the University facility designated as the production site. USAID/G is also financing the remodeling of the part of the facility that has been set aside for ORS production.

LAPROMED, which functions as a semiprivate lab affiliated with the School of Pharmacy, makes 13 products, mainly liquid expectorants and antihistamines. These products are sold practically at cost to the government, private voluntary organizations, and other nonprofit entities. The modest laboratory facilities are located in the basement of the University building being remodeled. The architect expects to finish the remodeling by October 1989 and expects the production facility to be operational in January 1990.

In discussions with officials from MOH, USAID/G, and MSH, a number of concerns were raised about the viability of the lab:

- \* The cost analyses are optimistic and do not reflect the lab's true operating costs. Estimates assume no cost for the facility and do not include depreciation of the equipment. The personnel are already employed by the University and are not included in the cost. (USAID/G will pay the salaries of six people for two years.) Although the final product (ORS salts) will not be imported, all the raw materials will be imported. The same is true for some of the packaging components.
- \* UNICEF packets are inexpensive. The price appears to vary between 12 and 15 cents a packet including transport, depending on the quantity purchased.
- \* Quality control of the salts will be difficult.
- \* The quality of packaging purchased locally is questionable, especially cardboard cartons. The cartons are not strong enough to stack like the UNICEF cartons and will therefore require more scarce warehouse space at all levels of the system.

These concerns were discussed with personnel at LAPROMED and USAID/G. In spite of questions that remain about costs and packaging, we believe that in the long run a local production capability will be beneficial. LAPROMED personnel emphasized the following positive aspects of the Project:

- \* It develops an important local production capability that will benefit the University and the community.
- \* It will help LAPROMED expand its product line and eventually reduce the costs of its products.
- \* The Project has strengthened relations between the University and USAID/G.
- \* The Project will improve the facilities and capability of the Pharmacy School.
- \* The quality issue has been considered, and steps have been taken to assure an adequate level of quality control.

The cost concern is important but difficult to accurately project at this time. It depends on the source and cost of imported materials, which materials can be produced locally, and, most importantly, how the investment affects LAPROMED's ability to improve and expand its existing product line so that the costs are spread over more products.

#### **RECOMMENDATIONS:**

- \* We recommend that, while moving ahead on the Project, USAID/G, through its technical assistance capability, carefully analyze the costs of operating the Project, using standard costing procedures.
- \* Technical assistance should also be used to:
  - Explore the potential packaging and storage problems and develop alternatives that will prevent them.
  - Analyze the overall planning and operation of the lab and assist in developing a sustainable, cost-effective enterprise.

If most of the above recommendations regarding ORS are implemented, the evaluation team believes that the following Project indicators will be accomplished:

95% of all health facilities will have a sufficient number of ORS packets in stock at any given time.

50% of promoters will have a sufficient number of ORS packets at any given time.

## VIII. Health/Management Information System

### A. BACKGROUND

The *Unidad de Informática* (IU, the Information Unit) of the MOH was created in 1982 within the General Directorate for Health Services (DGSS) of the MOH. Initially it was assisted by the PAHO, which provided computing equipment and technical assistance. As part of PAHO's technical assistance, the cumbersome data collection instruments (in excess of 68 different forms) were replaced with a new maternal-child health (MCH) information system consisting of 14 forms. This system, which was partially field-tested in three Health Districts of the Department of Zacapa, significantly reduced data redundancy and improved consistency and standardization of both content and format. The "Zacapa" system, however, produced excessive volumes of data, which caused serious backlogs in processing. In addition, it was inflexible to local programming needs and contained no effective means for data audits or checks on information quality.

The EPI/ORT Project designers placed considerable emphasis on developing a functioning Health/Management Information System (H/MIS). The Ministry's existing systems were recognized as unwieldy, untrustworthy and underutilized, and the Zacapa system was felt to be insufficiently tested for nationwide implementation (PRITECH Consultant Report, Gary R. Heald, March-April 1987). The EPI/ORT Project components center around improved management of technical and logistic interventions, all of which require an effective H/MIS. Under the technical assistance contract with MSH, an H/MIS Adviser was charged with guiding the development of an improved H/MIS, also known as the SUIS (*Sistema Unico de Información en Salud*). The Project also provided substantial amounts of computer hardware, software, and supplies to the IU.

### B. CURRENT STATUS

#### 1. ACCOMPLISHMENTS

The Project has achieved the following improvements in the operation and functioning of the H/MIS:

- \* Project-supplied computers have eliminated the enormous backlogs in data processing at the IU, allowing for more timely results.
- \* With the assistance of the H/MIS Adviser, the system software is evolving into a more coherent, reliable and usable set of applications.
- \* Plans are in place for improvements in the data collection instruments and analytic products of the SUIS, to be phased in during 1990.

Project support has assisted the IU in eliminating the enormous backlogs in data processing that characterized its operations and seriously threatened the viability of the MOH's information system. Currently, computer processing does not constitute a serious delay in the information flow at the Central level. However, additional computers will be required, and

specifications have been developed for this equipment to better support end-users of the SUIS and to begin decentralization of data processing and analysis.

The IU's system software is now evolving toward a more coherent, reliable, and usable set of applications. The emphasis placed by the H/MIS Adviser upon standardizing the user interface is correct, given the current and future SUIS user base. Efforts by the H/MIS Adviser to promote institutional software stability through the use of an integrated package (the Clarion System Development package) are appropriate, given the problems of turnover of programming personnel in the IU.

In the light of the known problems in the SUIS (detailed in the following sections), two basic approaches may be taken. The first would be to scrap the current design of the SUIS and to begin design work again; the second to work with what is now available and improve the system through evolutionary change. The IU and the H/MIS Adviser have taken the latter approach of first making the existing SUIS operational (processing data and producing reports and other products) and then dealing with its inherent design problems. The evaluation team feels that this approach is correct. The process of change itself and the retraining such change will require argue for a conservative approach to the evolution of the SUIS. The SUIS will improve more through its use than through "back to the drawing board" exercises.

Parts of the SUIS form set are designed well in terms of simplicity, clarity, and accuracy; they form a model for future revision efforts. These forms include the daily and monthly reporting forms for immunization, ORT, ARI, and family planning.

The MSH H/MIS Adviser has proved to be an invaluable resource for the IU. He has assisted in developing equipment specifications, global systems design work, programming and debugging, quality control, personnel training, and general troubleshooting. This help has provided the momentum the IU needed to accomplish what it has in a relatively short time, in spite of the continuing problems and limitations. The H/MIS Adviser is to be commended on his working approach to the IU's staff.

## **2. WEAKNESSES**

The component has suffered from problems in:

- \* failure to use the system for local monitoring and evaluation; lack of feedback to the operative level
- \* timely provision of appropriate hardware
- \* inadequate physical installations and supplies
- \* deficient original design of the SUIS
- \* underreporting of data from community personnel
- \* lack of attention to problems in the field
- \* insufficient and inappropriate training in the use of the SUIS
- \* flaws in the distribution of forms
- \* insufficient programming staff and loss of personnel

The evaluation team could detect little functional use of the data collected at the Center/Post level. No Post or Center personnel had ever received any information feedback from the SUIIS, and the feeling that the data are simply filed away somewhere at the IU was widespread. Daily activities or monthly planning do not respond to reported achievements or shortfalls. Many Areas and Districts do not use the system for internal supervision and management, preferring indicators and reporting systems developed locally. Currently, data review and auditing of SUIIS data do not take place in a manner and at the levels that would permit correction or improvement in data reporting; this has resulted in low perceived quality of the information. Furthermore, the system itself provides no response from higher levels within the MOH. Thus, for example, although vaccine and ORS stocks and usage are reported monthly, no Center or Post visited by the evaluation team had ever received supplies as a result of reporting stock-outs. Logistics, at the operative level, therefore, provides no feedback to data reporting and no incentive to accurate reporting.

**RECOMMENDATION:**

- \* The MSH H/MIS Adviser should direct efforts to adapt the SUIIS to information needs at the operational levels to develop an effective monitoring and evaluation tool.
- \* Processing should be decentralized to permit better information quality control.
- \* The feedback from the SUIIS should include a support response (i.e., logistics) to information provided and should assist health personnel in evaluating progress against tangible goals (such as "475 children with complete vaccination at your Health Post" or "125 cases treated with ORS each month"), rather than the abstract targets used at the national level (such as "70% polio coverage").

The excessive delays in providing sufficient and appropriate hardware have hampered software development and caused backlogs and poor quality control of data entry. These problems were largely resolved at the Central level when Project-supplied Texas Instrument AT-class computers were installed in early CY 89, although several machines developed failures. The use of the Clarion software development package, while presenting many advantages (standardized user interface, improved data integrity, etc.), requires faster disk access than the Texas Instruments machines provide for running major applications and report generating. Although specifications have been drawn up for additional machines and printers for the Regions, none have yet been acquired through the various mechanisms attempted. Furthermore, although new machines have been specified for the Regions, no procurement has begun for Health Area computers.

**RECOMMENDATION:**

- \* USAID/G should proceed with the procurement through GSA contractors of additional machines with the 28-ms disk drives specified by the H/MIS Adviser.

- \* The IU should distribute the Texas Instrument machines to the Regions and retain the faster new machines for Central-level processing of larger applications. Initiate procurement of computers for the Areas as soon as possible.

The IU's Computer Center is inadequately housed. The electrical installations, lighting, ventilation, storage, and working areas are unacceptable for the reasonably efficient operation of the SUIIS. Virtually every principle of ergonomics for productive work environments is being violated. The head of the IU indicated that plans are under way to solve these problems through the construction of a second floor integrated with the rest of the IU and that furnishings appropriate for a computer environment will be purchased.

**RECOMMENDATION:**

- \* USAID/G should support the relocation of the Computer Center with funds for appropriate electrical installations, lighting, work surfaces, and seating.

Supplies (diskettes, printer ribbons, etc.) are in chronic short supply. The printers included in the initial Texas Instruments procurement, although capable of producing pretty color graphics, are neither practical nor economical for a production environment. At the time of the evaluation, the black portions of the ribbons were worn out, resulting in either colored or unreadable output. Diskettes were also out of stock.

The IU currently prints and distributes forms for use in Health Areas, Centers, and Posts based on their own best estimates of need. Nonetheless, the evaluation team frequently detected shortages of forms at the level of the District, Center, and Post. Post personnel complained that they were frequently required to photocopy forms at their own personal expense, and the team noted variability with regard to the number of copies of different forms Districts and Areas required of reporting facilities. Although the IU disclaims responsibility for this, the resultant problems do affect the quality of the information the IU manages.

**RECOMMENDATION:**

- \* The H/MIS Adviser and the IU should undertake a thoroughgoing planning effort, involving the MSH logistics and H/MIS specialists, to take into account increasing supply requirements as the system continues to generate more products. The desired decentralization of the system to the Regions and Areas will be especially sensitive to supply problems; this aspect should form part of decentralization plans.
- \* A simple system for better estimating need for SUIIS forms and for providing clear indications as to required copies and destinations should be provided, preferably on the forms themselves.
- \* In the future, the IU should purchase simpler printers and redistribute as appropriate. Printer ribbon replacement should be restricted to mostly all-black ribbons, and a ribbon re-inking machine should be purchased.

The SUIS, as currently developed, has serious design flaws in data collection. The copy requirement is unnecessary, and the system would be much better served by well-designed summary reports, consolidation, flow and analysis steps. Most of these flaws are due to inadequate testing of the data collection/processing forms, and some are due to simple overburdening of the MOH's operative level with "pre-processing" designed to reduce the data entry and processing load at higher levels. The evaluation team's field observations confirm that the extensive subtotalling and totaling exercises, quarterly summaries, etc., can and should be performed at higher levels and by computers, not manually by Health Post and Center personnel.

At the Health Post or Center, Forms F-1 through F-11, plus Birth and Death reporting and three Population Control cards, all must be filled out and maintained manually. At the Health Post, the lone auxiliary nurse (unless assisted by a TSR) is required to manage all these forms, usually without even a calculator. Estimates of time spent in paperwork ranged from 1.5 to 4.0 hours per day, plus an average of 1.5 days per month and an extra day per quarter. Most personnel complained that the forms were far too complex (notably excluded from this criticism were the Daily and Monthly Immunization and ORT forms) and required far too much transfer of data from one form to the next. Too much time is spent on these tasks and virtually none on the use of the information for monitoring and evaluating activities.

A review of the system is scheduled for June 1990, but currently there are no plans for conducting the studies and systems analysis necessary to detect and correct problems in the SUIS. To date, IU personnel have not had sufficient contact in the field to understand the problems associated with the SUIS. Because the field level aspects of data collection have not received sufficient attention to date, the information processed centrally by the SUIS is still of unknown quality.

#### **RECOMMENDATION:**

- \* USAID/G should support the necessary field studies and systems analyses necessary to streamline the SUIS. Travel and per diem arrangements should be made to ensure that better contact is made on a regular basis.
- \* The IU should procure machines for the Health Areas and train the Area statisticians in the use of the SUIS modules for data entry and consolidation. If the totaling and consolidation functions are performed at this level, the load will be reduced on the lower levels of the system. Center/Post-level data should be retained in the system at both Area and Central levels, allowing the information to be used for monitoring and evaluation purposes by those in charge of supervision.

The SUIS design assumes that community-level data will be efficiently captured by the system. The evaluation team, however, discovered severe underreporting from community volunteer personnel (see below).

**HEALTH PROMOTERS REGISTERED AS ACTIVE VS. NUMBERS REPORTING  
IN FIRST SEMESTER 1989, BY HEALTH AREA**

<b>HEALTH AREA</b>	<b>Active</b>	<b>Reported</b>	<b>Per Cent</b>
Norte, Dept. de Guatemala	235	137	58.3
Sur, Dept. de Guatemala	197	128	54.8
Amatitlán	73	15	20.5
El Progreso	449	113	25.6
Sacatepéquez	380	167	43.9
Chimaltenango	404	94	23.3
Escuintla	560	188	33.6
Santa Rosa	974	322	33.1
Huehuetenango	698	131	21.6
Quiché	249	119	47.8
Totonicapán	292	65	22.3
Sololá	177	55	31.1
Quetzaltenango	285	67	23.5
San Marcos	1,047	501	47.8
Retalhuleu	144	81	56.2
Suchitepéquez	428	141	32.9
Jalapa	415	253	61.0
Jutiapa	1,411	535	37.9
Izabal	196	15	7.6
Zacapa	159	64	40.2
Chiquimula	1,163	219	18.8
Alta Verapaz	364	76	20.9
Baja Verapaz	24	11	45.8
Petén	128	33	25.8
<b>TOTAL</b>	<b>10,452</b>	<b>3,530</b>	<b>33.8</b>

These results place serious doubts on coverage statistics generated by the SUIS for community-level actions, such as distribution of ORS.

**RECOMMENDATION:**

- \* The IU should redesign the SUIS to clarify the use of the ORT-1 community-level reporting form for ORS, which is simple to use, rather than the F-1/F-2 form series. The team also feels that the ORT-1 form is appropriate for institutional use, rather than the current suggested source (often ignored) of the F-4 outpatient form.
- \* Information about ORS supply should be included on the ORT-1 form for community personnel. An ample supply of the ORT-1 form should be assured, and a feedback mechanism should be developed both for ORS supply to volunteer personnel and for coverage/activity data for MOH personnel to use in their supervision of volunteers.

There is confusion about the current SUIS forms as to whether they are devices for local level management or simply for reporting service delivery statistics to higher levels of the

MOH management. Much of the data theoretically collected by the F-1 (Family Household Form) is not usefully transmitted up the information chain; the F-2 Quarterly Report of Community Activities is an onerous method of consolidating household visit data. These two forms are among the most poorly designed instruments in the SUIS, and they provide the poorest information in terms of reliability, coverage, and utility. They represent, moreover, an enormous printing, distribution, data collection, consolidation, and filing burden. Although some recording and local management devices are necessary for use in channeling, the F-1 and F-2 instruments serve little or no purpose in the SUIS. They certainly do not support the goal of a population-based information system, nor do they function effectively as instruments for reporting service delivery.

One of the key roles for the H/MIS is to provide service coverage data based on population targets. Currently, the statistical data the SUIS provides are not yet based on reliable denominators for populations served or at risk. The National Statistical Institute population data are used at the Municipal and Area levels, since the channeling data are not of sufficient quality nor of wide enough coverage to provide the needed denominators.

The F-1 form is closely linked with the channeling methodology. Center/Post personnel, in conjunction with volunteer community personnel, are to conduct quarterly home visits, during which information about environmental sanitation, population, vaccination, ORT, ARI, and referrals is to be obtained. The F-1 form, in theory, allows for a household-level evaluation of conditions and service coverage. The form has spaces for up to three visits to be recorded with all data for up to ten individuals, and has space on the back page for additional visits, with recommendations to be noted. Subtotals for each variable, to be derived during the three visits, are to be transferred on a quarterly basis to the F-2 form (*Informe Trimestral de Actividades por Comunidad*).

The instructions provided for the F-1 form are incomplete and confusing at best. For example, it is stated that if the household has more than 12 individuals, their data can be placed in the spaces for subsequent visits, and that the sections for data about subsequent visits should contain only changes in household population. First, there are only ten spaces per visit, not 12. More importantly, the subtotal lines for first, second and third visits are to be used for calculating and transferring data to the F-2. If, for example, vaccination data are updated during a subsequent trimester for an individual found during a prior trimester, these data are to be recorded in the line corresponding to the individual in the visit of the prior trimester. What is the likelihood that the current trimester's subtotal will reflect the events corresponding to it? Will the F-2 therefore reflect the current trimester?

The problem with the F-1 and F-2 forms, basically, resides in confusion as to whether they are "household inventories," for use in decision-making by the Health Center/Post and voluntary personnel, or whether they are instruments for "reporting service delivery." As the latter, they are poorly designed and of both dubious quality and coverage. After all, they reflect activities conducted only insofar as channeling coverage is good and sufficient forms are available. Both these conditions are currently quite variable. The additional unknown, that of the quality of calculation and transfer of data, further detracts from the value they might have.

Channeling does, of course, benefit from data recording instruments. Personnel feel better with an instrument to assist them, and indeed, in some cases, the entire channeling effort

would fail without such an instrument. Interviews conducted in San Lucas Tolimán, for example, indicated that, because of recent guerilla activity in the area, the health personnel could not visit households without having the information on family members contained in the F-1: it was essential to be able to ask about household members already knowing their names. But this function of household inventory is far distant from reporting on service delivery. The burden of the F-1 form resides not in its filling out and maintenance (although this itself is complicated by the form's 22-inch width), but rather in the summarization and transfer process. Additional problems were found with certain items: why is ORT reportable "only by voluntary personnel"? Wouldn't dates be more useful than an "X" or a check for guiding action on immunization? How does the health promoter "note the number of episodes of diarrhea with a check"? Who should keep the forms, and should they be updated when members of the family are treated at the Post/Center or just during the home visits? Should the forms then be kept with the medical history or in numerical order in one or more places?

**RECOMMENDATION:**

- \* The planned review of the SUIS by the IU should carefully examine whether the F-1 and F-2 forms should continue to form part of the global system, or whether they should revert to local design and control. The IU should assist Areas in designing such instruments for their own purposes but should probably cease to be directly involved in the printing, distribution and training in the use of these forms. The IU should instead focus on developing or improving simple, direct data collection forms and handle both aggregation and feedback reporting through computer-generated reports at the Area level.

The system is still characterized by premature age aggregations for key child survival interventions. Currently, for example, vaccination and ORT data on all SUIS forms are aggregated into under-one and one- to four-year age categories. There is no way to reliably estimate vaccination coverage or to track the appropriateness of timing for the second age group, because dose applications are grouped over such a broad age range. The system therefore is insensitive, except over fairly long periods of time, to vaccination trends and cannot therefore provide guidance on how to target efforts (e.g., to specific age groups in a Health Area) to improve coverage. Partially as a result of this, the Epidemiology Division, which tracks the country's vaccination status, focuses its analyses on the under-one year olds. But even the output from this age group, which reports number of third dosages applied for polio, for example, does not present a clear population-based picture of polio vaccination. Vaccination reporting in the current age groups can be changed if the key users of the information need disaggregation. Such a change would require modifications to the daily vaccination form and the monthly reporting form, providing, if appropriate, a simple aggregation mechanism for trimester or other summary reports, if desired.

**RECOMMENDATION:**

- \* The IU, Epidemiology Division, and perhaps some Area chiefs should participate in this review. The upcoming CDC-assisted vaccination survey will indicate whether disaggregation is needed to make the SUIS-provided information a useful tool for supporting planning and decision-making.

A massive printing, distribution, data collection, storage, and transfer effort is currently performed for the F-4 (*Informe Diario de Consulta Externa y Emergencia*) form. Because of the sheer volume of information (every visit to every Center/Post every day), the SUIS currently takes a 5% sample of the F-4 forms received each month, in order to provide morbidity statistics. A 5% sample is roughly equivalent to one day of services per month. The F-4 also is used to determine ORS, ARI, and malaria program coverage. The use of the data does not justify the level of effort its gathering and processing imply throughout the health system.

**RECOMMENDATION:**

- \* The IU and the H/MIS Adviser should include as part of the studies and analyses for the June 1990 review of the SUIS an examination of alternatives for the F-4 form. For example, a single randomly selected day could be designated each month, during which detailed data would be collected. These data could be supplemented through more direct methods. Examples of direct methods would be specific recording forms to produce the weekly Notifiable Disease telegram, ORS, ARI, and malaria diagnosis and treatment activity. Redesign of this type will allow greater flexibility of the SUIS as MOH programs evolve.

The IU staff conducted training in the SUIS forms during 1988 through short presentation visits to the Health Areas. Area, District and, occasionally Post personnel were trained. The quality and effectiveness of this training were poor: field personnel interviewed by the evaluation team generally perceived the training as inadequate, too theoretical, and confusing. The instructions for the SUIS forms are generally merely definitions, not guides to use, and have numerous errors and ambiguities that render them poor instruments to guide field personnel. Substantial variation was noted in the field in terms of where data were obtained for the higher-level forms, and thus reported data from different Centers/Posts, Districts, and perhaps Areas are not always comparable. A new round of training currently under way is attempting to improve the training style by interactively focusing on the practical problems field personnel encounter, but improved instructions are still required.

**RECOMMENDATION:**

- \* The MSH Training/Supervision Specialist should provide assistance in the design of appropriate instructional and reference material. Clear examples of data extraction procedures (where specific data items are derived and how to perform the extraction) should be provided, using real examples with the usual complications.
- \* Training activities should be sustained, with a gradual shift in emphasis from the current "one-shot" training style to a more interactive, problem-solving mode, working with personnel at different levels of the MOH whose skills, tasks, and training needs vary substantially.

The IU's computer center staff are, by local private-sector standards, underpaid, which has led to the recent loss of two key members of the center staff. Little can be done to directly alleviate this problem, given that Civil Service classifications determine salaries for MOH personnel. The computer center's data entry operators will probably be promoted to fill vacant programming slots; this is an indication of the difficulties that may be expected in maintaining competent programming staff for application development and maintenance. Careful software design, emphasizing a user-friendly interface and programmed training modules for new personnel, will help to avoid interruptions in the functioning of the SUIS, but will not ensure IU capability for continued evolution of the SUIS.

The H/MIS Adviser has selected the Clarion software development package precisely to address problems of personnel rotation. Clarion is mostly self-documenting, for example, unlike dBase or Foxbase, and will require far less system programmer support because of its superior robustness with regard to system and power failures. Clarion, however, is virtually unknown in Guatemala outside the IU. Skills that may be expected in newly hired programming staff are more likely to include dBase III, Foxbase, and the Pascal programming language. There is considerable debate among the IU programmers as to the utility of Clarion, and a number of the applications continue to be developed in Foxbase. Poor performance of larger report-generating applications was routinely cited as cause for resistance to the package by the programming staff.

#### **RECOMMENDATION:**

- \* To resolve the problems of software design, development, training and field support, given the personnel limitations inherent in the IU, USAID/G should authorize and the IU should contract a technical assistant (a Guatemalan programmer-analyst) to the H/MIS Adviser. The myriad of functions the Adviser currently performs is not an optimal use of a valuable and expensive resource. As the SUIS is implemented in the field, the support functions associated with this outreach will outstrip the Adviser's available time. Although the IU's programming staff may be able to provide some support, if appropriate travel and per diem arrangements are made available, both the in-house and outreach functions clearly justify the recommended additional technical resource. From the point of view of sustainability, investments in software development are, in effect, "one-time," and the key factor to sustainability is the resulting ease of use and appropriateness of the systems developed. The start-up costs associated with launching a nation-wide information system based upon Regional or Area involvement should not be underestimated.
- \* Efforts should continue to standardize the language or package SUIS modules are developed in and to develop appropriate level training materials in Spanish to overcome the resistance of current and new programmers. The H/MIS Adviser and technical assistant should continue to seek means (such as language extension modules written in C or Pascal) of improving the applications developed in Clarion. Such software tuning, combined with speedier processors and disk drives, will alleviate the performance problems noted with large applications.

Although a Project-contracted programmer has developed systems to assist the PAU with budgeting and accounting activities, unfortunately the coordination and support functions of the PAU to the operative (Area) level have to date received no attention. Area-level complaints that "no one in the PAU knows where any Project-related claims and vouchers" are and the PAU's argument that they know nothing until the auditors release documents are unacceptable. The PAU must serve the Areas at least through the reliable reception and tracking of Project-related documents.

**RECOMMENDATION:**

- \* A simple software system should be developed for tracking the documents Area chiefs send to the PAU for processing. This system should also provide monitoring information to assist PAU management in identifying and resolving bottlenecks as they occur. Such a system, oriented to the service function the PAU should provide the Areas, will contribute significantly to reduce the current tension and animosity between the PAU and the Area chiefs.

**C. IMPLICATIONS FOR FUTURE PROJECTS**

The fragmented and vertical nature of many MOH programs and projects supported by the donor community has led to a multiplicity of data collection and reporting instruments; this tendency can be expected to persist in the future. The time remaining in the current Project can and should be used to counteract this tendency. The principal problem relates to data redundancy resulting from an overly rigid system design. Most program/project data requirements have many elements in common; in the past, the information system's failures with respect to timeliness, reliability, and ability to focus on specific levels of service have caused project managers and donors to insist on instruments that they themselves could control. The IU is now in a position, thanks to Project support, to demonstrate the utility of modular add-ons to the SUIS, which can use data collected by the central modules of the system.

In many ways, the EPI, ORT, ARI, and family planning modules are examples of simple instruments incorporated into the system design which address donor and project manager needs in a relatively efficient way. What they lack is a reliable basis for estimating the target population: they basically serve as service delivery reporting instruments. Furthermore, especially at the operative level, they are not being used for much in the way of program monitoring and evaluation. Also, because they form part of the SUIS core modules, they are not perceived to be as flexible as they could be, and thus opportunities will be missed to meet program/project information needs through them. This, of course, will lead to impromptu development of additional forms, rather than the flexible expansion of the existing forms.

During the remainder of the Project, it will be important for IU staff to attempt to understand the concepts of "core" and "Project-specific" information, and to gain experience in meeting the needs of the MOH units and donors with both type of information. In the same way that the system software begins to acquire the characteristic of modularity, so should the approach to the information itself. In an evolving health system, very few data elements and indicators will remain stagnant.

USAID/G can foster this evolution in future projects by attempting to satisfy its data needs through specific support for the SUIIS. USAID/G project managers themselves should resist the tendency to require separate monitoring and evaluation systems and allow enough time during implementation for these requirements to be met. The provision of sufficient resources (per diem for training, computer supplies, and perhaps limited computing resources) to the IU will go a long way towards assuring the necessary attention and support.

The current Project will not be able to achieve efficient data communications between the Central, Regional and Area levels. This is in part due to the limited time of the Project, but is primarily a consequence of the lack of data communications links in Guatemala. By taking advantage of improvements in the communications infrastructure expected in the near future, later projects will be able to support the MOH information system through the necessary hardware and software support.

## **IX. TRAINING AND SUPERVISION**

### **A. TRAINING**

#### **1. ACCOMPLISHMENTS**

The training component has been one of the more effective aspects of the program in reaching its specific targets. The Project has supported the development and distribution of training curricula, manuals, and guides. It has funded many cascade courses in EPI and ORT for both community volunteers and institutional health workers at all levels and has also supported participant overseas training.

The training component in this Project has undergone several significant changes in methodology and organization. Initially, intensive training in EPI was to be provided by Central MOH training teams directly to the District level in conjunction with the new channeling methodology, mainly with PAHO technical assistance. (McCarthy 1987) This effort was to be managed by the Division of Epidemiological Surveillance. Later the methodology shifted to emphasize the "cascade" approach, in which some Central level support would be provided to the Areas in training of trainers at the District level. The burden for this training shifted from intense Central level training to the Area teams. At the same time, PAHO assistance was significantly reduced, limiting the technical assistance available during the subsequent period. In addition, competing training units from Maternal and Child Health and from the Human Resources Division produced different materials for the program.

The EPI/ORT Project has provided significant support for training expenses. Training and supervision line items for both EPI and ORT had cumulative expenditures of \$2,155,685 as of July 1989. This figure represented 33% of the total Project expenditures. (Project Financial Summary, 30 June 1989)

International training is provided to nurses and physicians for short-term courses in Costa Rica, Colombia, Mexico, the Dominican Republic, Honduras, the USA, and Venezuela. Fourteen participants have received support for course work or conferences related to primary health care, management, statistics, cold chain, and communication.

Within Guatemala, the Project had supported 1,025 training sessions as of April 1989. These sessions included 748 at the Health Post level, 220 at the District level, and 27 at the Area level. A total of 4,155 institutional workers and 20,764 community volunteers have been trained or retrained. The Project has already completed all its target goals for initial training of institutional personnel and is beginning a phase of retraining. Training village volunteers is lower than scheduled; however, it is likely to be completed by the end of the Project.

Technical assistance has been provided to develop curriculum, manuals, and teaching guides, which have been used in the national programs. Recently, technical assistance from the MSH training consultant has supported other components of the Project, H/MIS and administration as well. The technical assistance has been of excellent quality, well programmed, and well received.

Currently, training in child survival activities is being conducted in the cascade system throughout the country. Courses in EPI and ORT and more recently (but not with Project funds) ARI and growth monitoring have been conducted in all Areas by Area health professionals, with varying degrees of assistance from Central level officials. These courses train other members of the Area staff and the District medical officers and their staff in basic technical norms of these interventions, with some minor administrative training (filling out forms, etc.). District health providers are then responsible for training auxiliary nurses and TSRs, who in turn are responsible for training promoters and midwives. In many cases, the auxiliary nurses and TSRs receive training at the Area level.

Our evaluation team found that all providers, from District heads to promoters, had received training in EPI and ORT within the last three years and that most had attended training sessions (usually refresher courses) in 1989. All providers judged the courses to be useful for developing skills, reminding them of appropriate methods of delivering services, and informing them of changes in norms and practices. The few who identified problems with the courses cited lack of materials as the major cause. Almost all the providers had guides or manuals, usually the PAHO manuals, to support and supplement training in EPI and ORT. However, several promoters and midwives did not have the guides.

## 2. WEAKNESSES AND RECOMMENDATIONS

The evaluation team found that the system weakened as it worked its way to the periphery. Although most of the institutional health providers had materials for demonstrating ORT, five of 15 did not, and none of the village-level promoters or midwives had educational materials. Although all providers said that they gave talks and did demonstrations, none of the mothers interviewed said that they had seen a demonstration by either institutional providers or promoters.

The cascade system implies a high degree of decentralization and the need to improve training skills at the Area and District levels. The courses are organized in a variety of ways, and the skills of the trainers vary greatly at all levels.

Major responsibility at the Central level should be to provide consistent norms for training; a standardized curriculum developed with the participation and approval of the technical divisions so that it is consistent with the norms for EPI, ORT, and other child survival interventions; and a pedagogic methodology appropriate for the transfer of knowledge and skills at each level.

The pedagogic methodologies now in use are extremely traditional. Most training sessions are lectures, which begin with theory and advance to discussion of practice. Very

little interchange occurs with the participants. When demonstrations are included, they often are presented in ways that do not allow participants to actually practice the activity. Appropriate skills are particularly lacking at the level of the promoters and midwives, where pedagogic methods in adult education and education of illiterates require active interchange, practical, locally meaningful examples, and active participation in demonstrations. (Putney and Smith 1989).

Observers from the OHRD, as well as the MSH training consultant, concur on the poor quality of the training methodologies. The efforts to change methodologies seem not to have been sufficiently developed. Training materials do suggest more active participation and more use of demonstrations; however, they rarely give specific instruction to trainers on how to encourage participation or how to involve participants in demonstrations. (Enge and Hewes de Calderón 1989; Putney and Smith 1989)

The cascade system is also weak in providing means of improving pedagogic methodologies throughout the system. As the training cascades down, more routine and traditional methods are likely to be retained even if the core technical skill material is changed. Audiovisual modules, which might be designed to provide more systematic and uniform training and might overcome some of the weaknesses of the traditional pedagogic methods, are not being utilized.

Talks and demonstrations in indigenous areas are often given in Spanish by the auxiliary nurse or TSR and then translated by a promoter. This method inhibits any interactive pedagogic methodology.

Training for promoters was initiated early in the Project. Short-term technical assistance in 1987 helped develop the current manuals and the program for training of trainers, based in part on earlier modules designed during the SINAPS and PRINAPS projects. This activity produced a five-module program for promoters, each with a guide and manual. The manuals include a basic lesson with pictures and a series of questions to answer for each central message. The modules cover basic maternal and child health, first aid, environmental sanitation, and ORT. Initial training was for one month, with three-day refresher courses now being implemented.

Only one of the modules prepared for promoter training had been field tested before implementation. None of the training programs for promoters involve pre- and post-test evaluations; indeed, there is no systematic means of evaluating these training sessions.

Many of the training units are now out of print. They are being replaced in current training with PAHO manuals for auxiliary nurses that are not specifically designed for Guatemala or for the village level.

Several recent studies of the skills of providers and mothers suggest that major weaknesses in training programs remain. (Enge and Hewes de Calderón 1988; Ward et al. 1989; de León et al. 1989) The Enge and Hewes de Calderón study found only one full-scale training session in EPI/ORT in four Areas examined. This training, which was held in 1985, consisted mainly of lectures, and only injections and handwashing were demonstrated, not ORT. These investigators also found that the availability of guides and manuals varied widely; often older

manuals are available but not the 1987 revisions. The Area Chief tried to get new promoter training manuals from the Division of Human Resources, but they were not available.

Nevertheless, the study also found that in most Areas yearly refresher courses were led by the District TSR and graduate nurse. Most promoters had attended the last one held in 1988. Although the courses were mainly lectures, the recent courses did include ORT demonstrations. Enge and Hewes de Calderón found that mothers were able to recognize the symptoms of diarrhea and knew about packaged ORS, as well as home remedies. Mothers' knowledge of homemade ORS was more deficient, and their knowledge of immunization was limited to understanding the benefits and the names of diseases. Accurate knowledge of when to immunize was less prevalent.

The other studies, including our own field visits, have also found that, although mothers are knowledgeable about some aspects of immunization and ORT, serious problems with accuracy remain. (See Section on Provider-Community Relations)

Although skills and knowledge seem to have improved throughout the health system and among beneficiaries, many weaknesses still exist. Insufficient efforts to test materials, evaluate training, and provide supervision are serious deficiencies. Pedagogic methods are not being taught effectively. Appropriate means of educating mothers have not yet been developed.

The current efforts of the MOH, along with assistance from INCAP and MSH, have begun to address some of these problems. A major emphasis on the development of a correspondence training module for continuing education of auxiliary nurses--Integrated Child Survival Module--has been developed by a working group of officials from the Department of Maternal and Child Health, the OHRD, INCAP, and the MSH training consultant. This module, which involved the development of a Trainer's Guide for the Area level, is one of the few training materials to have been field tested before implementation. In addition, the Area team members responsible for training at this level were given two-day training sessions by teams from the National level. This program also includes pre-test and post-test evaluations. (Salgado and Méndez, 1989)

Currently, the major emphasis of MSH technical assistance support has been to support another working group, with many of the same members who were involved in the Integrated Module, for the evaluation and redesign of appropriate training for promoters. This process began with a review of all materials on promoters and field visits to at least half the Areas to develop a task analysis for promoters, in anticipation of developing a new curriculum for promoters. (*Ministerio de Salud, Situación Actual del Programa Nacional de Promotores Rurales de Salud,* 1989).

This initiative emerged from the MSH planning seminar and from the high motivation and good working relationships between the MSH training consultant and his counterparts in the working groups. Unfortunately, this technical assistance is scheduled to end in six months. Although several specific tasks are likely to be finished by the end of the consultant's contract, the need to continue upgrading the training programs is great. The recommendations suggested below all imply significant continuing efforts in technical assistance.

The Project should continue to build upon the good working relationships established between the consultant and the training working groups.

A final problem emerged in the funding of training by the Project. The Project's exclusive focus on EPI and ORT has led to problems of integration with other components of the National Child Survival Strategy, such as ARI and growth monitoring. Courses funded by EPI/ORT often have to restrict their curriculum to these subjects or risk losing funds.

#### **RECOMMENDATIONS:**

- A priority should be given to teaching appropriate pedagogic methods throughout the cascade system. Technical assistance, both long- and short-term, should be focused on training of trainers throughout the system.
- A working group formed by the Department of Maternal and Child Health, Department of Community Training, the Department of Health Education and HealthCom, with technical assistance from the Project, should develop appropriate programs for educating mothers, including bilingual trainers.
- Audiovisual modules should be developed to accompany these programs and assure more systematic coverage.
- Following the example of the Integrated Module for Child Survival, all training materials should be field tested and should include methods of evaluation within each unit.
- The EPI/ORT funds should be made available for any EPI or ORT courses that also support the other components of the National Program for Child Survival (ARI and growth monitoring).
- The contract for the MSH Training/Supervision Adviser should be extended through the end of the Project.

### **3. FUTURE PROJECTS**

Although the EPI/ORT Project cannot be responsible for all training activities, future projects clearly should begin addressing training problems in a more systematic manner. As is commonly found in developing countries, there are in general too many training sessions, too little coordination, and too little attention to pedagogic methods.

As a first step, the MOH should be supported in efforts to develop a National Plan for Continuing Education. This planning process should involve donors, planners, and all units involved in training. The MOH should receive significant technical assistance and develop a coordinated means of consolidating training, reducing the number of training sessions,

and upgrading the quality of each session. Central responsibility for coordinating and upgrading training activities should be assigned to the Human Resource Division.

**RECOMMENDATION:**

- \* Future projects should support the development and implementation of a National Plan for Continuing Education.

**B. SUPERVISION**

The EPI/ORT Project has supported supervisory visits, through per diem and transportation, for channeling activities and maintenance. As of April 1989, 8,767 supervisory visits for channeling and 9,786 visits for maintenance had been funded.

During our field visits, we found that all Health Centers had regular supervision by the Area levels, usually through routine meetings or ad hoc visits. Supervision norms appear to vary widely from Area to Area. In Chiquimula, the Area Technical Team makes regular visits as a group to eight municipalities a month, spending one day in each municipality. Other Areas had no regular schedule of supervision. Almost all Areas complained that lack of sufficient appropriate vehicles hampered supervision.

Most Health Posts had received supervision in monthly meetings with the District Chiefs. Only four of the 11 respondents at the Health Post level had received regular trimester supervisory visits. The length of these visits ranged from one hour to half a day. Ten of the 15 respondents at the Post level felt that supervision had improved during the last two years.

Usually, the auxiliary nurses were responsible for supervising the midwives, which occurred during monthly meetings. TSRs supervised promoters on a trimester basis. Although all Health Post personnel reported that they supervised the village volunteers regularly, only half of our sample of promoters reported such visits. A recent study of promoters also found that supervision at the village level was weak. (Enge and Hewes de Calderón, 1988)

The effectiveness of supervision is difficult to assess. Good supervision requires careful observation and on-the-job training by the supervisor. Although supervisors should check systematically for incorrect procedures, they should provide support and means to correct problems, rather than punishment. In most cases in Guatemala, supervision involves some sort of observation of practices, such as investigating the cold chain and observing immunization techniques. However, this process is done on an ad hoc basis and is not systematic. The usual process involves addressing some problem brought to the attention of the supervisor by the supervisee, rather than active observation and correction of problems by the supervisor.

**RECOMMENDATIONS:**

- \* More attention should be given to assuring that health promoters are supervised. Monthly meetings, such as those organized for midwives, should be held by TSRs

or auxiliary nurses for promoters. These meetings should review specific tasks, provide continuing training, and establish indicators for effective accomplishment of tasks, as recommended by Enge and Hewes de Calderón.

Regular schedules of supervision should be established in each Area for both Area and District officials. Vehicles should be assigned to this task and coordinated with delivery functions.

National and Area norms for supervisory visits, observation, and on-the-job training should be established by the Programming Unit of DGSS and by the Area Chiefs. An operations research project should be implemented to assess the supervisory systems and develop appropriate norms.

## **X. FUTURE IMPLICATIONS**

With USAID/G providing such a large portion of the MOH primary care budget, Guatemala's health system is dangerously dependent on foreign support for its most important health services. Guatemala should use these resources in a manner that will promote the future sustainability of their primary health care system. Increasing efficiency, institutional strengthening, and developing alternative financing mechanisms are necessary for the future.

The current Project can only begin to develop institutional strength. It can do so, however, in ways that will build an effective base for future projects currently being negotiated and eventually for the development of a sustainable national primary health care system. If it provides a means of demonstrating the effectiveness of decentralizing funding mechanisms and of developing appropriate skills at all levels and if it develops effective and decentralized logistics, H/MIS, and supervisory systems, it will have made a major impact on institution building.

However, the Project also has the chance to assist in the planning process of the development of new projects. Therefore, the Project should place greater priority on developing a national MOH planning process and coordinating present and future donor support. In particular the MSH Chief of Party should focus his efforts in this direction.

Currently, the World Bank is in the first phases of designing and negotiating a Health Sector Program, which is scheduled to begin in 1991. USAID/G has provided technical assistance for the design of this Project and is interested in coordinating its support with the Bank project. The project structures support and provides a potential umbrella for coordinated support from other donors. The project is currently designed to support five components: 1) decentralization of the administrative structure of the MOH, 2) decentralization of financial systems, 3) hospital efficiency, 4) pharmaceuticals, and 5) nutrition. A recent IDB mission has proposed a similar program of support for the sector. In addition, USAID/G has programmed funds for a Family Health Project to address family planning and health activities in one umbrella project. Planning for this USAID/G project has not yet begun, although it is scheduled to begin in 1991.

### **RECOMMENDATION:**

The MOH should establish a working group with representatives of the Office of International Affairs, the Sectoral Planning Office, and the Programming Office to coordinate a planning process that will take charge of the planning and negotiating process for the three major projects that are scheduled to begin in 1991. USAID/G should provide funding for meetings, studies, and other support for working group efforts.

Donor coordination of project design should be established formally through the creation of an Interagency Working Group. Multi-donor teams should assist in developing each donor's proposal and in negotiating with the MOH. This process should be supported by coordination among the Washington and New York offices of the donors.

## LIST OF ACRONYMS

ARI	Acute Respiratory Infections
BCG	Bacillus Calmet Guerin
DGSS	General Directorate of Health Services, <i>Dirección General de Servicios de Salud</i>
DHS	Demographic and Health Survey
DPT	Diphtheria, Pertussis, Tetanus
ENSMI	<i>Encuesta Nacional de Salud Materno-Infantil</i>
EPI	Expanded Program of Immunization
GOG	Government of Guatemala
GSA	Government Services Agency
HealthCOM	Management Sciences for Health, Inc.
H/MIS	Health Management Information System
IDB	International Development Bank
INCAP	<i>Instituto de Nutrición de CentroAmérica y Panama</i>
IU	Information Unit
KAP	Knowledge, Attitude and Practice Survey
LAPROMED	<i>Laboratorio de Producción de Medicamentos</i>
MOH	Ministry of Health
MSH	Management Sciences for Health, Inc.
MCH	Maternal Child Health
OHRD	Office of Human Resources Development
ORS	Oral Rehydration Salts
ORT	Oral Rehydration Therapy
PAHO	Pan American Health Organization
PAU	Project Administrative Unit
PDSO	Project Development Support Office
PIL	Project Implementation Letter
PRICOR	Primary Health Care Operations Research
PRINAPS	<i>Proyecto Regional Integrado de Nutrición y Atención Primaria en Salud</i>
PRITECH	Primary Health Care Technologies Project
PVO	Private Voluntary Organization
RAP	Rapid Assessment Procedures
SINAPS	<i>Sistema Integrado de Nutrición y Atención Primaria en Salud</i>
SUIS	<i>Sistema Unico de Información en Salud</i>
TSR	Rural Health Technician, <i>Técnico en Salud Rural</i>
UNICEF	United Nations International Child Emergency Fund

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