9365927 99

PDAA4-419

IAN=47427

ORT PROJECT CONCEPT DEVELOPMENT

GUATEMALA

VOLUME I

A Report Prepared By PRITECH Consultants:
POLLY F. HARRISON, Ph.D.
Lic. RODRIGO ARCE
MARY LOU CLEMENTS, M.D.
KJELL ENGE, Ph.D.
GERALD ROSENTHAL, Ph.D.

DURING THE PERIOD:
NOVEMBER 10 - 30, 1985

TECHNOLOGIES FOR PRIMARY HEALTH CARE (PRITECH) PROJECT
Supported By The:
U.S. Agency For International Development
AID/DPE-5927-C-00-3083-00

AUTHORIZATION:
AID/S&T/HEA: 9/9/86
ASSGN. NO: SS 99

TABLE OF CONTENTS

VOLUME I:

EXECUTIVE SUMMARY

CHAPTER 1. Institutional Analysis, Analysis Of Strategic Options, And Recommended Project Alternative (Harrison)

VOLUME II:

CHAPTER 2. Logistical Analysis, Local Production And Distribution, National ORT Program (Arce)

CHAPTER 3. Socio-Cultural Analysis (Enge)

CHAPTER 4. Economic And Financial Analysis (Rosenthal)

CHAPTER 5. Technical Analysis (Clements)

APPENDIX. Persons Contacted By The ORT Study Team

EXECUTIVE SUMMARY

I. BACKGROUND

A. Introduction

The National Child Survival Action Plan (January 1986) forms part of the National Maternal and Child Health Program, whose priorities respond to the basic health needs identified by the Ministry of Health. Its fundamental strategy is that of primary health care and its most crucial dimensions are: 1) intra- and inter-institutional coordination, 2) use of appropriate technology, 3) emphasis on priority health problems, 4) community participation, 5) integration of all projects into a national program, and 6) development of human resources. The National Oral Rehydration Therapy (ORT) Project described in this Executive Summary is intended to be responsive to these policy orientations.

B. Justification

15.6 percent of the Guatemalan Population are children five years and under, yet these same children account for approximately 50 percent of all deaths in the country. Of the total number of deaths in this age group in 1983, 75 percent were caused by five major causes, the majority of which are preventible with simple technologies. The foremost among these was diarrheal disease, which accounted for one-quarter of those deaths and produced a mortality rate of 72.2 per 10,000 children 0-4 years of age.

Diarrheal diseases are also an important cause of morbidity. Studies in Guatemala have shown averages of from six to ten episodes per child per year in rural areas. A recent national survey found that 26 percent of a sample of 4,000 children under five had had diarrhea in the preceding week. The deleterious effects of diarrheal episodes derive not only from their incidence but from their duration. The impact of both frequency and duration of diarrheal episodes on nutritional status is likely to predispose a child to more severe and even more frequent diarrheal episodes and, ultimately, to diarrhea mortality.

The high rates of diarrheal diseases in Guatemala, particularly in infants and children, represent a significant source of death and disability which limits the overall social and economic conditions of the country, at the same time that these conditions increase the incidence of disease. In the longer term, the incidence of diarrhea will only be reduced by modifying the basic conditions of existence. Programs of latrinization, access to potable water supplies, waste management, and rural economic development are critical elements of this process, and such efforts are already being supported by the Government of Guatemala, with the assistance of a number of donors, including AID. However, the interactions between inadequate social and economic conditions and poor levels of health are well understood, and interventions at any point in that interactive process can produce both direct and indirect benefits.

ORT is an intervention, which consists of use of Oral Rehydration Salts (ORS) plus appropriate feeding, between the incidence of diarrheal disease and the mortality and debilitation that it typically produces. It intervenes by modifying the responses to diarrhea within the home and community and throughout the health care delivery system, in a way which has been shown to reduce dehydration-caused mortality and morbidity and its associated acute nutritional deficiency.

In summary:

1. Oral Rehydration Therapy works.

2. It is focused on a major maternal and child health problem in Guatemala.

3. It is not capital-intensive and its technology is "appropriate."

4. Foreign exchange requirements are low.

5. The proposed National ORT Project is consistent with and complementary to other ongoing primary health care strategies and can be easily integrated with them.

6. ORT is a major component of the worldwide Child Survival Strategy and a national and international priority.

II. GOAL, PURPOSE, SPECIFIC OBJECTIVES, AND BENEFICIARIES

A. Goal

The goal of a National ORT Project in Guatemala is to reduce infant/child mortality and morbidity due to or correlated with diarrheal disease.

B. Purpose

Present estimated ORT coverage — defined here as equal to access plus utilization — is estimated at five percent. At the end of the first full year of project implementation, ORT coverage will be increased to 30 percent. By the end of the second project year, coverage will increase to 60 percent. And, by the end of the third full year of project implementation, total coverage of the under-five population will be 80 percent.

C. Specific Objectives

By the end of the proposed project, the following objectives will be achieved:

1. A national program will be established to promote, consolidate, coordinate, and implement concepts and technology related to Oral Rehydration Therapy within Guatemala's national health system.

2. Availability of ORS technology will be extended and a reliable supply assured through support for quasi-public-sector production, encouragement for marketing of ORS in the private sector, and strengthening of public-sector distribution capacity.

3. Standardized norms for treatment and maintenance therapy, which will include a "national recipe" for a homemade ORS solution, will be formulated and disseminated.

4. Health service providers at all levels will be trained in the new norms and in the preparation and administration of ORS/ORT.

5. Through health education and mass media approaches, families will be educated about the dangers of diarrheal dehydration, the importance of ORT in preventing it, the value of appropriate feeding, and the proper use of home-based solutions and ORS packets.

6. Informed demand for ORT will be stimulated.

7. Through a combination of mass media approaches, medical school curriculum adjustments, and the establishment of at least one ORT hospital-based training unit, a critical mass of physicians supportive of ORT will be created.

D. Beneficiaries

On the basis of 1985 population estimates from INE/CELADE/SEGEPLAN (using a 2.9 percent annual population growth rate), the under-five cohorts for the years 1986, 1987, and 1988 are as shown in the table which follows. Project targets of 30, 60, and 80 percent for each project year will result in coverage of the numbers of beneficiaries presented in that table.

PROJECT YEAR	CHILDREN 5 YEARS AND UNDER	COVERAGE
1986	1,352,000 (30%)	405,600
1987	1,391,208 (60%)	834,725
1988	1,431,553 (80%)	1,145,242

III. PROJECT COMPONENT DESCRIPTIONS

The proposed ORT strategy is a balanced, large-scale, national effort to increase the use of appropriately-produced ORT in the home and community. The strategy will have two major emphases:

A. Increasing effective demand for ORT by promoting awareness of its benefits; and

B. Enhancing supply by increasing production and distribution.

The element of training, health education, and mass communication is essential as a bridge from supplier to consumer and as a facilitator of the appropriate use of ORT by both client and provider. Activities to implement this strategy will be grouped into four basic components which will be phased and integrated both with one another and with ongoing programs in the health sector. Those components are:

1. Institutional Capability

Given that ongoing immunization activities through the channelling approach (supported in part under the Immunization/Child Survival Project AID No.520-0339) have been assigned to the División de Vigilancia y Control de Enfermedades, it would seem logical that a National ORT Program would be located there as well. However, there are two powerful reasons for not doing so. One is that this Division is already functioning at what it considers full capacity. The other is that the new MOH leadership has committed itself to the strengthening of the Departamento Materno Infantil. Furthermore, an ORT project has requirements that do not coincide with those of an immunization project, such as: ORS production; ongoing ORS supply; coordination with the private sector for mass communication and marketing; and household-level information on knowledge, attitudes, and practices. Nevertheless, this Department, mandated as having the normative and technical responsibility for maternal and child health, will coordinate National ORT Program activities within the framework of the Modelo Operativo de Atención Primaria, which relies on channelling as the principal service delivery strategy.

2. ORS Production and Distribution

According to the World Health Organization, inadequate and unstable supply and distribution of ORS constitute the most important constraint to the implementation of ORT programs. The two fundamental supply alternatives are: a) importation and b) local production. The alternative recommended for Guatemala is local production, since the country satisfies the three basic criteria for such production, that is, high-volume requirements for ORS, an established pharmaceutical production and quality control capacity, and readiness to initiate production.

The most viable ORS production alternative for the public sector is the Laboratorio de Producción de Medicamentos (LAPROMED) in the School of Pharmacy of the University of San Carlos. LAPROMED does not currently produce ORS, but some small-scale production of other pharmaceutical products is under way and the existing installation could be easily adapted for ORS production which could meet estimated public sector demand at a competitive cost. LAPROMED also has a suitable quality control laboratory and serves as a training facility for pharmacy students, particularly relevant since pharmacists are an important source of medical advice and assistance in Guatemala.

What LAPROMED lacks is the machinery necessary for ORS production. UNICEF has indicated that it is prepared to donate a low-cost filler/sealer which can produce approximately 24,000 packs per eight-hour day. However, full-scale production could not be expected for approximately eight months, necessitating the importation of an interim supply of packets. These will be purchased with USAID funds. The Project will also finance ancillary production equipment, raw materials, and packaging supplies, as well as support for personnel and technical assistance.

With regard to ORS distribution, both USAID-funded activities in immunizations and ORT are aimed at ultimately strengthening the public health sector logistics system. However, the ORT Project recommends an interim solution which entails contracting with a major private-sector distributor, such as Alimentos, S.A., which currently covers 90% of all sales points in Guatemala.

3. Training and Supervision

The Project will enrich the training of personnel at all levels of the public health delivery system, as well as the medical, nursing, and pharmacy professions, in the implementation of an ORT program. ORT treatment and maintenance norms will be standardized and widely disseminated. These norms will provide a comprehensive framework for the development or modification of modular training materials, as well as for health education messages for mass communication. ORT training units (according to WHO/Control of Diarrheal Diseases Control Program guidelines) will be established in major hospitals, which will permit health personnel to

actively participate in treatment of patients with diarrheal disease, to learn the theoretical basis of ORT, and gain experience and confidence in its use.

Supervisory activities to be carried out under the ORT Project will follow the phased introduction of channelling/immunization throughout the country. ORT supervision norms, contained in the WHO/PAHO supervision manuals, will be incorporated into the Immunization/Child Survival Project. Both will be integrated into the design of the Health and Management Information Systems of the MOH. ORT project funds will be available for ORT supervisory and information system activities, to insure that these management subsystems are adequately implemented and supported.

4. Mass Communications, Health Education, and Marketing

Successful ORT communications programs to date have shared some important fundamental characteristics: they were a) marked by strong audience orientation, b) focused on a few actionable messages, c) employed intensive promotion, and d) were part of a comprehensive program. Experience also indicates that the power of home visits, which are an integral part of the channelling approach, are substantially enriched by the teaching of innovative, interactive, face-to-face communications techniques. All of these elements will be included in the Mass Communications/Health Education/Marketing component of the ORT Project.

An effective mass communications/marketing campaign will stimulate informed demand from the community level which will, in turn, generate pressure on health providers, most importantly physicians and pharmacists, to utilize and/or promote Oral Rehydration Therapy.

IV. PROJECT COVERAGE, DURATION, SEQUENCE, AND TIMING

A. Geographic Coverage

At present, there are a number of ORT activities being carried out in Guatemala (see Ch.I, p.23). Most of them, however, have been associated with specific projects, limited in scope and population coverage, and lacking overall structure and technical guidelines. The purpose of this Project will be to consolidate and integrate these activities into a coherent, comprehensive, nationwide program under the aegis of the Ministry of Health (MOH).

B. Project Duration

In order to achieve the stated goals of this project, a project life of approximately three years is considered appropriate.

C. Project Sequence and Timing

The sequencing and timing of the National ORT Project will be synchronized and integrated with channelling activities. The Project will first enter those Health Areas where channelling is already under way (Escuintla, Santa Rosa, El Progreso, Chiquimula, Jutiapa, Jalapa, Zacapa, and Sacatepéquez) and, subsequently, follow the sequence programmed under the Immunization/Child Survival Project (Year 1: Sololá, San Marcos, El Quiché, Totonicapán, Chimaltenango, Quetzaltenango, Suchitepéquez and Retalhuleu); (Year 2: Huehuetenango, Baja Verapáz, Alta Verapáz, Izabal and El Petén)

V. IMPLEMENTATION STRATEGY

A. Channelling

The operationalization of the National Child Survival Plan builds on the experience of the program of Extension and Strengthening of Maternal-Child Health Care (UNFPA) in the five Health Areas in the eastern part of Guatemala, and the "Modelo Operativo de Atención Primaria (PAHO) already under way in eight health areas. The basic strategy of these projects is primary care predicated on a high-risk focus and a delivery mechanism called "channelling" (canalización). Channelling is an active, community-outreach system which is being used for promotion of primary health care by health service personnel and community volunteers. These individuals carry out home visits to identify susceptible children and make appointments for them to receive vaccinations in a nearby health facility or another site in the community. The channelling process seeks to change the so-called "clinic psychology" (basically a passive system in which the health workers remain in the health facility awaiting the arrival of clients) and is viewed as a more effective approach for maintaining long-term coverage. A crucial part of the channelling approach is institution-building, a goal which is shared by a National ORT Program. At the same time, ORT is an important intervention in its own right, which will be highlighted by making it a discrete Amendment to the Immunization/Child Survival Project.

10

VI. DONOR ACTIVITIES IN ORT

A. USAID

The Primary Health Care Component of the Community-Based Health and Nutrition Systems Project (AID 520-0251) included the promotion of ORT and packet distribution in the Health Areas of Sololá, Totonicapán, and San Marcos. Project activities were completed in September 1985 but field and central-level personnel trained and experienced in ORT have been transferred to support activities being carried out through the Immunization/Child Survival Project.

B. Other Donors

As part of the preparation for this Project Amendment, a study team gathered data in November 1985 on all ORT activities, past and present, in Guatemala. The data gathered are presented in tabular form in Chapter I of this Executive Summary.

VII. PROJECT FINANCING

A. AID Funding

Project costs are estimated at approximately US $5.0 million of grant funds, of which US $3.0 million is likely to be available during FY1986. The remaining funds are programmed to become available in FY1987. The precise allocation of these funds will be the product of joint AID/MOH discussions to follow.

B. MOH Contribution

With the exception of the recurrent costs associated with ORS production and mass communication, all of the MOH contributions to the ORT Project are already covered by the existing budget.

2575s
KWR

CHAPTER 1

INSTITUTIONAL ANALYSIS, ANALYSIS OF STRATEGIC OPTIONS, AND RECOMMENDED PROJECT ALTERNATIVE

Report Prepared by PRITECH Staff Associate:
Polly F. Harrison, Ph.D.

TECHNOLOGIES FOR PRIMARY HEALTH CARE (PRITECH) PROJECT
Supported By:
U. S. Agency for International Development
AID/DPE-5927-C-00-3083-00

AUTHORIZATION:
AID/S&T/HEA:
ASSGN. NO.: SS99

12

INTRODUCTION

Because of the systemic nature of management and because of the way issues of management and delivery of health services permeate the other analyses which have been performed for this Study Team assignment, this Analysis will have three principal functions:

1. To describe the institutional setting for a national ORT Program;
2. To summarize the findings of other team members that appropriately fall under the rubri of "management and administrative feasibility"; and
3. To elaborate on the strategic option(s) which emerged as most feasible.

Item 3 will also include discussion of institutional alternatives considered by the team and the rationale for the option(s) preferred. Item 3 also responds to the sections of a PID which have to do with Goal, Purpose, Expected Achievements and Accomplishments, and Outline of the Project and How It Will Work.

The outline for this section is as follows:

I. BACKGROUND: THE INSTITUTIONAL SETTING
   - A. The Structure of the Health Sector
     1. Introduction
     2. Institutional placement and functions of key MSPAS entities
     3. The pyramid of health delivery
     4. Coverage and productivity
     5. Quality of service
     6. Financing the sector
   - B. Priorities and Stategies: the National Child Survival Plan
   - C. Achievements in ORT to Date

II. ANALYSIS OF CONSTRAINTS
   - A. Policies, Laws, and Regulations
   - B. Priorities and Strategies
   - C. Financial and Economic Constraints
   - D. Sociocultural Constraints
   - E. Public Sector Institutional Considerations
     1. Planning and organization
     2. Financing
     3. Management
     4. Communications
     5. Local production of ORS
     6. ORS supply management
     7. ORT/ORT information systems
     8. Training of personnel for ORT programs and Education of the medical, nursing, and pharmacy professions
   - F. Private Sector Institutions

III. STRATEGIC OPTIONS
   - A. General Options for a National ORT Program
   - B. The Institutional Location for a National ORT Program
   - C. Preferred Option and Rationale

IV. RECOMMENDED PROJECT ALTERNATIVE
- A. Goal
- B. Purpose
- C. Expected Achievements and Accomplishments
- D. Project Rationale
- E. Outline of the Project and How It Will Work

I. BACKGROUND: THE INSTITUTIONAL SETTING

A. The Structure of the Health Sector

1. Introduction

Health services delivery in Guatemala is provided through a variety of different institutions, which fall more or less comfortably into two large sectoral blocks: the public sector and the private sector. The first includes central government institutions and the autonomous and semi-autonomous entities; the second comprises not-for-profit and for-profit entities.

a. The Public Sector

The most important in terms of resources, coverage, and production of services is the public sector. It includes:

- The Ministry of Public Health and Social Assistance (MSPAS/MOH)
- The Guatemala Social Security Institute (IGSS)
- The Army's Civic Action Program
- The Municipal Sanitation Department of the Metropolitan Area
- The Secretariat of Social Welfare of the Presidency
- The University of San Carlos
- Community Development
- The National Reconstruction Committee (CONE).

In addition, there is a water and environmental sanitation subsector comprising:

- The Institute for Municipal Development
- The Municipal Water Company of Guatemala
- The Executing Unit of the National Acueduct Xaya Pixcaya
- The Executing Unit of the Program of Rural Acueducts (UNEPAR).

For purposes of coordination within the health sector, the National Health Council was created, composed of representatives from each public sector institution. The Unidad Sectorial is responsible for health planning and the integration of health plans with the national plans produced by the General Secretariat of the National Economic Planning Council (SEGEPLAN).

For purposes of coordination between the health sector and other sectors, there is the National System of Inter-Institutional Coordination which subsumes: the Local Development Committees (CDL), the Municipal Inter-Institutional Committees (CIM), the Departmental Inter-Institutional Committees (CID), and the National Inter-Institutional Coordinating Body (CIN); the last also forms part of the National Planning Council. Beyond these formal mechanisms which function routinely, the MSPAS has also tried to support any informal mechanisms which might facilitate coordination in general.

b. The Private Sector

In the not-for-profit private subsector, there are 150 national institutions, of which the most important, by reason of the range of their activity and their population coverage, are:

- The Guatemalan Red Cross
- The Tuberculosis League
- The Cancer League
- The Anti-Alcoholism Sponsoring Group
- The Mental Health League
- The National Committee for the Blind and

Other indigenous groupings -- a variety of associations, clubs, committees, foudnations, homes, institutes, leagues, missions, social-work enterprises, and patronatos -- have either more limited activities, more limited geographic reach, and/or more limited memberships.

There is also a large number of private voluntary organizations (PVOs), most with their bases in the United States (USPVOs). From the end of the 1970s until very recently, the number of USPVOs operating in Guatemala diminished significantly because of the increased difficulty of carrying out programs during peak periods of violence, particularly in the Highlands where the bulk of PVO operations have typically been concentrated (Keaty and Keaty, 1977). Among the most important PVOs still functioning in Guatemala are:

- AMG International
- Salvation Army
- World Vision (VM)
- Project Hope
- Catholic Relief Services (CRS)
- Caritas
- CARE
- Partners of the Americas
- World Food Program (PMA)
- Christian Children's Fund (CCF)
- Mennonite Central Committee (CCM)
- Foster Parents Plan International (PLAN)
- Seventh-Day Adventists Mission
- The Maryknoll Order.

There are also two coordinating bodies which seek to bring structure and purposeful order to the PVO community. One is the Asociacion de Servicios Comunitarios de Salud (ASECSA) which is said to group health promoter representatives from approximately 75 clinics. ASECSA performs a coordinating and technical assistance role for its members, particularly in the areas of education and administration, and gives courses on different aspects of health and communication techniques, as well as general training courses for health promoters. ASECSA also sustains a revolving fund for basic medicines for its members to buy and provide to their clienteles, puts out a newsletter, and maintains a health information center for its members and for the public in general.

ASINDES (Asociacion de Instituciones de Desarrollo y Servicio) is a federation which groups 27 PVOs in 550 different localities in the country. All member organizations are oriented toward training at the community level in a variety of subjects of social value. The association is decentralized and programs are organized and executed at the local level with regional supervision. It is reasonable to expect these organizations to become more valuable as, with the reduced violence and a recently elected civil government, more and more PVOs resume operations.

Finally, beyond these institutions there is the group of foreign donors who participate in the health sector. In decreasing order of importance in terms of the amount each contributed to the health sector in 1984 (Table 1), these are: the Inter-American Development Bank, CARE (already mentioned as a PVO), the Agency for International Development (AID), the Central American Bank (CABEI), the American Cooperative Development Institute (ACDI), UNFPA, UNICEF, and UNDP/PAHO. Both the Swiss (Grupo Suizo) and the Canadian Embassies also participate in the health sector.*

The for-profit private sector groups which are of primary interest for a national ORT program are the producer/distributor and the deliverer subsectors. The former is fully described in the Logistics Analysis; in sum, there are 54 laboratories involved in pharmaceutical production in Guatemala, of which 24 are multinationals and the rest national. The deliverers of pharmaceuticals are the drug wholesalers, the wholesalers of consumer products and, most importantly, the pharmacies, of which there are approximately 700 in the whole country. Beyond the pharmacy level, over-the-counter (OTC) pharmaceutical preparations may also be distributed through supermarkets (N=150), general and medium-sized stores (N=950), and small local stores (tiendas) (N=approximately 1,300).

More broadly, health care is delivered in the private sector by doctors, either in individual private practice or, increasingly, in groups, and by the usual gamut of empiricists with more or less professional training. These include nurses, injectionists, a variety of folk-healers -- curanderos (healers), hueseros (bonesetters), massagers (sobadores), brujos ("witch doctors"), yerberos (herbalists), and comadronas (traditional midwives). There are, according to the Guatemalan Medical Association, _____** doctors practicing in Guatemala, of which 1,033 are named to the Ministry of Health (MSPAS, 1984); There is, to our knowledge, no national inventory or even estimate of the number of traditional healers in Guatemala and, indeed, compiling such an inventory would be a herculean tasks. In any event, this traditional subsector has not in Latin America, at least so far, been easily recruited for public health purposes.

The exception to this is the group of traditional midwives. In 1977, an MSPAS census indicated that there were approximately 11,000 of these in Guatemala. As of October 1985, the Ministry of Health calculated that there were 8,000 midwives who had received training (Comadronas Adiestradas Tradicionales/CATs), of whom an estimated 6,695 were active. The fact that approximately one-third of all births in Guatemala appear not to be attended by qualified personnel suggests that, while some of these are simply unattended home births or those attended by some family member, there is still a large number of untrained midwives "out there" who represent a potential resource for MCH activities and one which is fairly substantial in size.

2. Institutional Placement and Functions of Key MSPAS Entities

The internal organization of the Ministry of Health has changed with some frequency over the last two decades and will probably change again, given

---

* Two lists of PVOs are attached herewith as Annex A. A larger, elaborated list of entities particularly apt for health education is provided under separate cover to the USAID (see Sociocultural Analysis).

** Data still to be provided.

the arrival of a new administration and an already announced substitution of ministers. The most recent reorganization in 1984 (Reglamento, Acuerdo Gubernativo No. 741-84 del 24 de Agosto de 1984) changed the structure from that presented in Figure 1 to that presented in Figure 2. In the earlier configuration, there were eight divisions, directly under the charge of the General Direction of Health Services (DGSS) in a straight line of responsibility from the Minister's office. These were the Divisions of Human Resources Development, Health Education, Maternal-Child Health, Environmental Sanitation, Medical Attention, Epidemiology, Tuberculosis, and Malaria. The reorganization maintained the number of divisions at eight but eliminated, as divisions, Health Education, Medical Attention, and Tuberculosis. Added were the Registry and Food and Medical Control Division, Engineering and Maintenance, and Administrative Services; Epidemiology changed its name to Disease Control and Surveillance, Maternal-Child Health became part of what was called the Primary Care Division (Atencion a Personas); and Human Resources subsumed, at least theoretically, all dimensions of health education.

The divisions of greatest potential relevance for a national ORT program (without prejudging at this point the actual institutional location for such a program) would logically be: Disease Control and Surveillance, Human Resources, Primary Care, Administrative Services, Engineering and Maintenance, Registry and Food and Medical Control Division, all under the broad direction of the DGSS. Each of these is described briefly below.*

a. Disease Control and Surveillance

DDCS comprises the departments of: Communicable Diseases, Non-Communicable Diseases, Epidemiologic Surveillance, and Central Laboratories. It is charged with the responsibility for organizing and directing activities which will establish and maintain a national epidemiologic profile and establishing norms for those activities to be carried out at the different levels of the health system whose purpose will be to protect the population from diseases that can be prevented, controlled, and or erradicated. The Division is to establish priorities for attention among those diseases, determined on the basis of their prevalence, incidence, and threat; determine the necessary levels of human resources to carry out programs of disease control and surveillance; inform Health Areas periodically on their epidemiologic status and provide technical assistance to those areas in disease control and surveillance; and transmit epidemiologic information on a regular and timely basis to those organisms who require such information, in coordination with the Information Unit (Unidad Informatica). The DDCS has the technical responsibility for immunization activities, campaigns and channelling. The Project Implementation Unit for the Immunization/Child Survival activity has been situated within this division; this seems medically and administratively logical, particularly since promotion, implementation, and coordination of past channelling efforts have been handled by the DDCS.

b. Human Resources

The DHR comprises the departments of: Curriculum Development, Registry and Control of Community Programs, Permanent (Continuing) Education, Health Education, Documentation, and Formation and Training. Its functions are to:

---

* These descriptions derive from: MSPAS, Reglamento, Acuerdo Gubernativo No. 741-84 del 24 de Agosto de 1984, Guatemala, 1984.

establish technical norms for the planning of the formation and utilization of health personnel; regulate everything having to do with curriculum design, based on program and service needs; investigate, identify, and promote the use of educational methods and technology which are the most appropriate for national needs; train trainers and evaluate educational programs, in order to reorient these as necessary; collect, reproduce, and disseminate documents of interest to public health personnel; establish job descriptions based on applied research; define new educational models and strategies; control, evaluate, and supervise educational activities and the process of professional formation of those personnel in the Ministry of Health's dependencies; provide specific, ongoing technical assistance to the MOH's implementing entities; and establish coordinating mechanisms with other MOH dependencies, as well as entities outside the Ministry of Health which train and utilize health personnel.

c. Primary Care (Atencion a las Personas)

The Primary Care Division comprises the departments of: Maternal and Child Health, Oral Health, Mental Health, Food and Nutrition, and Technical Services. It has suffered many institutional vicissitudes, despite the importance of its responsibilities, which are regulated to include the tasks of establishing, revising, formulating, implementing, and disseminating the strategies, programs, norms, and procedures which have as their purpose the improvement of the quality and quantity of health services, as stated in the National Health Plan.

The Maternal-Child Health Department of this Division has as its fucntions: participation in the national health diagnosis of the health of mothers, children, and families; define health priorities for these groups; develop and establish norms and procedures for the implementation and evaluation of programs of health care for those same groups; establish guidelines and norms for the participation of communities in these programs, in order to reinforce primary care activities; carry out research into specific aspects of maternal, child, and family health; participate in the coordination of maternal-child and family health activities with other entities, within and outside the Ministry of Health; and, finally, obtain national and international resources to support these programs.

d. Administrative Services (DAS)

This Division is responsible for the norms, direction, supervision, and implementation of all administrative activities which correspond to the DGSS and its dependent components. To achieve this, the Division of Administrative Services is composed of the following Departments: Personnel, Finances, Transport, Supplies, Graphic Arts, Cemetery Administration, and a Management Office (Oficina de Intendencia). This Division is providing the backstop support needed for procurement and accounting for the Immunization/Child Survival Project, in order to insure that adequate resources are provided for the Project by the Government of Guatemala (GOG) in annual budget negotiations. It will also make some human resource contributions to that Project, in the persons of five auto mechanics from its Transportation Department, to ensure that the department is providing the Project with preventive maintenance and repair of vehicles.

e. Engineering and Maintenance (DEM)

The Division of Engineering and Maintenace has the responsibility of maintaining the MOH's fleet of vehicles and other equipment. It will play a

major role in maintaining the cold chain system for adequate refrigeration for vaccines in the Immunization/Child Survival project. The DEM is also responsible for maintaining the MOH's vehicles in working order. The Project will provide funds for strengthening this Division to respond adequately the new requirements that will be placed upon it.

f. Registry and Food and Medical Control Division

This Division has the technical and administrative mandate for developing integrated actions for the control and registration of drugs, cosmetics, and food. It also registers and controls the academic titles authorized by Guatemalan universities to health personnel; regulates the establishment of a variety of health services, e.g., clinics, dentists' offices, laboratories, opticians' shops, private hospitals, massage parlors, etc.; and, through its Unified Laboratory for the Control of Food and Medications (LUCAM), coordinates the formulation of norms and programs of registration and control of food and drugs, performs the necessary quality control and content analyses; and acts as a watchdog for the food and drug industry with relation to hygiene and good manufacturing practices.

g. Information Unit, DGSS (Unidad de Informatica)

This entity does not appear in either organigram, which may be symbolic of the importance that has traditionally been ascribed to its activities, at least as expressed in terms of funding. The Unit has the very crucial charge of generating the reliable and timely data needed for planning, programming, resource management, implementation, evaluation, management, research, and coordination of the Ministry's health programs and activities. Thus it is responsible for the collection, processing, storage, distribution, and analysis required so that the information system can really serve as a decision-making instrument at each relevant level.

3. The Pyramid of Health Delivery in the Public Sector

The structure of public sector health services is the typical, almost ubiquitous pyramid now considered synonymous with primary health care in the developing world. At the base is the community, of which there are 20,017 in Guatemala, 19,623 of which have less than 2,000 inhabitants and contain 62 percent of the country's 1984 population (MSPAS, August 1985). The principal resources at the level of the small community are the health system's volunteer outreach personnel: the health promoter (PSR), the trained traditional midwife (CAT), and the malaria volunteer.

Like all such health delivery pyramids, the simplest, minimal fixed facility is at the base, ascending through increasing complexity to the most specialized national hospitals in the capital. Beginning at the base, these facilities in the Guatemalan system are the following:

a. The Health Post (Puesto de Salud)

The Health Post is the minimal unit and is generally located in third- or fourth-category county seats (cabeceras municipales) and in important hamlets (aldeas or caserios). It forms part of a Health District and is under the direct responsibility of a health auxiliary and/or a rural health

technician (TSR). The Health Post carries out programs of general medical consultation, maternal-child health care, immunizations, oral rehydration therapy (ORT), control of acute respiratory infections (IRA), epidemiologic surveillance, community development, support and supervision of volunteer personnel (promoters, midwives, malaria volunteers). A Health Post may have the participation of a medical student in his or her time of social service (Ejercicio Profesional Supervisado/EPS).

The Health Post, as the first link in the chain of services, establishes the interrelationship between the health system and its client population, particularly the dispersed rural population.

b. The Health Center (Centro de Salud)

Health Centers are facilities generally located in large county seats or in rapidly developing areas which are more accessible and experiencing demand for services.

- Type B Centers

These are staffed by a basic multidisciplinary staff, including a doctor nurse, environmental sanitation inspector, nurse auxiliaries, secretary/clerk, janitor and, sometimes, a social worker and a laboratory technician. Such a Center will have under its responsibility one or more Health Posts.

- Type A Centers

Because of their siting and population characteristics, these Centers will have some beds (20-30) for maternal-child care. The staff at such Center will include one or more doctors, one or more nurses, a laboratory technician, nurse auxiliaries, a sanitary inspector, a secretary/clerk, laundry staff, cooks, janitors and, sometimes, a social worker and administrator.

- Integrated Center

This is effectively a fusion of a Type B Center with a Hospital, in settlements which have both facilities in the same location, whose directive bodies have decided to combine forces to carry out activities of promotion, prevention, and curing in an integrated fashion, so as to use resources more efficiently and achieve greater productivity and, correspondingly, effectiveness.

c. The Hospital

The Hospital is the most complete health facility and that with the most human and financial resources, and is located in department capitals (cabeceras departamentales) or important population centers. Traditionally, the Hospital has been primarily responsible for curative care but, increasingly, this philosophy has been adjusted toward a "more modern one" (MSPAS, October 1985), which integrates promotion, prevention, and cure, and which concerns itself with outreach to the community. The hospital system is hierarchical, beginning at the bottom with the District Hospital, followed by the Area, Regional, National, and Specialized Hospitals.

Two theories pertain here. One is the theory of referral, which is supposed to move patients up through the system to the appropriate level of care, with the Hospital as the maximum resource. The other is the concept of

local programming: each Health Area, of which there are 24,* is supposed to determine on an annual basis its local-level health needs, in terms of programs, projects, type of services, commodities, training, and financial resources. Area Health Chiefs may look to the central level for technical and normative assistance, the goal being one of ongoing dialogue between the administrative and implementing levels of the system. The impression is that this is not standard, due in large measure to limitations on travel resources.

4. Coverage and Productivity

a. Facilities

In percentage terms, the bulk of the facility-level care in Guatemala occurs at the Health Centers, which account for 47 percent of all MSPAS consultations; the Hospitals account for 30 percent and the Health Posts for 23 percent (MSPAS, October 1985). The low coverage by the Health Post, given the size of the base population in dispersed rural areas, is a matter for real concern.

The dominance of the Ministry of Health in the sector as a whole becomes quite clear in Table 2. The MOH has 30 percent and the IGSS 19 percent of all hospital capacity in the country; it is important to note, nevertheless, that 50 percent of the country's hospitals are in the private sector. For the purposes of a national ORT program, this makes them somewhat harder to access for any necessary policy and practice adjustments, e.g., use of ORT instead of IV therapy for dehydrated children. Of the country's approximately 14,000 hospital beds as of late 1985, 66 percent belonged to the MOH, 17 percent to the IGSS, 10 percent to the private sector, and 7 percent to the Armed Forces. The IGSS bed/inhabitant ratio is 2.5, the MOH's 1.4 (per 1,000 inhabitants). The MOH has at least one hospital in every department except for Chimaltenango; the IGSS has one in every department except for El Progreso, Sacatepequez, and Jutiapa. The highest proportion of hospital beds is in the capital city, which has a ratio of 2.9 beds per inhabitant; the number of beds in the capital account for roughly 50 percent of the entire number of hospital beds in Guatemala. Of the total MOH beds, 80 percent are dedicated to acute cases. However, there is regional variability: of the total number of beds in the capital, 52 percent are dedicated to chronic illness, compared to the interior where 93 percent of all beds are for acute, short-term cases (see Table 3).

In terms of other facility types, the MOH is clearly dominant, in both the public and private sectors. The MOH has 735 Health Posts, of which 635 are functioning and 100 pending rehabilitation, a number which the MOH believes is insufficient to meet community demand. There are 214** of these, of which 25 are Type A, that is, with beds for maternal-child care. Of the total, 187 are located in cabeceras municipales and 27 in localities with over 5,000 inhabitants. Thirty-five centers are in rented sites or are totally deteriorated and require new construction (Table 4). In total, the MOH is responsible for 63 percent of the Guatemalan population, IGSS for 12 percent, the private sector for 25 percent.

b. Human resources

In 1984, there were 5,413 doctors in Guatemala distributed as follows: 1,315 in the Ministry of Health, 855 in the IGSS, and approximately 3,243 in

---

* A Health Area is equivalent to a department, of which there are 21. However, the capital city of Guatemala has three Health Areas.

the private sector. In that same year, the MSPAS also had the following human resources: 118 dentists, 842 nurses, 4,807 auxiliary nurses, 419 students of medicines in supervised professional practice (EPS), and 4,952 technical-administrative personnel (sanitary inspectors, social workers, laboratory technicians, X-ray technicians, nutritionists, statistical clerks, chemists, pharmacy auxiliaries, and a large group -- 5,215 -- of "others") (see Tables 5 and 5a for totals and breakdown by department).

National coverage rates for the most important of these categories are, per 10,000 population: doctors, 1.4; nurses, 1.2; auxiliary nurses, 7.1, TSRs, 0.5; sanitary inspector, 0.4; trained midwife, 7.3; and health promoter, 5.1 (data as of August 1984; see Table 6). Unfortunately for the mass of the population, the geographic distribution of these resources is sharply skewed: of the 1,055 doctors, 452 are in the Guatemala Metropolitan Area, with a rate of 2.8 per 10,000 inhabitants; of the 844 nurses, 373 are similarly located, with a rate of 2.3 per 10,000; and, of the 5,170 auxiliary nurses, 2,289 are in Guatemala, generating a coverage rate of 14.1 per 10,000 population.* Because of the importance of this group in staffing the lower levels of the health system, particularly at its periphery, this skew is particularly painful.

In 1960, Guatemala began to use volunteer personnel in the health sector to fill the gaping service delivery hole, particularly in rural areas. As of 1985, the Ministry of Health had, at the community level: 8,000 trained traditional midwives (CAT), of whom 6,695 were active; 6,646 health promoters, of whom 4,959 were active; and 7,000 malaria volunteers, of whom 5,250 were active. In sum, the MOH has a cadre of 21,546 community-level workers, of whom 16,904 (78.5 percent) are identified as active.

The highest percentage of active community health workers is found among the comadronas. In 1984, trained comadronas attended 92,470 births, about 30 percent of all births in Guatemala for that year. This same level of worker also provided prenatal care to 88,034 pregnant women; at an average of four visits per pregnancy, this amounted to 311,314 prenatal consultations. The CAT also provided consultations to 85,376 women postpartum; at an average of four visits during the postpartum period, the total number of consultations provided to this group was 332,351. In conjunction with those visits, the CAT also attended 86,408 newborns; at three visits per infant, the total number of consultations was 301,010. The total number of consultations produced by this category of health worker in 1984 was 1,037,145. (See Table 8 for summary and breakdown by department of CAT activity.)

The health promoter is the other principal resource at the community level. The presently active cadre of 6,546 PSRs have covered 161,183 households, an average of 32 households per promoter (based on a ratio of 2-3 visits per household per year). The promoter's functions are: promotion and fostering of good health through implementation of programs of ORT, expanded immunizations (PAI), environmental sanitation, family planning, referrals, and health education. Unfortunately, there are clear signs of high rates of desertion among this group; the reasons identified include, among others: lack of followup, supervision, and evaluation due to lack of resources; lack of incentives; and internal work-related migration. (See Table 9 for summary and breakdown by department of PSR activity.) From the

standpoint of a national ORT program, these limitations are worrisome. Still, while they clearly indicate that PSRs need more support to be able to function effectively, there is evidence that the health promoter can be a strong potential resource: even given the constraints indicated, PSRs managed to attend 51,007 children under age six with oral rehydration therapy in 1984 (MSPAS, August 1985).

Another major constraint that emerges when the nationwide profile of community-level personnel is scrutinized, is the imbalance among departments in terms of the sheer volume of responsbility per health worker. In 1984 see Table 10), the ranges were from 37 households per health promoter in Zacapa to 215 in Chimaltenango, and from 304 houses per auxiliary nurse/rural health technician in Zacapa to 1,615 in Escuintla. Ten health areas (Escuintla, Santa Rosa, Totonicapan, Chimaltenango, Huehuetenango, Suchitepequez, Retalhuleu, Alta Verapaz, Baja Verapaz, and El Peten) appear to have no TSRs at all.

The overall coverage of the system is poor. According to the 1984 MSPAS Memoria, MOH coverage of children under one year nationally was 49.8 percent, coverage of children ages one to four years was 22.03 percent, coverage of pregnant women was 6.48 percent of the total number of women in fertile age (15-49), and postnatal coverage was a frankly abysmal 1.9 percent see Tables 11, 12, and 13 for total populations in each target group and for coverage for the under-one and one-to-four age groups). Furthermore, these coverage figures are severely skewed. In settlements under 500 population, the highest MOH coverage rate is for children under age one, a very low 9.87 percent. It is not until we reach settlements of over 1,000 population that coverage rates get noticeably better: 54.2 percent for children under age one, 28.5 percent of children ages one to four, 6.24 percent of pregnant women, and 3.02 percent postnatal coverage, in populations between 1,000 and 1,999 population (see Table 14). Rates drop off sharply in settlements of over 100,000, undoubtedly due to the greater number of other options for medical care. Again, coverage differs widely among departments: in 1982, the ratio of medical consultations per capita ranged from 0.1 in El Quiche to 1.1 in Guatemala. At the same time, the national consultation ratio has improved, from 0.17 to 1.75 in 1984, but still substantially lower than that of the IGSS, which produced 2.4 consultations per member (and their dependents) in 1984 (MSPAS, October 1985). The bulk of the consultations are with doctors, who produce 72.4 percent of consultations with adults, 60.9 percent of maternity consultations, and 51.1 of pediatric consultations; auxiliary personnel handle 25.1, 28.8, and 41.2 percent of each, respectively, and nurses handle the small remainder, principally maternity consultations (10.3 percent of all consultations produced by the system). Auxiliary personnel are particularly important in generating pediatric consultations, 41.2 percent compared to 51.1 percent for doctors.

The population under age one in Guatemala in 1984 was 4.3 percent of the total national population (est. 7,132,381); the population between ages one and five years was 1,484,280, or 20.8 percent of the national total. The total population of all these cohorts was 1,791,117, or 25 percent of the national total which, however, accounts for almost half of all deaths nationally. This is one-half of the mother-child dyad which is the major focus of current MOH strategy and the primary focus of the Child Survival Strategy. The other "half," the female population ages 15 to 49, numbered 1,651,185 in 1984, or 23.2 percent of the national total. Thus, the mother-child dyad represents

a little over 48 percent, almost half of the total population of Guatemala. Of these, the large majority live in settlements of under 2,000 population (Table 14). Only 61 percent of the population of Guatemala lives in population agglomerations which can be defined as having easy access (less than one hour's travel time) to a public health facility; 17 percent of the population has difficult access and 22 percent has none whatsoever.

Viewing the situation from a more positive perspective, it is still worth noting that, in 1984, the MSPAS produced the following numbers of consultations: 373,879 for children under one, 879,515 for ages one-four, 273,597 for pregnant women, and 34,861 postnatal. This represents 1,561,854 opportunities to tell mothers about ORT and appropriate feeding, not to mention the other Child Survival priorities.

5. Quality of Service

In its Plan Nacional de Supervivencia Infantil, Guatemala 1985-1989, the Ministry of Health observed that the health status of its population was "deficient," principally in rural areas, despite the fact that, over the preceding five years, important advances had been achieved in the reduction of mortality and in increases in health services offerings, principally through operational models of primary maternal-child health care. Attention was called to: the low coverage of medical services, scant community participation, and inadequate use of appropriate technology.

In the field of maternal-child health care specifically, the priority problems identified were the following:

a. Lack of systematic incorporation of the concept of risk at operational levels, which would permit a more efficient and effective functioning of the regionalized health system which is predicated on local-level case detection, care, and referral.

b. Insufficient articulation between the traditional community system and the health institutions, which would include incorporation of traditional practitioners and practices in the solutions of medical problems, as well as the organized participation of the community.

c. Low coverage of pregnant women, of child growth and development, and of women in fertile age, that is, the groups at highest risk.

d. Low coverage by adequately technified personnel (doctor, nurse, trained midwife), and lack of identification of obstetric and perinatal risk at the local level.

e. Emphasis on curative care based on spontaneous demand, to the detriment of systematic, programmed promotion and preventive care.

f. Inadequate operational programs that are integrated with national coverage and that incorporate promotion, prevention, and cure, according to priorities based on disease prevalence, e.g., diarrheas, acute respiratory infections, and perinatal risks.

g. Low immunization coverage, due primarily to inadequate cold chain, lack of biologists, and problems in preventive and corrective maintenance.

h. Inadequacies in the systems of supervision, monitoring, and evaluation and lack of an information system equal to the tasks required by integrated maternal-child health programs.

i. Lack of equipment and basic supplies for maternal-child health delivery, as well as insufficient logistical support at the operational levels.

j. Little programmatic and operational coordination among the different projects being developed in some health areas with the support of external donors.

k. Inadequate development of an intersectoral approach at the operational level in some health areas, essential for primary maternal-child health care.

This is from the national, Ministry of Health perspective. It is useful to turn things upside down and get the perspective from the local level. The 1985 Plan Operativo from the Guatemala Norte Health Area lists the major problems in the public health sector as seen by the field:

a. Lack of communication and coordination among the dependencies which constitute the health sector.

b. Disarticulation in the programming of educational activities.

c. Inadequate notification and lead time for training activities.

d. Disorganization at upper levels which affects functioning at operative levels, exacerbated by frequent changes in government which give rise, in their turn, to the establishment of new mechanisms and approaches and the termination of existing ones, without sufficient time to see if they work or how they could be improved. Such changes also produce uncertainty and insecurity among the field staff and may bring personnel on board, particularly at the directive levels in Health Centers and Hospitals, who have no experience or technical/administrative expertise.

e. Area Chiefs lack power to make decisions and find solutions, including personnel decisions (vacations, leaves, etc.) and are often bypassed by lower levels, who transmit requests and information directly to the central level.

f. Inadequate personnel selection procedures and/or lack of technical and administrative staff.

g. Lack of coordination with other public sector institutions; decisions for such relationships are made at the central level without consultation with lower levels.

h. Lack of an organized information system with standard reporting criteria, so that a lot of reporting is either incomplete or non-existent.

i. Lack of organization and coordination between the departments of Accounting and Audit of the DGSS and the Controller (Contraloria de Cuentas), so that there are no standard, reliable mechanisms which would facilitate

paperwork related to funding. Thus, purchase and payment orders may be rejected and correspondingly delayed. Furthermore, there is lack of adequate training in the management of accounting and inventory procedures at the Health Center level.

j. Insufficient funds and serious skews in the assignation of funds to hospitals vis-a-vis primary health care activities. For instance, in Guatemala Norte, 93 percent of the budget (Q11,579,620) went to the hospital subsector. To take a more rural example, in the Health Area of San Marcos, of the Area's total assigned budget of Q1,266,516, 53.3 percent went to the National Hospital, 30.9 percent to the fourteen Health Centers, and 10.2 percent to the 66 Health Posts (0.15 percent to each Post; the rural component of San Marcos's total departmental population is 88 percent (Plan Operativo 1985).

k. Lack of gasoline. Sixty gallons were supposed to be available per vehicle for Health Post supervision; however, this supply cannot be counted on.

l. Deficient vehicle maintenance, primarily due to lack of spare parts. Vehicles, for the most part, are 1974 models.

m. Despite the fact that each Health Center sends up a list of necessary medications, the typical pattern is that what is requested is not received or medications are received that were not requested. It is not unusual for a Center to give patients prescriptions for certain medicines which must then be bought at pharmacies.

Other health facilities report in their Plan. Operativos for 1985 other problems such as:

a. Human resources that are inadequate in numbers.

b. Financial centralization that makes administrative agility at the local level impossible.

c. Dependency on empirical/volunteer personnel for reporting mortality/cause of death, which produces seriously deficient statistics.

d. Facilities in poor condition. In San Marcos, for example, of the Area's Health Posts, only 19.7 percent were evaluated as being in "good" condition and 15 percent were only "regular;" of the Health Centers, 35.7 percent were in "good" condition and 21.4 percent were "regular." Eight percent of facilities were unstaffed.

A recent evaluation of the Maternal-Child and Family Health Program carried out by the MSPAS/DGSS/Division de Atencion a las Personas/Department of Maternal-Child Health,* with the assistance of INCAP, PAHO, and UNICEF, looked at the system's efficiency (Condiciones de Eficiencia) in terms of:

a. Resources (infrastructure, materials and supplies, financial, human, and including vehicles, gasoline and parts, and per diems
b. Planning, organization, and administration
c. Supervision
d. Training**
e. Information system
f. Logistics
g. Health education and promotion and community participation.

Each of these was evaluated at the Health Center and Health Post level; at the Hospital level, the evaluation focused on obstetric and pediatric care. A standardized questionnaire was used, points assigned for each answer, and each site scored by management area (see Annex C for questionnaire). Summaries of the consolidated national scores and the scores by facility are presented in Tables 14a through 14e. The hospital obstetrics services score lowest in terms of training (a score of 20 percent), followed by planning/organization/administration, resources, health education/promotion and community participation; the highest scores were, in descending order, for logistics, information system, and supervision, but no score was over 65 percent.

Hospital pediatrics services, like their obstetrics services, received their lowest scores in the area of training, followed by resources, planning/organization/administration, and health education/promotion and community participation; highest scores were, in descending order, for information systems (the highest score for any management area in any facility, 71 percent), followed by supervision and logistics.

Health Centers received their lowest score (44 percent) for supervision, followed by information systems (53 percent); the highest score was for training (67.45 percent), followed in descending order, with fairly small differences, by logistics, planning/organization/administration, health education/promotion and community participation, resources, with a drop to 53 percent for information systems.

Health Posts received their lowest scores in supervision and information systems; their highest score, most surprisingly, was for resources, although that score was still only 60 percent, which leaves considerable room for improvement. The next highest scores, in descending order were for health education/promotion and community participation (59%), with a greater drop to logistics (51 percent), training (48 percent), and planning/organization/administration (45.85 percent).

These scorings then permitted the establishment of priorities for attention in terms of improving management subsystems by facility (see Tables 14b through 14e). For hospital pediatrics services, the three highest-priority management areas were: training, planning/organization/administration, and resources, although it is important to note that there were substantial differences among the three scores for each of these areas, 20 percent, 34 percent, and 42 percent, respectively.

---

* With particular attention to the priority areas of IRA, TRO, breastfeeding, high perinatal risk, growth and development, and vaccination.

** For institutional and volunteer personnel in norms, technical substance, and pedagogy.

The highest-priority management areas for hospital pediatrics services were: training, which received an abysmal score of 14.5 percent; resources (37 percent); and planning/organization/administration (39 percent).

For Health Centers the priority areas were: supervision (44 percent), information systems (53 percent), and resources (60 percent).

Finally, Health Posts required priority attention in the management areas of: supervision (33 percent), information systems (37 percent), and planning/organization/administration).

These orders of priority do not mean that the other management subsystems do not need attention: the highest score received was, after all, 71 percent, attained by the pediatrics departments of five national hospitals. For a national ORT program, they suggest particular attention to training and planning at the hospital level, and supervision and information systems at the Health Center and Health Post levels. Since logistics will be such a crucial component of any national ORT program, it is worthy of note that hospitals (65 and 57 percent), Health Centers (64 percent) and Health Posts (51 percent) all need help.

The evaluation also provides summary descriptions of the problems in each management area, together with alternative solutions. To avoid redundancy, the problems will be discussed in Section II below, "Analysis of Constraints."

6. Financing the Sector

The budgetary resources available to the health sector, although they were increased between 1983 and 1984 (from Q105,060,807 to Q114,312,625), are still below what they were in 1981 (Q159,913,355). In fact, the 1984 budget should be considered just a "blip" in a steady decrease from the 1981 level, which represented 10.91 percent of the national budget, to the 1985 level (Q99,316,776), which represents 7.75 percent of that budget.

The sources of financing for the health sector in 1984 were primarily internal (Q166.1 million), with Q11.6 million coming from external sources MSPAS, October 1985). Of the total of Q177.7 million for the sector, 55.7 percent (Q99.0 million) went to the MSPAS and 33.2 percent (Q59.0 million) went to the IGSS. The remaining 10 percent was divided almost equally between the public and private "rest of the sector." Per capita expenditure was Q23.38 and national expenditure as a percentage of GNP was 3.7. Public health spending in relation to all public spending was 12.7 percent.

The health budget is distributed in most disproportionate fashion among the different departments/Health Areas. A study of the period between 1973 and 1984 found that the Department of Guatemala (Areas Norte, Sur, and Amatitlan) accounted for over 45 percent of the expenditures for all the Areas of the country in 1984. The corresponding per capita expenditure for the Guatemala Health Area(s) was Q11.80, almost six times that for the Department of Huehuetenango (Q2.00). The average per capita expenditure for all the Health Areas excepting Guatemala was Q5.50.

There is an even more extreme disproportion in terms of capital investment. For example, in 1984 capital investment in Retalhuleu was Q14.80 per capita (the highest), compared to Q0.35 in El Progreso (the lowest); the former was 42 times greater than the latter.

In addition to problems of ever-decreasing allocations to the sector -- a situation which will probably not improve, given enduring austerity requirements (see Economic Analysis) -- and apparent inequities in allocations to Health Areas, there is also the characteristic differential between what is budgeted for the health sector and what the sector is actually given; in 1983, for example, just 70 percent of the capital budget was actually made available. Finally, there is the problem mentioned earlier, of the large proportions of the Health Area budgets that are preempted for hospital expenditures.

B. Priorities and Strategies: the National Child Survival Plan

From the standpoint of the couuntries of Central America, national Child Survival plans and, within those, national programs for ORT, fall under the umbrella of the Plan for Priority Health Needs of Central America and Panama (PAHO, 1985). The Plan has its origins in the deliberations of the Contadora Group in January 1983 and the subsequent Health Ministers' meeting in July of that year, the purpose of which was to promote social development, solve health problems, and achieve understanding, solidarity, and peace among the peoples of Central America and Panama at a particularly difficult time in their history. 1984 brought elaborations of the overall plan and profiles of 40 projects for joint action by various countries, as well as 267 national projects, which were used as initial leverage for funding by a variety of international donors.

In the course of 1985, task forces were convened and workshops held in each priority area* and some project agreements were signed, including the ROCAP/INCAP ORT/Growth Monitoring/Education Project. In June 1985, a UNICEF mission, with PAHO participation, went to the European countries and conducted negotiations with the Government of Italy and the European Economic Community for support of activities in the area of Child Survival. In August, a meeting of national officials, UNICEF, PAHO, and INCAP was held in Tegucigalpa, to develop a plan of operations related to Italian Government support for Child Survival activities. Since then, all of the countries have produced Child Survival Plans and assigned priorities to the Child Survival project profiles produced in 1984,** and a total of US$30 million from the Italian Government and the European Economic Community now appears to be assured for use in Child Survival programs in the region. A large portion of these funds also seems to be destined for Guatemala but, as of November, the precise amounts were not yet certain, nor was there a decision on through which organism, e.g., PAHO, UNICEF, INCAP, the funds would be channelled.

There are five major Guatemalan documents which have to do with Child Survival in general and/or activities in the area of ORT:

1. Plan Operativo Año 1985 (MSPAS, Unidad de Programacion, June 1985).

This is the plan of action for 1985 which accords with the 1984-1984 Health Sector Development Plan. The policies articulated include: extension of coverage; protection, conservation, and improvement of environmental health; intersectoral coordination and support; administrative improvement; and establishing financial order. The specific strategies to be followed are: primary health care, community organization and participation, strengthening of intersector coordination, integrated medical attention (Atencion Medica Integral) with emphasis on rural areas; strengthening of programs of environmental education; human resources development; and development of appropriate technology.

The Plan also articulates a strategy of program integration, which is intended to gather up a number of different activities carried out in more or less isolated, vertical fashion, under the rubric of "Program Areas." Among these is the Program for Control of Diarrheal Diseases. The Program's goal is to reduce morbidity and mortality due to diarrheal diseases in the population under age five. Its purposes are to implement ORT for the treatment of slight and moderate dehydration. The program had already been initiated in Escuintla on a pilot basis; the Plan stipulates implementation in Sacatepequez, Santa Rosa, El Progreso, Zacapa, Jutiapa, and Chiquimula in 1985, as well as preliminary diagnoses in Chimaltenango, Solola, Totonicapan, and San Marcos, together with the Expanded Program for Immunizations (EPI/PAI). The rest of the country's departments will be added in phased fashion in subsequent years.

2. Plan Nacional de Supervivencia Infantil, Guatemala, 1985-1989.

The formulation of the National Five-Year Child Survival Plan was the product of a national multidisciplinary and interinstitutional group which included representatives from: the MSPAS, IGSS, the Secretariat of Social Welfare, SEGEPLAN, the Social Welfare Council, the Breastfeeding Promotion Committee,

* Health services, human resources, essential drugs, food and nutrition, tropical diseases, child survival, water and sanitation.

** 5 subregional and 37 national project profiles were produced.

and the Medical Associations for Gynecology/Obstetrics, Perinatology, and Pediatrics. The group included the Ministry of Health and the head of the National Child Survival Program was physically located in that Ministry, but it functioned in some measure vertically and the findings of the DGSS/MCH evaluation (Condiciones de Eficiencia) were not incorporated into the Plan.

Among the impact targets set forth in the Plan are "to reduce by 40 percent mortality due to diarrheal disease in children under five, from 72.2 per 10,000 children 0-4 years to 43.4 between 1985 and 1989." The Plan comprises three basic projects, with their associated subprojects:

a. Strengthening maternal-child health care in priority rural areas. Its subprojects are:

- Reordering of maternal-child health care based on priorities of risk.
- Control of diarrheal diseases and acute respiratory infections (CDD/ARI).
- Control of immunopreventible diseases.
- Information systems and evaluation.

b. Extension of maternal-child care into urban marginal areas. Its subprojects are the same as those listed above under item a.

c. Health education and promotion.

The Plan also establishes priority departments for sequential incorporation into Child Survival activities according to criteria of risk (rurality, illiteracy, income, employment, fertility, ethnicity, and environment of conflict). These are: Totonicapan, Alta Verapaz, Baja Verapaz, Solola, Huehuetenango, El Quiche, San Marcos, Chimaltenango, and Quetzaltenango. The stated CDD target for these priority departments is to reduce mortality due to diarrheal diseases by 70 percent over the five-year period, from 76.4 per 10,000 children under five to 22.9 in 1989.

The CDD/ARI Subproject is predicated on the epidemiologic profile formed by the two disease categories, which compete with each other among the departments for the first or second ranking as causes of mortality in children under five. Both are characterized by a variable etiology, their universality, and their magnitude as causes of morbidity and mortality. Both are, in general terms, preventible, although the management of acute respiratory infections is more complicated than the relatively simple, technologically appropriate ORT. However, both require a similar focus on early diagnosis and treatment at the community, especially at the family level, with referral as needed.

The subproject objectives are to:

a. Reduce by 40 percent mortality due to diarrheal disease in children under five, from 72.2 to 43.3 per 10,000 children 0-4 in the 1985-1989 period.

b. Promote management of 100 percent of identified diarrhea cases with oral rehydration salts, by the family and by the community.

c. Reduce by 30 percent mortality due to acute respiratory infections in children 0-4, from 64.7 to 45.3 per 10,000 children under five.

The subproject components are:

a. Supervision and technical norms
b. Basic equipment and transportation
c. Supplies
d. Contracting of personnel
e. Research.

Budget requirements total US$3,646,399 for the five-year period (see Table 15).

The CDD/ARI subproject for extension of maternal-child care into urban marginal areas follows the same pattern as the project in the rural areas, except that mortality and utilization targets are not specified. However, the observation is made that diarrhea-caused morbidity is actually higher in urban marginal areas (5 to 8 episodes per year) compared to rural areas (2 to3 episodes). Budget requirements for the five-year period for this subproject total US$2,278,713 (see Table 16).

The third Child Survival project is entitled "Promocion y Educacion en Salud para la Prestación de Servicios y la Participacion Comunitaria en Salud Maternoinfantil." It is intended to serve as the underpinning of the other two projects and its objectives are to train nurses, TSRs, CATs, and PSRs in the management of a high-risk strategy, delivery of basic MCH services, and methodologies for health promotion and education. The pedagogic emphasis is on participation, innovation, field application, mass communication, and applied/operational research. The project has as its target the training of leaders, volunteers, and organized groups in 100 percent of the priority areas; 1,000 nurse auxiliaries; 172 TSRs; 3,000 new PSRs; 5,000 CATs; 100 percent of the district multidisciplinary teams responsible for Health Post supervision; and retraining of 1,800 PSRs and 4,000 CATs, all in rural areas, over the five-year life of project. In urban areas the targets are to train 500 auxiliaries, retrain 500 CATs, train 100 percent of the multidisciplinary teams, and implement a wide spectrum of mass communication and health education activities. The budget proposed for this project is a total of US$1,303,040 over five years.

3. Supervivencia Infantil: Plan de Operaciones, Periodo Octubre 1985-1990 (August 1985)

The operationalization of the National Child Survival Plan builds on the experience of the program of Extension and Strengthening of Maternal-Child Health Care in five Health Areas in the eastern part of Guatemala, with funding from PAHO and UNFPA. The project's basic strategy is primary care predicated on a high-risk focus and a delivery mechanism called "channelling" (canalización). Channelling is an active, community-outreach system which has been used for promotion of vaccination activities by health service personnel and community volunteers. These health service personnel carry out home visits to identify susceptible children and make appointments for them to receive vaccinations in a nearby health facility or another site in the community. The channelling process seeks to change the so-called "clinic psychology," basically a passive system in which the health workers remain in the health facility awaiting the arrival of clients. It is viewed as a superior approach to the more sporadic methods used previously by the MOH such as semiannual vaccination campaigns or facility-based immunization services. The intent is to expand the content of the channelling activity to encompass other MCH/Child Survival priorities.

By the end of 1985, the project intends to have implemented the immunization and CDD components in Zacapa, El Progreso, Chiquimula, and Jutiapa, and for 1986, in Chimaltenango, Totonicapan, Solola, San Marcos, Huehuetenango, El Quiche, Quetzaltenango, and Suchitepequez. And, by the end of 1985, the project also intends to have added an ARI component to the four project areas of Santa Rosa, Jutiapa, Jalapa, and Chiquimula and, for 1986, in Zacapa, Chimaltenango, Totonicapan, Solola, San Marcos, Huehuetenango, El Quiche, Quetzaltenango, and Suchitepequez. Finally, by the end of 1986, the entire high-risk focused MCH care model will be fully implemented in all departments.

A most important part of the project is institution-building, and the document under discussion notes improvement in the MOH's information system and human resources division, as well as integrated activity with the University of San Carlos, the medical community, and SEGEPLAN. The project states as its basic purposes:

a. Improvement of the health status of rural and urban marginal children under age five, through the joint activity of state, autonomous, and private institutions, with the participation of the community.

b. Organize MCH care into a regionalized system which will foster early detection, treatment, and referral of maternal, reproductive, and child risk, and build knowledge levels among mothers and families about proper feeding and child care.

c. Initiate a process of institutional change in attitudes and behavior related to the prevention and control of those health problems which have the greatest impact on the child popualtion.

d. Undertake an educational process with all institutions which are engaged in activities related to health.

e. Assist communities in joint identification of priority health problems and the implementation and evaluation of their solution.

f. Develop the human resources in all institutions involved in the execution of the National Plan for Child Survival and Health Education.

g. Contribute to the integration of traditional and modern medicine into the educational process.

The list of project outputs and targets is very lengthy and is included herewith as Annex D, together with the Activity List for the Child Survival Plan of Action as of August 1985. Included in that list is the "organization of a production system for ORS at the national level" and the associated establishment of a production facility.

4. Plan de Accion, Proyecto Supervivencia Infantil, October 1985 to December 1986 (September 1985)

This document is precisely what its name implies. It repeats the core of the Five-Year Plan and includes a budget for the 18-month period referred to. In relation to CDD, the budget includes US$379,999.84 for an ORS packing machine, mixer, dryer, raw material, antiparasitics, and (undefined) "equipo para rehidratacion oral," all to be provided by UNICEF.

5. Proyecto Integrado de Supervivencia Infantil 1985-1989

This is, in effect, a Project Paper for an integrated approach to Child Survival which would produce a series of joint activities involving the MSPAS, IGSS, the Secretaria of Social Welfare, the Ministry of Education, the University of San Carlos, professional associations (gynecology/obstetrics, pediatrics, neonatology), the National Breastfeeding Committee, NGOs, and other community groups. Coordination would be the responsibility of the Coordinating Unit for Special Programs of the MSPAS. Technical assistance would be provided by PAHO, UNICEF, and INCAP. The associated budget specifies US$7.897 million from UNICEF, US$6.8 million from AID, US$5.0 million from UNFPA, and a national counterpart equivalent to US$17.7 million (salaries, supplies equipment, and PHC facility capacity), a total of US$37.397 million. The status of this project is undetermined.

C. Achievements in ORT to Date

The following pages summarize ORT activities in Guatemala to date. The horizontally-presented pages summarize data from the Planes Operativos for every department/Health Area; data on departmental activities from other sources have been incorporated where they were available. The vertically-presented tables which follow is a summary of "Other ORT Activities", largely in the public sector but including private sector activities as well. The summary reflects the combined findings of the Technical, Sociocultural, and Logistics Analyses; readers who want more detail are referred to those analyses.

The summary, in conjunction with this institutional analysis, makes two things clear. The first is that there is in Guatemala nothing that can be called a national ORT program that is explicit, coordinated, and implemented. The second is that the underpinnings exist for such a program. To say that Guatemala does not have a national ORT program does not mean that nothing has been accomplished in ORT. Guatemala has endorsed the World Health Assembly and WHO Regional Committee resolutions, has produced Child Survival plans and project documents, and some ORT activities have occurred in the public sector. Thus, while it is hard to perceive any vigorous commitment, it is also improbable that there would be any problems with political support for ORT, especially given its high visibility for a new government which will be eager to show quick results in the health field.

ORT ACTIVITIES, IMPLEMENTED AND PLANNED, 1985, WITH ASSOCIATED MORTALITY INDICATORS (by department), ACCORDING TO DEPARTMENTAL OPERATING PLANS

Department	IMR Under 1*	MR 1-4*	Diarrhea-Caused MR All Under 5*	ORT Activities	Projected Packet Requirements (for 1985)
National Rates	64.9	15.5	667.3		
Guatemala Norte**	55.4	7.5	595.5	There appear to have been no explicit ORT activities to date. Education is planned, principally for mothers, in early detection of signs of dehydration, and the management, use, and administration of ORS. Supervision of use of packets to be carried out by health and community personnel trained for that purpose.	Estimated 11,434 children under 5, 3 episodes per year, requiring 102,906 packets.
Guatemala Sur***				As part of the Programa Coordinacion Interinstitucional y Extension de Cobertura en el Area Guatemala Sur con Enfasis en Atencion Materno-Infantil, supported by UNICEF and the MSPAS, with the important technical contribution of the Hospital Roosevelt and the collaboration of other ministries, INCAP, the universities, IGSS, and APROFAM, ORT constitutes a "fundamental sub-program." Strategies are: 1) implementation of Oral Rehydration Units (ORUs) in Health Centers/Posts for treatment of dehydrated children; develop mechanisms to permit detection and early home management of the child with diarrhea or vomiting; motivate and involve the community to facilitate promotion of environmental sanitation, prevention of diarrhea, early consultation, and adequate followup. Project will be have three phases to reach full coverage.	Estimated 119,000 children under 5. Target population is children under 2 (N=16,712), 3 episodes/yr., requiring 150,408 packets per year (3-yr. project (EOP 1988).
Amatitlan				This departmental plan refers explicitly to National Plan for CDD. Planned education and "massive distribution" of ORS. Through Foster Parents' Plan, district will have 100,000 packets to be used in rural areas. Promoters will be provided with packets on demand, as will Trained Traditional Birth Attendants (TTBAs) and Health Post Auxiliaries.	None given.

Source: Planes Operativos submitted by each Department (=Health Area, except for Guatemala City which has 3 Health Areas) to the MSPAS. Data are gathered departmental/district level from ongoing records and from censuses carried out by district-level personnel.

IMR=Infant Mortality Rate, MR= Mortality Rate

** There were no easily-available data disaggregated at the district level for the Health Area of Guatemala. IMR/MR figures are for whole Health Area.

***Data are from: Documento Preliminar, Programa Coordinacion Interinstitucional y Extension de Cobertura en el Area Guatemala-Sur con Enfasis en Atencion Materno-Infantil, Guatemala, UNICEF, November 1984. Area includes 11 municipal zones of the capital and Mixco, San Pedro Sacatepequez, San Juan Sacatepequez, Chuarrancho, Santa Catarina Pinula, and San Raymundo, with a total population of 699,000 in 1983.

***IMR=Infant Mortality Rate, MR=Mortality Rate. Data are from table presented in MSPAS Memoria de Labores 1984. IMR is per 1,000 live births, other MRs are per 1,000 children in those age cohorts. Comparison of data from that table with the data presented in the Planes Operativos is virtually impossible, due to lack of definition of cohorts and variation in definition of causes of mortality (and morbidity). El Progreso, for instance, reports separately on "gastroenteritis aguda," "deshidratacion electrolitica," "infeccion intestinal" as causes of mortality, and on "parasitismo," "trastornos diarrheicos," "desnutricion," and "enfermedad peptica" as causes of morbidity, while other departments report no disaggregations or use others.

ORT Activities, pg. 2

Department	IMR Under 1	MR 1-4	Diarrhea-Caused MR All Under 5	ORT Activities	Projected Packet Requirements (for 1985)
El Progreso	70.3	8.9	987.2	El Progreso is one of the departments where channelling is going on. Departmental strategy includes EPI and ORT among its 5 top priorities, in conjunction with continuing education, latrinization, nutrition (deparasitization and anemia indexing), and supervision, determined on basis of Health Area Diagnosis. ORT, together with EPI, are being formally incorporated into the departmental program, with institutional responsibility vested in the Centro Integrado (hospital) and Health Centers and Posts, with active participation of the community through PSRs and "EPI and TRO Volunteers." Since channelling started in 1985, 1,199 children have been treated with ORT, 71.6% preventively at the community level, 23.5% at the institutional level; only 4.9% received IV. (El Progreso has a fairly long and strong history with health promoter activities in general and was one of the first to become fairly widely acquainted with ORS/ORT through the SINAPS and PRINAPS projects. A 1982-3 KAP study found high rates of ORS use, generally positive attitudes toward the technology (purchased or provided gratis), and adequate training of promoters and mothers with, nevertheless, some room for improvement.	Plan states total needs for all 7 districts as 31,667 for the year but basis of calculation not provided. However, the Area now has its own ORS production facility, set up under the PRINAPS project, which produces 3,000 packets per day; promoters distribute. (PRINAPS promoters got ORS from MSPAS Ventas Municipales and sold them to families.)
Sacatepequez	72.3	12.2	741.4	Plan includes EPI and TRO activities to be carried out under channelling activities. Coverage in 1983 for the under-1 group was 43%, programmed coverage for 1985 49.3%. 8,776 children have been treated with ORT in 1st two channelling rounds, 40% and 47% at community level and 60% and 53% at institutional level, none w/ IV.	None given.
Chimaltenango	77.5	17.3	786.9	CDD plans include: breastfeeding promotion through mass education, group education, personnel training, etc.; ORT, including health education and massive packet distribution; epidemiological surveillance; and general health education.	1985 target for "visitas hidratacion oral" is 4 visits/yr. to 28% of households (N=16,405?) for a total of 65,620 visits. No packet calculations included.
Escuintla	107.8	12.6	751.0	Escuintla was Pilot Area for channelling. Health Area CDD plan includes: improvement of maternal-child nutrition, health education, breastfeeding promotion, environmental sanitation, ORT, and epidemiologic surveillance. Between Jan. and Dec. 1984, 31,483* children received "ORT attention" and 44,406 packets of ORS were distributed. Program is implemented through community participation via Volunteer Collaborators, PSRs, CATs, and health facilities personnel making home visits. It consists of packet distribution and orientation in their use and storage. *New data indicate that in 1985 (as of Oct.), 25,964 children received ORT, 30% of those age cohorts in the dept. 72% were treated at community level, only 25% institutionally, none with IV.	Estimate for 1985 131,086 children under 5 with a minimum of 3 episodes/yr., many of which can be treated at home with suero casero. Health facility staff will work with community leaders who will be trained in ORT and given packets to distribute to mothers of children with diarrhea for prevention and cure. Proposed coverage 10% of children under 5 (N=13,109) x 3 episodes = 39,327.

Department	IMR Under 1	MR 1-4	Diarrhea-Caused MR All Under 5	ORT Activities	Projected Packet Requirements (for 1985)
Santa Rosa	80.7	12.0	942.7	ORT (and EPI) activities will be implemented through the channelling strategy. Volunteer Collaborators will be selected, one per manzana or work area, who will distribute packets through home visits at the same time candidates for vaccination are identified. It appears that the content of the home visit will, however, emphasize the importance of vaccination. Nutritional education and identification of malnourished children will be carried out by "Nutrition Volunteers," who will also maintain anthropometric records. No special mention is made of other CDD education, e.g., ORT, in either visit or training content.	None given. However, in the first channelling round (Mar.-May 1985), 14,742 were treated with ORT, 69% of those at the community level and 31% at the institutional level, with 40 cases of IV treatment. In the second round (June-Aug.1985), 18,571 children were treated, 74% at the community level, 26% at the institutional level, with 25 cases treated with IV.
Solola	71.9	21.0	560.0	ORT will be a subprogram for 1985. Due to the fact that records were not kept on PSR activities, calculations of coverage are difficult. Each PSR is programmed to make 3 home visits per household per year; with a 39.14% coverage, total visits will be 32.940. For distribution of ORS packets, 4 visits will be made to each child with diarrhea, with a 45.44% projected coverage (75,360 "activities"). Health Centers and Posts will distributed packets on demand to patients who come to posts and to those referred by volunteer personnel and other services. Packets will be provided by the SCISN Project.*	Although coverage estimates are provided, no multiplier or packet estimates are given in the Plan. An ORU was set up in December 1982 in the National Hospital in Solola. In July 1982 100 packets of ORS were received from Quifarma at a cost of Q0.32 each, of which 83 remained at the time of an evaluation in April 1983, and 20 patients had been treated. The evaluation noted problems with case management, records, stock maintenance, referral, training, supervision, etc.
Totonicapan	84.5	31.1	1.180.6	The Plan Operativo refers to diarrheal disease in context of environmental sanitation, whch is seen in causal relationship with high rates of parasitic infestation, gastroenterocolitis, and diarrhea. In 1984, the area's 249 active promoters, in addition to their standard home visits, provided attention to 2,098 children under 5 for cases of diarrhea. In June 1982, an ORT seminar was held and in Sept.1982 an ORU was set up at the National Hospital of the Area. Totonicapan is part of the SCISN Project.	No data provided in Plan. An evaluation of the ORU in April 1983 found that the unit had used 1,540 of the 2,200 packets of Dextroral Arsal received in June 1982, and only 22 patients were registered as treated in the facility. The evaluation noted problems in information management, referral, followup, case management, training, supervision, and use of mothers as caretakers. In sum, the ORT program was not really functioning at the hospital level.

*SCISN-Programa Sistemas Comunitarios Integrados de Salud y Nutricion, Community-Based Health and Nutrition Systems (AID 520-0251), recently amended to direct most of the loan funds to the environmental sanitation component of the project. PSR and TSP training was evaluated as satisfactory, community participation as excellent, administrative support inefficient.

Department	IMR Under 1	MR 1-4	Diarrhea-Caused MR All Under 5	ORT Activities	Projected Packet Requirements (for 1985)
Quetzaltenango	70.3	16.2	645.5	ORT included among the Plan's priority programs. The training of 119 PSRs and retraining of 389 in ORT is programmed for 1985.	Proposed coverage is 29.4%, or attention to 31,379 children and a total of 125.51[illegible] "activities". Packet requirements estimated at 251,032.
Suchitepequez	67.9	16.4	861.6	Community-level health delivery is in the hands of 285 midwives and 214 promoters. The latter carry out an average of 2 home visits per family per year which include a variety of activities and are not limited to ORT, primarily because it it is not possible to carry out that subprogram due to lack packets. An ORT program is, therefore, nonexistent in this Health Area.	
Retalhuleu	65.0	11.1	431.3	Strategy includes breastfeeding promotion through mass education of the client population, group education, personnel training, and massive distribution of ORS packets.	Target for 1985 for ORT visits is 5,784 activities. Project ORS requirements: 11.568 packets.
San Marcos	51.1	16.8	762.1	Program under way at institutional and community levels, in some districts with a planned 100% coverage. Districts without PSRs have lower coverage. Although an ORT seminar was held in July 1982, no hospital-level ORT program has yet been started, despite the existence of adequate or potentially adequate facilities to do so. Patients are still rehydrated with IVs. Part of SCISN Project.	Calculation on basis of 4 episodes of diarrhea per child per year. Programmed coverage of population under 5 is 45.62%, and calculating the need to rehydrate 64,548 children (x 4 episodes), estimated packet requirement is 252,972. 117,200 packs 3,000 cups and spoons distributed (81% through PSRs. 9 Centers,35 Posts,807 communities have OR Unidades.
Huehuetenango	60.5	25.7	612.8	ORT is considered part of the overall CDD program, which also includes improvement of maternal-child nutrition, health education, breastfeeding promotion, environmental sanitation, and epidemiologic surveillance. ORT activity will concentrate on health education and massive distribution of ORS. ORT has been used effectively in the National Hospital since 1978 under direction of Dr. Jose Maria Reyna Barrios, who has organized and lectured in over 16 workshops and ORT programs, of which 12 held in Huehuetenango, Solola, Quetzaltenango, Totonicapan, or San Marcos, and trained physicians, nurses, and other health personnel from surrounding health areas in ORT.	Projected coverage is 38% of 42,821 homes, 4 visits per home, or 164,274 activities.

ORT Activities, pg. 5

Department	IMR Under 1	MR 1-4	Diarrhea-Caused MR All Under 5	ORT Activities	Projected Packet Requirements (for 1985)
El Quiche	64.7	24.5	768.5	Plan to increase ORT activities through giving packets to volunteer groups; target group all children under age 6.	No data provided.
Baja Verapaz	80.0	16.7	761.0	Plan is to have in 1985, in every health facility, an ORU, principally to treat children under 5 who present for diarrhea or dehydration. The community will participated directly in the program through 165 promoters who will work with 5,775 families and an estimated 11,550 children under 5, with a target of 100% coverage. Experience with the PRINAPS program has produced substantial knowledge and utilization rates of ORT and fairly high rates of knowledge about proper preparation. Acceptance of ORT, gratis or paid for, has been high. There are still needs for improvement in content of mother education by PSRs. (Data are from KAP study carried out between April 1982 and January 1983).	There are no data on children who have consulted for diarrhea, so that in 1985 the program will be developed on the basis of patients presenting. The attention to be provided will consist of teaching mothers how to prepare ORS in 1-liter containers and how to administer the fluid over a 1-4 hour period, to be followed by treatment for 1-2 days at home.
Alta Verapaz	59.2	29.8	803.0	The ORT program will be carried out primarily at the community level, with the direct participation of PSRs, tied institutionally to the Unidades de Desarrollo Rural Integral. Health Area leadership would like to train new volunteer workers in ORT, if funds should become available.	Population under 6 estimated at 93,411; with 6% planned coverage, total activities 19,916. Up till now, the implementation of an ORT project in this Health Area has not been possible due to lack of packets.
El Peten	59.6	21.7	349.4	Plan is to set up programs in education in breastfeeding, oral rehydration, and general health education, as well as a good ORS supply system.	No data provided.
Izabal	68.5	9.4	381.7	No ORT program was implemented in this Area in 1983. Plan for 1985 was to train personnel at all levels in diarrhea, OR, and breastfeeding, including PSRs and TBAs; promote use of ORS instead of more costly medications and procedures, at the community level; and promote breastfeeding in the service levels, schools, and communities. PSRs will administer ORS and supervise ORT. Plans to train and retrain PSRs and TBAs in already established curricula emphasizng the priority areas of EPI, ORT, breastfeeding, feeding and nutrition; training will be supported by CARE-Canada, UNFPA, and UNICEF. Training, 15-20 days, 91 TBAs and 85 PSRs -- Retraining, 3 days, 252 TBAs and 108 PSRs.	According to local-level studies, the infant cohorts suffer between 3-4 diarrhea episodes/yr. Population under 6 includes 52,503 children and 18% coverage is programmed, or 9,752; each child will be treated an estimated 4 times/yr., a total of 39,201 consultations. ORS packets are expected from UNICEF, which supports the Area's PSR and TBA programs. No packet need projections provided.

ORT Activities, pg. 6

Department	IMR Under 1	MR 1-4	Diarrhea-Caused MRS All Under 5	ORT Activities	Projected Packet Requirements (for 1985)
Zacapa	61.7	11.2	425.4	Considered a "new and basic" program. ORT a priority area in primary health care, per the national health action plan. Emphasis will be on health education and massive distribution of ORS. The observation is made that supply of ORS in particular and medicines in general has been extremely errative over the past 4 years.	Calculation on basis of 4 episodes per year, plan to rehydrate 24,277 children, using 2 packets per episode, a total of 97,008 packets. Target coverage for area is 87%. Estimated number of consultations 93,846. Packets provided by UNFPA.
Chiquimula	42.4	11.1	275.6	Plan is to establish ORT program through the PSRs, the TBAs, hospital pediatric services, when and if the MSPAS supplies ORS regularly in adequate quantities. For promoters to adequately serve their clientele, they will need good training and follow-up, particularly in checking family records to be sure that families are actually use packets.	Total children to be attended by PSRs is 16,364. Packets required = 65,456.
Jalapa	57.8	16.0	701.7	In 1983, trained volunteers (PSRs) performed 5,904 ORT consultations. Current CDD strategy is to emphasize improvement of maternal-child nutrition and increase use of ORT and breastfeeding as the most practical, immediate, and effective interventions.	No estimates provided. Coverage in 1983 was 16% of the population of 37,643 children under age 6.
Jutiapa	53.8	9.7	355.6	Plan is to provide followup to infants under age 1 because of risks from immunopreventible diseases and diarrheas, at a rate of 3/yr., plus 3 visits per yr. by PSRs, who will provide a coverage of 28% and 11,266 consultations. For children 1-4, at particular risk from weaning-related malnutrition, as well as from immunopreventible diseases and diarrheas, there will also be 3 followup visits/yr., particularly in the highest-risk districts. To achieve this coverage, resources will be those provided by CARE, the channelling strategy, and use of PSRs particularly with regard to EPI and ORT. Area considers ORT of greatest priority and has had good experience with ORT since 1984.	Total number of children under 6 is 71,942; projected coverage is 33%. Estimated number of children to be rehydrated is 23,176. Total of PSR diarrhea-related activities/home visits = 79,243. With two packets left at each visit, total packet requirements will be 158,486.

OTHER ORT ACTIVITIES (past and present)

Entity	Activities	Magnitude
IGSS	Giving as a reason a hostile domestic sanitary environment, the IGSS program focuses on preventing dehydration. Since May 1984, talks have been given to medical and nursing staff. Generally successful in central pediatric staff, not in Unidades Perifericas. Problem of availability of ORS packets solved with help of PAHO.	Primary reason for consultation in IGSS outpatient services is diarrhea disease (40-60% of consultations). Target was OR for 90% of children reporting, but goal not achieved. However, comparison of 2nd semester 1984 w/ same semester 1984 shows diminution of 42% in hospitalization for diarrhea with dehyration in Pediatric Dept. (an estimated saving of $US334,656).
INCAP/AID	SINAPS Project, 1979-1983. PHC, research and service delivery through a system of 400 promoters and 17 TSRs. ORT provision, using locally-produced ORS formulation ("super-suero"), distributed by Health Posts to TSRs to PSRs. PSR training, community health education, home visits.	Target population 70,000. 84% of diarrheal cases in children under 5 received ORS packets, 62% of mothers knew how to use, 57% of families used; use of other anti-diarrheals and visits to Health Centers for diarrheas decreased.
MSPAS/AID	PRINAPS Project, 1981-1983(?). PSR training to household level care. PSRs obtained ORS from municipal pharmacies and sold to families of children w/ diarrhea. (PSRs=400, TSRs=25).	Target population 120,000 in 5 Health Areas, w/ 40% of children reporting diarrhea in 2-wk.recall period. 97% of families used, 80% of mothers knew how to mix correctly, widespread positive attitudes.
MSPAS/AID	SCISN Project, 1979-1985. Integrated community-based health and nutrition activity. Modelled on SINAPS project. ORT promotion, distribution of WHO formulation packets for a small charge accompanied by education by promoter at household level. ORT units established at several health posts, centers, and promoters' homes. Training satisfactory, community participation excellent, but administrative structure inefficient and PSRs lacked support. After evaluation, project reoriented toward environmental sanitation. One community in San Marcos, La Reforma, about to implement own production facility to meet local demand. (Note: MSPAS/Human Resources produced an ORS brochure for PSRs; not clear if part of this project or not.)	San Marcos, Totonicapan, and Solola. In San Marcos alone, 117,200 packets distributed in in 1985 to health centers, posts, and PSRs (81%). 9 centers, 35 posts, and 807 PSRs distributing ORT as of 1985, 60% of districts and 48% of municipalities.

Entity	Activities	Magnitude
MSPAS/PAHO/UNICEF AID	Channelling (canalizacion), also called Modelo Operativo de Atencion Primaria de Salud. Pilot begun 1983, extended to other areas beginning late 1984. Model includes home visits, population-based census, cold chain improvements, training, supervision, vaccination rally, repeated every 3 mos. ORT activity varies in level by dept., more in depts. where activity "older" (see preceding listing of departmental activities). As noted, El Progreso has own ORS production facility.	Already active in Escuintla, Sacatepequez, Santa Rosa, and El Progreso, with plans to begin in Zacapa, Jutiapa, Jalapa, and Chiquimula. With AID support under Immmunization/Child Survival Project, will phase into all depts. outside Guatemala City. Increase in completed series in Escuintla in 1st yr. of pilot program from 10 to 73%.
APROFAM	Community and Household Education, begun 1 yr. ago. Program to increase awareness and use of family planning and ORT through active community promotin and radio programs. Post-intervention study showed acceptance; limited impact of radio probably due to insufficient message frequency; 85% content recall on household visits; need for emphasis on importance of continued feeding, greater efforts in environmental sanitation, and better coordination with MSPAS.	Municipality of Tecun Uman, San Marcos, six aldeas with population of 12,697. Of 427 homes visited in evaluation, 94% had received packets and 80% had used.
National School of Nursing	Graduate and auxiliary nurse training, 3-yr. and 10-mo. programs, respectively. 1st-yr. students taught ORS theory, utility and procedure for suero casero, clinical signs of dehydration, community practicum including family education in ORT. Community time increased in 2 subsequent years and ORT continually emphasized, taught, and demonstrated. Curriculum regularly evaluated and updated according to WHO guideliness and coordinated with National Health Plan.-Auxiliaries get 10 hrs. of classroom instruction on ORT, community practicum including one-on-one training of mothers, including value of ORT and suero casero, how to prepared and administer both, signs of dehydration for referral.	According to the 1984 MSPAS Memoria, 149 nurses were graduated from the Schools in Guatemala City, Quetzaltenango, and Coban; 166 nurse auxiliaries were graduated from the Schools in Guatemala City, Quetzaltenango, Mazatenango, and Jutiapa, plus 23 at INDAPS/Quirigua.

Entity	Activities	Magnitude
Hospital Nacional de Huetenango	Hospital-level ORT under direction of Dr. Jose Maria Reyna Barrios, Chief of Dept. of Pediatrics. Development of norms. Seminars in Huehuetenango, Totonicapan, San Marcos. Training of physicians, nurses, and other health personnel from surrounding areas. Failure in other hospitals attributed to lack of training and adequate personnel; inadequate supervision and evaluation, management of clinical documentation, stock maintenance; non-functioning referral system; and prohibition of mothers from participation. Revival of activity will require new seminars, attention. Huehuetenango activity ongoing. Clinic forms developed, several scientific publications.	Over last 6 yrs. 1,600 patients rehydrated through in-hospital ORT. Huehuetenango project successful (use of ORS solutions reduced by 80-94% in mild-moderate cases, all IV use by 20%, 96.8% efficacy). However, similar efforts in hospitals in San Marcos, Solola, and Totonicapan basically failures.
MSPAS/UNICEF/San Carlos University/ INCAP/IGSS/Hospital Roosevelt	Programa Coordinacion Interinstitucional y Extension de Cobertura, Area Guatemala Sur, begun early 1985. Marginal urban area. Population-based census, household visits, MCH focus (ORT, EPI, ARI, growth monitoring, perinatal), training of health staff in channelling model and associated medical students. Packets supplied by UNICEF. Referral to Roosevelt Hospital for severe cases. Expected reduction in reported cases but, with extremely hostile environment, diarrhea incidence rates likely to remain high (1st cause of death and reported morbidity).	Population includes 119,000 children under 5. Each promoter has 100 families. ORS coverage target for 1986 30%. Estimated packet needs 130,481.
Universidad Francisco Marroquin Medical School/MSPAS	Programa de Salud Rural, San Juan Sacatepequez. 3 classes have done to date. Medical students work as members of facility and community health team in integrated MCH. ORS packets prepared in Health Post pharmacy by auxiliary nurses, distributed by health promoters at low cost, who also instruct families in use. No norms but have produced Manual de Operaciones, CAT training modules, forms (including ORT treatment form, Appendix E).	No targets specified. Personnel appear highly motivated but no time to assess progress. Estimated client pop. 72,000 covered by Health Center and 10 Health Posts. No students have chosen a public health specialty.

Entity	Activities	Magnitude
Roosevelt Hospital	In-hospital ORT, beginning in early 1980s. Policy changes: mothers on wards, OR carried out in Emergency Room, mothers instructed in use and given packets, pediatric ward space provided for ORT. Treatment philosophy still quite conservative. Training and supervision required for real impact.	No targets specified. Urban marginal areas of Guatemala City. Links to Guatemala Sur Project (q.v.).
Maryknoll Sisters Hospital Jacaltenango	ORT training materials for health staff in Spanish, developed by field-based personnel. Use health auxiliary workers, mothers as community educators.	Jacaltenango area.
Project Concern	Integrated Health Services, beginning 13 years ago. OR using suero casero integral part of program for past 6-7 yrs., especially through mothers' clubs; less success with promoters. Presently active demand and high levels of suero casero use. Norms and training materials not formalized but basically follow Jacaltenango materials. Local radio station broadcasts frequent messages in Tzutuil on importance of ORT, inter alia.	Santiago Atitlan. Pop.35,000 in the cabecera, four aldeas, and dispersed settlements; hospital base unit in Santiago, 2 nutrition centers, and 2 satellite clinics, 13 MCH promoters, 3 mothers' clubs. Expansion planned to other lake towns, possible PHC training center; high demand for services.
Catholic Relief Services (CRS)/San Carlos University	Centro de Salud de la Comunidad, Colonia Milagro, Guatemala City. Private health center supported by CRS and staffed by a physician and medical students from San Carlos. Center has been training mothers and distriuting ORS packets supplied by APROFAM for past year. Acceptance good but packet supply shrinking (requirements 500/mo., 100 for the CRS Center and 400 for 11 other clinics operated by USAC). CRS purchasing drum mixer, scales, sealer, based on El Progreso (nee SINAPS) model, to manufacture 3,000 bags (to make 250 ml quantity) per day, with assistance from Progreso staff.	One clinic only. Urban marginal area.
Laboratorio de Produccion de Medicamentos (LAPROMED)	Pharmaceutical production facility, School of Pharmacy, San Carlos University. Incipient ORS production, which will be recommended as an option for public sector ORS production. Has space, quality control lab, some staff.	Presently limited to about 12 liquid preparations. Capable of expansion.
Quifarma, S.A.	Pharmaceutical production (private sector). Produces Glucosoral, ORS packet, for sale in pharmacies at Q0.60 each.	Limited capacity because filling manual but has produced as many as 100,000 packets in 1 run for gov't.
Alimentos S.A.	ORS production. Producer/distributor of food products, including Incaparina. Incipient producer of WHO-compatible ORS for private and public(?) sectors.	Ample potential plant capacity.

46

II. ANALYSIS OF CONSTRAINTS

The purpose of this section is to summarize the constraints to nationwide, effective use of ORT in Guatemala that have been identified in the Study Team Analyses (Logistics, Sociocultural, Economic, Technical, and Institutional). The analysis includes a parallel identification of offsetting or facilitating factors as well as, briefly, suggestions on how a national ORT project could address these constraints. The categories used for the listing follow the PRITECH Manual for the Assessment and Planning of National ORT Programs, with some additions that respond to AID PID and PP sections.

A. Policies, Laws, and Regulations

1. Production of medicines is allowed by Guatemalan law only in authorized plants. If Alimentos, S.A., were to produce ORS, they would need to obtain a special license that would legally authorize production of a medicinal product in a food-production facility.	If this option adopted, obtaining license would have to be a Condition Precedent.
2. According to the rules of the MSPAS Division of Drug Control, ORS packets are considered a drug to be sold only in pharmacies.	Reclassification as an Over-the-Counter (OTC) product which can be sold in stores would be essential if the desired population coverage is to be achieved. Responsible officials in the MOH have indicated that they would be willing to make this regulatory adjustment.

B. Priorities and Strategies

Because of the regional requirements for each isthmian country to develop project profiles, plans, strategies, and projects to leverage Child Survival funds, Guatemala is well equipped with such documentation. Each countries will present the documentation it has prepared at a subregional meeting in Antigua Guatemala at the end of January for review and approval. ORT has been assigned high priority.

1. However, it will be essential to assure that, in a preoccupation with integration, ORT does not become the poor relation of Immunization and Acute Respiratory Infections.	Naming of a National Coordinator for ORT as counterpart for the ORT Project Manager should balance the integration/verticality equation.
2. Despite stated policy, de facto emphasis is on curative care based on spontaneous demand, to the detriment of systematic, programmed promotion and preventive care.	This is a chronic problem, for which the channelling emphasis may be one antidote. Correction of this orientation is a long-term process and each PHC intervention may be considered as contributing to an incremental improvement.

C. Economic and Financial Constraints

1. It is unrealistic, given both history and current pressures, to anticipate any significant increments or redirection of government revenues into the health sector which, during the 1976-1985 period, captured an average of 7.7% of the national budget for MOH programs and has showed a steady decline since 1981. Furthermore, MCH, in fact PHC in general, have not done well budgetarily. Of budgetary allocations since 1981, MCH were assigned only 16.5%. The hospital subsector consumes very large proportions of departmental budgets and very small proportions remain for the Health Post level and general outreach activities.

It is anticipated that a substantial portion of a national ORT project will be grant-funded. A certain portion of project costs will be marginal, i.e., additional to planned expenditures under the Immunization/Child Survival (I/CS) Project. The major element of project cost would be ORS acquisition. Cost of main equipment for LAPROMED facility may well be assumed by UNICEF. Major, non-marginal recurring cost will be for ORS purchase but some offset will increasingly be produced by purchase in the private sector, use of sueros caseros, and decreased hospital costs through ORT substitution for IV therapy.

2. There is evidence that the level of poverty in Guatemala is increasing, which would diminish both capacity and disposition to pay.

There is also evidence that people are willing to pay for ORS in several different presentations. While level of current demand is too low to support much (if any) of a price tag for ORS through the public sector, as experience with ORT and demand grow, demand may become more inelastic (less sensitive to price changes even for the poor.

3. Returns to the pharmacy from the sale of ORS as compared to competing products are low. Prices and markups to the pharmacy are set by the government, and low-priced items like oRS do not yield significant returns to the store unless they can be sold in large volumes. In addition, pharmaceutical manufacturers often offer cash incentives to the pharmacy for selling more expensive products.

This is a case where social marketing approaches, mass communication, and entry into the market by a private-sector large-volume producer may, together, generate a variety of other incentives. Training and promotion through pharmacy schools and courses and through associations of producers and distributors can also contribute other motivations. Availability of a fancier ORS presentation can also permit cross-price subsidy which pharmacists can be educated to understand.

4. Local manufacturers must presently buy dollars for importing from the parallel market at a rate of about Q3.50:US$1.00 and are not allowed to adjust the prices of their products accordingly.

If local production is to be encouraged in the private sector, it will be crucial for potential producers to be able to negotiate a price structure for ORS with the Ministry of Economy. If it is Alimentos that is going to produce for the public sector (instead of LAPROMED), then a price structure could be negotiated that would permit differential pricing to achieve cross-price subsidization, i.e, a higher price in the private market to subsidize a lower price for the public sector to distribute to its clients. Such negotiation could constitute a Condition Precedent, depending on the configuration of the national ORT project.

5. Financial centralization makes administrative agility at the local level almost impossible. Lack of organization and coordination between the depts. of Accounting and Audit of the DGSS and the Controller (Contraloria de Cuentas) means that there are no standard, reliable mechanisms which would facilitate paperwork related to funding. Mechanisms for transfers of funds are cumbersome and inefficient and purchase and payment orders may be rejected and correspondingly delayed. There is also lack of adequate training in management of accounting and inventory procedures at the Health Center level.

This will affect the logistics of a national ORT program negatively. Some rectification of these procedures could be included in project technical assistance under the responsibility of the project logistician.

6. Some analysts feel that the lack of financial incentives for health promoters constitutes a limit on their commitment and quality of work and contributes to rising dropout rates. If this is the case, it could affect a national ORT project, in fact all Child Survival activities, negatively.

The Study Team did not encounter this phenomenon and feels that promoter salaries is a large and knotty issue which should be begged at this point. Per diems and transport being provided under the I/CS project will serve as incentives for outreach personnel doing both EPI and ORT; new staff should be similarly motivated.

7. Many health facilities are in severely deteriorated condition and lack adequate equipment, supplies, gasoline, medicines, etc. Most health facilities lack space for on-site ORT, as well as the necessary standardized equipment for preparation and administration of ORT.

Provision should be made in a national ORT project for ORUs in hospitals and Health Centers and the necessary equipment provided for all levels. Equipment should be standardized in accordance with national norms and prescriptions for ORT preparation and administration (container, measures, cup and spoon, etc.).

D. Sociocultural Constraints

1. Because of past negative experiences, many potential client populations are skeptical of yet another outside intervention that promises improvements.

However, some areas and communities are more closed than others, and the extent of this constraint must be determined on a case-by-case basis. A good mass communication strategy and appropriate PSR and CAT training should do a lot to offset this; it is poor modern health services that are unappealing, not modern health per se.

2. Many indigenous communities are monolingual in one of the Mayan languages, but there appears to have been little attempt on the part of the MOH to assign the appropriate bilingual personnel to health facilities in these areas. The result has been lower use of health services and a lack of communication between village residents and outsiders.

Trained personnel with the ability and experience to design and implement appropriate ORT messages and educational material in Spanish and the 4 major indigenous languages are available in Guatemala. The development and upgrading of PSRs CATs can offset this somement. The larger policy issue of personnel assignment is chronic and might be only marginally adjusted by a national ORT program. Still, the point should continue to be made, since it will continue to affect the utilization of services and, consequently, the chances for improved Child Survival.

3. There are differences in the ways in which heavily indigenous communities and ladino communities deal with health issues.

4. There is a generalized lack of awareness of the consequences of diarrheal dehydration and there is a technical and behavioral problem inherent in the fact that ORS does not cure diarrhea. If ORS is promoted as an anti-diarrheal agent, there is a danger that mothers may be disappointed because it does not reduce stool volume or shorten the duration of diarrhea.

However, a fairly large body of research indicates that these differences are decreasing rapidly with increasing population mobility and acculturation. As for ORT, there are relatively minor differences in diarrheal disease beliefs and folk treatments between ladinos and indigenas. This does not mean there are no exceptions but, for the purposes of a national ORT program, the differences do not call for different intervention or mass communication strategies for ladinos and each ethnic group, only for language adjustments. All groups (includin deliverers) need to be taught a) that dehydration is life-threatening and that ORS prevents dehydration.

E. Public Sector Institutional Considerations

1. Planning and Organization

1.1 There are no programming norms for obstetrics, pediatrics, Health Centers, Health Posts, or hospital care. Nor are there norms for the major Child Survival content areas: growth and development, immunizations, disease control, acute respiratory infections, school health, mental health, dental health, nutrition and feeding, and evaluation of newborns. More specifically, there are no uniform guidelines for treatment of dehydrated patients, for maintenance therapy, or for appropriate feeding and hygienic practices. There is also no standardized recipe for preparing simple sugar/salt solution (suero casero) for use when the complete ORS preparation is not available. A national, comprehensive ORT program cannot function effectively without such norms and without corresponding training of delivery personnel.

Norms for treatment and maintenance therapy have already been developed and published in Spanish by WHO/PAHO. They would need little or no adaptation for use by the MSPAS and the relevant private sector entities.
Norms should be simple (easy to interpret and execute); integrated (with clearly stated objectives, targets, and activities; have established evaluation mechanisms; and have incorporated review by local-level operational personnel.
Since there are effectively no Child Survival norms, the ORT norms should be integrated with the CS norms as these are developed; however, if this process appears to be one that will drag on, then an official decision should be made to adapt and use the WHO/PAHO norms for ORT (and ARI, if this is to be coupled with ORT) and not wait for all norms to be done

1.2 There is no formal, functioning referral system. This reflects a lack of coordination in many Health Areas among the different service levels.

A diagnosis and referral algorithm is part of treatment norms. This should be taught as part of the training that should follow completion of the ORT norms and integrated with the ORT dimension of the health/management information system.

2. Financing (this is discussed earlier under "Economic and Financial Constraints)

---

* We are aware that this conclusion diverges from the I/CS PP which emphasizes heterogeneity and suggests variable strategies. Our point is that there is substantial homogenity in health attitudes amidst some linguistic heterogeneity. Furthermore, resistance to vaccination is much more complex than what might be anticipated for ORT; the "stickest" educational dimension will probably relate to feeding practices.

3. Management

3.1 Political uncertainty and almost-constant personnel changes (or the threat of them) has produced a management style which is often timid, wavering, and yet rigid. Lack of explicit job descriptions does not help. Fuzziness and disorganization at upper levels affects functioning at operational levels. New mechanisms and approaches are adopted and existing ones terminated, without sufficient time to see how the older ones work or how they could be improved. Such changes also produce uncertainty and insecurity among field staff and may bring personnel on board, particularly at the directive levels in Health Centers and Hospitals, who have no experience or technical-administrative expertise.

The recent (1984) restructuring of the MOH appears to be threatened once more by the arrival of a new administration. Entities like MCH and Human Resources, which may have begun to get a footing once more, will be particularly fragile, even if the restructuring affects them positively (e.g., clear assignment of responsiblities, new staff). Such changes can be both positive and negative and the only possible posture at this point is to wait and see. Strategies for the institutional location of a national ORT program are discussed in Section III.

3.2 Little programmatic and operational coordination among the different projects being developed in some health areas with the support of external donors.

3.3 Lack of communication and coordination among the dependencies which constitute the health sector.

The Study Team and the USAID approach to exploring the possibilities for a national ORT program was intentionally and explicitly collaborative, just as the project itself should be. The design of that program should be tailored to dovetail with ongoing, technically harmonious MCH/CS interventions, without losing its power or substantive autonomy. The discreteness and power of ORT as an intervention should be stressed in all forms of health education and there should be some verticality as the project is launched to call attention to it, but operationally it should be integrated into MOH outreach actions.

3.4 Area Chiefs lack power to make decisions and find solutions, including personnel decisions (vacations, leaves, etc.) and are often bypassed by lower levels, who transmit requests and information directly to the central level.

3.5 Lack of coordination with other public sector institutions; decisions for such relationships are made at the central level without consultation with lower levels.

This is chronic and the necessary decentralization can probably be little affected by outside donors, at least in the short term, in the absence of a political decision at high levels. However, the ORT project coordinator can make every effort to maintain ties with Area Chiefs and at least informally correct for excessive centralization. It may be that the role of the Area EPI coordinator, to be named by the Area Health Chiefs, will offset this tendency.

3.6 Personnel selection procedures are ad hoc and lack proper criteria, so that there are shortfalls in technical and administrative expertise.

A national ORT project can only correct for this in its insistence on controlling the process of outside technical assistance and participating in the naming of project counterparts.

3.7 A Supervision System exists but it has not become operational, primarily because there has been little or no orientation on norms and guidelines for supervision, its purposes, and procedures. Supervisors responsible for ORT have not gotten adequate technical training.
3.8 When supervision occurs, there is little or no feedback from the supervisory levels to those of the supervised, and there is no followup on recommendations that ensue from supervisory activities.

3.9 Supervision is, in any case, infrequent, due to lack of financial support from the central level (gasoline, per diems, etc.). It is also correspondingly sporadic.

3.10 There are no norms for supervision of volunteer personnel.

3.11 Supervisory reports are descriptive in nature and accessible to analysis only with difficulty. They are not now aggregated at each level so as to be useful for monitoring and they do not lend themselves for evaluation. They also vary from area to area and even within areas.

Supervisory activities to be carried out under the ORT project will be geared to follow the phased introduction of channelled immunization into the 21 Health Areas. The ORT supervision norms, which are contained in the WHO/PAHO supervision manuals, can be incorporated into the supervision training module for the O/CS project. Both should be integrated into the design of the HIS/MIS system. PAHO is, in fact, developing checklist supervision guides for each administrative and service level, and subsequent training in their use. The I/CS project is providing grant funds for per diem and travel for field level health service personnel. Health Post supervision for that project will be under the direct responsibility of the Area EPI Coordinator in conjunction with the district graduate nurse supervisor. The content of each visit will follow the PAHO supervisory guide. It should be the responsibility of the ORT Coordinator to be sure that all the appropriate ORT checkpoints are included and that the information gathered responds to supervision/management/monitoring needs, to health statistics needs (mortality and morbidity), and logistics needs (e.g., packet distribution and stock).

4. Communications

4.1 Lower-level MOH personnel--auxiliary nurses and TSRs--often do not know how to interact with local residents to successfully communicate and teach ORT. The reliance on traditional didactic methods for MOH auxiliary and promoter training programs, and insufficient practical, hands-on experience are--and will continue to be--a major impediment to person-to-person health education.

One-on-one, face-to-face pedagogic techniques simply must be taught, and with adequate intensity and innovativeness, if any of the Child Survival interventions are to have real effect. The home visits integral to the channelling approach are an important step forward but they can be more fruitful if those who make them can relate to their client population in open and constructive ways. There appears to be an ample supply of actual or potential outreach personnel and some good history in Guatemala with community organization and participation; the issue is to train them well technically and practically.

On the other hand, as the I/CS PP points out, these first-line workers traditionall receive the least support from the health system and are often unappreciated. A national ORT project should provide incentives (per diem and transport), logistic and supervisory support, and recognition through mass media of the importance of these outreach personnel.

4.2 There is little recuperable experience in the MOH in mass media approaches to health education and the institutional experience health education has been rocky.

However, there is considerable experience in the Ministry of Education with mass media approaches, the most recent the National Non-Formal Education Program. There are also radio stations, private and government, which can broadcast and saturate large areas with ORT messages on the benefits of and instructions for use of ORT. As indicated earlier, trained personnel with capacity to design and implement appropriate ORT messages and educational materials in Spanish and the 4 major indigenous languages are also available. The social science faculties at the 4 private universities and San Carlos offer personnel and facilities for behavioral studies; and INCAP offers a variety of skills in ORT-related research, social sciences, and training.

4.3 There has not been, historically, coordination between the MSPAS and the private pharmaceutical subsector, on the content of mass media or pharmacy-level drug-related information.

The private sector must agree a priori that the MOH has final authority on the medical content of ORS/ORT messages. A project health education/mass media coordinator could act as the link between the two sectors in market research, testing, media selection, message content and design, and evaluation.*

5. Local Production of ORS

5.1 Budget cuts over the last 5 years have been felt particularly sharply in drug supply, so that some facilities have no medications whatsoever or have them in very limited quantities. This is believed to have had real impact on the level of interest among the target populations in using MOH facilities. As for ORS packets, early 1986 will bring the last 500,000 of those UNICEF plans to donate to the country, and there will be a substantial shortfall, especially as demand builds through health education and mass communications promotion. The small state production labs (San Juan de Dios and IGSS) have problems of high prices, inadequate supply of raw materials, lack of technical capacity, insufficient human resources, and deficient quality control.

ORT supply will have to be adequate and assured. According to WHO, inadequate, unstable ORT supplies are the most important constraint to ORT program implementation. However, there are in Guatemala two good bases for local production, which analysis indicates is feasible and more economical than importation of finished ORS presentations. Local production would have to be a principal component of a national ORT project.

---

* Successful ORT communications programs to date have shared some important fundamental characteristics: they were a) marked by strong audience orientation, b) focused on a few actionable messages, c) employed intensive promotion, and d) were part of a comprehensive program.

6. ORS Supply Management

6.1 There are major problems in the major components of the MSPAS logistics system: in drug selection and control; in procurement, storage, and distribution; in the logistics information system; in training and education in the management, technical, and operational dimensions of drug supply; and in norms and regulations for the proper functioning of the entire system. With regard to ORS, the effect has been that availability has been erratic, so that alternate claims are made: a) there are not enough packets; b) there is an excess.

PAHO national and regional projects to improve the pharmaceutical subsector are both essential and timely, and any ORS project should be coordinated with those activities, as well as with the Logistics Component of the I/CS Project. The latter however, will deal primarily with cold chain improvement, which has different rhythms and technical requirements than the logistic needs for ORS; furthermore, while the I/CS Project will supply jeeps, boats, and motorcycles for supervision, training, logistic, maintenance, and other related channelling activities, most at the Health Area level. The larger vehicles could help with distribution problems at the local level but would not help solve central level managerial and warehousing problems. It may be that, while the MSPAS system is being improved with PAHO assistance, a national ORT project should look to an interim contracting arrangement with a major private-sector distributor, e.g., Alimentos, S.A. The MSPAS/Drogueria already has private-sector arrangements; this would not be a new phenomenon.

7. ORS/ORT Information System

7.1 The MSPAS Information System is effectively obsolete, overtaken by the numerous changes in administration, by shifts in orientation and the addition of new programs and projects, and by the corresponding exigencies of international donors; this is exacerbated by lack of homogeneity among the information systems of the different Health Areas. The results has been a proliferation of forms, generally unaccompanied by training or written instructions on how to fill them out, use, and forward them, and on their utility. Despite the excess of forms, their unsystematic nature and the inadequate technical expertise available for their design makes the system in its totality unusable and incomplete for purposes of monitoring and evaluation. There is virtually no registry of community-worker activities, no field-level analysis or use of the data gathered, and no cascade of feedback from the central and intermediate levels to the local levels. Finally, there are not enough trained personnel to process the data gathered and elaborate the necessary reports in accessible and timely fashion.

The MSPAS Information System is currently said to be undergoing restructuring. However, a set of revised forms* was provided to the Study Team and it would seem that a) there are still many forms and b) that the data needed for monitoring and evaluation of a national ORT program are not going to be gathered as things now stand. A national ORT program should include explicit coordination with the Unidad de Informatica and the PAHO technician working on the system, and include as well adequate short-term technical assistance in the development and incorporation of a set of basic ORS/ORT indicators in the MOH system, integrated with the AID Child Survival Reporting System.

* A flow chart of the restructuring is included in a set of the forms to be provided to the USAID with the submission of this report.

** The CSRS document, now in USAID hands, lists these indicators. An expanded document produced for AID/W/FVA will also be made available. It is compatible with the WHO CDD indicators but expanded for management purposes.

7.2 With regard to ORT, documentation/registration of ORT for dehydrated patients is limited or incomplete. For example, in oral rehydration units, only the name and age of patient, time of starting treatment, and grade of dehydration were recorded; duration of treatment, volume of ORS given, and outcome are not recorded in summary fashion, so that it is impossible to assess whether therapy is appropriate or effective. At the community level, there is only incomplete and sporadic reporting of number of cases, packets given, or referrals. The data required provide no information about how or whether ORS is used, but only about packets distributed and number of cases; there is no information asked for on diarrheal mortality, one of the outcome indicators for measuring effectiveness of ORS as an intervention.

Another approach to data-gathering would be to conduct periodic, short-form KAP and mortality/morbidity surveys, based on population-based censuses being carried out under channelling activities, with followup surveys using Cluster or LQAS (Lot Quality Assurance) Sampling. This can be part of or ancillary to a sentinel post system, if one is to be established in Guatemala.

8. Training of Personnel for ORT Programs Education of the Medical, Nursing, and Pharmacy Professions*

8.1 In general, the professional staff in the departments of pediatrics and obstetrics have not received courses in specialties. These departments do not have programs of continuing education for professional and auxiliary personnel, due to: a) lack of educational planning by hospital administrators; b) lack of coordination between hospital and Health Area staff to develop educational activities; c) lack of guidelines from the central level; d) lack of adequate, normed, consistent educational materials; e) lack of sufficient public health education, mostly in the case of doctors. Both lack of educational materials and lack of Area-level training derive largely from lack of financial resources. The job and educational profiles of auxiliary personnel are not compatible.
With respect to ORT, although many physicians and other health personnel have attended seminars on ORT, few have been trained to use ORT effectively. There are no standardized training, norms, and little or no hands-on clinical training. IV instead of ORT is used in the hospitals where nurses and medical students receive their clinical training, although they receive lectures on ORT. Medical

Optimal training in ORT requires hands-on, first-hand experience. In other countries, ORT training units have been established in major hospitals which permit health personnel to actively participate in treatment of patients with diarrheal disease, to be instructed and supervised by trained personnel, and to learn the theoretical basis of ORT and gain experience and confidence in its use. The WHO CDD Programme is preparing a comprehensive set of guidelines for establishing diarrhea training units within a country, to be available in 1986. These units will train physicians, health staff, teaching staff of medical and nursing schools, students of medicine, and other students (nurses, auxiliaries, technicians) in proper diarrhea treatment, which includes ORT use. At present there are no such units in Guatemala, but some could be set up at the hospitals in Guatemala City (San Juan de Dios, Roosevelt, IGSS) and in other depts. (e.g., Huehuetenango). After one unit is established, key personnel from other interested hospitals can be trained there to set up their own units.

The ORT Project Coordinator should also work, using any additional short-term T.A. necessary, with the medical schools and the professional associations, to achieve consensus on an ORT module, perhaps based on one currently being prepared by WHO/PRITECH.

students, in particular, are greatly influenced by teachings of clinical professors, many of whom reject ORT as an effective therapy. There is a lack of standardized medical school curriculum on ORT in terms of theory, methods, and practice.
In fact, a main constraint for the design and implementation of a nationwide ORT project is the poor to almost nonexistent support by physicians. There are a number of public-health-oriented doctors, but they are far outnumbered by the indifferent and outright opponents.*

Seminars on ORT should be repeated, based on the latest findings presented at ICORT II, perhaps under the sponsorship of the Medical and Pediatric Associations. It is expected that physicians who are promoters of ORT will gradually (if slowly) increase and can be formed into a critical mass which would weight the scale in favor of hospital-based ORT programs and enhance the disposition to transfer more resources to the periphery in terms of training and ORT supplies. It is also reasonable to expect that a national mass communication program will generate demand by clients that will motivate doctors

8.2 In the channelling activities, greater emphasis has been placed on training workers in EPI than in ORT; educational materials in ORT are sparse, while those for EPI are plentiful. Again, what training has been done there has not been participatory. As indicated earlier, lower-level MOH personnel often do not know how to interact with local residents to successfully teach ORT. The reliance on traditional didactic methods for MOH auxiliary and PSR training and insufficient practical hands-on esperience are--and will continue to be--a major impediment to person-to-person health education.

Most especially if the national ORT program is administratively linked to the I/CS project, this situation would have to be redressed and it would be an ORT project mandate to do so.

The nursing profession in general, and the nursing school directors , are strong proponents of ORT, which will have a positive effect on both graduate and auxiliary nurses. However, those already in practice will need retraining. Once norms are standardized, training materials appropriate for the level of education of the trainees should be prepared, educational messages standardized, and training in their use begun.*

8.3 Interaction between health facilities and communities has been limited, except in Areas with special promoter programs. In general, health facility staff has been resistant to carrying on educational activities in general, have not typically been interested in generating their own educational materials in the absence of those from the central level, are not motivated by hospital directors to do so or given incentives. Low utilization rates and the community perspective on facilities as resources for illness/curing contribute further to the lack of contact.

Lower-level MOH personel and community volunteers are available, in substantial numbers in some areas, who will be participating in channelling activities and can be taught about ORT.

8.4 Although many pharmacies stock ORS or OR solutions, they do not generally promote the sale of these products. They

* According to the Executive Board of the Pediatric Association, Guatemalan physicians generally have resisted using ORT in their private practices for two reasons: 1) they lack first-hand experience with and confidence in ORT and are, therefore, reluctant to use it to treat their private patients; 2) they are not able to charge as much for ORT as for IV therapy, so there is no economic incentive to make the substitution.

8.4 Although many pharmacies stock ORS or OR solutions, they do not generally promote the sale of these products. They do, however, promote the sale of antibiotics and antidiarrheal agents; the markup on these drugs is greater than that for ORS, and the pharmaceutical companies often provide "push money" (i.e., a bonus) for the volume of drugs sold. Thus, there is little or no economic incentive. In Guatemala, ORT is a relatively new concept, which has only recently been introduced into the curriculum of the School of Pharmacy. Thus, another reason for resistance of pharmacists to ORS promotion and sales is their lack of knowledge and understanding of the value and proper use of ORS.

To promote sales of ORS, it is essential that pharmacists and vendors be educated about the proper treatment of childhood diarrheal illness. Specifically, the scientific basis for not treating all diarrheal disease with antibiotics, antidiarrheal agents, and potentially harmful agents (e.g., opium-like drugs, steroids, and neomycin) should be stressed. At the same time, they should be educated about the importance of and indications for ORS use. Also, since mothers may seek medicine for their children with diarrhea directly from pharmacies (bypassing health care facilities and physicians), pharmacists must know how to instruct mothers in proper preparation and administration of ORS. Educational and advertising material should be supplied to pharmacists for their own use and for distribution to mothers.

It is expected that the mass media campaign will stimulate demand for ORS that will generate pressures on pharmacists. It is also possible to contemplate discussion with Alimentos, S.A. (if that option is selected) about some volume bonus arrangement for vendors as part of their campaign.

If LAPROMED is part of the project, orientation in ORT should be promoted. Similarly, if COCIF channels are used for distribution, then this large Union of Pharmacy Owners can be integrated into the project for training and motivational purposes, an activity in which they appear to want to participate.

D. Private Sector Institutions

1. The major difficulty in dealing with the private sector is its variability and fragmentation. This is particularly problematic with regard to the PVO subsector, integrating it into the project, and assuring that national norms, once elaborated, are not violated in that subsector.

The national ORT coordinator should have as part of his/her role integration with the private sector in general. PVOs can be accessed, perhaps for some combined training activities and certainly for distribution, through umbrella organizations such as ASECSA and ASINDES. Their clients will also be motivated by the mass media campaign and will express demand. Since a number of PVOs promote sueros caseros, they should be approached in a participatory way as the norm for the "national recipe" is developed. Some PVOs (e.g., Jacaltenango) have developed innovative and culturally appropriate training materials which could be integrated into those generated under the ORT project.

2. The principal potential private sector producer of ORS has major issues to resolve with the Ministry of Finance before being able and, more importantly, willing to produce.

As indicated earlier, this issue may require a Condition Precedent which would facilitate negotiations between Alimentos, S.A., and the Ministry of Finance.

3. There appears to be more interest in the private sector in producing ORS and distributing it than in distributing it alone (e.g., COCIF, IPROFASA, and local-level PVOs (e.g., CRS, ASECSA).

A national ORT project cannot control the number of producers who wish to enter the ORS market. However, the project can and should provide its resources only to that or those entities which can produce most economically and reliably for the public sector, and encourage the distributor with the greatest coverage. Markup arrangements with other distributors should also be discussed, e.g., COCIF could be sold ORS at the same price or a slightly higher price than that given the MSPAS for sale through its member pharmacies.

III. STRATEGIC OPTIONS

A. General Options for a National ORT Program

In the planning of a national ORT program, there are some fundamental decisions to be made about strategy alternatives. As part of the strategy and planning procedures undertaken by the ORT Study Team, the following strategic options, drawn from the PRITECH Manual for the Assessment and Planning of National ORT Programs, were explored and the following conclusions reached. They are presented below, with a brief rationale for their selection.

Strategy Options	Conclusion	Rationale
To promote ORT alone or ORT within a framework of Child Survival and other CDD strategies	To promote ORT within a framework of Child Survival and other CDD strategies. However, some elements of the project to be proposed are vertical: the mass media campaign will stress ORT alone at the outset, and production will be outside the traditional public sector.	The model for the Central American region and for Guatemala is an integrated Child Survival/MCH model. The existence of channelling activities and the I/CS project, as well as poor experience with vertical projects (SCISN), made an integrated approach obvious.
To encourage the use of packets only, home-based solutions only, or a mix of both	To adopt a mixed strategy, but in phased fashion: 1. Packets only, while norms for home treatment and a "national recipe" are being developed on the basis of anthropological research and clinical reference. Messages will emphasize correct packet use and appropriate feeding. 2. Education and mass communications components will add medically- and culturally-sound messages on use of home solutions. 3. The final phase will be a combined strategy of correcly-normed home solutions and packets, plus appropriate feeding as the first line of defense against diarrheal disease and severe dehydration. WHO policy is: ORS packets with a WHO-compatible formulation for children with diarrhea and dehydration; and home-made solutions or increased food and fluid intake for children with diarrhea but without dehydration. However, families should be taught how to use homemade solutions for dehydrated children if availability of ORS cannot be guaranteed at all times, or if access to health services is impossible.	
To provide ORT through the MOH delivery system only or through multiple delivery systems	Multiple delivery systems.	Given that public sector delivery systems are presently weak and limited in their reach, the best strategy for Guatemala is the use of both private and public sector delivery systems.

To encourage local production, imports, or a mix of both	To use a mix of both, but in phased fashion (use up existing UNICEF packets; then switch to local quasi-public-sector production (LAPROMED, with UNICEF-donated machinery) and MOH and, possibly, temporary use of Alimentos, S.A., help with distribution; with private sector (Alimentos, S.A.?) producing and distributing for that sector.	Because Guatemala responds to the combined criteria of: sufficient volume of potential demand, existing local production, and established pharmaceutical industry.
To foster the use of WHO formulations only, or WHO plus others	To foster the use of WHO formulations and other effective OR solutions, including a "national recipe" for homemade solutions	A number of formulations are safe and effective, and both formulations now being proposed for national-level production are either WHO formulation or equivalent (e.g., substitute locally-produced sucrose for imported glucose).
To declare ORS an ethical, over-the-counter (OTC, or food product	To encourage norms for ORS which are distributed as an OTC product available in both pharmacies and stores. It is understood that such availability will be accompanied by a strong mass media and health education component which will provide good information to families on the proper preparation and administration of ORS.	Maximum availability is more likely when ORS is not restricted to distribution through MOH facilities or pharmacies. The item can still be described as a "medicine," to capture those who are attracted by the technical lustre of the pharmacy.
To distribute free packets or to provide subsidized, controlled, or market pricing	To distribute packets free, to encourage demand. Since supply of packets will continue to be uneven for a while, many families, especially those for whom access to health services is restricted, will have to depend on homemade solutions, for which the mass media campaign will disseminate a medically-sound, practical "national recipe." Project should foster negotiation between GOG and private-sector producer for public-sector use (Alimentos, S.A.) if that option is selected. Otherwise, neither MOH nor this project will set prices in the private sector; the market will set the price.	

To legislate one kind of packaging and a single product, or allow multiple packaging and products	To actively support quasi-public-sector (LAPROMED) production of one product with one presentation for public sector use. If it is Alimentos which is to produce for the public sector in lieu of or in addition to LAPROMED, the presentation should be the same; Alimentos can produce a fancier presentation for sale in the private market at a higher price which will permit cross-price subsidy. Beyond this, the project will not attempt to exert control on multiplicity of presentations.	Experience indicates that a policy allowing a variety of ORS brands may be more likely than generic ORS to appeal to different target groups, yield higher sales, and ultimately result in more widespread use. This is contingent on ability of commercial distributors to meet the approved formulation(s) requirements.
To seek medical society and non-government support or to rely only on the public sector	To seek both.	A main constraint for ORT program implementation is the poor to almost non-existent support by physicians. Public sector coverage is presently too low for that sector alone to be able to provide nationwide, effective coverage with ORT. At the same time, the public sector is the largest single entity providing care to the highest-risk populations. The channelling approach now being expanded from pilot status offers a good opportunity for extension of higher-quality health coverage through the public sector.

B. The Institutional Location for a National ORT Program

A major question posed by the USAID to the Study Team was: where would be the most effective institutional location for a national ORT project, given the determination that such a project would be appropriately located in the public sector?

As in the case of the general strategic options, the Study Team went through a similar exercise with regard to institutional location. The alternatives examined follow:

Option	Advantages	Disadvantages
1. Sistemas Comunitarios Project (SCISN)	- Established peronnel, methodology, logistics, training in place so that no need to start from scratch - Located in heavily indigenous areas, so that some understanding of indigenous KAP and institutional interaction already achieved - Located in priority target areas, according to National Health and Child Survival Plans - Will be encompassed in channelling areas, so that would facilitate joint development of training, supervision, materials - 68 persons from SCISN will be kept on staff, as CP to I/CS Project, assuring availability of human resources with some special preparation and motivation - Some ORT demand already - Good community participation	- Not a nationwide project; limited to Totonicapan, San Marcos, Solola - Channelling activities already under way in a larger number of departments (Escuintla, Santa Rosa, Sacatepequez, Jutiapa, Chiquimula, Jalapa, El Progreso, Zacapa) which, in general and particularly in the Oriente, provide a monolingual base for development of IE&C activities - Has been much criticized, with some justification, for being a "Proyecto Especifico": vertical, marginated, and never integrated into the MOH PHC system nor contributing to its strengthening - Project recently restructured, simplified, reoriented toward emphasis on environmental sanitation (originally 3 components: environmental sanitation, primary care [including ORT], and support systems)
2. Atencion a las Personas (DGSS)/Depto. de Salud Materno Infantil y Familiar	- Division mandated as the normative entity for the MOH for MCH - Worldwide, frequently the location for ORT programs - Content area most closely corresponds to that of Child Survival	- Newly reconstituted after several years of effective decimation - Corollarily, still at low levels of leadership and productivity - Effectively excluded from the I/CS Project, particularly germane if the ORT Project is written as an amendment to that Project - Leadership is in political transition
3. Comision Nacional de Supervivencia Infantil	- Existing, multidisciplinary, multisectoral body which has produced a national Plan for Child Survival through, in part, formation of substantive working groups, including one on CDD	- Not an implementing body - Largely predicated on volunteerism and its permanence is in question, except perhaps for ad hoc purposes - Relatively new - Leadership politically susceptible

Option	Advantages	Disadvantages
4. Division de Vigilancia y Control de Enfermedades (DGSS)	- Largest actual and projected geographic area covered by any project (LOP=all depts.except for Guatemala, in phases) - Channelling model and activities already being implemented with varying intensity, largely corresponding to the time project has been in place in a given dept. - Receiving substantial PAHO technical assistance which is working well, together with limited assistance from INCAP - Strong leadership in MOH, with some apparent political capacity for survival - Initial indications of positive impact - Acquiring new personnel with management, coordination, and technical responsibilities, plus additional short-term technical assistance	- Addition of ORT will have to be carefully time to complement/ supplement ongoing activities in all management subsystems, especially logistics and information systems - Inclusion of ORT is not a simple logistical add-on, since timing (e.g seasonality) is different and basic need is for uninterrupted supply and constant referral access, rather than periodicity associated with immunization - Requires attention to additional cohort (ages 3-5) which has, however relatively less incidence of diarrhea disease with dehydration than lower age groups - Division already responsible for large new project and staffing and T.A. projected appears insufficient - Management information system would need redefinition and expansion, particularly in terms of assessing household-level KAP
5. New ORT Project Committee with "National ORT Project Coordinator"	- Appointment of national ORT Project Coordinator would call attention to importance of ORT (and CDD) as a focal health intervention - An initial phase with some "vertical" aspects would enhance speed and vigor of launch - Coordination of a project with public and private sector dimensions and requirements for other-donor collaboration at a fine level of detail would be much facilitated	- Runs risk of appearing to be another vertical program unless explicitly integrated and counterparted in EPI or MCH, and with CDD committee working group of Child Survival Commission

C. Preferred Option and Rationale

The option that appears to make the most sense to the Study Team is a combination of Options 4 and 5 above, that is, the appointment of a national ORT Project Coordinator, with the necessary additional staff and associated short-term assistance, within the Division de Vigilancia y Control de Enfermedades. This would permit integration with the I/CS project and channelling activities, at the same time it would permit the project the autonomy it requires for distinction as an important Child Survival intervention in its own right and the independence required for more agile implementation. An ORT project has requirements that do not coincide with those of an immunization project (ORS production, ongoing supply, coordination with the private sector for mass communication and marketing, household level information on KAP, as the most important examples). The I/CS Project, at the same time, is predicated on a promising health delivery model and is politically strong, with vigorous leadership.

IV. RECOMMENDED PROJECT ALTERNATIVE

A. Goal

The goal of a national ORT project in Guatemala is to reduce infant/child mortality and morbidity due to or correlated with diarrheal disease. The infant mortality rate in Guatemala in 1984 was 79.82 per 1,000 live births and there are indications that this reflects under-reporting. The neonatal mortality rate in 1983 was 20.3 per 1,000 live births; mortality in children between one and four years was 15.5 per 1,000 children in those cohorts, with extreme fluctuations among departments. Of all deaths in Guatemala in 1983, 43.6 percent occurred in children under five, who constitute only 15.6 percent of the total population. Of those deaths, 75.3 percent corresponded to five principal causes, in their majority preventible with available technology and which accounted for the deaths of 29,380 children in that year. Of the infant/child deaths reported for 1983, 8,918 were attributed directly to diarrhea, a rate of 72.2 per 10,000 children 0-4 years. "Infectious intestinal diseases" was the most important cause of infant mortality in 1982 and the third most important cause in 1984, but the difference in absolute numbers is fairly small and probably reflects a combination of chronic reporting problems and reclassification of causes.

Neither urban residence nor surviving past the first year of life are guarantees of protection. "Ill-defined intestinal infections" were in first place in 1983 for the City of Guatemala, accounting for 16 percent of all deaths. And data by age group for 1979 indicate that children under one year and those between one and four years accounted for 33.8 and 33.3 percent, respectively, of all deaths ascribed to enteritis and other diarrheas. In 1980, "ill-defined intestinal infection" was the principal cause of death in preschool children ages one to four. Making some crude comparisons among the data, it would appear that diarrheal disease accounts for -- at a minimum -- one-quarter of all deaths that can be attributed to one out of those five essentially preventible disease categories. Because of underreporting and the complexity of ascribing death to diarrhea, and because diarrhea is so often an exacerbating factor in other major causes of death, e.g., measles, the proportion of infant and child deaths due to diarrhea is probably well understated.

Diarrheal disease are also an important cause of morbidity. Studies in Guatemala have shown averages of between seven and ten episodes per child per year in rural areas. The deleterious effects of diarrheal episodes derive not only from their incidence but from their duration. Studies of children 0-4 in Guatemala show that 46 percent of diarrheal illnesses last more than seven days. The impact of both frequency and duration of diarrheal episodes on nutritional status has been clearly demonstrated in different settings; it is exacerbated by abstinence from feeding (including breastfeeding), appetite loss, and malabsorption, among other sequelae and correlates. To complete the vicious circle, children who are undernourished are predisposed to more severe and sometimes more frequent episodes of diarrhea and, ultimately, to diarrhea mortality.

Achievement of the project goal will be measured by a reduction of two-thirds in the mortality rates for children under five due to diarrheal disease by the year 2000, or to approximately 23.8 per 10,000 children 0-4 years of age. This is a reasonable target since data from a number of recent studies show decreases in number of deaths from diarrhea of from 50-60 percent after one year of ORT program operation.

As for morbidity, the best measure may be the numbers of severely dehydrated patients brought to hospitals, controlled by the numbers who had initiated fluid therapy at home. A reasonable decrease in one year is from approximately 25 percent of patients presenting severe dehydration to 3 percent, of those who had initiated ORT at home. The overall figure of children presenting for any diarrhea is not a good measure, since it may only reflect better reporting, better referral, and more consciousness at the family level of the dangers of diarrhea.

The goals of what is intended to be a three-year project should be more conservative since, particularly in urban marginal areas, the health environment is extremely hostile and will not be substantially improved over the life of this project. In rural areas which are the beneficiaries of potable water and latrinization, together with health education and ORT, more dramatic decreases in infant/child mortality and morbidity might be expected. Data from Egypt suggest that early rehydration by mothers with a sugar-salt mix made at home, backed up by ORS from health care providers, reduced preschool child mortality by 40 percent and diarrhea-specific mortality by 50 percent. A 40 percent decrease in Guatemala would decrease infant mortality from 79.8 (1984 estimate) to about 47.9 per 1,000 live births. A 50 percent decrease in infant mortality due to diarrheal disease would bring the rate from 72.2 per 10,000 children 0-4 years to about 36 per 10,000. Hospital mortality rates for children brought in for diarrhea who are treated with ORT should fall to no more than 3 percent over the life of the project, based on data from Haiti and Huehuetenango. WIth regard to morbidity, a conservative expectation over the life of the project is that no more than 3 percent of hospitalized children who had received ORS at home would be severely dehydrated.

B. Purpose

The achievement of these goals is estimated to require a project lifetime of a minimum of 3 years. At the end of the first full year of project implementation, ORT coverage (defined here as = to access + utilization) will be increased to 30 percent, from a present estimated coverage of 5 percent. By the end of the second project year, coverage will increase to 60 percent. And, by the end of the third full year of project implementation, to a total coverage of the under-five population of 80 percent.

C. Expected Achievements and Accomplishments

By the end of the proposed project, the following should have been achieved:

1. A national program will have been established which will promote, consolidate and coordinate, and implement concepts and technology related to Oral Rehydration Therapy within Guatemala's national health system.

2. Availability of ORS technology will be greatly extended and the reliability of its supply assured through a combination of support for quasi-public-sector production, encouragement for marketing of ORS in the private sector, and strengthening of public-sector distribution capacity.

3. There will be standardized norms for treatment and maintenance therapy, as well as for a "national recipe" for a homemade ORS solution which, together with appropriate feeding, will provide the first line of defense against diarrheal dehydration and unavailability of packets.

4. All relevant health service providers, at all levels of the delivery pyramid, will be trained in the new standardized norms and in preparation and administration of ORT.

5. Through a combination of public-sector-based health education and private-sector-based mass media approaches, families will be educated about the dangers of diarrheal dehydration, the importance of ORT in preventing it, the value of appropriate feeding, and how to use ORT.

6. Informed demand for ORT will be stimulated.

7. The project will be integrated with the channelling activity in terms of benefitting from the logistics improvements achieved through PAHO technical assistance and the Immunization/Child Survival Project, similarly-produced improvements in the MSPAS Information System, and the supervisory activities carried out under the I/CS Project.

8. A critical mass of physicians will be created, supportive of ORT as the therapy of choice except in the most severe cases of diarrhea and vomiting, through a combination of mass media approaches, medical school curriculum adjustments, and the establishment of at least one ORT hospital-based training unit.

D. Project Rationale

Although one of the more economically successful countries in Central America in aggregate economic terms, Guatemala has the highest infant mortality in the region, and other indicators of mortality and morbidity reflect the generally low level of health status of the country. The high rates of diarrheal diseases, particularly among infants and children, represent a significant source of death and disability which serves to limit the overall social and economic conditions of the country, at the same time that these conditions increase the incidence of disease.

Beyond considerations of mortality, diarrhea is a debilitating experience for the infants and children in which it most frequently occurs. Each diarrheal episode deprives the child of much-needed nutrition. Failure to replace this loss results in a cumulative deficiency which is then reflected in poor rates of child growth and development and a heightened susceptibility to all diseases. While mortality is a direct result of only a relatively small percent of any given episode, frequency makes diarrhea a major contributor to all mortality and all episodes of diarrhea will be ultimately debilitating if this effect is not compensated for. This characteristic means that the costs of diarrheal diseases are reflected not only in direct mortality rates, but are reflected as well in categories of mortality and morbidity associated with other causes. The widespread chronic incidence of diarrhea throughout much of the infant and child population, which may average as much as six to ten episodes per year in children under three years of age, makes this effect of great importance in assessing the potential benefits from reduction of the impacts of diarrheal disease.

In the longer term, the incidence of diarrhea will only be reduced by modifying the basic conditions of existence. Programs of latrinization, access to potable water supplies, waste management, and rural economic development are critical elements of this process, and such efforts are already being supported by the GOG, with the assistance of a number of donors, including AID. However, the circularity between inadequate social and economic conditions and poor levels of health is well understood, and interventions at any point in that recursive cycle have the potential to produce both direct and indirect benefits.

ORT is an intervention between the incidence of diarrheal disease and the mortality and debilitation that it typically produces. It intervenes by modifying the responses to diarrhea within the home and community and throughout the health care delivery system in a way which has been shown to result in lowered mortality and morbidity and reduced nutritional diarrhea-associated deficiency. The companion analyses in this Study Team effort indicate that the constraints to wide utilization of ORT in Guatemala are found on both the supply and demand side of the health equation in terms of availability, accessibility, and utilization, and that they are economic, institutional, logistical, educational, and sociocultural.

The project expression of the ORT strategy proposed here is a balanced, large-scale national effort to increase the delivery of appropriately-produced ORT in the home and community. It would have two major components: 1) increasing effective demand for ORT by promoting awareness of its potential benefits, and 2) enhancing supply, that is, reducing limits to its widespread use through increased production and distribution through both the public and private sectors. A third component -- a combination of training, health education, and mass communication -- would serve as a bridge from consumer to supplier and facilitate the appropriate use of ORT by both client and provider. The coordination of public and private sector activities directly and indirectly associated with the project will produce an interaction on both the supply and demand sides which should enhance the potential for project benefits.

There are a number of arguments which can be advanced for the initiation of such a supply-demand-balancing strategy at this time in the context of Guatemala's current economic and social circumstances:

1. ORT works.
2. It is focused on a major health problem.
3. It is not capital-intensive and its technology is "appropriate."
4. Foreign exchange requirements are low.
5. An ORT project is consistent with other ongoing PHC strategies and can be comfortably integrated with them.
6. It is one of the major components of the worldwide Child Survival Strategy and a national and international priority.

E. Outline of the Project and How It Will Work

The project will have five basic components, whose phasing and integration and overlap will be such that their separation here is, to some extent, artificial, and principally serves the need for orderly discussion and preliminary assessment of project costs.

1. Components

The project components are:

1. Institutional Capability and Coordination
2. ORS Production
3. ORS Distribution
4. Health Education
5. Marketing and Mass Communication.

While the details of long- and short-term technical assistance for the project will be discussed below, we presently see these components as being combined, in terms of managerial and technical responsibility, as follows:

Component 1 and the various coordinating and collaborative dimensions of that role will be the principal responsibility of a team leader who should have a public health background and strong management skills. He/she will also be responsible for the HIS/MIS, monitoring, and evaluation dimensions of the project.

Components 2 and 3 will be the principal responsibility of a drug logistics expert.

Components 4 and 5 will be the principal responsibility of an individual with experience in Information, Education, and Communications (IE&C). These are all envisioned as long-term positions.

2. Tasks

a. Institutional capability and coordination

We envision this set of tasks to be the responsibility of a National ORT Coordinator who would be the project/team leader. He or she should be counterparted in the MOH in the Division de Vigilancia at an adequately high level for things to get done. We suggest that this individual be an expatriate, who will have no political history and not be politically involved or correspondingly vulnerable, would have more clout with other foreign donors, could reduce the administrative burden on USAID project management, and serve a more vigorous integrating role than that which might be achieved by a host-country individual in the same position.

The major tasks for this individual and this component would include:

-Establishment of an ORT coordinating body (committee or commission, depending on MOH preference) in the MOH, located in the Division de Vigilancia

-Coordinated planning with the Immunization/Child Survival Project, PAHO, INCAP, UNICEF, particularly with regard to training, supervision, and monitoring and evaluation.

-Coordination with faculties of medicine and national hospitals for the implementation of ORT training unit(s), establishment of oral rehydration treatment units in all Area hospitals, Health Centers, and Hospitals, and adjustments to medical curricula.

-Supervise the coordination activities of the Logistics Expert, particularly with regard to any discussions on price structuring and contractual arrangements for ORS distribution.

-Elaboration of treatment and maintenance norms and determination of a "national receipt" for homemade ORT, in conjunction with the MOH, INCAP, and any entities which have done or are doing research on home preparations.

-Coordination with the Area Health Chiefs and Area EPI Coordinators.

-Selection of candidates for short-term technical assistance.

-Supervision of the IE&C Coordinator, with particular attention to the need for a coherent, coordinated mass media strategy, approval of the MSPAS of the health and medical content of messages, consistency, and integration of supervisory activities and training materials with those of PAHO and the channelling activities.

-Collaboration with the I/CS management information system activity, the Unidad de Informatica, PAHO, and INCAP, to select indicators for monitoring and evaluation and assure that data for those indicators will be periodically and reliably gathered.

-Coordination with PVOs in general. The IE&C and Logistics Experts will carry out their own specific coordination activities in their areas of concern.

-Coordination with the USAID and the production of the project documentation required.

-Management of the project budget.

b. Logistics

-Solicit bids/initiate purchase for 2.5 million "bridge" packets for first project year, in open market.

-Coordinate with I/CS logisticians on general improvement of MOH logistics system, in conjunction with PAHO.

-Contract if necessary for interim distribution arrangements with private sector firm (Alimentos, S.A., and any others that seem feasible).

-Work with USAID to achieve final determination on location of production of ORS for public sector use.

-Establish production capability at LAPROMED.

-Carry out packet needs assessment and compensate for deficiencies in public sector, timing delivery sequence with channelling sequence so that, as demand is created, packets will be there.

-Develop pipeline strategy and assess pipeline requirements for whole country,not just in synchrony with channelling activities but also with expected impact from mass media campaigns which will be nationwide.

-Establish pipeline control methods, accounting procedures, inventory control management, etc.

-Coordination with pharmacy subsector with regard to distribution but most particularly with regard to training in that subsector, in conjunction with the IE&C Expert and entities like COCIF and the School of Pharmacy at San Carlos.

c. Information, Education, and Communication

-Once norms are adapted from WHO/PAHO norms, work with Human Resources Division to develop a series of training workshops focusing on promulgation of norms, for personnel at all delivery levels. These should include hands-on work with the preparation and administration of ORT, as well as strategies for teaching mothers the same skills as well as use of the "national recipe" for ORT.

-Coordinate with the I/CS project on development of training materials, based on review and modification of existing materials (UNICEF, PAHO, MOH, PVOs) for local-level application.

-Coordinate with I/CS and PAHO on supervision modules, to be sure ORT fully included, with all the necessary data for monitoring and evaluation.

-Collaborate with I/CS and Human Resources, as well as with Area Chiefs, in developing strategy for training and retraining of trainers, health staff, and community workers.

-Collaborate with Logistics Expert on development of training materials for pharmacists.

-Collaborate with ORT Coordinator on development of curricula and field practicums for medical students, materials for ORT hospital training units.

-With short-term technical assistance, develop mass communication and marketing strategy, together with MSPAS, private sector producer-distributor, and AED Health Communications long-term advisor.

-Manage the mass communications sequence: formative evaluation, anthropological research, message design, message testing, radio launch, etc.

-Coordination between MOH, which will be responsible for ethical and scientific content of messages, and the private-sector entity responsible for the commercial side of this activity.

-Coordination with anthropologist working on I/CS project on additional data-gathering needed for development of training materials or mass communications content, and contracting with any short-term technical assistance necessary.

3. Phasing

Year 1. Work will begin in departments where SCISN project has been functioning and has established groundwork, in the following order:
a. San Marcos. There is more bilingualism in this department, which would permit developing materials and messages first in Spanish, testing, and so forth, with modification subsequently for various language groups.
b. Totonicapan, Solola

Second Half of Year 1, Years 2 and 3. Synchronize entry into new departments with channelling (I/CS) activity.

Retraining in ORT can begin as soon as materials are ready, based on work in San Marcos, in the channelling departments of Escuintla, Santa Rosa, El Progreso, Zacapa, and Jutiapa, in a sequence to be negotiated with the I/CS and PAHO managers and technicians.

4. Conditions Precedent

a. At least partial exoneration from duties on imports of raw materials for production of social products, i.e., ORT, with some possible difference in degree of relief for quasi-public-sector (LAPROMED) and private-sector production.

b. Relief from or access to negotiation on price freezing, which makes private-sector production of social products, at least in the case of Alimentos, S.A. (Incaparina, ORT) not feasible.

c. Approval of members of startup ORT Task Forces on adaptation of WHO treatment and maintenance norms and curricula for training.

d. Approval for salts to be sold in places other than pharmacies as Over-the-Counter product that can be sold in stores.

e. A National Coordinator is named as the MOH official responsible for CDD/ORT, to be counterpart to Project Coordinator.

TABLE 1.

DONORS PROVIDING SUPPORT TO THE HEALTH SECTOR
Guatemala 1984
(Millions of U.S. dollars)

NSTITUTION	AMOUNT	PERCENT
IDB	138.4	85.8
CARE	6.7	4.2
AID	5.8	3.6
CABEI	4.0	2.5
ACDI	3.3	2.0
UNFPA	2.0	1.2
UNICEF	0.7	0.4
UNDP/PAHO	0.5	0.3
	167.9	100.0

ource: PAHO, Resumen de la Siuacion del Pais: Guatemala, May 1984.

TABLE 2

Instituciones	Hosp.	Centros Salud	Puestos Salud.	Clínicas	Camas	% de Camas
Ministerio de Salud.	35	212	577		8,506	65.5
IGSS	23	22	24		2,366	18.2
Fuerzas Armadas	1	---		45	500	3.8
Municipalidad de Guatemala			13			
Serv. Privados	59				1,619	12.5
	118	234	614	45	12,991	100.0

Source: MSPAS/PAHO, Resumen de la Situacion del Pais, Guatemala, May 1984.

NOTE: These figures do not seem to include the facilities of the Secretariat of SOcial Welfare, which has 45 Centers of Social Welfare throughout Guatemala, with a total of 51 doctors who produce 54 consultation hours daily, 5 professional nurses, and 56 nurse auxiliaries, and covers approximately 10,000 children under age seven.

TABLE 3

Indicadores seleccionados para el diagnóstico de situación de la salud maternoinfantil en la República de Guatemala y sus Departamentos
Guatemala, agosto de 1984

DEPARTAMENTO	INDICADORES DE COBERTURA DE SERVICIOS Y RECURSOS FISICOS													
	% población servida		Camas hospitalarias				Consultas por habitante (1982)	Establecimientos de salud (1983)						% partos domiciliarios 1981
								Hospitales		Centros de Salud		Puestos de Salud		
	Agua potable	Saneamiento básico (1981)	Min. Salud Pública (1983)	IGSS (1983)	Sector Público (1983)	# camas por 1000 hab. (1983)		Min. Salud	IGSS	Min. Salud	IGSS	Min. Salud	IGSS	
Guatemala	75.1	70.3	4,015	1,501	5,516	2.9	1.1	9	5	28	7	62	4	27.9
El Progreso	34.5	24.4	72	0	72	0.7	1.0	1	0	6	0	22	1	92.9
Sacatepéquez	56.7	67.1	354	0	354	2.5	0.8	3	0	3	1	16	0	73.7
Chimaltenango	34.2	38.2	29	27	56	0.2	0.3	0	2	8	0	55	2	94.7
Escuintla	15.0	14.2	305	196	501	1.0	0.5	2	3	9	1	31	2	82.3
Santa Rosa	21.6	13.3	211	15	226	0.9	0.6	1	1	10	1	42	3	95.8
Sololá	29.2	40.0	97	28	125	0.7	0.6	1	1	7	0	26	1	95.5
Totonicapán	20.6	25.6	120	12	132	0.5	0.1	1	1	8	0	17	0	97.7
Quetzaltenango	30.4	23.7	616	128	744	1.6	0.4	3	3	10	0	39	0	71.4
Suchitepéquez	17.7	16.2	360	85	445	1.4	0.4	1	3	9	0	22	0	82.3
Retalhuleu	16.4	18.2	180	53	233	1.1	0.4	1	1	6	1	15	1	79.4
San Marcos	17.2	32.6	154	84	238	0.4	0.6	1	3	14	1	56	4	96.3
Huehuetenango	20.1	11.5	218	12	230	0.4	0.2	3	1	14	0	53	2	95.2
El Quiché	14.6	20.1	170	22	192	0.4	0.1	1	1	18	0	47	2	96.7
Baja Verapaz	11.7	14.2	81	14	95	0.6	0.2	1	1	5	0	24	0	99.1
Alta Verapaz	9.1	20.5	353	31	384	1.0	0.2	1	1	14	0	29	4	90.4
El Petén	N.D.	84.9*	205	15	220	2.1	0.5	2	3	6	0	27	0	77.6
Izabal	22.8	31.7	360	48	408	1.3	0.4	2	1	7	1	12	2	82.7
Zacapa	33.8	53.7	268	32	300	2.0	0.6	1	1	8	1	22	0	68.2
Chiquimula	24.7	15.0	194	34	228	1.0	0.3	1	1	7	0	11	0	89.4
Jalapa	18.7	15.0	204	26	230	1.4	0.2	1	1	5	0	7	0	90.7
Jutiapa	31.8	8.1	155	0	155	0.5	0.2	1	0	8	1	45	0	86.1
República	33.8	24.0	8,714	2363	11,077	1.4	0.5	38	34	210	15	380	28	77.5

* No incluye asentamientos.

Source: Plan Nacional de Supervivencia Infantil, Guatemala 1985-1989.

TABLE 4

LISTA DE HOSPITALES PERTENECIENTES AL MINISTERIO DE SALUD PUBLICA Y ASISTENCIA SOCIAL

1. HOSPITAL GENERAL SAN JUAN DE DIOS.
2. HOSPITAL ROOSEVELT.
3. HOSPITAL DE SALUD MENTAL DRS. CARLOS FEDERICO MORA Y F. MOLINA.
4. SANATORIO ANTITUBERCULOSO SAN VICENTE.
5. HOSPITAL DE RECUPERACION DE LISIADOS.
6. HOSPITAL INFANTIL DE INFECTOLOGIA Y REHABILITACION.
7. HOSPITAL NACIONAL DE AMATITLAN.
8. HOSPITAL INTEGRADO DE EL PROGRESO.
9. HOSPITAL NACIONAL PEDRO DE BETHANCOURT DE ANTIGUA.
10. HOGAR DE ANCIANOS FRAY RODRIGO DE LA CRUZ.
11. HOSPITAL INTEGRADO DE CHIMALTENANGO.
12. HOSPITAL NACIONAL DE ESCUINTLA.
13. HOSPITAL NACIONAL DE TIQUISATE.
14. HOSPITAL NACIONAL DE CUILAPA.
15. HOSPITAL NACIONAL DE SOLOLA.
16. HOSPITAL NACIONAL DR. JOSE FELIPE FLORES DE TOTONICAPAN.
17. HOSPITAL GENERAL SAN JUAN DE DIOS DE OCCIDENTE DE QUETZALTENANGO.
18. HOSPITAL RODOLFO ROBLES (CLINICA DEL TORAX) DE QUETZALTENANGO.
19. HOSPITAL NACIONAL DR. JUAN J. ORTEGA DE COATEPEQUE.
20. HOSPITAL NACIONAL DE MAZATENANGO.
21. HOSPITAL NACIONAL DE RETALHULEU.
22. HOSPITAL NACIONAL DE SAN MARCOS.
23. HOSPITAL NACIONAL DE HUEHUETENANGO.
24. HOSPITAL DE SAN PEDRO NECTA.
25. HOSPITAL NACIONAL SANTA ELENA DE LA CRUZ DE QUICHE.
26. HOSPITAL NACIONAL DE SALAMA BAJA VERAPAZ.
27. HOSPITAL NACIONAL HELEN LOSSI DE LANGUERUD COBAN ALTA VERAPAZ.
28. HOSPITAL NACIONAL DE SAN BENITO PETEN.
29. HOSPITAL NACIONAL DE MELCHOR DE MENCOS.
30. HOSPITAL NACIONAL GRAL. KJEL EUGENIO LANGUERUD GARCIA DE PUERTO BARRIOS.
31. HOSPITAL INFANTIL ELISA MARTINEZ DE PUERTO BARRIOS.
32. HOSPITAL NACIONAL DE ZACAPA.
33. HOSPITAL NACIONAL DE CHIQUIMULA.
34. HOSPITAL NACIONAL NICOLASA CRUZ DE JALAPA.
35. HOSPITAL NACIONAL DE JUTIAPA.

IJHR. UNIDAD DE PROGRAMACION.

TABLE 4 (cont.)

RESUMEN DE FUNCIONAMIENTO DE CENTROS Y PUESTOS DE SALUD
1,985

AREA DE SALUD	CENTROS DE SALUD 1	CENTROS DE SALUD 2	PUESTOS DE SALUD 1	PUESTOS DE SALUD 2
GUATEMALA NORTE.	13	-	27	1
GUATEMALA SUR.	13	-	21	8
AMATITLAN.	3	-	11	-
PROGRESO.	6	-	22	-
SACATEPEQUEZ.	3	-	16	-
CHIMALTENANGO.	9	-	50	5
ESCUINTLA.	9	-	31	2
SANTA ROSA.	10	-	41	6
SOLOLA.	7	-	26	-
TOTONICAPAN.	7	-	17	-
QUETZALTENANGO.	10	-	40	3
SUCHITEPEQUEZ.	9	-	23	-
PETALHULEU.	6	-	15	2
SAN MARCOS.	15	-	61	4
HUEHUETENANGO.	13	-	49	16
QUICHE.	15	3	39	22
BAJA VERAPAZ.	7	-	21	1
ALTA VERAPAZ.	15	-	28	4
PETEN.	5	-	27	5
IZABAL.	7	-	24	3
ZACAPA.	9	-	19	27
CHIQUIMULA.	7	-	11	-
JALAPA.	5	-	7	5
JUTIAPA.	9	-	47	-
TOTAL REPUBLICA:	211	3	666	89

FUENTE: UNIDAD DE PROGRAMACION. UNRF

1. FUNCIONANDO.

TABLE 4 (concluded)

CAMAS HOSPITALARIAS

MINISTERIO DE SALUD PUBLICA Y ASISTENCIA SOCIAL

	No. Camas.
HOSPITAL SAN JUAN DE DIOS.	903
HOSPITAL DE SALUD MENTAL.	512
CENTRO DE RECUPERACION DE LISIADOS.	350
HOSPITAL ROOSEVELT.	920
HOSPITAL ANTITUBERCULOSO SAN VICENTE.	500
HOSPITAL DE INFECTOLOGIA.	210
HOSPITAL DE AMATITLAN.	292
HOSPITAL DE EL PROGRESO.	50
HOSPITAL PEDRO DE BETHANCOURT.	177
HOSPITAL DE ANCIANOS FRAY RODRIGO DE LA CRUZ.	110
HOSPITAL DE CHIMALTENANGO.	50
HOSPITAL DE ESQUINTLA.	210
HOSPITAL DE TIQUISATE.	90
HOSPITAL DE CUILAPA.	200
HOSPITAL DE SOLOLA	100
HOSPITAL DE TOTONICAPAN.	100
HOSPITAL DE OCCIDENTE.	304
HOSPITAL RODOLFO ROBLES	142
HOSPITAL DE COATEPEQUE.	200
HOSPITAL DE SUCHITEPEQUEZ.	260
HOSPITAL DE RETALHULEU.	218
HOSPITAL DE SAN MARCOS.	170
HOSPITAL DE HUEHUETENANGO.	120
HOSPITAL SAN PEDRO NECTA.	30
HOSPITAL DE QUICHE.	140
HOSPITAL DE SALAMA, BAJA VERAPAZ.	86
HOSPITAL DE COBAN, ALTA VERAPAZ.	295
HOSPITAL DE SAN PEDRO, PETEN.	83
HOSPITAL DE MELCHOR DE MENCOS.	60
HOSPITAL DE PUERTO BARRIOS.	166
HOSPITAL INFANTIL ELISA MARTINEZ.	108
HOSPITAL DE ZACAPA.	237
HOSPITAL DE CHIQUIMULA.	210
HOSPITAL NICOLASA CRUZ DE JALAPA.	193
HOSPITAL DE JUTIAPA	164
TOTAL REPUBLICA.	7,960

FUENTE: UNIDAD DE PROGRAMACION.

IJMF

76

TABLE 5

RECURSO HUMANO DEL MINISTERIO DE SALUD PUBLICA Y ASISTENCIA SOCIAL
1984

RECURSO	NUMERO PERSONAL
1. Médicos	1,315
2. Odontólogos	118
3. E.P.S.	419
4. Enfermeras Graduadas	867
5. Auxiliares de Enfermeria	4,807
6. Inspectores de Saneamiento	303
7. Trabajadores Sociales	114
8. Laboratoristas Clínico	410
9. Operador Equipo de Radiología	146
10. Nutricionistas	24
11. Oficinistas de Estadística	80
12. Químico Biólogo y Farmacéutico	18
13. Auxiliares en Farmacia	129
14. Otros	5,215
T O T A L	13,965

zeldeh.

* No incluye personal por contrato y por planilla.
Fuente: Unidad de Programación.

(MSPAS, Memoria de Labores, Ano 1984, Guatemala, August 1985.)

TABLE 5a

AVAILABLE MANPOWER RESOURCES AT THE HEALTH CENTER LEVEL

Guatemala - 1985

Area	Number Health Centers	Physicians		Nurses		Social Workers		Sanitary Inspectors		Auxiliary Nurses		Rural Health Technicians		Total No. Health Center Personnel	
		Total	per HC	Total	per HC	Total	per HC	Total	per HC	Total	per HC	Total	per HC	Total	per HC
Escuintla	9	9	1.0	9	1.0	1	0.1	9	1.0	36	4.0	7	0.8	71	7.9
El Progreso	7	7	1.0	7	1.0	1	—	—	—	30	—	—	—	55	9.0
Santa Rosa	10	11	1.1	10	1.0	1	0.2	10	1.0	47	4.7	10	1.0	90	9.0
Sacatepéquez	3	4	1.3	3	1.0	2	1.0	4	1.3	14	4.7	2	0.7	30	10.0
Zacapa	9	19	2.0	9	1.0	1	—	11	1.2	27	3.0	3	0.3	69	7.7
Chiquimula	7	9	1.3	7	1.0	1	—	7	1.0	28	4.0	12	1.7	63	9.0
Jalapa	5	6	1.2	5	1.0	1	—	6	1.2	20	4.0	1	0.2	38	7.6
Jutiapa	8	11	1.4	7	1.0	1	—	11	1.4	18	2.3	—	—	47	5.9
Sololá	7	7	1.0	7	1.0	1	—	8	1.1	17	2.4	6	1.0	45	6.4
Totonicapán	8	—	—	—	—	1	—	—	—	21	—	—	—	—	—
San Marcos	14	16	1.1	14	1.0	1	—	15	1.1	56	4.0	8	0.6	109	7.8
Chimaltenango	10	10	1.0	9	0.9	1	0.6	22	2.2	44	4.4	12	1.2	103	10.3
Quetzaltenango	10	14	1.4	10	1.0	3	0.3	13	1.3	67	6.7	2	0.2	109	10.9
El Quiché	17	27	1.8	24	1.6	2	0.8	15	1.0	87	5.8	15	1.0	180	12.0
Huehuetenango	13	17	1.3	16	1.2	1	—	15	1.2	50	3.8	29	2.2	127	9.8
Suchitepéquez	9	9	1.0	9	1.0	1	0.3	11	1.2	36	4.0	13	1.4	81	9.0
Retalhuleu	6	6	1.0	6	1.0	1	—	6	1.0	18	3.0	—	—	36	6.0
Alta Verapaz	14	23	1.6	19	1.4	1	—	—	—	67	4.8	33	2.4	142	10.1
Baja Verapaz	6	11	1.8	9	1.5	1	—	8	1.3	32	5.3	23	3.8	83	13.8
Izabal	7	9	1.3	6	0.9	1	—	9	1.3	26	3.7	12	1.7	62	8.9
El Petén	6	7	1.0	7	1.0	1	0.3	9	1.3	28	4.0	18	2.8	71	10.1
TOTALS	185	232	1.3+	193	1.1+	25	0.2*	189	1.1+	769	4.2+	206	1.2+	1611	9.2+

* Data not available.

\+ Average number personnel by type per Health Center not including Totonicapán.

Sources: Planes Operativos, 1985 from Individual Health Areas in Guatemala; Unidad de Información de la DGSS "Infraestructura de Servicios del Ministerio de Salud Pública y Asistencia Social."

TABLE 6

Guatemala, agosto de 1984

INDICADORES DE RECURSOS HUMANOS INSTITUCIONALES Y COMUNITARIOS (1983)

DEPARTAMENTOS	MEDICO		ENFERMERA		AUXILIAR DE ENFERMERIA		TECNICO DE SALUD		TECNICO INSPECTOR		COMADRONA*		PROMOTOR	
	#	Tasa*	#	Tasa*	#	Tasa *	#	Tasa *	#	Tasa *	#	Tasa *	#	Tasa *
Guatemala	452	2.8	373	2.3	2,289	14.1	0	-	53	0.3	430	2.6	50	0.3
El Progreso	11	1.1	11	1.1	85	8.7	16	1.6	9	0.9	344	24.9	142	14.5
Sacatepéquez	28	2.1	18	1.4	117	8.9	12	0.9	4	0.3	104	7.9	55	4.2
Chimaltenango	17	0.7	16	0.6	95	3.7	21	0.8	2	0.1	315	13.8	118	4.6
Escuintla	56	1.2	35	0.8	223	4.9	7	0.2	13	0.3	274	6.0	15	0.3
Santa Rosa	34	1.4	33	1.4	201	8.3	8	0.3	11	0.5	190	7.9	197	8.2
Sololá	13	0.7	14	0.8	67	4.0	14	0.8	7	0.4	168	10.0	150	8.9
Totonicapán	19	0.8	15	0.7	90	3.9	12	0.5	6	0.3	301	13.2	165	7.2
Quetzaltenango	76	1.8	57	1.3	300	7.0	21	0.5	15	0.3	450	10.5	259	6.0
Suchitepéquez	31	1.1	17	0.6	130	4.5	13	0.5	11	0.4	438	10.3	135	4.6
Retalhuleu	23	1.2	13	0.7	96	5.0	0		15	0.8	154	8.0	44	2.3
San Marcos	26	0.5	23	0.4	155	2.9	24	0.4	16	0.3	410	7.8	274	5.2
Huehuetenango	31	0.6	23	0.5	166	3.3	28	0.6	15	0.3	382	7.7	722	14.6
El Quiché	36	0.9	26	0.6	185	4.5	29	0.7	18	0.4	444	10.8	45	1.1
Baja Verapáz	16	1.1	10	0.7	77	5.2	19	1.3	17	0.5	90	6.1	98	6.7
Alta Verapáz	48	1.3	43	1.2	192	5.1	25	0.7	17	0.4	302	8.0	218	5.8
El Petén	24	2.6	15	1.6	125	13.3	18	1.9	7	0.7	141	15.1	241	25.8
Izabal	26	1.0	38	1.4	184	6.9	28	1.0	10	0.4	77	2.9	59	2.2
Zacapa	25	1.7	18	1.2	111	7.6	19	1.3	11	0.8	127	8.7	201	13.8
Chiquimula	25	1.2	19	0.9	93	4.4	18	0.8	9	0.4	132	6.2	176	8.3
Jalapa	15	0.9	10	0.6	66	4.2	8	0.5	7	0.4	124	7.9	151	9.6
Jutiapa	23	0.7	15	0.5	123	3.9	15	0.5	11	0.3	89	2.8	215	6.8
República	1,055	1.4	844	1.2	5,170	7.1	355	0.5	228	0.4	5,286	7.3	3,730	5.1

* por 10,000 habitantes

Source: Plan Nacional de Supervivencia Infantil, Guatemala, 1985-1989.

TABLE 7

MSPAS HUMAN RESOURCES AT THE COMMUNITY LEVEL

Personal Adiestrado	Número	Activos
Comadronas	8,000	6,695
Promotores	6,646	4,959
Voluntarios de Malaria	7,000	5,250
Total	21,546	16,904

TABLE 8

RESUMEN PRODUCCION DE ACTIVIDADES POR COMADRONA TRADICIONAL ADIESTRADA

REPUBLICA DE GUATEMALA 1984

	ACTIVIDADES	NUMERO
1.	Número de embarazadas atendidas	88,034
2.	Número de controles a embarazadas	311,314
3.	Promedio de controles por embarazada	4
4.	Número de partos atendidos	92,470
5.	Número de puérperas atendidas	85,376
6.	Número de controles a puérperas	332,351
7.	Promedio de controles a puérperas	4
8.	Número de recién nacidos atendidos	86,408
9.	Número de controles a recién nacidos	301,010
10.	Promedio de controles a recien nacidos	3
	Total, actividades realizadas	1,037,145

Fuente: Informe areas de Salud. zeldeh.
(MSPAS, Memoria de Labores, Ano 1984, Guatemala, August 1985).

ATENCION PRENATAL POR PERSONAL COMUNITARIO

COMADRONA TRADICIONAL ADIESTRADA

REPUBLICA DE GUATEMALA 1984

AREA DE SALUD	No. COMADRONAS ADIESTRADAS ACTIVAS	EMBARAZADAS ATENDIDAS	TOTAL DE CONTROLES
Guatemala Norte	214	559	2615
Guatemala Sur	124	3824	5275
Amatitlán	133	1840	8556
Progreso	198	258	204
Sacatepéquez	83	-	-
Chimaltenango	409	9603	45656
Escuintla	324	5647	16764
Santa Rosa	331	2477	14589
Sololá	274	1497	2980
Totonicapán	378	5265	23242
Quetzaltenango	533	7207	27716
Suchitepéquez	285	4510	16580
Retalhuleu	158	3127	12865
San Marcos	466	5270	16088
Huehuetenango	724	6950	26016
Quiché	433	7203	21607
Baja Verapáz	171	3311	6850
Alta Verapaz	273	2616	6529
Pétén	174	2841	11876
Izabal	145	1508	6351
Zacapa	125	987	3812
Chiquimula	222	1607	5827
Jalapa	256	4224	12690
Jutiapa	262	5703	16626
TOTAL REPUBLICA	6695	88034	311314

Fuente: Unidad de Programación. (MSPAS, Memoria de Labores Año 1984, Guatemala. Auger-Zeldah.

82

ATENCION DEL PARTO POR PERSONAL COMUNITARIO

COMADRONA TRADICIONAL ADIESTRADA

REPUBLICA DE GUATEMALA 1984

AREA DE SALUD	No. COMADRONAS ADIESTRADAS ACTIVAS	No. DE PARTOS ATENDIDOS
Guatemala Norte	214	1490
Guatemala Sur	124	4279
Amatitlán	133	1536
Progreso	198	258
Sacatepéquez	83	3200
Chimaltenango	409	9357
Escuintla	324	5025
Santa Rosa	331	3115
Sololá	274	1710
Totonicapán	378	6083
Quetzaltenango	533	6296
Suchitepéquez	285	5813
Retalhuleu	158	3135
San Marcos	466	5461
Huehuetenango	724	7850
Quiché	433	6462
Baja Verapáz	171	3238
Alta Verapaz	273	2598
Petén	174	2561
Izabal	145	1468
Zacapa	125	752
Chiquimula	222	1646
Jalapa	256	3792
Jutiapa	262	5345
TOTAL REPUBLICA	6695	92470

Fuente: MSPAS, Memoria de Labores, Ano 1984, Guatemala, August 1985. zeldeh.

ATENCION EN PUERPERIO POR PERSONAL COMUNITARIO

COMADRONA TRADICIONAL ADIESTRADA

REPUBLICA DE GUATEMALA 1984

AREA DE SALUD	No. DE PUERPERAS ATENDIDAS	No. DE CONTROLES A PUERPERAS
Guatemala Norte	530	1488
Guatemala Sur	4279	10395
Amatitlán	1215	3509
Progreso	258	136
Sacatepéquez	-	-
Chimaltenango	9085	36642
Escuintla	5025	21374
Santa Rosa	2623	13361
Sololá	1579	20254
Totonicapán	6034	24888
Quetzaltenango	6842	32622
Suchitepéquez	4675	19103
Retalhuleu	3124	16706
San Marcos	5860	20921
Huehuetenango	6770	25426
Quiché	6462	18341
Baja Verapaz	3242	12688
Alta Verapaz	2572	8142
Petén	2398	10293
Izabal	1434	5843
Zacapa	834	3459
Chiquimula	1519	4405
Jalapa	3628	8813
Jutiapa	5388	13542
TOTAL REPUBLICA	85376	332351

Fuente: Información Areas de Salud. zeldeh.
(MSPAS, Memoria de Labores, Año 1984, Guatemala, August 1985).

ATENCION A RECIEN NACIDOS POR PERSONAL COMUNITARIO

COMADRONA TRADICIONAL ADIESTRADA

REPUBLICA DE GUATEMALA 1984

AREA DE SALUD	RECIEN NACIDOS ATENDIDOS	No. DE CONTROLES A RECIEN NACIDOS
Guatemala Norte	1026	1721
Guatemala Sur	4285	9368
Amatitlán	1536	4202
Progreso	258	136
Sacatepéquez	-	-
Chimaltenango	9110	33161
Escuintla	5094	22120
Santa Rosa	2590	12440
Sololá	1622	4615
Totonicapán	6093	24575
Quetzaltenango	6743	32420
Suchitepéquez	3811	15325
Retalhuleu	3345	16578
San Marcos	5565	21882
Huehuetenango	7027	24635
Quiché	6462	12746
Baja Verapaz	3304	12256
Alta Verapaz	2599	8464
Petén	2956	9305
Izabal	1592	5348
Zacapa	768	3280
Chiquimula	1519	4256
Jalapa	3791	8930
Jutiapa	5312	13247
TOTAL REPUBLICA	86408	301010

Fuente: Información Areas de Salud. zeldeh.
(MSPAS, Memoria de Laobres, Año 1984, Guatemala, 1985).

TABLE 9

RESUMEN PRODUCCION DE ACTIVIDADES POR PROMOTOR RURAL DE SALUD

REPURLICA DE GUATEMALA 1984

ACTIVIDADES	NUMRO
1. Número de viviendas en control	161,183
2. Número de visitas a viviendas	309.520
3. Número de viviendas promovidas por el PAI.	18,871
4. Número de niños menores de 6 años con hi - dratación oral.	51,007
5. Número de familias en control por planificación familiar.	1,632

Fuente: Información Areas de Salud.
(MSPAS, Memoria de Labores, Ano 1984, Guatemala, August 1985).

zeldeh.

PRODUCCION DE ACTIVIDADES POR PROMOTOR RURAL DE SALUD

AREAS DE SALUD REPUBLICA DE GUATEMALA 1984

AREA DE SALUD	PROMOTORES ACTIVOS	VIVIENDAS EN CONTROL	No.TOTAL DE VISITAS	FAMILIAS EN CONTROL POR PLANIF.FAM.
Guatemala Norte	125	789	817	44
Guatemala Sur	-	-	-	-
Amatitlán	32	1235	-	-
Progreso	355	6567	21837	7
Sacatepéquez	121	-	-	-
Chimaltenango	228	3362	3904	17
Escuintla	120	2726	3636	437
Santa Rosa	214	8613	5424	113
Sololá	179	8036	10761	32
Totonicapán	253	9241	20078	14
Quetzaltenango	242	6899	12375	36
Suchitepéquez	177	6036	10471	17
Retalhuleu	72	302	10	50
San Marcos	413	15179	32845	165
Huehuetenango	502	28589	36404	47
Quiché	226	5970	10010	1
Baja Verapaz	72	2451	8012	138
Alta Verapaz	430	14933	18452	112
Petén	136	4517	15264	-
Izabal	80	769	4502	66
Zacapa	309	9051	24675	128
Chiquimula	318	10053	48789	129
Jalapa	153	7906	9950	79
Jutiapa	202	7959	11304	-
TOTAL REPUBLICA	4959	161183	309520	1632

Fuente: Información Areas de Salud.
(MSPAS, Memoria de Labores, Ano 1984, Guatemala, August 1985).

zeldeh.

TABLE 10

AVAILABLE MANPOWER RESOURCES AT THE HEALTH POST LEVEL
Guatemala - 1984

Area	Health Posts	Health Centers	% Accessible Pop.	Auxiliary Nurse (AN) Total	Auxiliary Nurse (AN) per HP	Rural Health Technicians Total	Rural Health Technicians per HP	Rural Health Promotors Total	Rural Health Promotors per HP	Trained Traditional Midwives Total	Trained Traditional Midwives per HP	Number of Houses per HP	Number of Houses per AN/RHT	No. Houses per Health Promotor
Escuintla	32	9	89	31	1.0	—	—	710	22.9	472	15.2	1,615	1,615	76
El Progreso	22	7	82	22	1.0	14	0.6	334	15.2	202	9.2	899	562	59
Santa Rosa	41	10	87	44	1.0	—	—	213	5.1	332	7.9	746	746	146
Sacatepéquez	16	3	93	27	1.7	11	0.7	225	140	105	6.6	1,287	536	92
Zacapa	19	9	68	19	1.0	19	1.0	314	16.5	161	8.5	609	304	37
Chiquimula	11	7	63	11	1.0	11	1.0	412	37.5	443	40.2	1466	733	39
Jalapa	7	5	66	7	1.0	7	1.0	198	28.0	264	37.7	1,716	858	61
Jutiapa	44	8	74	46	1.0	14	0.3	203	4.4	464	10.1	776	597	176
Sololá	27	7	75	27	1.0	18	0.7	252	9.3	293	10.9	701	413	75
Totonicapán	17	8	17	—	—	—	—	—	—	—	—	—	—	—
San Marcos	56	14	71	69	1.0	1	—	797	12.1	750	11.4	856	856	71
Chimaltenango	49	10	90	53	1.0	—	—	189	3.4	409	7.4	713	713	215
Quetzaltenango	38	10	73	31	0.8	19	0.5	260	6.8	447	11.8	1,200	923	176
El Quiché	47	17	63	35	1.0	35	1.0	161	4.6	446	12.7	793	397	172
Huehuetenango	59	13	64	52	1.0	—	—	—	—	—	—	896	896	—
Suchitepéquez	23	9	85	22	1.0	—	—	214	9.7	285	13.0	1,523	1,523	157
Retalhuleu	15	6	86	15	1.0	—	—	108	7.2	191	12.7	1,482	1,482	266
Alta Verapaz	29	14	35	26	1.0	—	—	277	10.7	176	6.8	654	654	61
Baja Verapaz	22	6	62	22	1.0	—	—	165	7.5	171	7.8	577	577	77
Izabal	14	7	77	12	1.0	12	1.0	203	16.9	225	18.8	1,983	992	117
El Petén	16	6	81	28	1.0	—	—	247	8.8	161	5.8	747	747	85
TOTAL	624	185		612	1.0+	161	0.3+	5,800	10.7+	6,400	11.8+			

* Data not available.

\+ Average number personnel by type per Health Post in districts for which data are available.

Sources: Planes Operativos, 1985 for Individual Health Areas in Guatemala; Unidad de Información de la DGSS "Infraestructura de Servicios del Ministerio de Salud Pública y Asistencia Social.

TABLE 11

No.	AREAS DE SALUD	TOTAL	POBLACIONES POR GRUPOS PROGRAMATICOS				
			-1 AÑO	1-4 AÑOS	5/14 AÑOS	FEMENINA 15-44	RESTO DE * POBLACION
1.	Guatemala Norte	646030	18545	117066	118436	175434	216549
2.	Guatemala Sur	928928	44783	215530	206560	231102	230953
3.	Amatitlán	253395	3525	60235	51242	56766	71627
4.	Progreso	89808	3803	17094	19595	19664	29652
5.	Sacatepéquez	143806	4381	26464	31161	37028	44772
6.	Chimaltenango	246544	10653	46364	55325	60229	73973
7.	Escuintla	352554	15559	95189	77942	75127	88737
8.	Santa Rosa	216795	8457	41835	49850	44775	71878
9.	Sololá	168635	6669	35215	38757	37251	50743
10.	Totonicapán	233531	11387	41471	52319	57362	70992
11.	Quetzaltenango	445736	17376	97903	100058	101628	120771
12.	Suchitepéquez	264234	12938	42790	53926	59197	95383
13.	Retalhuléu	152691	7099	32026	35465	32249	45852
14.	San Marcos	522787	25114	113634	118365	109855	155814
15.	Huehuetenango	464838	26098	95402	101304	98049	143985
16.	Quiché	382251	16222	79591	89818	82285	114335
17.	Baja Verapaz	130334	8267	31453	30506	33498	26610
18.	Alta Verapaz	356868	18433	68412	76980	83472	109571
19.	Petén	162125	7878	35109	35840	35491	47807
20.	Izatal	221518	9088	42309	50727	51795	67599
21.	Zacapa	122278	5201	21942	26815	25555	42725
22.	Chiquimula	200432	8325	36901	45642	43117	66447
23.	Jalapa	148502	6528	31115	35669	33908	41282
24.	Jutiapa	277764	10507	59228	66372	56348	85309
	REPUBLICA	7132381	306837	1484280	1576674	1651185	2113406

* Femenina de 44 y más
Masculino de 15 y más.

Fuente: Unidad de Programación.
(MSPAS, Memoria de Labores, 1984, Guatemala, August 1985.

zeldeh.

TABLE 12

ATENCION CONSULTA EXTERNA A MENORES DE UN AÑO

(COBERTURA INSTITUCIONAL)

REPUBLICA DE GUATEMALA 1984

AREA DE SALUD	POBLACION MENOR DE UN AÑO	PRIMERAS CONSULTAS	RECONSULTAS	TOTAL DE CONSULTAS
Guatemala Norte	18545	6927	15257	22184
Guatemala Sur	44783	9049	8767	17816
Amatitlán	3525	1900	6957	8857
Progreso	3803	2914	8003	10669
Sacatepéquez	4381	4568	5654	12571
Chimaltenango	10653	9444	9104	15098
Escuintla	15559	10523	13770	19627
Santa Rosa	8457	[illegible]	9512	19542
Sololá	6669	5020	5562	14532
Totonicapán	11387	4208	15463	9770
Quetzaltenango	17376	9562	7198	25025
Suchitepéquez	12938	5518	7411	12716
Retalhuleu	7099	2434	16172	9845
San Marcos	25114	13546	14972	29718
Huehuetenango	26092	13212	11698	28184
Quiché	16222	5849	5825	17547
Baja Verapaz	8267	6552	6338	12377
Alta Verapaz	18433	8189	12642	14527
Petén	7878	3752	5995	16394
Izabal	9088	3777	6972	9772
Zacapa	5201	2557	3883	9529
Chiquimula	8326	5603	7755	9487
Jalapa	6728	3952	3264	7216
Jutiapa	10507	7986	12891	20877
TOTAL REPUBLICA	306837	152814	221065	373879

Fuente: zeldeh.

Unidad de Programación (MSPAS, Memora de Labores, Ano 1984, Guatemala, August 1985.)

TABLE 13

ATENCION CONSULTA EXTERNA A NIÑOS DE 1-4 AÑOS

(COBERTURA INSTITUCIONAL)

REPUBLICA DE GUATEMALA 1984

AREA DE SALUD	POBLACION 1-4 AÑOS	PRIMERAS CONSULTAS	RECONSUL-TAS	TOTAL DE CONSULTAS
Guatemala Norte	117066	14242	32674	46916
Guatemala Sur	215530	17304	20210	37514
Amatitlán	60235	3935	13639	17574
Progreso	17094	5644	21687	27331
Sacatepéquez	26464	10467	19430	29897
Chimaltenango	46364	21069	15973	37042
Escuintla	95189	19892	22707	42599
Santa Rosa	41835	15013	32307	47320
Sololá	35215	12735	22660	35395
Totonicapán	41471	7095	13372	20467
Quetzaltenango	97903	14817	56791	71608
Suchitepéquez	42790	9070	15879	24949
Retalhuleu	32026	5131	15747	20878
San Marcos	113636	33683	49049	82732
Huehuetenango	95402	28249	28775	57024
Quiché	79591	18818	37636	56454
Baja Verapáz	31453	11969	13051	25020
Alta Verapaz	68412	18148	18518	36666
Petén	35109	10547	21425	31972
Izabal	42309	9124	14723	23847
Zacapa	21942	6431	16076	22507
Chiquimula	36901	11117	10375	21492
Jalapa	31115	6039	11800	17839
Jutiapa	59228	16546	28026	44572
TOTAL REPUBLICA	1484280	326985	552530	879515

Fuente: Unidad de Programación. zelden.

(MSPAS, Memoria de Labores, Ano 1984, Guatemala, August 1985.)

TABLE 14

REPUBLICA DE GUATEMALA

COBERTURA INSTITUCIONAL

1984

COBERTURA DE PROGRAMAS	% TOTAL	TRAMOS DE POBLACION										
		-50	50-99	100-199	200-299	300-499	500-999	1,000 1,999	2,000 4,999	5,000 9,999	10,000 99,999	100,000 Y MAS
MENORES DE 1 AÑO	49.60	2.31	1.65	2.80	6.91	9.87	22.78	54.18	108.67	132.59	61.35	9.09
DE 1 A 4 AÑOS	22.03	1.13	0.44	1.11	3.41	5.64	11.50	28.48	48.91	46.25	24.15	1.52
DE 5 A 14 AÑOS	10.21	0.30	0.12	0.61	1.29	2.28	5.42	12.05	22.38	20.36	12.41	3.15
PRENATALES	6.48	0.34	0.11	0.30	0.84	0.89	2.90	6.34	13.80	11.63	9.32	0.67
POSTNATALES	1.90	0.12	0.50	0.38	0.54	1.21	1.80	3.02	2.01	3.21	3.02	0.09
PLANIFICACION FAMILIAR	1.84	0.14	0.46	0.35	0.52	1.18	1.63	2.97	2.06	3.40	3.06	0.07
MORBILIDAD GENERAL	36.32	0.34	0.12	4.50	6.61	9.72	23.25	41.68	57.00	50.02	56.09	2.68
CONSULTA ODONTOLOGICA	2.26	-	-	-	-	-	0.13	0.01	2.31	2.48	6.92	3.60
T O T A L	24.21	0.65	0.26	1.50	3.61	5.32	12.72	25.78	43.87	39.91	37.70	5.58

JAG

Source: MSPAS, Basic Health Sector Data, no official title, 1984.

TABLE 14a

EVALUACION DEL PROGRAMA MATERNO-INFANTIL Y FAMILIAR
MINISTERIO DE SALUD PUBLICA Y ASISTENCIA SOCIAL
DIRECCION GENERAL DE SERVICIOS DE SALUD
DIVISION DE ATENCION A LAS PERSONAS
GUATEMALA

CONSOLIDADO NACIONAL

HOSPITALES							
OBSTETRICIA		PEDIATRIA		CENTRO DE SALUD		PUESTO DE SALUD	
IV	19.88%	IV	14.54%	III	44.18%	III	39.09%
II	34.12%	I	36.64%	V	53.31%	V	37.29%
I	42.42%	II	33.60%	I	60.26%	II	45.35%
VII	56.16%	VII	45.12%	VII	63.17%	IV	47.55%
III	60.0 %	VI	57.04%	II	63.71%	VI	51.06%
V	61.14%	III	58.60%	VI	64.25%	VII	58.69%
VI	64.94%	V	71.06%	IV	67.45%	I	60.17%

I RECURSOS
II PLANIFICACION, ORGANIZACION, ADMINISTRACION
III SUPERVISION
IV CAPACITACION
V SISTEMA DE INFORMACION
VI LOGISTICA
VII EDUCACION Y PROMOCION DE LA SALUD Y PARTICIPACION COMUNITARIA.

TABLE 14b

EVALUACION DEL PROGRAMA MATERNO-INFANTIL Y FAMILIAR
MINISTERIO DE SALUD PUBLICA Y ASISTENCIA SOCIAL
DIRECCION GENERAL DE SERVICIOS DE SALUD
DIVISION DE ATENCION A LAS PERSONAS
GUATEMALA.

Resultados del nivel nacional DE OBSTETRICIA

Area / Categoría	norte 1	sur 2	Amatitlán 3	Sacatepq. 4	Chimalt. 5	Sololá 6	Quiché 7	Huehuet. 8	Toton. 9	Quetzalt. 10	Sn. Marc. 11	Escuintla 12	Suchitep. 13	Retalhu. 14	Sta. Rosa 15	Jutiapa 16	Jalapa 17	Progreso 18	Baja V. 19	Alta Vc. 20	Zacapa 21	Izabal 22	Petén 23	Chiquim. 24	% Promedio	Orden de Prioridad.
I Recursos					80		34.4							27.9								47	22.8		42.42	3
II Planificación, Organización Administración.					53.1		27.3							32.9								27.3	30		34.12	2
III Supervisión.					50		61.1							66.7								55.6	66.6		60	5
IV Capacitación					16.7		20							33.3								13.3	16.1		19.88	1
V Sistema de Información.					100		50							41.7								50	64		61.14	6
VI Logística					99		56							61.8								64.5	42.9		64.84	7
VII Educación y Promoción de la salud y Participación comunitaria.					66.3		20							60								34.2	73.3		56.16	4

TABLE 14c

EVALUACION DEL PROGRAMA MATERNO-INFANTIL Y FAMILIAR
MINISTERIO DE SALUD PUBLICA Y ASISTENCIA SOCIAL
DIRECCION GENERAL DE SERVICIOS DE SALUD
DIVISION DE ATENCION A LAS PERSONAS
GUATEMALA.

Resultados del nivel nacional Pediatría

	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	% Promedio	Orden de prioridad.
I Recursos					49		19.4							41.7								48.2	24.9		36.64	2
II Planificación, Organización Administrativa.					57.5		30.8							41.8								36.3	27.4		38.60	3
III Supervisión.					80		40							60								60	53		58.60	6
IV Capacitación					30.7		6.6							--								--	35.4		14.54	1
V Sistema de Información					100		46.6							80								66.6	62.1		71.06	7
VI Logística					90.6		43.4							56.6								49.1	45.5		57.04	5
VII Educación y Promoción de la salud y participación comunitaria.					70.4		26							51.9								48.1	52.6		45.12	4

TABLE 14d

EVALUACION DEL PROGRAMA MATERNO-INFANTIL Y FAMILIAR
MINISTERIO DE SALUD PUBLICA Y ASISTENCIA SOCIAL
DIRECCION GENERAL DE SERVICIOS DE SALUD
DIVISION DE ATENCION A LAS PERSONAS
GUATEMALA.

Resultados del nivel nacional Centro de Salud

Area / Categoría	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	% promedio	Orden de Prioridad
I Recursos	80	71	68	60	69	58	68	57	64	63	49	46	50	53	43	63	54	78	77	72	54	54	36		60	3
II Planificación, Organización Administración.	92	53	69	70	77	56	61	73	86	83	63	73	76	85	62	45	42	54	90	64	73	39	29		64	5
III Supervisión.	39	17	73	76	72	13	20	41	70	74	70	39	61	74	25	11	0	17	62	61	62	13	25		44	1
IV Capacitación.	85	58	77	54	67	64	7.5	71	84	90	64	77	92	92	69	45	52	42	60	88	84	38	62		67	7
V Sistema de Información	57	21	46	50	68	39	24	44	93	82	89	57	54	86	71	25	41	28	46	75	46	39	43		53	2
VI Logística	91	52	78	51	74	61	55	62	86	69	76	56	60	70	66	64	74	68	84	66	68	10	35		64	6
VII Educación y Promoción de la salud y Participación comunitaria.	95	47	63	52	74	36	47	64	84	82	83	90	84	72	48	46	27	80	57	55	53	66	50		63	4

TABLE 14e

EVALUACION DEL PROGRAMA MATERNO-INFANTIL Y FAMILIAR
MINISTERIO DE SALUD PUBLICA Y ASISTENCIA SOCIAL.
DIRECCION GENERAL DE SERVICIOS DE SALUD
DIVISION DE ATENCION A LAS PERSONAS
GUATEMALA.

Resultados del nivel nacional. Puestos de Salud

Categoría / Area.	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	% Promedio	Orden de prioridad.
I Recursos	65	74	55	58	60	52	44	67	54	68	85	71	58	58	67	38	58	58	68	65	-	47	54		60	7
II Planificación, Organización Administración.	45	58	89	75	45	48	36	35	53	45	61	53	27	54	42	23	31	55	34	40	--	32	26		46	3
III Supervisión	28	38	31	75	38	56	3	25	79	44	63	--	0.03	63	19	-	28	-	18	38	-	47	26		33	1
IV Capacitación	37	39	51	69	58	67	22	70	58	75	78	36	22	46	55	27	44	49	20	62	-	18	36		48	4
V Sistema de Información	25	19	30	74	34	38	53	53	73	41	60	38	29	31	44	13	28	35	26	51	-	19	18		37	2
VI Logística	55	52	62	82	62	42	69	19	70	66	71	50	44	56	75	26	48	39	36	56	--	9.3	23	-	51	5
VII Educación y Promoción de la salud y participación comunitaria.	84	36	63	78	55	65	61	39	95	70	69	25	56	68	62	35	47	49	36	79	-	57	41		59	6

TABLE 15

BUDGET, CDD/IRA SUBPROJECT, FIVE-YEAR CHILD SURVIVAL PROJECT, GUATEMALA

(Rural Areas)

Costos por componente por año

Componente	1985	1986	1987, 1988 1989	Total
Supervisión y normas técnicas	3,400.00	5,676.00	6,920.00	15,996.00
Equipo básico y transporte	36,959.60	46,171.00	5,468.00	88,598.60
Suministros	571,650.00	628,815.00	2,289,515.30	3,489,980.30
Contratación de personal	16,200.00	16,200.00	15,925.00	48,325.00
Investigación		500.00	3,000.00	3,500.00
Total	628,209.60	697,362.00	2,320,828.30	3,646,399.90

TABLE 16

BUDGET, CDD/IRA SUBPROJECT, FIVE-YEAR CHILD SURVIVAL PROJECT, GUATEMALA
(Urban Marginal Areas)

Costo por componente por año

Componente	1985	1986	1987, 1988 1989	Total
Supervisión y normas técnicas	2,465.00	2,000.00	3,325.00	7,790.00
Equipo básico y transporte	8,541.00	2,775.00	5,370.00	16,686.00
Suministros	353,350.00	388,685.00	1415,202.30	2157,237.30
Contratación de personal	30,400.00	30,400.00	34,400.00	95,200.00
Investigación	500.00	300.00	1,000.00	1,800.00
Total	395,256.00	424,160.00	1 459,297.30	2278,713.30

FIGURE 1

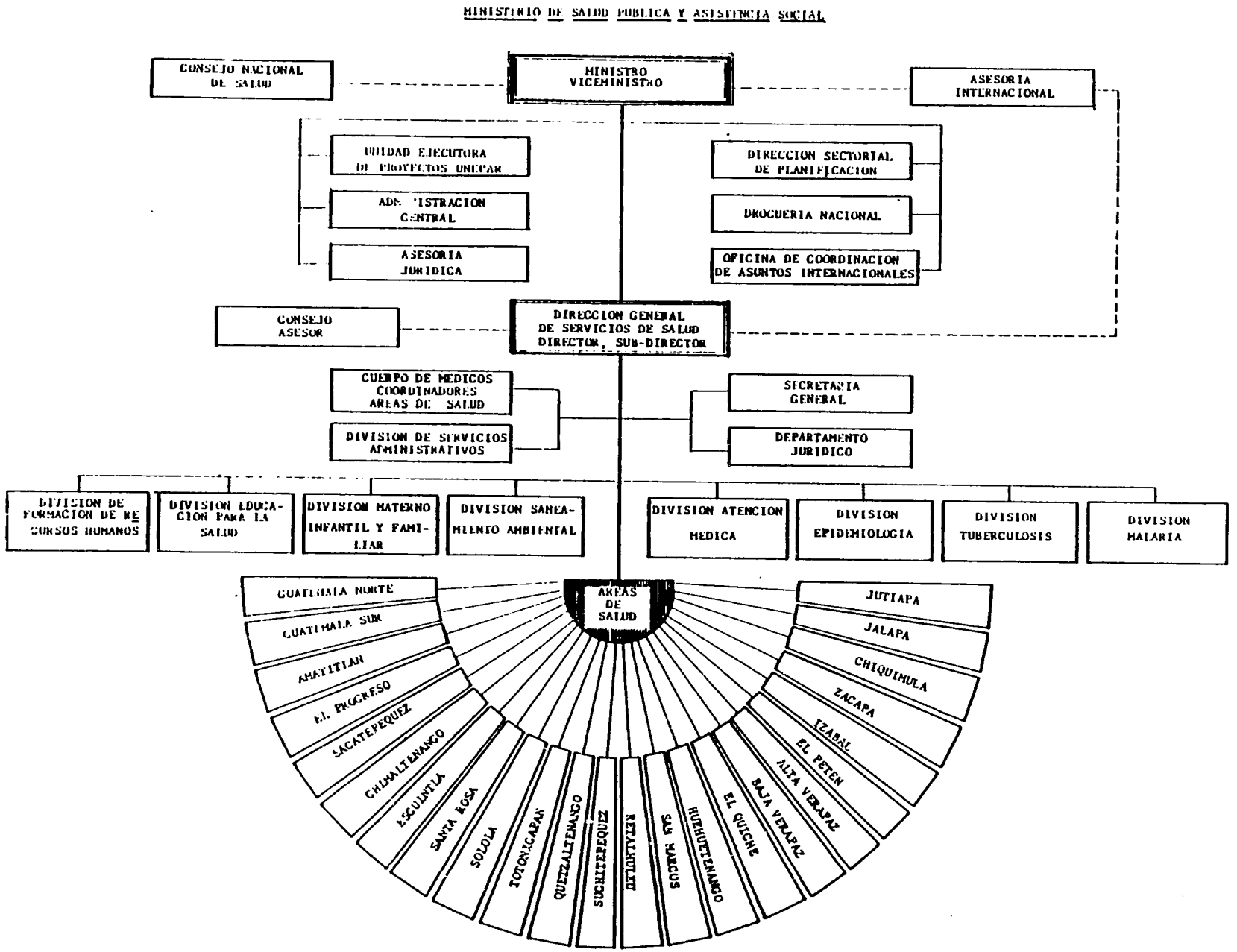
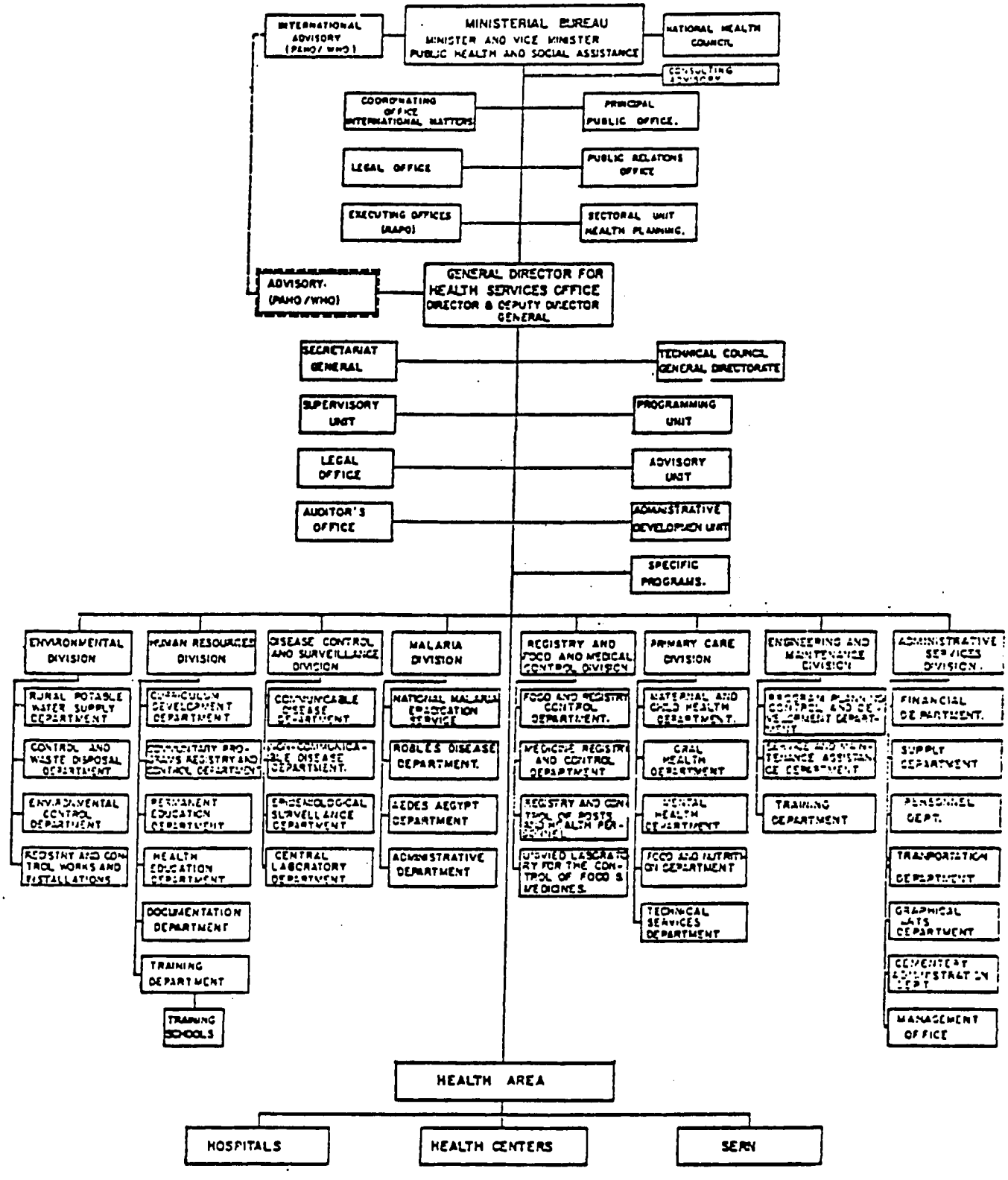

MINISTERIO DE SALUD PUBLICA Y ASISTENCIA SOCIAL
CONSEJO NACIONAL DE SALUD
MINISTRO VICEMINISTRO
ASESORIA INTERNACIONAL
UNIDAD EJECUTORA DE PROYECTOS UNIPAM
ADMINISTRACION CENTRAL
ASESORIA JURIDICA
DIRECCION SECTORIAL DE PLANIFICACION
DROGUERIA NACIONAL
OFICINA DE COORDINACION DE ASUNTOS INTERNACIONALES
CONSEJO ASESOR
DIRECCION GENERAL DE SERVICIOS DE SALUD DIRECTOR, SUB-DIRECTOR
CUERPO DE MEDICOS COORDINADORES AREAS DE SALUD
DIVISION DE SERVICIOS ADMINISTRATIVOS
SECRETARIA GENERAL
DEPARTAMENTO JURIDICO
DIVISION DE FORMACION DE RECURSOS HUMANOS
DIVISION EDUCACION PARA LA SALUD
DIVISION MATERNO INFANTIL Y FAMILIAR
DIVISION SANEAMIENTO AMBIENTAL
DIVISION ATENCION MEDICA
DIVISION EPIDEMIOLOGIA
DIVISION TUBERCULOSIS
DIVISION MALARIA
AREAS DE SALUD
GUATEMALA NORTE
GUATEMALA SUR
AMATITLAN
EL PROGRESO
SACATEPEQUEZ
CHIMALTENANGO
ESCUINTLA
SANTA ROSA
SOLOLA
TOTONICAPAN
QUETZALTENANGO
SUCHITEPEQUEZ
RETALHULEU
SAN MARCOS
HUEHUETENANGO
EL QUICHE
BAJA VERAPAZ
ALTA VERAPAZ
EL PETEN
IZABAL
ZACAPA
CHIQUIMULA
JALAPA
JUTIAPA

FIGURE 2

(ORGANIZATIONAL CHART)

MINISTRY OF PUBLIC HEALTH AND SOCIAL ASSISTANCE (1984)



* SOURCE : REGLAMENTO ACUERDO GUBERNATIVO Nº. 741-84
MINISTERIO DE SALUD PUBLICA Y ASISTENTE SOCIAL, AUGUST 24 1984.

LIST OF PRIVATE VOLUNTARY ORGANIZATIONS (PVOs)

1. Alianza para el Desarrollo Juvenil Comunitario - ALIANZA
   3a. Calle 7-28, Zona 10
   Ciudad
   Tel.: 67775
   Ing. Agr. Arturo Echeverría
   Director

2. APROFAM
   9a. calle 0-57, Zona 1
   Ciudad
   Tel: 537842
   Dr. Roberto Santiso G.
   Director Ejecutivo

3. Asociación Hogar y Desarrollo -HODE-
   10a. Calle 8-21, Zona 7
   Ciudad
   Tel.: 42441
   Lic. Hildebrando Cumes

4. Asociación Pro-Agua del Pueblo
   41 Calle 5-01, Zona 8
   Ciudad
   Tel: 40913
   Lic. Carlos Gómez

5. Asociación de Servicios Comunitarios -ASECSA-
   Km. 56 1/2 Carretera Interamericana o Aptdo. Postal No. 27
   Chimaltenango
   Tel: 039-1033
   Marco Tulio Gutiérrez
   Gerente

6. Centro de Integración Familiar -CIF-
   17 calle 8-64, Zona 10 o Apartado POstal 166-A
   Ciudad
   Tel: 370602/03
   Sra. María Mercedes de Rossi
   Directora Ejecutiva

7. Ejército de Salvación
14 calle 5-89, Zona 11
Ciudad
Tel: 480877
Mr. Stanley Melton

8. Fundación para la Ayuda al Pueblo Indígena -FUNDAPI-
16 calle 1-45, Zona 10
Ciudad
Tel: 683335 / 682779
Dr. Mario Bolaños
Director Ejecutivo

9. Fundación del Centavo -FUNDACEN-
8a. Calle 5-09, Zona 9
Ciudad
Tel.: 67213
Ing. Hernán Quan
Gerente

10. Visión Mundial Internacional
7 Av. 7-73, Zona 9
Ciudad
Tel.: 320188/89
Dra. Annette Morales de Fortin
Directora

11. Fundación Guatemalteca para el Desarrollo, Carroll Behrhorst
2a. calle 1-55, Zona 2 o Aptdo. Postal No. 15
Chimaltenango
Tel: 039-1356
Dr. Carroll Behrhrost

12. Proyecto Hope
Apartado Postal 128
Quetzaltenango
Tel: 061-4559
Lic. Cliff Sanders

13. Catholic Relief Services
1a. Avenida 10-57, Zona 10
Ciudad
Tel: 310285
Mr. Mark D. Moriarty
Country Representative

103

14. Canadian Embassy
Edificio Galerías España
7 Av. 11-59, Zona 9
Ciudad
Lic. César Guillén

15. CARE/Guatemala
Edificio Plaza Marítima, Of. 7-3
6a. Avenida 20-25, Zona 10
Tel.: 373316
Mr. Edward D. Brand
Director

16. Comité de Reconstrucción Nacional
32 Calle 8-00, Zona 11
Centro Nueva Juventud
Ciudad
Tel : 764784/88
Coronel Herman Grotewold
Director Ejecutivo

Lic. Evelyn Klussman
Coordinadora Area de Cooperación
Nacional e Internacional

17. ASINDES
12 Calle 2-04, Zona 9
Edificio Plaza del Sol, Oficina 317
Ciudad
Tel.: 313247
Ing. Jorge Benítez Coronado
Director Ejecutivo

18. FUNDAP
Edificio Cámara Industria, Zona 4
Centro Comercial Montserrat, Zona 7, Local 40
Ciudad
Sr. Venancio Botrán
Presidente

19. FUNTEC
Calle Mariscal Cruz 10-69, Zona 5
Ciudad
Sr. Juan Niemann
Presidente

104

20. Fundación de la Mujer
Avenida Reforma 3-48, Zona 9
Ciudad
Sra. Irene de Asturias
Presidenta

21. Partners of the Americas
Ruta 1, 4-05, Zona 4
Ciudad
Tel.: 314147
Mr. Kermit Ferrer
Presidente

22. Cooperative Housing Foundation CHF
Vía 5, 4-50, Zona 4, Edif. Maya, Oficina 815
Ciudad
Mr. Raymond Ocasio

23. Fundación de Asistencia para la Pequeña Empresa
10a. Calle 9-68, Zona 1
Ciudad
Tel.: 530461
Ing. Fernando E. Mena
Director Ejecutivo

24. Movimiento Guatemalteco de Reconstrucción Rural
Gran Centro Comercial Zona 4
Torre Profesional I
Oficina 201
Ciudad
Tel.: 516819
Sr. Juan E. Córdova
Director Ejecutivo

25. Dirección de Desarrollo de la Comunidad
2a. Calle 1-00, Zona 10
Ciudad
Tel.: 61791
Sr. Julio Roberto Paiz Bolaños
Director General

26. Asociación Guatemalteca de Coordinaciór
para la Supervivencia y Desarrollo
30a. Calle 7-65, Zona 11
Ciudad
Tel.: 762582
Arq. Zoemia Prado
Presidente

27. Asociación de Servicios Educativos y Culturales (A.S.E.C.)
12 Avenida 7-33, Zona 2
Ciudad
Tel.: 530318
Sr.José Monteros Lenhoff
Presidente

Sr. Franz Tattenbach
ASEC

28. Programa Mundial de Alimentos
6a. Avenida 20-25, Zona 10
Edificio Plaza Marítima
Ciudad
Tel.: 370611
Sr. Philippe Borel
Country Representative

Srita. Claudia Von Roehl
Oficial de Proyectos

29. Programa de las Naciones Unidas para
el Desarrollo (PNUD)
6a. Avenida 20-25, Zona 10
Edificio Plaza Marítima
Ciudad
Tel.: 370611
Ms. Katica Cekalovic
Representante Residente, a.i.

30. Centro de Adiestramiento de Promotores Sociales
Universidad Rafael Landívar
Campus Vista Hermosa III, Zona 16
Edificio "C"
Ciudad
Tel.: 692151

_____
Director

106

31. Institute of Cultural Affairs
9a. Calle 4-35, Zona 4
Ciudad
Tel.: 67010
Sra. Inga Bessin

32. Centro de Estudios Mesoamericanos sobre Tecnología Apropriada
(CEMAT)
18 calle 22-52, Zona 10
Ciudad

PRMA:RPerdomo:cs
09-12-85
(2663p)

+

* [illegible] CHILDREN FEDERATION
5ª [illegible] Zona 10
Ciudad Guatemala
[illegible] Arturo Echeverría.

* Project [illegible] INTERNATIONAL
(Clínica Santiaguito)
Carretera de [illegible]
Quetzaltenango
[illegible]
[illegible] Díaz.

107

ASOCIACIONES AFILIADAS, REPRESENTANTE, CAMPO Y AREA DE TRABAJO

1. ALIANZA PARA EL DESARROLLO JUVENIL COMUNITARIO (ALIANZA):

Representante : Ing. Agr. Arturo Echeverría, Director Ejecutivo.

Actividades : Desarrollo Integrado, agricultura, salud, promoción social, promoción femenina, educación formal y extra escolar, tecnología apropiada, construcción de escuelas y pequeña industria.

Area de Trabajo: San Miguel Ixtaguacán, San Marcos, San Jacinto, Chiquimula, Chichicastenango, San Antonio Ilotenango, San Pedro Jocopilas, San Bartolomé Jocotenango, El Quiché, San Juan Tecuaco, Santa Rosa, Sololá.

2. AMG INTERNACIONAL:

Representante : Señor Robert McRae, Representante Legal. Arq. Jorge Estrada, Auxiliar.

Actividad : Agencia cristiana evangélica benéfica, dedicada a proyectos integrados de desarrollo comunitario con énfasis/enfoque en programas de cuidado del niño (guarderías, escuelas).

Area de Trabajo: Chimaltenango, Suchitepéquez, Santa Rosa, Jutiapa, Sololá, Sacatepéquez, El Petén, ciudad de Guatemala y Centroamérica.

3. ASOCIACION CRISTIANA DE JOVENES DE GUATEMALA (ACJ):

Representante : Lic. Arturo Duarte, Secretario Ejecutivo.

Actividad : Educación no-formal, recreación, juventud, entrenamiento de líderes, capacitación técnica.

Area de Trabajo: Sakerty, Tierra Nueva, Amatitlán y ciudad de Guatemala.

4. ASOCIACION HOGAR Y DESARROLLO (HODE):

Representante : Lic. Hildebrando Cúmes, Director Ejecutivo.

.. / ..

Actividades : Programas de desarrollo en áreas urbanas marginales, principalmente vivienda de interés social prefabricadas, proyectos integrales, terrenos.

Area de Trabajo: Area urbana, ciudad de Guatemala y Escuintla.

5. ASOCIACION NACIONAL DE COLEGIOS CATOLICOS:

Representante: : Padre Orlando Sacasa, Presidente

Actividades : Científica, educativa que prepugna por dar educación cristiana a los alumnos, mediante la coordinación de los programas oficiales.

Area de Trabajo: Toda la República.

6. ASOCIACION PRO-AGUA DEL PUEBLO:

Representante : Lic. Carlos Enrique Gómez Duarte, Director Ejecutivo.

Actividades : Auspiciar el establecimiento de sistemas de agua potable, drenajes, letrinización, saneamiento y desarrollo en el país, adiestramiento de técnicos en estos campos.

Area de Trabajo: Chimaltenango, Sololá, Chiquimula, Santa Rosa.

7. ASOCIACION DE SERVICIOS COMUNITARIOS DE SALUD (ASECSA):

Representante : Dr. Pascual Hernández, Presidente; Señor Pedro Chavay, Director Ejecutivo.

Actividad : Salud, ayudar en el campo a impartir cursos.

Area de Trabajo: Area rural en toda la República.

8. CARITAS ARQUIDIOCESANA:

Representante : Padre José Antonio Márquez, Presidente, Representante y Delegado Arzobispal.

Actividades : Instrumento oficial de la Iglesia Católica para obras de promoción y desarrollo integral. No lucrativa que presta servicios sin discriminación política ni religiosa.

Area de Trabajo: Departamentos de Sacatepéquez, Santa Rosa y ciudad de Guatemala.

9. CARITAS DE GUATEMALA:

Representante : Dr. Arturo Zepeda, Presidente, señor Rubén Monterroso Salinas, Director Nacional.

Actividades : Promoción humana y de servicio.

Area de Trabajo: Toda la República.

10. CENTRO DE ESTUDIOS MESOAMERICANO SOBRE TECNOLOGIA APROPIADA (CEMAT):

Representante : Dr. Armando Cáceres, Director Ejecutivo

Actividades : Investigación, desarrollo, implementación y difusión de tecnologías apropiadas para áreas rurales en los campos de: Vivienda, salud, energéticos, fertilizantes, nutrición y agricultura.

Area de Trabajo: Mesoamérica, Huehuetenango, Quetzaltenango, Sololá, Totonicapán, Chimaltenango, Alta y Baja Verapaz, Izabal, Jalapa, Santa Rosa, Chiquimula y en áreas marginales de la ciudad de Guatemala.

11. CENTRO DE INTEGRACION FAMILIAR (CIF):

Representante : Padre Antonio Gómez, Presidente. Señora María Mercedes de Rossi, Directora Ejecutiva.

Actividades : Promoción y desarrollo humano para la integración familiar, por medio de cursos, charlas y conferencias, operación del hogar rural en Rabinal, Baja Verapaz.

Area de Trabajo: Ciudad de Guatemala, Rabinal y sus aldeas.

12. CHRISTIAN CHILDREN'S FUND, (CCF):

Representante : Dr. Luis Rolando Torres Casanova, Representante Regional.

110

Actividades : Bienestar del niño y la familia en el campo de la educación y nutrición.

Area de Trabajo: Alta y Baja Verapaz, Izabal, Zacapa, El Progreso, Sacatepéquez, Suchitepéquez, Chimaltenango, Huehuetenango, Retalhuleu, Jalapa y ciudad de Guatemala.

13. COMITE CENTRAL MENONITA (CCM):

Representante : Señor Víctor Oswaldo Martínez.

Actividades : Agricultura, salud pública, tecnología apropiada, educación y asesoría en construcción, educación a la mujer.

Area de Trabajo: Alta Verapaz, Huehuetenango, Sacatepéquez, Chimaltenango y ciudad de Guatemala.

14. CONSEJO CRISTIANO DE AGENCIAS DE DESARROLLO (CONCAD):

Representante : Señor Vitalino Similox, Director Ejecutivo.

Actividades : Desarrollo comunal integral a través de salud y agricultura, supervisión de la familia en los aspectos económicos, sociales, culturales y espirituales.

Area de Trabajo: El Quiché, Chinautla, Chimaltenango, Coatepeque, Quetzaltenango y ciudad de Guatemala

15. EJERCITO DE SALVACION:

Representante : Stanley Melton, Comandante Mayor Regional.

Actividades : Guarderías infantiles, reconstrucción, servicios a alcohólicos y sus familias, iglesias.

Area de Trabajo: Tecpán, Chimaltenango y ciudad de Guatemala.

16. FOSTER PARENTS PLAN INTERNATIONAL (PLAN):

Representante : Ing. Han Dijsselbloem, Director.

Actividades : Desarrollo Social

Area de Trabajo: El Progreso, Amatitlán, Bethania, Tierra Nueva.

111

17. FUNDACION PARA AYUDA AL PUEBLO INDIGENA (FUNDAPI):

Representante : Señor Alfred Kaltschmitt; Dr. Mario Bolaños, Director Ejecutivo.

Actividades : Ayuda en programas de emergencia social en áreas de conflicto.

Area de Trabajo: El Quiché y ciudad de Guatemala.

18. FUNDACION DEL CENTAVO (FUNDACEN):

Representante : Ing. Agr. Hernán Quán Berducido, Gerente

Actividades : Instruir en forma práctica sobre el uso del crédito a los habitantes de las áreas rurales, mejorar condiciones de vida rural, incrementar y diversificar la producción, mejorar la productividad agropecuaria, artesanal e industrial.

Area de Trabajo: Sololá, Quetzaltenango, Chimaltenango, Chiquimula, Jutiapa, Jalapa, Santa Rosa y Occidente.

19. FUNDACION CRISTIANA PARA LA EDUCACION Y EL DESARROLLO (FUNDACED):

Representante : Señor Alvaro Muñíz, Director General.

Actividades : Desarrollo integral.

Area de Trabajo: Santa Rosa

20. FUNDACION ECUMENICA GUATEMALTECA ESPERANZA Y FRATERNIDAD (ESFRA)

Representante : Padre Juan Santiago Indekeu, Director Ejecutivo. T.S. Olga Cristina de Hernández, Presidente.

Actividades : Promoción social y humana (comedor infantil y centro nutricional en El Incienso).

Area de Trabajo: Sakerti, Tierra Nueva e Incienso.

21. FUNDACION GUATEMALTECA PARA EL DESARROLLO, CARROLL BEHRHORST:

Representante : Dr. Carroll Behrhorst, Presidente y Fundador

Actividades : Desarrollo de programas de salud

Area de Trabajo: Chicacao y Chimaltenango.

.. / ..

22. FUNDACION DE RECONSTRUCCION Y DESARROLLO HUMANO INGEGRAL (REDH INTEGRAL):

Representante : Señor Adolfo Acosta de León, Representante y Coordinador General.

Actividades : Desarrollo humano integral, proyectos, construcción de viviendas, letrinización, introducción de agua potable y energía eléctrica, funcionamiento y administración de un centro de capacitación en aldea Cerro Alto.

Area de Trabajo: San Juan Sacatepéquez (Aldeas Comunidad de Ruiz, San Antonio Pachalí, Sacauy, Montúfar, Sagtavilla y Cerro Alto).

23. GRUPO ECUMENICO ASESOR DE PROYECTOS (GEAP):

Representante : Sr. Carlos Haroldo de la Crúz Chacón, Coordinador General, Sr. Carlos Carrazco, Director.

Actividades : Asesoramiento a programas de desarrollo

Area de Trabajo: Panamá, Centroamérica y México. En Guatemala en la zona urbana y rural.

24. INSTITUTO PARA EL DESARROLLO ECONOMICO-SOCIAL DE AMERICA CENTRAL (IDESAC):

Representante : Lic. Juan Manuel Mendoza Zepeda, Secretario Ejecutivo.

Actividades : Proyectos de construcción de vivienda, mini acueductos como saneamiento, educación.

Area de Trabajo: Toda la República.

25. MISION ADVENTISTA DEL SEPTIMO DIA:

Representante : Pastor Jorge García Natareno, Presidente

Actividades : Programas de asistencia en salud y educación, desarrollo integral.

Area de Trabajo: Toda la República

26. MOVIMIENTO DE EDUCACION POPULAR INTEGRAL FE Y ALEGRIA:

Representante : Padre Fernando Gutiérrez Duque, Director Nacional.

Actividades : Educación en árear marginales

Area de Trabajo: Ciudad de Guatemala, San Martín Jilotepeque.

27. VISION MUNDIAL INTERNACIONAL (VM):

Representante : Doctora Annette Morales de Fortín, Directora Nacional.

Actividades : Desarrollo del niño y la familia, desarrollo integral, tomando en consideración - educación, educación cristiana, desarrollo de la comunidad. Proyectos de agua potable, luz eléctrica, talleres para padres de familia y proyectos de evangelismo.

Area de Trabajo: Ciudad de Guatemala, Quetzaltenango, Sololá, Totonicapán, Chimaltenango, Cobán, Esquipulas, Jutiapa, Jalapa, Santa Rosa, Chiquimula, Escuintla y Coatepeque.

"POBLACION TOTAL FEMENINA DE LA REPUBLICA DE GUATEMALA, POR REGION, DEPARTAMENTO Y POR AÑO"

PERIODO 1980 - 1990

REGION Y DEPARTAMENTO	1980	1981	1982	1983	1984	1985	1986	1987	1988	1989	1990
TOTAL DEL PAIS	3,416,025	3,513,766	3,614311	3,718,060	3,825,407	3,936,741	4,052,046	4,171,062	4,293,813	4,420,324	4,550,621
REGION 1	750,945	773,706	797,219	821,413	846,222	871,573	897,570	924,258	951,484	979,104	1,006,964
Guatemala	750,945	773,706	797,219	821,413	846,222	871,573	897,570	924,258	951,484	979,104	1,006,964
REGION 2	371,975	382,633	393,643	405,046	416,890	429,190	441,971	455,198	468,871	482,990	497,556
Sacatepéquez	67,366	69,296	71,290	73,355	75,500	77,728	80,043	82,439	84,915	87,472	90,110
Chimaltenango	126,764	130,417	134,170	138,057	142,094	146,286	150,642	155,150	159,810	164,622	169,587
Escuintla	177,825	182,920	188,183	193,634	199,296	205,176	211,286	217,609	224,146	230,896	237,859
REGION 3	361,591	368,094	374,869	381,952	389,268	397,171	405,342	413,866	422,740	431,955	441,508
El Progreso	44,791	45,597	46,436	47,313	48,219	49,198	50,210	51,266	52,365	53,506	54,689
Santa Rosa	103,710	105,575	107,518	109,550	111,648	113,915	116,259	118,704	121,249	123,892	126,632
Jalapa	75,292	76,646	78,057	79,532	81,056	82,701	84,402	86,177	88,025	89,944	91,933
Jutiapa	137,798	140,276	142,858	145,557	148,345	151,357	154,471	157,719	161,101	164,633	168,254
REGION 4	1,099,499	1,131,897	1,165,110	1,199,361	1,234,924	1,271,894	1,310,328	1,350,033	1,391,117	1,433,690	1,477,861
Sololá	86,782	89,339	91,961	94,665	97,472	100,390	103,424	106,558	109,801	113,161	116,648
Totonicapán	117,072	120,522	124,058	127,705	131,492	135,429	139,521	143,749	148,123	152,656	157,359
Quetzaltenango	208,692	214,841	221,145	227,646	234,396	241,413	248,708	256,244	264,042	272,123	280,507
San Marcos	261,568	269,275	277,176	285,324	293,784	302,579	311,722	321,168	330,942	341,070	351,576
Huehuetenango	240,675	247,767	255,037	262,534	270,319	278,411	286,824	295,515	304,508	313,827	323,496
El Quiché	184,710	190,153	195,733	201,487	207,461	213,672	220,129	226,799	233,701	240,853	248,273
REGION 5	214,537	220,536	226,708	233,077	239,672	246,534	253,649	260,998	268,591	276,434	284,536
Suchitepéquez	131,534	135,006	138,785	142,684	146,723	150,922	155,278	159,777	164,425	169,226	174,186
Retalhuleú	83,203	85,530	87,923	90,393	92,951	95,612	98,371	101,221	104,166	107,208	110,350
REGION 6	339,103	351,881	364,935	378,358	392,344	406,688	421,652	437,073	453,009	469,516	486,653
Baja Verapáz	69,616	72,241	74,921	77,677	80,548	83,493	86,565	89,731	93,003	96,392	99,910
Alta Verapáz	193,464	200,754	208,202	215,860	223,839	232,022	240,559	249,357	258,449	267,866	277,643
El Petén	76,023	78,886	81,812	84,821	87,957	91,173	94,528	97,985	101,557	105,258	109,100
REGION 7	278,387	285,017	291,827	298,853	306,087	313,691	321,534	329,636	338,001	346,635	355,543
Izabal	111,649	114,308	117,039	119,857	122,758	125,807	128,952	132,201	135,556	139,019	142,592
Zacapa	67,610	69,220	70,874	72,550	74,337	76,184	78,089	80,057	82,088	84,185	86,348
Chiquimula	99,128	101,489	103,914	106,446	108,992	111,700	114,493	117,378	120,357	123,431	126,603

Fuente de Información: 1) Secretaria General del Consejo Nacional de Planificación Económica, Instituto Nacional de Estadística (INE); Publicación: "Proyecciones Regionales de Población 1980-2000" Marzo 1985.

2) Unidad de Informática Dirección General de Servicios de Salud.

115

"POBLACION TOTAL DE LA REPUBLICA DE GUATEMALA, POR REGION, DEPARTAMENTO Y POR AÑO"

PERIODO 1980 - 1990

REGION Y DEPARTAMENTO	1980	1981	1982	1983	1984	1985	1986	1987	1988	1989	1990
TOTAL DEL PAIS	6,916,831	7,113,391	7,315,479	7,523,939	7,744,388	7,963,355	8,195,117	8,434,339	8,681,081	8,935,395	9,197,347
REGION 1	1,459,368	1,504,045	1,550,224	1,596,787	1,646,563	1,696,391	1,747,542	1,800,076	1,853,691	1,908,085	1,962,953
Guatemala	1,459,368	1,504,045	1,550,224	1,596,787	1,646,563	1,696,391	1,747,542	1,800,076	1,853,691	1,908,085	1,962,953
REGION 2	776,472	798,541	821,295	844,250	869,236	894,582	920,895	948,104	976,211	1,005,217	1,035,125
Sacatepéquez	137,125	141,022	145,040	149,094	153,506	157,982	162,629	167,434	172,398	177,520	182,802
Chimaltenango	260,429	267,831	275,463	283,162	291,542	300,043	308,868	317,994	327,421	337,150	347,181
Escuintla	378,918	389,688	400,792	411,994	424,188	436,557	449,398	462,676	476,392	490,547	505,142
REGION 3	738,618	751,863	765,642	779,773	799,667	810,948	827,545	844,856	862,873	881,583	900,978
El Progreso	90,481	92,104	93,792	95,523	97,960	99,342	101,375	103,496	105,703	107,995	110,371
Santa Rosa	216,489	220,371	224,410	228,552	234,383	237,689	242,554	247,627	252,908	258,392	264,076
Jalapa	151,712	154,432	157,262	160,164	164,250	166,567	169,976	173,532	177,233	181,076	185,060
Jutiapa	279,936	284,956	290,178	295,534	303,074	307,350	313,640	320,201	327,029	334,120	341,471
REGION 4	2,238,515	2,303,651	2,370,373	2,437,502	2,510,565	2,584,844	2,662,075	2,741,862	2,824,428	2,909,999	2,996,801
Sololá	176,395	181,528	186,786	192,076	197,833	203,686	209,772	216,059	222,565	229,308	236,306
Totonicapán	233,701	240,501	247,467	254,475	262,103	269,858	277,921	286,251	294,871	303,805	313,076
Quetzaltenango	419,498	431,705	444,209	456,789	470,481	484,401	498,874	513,826	529,299	545,335	561,976
San Marcos	540,154	555,871	571,971	588,169	605,799	623,722	642,259	661,612	681,535	702,183	723,611
Huehuetenango	493,368	507,724	522,429	537,224	553,327	569,698	586,719	604,304	622,501	641,361	660,933
El Quiché	375,399	386,322	397,511	408,769	421,022	433,479	446,430	459,810	473,657	488,007	502,899
REGION 5	443,710	455,769	468,157	482,397	494,166	507,953	522,241	537,001	552,251	568,006	584,285
Suchitepéquez	271,329	278,703	286,277	294,980	302,184	310,613	319,350	328,376	337,701	347,335	357,288
Retalhuleú	172,381	177,066	181,878	187,407	191,984	197,340	202,891	208,625	214,550	220,671	226,995
REGION 6	692,259	716,443	745,164	774,918	801,201	830,496	861,045	892,511	925,009	958,655	993,569
Baja Verapáz	140,529	145,844	151,268	157,308	162,643	168,590	174,791	181,178	187,775	194,605	201,693
Alta Verapáz	391,403	406,208	421,316	438,139	452,999	469,562	486,835	504,826	523,000	542,023	561,763
El Petén	160,327	166,391	172,580	179,471	185,559	192,344	199,419	206,707	214,234	222,027	230,113
REGION 7	567,889	581,079	594,424	608,322	622,986	636,141	653,774	669,929	686,618	703,859	721,639
Izabal	230,620	235,976	241,477	247,040	252,999	259,150	265,499	272,060	278,838	285,836	293,060
Zacapa	137,145	140,330	143,601	146,909	150,451	154,110	157,885	161,786	165,816	169,977	174,273
Chiquimula	200,124	204,773	209,546	214,373	219,541	224,881	230,390	236,083	241,964	248,037	254,305

Fuente de Información: 1) Secretaria General del Consejo Nacional de Planificación Económica, Instituto Nacional de Estadística (INE); Publicación: "Proyecciones Regionales de Población 1980-2000" Marzo 1985.

2) Unidad de Informática, Dirección General de Servicios de Salud

"POBLACION TOTAL DE LA REPUBLICA DE GUATEMALA, POR REGION, DEPARTAMENTO Y POR AÑO"

PERIODO 1980 - 1990

REGION Y DEPARTAMENTO	1980	1981	1982	1983	1984	1985	1986	1987	1988	1989	1990
TOTAL DEL PAIS	6,916,831	7,113,391	7,315,479	7,523,939	7,744,388	7,963,355	8,195,117	8,434,339	8,681,081	8,935,395	9,197,347
REGION 1	1,459,368	1,504,045	1,550,224	1,596,787	1,646,563	1,696,391	1,747,542	1,800,076	1,853,691	1,906,085	1,962,953
Guatemala	1,459,368	1,504,045	1,550,224	1,596,787	1,646,563	1,696,391	1,747,542	1,800,076	1,853,691	1,908,085	1,962,953
REGION 2	776,472	798,541	821,295	844,250	869,236	894,582	920,895	948,104	976,211	1,005,217	1,035,125
Sacatepéquez	137,125	141,022	145,040	149,094	153,506	157,982	162,629	167,434	172,398	177,520	182,802
Chimaltenango	260,429	267,831	275,463	283,162	291,542	300,043	308,868	317,994	327,421	337,150	347,181
Escuintla	378,918	389,688	400,792	411,994	424,188	436,557	449,398	462,676	476,392	490,547	505,142
REGION 3	738,618	751,863	765,642	779,773	799,667	810,948	827,545	844,856	862,873	881,583	900,978
El Progreso	90,481	92,104	93,792	95,523	97,960	99,342	101,375	103,496	105,703	107,995	110,371
Santa Rosa	216,489	220,371	224,410	228,552	234,383	237,689	242,554	247,627	252,908	258,392	264,076
Jalapa	151,712	154,432	157,262	160,164	164,250	166,567	169,976	173,532	177,233	181,076	185,060
Jutiapa	279,936	284,956	290,178	295,534	303,074	307,350	313,640	320,201	327,029	334,120	341,471
REGION 4	2,238,515	2,303,651	2,370,373	2,437,502	2,510,565	2,584,844	2,662,075	2,741,862	2,824,426	2,909,999	2,998,801
Sololá	176,395	181,528	186,784	192,076	197,833	203,686	209,772	216,059	222,565	229,308	236,306
Totonicapán	233,701	240,501	247,467	254,475	262,103	269,858	277,921	286,251	294,871	303,805	313,076
Quetzaltenango	419,498	431,705	444,209	456,789	470,481	484,401	498,674	513,626	529,299	545,335	561,976
San Marcos	540,154	555,871	571,971	588,169	605,799	623,722	642,359	661,612	681,535	702,183	723,611
Huehuetenango	493,368	507,724	522,429	537,224	553,327	569,638	586,719	604,304	622,501	641,361	660,933
El Quiché	375,399	386,322	397,511	408,769	421,022	433,479	446,430	459,810	473,657	488,007	502,899
REGION 5	443,710	455,769	468,157	482,387	494,166	507,953	522,241	537,001	552,251	568,006	584,283
Suchitepéquez	271,329	278,703	286,277	294,980	302,164	310,612	319,350	328,376	337,701	347,335	357,288
Retalhuleu	172,381	177,066	181,878	187,407	191,984	197,340	202,891	208,625	214,550	220,671	226,995
REGION 6	692,259	718,443	745,164	774,918	801,201	830,496	861,045	892,511	925,009	958,655	993,569
Baja Verapaz	140,529	145,744	151,268	157,308	162,643	168,590	174,791	181,178	187,775	194,605	201,593
Alta Verapaz	391,403	406,208	421,316	438,139	452,999	469,562	486,635	504,626	523,000	542,033	561,763
El Petén	160,327	166,391	172,580	179,471	185,559	192,344	199,419	206,707	214,234	222,027	230,113
REGION 7	567,889	581,079	594,624	608,322	622,988	636,141	653,774	669,929	686,618	703,550	721,638
[illegible]	230,620	235,976	241,477	247,040	252,944	259,150	265,499	272,003	278,838	285,834	293,000
[illegible]	137,145	140,330	143,601	146,909	150,451	154,110	157,885	161,786	165,816	169,977	174,273
[illegible]	200,124	204,773	209,546	214,373	219,541	224,881	230,390	236,053	241,964	248,037	254,305

Fuente de Información: 1) Secretaria General del Consejo Nacional de Planificación Económica, Instituto Nacional de Estadística (INE); Publicación: "Proyecciones Regionales de Población 1980-2000" Marzo 1985.

2) Unidad de Informática, Dirección General de Servicios de Salud

"POBLACION TOTAL DE LA REPUBLICA DE GUATEMALA, POR REGION, DEPARTAMENTO Y POR AÑO"

PERIODO 1980 - 1990

REGION Y DEPARTAMENTO	1980	1981	1982	1983	1984	1985	1986	1987	1988	1989	1990
TOTAL DEL PAIS	6,916,831	7,113,391	7,315,479	7,523,939	7,744,388	7,963,355	8,195,117	8,434,339	8,681,081	8,935,395	9,197,347
REGION 1	1,459,368	1,504,045	1,550,224	1,596,787	1,646,563	1,696,391	1,747,542	1,800,076	1,853,691	1,906,085	1,962,953
Guatemala	1,459,368	1,504,045	1,550,224	1,596,787	1,646,563	1,696,391	1,747,542	1,800,076	1,853,691	1,908,065	1,962,953
REGION 2	776,472	798,541	821,295	844,250	869,236	894,582	920,895	948,104	976,211	1,005,217	1,035,125
Sacatepéquez	137,125	141,022	145,040	149,094	153,506	157,982	162,629	167,434	172,398	177,520	182,802
Chimaltenango	260,479	267,831	275,463	283,162	291,542	300,043	308,868	317,994	327,421	337,150	347,181
Escuintla	378,918	389,688	400,792	411,994	424,188	436,557	449,398	462,676	476,392	490,547	505,142
REGION 3	738,618	751,863	765,642	779,773	799,667	810,948	827,545	844,856	862,873	881,583	900,978
El Progreso	90,481	92,104	93,792	95,523	97,960	99,342	101,375	103,496	105,703	107,995	110,371
Santa Rosa	216,489	220,371	224,410	228,552	234,383	237,689	242,554	247,627	252,908	258,392	264,076
Jalapa	151,712	154,432	157,261	160,164	164,250	166,567	169,976	173,532	177,233	181,076	185,060
Jutiapa	279,936	284,956	290,178	295,534	303,074	307,350	313,640	320,201	327,029	334,120	341,471
REGION 4	2,238,515	2,303,651	2,370,373	2,437,502	2,510,565	2,584,844	2,662,075	2,741,862	2,824,438	2,909,999	2,995,801
Sololá	176,395	181,528	186,786	192,076	197,833	203,686	209,772	216,059	222,565	229,308	236,306
Totonicapán	233,701	240,501	247,467	254,475	262,103	269,658	277,921	286,251	294,871	303,805	313,076
Quetzaltenango	419,498	431,705	444,209	456,789	470,481	484,401	498,874	513,826	529,299	545,235	561,976
San Marcos	540,154	555,871	571,971	588,169	605,799	623,722	642,259	661,612	681,535	702,183	723,611
Huehuetenango	493,368	507,724	522,429	537,224	553,327	569,698	586,719	604,304	622,501	641,361	660,933
El Quiché	375,399	386,322	397,511	408,769	421,022	433,479	446,430	459,810	473,657	488,007	502,899
REGION 5	443,710	455,769	468,157	482,387	494,166	507,953	522,241	537,001	552,251	568,006	584,282
Suchitepéquez	271,329	278,703	286,277	294,980	302,164	310,612	319,350	328,376	337,701	347,335	357,288
Retalhuleu	172,381	177,066	181,878	187,407	191,984	197,340	202,891	208,625	214,550	220,671	226,995
REGION 6	692,259	718,443	745,164	774,918	801,201	830,496	861,045	892,511	925,009	958,655	993,569
[illegible]	140,529	145,944	151,268	157,308	162,643	168,590	174,791	181,178	187,775	194,695	201,593
[illegible]	391,403	406,208	421,316	438,139	452,995	469,562	486,835	504,634	523,000	542,033	561,763
[illegible]	160,327	166,391	172,580	179,471	185,559	192,344	199,419	206,707	214,234	222,927	230,113
REGION 7	567,889	581,079	594,624	608,322	622,986	636,141	653,774	669,929	686,618	702,559	721,638
[illegible]	230,620	235,970	241,477	247,040	252,946	259,150	265,499	272,003	278,638	285,676	293,000
[illegible]	137,145	140,330	143,601	146,909	150,451	154,110	157,865	161,786	165,816	169,977	174,273
[illegible]	200,124	204,773	209,546	214,373	219,541	224,881	230,390	236,053	241,964	248,037	254,305

Fuente de Información: 1) Secretaria General del Consejo Nacional de Planificación Económica, Instituto Nacional de Estadística (INE); Publicación: "Proyecciones Regionales de Población 1980-2000" Marzo 1985.

2) Unidad de Informática, Dirección General de Servicios de Salud

"POBLACION TOTAL MASCULINA DE LA REPUBLICA DE GUATEMALA, POR REGION, DEPARTAMENTO Y POR AÑO"

PERIODO 1980 - 1990

REGION Y DEPARTAMENTO	1980	1981	1982	1983	1984	1985	1986	1987	1988	1989	1990
TOTAL DEL PAIS	3,500,796	3,599,625	3,701,168	3,805,879	3,918,981	4,026,614	4,143,071	4,263,277	4,387,268	4,515,071	4,646,726
REGION 1	708,423	730,339	753,005	775,374	800,341	824,816	849,972	875,818	902,207	928,981	955,959
Guatemala	708,423	730,339	753,005	775,374	800,341	824,816	849,972	875,818	902,207	928,981	955,969
REGION 2	404,497	415,908	427,652	439,204	452,346	465,392	478,924	492,906	507,340	522,227	537,569
Sacatepequez	69,689	71,655	73,678	75,668	77,932	80,180	82,511	84,920	87,407	89,972	92,615
Chimaltenango	133,579	137,347	141,225	145,040	149,380	153,688	158,157	162,774	167,540	172,456	177,523
Escuintla	201,229	206,906	212,749	218,496	225,034	231,524	238,256	245,212	252,393	259,799	267,431
REGION 3	377,027	383,769	390,773	397,821	410,399	413,777	422,203	430,990	440,133	449,628	459,470
El Progreso	45,707	46,524	47,373	46,227	49,752	50,162	51,164	52,249	53,357	54,508	55,701
Santa Ros.	112,837	114,855	116,951	119,061	122,825	123,836	126,358	128.968	131,724	134,566	137,512
Jalapa	76,399	77,765	79,164	80,612	83,161	83,845	85,552	87,333	89,186	91,110	93,104
Jutiapa	142,084	144,625	147.265	149,921	154,661	155,934	159,109	162,420	165,866	169,444	173,153
REGION 4	1,139,018	1,171,754	1,205,263	1,236,141	1,275,641	1,312,950	1,351,747	1,391,629	1,433,311	1,476,309	1,520,940
Solola	89,610	92,186	94,822	97,408	100,358	103,293	106,345	109,498	112,761	116,144	119,655
Totonicapán	116,632	119,984	123,415	126,782	130,622	134,443	138,416	142,520	146,766	151,171	155,741
Quetzaltenango	210,869	216,929	223,133	229,220	236,162	243.069	250,252	257,673	265,353	273,313	281.576
San Marcos	278,685	286,695	294,894	303,938	312,113	321,242	330,734	340,541	350,690	361,210	372,130
Huehuetenango	252,648	259,909	267,342	274,635	282,953	291,229	299,835	308,726	317,927	327,465	337,365
El Quiché	190,574	196,051	201,657	207,158	213,432	219,674	226,165	232,871	239,812	247,006	254,473
REGION 5	229,173	235,231	241,449	249,210	254,496	261,419	268,592	276,003	283,660	291,572	299,747
Suchitepéquez	139,987	143,687	147,485	152,287	155,455	159,684	164,066	168,593	173,270	178,103	183,097
Retalhuleu	89,186	91,544	93,964	97,023	99,041	101,735	104,526	107,410	110,390	113,469	116,650
REGION 6	355,156	366,562	380,229	396,560	408,857	423,806	439,393	455,438	472,000	489,139	506,916
Baja Verapáz	70,879	73,570	76.313	79,591	82,059	85,060	88,188	91,408	94,732	98,172	101,740
Alta Verapáz	197,896	205,408	213,066	222,217	229,108	237,466	246,219	255.210	264,491	274,095	284,056
El Petén	84,381	87,584	90,850	94,752	97,690	101,282	104,986	108,820	112,777	116,872	121,120
REGION 7	289,502	296,062	302,797	309,469	316,901	324,450	332,249	340,293	348,617	357,215	366,095
Izabal	115,052	121,750	124,520	127,264	130,320	133,425	136,629	139.941	143,364	146,900	150,552
Zacapa	69,503	71,078	72,695	74,297	76,061	77,893	79,763	81,696	83,694	85,758	87,890
Chiquimula	100,947	103,234	105,582	107,906	110,500	113,132	115,846	118,656	121,559	124,557	127,653

Fuente de Información: 1) Secretaria General del Consejo Nacional de Planificación Económica, Instituto Nacional de Estadistica (INE); Publicaoión: "Proyecciones Regionales de Población 1980-2000" Marzo 1985.

2) Unidad de Informática, Dirección General de Servicios de Salud

"POBLACION TOTAL FEMENINA DE LA REPUBLICA DE GUATEMALA, POR REGION, DEPARTAMENTO Y POR AÑO"

PERIODO 1980 - 1990

REGION Y DEPARTAMENTO	1980	1981	1982	1983	1984	1985	1986	1987	1988	1989	1990
TOTAL DEL PAIS	3,416,035	3,513,766	3,614311	3,718,060	3,825,407	3,936,741	4,052,046	4,171,062	4,293,813	4,420,324	4,550,621
REGION 1	750,945	773,706	797,219	821,413	846,222	871,573	897,570	924,256	951,484	979,104	1,006,964
Guatemala	750,945	773,706	797,219	821,413	846,222	871,573	897,570	924,258	951,484	979,104	1,006,964
REGION 2	371,975	382,633	393,643	405,046	416,890	429,190	441,971	455,198	468,871	482,990	497,556
Sacatepéquez	67,366	69,296	71,290	73,355	75,500	77,728	80,043	82,439	84,915	87,472	90,110
Chimaltenango	126,764	130,417	134,170	138,057	142,094	146,286	150,642	155,150	159,810	164,622	169,587
Escuintla	177,825	182,920	188,183	193,634	199,296	205,176	211,286	217,609	224,146	230,896	237,859
REGION 3	361,591	368,094	374,869	381,952	389,268	397,171	405,342	413,856	422,740	431,955	441,508
El Progreso	44,791	45,597	46,436	47,313	48,219	49,198	50,210	51,266	52,365	53,506	54,689
Santa Rosa	103,710	105,575	107,516	109,550	111,648	113,915	116,259	118,704	121,249	123,892	126,632
Jalapa	75,292	76,646	78,057	79,532	81,056	82,701	84,402	86,177	88,025	89,944	91,933
Jutiapa	137,798	140,276	142,858	145,557	148,345	151,357	154,471	157,719	161,101	164,633	168,254
REGION 4	1,099,499	1,121,897	1,165,110	1,199.361	1,234,924	1,271,894	1,310,328	1,350,033	1,391,117	1,433,690	1,477,861
Sololá	86,782	89,339	91,961	94,665	97,472	100,390	103,424	106,558	109,801	113.161	116,648
Totonicapán	117,072	120,522	124,058	127,705	131,492	135,429	139,521	143,749	148,123	152,656	157,359
Quetzaltenango	208,692	214,641	221,145	227,646	234,396	241,413	248,708	256,244	264,042	272,123	280,507
San Marcos	261,568	269,275	277,176	285,324	293,784	302,579	311,722	321,168	330,942	341,070	351,576
Huehuetenango	240,675	247,767	255,037	262,534	270,319	278,411	286,824	295,515	304,508	313,827	323,496
El Quiché	184,710	190,153	195,733	201,487	207,461	213,672	220,129	226,799	233,701	240,853	248.273
REGION 5	214,537	220,536	226.708	233,077	239,672	246,534	253,649	260,998	268,591	276,434	284,536
Suchitepéquez	131,334	135,006	138,785	142,684	146,721	150,922	155,278	159,777	164,425	169,226	174.186
Retalhuleú	83,203	85,530	87,923	90,393	92,951	95,612	98,371	101,221	104,166	107,208	110,350
REGION 6	339,103	351,881	364,935	378,355	392,344	406,686	421,652	437,073	453,009	469,516	486,653
Baja Verapáz	69,616	72,241	74,927	77,677	80,548	83,493	86,565	89,731	93,003	96,392	99,910
Alta Verapáz	193,464	200,754	208,202	215,860	223,839	232,027	240,559	249,357	258,449	267,866	277,643
El Petén	76,023	78,886	81,812	84,821	87,957	91,173	94,528	97,985	101,557	105,258	109,100
REGION 7	278,387	285,017	291.827	298,953	306,087	313,691	321,534	329,636	338,001	346,635	355,543
Izabal	111,645	114,308	117,039	119,857	122,758	125,807	128,952	132,201	135,556	139,019	142,592
Zacapa	67,310	69,220	70,874	72,550	74,337	76,164	78,089	80,057	82,088	84,185	86,348
Chiquimula	99,128	101,489	102,914	106,416	108,992	111,700	114,493	117,376	120,357	123,431	126,603

Fuente de Información: 1) Secretaria General del Consejo Nacional de Planificación Económica, Instituto Nacional de Estadística (INE); Publicación: "Proyecciones Regionales de Población 1980-2000" Marzo 1985.

2) Unidad de Informática Dirección General de Servicios de Salud.

MINISTERIO DE SALUD PUBLICA Y
ASISTENCIA SOCIAL
GUATEMALA

INSTITUTO DE NUTRICION DE CENTRO
AMERICA Y PANAMA (INCAP)

ORGANIZACION PANAMERICANA DE LA
SALUD
ORGANIZACION MUNDIAL DE LA SALUD
(OPS/OMS)

FONDO DE LAS NACIONES UNIDAS PARA
LA INFANCIA (UNICEF)

EVALUACION DEL PROGRAMA MATERNO-INFANTIL Y FAMILIAR

Guía de Puesto de Salud

Nombre del establecimiento: _____

Area de Salud: _____

Comunidad: _____

Fecha: _____

Grupo entrevistado:

Nombre	Cargo

Grupo Evaluador:

_____

_____

_____

_____

_____

_____

FORMULARIOS
EVALUACION/EFICIENCIA MOH
21

CATEGORIAS O VARIABLES DEL ESTUDIO

I. Recursos

   A. Recursos Físicos (infraestructura)
   B. Recursos Materiales y Suministros
   C. Recursos Financieros
   D. Recursos Humanos

II. Planificación, Organización y Administración

III. Supervisión

IV. Capacitación de Personal

V. Sistema de Información

VI. Logística

VII. Educación y Promoción de la Salud y Participación Comunitaria

I. Recursos

A. Recursos Físicos

1. El local cuenta con servicio sanitario. SI ☐ NO ☐ P ☐ (10) ____

2. Tiene disponibilidad de lavamanos funcional. SI ☐ NO ☐ P ☐ (10) ____

3. Dispone de área física para la atención de pacientes. SI ☐ NO ☐ P ☐ (10) ____

4. Dispone de área física para el desarrollo de charlas educativas. SI ☐ NO ☐ P ☐ (5) ____

5. Dispone de área física para el almacenamiento de medicamentos, vacunas, anticonceptivos, sales de rehidratación oral, alimentos, equipo y papelería. SI ☐ NO ☐ P ☐ (10) ____

6. El local cuenta con suministro adecuado de agua y electricidad. SI ☐ NO ☐ P ☐ (10) ____

B. Recursos materiales y Suministros

1. El Puesto de Salud cuenta con: un escritorio, sillas y anaqueles para colocar equipo. SI ☐ NO ☐ P ☐ (10) ____

2. Hay balanza para lactantes. SI ☐ NO ☐ P ☐ (10) ____

3. Hay balanza de pié con altímetro. SI ☐ NO ☐ P ☐ (10) ____

4. Hay infantómetro. SI ☐ NO ☐ P ☐ (5) ____

5. Hay cinta métrica. SI ☐ NO ☐ P ☐ (5) ____

6. Hay estetoscopio biauricular. SI ☐ NO ☐ P ☐ (5) ____

7. Hay bajalenguas desechables. SI ☐ NO ☐ P ☐ (5) ____

8. Hay termómetros. SI ☐ NO ☐ P ☐ (5) ____

9. Se cuenta con mesa de examen, recipientes, lámpara y taburete. SI ☐ NO ☐ P ☐ (10) ____

10. Hay fetoscopio SI ☐ NO ☐ P ☐ (10) ____

11. Hay esfigmomanómetro SI ☐ NO ☐ P ☐ (5) ____

12. Hay jeringuillas SI ☐ NO ☐ P ☐ (10) ____

13. Hay refrigerador en buen estado con termómetros y hoja para control diario exclusivo para vacunas: SI ☐ NO ☐ P ☐ (10) ____

- de gas SI ☐ NO ☐ P ☐ (5) ____
- de electricidad SI ☐ NO ☐ P ☐ (10) ____

14. Se dispone de estufa y olla de presión o autoclave para esterilización de material SI ☐ NO ☐ P ☐ (10) ____

15. Dispone de archivos para Historias Clínicas y otros documentos. SI ☐ NO ☐ P ☐ (10) ____

16. Dispone de equipos audiovisuales. SI ☐ NO ☐ P ☐ (5) ____

17. Hay equipo para evaluar el desarrollo del niño. SI ☐ NO ☐ P ☐ (10) ____

18. Hay equipo para administrar la TRO. SI ☐ NO ☐ P ☐ (10) ____

19. Hay termos para el transporte de vacunas. SI ☐ NO ☐ P ☐ (5) ____

20. Hay paquetes de hielo para los termos, según normas. SI ☐ NO ☐ P ☐ (5) ____

21. Dispone de las vacunas necesarias según PAI. SI ☐ NO ☐ P ☐ (10) ____

22. Las vacunas están ordenadas e identificadas dentro del refrigerador. SI ☐ NO ☐ P ☐ (10) ____

23. Dispone de medicamentos específicos para I.R.A. SI ☐ NO ☐ P ☐ (10) ____

24. Dispone de Sales de Rehidratación Oral. SI ☐ NO ☐ P ☐ (10) ____

25. Dispone de los diversos tipos de anticonceptivos indicados en las normas. SI ☐ NO ☐ P ☐ (10) ____

26. Dispone de alimentos según programa de alimentación complementaria. SI ☐ NO ☐ P ☐ (10) ____

27. Dispone de material (guantes, jeringuillas, gasa, algodón, alcohol, etc). SI ☐ NO ☐ P ☐ (10) ____

28. Dispone de material de registro y estadística (Historias Clínicas, fichas, formularios y otros). SI ☐ NO ☐ P ☐ (10) ____

29. Dispone de material de escritorio (lápices papel). SI ☐ NO ☐ P ☐ (10) ____

30. Dispone de material educativo:

- Rotafolios SI ☐ NO ☐ P ☐ (2) ____
- Folletos SI ☐ NO ☐ P ☐ (2) ____
- Afiches SI ☐ NO ☐ P ☐ (2) ____
- Diapositivas SI ☐ NO ☐ P ☐ (2) ____
- Otros audiovisuales SI ☐ NO ☐ P ☐ (2) ____

31. Hay materiales dentales:

- fluor SI ☐ NO ☐ P ☐ (5) ____
- anestesia SI ☐ NO ☐ P ☐ (5) ____
- Oxido de zinc y eugenol SI ☐ NO ☐ P ☐ (5) ____

32. Hay instrumental dental:

- espejo SI ☐ NO ☐ P ☐ (2) ____
- explorador SI ☐ NO ☐ P ☐ (2) ____
- cucharilla SI ☐ NO ☐ P ☐ (2) ____

33. Dispone de material de limpieza (escoba, jabón, etc). SI ☐ NO ☐ P ☐ (10) ____

C. Recursos Financieros

1. Cuenta el puesto con recursos específicos para el mantenimiento del mismo SI ☐ NO ☐ P ☐ (10) ____

D. Recursos Humanos

1. Existe una auxiliar de enfermería responsable del funcionamiento del puesto. SI ☐ NO ☐ P ☐ (10) ____
2. Existe una descripción de puesto para este funcionario. SI ☐ NO ☐ P ☐ (10) ____
3. Cuenta el puesto con un técnico de salud rural SI ☐ NO ☐ P ☐ (5) ____
4. Existe una descripción de puesto específica para este funcionario. SI ☐ NO ☐ P ☐ (5) ____

5. Cuenta el puesto con un estudiante de medicina en su ejercicio profesional supervisado (EPS). SI ☐ NO ☐ P ☐ (5) ____

6. Realiza el personal del puesto visitas a domicilio SI ☐ NO ☐ P ☐ (10) ____

7. Lleva el personal del puesto un registro e informe de sus actividades. SI ☐ NO ☐ P ☐ (10) ____

8. Cuenta el Puesto con un EPS de odontología SI ☐ NO ☐ P ☐ (10) ____

9. Cuenta el Puesto con personal voluntario capacitado y activo para ejecutar actividades de salud:

   - Comadronas SI ☐ NO ☐ P ☐ (5) ____
   - Promotores SI ☐ NO ☐ P ☐ (5) ____

II. Planificación, Organización y Administración

A. Planificación

1. Se dispone de normas escritas de programación para atención materno-infantil (verificar). SI ☐ NO ☐ P ☐ (10) ____

2. Existen normas de atención materno-infantil (verificar) SI ☐ NO ☐ P ☐ (10) ____

3. Existen normas de atención odontológica y manual de procedimientos. SI ☐ NO ☐ P ☐ (10) ____

4. Hay normas de atención a:

   - escolares SI ☐ NO ☐ P ☐ (5) ____
   - adolescentes SI ☐ NO ☐ P ☐ (5) ____

5. El personal del puesto conoce las normas mencionadas anteriormente. SI ☐ NO ☐ P ☐ (10) ____

6. Se han revisado las normas en los últimos 3 años. SI ☐ NO ☐ P ☐ (10) ____

7. El personal del puesto ha participado en el ajuste de las normas a las condiciones locales. SI ☐ NO ☐ P ☐ (10) ____

8. Hay normas de control prenatal (verificar). SI ☐ NO ☐ P ☐ (5) ____

126

	Hay normas de control puerperal (verificar).	SI ☐	NO ☐	P ☐	(5) ____
10.	Existen normas de atención para detección del componente de salud mental:				
	- en la atención pre-natal	SI ☐	NO ☐	P ☐	(2) ____
	- en la atención post-natal	SI ☐	NO ☐	P ☐	(2) ____
	- sobre desarrollo del niño	SI ☐	NO ☐	P ☐	(2) ____
11.	Existen normas y mecanismos para la atención del paciente con problemas de salud mental.	SI ☐	NO ☐	P ☐	(5) ____
12.	Cada control maternal incluye control de peso, presión arterial, examen obstétrico y educación en salud y se le provee a la madre de un carnet con toda la información.	SI ☐	NO ☐	P ☐	(10) ____
13.	En el control pre-natal se hace examen sistemático de las mamas para la lactancia materna.	SI ☐	NO ☐	P ☐	(10) ____
14.	En el control del puerperio se continúa la promoción de la lactancia materna.	SI ☐	NO ☐	P ☐	(10) ____
15.	El Puesto de Salud realiza actividades de planificación familiar según normas vigentes.	SI ☐	NO ☐	P ☐	(10) ____
16.	Se realizan actividades de detección precoz del cáncer ginecológico.	SI ☐	NO ☐	P ☐	(10) ____
17.	Todas las embarazadas reciben vacuna antitetánica según normas.	SI ☐	NO ☐	P ☐	(10) ____
18.	El programa materno incluye alimentación complementaria.	SI ☐	NO ☐	P ☐	(10) ____
19.	Se aplican criterios de riesgo en la atención de la embarazada y la puérpera.	SI ☐	NO ☐	P ☐	(10) ____

20. El puesto tiene normas escritas de crecimiento del niño (verificar). SI ☐ NO ☐ P ☐ (5) ____

21. El puesto tiene normas escritas de desarrollo del niño (verificar). SI ☐ NO ☐ P ☐ (5) ____

22. El puesto tiene normas escritas de inmunización según PAI (verificar) SI ☐ NO ☐ P ☐ (10) ____

23. El Puesto tiene normas para el control de enfermedades diarreicas (CED) y la terapia de rehidratación oral (TRO) (verificar). SI ☐ NO ☐ P ☐ (10) ____

24. Hay normas para la estimulación de la lactancia materna y la alimentación durante el primer año de vida (verificar) SI ☐ NO ☐ P ☐ (10) ____

25. Se aplican las normas correspondientes a:

- Crecimiento del niño SI ☐ NO ☐ P ☐ (5) ____
- Desarrollo del niño SI ☐ NO ☐ P ☐ (5) ____
- Inmunizaciones SI ☐ NO ☐ P ☐ (5) ____
- CED y TRO SI ☐ NO ☐ P ☐ (5) ____
- Lactancia materna y alimentación infantil SI ☐ NO ☐ P ☐ (5) ____
- Alimentación complementaria SI ☐ NO ☐ P ☐ (5) ____
- IRA SI ☐ NO ☐ P ☐ (5) ____
- Salud bucal SI ☐ NO ☐ P ☐ (5) ____
- Salud escolar SI ☐ NO ☐ P ☐ (5) ____

26. En cada atención infantil se toma y registra:

- Peso (en gráfica normatizada) SI ☐ NO ☐ P ☐ (5) ____
- Talla (en gráfica normatizada) SI ☐ NO ☐ P ☐ (5) ____
- Examen oral SI ☐ NO ☐ P ☐ (5) ____
- Cronología de la erupción dentaria SI ☐ NO ☐ P ☐ (5) ____
- Examen clínico SI ☐ NO ☐ P ☐ (5) ____
- Patología encontrada SI ☐ NO ☐ P ☐ (5) ____
- Vacunaciones SI ☐ NO ☐ P ☐ (5) ____
- Diagnóstico de estado nutricional SI ☐ NO ☐ P ☐ (5) ____
- Evaluación de desarrollo psicomotor SI ☐ NO ☐ P ☐ (5) ____
- Educación a la madre SI ☐ NO ☐ P ☐ (5) ____

27.	Están todas las vacunas conservadas adecuadamente, según normas de PAI.	SI ☐	NO ☐	P ☐	(10) ____
28.	Hay registro de vacunas según dósis y edad	SI ☐	NO ☐	P ☐	(10) ____
29.	Se vacuna diariamente durante todo el horario de atención del Puesto.	SI ☐	NO ☐	P ☐	(10) ____
30.	En el tratamiento de las diarreas no se utilizan medicamentos anti-diarreicos.	SI ☐	NO ☐	P ☐	(10) ____
31.	Existe sistema de referencia para hospitalización por diarrea.	SI ☐	NO ☐	P ☐	(10) ____
32.	En caso de diarrea, se recomienda continuar con la lactancia materna.	SI ☐	NO ☐	P ☐	(5) ____
33.	En caso de diarrea, se recomienda continuar con alimentación sólida.	SI ☐	NO ☐	P ☐	(5) ____
34.	En caso de diarrea, se recomienda:				
	- Tratamiento con sales de rehidratación oral	SI ☐	NO ☐	P ☐	(5) ____
	- Uso de suero casero	SI ☐	NO ☐	P ☐	(5) ____
	- Uso de otros líquidos	SI ☐	NO ☐	P ☐	(5) ____
35.	Las infecciones respiratorias agudas son clasificadas y tratadas según severidad (normas OMS).	SI ☐	NO ☐	P ☐	(10) ____
36.	Las drogas para tramiento de IRA pueden ser prescritas también por personal no médico.	SI ☐	NO ☐	P ☐	(10) ____
37.	Se provee a cada niño con un carnet que incluye la gráfica de crecimento, registro de vacunas y otros datos básicos.	SI ☐	NO ☐	P ☐	(10) ____
38.	Se aplican criterios de riesgo en la atención pediátrica.	SI ☐	NO ☐	P ☐	(10) ____
39.	El Puesto cuenta con un plan o programa de actividades materno-infantil para el año 1985 (verificar).	SI ☐	NO ☐	P ☐	(10) ____
40.	Incluye el programa un componente odontológico.	SI ☐	NO ☐	P ☐	(10) ____

41. El Puesto tiene un área geográfica y de población bien definida. SI ☐ NO ☐ P ☐ (5) ____

42. Hay mapa actualizado del área (verificar) SI ☐ NO ☐ P ☐ (5) ____

43. El Puesto tiene un diagnóstico de salud de su área (verificar). SI ☐ NO ☐ P ☐ (5) ____

44. El Puesto dispone de un censo de viviendas y familias (verificar). SI ☐ NO ☐ P ☐ (5) ____

45. El programa para 1985 contiene metas cuantitativas de:

- Capacitación de personal voluntario SI ☐ NO ☐ P ☐ (5) ____
- Cobertura SI ☐ NO ☐ P ☐ (5) ____
- Educación en la comunidad SI ☐ NO ☐ P ☐ (5) ____
- Promoción y organización de la comunidad SI ☐ NO ☐ P ☐ (5) ____

46. Dicho programa es elaborado y conocido por todo el personal SI ☐ NO ☐ P ☐ (5) ____

47. Se evalúa periódicamente el cumplimiento del programa. SI ☐ NO ☐ P ☐ (10) ____

B. Organización y Administración.

1. Existen mecanismos eficientes de coornacion entre puesto y:

- el centro de salud. SI ☐ NO ☐ P ☐ (5) ____
- el área de salud. SI ☐ NO ☐ P ☐ (5) ____

2. Se realizan reuniones periódicas de coordinación con el personal del Puesto para discutir aspectos técnico-administrativos. SI ☐ NO ☐ P ☐ (5) ____

3. Se realizan reuniones periódicas de coordinación con el resto del Area de Salud. SI ☐ NO ☐ P ☐ (5) ____

4. El Puesto realiza actividades en colaboración con grupos:

- Intra-sectoriales SI ☐ NO ☐ P ☐ (5) ____
- Inter-sectoriales SI ☐ NO ☐ P ☐ (5) ____

5. El Puesto colabora con la Coordinadora Inter-institucional de la localidad. SI ☐ NO ☐ P ☐ (5) ____

6. Existen normas de referencia y contra-referencia de pacientes. SI ☐ NO ☐ P ☐ (10) ____

7. Existe un sistema formal de referencia por niveles de complejidad. SI ☐ NO ☐ P ☐ (10) ____

8. Hay sistema formal de contra-referencia SI ☐ NO ☐ P ☐ (10) ____

9. Hay sistema formalizado de referencia para pacientes de riesgo. SI ☐ NO ☐ P ☐ (10) ____

10. Se recibe información frecuente sobre el tratamiento administrado a los casos referidos. SI ☐ NO ☐ P ☐ (10) ____

III. Supervisión

1. Existen normas de supervisión en el Puesto de Salud para personal voluntario. SI ☐ NO ☐ P ☐ (5) ____

2. Existen guías de supervisión en el Puesto de Salud para personal voluntario. SI ☐ NO ☐ P ☐ (10) ____

3. Se ha formulado un plan de supervisión para el personal voluntario. SI ☐ NO ☐ P ☐ (5) ____

4. Dentro de las visitas que el centro hace a los puestos se contempla la supervisión de aspectos técnicos, administrativos y de logística. SI ☐ NO ☐ P ☐ (10) ____

5. El Puesto recibe supervisión programada por lo menos cada
   - cada 3 meses del nivel de área SI ☐ NO ☐ P ☐ (5) ____
   - cada mes del centro de salud SI ☐ NO ☐ P ☐ (5) ____

6. Recibe el Puesto algún informe escrito de los resultados de la supervisión:
   - del nivel de área SI ☐ NO ☐ P ☐ (5) ____
   - del centro de salud SI ☐ NO ☐ P ☐ (5) ____

7. El informe contiene:

- Comentarios sobre la calidad de los registros estadísticos. SI ☐ NO ☐ P ☐ (2) ____
- Comentarios sobre la calidad de la atención. SI ☐ NO ☐ P ☐ (2) ____
- Sugerencias para mejorar el trabajo SI ☐ NO ☐ P ☐ (2) ____
- Lista de factores positivos encontrados SI ☐ NO ☐ P ☐ (2) ____
- Información sobre deficiencias de suministros. SI ☐ NO ☐ P ☐ (2) ____

8. Se hace seguimiento de la implementación de lo recomendado por:

- el área de salud SI ☐ NO ☐ P ☐ (5) ____
- el centro de salud SI ☐ NO ☐ P ☐ (5) ____

9. Se informa sobre los resultados de la supervisión del personal voluntario a:

- el centro de salud SI ☐ NO ☐ P ☐ (5) ____
- el nivel de área SI ☐ NO ☐ P ☐ (5) ____

IV. Capacitación de Personal

1. La auxiliar de enfermería tiene curso y certificado de estudios. SI ☐ NO ☐ P ☐ (10) ____

2. Recibe el técnico de Salud Rural educación en servicio. SI ☐ NO ☐ P ☐ (10) ____

3. Se han realizado en el Puesto actividades de capacitación en 1985 para:

- Personal voluntario SI ☐ NO ☐ P ☐ (5) ____
- Personal de otras instituciones SI ☐ NO ☐ P ☐ (5) ____

4. Recibe la auxiliar Educación en Servicio SI ☐ NO ☐ P ☐ (10) ____

5. Dispone el Puesto de material didáctico sobre temas materno-infantil que apoyen las actividades de capacitación:

- material preparado localmente SI ☐ NO ☐ P ☐ (2) ____
- material preparado por nivel central SI ☐ NO ☐ P ☐ (2) ____
- material preparado por otra institución nacional. SI ☐ NO ☐ P ☐ (2) ____
- material de orígen internacional SI ☐ NO ☐ P ☐ (2) ____
- materiales de consulta SI ☐ NO ☐ P ☐ (2) ____

6. Hay programa de capacitación en salud mental SI ☐ NO ☐ P ☐ (5) ____

V. Sistema de información

1. Existen nomras escritas para el sistema de información materno-infantil (verificar). SI ☐ NO ☐ P ☐ (10) ____

2. Conoce estas normas la persona encargada de registrar y recopilar información estadística del Puesto. SI ☐ NO ☐ P ☐ (10) ____

3. Se le dió entrenamiento u orientación a la persona encargada de registrar información SI ☐ NO ☐ P ☐ (10) ____

4. No hay problemas en el llenado de formularios a nivel del Puesto por:
   - exceso de formularios SI ☐ NO ☐ P ☐ (2) ____
   - falta de instructivo SI ☐ NO ☐ P ☐ (2) ____
   - falta de orientación previa SI ☐ NO ☐ P ☐ (2) ____
   - falta de supervisión SI ☐ NO ☐ P ☐ (2) ____
   - falta de interés SI ☐ NO ☐ P ☐ (2) ____

5. El Puesto elabora y analiza periódicamente sus estadísticas. SI ☐ NO ☐ P ☐ (5) ____

6. El Puesto utiliza las estadísticas preparadas por ellos SI ☐ NO ☐ P ☐ (5) ____

7. El Puesto envía oportunamente al distrito de salud los informes según normas del sistema de información. SI ☐ NO ☐ P ☐ (5) ____

8. El Puesto recibe regularmente información estadística de retorno consolidada en:
   - el nivel central SI ☐ NO ☐ P ☐ (5) ____
   - el área de salud SI ☐ NO ☐ P ☐ (5) ____
   - el distrito de salud SI ☐ NO ☐ P ☐ (5) ____

9. Ha realizado el Puesto encuestas especiales para obtener información de morbi-mortalidad. SI ☐ NO ☐ P ☐ (5) ____

10. Se registran e informan las actividades realizadas por el personal voluntario. SI ☐ NO ☐ P ☐ (5) ____

VI. Logística

1. Hace el puesto un análisis periódico de las necesidades de equipo y suministros tales como:

- medicamentos	SI ☐	NO ☐	P ☐	(5)	____
- sales de rehidratación oral	SI ☐	NO ☐	P ☐	(5)	____
- vacunas	SI ☐	NO ☐	P ☐	(5)	____
- anticonceptivos	SI ☐	NO ☐	P ☐	(5)	____
- equipo médico	SI ☐	NO ☐	P ☐	(5)	____
- balanzas y tallímetros	SI ☐	NO ☐	P ☐	(5)	____
- papelería y formularios	SI ☐	NO ☐	P ☐	(5)	____
- termos y otro equipo de cadena de frío	SI ☐	NO ☐	P ☐	(5)	____
- material educativo	SI ☐	NO ☐	P ☐	(5)	____
- equipo de limpieza	SI ☐	NO ☐	P ☐	(5)	____
- alimentos	SI ☐	NO ☐	P ☐	(5)	____
- equipo de demostración de preparación de alimentos	SI ☐	NO ☐	P ☐	(5)	____
- material dental	SI ☐	NO ☐	P ☐	(5)	____
- equipo odontológico	SI ☐	NO ☐	P ☐	(5)	____

2. Mantiene el Puesto un inventario actualizado para controlar el pedido y utilización de:

- medicamentos	SI ☐	NO ☐	P ☐	(2)	____
- sales de rehidratación oral	SI ☐	NO ☐	P ☐	(2)	____
- vacunas	SI ☐	NO ☐	P ☐	(2)	____
- anticonceptivos	SI ☐	NO ☐	P ☐	(2)	____
- equipo médico	SI ☐	NO ☐	P ☐	(2)	____
- balanzas y tallímetros	SI ☐	NO ☐	P ☐	(2)	____
- papelería y formularios	SI ☐	NO ☐	P ☐	(2)	____
- termos y otro equipo de cadena de frío	SI ☐	NO ☐	P ☐	(2)	____
- material educativo	SI ☐	NO ☐	P ☐	(2)	____
- equipo de limpieza	SI ☐	NO ☐	P ☐	(2)	____
- alimentos	SI ☐	NO ☐	P ☐	(2)	____
- equipo de demostración de preparación de alimentos	SI ☐	NO ☐	P ☐	(2)	____
- material dental	SI ☐	NO ☐	P ☐	(2)	____
- equipo odontológico	SI ☐	NO ☐	P ☐	(2)	____

3. Es adecuada el área de almacenamiento de suministros y equipo del Puesto en cuanto a:

- seguridad SI ☐ NO ☐ P ☐ (2) ____
- luz SI ☐ NO ☐ P ☐ (2) ____
- humedad SI ☐ NO ☐ P ☐ (2) ____
- temperatura SI ☐ NO ☐ P ☐ (2) ____
- ventilación SI ☐ NO ☐ P ☐ (2) ____
- limpieza SI ☐ NO ☐ P ☐ (2) ____
- espacio SI ☐ NO ☐ P ☐ (2) ____
- orden SI ☐ NO ☐ P ☐ (2) ____
- disponibilidad de equipo y mobiliario SI ☐ NO ☐ P ☐ (2) ____

4. En los últimos 3 meses ha habido disponibilidad total de:

- medicamentos SI ☐ NO ☐ P ☐ (2) ____
- sales de rehidratación oral SI ☐ NO ☐ P ☐ (2) ____
- vacunas SI ☐ NO ☐ P ☐ (2) ____
- anticonceptivos SI ☐ NO ☐ P ☐ (2) ____
- equipo médico SI ☐ NO ☐ P ☐ (2) ____
- balanzas y tallímetros SI ☐ NO ☐ P ☐ (2) ____
- papelería y formularios SI ☐ NO ☐ P ☐ (2) ____
- termos y otro equipo de cadena de frío SI ☐ NO ☐ P ☐ (2) ____
- material educativo SI ☐ NO ☐ P ☐ (2) ____
- equipo de limpieza SI ☐ NO ☐ P ☐ (2) ____
- alimentos SI ☐ NO ☐ P ☐ (2) ____
- equipo de demostración de preparación de alimentos SI ☐ NO ☐ P ☐ (2) ____
- material dental SI ☐ NO ☐ P ☐ (2) ____
- equipo odontológico SI ☐ NO ☐ P ☐ (2) ____

5. Los suministros y equipo listados a continuación llegan al Puesto en buenas condiciones:

- medicamentos SI ☐ NO ☐ P ☐ (2) ____
- sales de rehidratación oral SI ☐ NO ☐ P ☐ (2) ____
- vacunas SI ☐ NO ☐ P ☐ (2) ____
- anticonceptivos SI ☐ NO ☐ P ☐ (2) ____
- equipo médico SI ☐ NO ☐ P ☐ (2) ____
- balanzas y tallímetros SI ☐ NO ☐ P ☐ (2) ____

- papelería y formularios SI ☐ NO ☐ P ☐ (2) ____
- termos y otro equipo de cadena de frío SI ☐ NO ☐ P ☐ (2) ____
- material educativo SI ☐ NO ☐ P ☐ (2) ____
- equipo de limpieza SI ☐ NO ☐ P ☐ (2) ____
- alimentos SI ☐ NO ☐ P ☐ (2) ____
- equipo de demostración de preparación de alimentos SI ☐ NO ☐ P ☐ (2) ____
- material dental SI ☐ NO ☐ P ☐ (2) ____
- equipo odontológico SI ☐ NO ☐ P ☐ (2) ____

VII. Educación y Promoción de la Salud y Participación Comunitaria

1. Se ha identificado y se trabaja con organizaciones naturales de la comunidad (clubes sociales y deportivos, cooperativas, etc). SI ☐ NO ☐ P ☐ (10) ____
2. El personal del puesto participa en actividades comunitarias fuera del mismo. SI ☐ NO ☐ P ☐ (10) ____
3. Existe una comisión representativa de la comunidad que participa en la organización y funcionamiento del puesto. SI ☐ NO ☐ P ☐ (5) ____
4. Existe una comisión representativa de la comunidad que exponga las necesidades de la comunidad. SI ☐ NO ☐ P ☐ (10) ____
5. Hay plan de trabajo para la educación y promoción en salud y participación comunitaria. SI ☐ NO ☐ P ☐ (10) ____
6. El plan contiene:
   - metas SI ☐ NO ☐ P ☐ (2) ____
   - actividades inter-sectoriales SI ☐ NO ☐ P ☐ (2) ____
   - recursos necesarios SI ☐ NO ☐ P ☐ (2) ____
   - mecanismos de control y evaluación SI ☐ NO ☐ P ☐ (2) ____
7. Existen normas de tipo psicológico para el trabajo con grupos comunitarios. SI ☐ NO ☐ P ☐ (5) ____
8. Se realizan actividades de educación individual a las madres en cada consulta. SI ☐ NO ☐ P ☐ (10) ____

9. En estas charlas individuales se les enseña a las madres a:

- entender la gráfica de crecimiento SI ☐ NO ☐ P ☐ (2) ____
- estimular el desarrollo del niño SI ☐ NO ☐ P ☐ (2) ____
- resolver problemas de la lactancia natural SI ☐ NO ☐ P ☐ (2) ____
- alimentación correcta durante el primer año de vida SI ☐ NO ☐ P ☐ (2) ____
- prevenir la diarrea SI ☐ NO ☐ P ☐ (2) ____
- prevenir las caries y la enfermedad periodental SI ☐ NO ☐ P ☐ (2) ____
- diagnosticar los grados de deshidratación SI ☐ NO ☐ P ☐ (2) ____
- preparar las sales de rehidratación oral SI ☐ NO ☐ P ☐ (2) ____
- adminsitrar las sáles de rehidratación oral SI ☐ NO ☐ P ☐ (2) ____
- preparar el suero casero SI ☐ NO ☐ P ☐ (2) ____
- reconocer la importancia de las vacunas SI ☐ NO ☐ P ☐ (2) ____
- reconocer la importancia de la higiene personal SI ☐ NO ☐ P ☐ (2) ____
- reconocer la importancia de la higiene del medio. SI ☐ NO ☐ P ☐ (2) ____
- la manipulación de alimentos SI ☐ NO ☐ P ☐ (2) ____
- alimentación materna SI ☐ NO ☐ P ☐ (2) ____

0. En estas charlas individuales se le enseña a toda mujer sobre:

- el auto-examen de las mamas SI ☐ NO ☐ P ☐ (2) ____
- diversos tipos de anticonceptivos SI ☐ NO ☐ P ☐ (2) ____
- la prevención de enfermedades de transmisión sexual SI ☐ NO ☐ P ☐ (2) ____
- la importancia de la detección del cáncer ginecológico SI ☐ NO ☐ P ☐ (2) ____
- la higiene genital externa SI ☐ NO ☐ P ☐ (2) ____

11. Programa el puesto reuniones periódicas con grupos comunitarios para impartir temas específicos en educación para la salud. SI ☐ NO ☐ P ☐ (10) ____

12. En estas reuniones se desarrollan temas como los siguientes:

- crecimiento y desarrollo SI ☐ NO ☐ P ☐ (2) ____
- alimentación infantil y lactancia materna SI ☐ NO ☐ P ☐ (2) ____
- saneamiento ambiental SI ☐ NO ☐ P ☐ (2) ____
- higiene personal SI ☐ NO ☐ P ☐ (2) ____
- tratamiento de la diarrea con rehidratación oral SI ☐ NO ☐ P ☐ (2) ____
- vacunaciones SI ☐ NO ☐ P ☐ (2) ____
- planificación familiar SI ☐ NO ☐ P ☐ (2) ____
- enfermedades de transmisión sexual SI ☐ NO ☐ P ☐ (2) ____
- salud bucal SI ☐ NO ☐ P ☐ (2) ____
- educación sexual SI ☐ NO ☐ P ☐ (2) ____
- detección precoz del cáncer ginecológico SI ☐ NO ☐ P ☐ (2) ____
- enfermedades respiratorias SI ☐ NO ☐ P ☐ (2) ____

13. Los materiales educativos con que cuenta el puesto se distribuyen en la comunidad SI ☐ NO ☐ P ☐ (10) ____

14. Participa la comunidad en la evaluación de actividades desarrolladas por el puesto SI ☐ NO ☐ P ☐ (10) ____

15. Se han hecho evaluaciones de las actividades de educación para la salud a nivel comunitario SI ☐ NO ☐ P ☐ (10) ____

D. OBJETIVOS INMEDIATOS

- Identificar y elaborar diagnóstico a nivel nacional, de las instituciones estatales y no gubernamentales que realizan acciones de prestación de servicio y educación en salud, en el campo maternoinfantil.

- Establecer los mecanismos de coordinación interinstitucional e interagencial a nivel central y local y unificar las acciones que se desarrollan en el campo maternoinfantil y educación en salud.

- Divulgar y promocionar el Plan Nacional de Supervivencia Infantil en las diferentes instituciones participantes en su ejecución.

- Analizar, diseñar e implementar esquemas operativos para la ejecución de las actividades contempladas en el Plan Nacional de Supervivencia Infantil.

- Promover la formulación de programas específicos de nivel nacional, para los componentes prioritarios del Plan Nacional de Supervivencia Infantil.

- Estandarizar a nivel nacional las normas y procedimientos para el control de las enfermedades diarréicas, respiratorias agudas, inmunoprevenibles, atención materna e infantil y orientación familiar según enfoque de riesgo.

- Incorporar en forma progresiva y según áreas de salud prioritarias, los distintos componentes del Plan, con acciones conjuntas y complementarias entre instituciones y sectores.

- Fortalecer la capacidad operativa de las instituciones involucradas en la ejecución del Plan.

- Dotar de equipo, materiales y suministros para la ejecución del Plan de Supervivencia Infantil, a las diferentes instituciones y sectores involucrados.

- Mejorar la cadena de frío en los diferentes niveles de atención.

- Seleccionar y estandarizar a nivel nacional, el material e instrumentos de registros médicos para la atención maternoinfantil.

- Establecer sistemas simplificados de monitoreo de crecimiento y desarrollo en niños menores de cinco años.

- Incorporar en forma progresiva según áreas prioritarias, el sistema de información, monitoreo y evaluación en el campo de Supervivencia Infantil.

- Elaborar un programa educativo integral con los componentes del Plan Nacional de Supervivencia Infantil, bajo el criterio de enfoque de riesgo, que contemple los aspectos conceptuales, metodológicos y operativos.

- Capacitar a un núcleo nacional de las diferentes instituciones con participación en el campo de Supervivencia Infantil y de Educación para la Salud.

- Desarrollar los recursos humanos de las diferentes instituciones, según implementación progresiva, para la ejecución de los diferentes componentes del Plan, empleando metodologías participativas.

- Apoyar y propiciar la participación de las organizaciones existentes en la comunidad, en función de desarrollar un proceso educativo comunitario.

- Identificar el saber y la práctica de la medicina tradicional en las diferentes comunidades para realizar las modificaciones necesarias en la prestación de servicios y en el proceso educativo.

- Validar, producir y evaluar material educativo diseñado a nivel local, con participación de la comunidad.

- Dotar a las unidades educativas institucionales y comunitarias, según el diagnóstico de necesidades de los insumos necesarios para el desarrollo de la tecnología apropiada en el proceso educativo.

- Diseñar, ejecutar y aplicar investigaciones evaluativas en el campo de Supervivencia Infantil.

- Iniciar el proceso de Supervisión, capacitando en la acción, al personal involucrado en la ejecución del Plan de Supervivencia Infantil.

E. METAS INMEDIATAS

1. Contar durante los primeros tres meses de ejecución del Plan, con el inventario y análisis de la capacidad institucional para la atención de salud maternoinfantil.

2. Realizar como mínimo una reunión mensual de la Comisión Nacional de Supervivencia Infantil, y establecer en el último trimestre de 1985 un mecanismo coordinador del Plan.

3. Establecer en el último trimestre de 1985 un mecanismo coordinador y unificador del proceso educativo.

4. Iniciar en el último trimestre de 1985, la elaboración de un Plan de Divulgación y Promoción en Supervivencia Infantil, a ejecutarse por las instituciones involucradas.

5. Organizar durante el último trimestre de 1985, sub-grupos de trabajo para definir esquemas operativos, normas y revisión de material para actividades de promoción, registros médicos y sistema de información, revisión del sistema de supervisión, monitoreo y evaluación, el proceso de educación para la salud y otras actividades que sean necesarias.

6. Realizar tres reuniones como mínimo, con representantes de los medios de comunicación, para promocionar y divulgar el Plan Nacional de Supervivencia Infantil.

7. Contar en el primer trimestre de 1986 con un esquema operativo que incluya metodologías participativas y que sirva de marco de referencia para la ejecución del Plan.

8. Elaborar durante el primer trimestre de 1986, los programas operativos, correspondientes a los distintos componentes del Plan de Supervivencia Infantil.

9. Formular en el último trimestre de 1985, los planes para la extensión de cobertura del PAI, incluida la realización de jornadas nacionales de vacunación.

10. Que al finalizar el primer semestre de 1986 se cuente con las normas correspondientes de cada uno de los componentes del Plan Nacional de Supervivencia Infantil y se inicie el proceso de difusión.

11. Que al finalizar 1986, las acciones del Plan de Supervivencia Infantil estén adoptadas integralmente en las instituciones involucradas.

12. Con la estrategia de canalización se espera que:

a. Para fines de 1985 se implemente el componente de control de enfermedades respiratorias agudas, en cuatro áreas de salud de los departamentos de Santa Rosa, Jutiapa, Jalapa y Chiquimula, y para 1986 en Zacapa, Chimaltenango, Totonicapán, Sololá, San Marcos, Huehuetenango, El Quiché, Quetzaltenango, y Suchitepéquez.

b. Para fines de 1985 se implemente el componente de inmunoprevenibles y control de enfermedades diarréicas en los departamentos de Zacapa, El Progreso, Chiquimula y Jutiapa, y para 1986 en Chimaltenango, Totonicapán, Sololá, San Marcos, Huehuetenango, El Quiché, Quetzaltenango y Suchitepéquez.

c. Para fines de 1986 se implemente en los diez departamentos enunciados anteriormente, el modelo de atención primaria maternoinfantil en enfoque de riesgo.

13. Garantizar en el primer semestre de 1986, la dotación de drogas y suministros, atendiendo a los componentes por causas básicas y para el segundo semestre de 1986, los pertinentes para el desarrollo de la atención materna e infantil.

144

14. Realizar tres reuniones de trabajo durante el primer año de ejecución del Plan, con las instituciones involucradas, para unificar y estandarizar a nivel nacional, el material e instrumentos de registros médicos para la atención maternoinfantil.

15. Contar con la información necesaria sobre las formas y tipos que adoptan las organizaciones a nivel comunitario al final del primer semestre de 1986.

16. Contar con un instrumento unificado que conduzca a aumentar el conocimiento del saber y la práctica de la medicina tradicional al final del primer semestre de 1986.

17. Contar con un programa educativo uniforme, funcional y flexible, con enfoque integral en salud maternoinfantil y con metodología esencialmente participativa, para el área rural y urbano-marginal, al final del primer semestre de 1986.

18. Que durante el primer año de ejecución del Plan, se cuente con los datos basales de los departamentos, según su implementación.

F. TIPOS DE INTERVENCION

Capacitación

Se contempla la capacitación de personal institucional y comunitario, para la ejecución del Plan de Supervivencia Infantil, con un enfoque integral y sinérgico entre los componentes del mismo, desarrollando módulos educativos que integren por un lado, los

145

UNIVERSIDAD FRANCISCO MARROQUIN
FACULTAD DE MEDICINA
Guatemala, Guatemala, C. A.

INFORME DE TRATAMIENTO DE REHIDRATACION ORAL

MES _____ AÑO _____

DIA	PROCEDENCIA		NIÑOS CON DIARREA GRUPO ETAREO			SEXO		GRADO DE DESHIDRATACION Y PORCENTAJE			REHIDRATADOS EN ESTE SERVICIO			REFERIDOS A:						CONDICIONES DE EGRESO		TOTAL DE SOBRES UTILIZADOS	PROMEDIO MEDIA: S.R.O				
	U	R	Menores de 1 año	1 a 2 años	2 a 5 años	M	F	Leve menos 5%	Moderado del 5% al 10%	Severo más del 10%	R.H.O	I.V	Mixto	H.R.	Unidad	Puesto	Promotor	Centro de Salud	Casa	Vivos	Fallecidos	SALES (SRO) UTILIZADAS	1-3	4-5	7-9	10-12	13, 14, 15
1																											
2																											
3																											
4																											
5																											
6																											
7																											
8																											
9																											
10																											
11																											
12																											
13																											
14																											
15																											
16																											
17																											
18																											
19																											
20																											
21																											
22																											
23																											
24																											
25																											
26																											
27																											
28																											
29																											
30																											
31																											
SUB TOTAL																											
TOTAL																											

CAL/da

ANNEX E
ORS Treatment
Form, Univ.
Fco.Marroqu
Programa de
Salud Rural

146

RELACION DEL PLAN DE SUPERVIVENCIA INFANTIL CON PLANES GLOBALES Y SECTORIALES

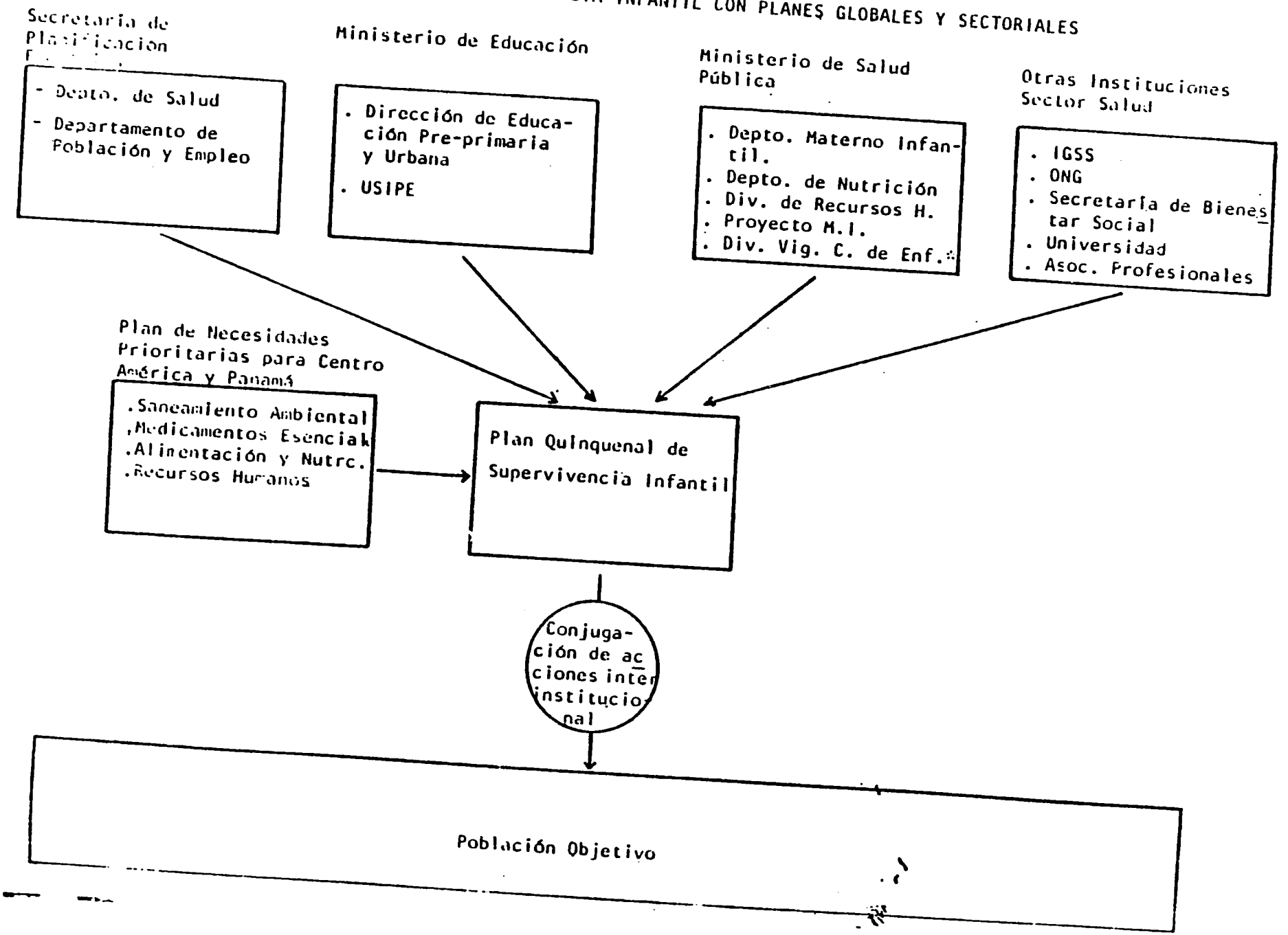


TABLE 2

PROJECTED BUDGET (TENTATIVE)

NATIONAL ORT PROJECT

CATEGORY	1	2	3	TOTAL
1. Management - Central Administration*	450,000	495,000	544,500	1,489,500
2. Mass Marketing	100,000	15,000	10,000	125,000
Development	30,000	100,000	60,000	190,000
3. ORS Supply - LAPROMED Start-up	148,550	-------	-------	148,550
ORS Purchase	(248,000)	(758,340)	(1,416,687)	---------
ORS Purchase 20% anticipated	399,668	1,041,677	1,133,350	2,594,695
4. Training **	33,335	81,935	81,935	197,205
5. Supervision	16,500	16,500	16,500	49,500
TOTALS	1,178,053	1,750,112	1,846,285	4,774,450

* 10% annual inflation rate.

** Development Costs + Management Costs are (1). The "Training" line item is direct training session costs only.

TABLE 5

ESTIMATED INVESTMENT FOR LOCAL PRODUCTION*

Production Equipment	(In U.S $)
1 Filling-mixing machine **	$26,000.00
3 Scales	3,500.00
1 Drum hoop mixer (300 liter, with two drums)	4,500.00
1 Sifting and straining machine	3,300.00
1 Tray drying oven	1,700.00
1 Hand pallet truck	500.00
Subtotal	$39,500.00
Human Resources	
1 Technical adviser	$10,000.00
1 Full-time pharmacist	10,400.00
5 Operators 3,250.00	
Technical training	10,000.00
Subtotal	$33,650.00
Materials	
6-months' supply of raw materials	$25,720.00
Packaging material	14,680.00
Subtotal	$40,400.00
TOTAL	$113,550.00***

* LAPROMED alternative.

** Possibly UNICEF-donated; processes 50 packs/minute

*** Plus approximately US$172,032.00 for a "bridge supply of packets (N=1,433,500).

NOTE: The packaging of 100 units into a box will add to the cost, but not very significantly.

For comparative purposes, it should be taken into consideration that the aluminum foil used for the UNICEF packet is more expensive than polyethylene packaging.

This is footnote for Table 6 — again my error

149

ORT ACTIVITIES, IMPLEMENTED AND PLANNED, 1985, WITH ASSOCIATED MORTALITY INDICATORS (by department), ACCORDING TO DEPARTMENTAL OPERATING PLANS

Department	IMR Under 1*	MR 1-4*	Diarrhea-Caused MR All Under 5*	ORT Activities	Projected Packet Requirements (for 1985)
National Rates	64.9	15.5	667.3		
Guatemala Norte**	55.4	7.5	595.5	There appear to have been no explicit ORT activities to date. Education is planned, principally for mothers, in early detection of signs of dehydration, and the management, use, and administration of ORS. Supervision of use of packets to be carried out by health and community personnel trained for that purpose.	Estimated 11,434 children under 5, 3 episodes per year, requiring 102,906 packets.
Guatemala Sur***				As part of the Programa Coordinacion Interinstitucional y Extension de Cobertura en el Area Guatemala Sur con Enfasis en Atencion Materno-Infantil, supported by UNICEF and the MSPAS, with the important technical contribution of the Hospital Roosevelt and the collaboration of other ministries, INCAP, the universities, IGSS, and APROFAM, ORT constitutes a "fundamental sub-program." Strategies are: 1) implementation of Oral Rehydration Units (ORUs) in Health Centers/Posts for treatment of dehydrated children; develop mechanisms to permit detection and early home management of the child with diarrhea or vomiting; motivate and involve the community to facilitate promotion of environmental sanitation, prevention of diarrhea, early consultation, and adequate followup. Project will be have three phases to reach full coverage.	Estimated 119,000 children under 5. Target population is children under 2 (N=16,712), 3 episodes/yr., requiring 150,408 packets per year (3-yr. project (EOP 1988).
Amatitlan				This departmental plan refers explicitly to National Plan for CDD. Planned education and "massive distribution" of ORS. Through Foster Parents' Plan, district will have 100,000 packets to be used in rural areas. Promoters will be provided with packets on demand, as will Trained Traditional Birth Attendants (TTBAs) and Health Post Auxiliaries.	None given.

Source: Planes Operativos submitted by each Department (=Health Area, except for Guatemala City which has 3 Health Areas) to the MSPAS. Data are gathered departmental/district level from ongoing records and from censuses carried out by district-level personnel.

IMR=Infant Mortality Rate, MR= Mortality Rate

** There were no easily-available data disaggregated at the district level for the Health Area of Guatemala. IMR/MR figures are for whole Health Area.

***Data are from: Documento Preliminar, Programa Coordinacion Interinstitucional y Extension de Cobertura en el Area Guatemala-Sur con Enfasis en Atencion Materno-Infantil, Guatemala, UNICEF, November 1984. Area includes 11 municipal zones of the capital and Mixco, San Pedro Sacatepequez, San Juan Sacatepequez, Chuarrancho, Santa Catarina Pinula, and San Raymundo, with a total population of 699,000 in 1983.

***IMR=Infant Mortality Rate, MR=Mortality Rate. Data are from table presented in MSPAS Memoria de Labores 1984. IMR is per 1,000 live births, other MRs are per 1,000 children in those age cohorts. Comparison of data from that table with the data presented in the Planes Operativos is virtually impossible, due to lack of definition of cohorts and variation in definition of causes of mortality (and morbidity). El Progreso, for instance, reports separately on "gastroenteritis aguda," "deshidratacion electrolitica," "infeccion intestinal" as causes of mortality, and on "parasitismo," "trastornos diarrheicos," "desnutricion," and "enfermedad peptica" as causes of morbidity, while other departments report no disaggregations or use others.

Department	IMR Under 1	MR 1-4	Diarrhea-Caused MR All Under 5	ORT Activities	Projected Packet Requirements (for 1985)
El Progreso	70.3	8.9	987.2	El Progreso is one of the departments where channelling is going on. Departmental strategy includes EPI and ORT among its 5 top priorities, in conjunction with continuing education, latrinization, nutrition (deparasitization and anemia indexing), and supervision, determined on basis of Health Area Diagnosis. ORT, together with EPI, are being formally incorporated into the departmental program, with institutional responsibility vested in the Centro Integrado (hospital) and Health Centers and Posts, with active participation of the community through PSRs and "EPI and TRO Volunteers." Since channelling started in 1985, 1,199 children have been treated with ORT, 71.6% preventively at the community level, 23.5% at the institutional level; only 4.9% received IV. (El Progreso has a fairly long and strong history with health promoter activities in general and was one of the first to become fairly widely acquainted with ORS/ORT through the SINAPS and PRINAPS projects. A 1982-3 KAP study found high rates of ORS use, generally positive attitudes toward the technology (purchased or provided gratis), and adequate training of promoters and mothers with, nevertheless, some room for improvement.	Plan states total needs for all 7 districts as 31,667 for the year but basis of calculation not provided. However, the Area now has its own ORS production facility, set up under the PRINAPS project, which produces 3,000 packets per day; promoters distribute. (PRINAPS promoters got ORS from MSPAS Ventas Municipales and sold them to families.)
Sacatepequez	72.3	12.2	741.4	Plan includes EPI and TRO activities to be carried out under channelling activities. Coverage in 1983 for the under-1 group was 43%, programmed coverage for 1985 49.3%. 8,776 children have been treated with ORT in 1st two channelling rounds, 40% and 47% at community level and 60% and 53% at institutional level, none w/ IV.	None given.
Chimaltenango	77.5	17.3	786.9	CDD plans include: breastfeeding promotion through mass education, group education, personnel training, etc.; ORT, including health education and massive packet distribution; epidemiological surveillance; and general health education.	1985 target for "visitas hidratacion oral" is 4 visits/yr. to 28% of households (N=16,405?) for a total of 65,620 visits. No packet calculations included.
Escuintla	107.8	12.6	751.0	Escuintla was Pilot Area for channelling. Health Area CDD plan includes: improvement of maternal-child nutrition, health education, breastfeeding promotion, environmental sanitation, ORT, and epidemiologic surveillance. Between Jan. and Dec. 1984, 31,483* children received "ORT attention" and 44,406 packets of ORS were distributed. Program is implemented through community participation via Volunteer Collaborators, PSRs, CATs, and health facilities personnel making home visits. It consists of packet distribution and orientation in their use and storage. *New data indicate that in 1985 (as of Oct.), 25,964 children received ORT, 30% of those age cohorts in the dept. 72% were treated at community level, only 25% institutionally, none with IV.	Estimate for 1985 131,086 children under 5 with a minimum of 3 episodes/yr., many of which can be treated at home with suero casero. Health facility staff will work with community leaders who will be trained in ORT and given packets to distribute to mothers of children with diarrhea for prevention and cure. Proposed coverage 10% of children under 5 (N=13,109) x 3 episodes = 39,327.

ORT Activities, pg. 3

Department	IMR Under 1	MR 1-4	Diarrhea-Caused MR All Under 5	ORT Activities	Projected Packet Requirements (for 1985)
Santa Rosa	80.7	12.0	942.7	ORT (and EPI) activities will be implemented through the channelling strategy. Volunteer Collaborators will be selected, one per manzana or work area, who will distribute packets through home visits at the same time candidates for vaccination are identified. It appears that the content of the home visit will, however, emphasize the importance of vaccination. Nutritional education and identification of malnourished children will be carried out by "Nutrition Volunteers," who will also maintain anthropometric records. No special mention is made of other CDD education, e.g., ORT, in either visit or training content.	None given. However, in the first channelling round (Mar.-May 1985), 14,742 were treated with ORT, 69% of those at the community level and 31% at the institutional level, with 40 cases of IV treatment. In the second round (June-Aug.1985), 18,571 children were treated, 74% at the community level, 26% at the institutional level, with 25 cases treated with IV.
Solola	71.9	21.0	560.0	ORT will be a subprogram for 1985. Due to the fact that records were not kept on PSR activities, calculations of coverage are difficult. Each PSR is programmed to make 3 home visits per household per year; with a 39.14% coverage, total visits will be 32.940. For distribution of ORS packets, 4 visits will be made to each child with diarrhea, with a 45.44% projected coverage (75,360 "activities"). Health Centers and Posts will distributed packets on demand to patients who come to posts and to those referred by volunteer personnel and other services. Packets will be provided by the SCISN Project.*	Although coverage estimates are provided, no multiplier or packet estimates are given in the Plan. An ORU was set up in December 1982 in the National Hospital in Solola. In July 1982 100 packets of ORS were received from Quifarma at a cost of Q0.32 each, of which 83 remained at the time of an evaluation in April 1983, and 20 patients had been treated. The evaluation noted problems with case management, records, stock maintenance, referral, training, supervision, etc.
Totonicapan	84.5	31.1	1.180.6	The Plan Operativo refers to diarrheal disease in context of environmental sanitation, which is seen in causal relationship with high rates of parasitic infestation, gastroenterocolitis, and diarrhea. In 1984, the area's 249 active promoters, in addition to their standard home visits, provided attention to 2,098 children under 5 for cases of diarrhea. In June 1982, an ORT seminar was held and in Sept.1982 an ORU was set up at the National Hospital of the Area. Totonicapan is part of the SCISN Project.	No data provided in Plan. An evaluation of the ORU in April 1983 found that the unit had used 1,540 of the 2,200 packets of Dextroral Arsal received in June 1982, and only 22 patients were registered as treated in the facility. The evaluation noted problems in information management, referral, followup, case management, training, supervision, and use of mothers as caretakers. In sum, the ORT program was not really functioning at the hospital level.

*SCISN-Programa Sistemas Comunitarios Integrados de Salud y Nutricion, Community-Based Health and Nutrition Systems (AID 520-0251), recently amended to direct most of the loan funds to the environmental sanitation component of the project. PSR and TSP training was evaluated as satisfactory, community participation as excellent, administrative support inefficient.

ORT Activities, pg. 4

Department	IMR Under 1	MR 1-4	Diarrhea-Caused MR All Under 5	ORT Activities	Projected Packet Requirements (for 1985)
Quetzaltenango	70.3	16.2	645.5	ORT included among the Plan's priority programs. The training of 119 PSRs and retraining of 389 in ORT is programmed for 1985.	Proposed coverage is 29.4%, or attention to 31,379 children and a total of 125.516 "activities". Packet requirements estimated at 251,032.
Suchitepequez	67.9	16.4	861.6	Community-level health delivery is in the hands of 285 midwives and 214 promoters. The latter carry out an average of 2 home visits per family per year which include a variety of activities and are not limited to ORT, primarily because it it is not possible to carry out that subprogram due to lack packets. An ORT program is, therefore, nonexistent in this Health Area.	
Retalhuleu	65.0	11.1	431.3	Strategy includes breastfeeding promotion through mass education of the client population, group education, personnel training, and massive distribution of ORS packets.	Target for 1985 for ORT visits is 5,784 activities. Project ORS requirements: 11.568 packets.
San Marcos	51.1	16.8	762.1	Program under way at institutional and community levels, in some districts with a planned 100% coverage. Districts without PSRs have lower coverage. Although an ORT seminar was held in July 1982, no hospital-level ORT program has yet been started, despite the existence of adequate or potentially adequate facilities to do so. Patients are still rehydrated with IVs. Part of SCISN Project.	Calculation on basis of 4 episodes of diarrhea per child per year. Programmed coverage of population under 5 is 45.62%, and calculating the need to rehydrate 64,548 children (x 4 episodes), estimated packet requirement is 252,972. 117,200 packs 3,000 cups and spoons distributed (81% through PSRs. 9 Centers,35 Posts,807 communities have OR Unidades.
Huehuetenango	60.5	25.7	612.8	ORT is considered part of the overall CDD program, which also includes improvement of maternal-child nutrition, health education, breastfeeding promotion, environmental sanitation, and epidemiologic surveillance. ORT activity will concentrate on health education and massive distribution of ORS. ORT has been used effectively in the National Hospital since 1978 under direction of Dr. Jose Maria Reyna Barrios, who has organized and lectured in over 16 workshops and ORT programs, of which 12 held in Huehuetenango, Solola, Quetzaltenango, Totonicapan, or San Marcos, and trained physicians, nurses, and other health personnel from surrounding health areas in ORT.	Projected coverage is 38% of 42,821 homes, 4 visits per home, or 164,274 activities.

153

ORT Activities, pg. 5

Department	IMR Under 1	MR 1-4	Diarrhea-Caused MR All Under 5	ORT Activities	Projected Packet Requirements (for 1985)
El Quiche	64.7	24.5	768.5	Plan to increase ORT activities through giving packets to volunteer groups; target group all children under age 6.	No data provided.
Baja Verapaz	80.0	16.7	761.0	Plan is to have in 1985, in every health facility, an ORU, principally to treat children under 5 who present for diarrhea or dehydration. The community will participated directly in the program through 165 promoters who will work with 5,775 families and an estimated 11,550 children under 5, with a target of 100% coverage. Experience with the PRINAPS program has produced substantial knowledge and utilization rates of ORT and fairly high rates of knowledge about proper preparation. Acceptance of ORT, gratis or paid for, has been high. There are still needs for improvement in content of mother education by PSRs. (Data are from KAP study carried out between April 1982 and January 1983).	There are no data on children who have consulted for diarrhea, so that in 1985 the program will be developed on the basis of patients presenting. The attention to be provided will consist of teaching mothers how to prepare ORS in 1-liter containers and how to administer the fluid over a 1-4 hour period, to be followed by treatment for 1-2 days at home.
Alta Verapaz	59.2	29.8	803.0	The ORT program will be carried out primarily at the community level, with the direct participation of PSRs, tied institutionally to the Unidades de Desarrollo Rural Integral. Health Area leadership would like to train new volunteer workers in ORT, if funds should become available.	Population under 6 estimated at 93,411; with 6% planned coverage, total activities 19,916. Up till now, the implementation of an ORT project in this Health Area has not been possible due to lack of packets.
El Peten	59.6	21.7	349.4	Plan is to set up programs in education in breastfeeding, oral rehydration, and general health education, as well as a good ORS supply system.	No data provided.
Izabal	68.5	9.4	381.7	No ORT program was implemented in this Area in 1983. Plan for 1985 was to train personnel at all levels in diarrhea, OR, and breastfeeding, including PSRs and TBAs; promote use of ORS instead of more costly medications and procedures, at the community level; and promote breastfeeding in the service levels, schools, and communities. PSRs will administer ORS and supervise ORT. Plans to train and retrain PSRs and TBAs in already established curricula emphasizing the priority areas of EPI, ORT, breastfeeding, feeding and nutrition; training will be supported by CARE-Canada, UNFPA, and UNICEF. Training, 15-20 days, 91 TBAs and 85 PSRs -- Retraining, 3 days, 252 TBAs and 108 PSRs.	According to local-level studies, the infant cohorts suffer between 3-4 diarrhea episodes/yr. Population under 6 includes 52,503 children and 18% coverage is programmed, or 9,752; each child will be treated an estimated 4 times/yr., a total of 39,201 consultations. ORS packets are expected from UNICEF, which supports the Area's PSR and TBA programs. No packet need projections provided.

ORT Activities, pg. 6

Department	IMR Under 1	MR 1-4	Diarrhea-Caused MRS All Under 5	ORT Activities	Projected Packet Requirements (for 1985)
Zacapa	61.7	11.2	425.4	Considered a "new and basic" program. ORT a priority area in primary health care, per the national health action plan. Emphasis will be on health education and massive distribution of ORS. The observation is made that supply of ORS in particular and medicines in general has been extremely errative over the past 4 years.	Calculation on basis of 4 episodes per year, plan to rehydrate 24,277 children, using 2 packets per episode, a total of 97,008 packets. Target coverage for area is 87%. Estimated number of consultations 93,846. Packets provided by UNFPA.
Chiquimula	42.4	11.1	275.6	Plan is to establish ORT program through the PSRs, the TBAs, hospital pediatric services, when and if the MSPAS supplies ORS regularly in adequate quantities. For promoters to adequately serve their clientele, they will need good training and follow-up, particularly in checking family records to be sure that families are actually use packets.	Total children to be attended by PSRs is 16,364. Packets required = 65,456.
Jalapa	57.8	16.0	701.7	In 1983, trained volunteers (PSRs) performed 5,904 ORT consultations. Current CDD strategy is to emphasize improvement of maternal-child nutrition and increase use of ORT and breastfeeding as the most practical, immediate, and effective interventions.	No estimates provided. Coverage in 1983 was 16% of the population of 37,643 children under age 6.
Jutiapa	53.8	9.7	355.6	Plan is to provide followup to infants under age 1 because of risks from immunopreventible diseases and diarrheas, at a rate of 3/yr., plus 3 visits per yr. by PSRs, who will provide a coverage of 28% and 11,266 consultations. For children 1-4, at particular risk from weaning-related malnutrition, as well as from immunopreventible diseases and diarrheas, there will also be 3 followup visits/yr., particularly in the highest-risk districts. To achieve this coverage, resources will be those provided by CARE, the channelling strategy, and use of PSRs particularly with regard to EPI and ORT. Area considers ORT of greatest priority and has had good experience with ORT since 1984.	Total number of children under 6 is 71,942; projected coverage is 33%. Estimated number of children to be rehydrated is 23,176. Total of PSR diarrhea-related activities/home visits = 79,243. With two packets left at each visit, total packet requirements will be 158,486.

ORT PROJECT CONCEPT DEVELOPMENT

GUATEMALA

VOLUME II

A Report Prepared By PRITECH Consultants:
POLLY F. HARRISON, Ph.D.
Lic. RODRIGO ARCE
MARY LOU CLEMENTS, M.D.
KJELL ENGE, Ph.D.
GERALD ROSENTHAL , Ph.D.

DURING THE PERIOD:
NOVEMBER 10 - 30, 1985

TECHNOLOGIES FOR PRIMARY HEALTH CARE (PRITECH) PROJECT
Supported By The:
U.S. Agency For International Development
AID/DPE-5927-C-00-3083-00

AUTHORIZATION:
AID/S&T/HEA: 9/9/86
ASSGN. NO: SS 99

156

TABLE OF CONTENTS

VOLUME I:

EXECUTIVE SUMMARY

CHAPTER 1. Institutional Analysis, Analysis Of Strategic Options, And Recommended Project Alternative (Harrison)

VOLUME II:

CHAPTER 2. Logistical Analysis, Local Production And Distribution, National ORT Program (Arce)

CHAPTER 3. Socio-Cultural Analysis (Enge)

CHAPTER 4. Economic And Financial Analysis (Rosenthal)

CHAPTER 5. Technical Analysis (Clements)

APPENDIX. Persons Contacted By The ORT Study Team

CHAPTER 2

LOGISTICAL ANALYSIS: LOCAL PRODUCTION AND DISTRIBUTION

NATIONAL ORT PROGRAM, GUATEMALA

Report Prepared by PRITECH Consultant:
Lic. Rodrigo Arce

TECHNOLOGIES FOR PRIMARY HEALTH CARE (PRITECH) PROJECT
Supported By:
U.S. Agency for International Development
AID/DPE-5927-C-00-3083-00

AUTHORIZATION:
AID/S&T/HEA:
ASSGN. NO.: SS99

158

LOGISTICAL ANALYSIS: LOCAL PRODUCTION AND DISTRIBUTION

NATIONAL ORT PROGRAM, GUATEMALA

TABLE OF CONTENTS

		PAGE
INTRODUCTION:	THE SCOPE OF WORK	ii
I.	DEMAND FOR ORAL REHYDRATION SALTS	1
II.	LOCAL PRODUCTION OF ORS	2
	A. The Private Sector	2
	1. The Pharmaceutical Sector in Central America	2
	2. Existing Local Production of ORS	3
	B. The Public Sector	6
	1. The SINAPS Experience	7
	2. The CRS Experience	8
	3. LAPROMED	9
III.	DISTRIBUTION OF ORS	10
	A. The Public Sector	10
	1. Characteristics and Constraints of the MOH Logistical System	10
	B. The Private Sector	14
	1. Droguerias	14
	2. Wholesalers of Consumer Products	15
	3. Pharmacies	16
IV.	STRATEGIC OPTIONS	18
	A. Introduction	18
	1. Local Production vs. Importation	18
	B. Production Alternatives	19
	1. The Public Sector	19
	2. The Quasi-Public Sector	20
	3. Regional Production	21
	4. The Private Sector	21

159

TABLE OF CONTENTS (CONT.)

PAGE

C. Distribution Alternatives 25

1. The Public Sector 25
2. The Private Sector 25

D. Conditions Precedent 28

E. Strategy Options for a National ORT Project .. 30

1. The Public Sector 30
2. The Private Sector 31
3. Marketing in Both Sectors 32

REFERENCES 33

TABLES 34

CONTACTS 41

160

INTRODUCTION

The AID-specified Scope of Work for this activity for the role of Logistics Specialist included the following tasks:

1. Examine current ORS distribution system, including transportation and storage facilities, and identify its weaknesses and strengths. Within this review, pay particular attention to logistical problems posed by remote areas.

2. Explore the marketing channels which are viable options for Guatemala and recommend a marketing strategy.

3. Assess Guatemala's ORS local production capability and determine the inputs required for such a large-scale undertaking.

4. Evaluate MOH's managerial capacity in administering logistical distribution of ORS throughout the country.

Discussion within the Study Team, with concurrence of the USAID Health Officer, transferred the following tasks from the role of the Public Health Physician to the Logistics Specialist:

5. Assess current private sector involvement in ORT, current private production, promotion and distribution of ORT and potential for increased role of private sector organizations in a national program under a new AID project. (The reader should note that the reports of both the Anthropologist and the Public Health Physician do, nevertheless, deal with the activities of non-commercial private sector entities in ORT.)

6. Examine alternative ORT distribution strategies and assess their appropriateness for the situation in Guatemala.

This analysis attempts to address each of these, emphasizing in its organization the two major categories of production and distribution. The analysis also attempts to respond to the major categories of information and analysis suggested in the PRITECH Manual for the Assessment and Planning of National ORT Programs.

161

I. DEMAND FOR ORAL REHYDRATION SALTS*

According to information provided by the MOH (see Tables 1 and 2), Guatemala will have, in 1986, a population of approximately 8,000,000, of which some 1,352,000 will be children under five years of age. Estimating demand on a basis of three episodes of diarrhea per year, with a utilization rate of three packs per episode, the requirements for 100 percent coverage would be: 1,352,000 x 3 x 3 = 12,168,000 packets. The ORT project to be proposed will assume a 30 percent coverage of the target population for the first project year, 60 percent for the second year, and 80 percent for the third year. Project requirements for packets would be:

1986 - 30% = 3,650,400 packets
1987 - 60% = 7,300,800 packets
1988 = 80% = 9,734,400 packets.

Although there has been some disagreement due to substantial unevenness in both supply and effective demand, there appears to be net consensus about an imminent deficit in ORS for the public sector. UNICEF has donated 500,000 packets, of which 360,000 have begun to be distributed in the Health Areas where channelling activities are going on. These areas have a total population of 1,657,971, which includes an estimated 400,000 children under age five. Another 40,000 packets are being held at the Drogueria Nacional to cover special requests to the Ministry of Health. The remaining 100,000 will also be held in the Drogueria warehouse, for UNICEF to use to respond to requests by non-governmental organizations (NGOs) (see Table 3). Another 500,000 packets are supposed to arrive early in 1986, a delivery which appears to be generally understood as the last one UNICEF will make. Thus, there will be a deficit of at least 2,650,400 packets for 1986, as things now stand.

---

* The reader is referred to other dimensions of demand for ORS/ORT which are discussed in the Economic and Financial Analysis.

162

II. LOCAL PRODUCTION OF ORS

A. The Private Sector

1. The Pharmaceutical Sector in Central America*

The private sector involved in the commerce of medicines in Central America is managed by individuals who may or may not be professionally-trained pharmacists. More often than not, they are businessmen, owners or administrators of pharmaceutical manufacturing and/or distribution firms. The individuals constituting this sector are frequently organized into associations, chambers, and unions, of manufacturers, distributors, pharmacy owners, and pharmacy employees. In addition, there are the Colegios de Farmaceuticos, which are groupings of professional pharmacists only. The sector may be divided as follows:

a. Pharmaceutical plants

Firms dedicated to the production of finished-dose forms of pharmaceuticals. Production of raw materials for pharmaceuticals in Central America is very limited; most raw material is imported, primarily from West Germany, Italy, and the United States.

b. Distributors or drug wholesalers (droguerias)

Firms dedicated to the distribution of medicines and other medical supplies to pharmacies and other establishments authorized by law; the latter, which are not designated as "pharmacies," serve the country's most remote areas. In most cases, such firms represent and distribute the products of foreign manufacturers. There are only a few cases in which the agent and distributor of a foreign manufacturer are separate firms.

c. Pharmacies

The principal entity that sells pharmaceuticals directly to the consumer in Guatemala is the pharmacy. It is the segment of the sector which has the greatest immediate contact with the public and, actually and potentially, plays the greatest promotional and educational role in this subsector.

---

* Some of this material is repeated from an earlier assessment by this author: R. Arce, Assessment of Private Sector Production of ORS, Guatemala, Washington, D.C., March 1985, PRITECH.

163

d. Other authorized establishments

In remote areas, which characteristically do not have legally-established pharmacies, other outlets--general stores or shops, tiendas, botiquines--may be authorized by law to sell a restricted list of medicines, as a general rule, non-prescription, over-the-counter (OTC) preparations, first aid items, and the like, and do not require the intervention of a licensed pharmacist.

2. Existing Local Production of ORS

In terms of quantity, Guatemala is the most advanced country in Central America in the level of development of its pharmaceutical industry. This is due to the fact that several international companies (e.g., Upjohn, Hoescht, Bristol) built plants in Guatemala, beginning in the 1960s, to take advantage of the Central American Common Market (CACM). In the wake of this, many national laboratories (e.g., Bonin, Lancasco, Quifarma) benefited, improving their technology and introducing modern quality control systems. In fact, most of the pharmaceutical plants in Central America in general have accumulated enough technology to produce a wide range of pharmaceuticals in a wide variety of presentations (tablets, capsules, syrups, sterile solutions, special packs, etc.). Virtually all of the pharmaceutical production at the national level in Guatemala is in the hands of the private sector, composed of 54 laboratories, of which 24 are multinationals and the rest national. These laboratories must register their products and undergo quality control procedures in order to enter the national market.

Nevertheless, as of mid-1984, there was no national-level, private sector facility producing ORS (Arce, June-July 1984). The same condition prevailed in March 1985 (Arce, March 1985), although both Bonin and Quifarma were producing sterile electrolyte solutions for intravenous (IV) administration. However, at the time of this writing, there are two national-level facilities about to produce ORS or already doing so, Alimentos, S.A., and Quifarma, respectively.

a. Alimentos, S.A.

Alimentos, S.A. produces and distributes food products derived from cereals, particularly corn, and is the producer and distributor of Incaparina. Alimentos has developed a one liter ORS packet which uses locally-produced sucrose instead of glucose. The product has been analyzed and approved by INCAP, and the company's plan is to introduce it as a popular ORS presentation into the private market and, at the same time, make it available to the public sector, in a less elaborate package and at a lower cost which could be somewhat subsidized by higher prices set in the private sector market. However, the firm has held up the product launch due to problems with the Ministry of Economy. The Ministry has effectively frozen the prices of some of Alimentos' products, including Incaparina, and has prohibited any upward adjustments in

164

sale prices to account for higher prices of imported raw materials resulting from the de facto devaluation of the quetzal. Availability of foreign currency, mainly U.S. dollars, has been significantly diminished, and local manufacturers are forced to get dollars to import raw materials from the parallel market at Q3.50:US$1.00, in comparison with the official exchange rate of Q1.00:US$1.00. This acts as a major production disincentive to the private sector.

At the same time, one fairly recent analysis (Wise, 1980) suggests that, while the course of Incaparina reveals commercial success with almost continuous growth of sales, there has been relatively little impact on the poor. The analysis argues that most consumption of Incaparina has been by the better educated and by far fewer children than social goals would indicate: at the time of that study, fewer than six percent of children under age 12 in one good sample of rural areas were consuming the product on a daily basis and even those children were receiving only one-third of the recommended level. This analyst suggests that the price of Incaparina was too high and that some aspects of industry structure, manufacturing technology, and promotional methods might be susceptible to modifications that could greatly increase the direct benefits of this nutrition intervention concept for groups in greatest need. Examples of this restructuring, which are instructive for an ORT project, include: some shift to multiple, small, decentralized firms using labor-intensive processes; packaging alternatives of lower cost, especially sale in bulk into consumers' own containers; and messages which emphasize protein substitution, in vernacular languages in addition to Spanish, and which rely more on oral media, especially local morning radio stations. The suggestion will be made in this document that the ORT project consider a Condition Precedent which will encourage negotiation between Alimentos, S.A. and the GOG/Ministry of Economy on a price for both Incaparina and ORS which will at least allow them tc recapture their costs. The Mass Communication component of the project which will be proposed here can help both to effectively reduce Alimentos' marketing costs and to address the promotional limitations Wise encountered in the case of Incaparina. The issue of decentralized production is discussed below in Section B.2.

The question of price also suggests that a product strategy which encompasses several different production alternatives is most likely to assure that there is, at any given time, enough ORS to satisfy growing demand, for both the less affluent components of the population who are at least the putative beneficiaries of Ministry of Health services, the more affluent who will want a fancier product available through pharmacies, and components of both populations who will want an ORS supply which constitutes an alternative to erratic public sector logistics at a price which is reasonable.

If and when Alimentos can reach agreement with the government on some kind of price adjustment for Incaparina and on the planned ORS packet, they will start production, together with a massive publicity campaign. The central idea of that campaign will be to celebrate the 25th anniversary of the introduction of Incaparina

165

with the introduction of yet another, new, socially-oriented product.

The Alimentos plant is very modern and totally automated; a complete production process occurs on several levels of the plant, and products in-process are moved among levels by means of a pneumatic system controlled by a computerized center. An analysis by this writer in March 1985, noted that, were ORS production to take place at the Alimentos facility, care would have to be taken to avoid contamination with cereal residues. However, a small area on the second level, where vitamins are mixed to be added to cereal products, would be suitable for ORS production, if properly isolated and air-conditioned. At the time, the need was also noted for additions to the quality control laboratory to facilitate salts analysis (spectrophotometer, Karl Fisher, etc.), and the suggestion was made that sucrose be substituted for glucose. There were two advantages perceived in this adjustment. One was that Alimentos already had filling/sealing machines which could handle 50-gram packets, but nothing smaller; the glucose-formulated ORS would have made a one-liter quantity but the bulk per packet would have been too small to be handled by the available filling/sealing capacity. The bulk attained by using sucrose, double the volume of glucose, would be responsive to machine capability; furthermore, substitution of sucrose, the formula's principal component in terms of volume, would limit the need for importation, since sucrose is locally produced. Since the production of medicines is allowed by law only in authorized plants, Alimentos would also need to obtain a special license that would legally authorize production of a medicinal product in a food-production facility.

The new formulation of the product is the following:

Sucrose	40.0 g
Sodium chloride	3.5 g
Tri-sodium citrate	2.9 g
Potassium chloride	1.5 g
Artificial orange flavor	0.19g
Color FD y C #6	0.01g
Total	48.1 g

The sucrose content is exactly twice that of the glucose originally planned for this formulation, and an orange flavor has been added to make it more palatable.

The laminate used for packaging is high-density polyethylene 0.003" thick. The estimated price to the public will be Q0.20-0.25, calculated on the basis of the official exchange rate,* with all materials purchased locally. The price could be lower if those raw materials which need to be imported were ordered directly from the manufacturer instead of through Guatemalan import firms (see Section II.B.3 below)

---

* Q1.00 = US$1.00.

166

b. Laboratories Quifarma, S.A.

Quifarma has recently introduced a product called Glucosoral into the private market. It was not possible to see their installation because the plant was shut down for maintenance. The formulation is the following:

Sodium chloride	3.5 g
Potassium chloride	1.5 g
Sodium bicarbonate	2.5 g
Glucose anhydrous	20.9
Peach flavor q.s.	

It is packed in a PVC sachet containing two separate interior smaller sachets, one with the glucose and the other with the rest of the salt mixture. The raw materials are all imported, and the PVC sachets are obtained locally from a supplier named "Extrudoplast." Capacity is limited because the filling operation is done manually. However, Quifarma has managed to produce as much as 100,000 packets in one run in order to fill a specific government order. Glucosoral is found in pharmacies at a price of Q0.60 per packet (U.S.$0.17 at the exchange rate current at the time of this writing), a price substantially higher than that projected for the Alimentos product.

c. Other locally available products

Other products found in pharmacies are:

	Mg	Origin	Price	Presentation
Dextrolito 1	Lab. ARSAL	El Salvador	Q0.85	pack
Dextrolito 2	Lab. ARSAL	El Salvador	0.94	pack
Hidrafix	Rorer	Brazil	1.18	liquid
Glucosoral	Quifarma	Guatemala	0.60	pack
Pedialyte	Abbot	Guatemala	2.00	liquid (400ml)
Orelectrin	Finlay	Honduras	2.58	liquid (400ml)
Oral Rehydration Salts	Servipharm	Switzerland	1.00	pack

Most pharmaceutical manufacturers in Guatemala do not sell directly to pharmacies. They typically sell through drug wholesalers; the largest of these are Droguería La Merced, Droguería Colón, and Droguería Lanquetin.

B. The Public Sector

There are no state production laboratories, but the General Hospital San Juan de Dios, which belongs to the MOH, and the IGSS, each has a small laboratory for "institutional production," which satisfies a few limited internal needs. Production is limited to IV solutions and some liquid and semisolid preparations. However, even these laboratories have problems: high prices and inadequate supply of raw materials, lack of technical capacity, insufficient human resources, and deficient control of quality in all phases of

production and utilization at the institutional level. Some private sector representatives have made proposals to the government which reflect their interest in producing generic forms of essential drugs at low cost for use by public sector institutions through some kind of accord or, perhaps, with the state supplying the raw material, leaving their recombination to the private sector, in either case under the aegis of the Drug Control Division (División de Control de Medicamentos) of the MSPAS. The fate of these proposals is unknown.

1. The SINAPS Experience

Oral rehydration therapy was introduced into Guatemala at the end of the 1970s in the wake of studies carried out by INCAP which, in addition to years of basic research on diarrheal disease and its management, had developed a simple hand-mixer for community ORS production. Production was initiated on a pilot basis in locations comprised by the AID-financed SINAPS (Sistema Integrado de Nutrición y Atención Primaria de Salud) project, in several locations in the eastern part of the country. The Health Centers at El Progreso and Ipala are still producing ORS for local-level use.

The formula used varies somewhat from the WHO standard:

(for 250 ml of water)	INCAP	WHO
Sodium chloride	1.302g	0.875g
Sodium bicarbonate	------	0.625g
Potassium chloride	0.350g	0.375g
Sucrose	8.0 g	------
Glucose	------	------

The principal difference between the two formulae is that the INCAP formula uses regular sugar (sucrose), which is locally available, instead of glucose, which must be imported. The ingredients are mixed, and a small polyethylene bag with a 1/4-liter (250ml) capacity (about the size of a common drinking glass) is filled. Four packets are clipped together with an instruction leaflet, constituting a complete treatment. Batch samples are sent for analysis to the LUCAM (Laboratorio Unificado de Control de Alimentos y Medicamentos). The LUCAM only checks potassium content, alerting the physician in charge when that content is too high; one consultant's report (Arce, 1984) suggested that uniformity of the mixture should also be checked, since ingredients are probably not evenly distributed due to differences in particle size and moisture content.

In 1983 the district of IPALA produced about 38,000 packets and apparently, all were used; El Progreso produced at least 40,000 packets, but a large number were still unused at the time of the consultancy referred to earlier, for reasons that were not made clear.

168

2. The Catholic Relief Services (CRS) Experience

If this discussion were to strictly follow the public/private sector differentiation established for this analysis, this section would more appropriately have been included earlier. However, since the CRS experience is really a permutation of the INCAP experience and presents an option for another public sector approach to ORS production, we include it here.

CRS supports a clinic in a marginal area of Guatemala City, El Milagro, which is staffed by a physician and medical students from San Carlos University. The clinic has been training mothers and distributing ORS packets supplied by APROFAM. Acceptance has been good and the San Carlos students and other staff have worked hard to convince patients of the utility of ORT.

In the past few months, however, packet supply has dwindled and appears to be coming to a halt. In search of a potential solution, CRS opened discussions with the Director of the Health Area of El Progreso, where there is a small ORS production facility set up under the SINAPS Project. CRS has arranged for the purchase of a drum mixer, two scales, and a plastic bag sealer, at a total cost of Q800-Q1,000. They plan to produce 3,000 bags, which will satisfy their present level of demand. It should be noted, however, that this requires a level of effort of only three nine-hour person-days when the facility produces at the level (now achieved by the El Progreso facility) of 1,000 packets a day; theoretically, a 20-day work month with only one person working could produce 20,000 packets. The El Progreso staff has agreed to provide technical assistance and the LUCAM will provide the quality control, including checking on proportions; it is not clear whether the lab will also check uniformity as suggested by Arce (1984).

Production costs for 1,000 packets at November 1985 prices are as follows:

8	kilos of sugar (sucrose)	=	Q 4.20
1.3	kilos of sodium chloride	=	0.45
.375	kilos (375g) potassium chloride	=	30.00
			Q34.65

The cost of each plastic bag for 1/4-liter amount is Q.005 each. This brings the total production cost for each 1/4-liter packet to approximately Q0.04, roughly equivalent at the November exchange rate of Q3.50:US$1.00, to US$0.01 per packet. This is clearly competitive with the price of the UNICEF packet, which makes one liter of solution. The FOB Copenhagen price of the UNICEF packet is US$0.04-US$0.06; freight and other import costs increase that price to US$0.12-0.15. Furthermore, in order to keep freight costs low, packet import quantities must be high, which implies demand for adequate warehouse facilities and greater opportunities for loss and spoilage. At the same time, the local product does not include either the bicarbonate or citrate which have been used in the UNICEF formulation. Nevertheless, the formula is approved by INCAP

164

for a situation in which rapid turnover is expected, since the product does not have the stability or packaging which would allow it the long shelf life of more sophisticated presentations.

CRS sees this small-scale production system as a demonstration activity and as an experiment which, if successful, could be replicated at very low cost all over the country. The CRS director mentioned ASECSA, an organization of 75 to 80 clinics, with an active health promoter training program and a drug distribution system for the health promoters who constitute its membership, as a possible collaborator in setting up local ORS production facilities.

3. LAPROMED

LAPROMED (Laboratorio de Produccion de Medicamentos) is a pharmaceutical production unit that has been in operation for some time as part of the program of the School of Pharmacy of the University of San Carlos. LAPROMED's objectives are to offer medicines to communities through official MOH outlets, principally through municipal sales points (ventas municipales) and state pharmacies (farmacias estatales) at low prices. At the same time, the facility serves as a training ground for pharmacy students. The lab is managed by a part-time pharmacist dedicated exclusively to production activities.

LAPROMED now manufactures a dozen or so liquid preparations, and their plans are to begin production of ORS within the next two to three months; their output will be very limited, however, since the capacity of the equipment they have acquired is quite small. The plant is presently functioning in an old building once occupied by the School of Pharmacy. The construction of the building is solid and could easily be adapted for larger-scale ORS production, since most of the space is unused at the moment. LAPROMED's budget consists of a revolving fund deriving from its sales and administered by the finance department of the University. A quality control laboratory complements the production facilities.

Raw materials for LAPROMED's initial production have been obtained locally from import firms: Merck Centroamericana, Refaquimica, Proquideca, Agencias Richard, and others. These firms import raw materials and maintain relatively small stocks for immediate deliveries. Their prices for materials are much higher than they would be if LAPROMED could import directly from the manufacturer. The prices LAPROMED has paid recently to these firms for ORS components are:

Sodium chloride	Q2.85/Kg
Potassium chloride	Q1.50/Kg
Sodium bicarbonate	Q1.49/Kg
Glucose	Q4.73/Kg.

170

III. DISTRIBUTION OF ORS

A. The Public Sector

1. Characteristics and Constraints of the MOH Logistical System

The distribution of essential medicines and other critical medical inputs through the public sector is the province of the Ministry of Health and the Social Security Institute (IGSS). A recent analysis (PAHO, October 1985) describes the MOH drug logistics system as "inadequate, insufficient, and inappropriate, characteristics exacerbated by inflation, lack of foreign exchange, budgetary cutbacks, and increases in operating costs." The result is that the MOH's target population, particularly at the lower end of the income scale, has stringently reduced access to essential medicines.

The situation for the IGSS is somewhat different. That institution's present administrative structure has allowed it to manage with sufficient efficiency to avoid inventory depletion and guarantee an adequate and appropriate inventory for its users. Nevertheless, that achievement is currently threatened by the same budgetary cuts, inflation, and lack of foreign exchange which presently afflict the MOH.

In the MOH, purchasing of medications and supplies occurs in decentralized fashion through its 35 hospitals, seven of which are in the capital, and 26 Type A and 189 Type B Health Centers. These entities do their purchasing independently, using their own procurement mechanisms, but in accordance with the fundamental laws relating to procurement and bidding, through bids and open contracting and, sometimes, through petty cash purchases. The IGSS system, in contrast, is centralized for the different medical entities, of which there are 67, 59 at the departmental level and eight in the Central Area.

The other entity which does public sector purchasing is the Drogueria Nacional, a direct dependency of the Minister of Health. The Drogueria purchases for some Type B Health Centers and Health Posts, as well as for the Ventas Municipales and the State Pharmacies. The Centers and Health Posts supply pharmaceuticals to their community-level clients gratis; the Ventas and Farmacias sell at cost.

The distribution points served by the Drogueria Nacional, listed in detail in Table 4, by the end of 1986 will be distributed as follows:

1. State Pharmacies: 53
2. Ventas Municipales: 142
3. Health Posts: 666
4. Health Centers: 211
5. Hospitals: 35.

171

Thus, the Droguería will be, within the next year, responsible for a total of 1,199 distribution points.

The capacity of the MSPAS's logistics system to supply and distribute pharmaceutical products is at present seriously deficient. Budget cuts over the last five years have been felt particularly sharp in drug supply, so that some facilities have no medications whatsoever or have them in extremely limited quantities. This is believed to have had real impact on the level of interest among the target population in using MOH facilities. Between 1981 and 1984, there was a 58 percent decrease in the budgetary allocation for drugs for use by Health Centers and Health Posts. The budget for supplies for minor surgery decreased by 30 percent during the same period; in 1985 the latter budgetary allocation, for surgical supplies, was 66 percent less. The budgetary allocations for the Ventas Municipales and Farmacias Estatales have seesawed over the same time span, so that it is difficult to track that history; still, the simple fact of such erratic funding will have to have had negative impact on planning, management, and availability of supplies.

The PAHO analysis lists the major characteristics and constraints in the drug supply systems of both the MOH and the IGSS, according to the major categories of the logistical chain. Because of its relatively low coverage, we will not include an analysis of the IGSS system here, but concentrate instead on the MOH, our primary focus of concern.

a. Selection and control

There is no established drug selection procedure. In 1979, a national drug formulary was approved which included a disaggregation by delivery level for the MOH, as well as a vademecum. It was never implemented. In 1985, a commission was formed of representatives from Registro y Control de Medicamentos, the Director of the Droguería Nacional, the Therapeutic Committee of the General Hospital and Roosevelt Hospital, which drew up a List of Essential Medicines. This is now under review by the Area Chiefs and the Directors of the National Hospitals, prior to implementation.

There is no National Therapeutic Committee. As a consequence, there are not established policies, regulations, norms, or manuals of procedures for the selection and use of medicines in the health sector.

There is no information system which could provide data on morbidity, suppliers, etc., which are crucial for the selection process.

172

b. Procurement

Purchasing by the Drogueria Nacional is carried out locally through open contracting. There is no process of public bidding, national or international, which would offer the possibility of substantial savings.

Purchasing is quarterly and is based on the quotas assigned to each Health Post and Center, rather than in response to identified need predicated on inventory control. Neither is procurement based on the epidemiological profile of the different target populations, most acutely a problem for highest-risk groups. Such atomistic and small-volume procurement militates against any economies of scale.

There are no regulatory or normative mechanisms which could guide the procurement process, a particularly acute deficiency given the absence of a List of Essential Medicines to at least set some frame of reference.

There is a lack of personnel specially trained in proper procurement procedures.

There is no integration between the selection and procurement processes.

There is no information system which could support the procurement process with regard to costs of medications, suppliers, quality, and so forth, so that procurement is basically empirical and ad hoc. Nor are there personnel adequately trained to set up and implement such an information system.

There are not sufficient funds to satisfy the system's needs and what funds are available are typically late arriving in any case.

c. Storage

The Drogueria Nacional does not have its own warehouse; all medical supplies and medicines are stored in two rented buildings which are totally inadequate for the purpose. The warehouse space lacks the basic specifications for managing the pass-through of pharmaceuticals; there is inadequate shelving, lighting, desk space, typewriters, calculators, filing cabinets, and so forth, nor is there any kind of safety equipment such as fire extinguishers. The medications that are unpacked are stored by the commercial name of the product in alphabetical order and there is a recently installed inventory card system and priced Kardex. However, the majority of the medications are stored in boxes, which are stacked in disorderly fashion. The areas designated for packing and shipping are inadequate as well. Turnover management is correspondingly inadequate so that, frequently, drugs more recently dated are shipped out before those with older expiration dates. The personnel in place have received no training in warehouse management, fiscal norms, procurement regulations, etc., nor is there personnel adequately trained to control and supervise the receipt,

173

warehousing, and distribution of drugs, nor manuals of norms and procedures which could provide additional guidance. The rented warehousing is effectively divided into four warehouses, since each group is kept on a separate inventory because the items are charged to separate budgets.

- Medicines destined for the Health Centers and Posts which are offered free to the clientele of those facilities;
- Medicines for the State Pharmacies, mostly ethical products which are sold to the public at a low price;
- Popular over-the-counter (OTC) products for the Ventas Municipales, also sold to the public;
- Office and medical supplies for hospitals.

The number of products sold through the State Pharmacies and Ventas Municipales amount to approximately 35. An ORS pack from Servipharm, a Swiss company, is sold to the public at Q0.28. This is actually a subsidized price, since the product is imported by the distributor (Disfarm) with dollars at the official rate Q1.00: US$1.00) for the Ministry of Health; the same product sold to private pharmacies at Q0.80/packet is imported at the parallel rate of somewhere around Q3.00:US$1.00. In many instances hospitals make direct purchases from the drug companies, without passing through the Drogueria.

As for warehousing at the Health Area level, most Health Posts, Centers, and State Pharmacies do not fulfill the minimum requirements for adequate drug storage. The Drogueria does not have its own vehicles for transportation and distribution, which would permit it to set up distribution routes and timely delivery schedules. As things stand, the Drogueria must depend on the vehicles of other entities, on an essentially ad hoc basis, to transport medications to the Chiefs of the Health Areas, who then become responsible for their distribution to the Health Centers and Posts and can only do as well as their budgets, commitments, human resources, and energies permit and their priorities dictate. At present,* data on the logistics of remote areas are anecdotal: some Health Areas manage well with what they have, some poorly, but none receive adequate drug supplies responsible to local-level needs. Drugs for the State Pharmacies and Ventas Municipales are shipped by regular private freight service or by the vehicles of the Family Planning Program (APROFAM) in the areas covered by that activity. Theoretically, distribution is supposed to respond to quarterly requisitions from each health unit, but what generally happens is that the small amounts of drugs that are available are shipped, in a more or less

---

* The INCAP/PAHO/MSPAS evaluation carried out in the late summer, theoretically as preparation for the National Child Survival Plan and entitled Condiciones de Eficiencia, is supposed to include a detailed, field-level assessment of the MOH logistics system. However, as of December 1985, this report was not available.

174

hopeful manner, to accord with the previous quarterly requisition and with the assigned budgetary allotment specified for each unit. The result is that the drugs that are shipped are often not the needed ones and the quantities of those sent, wanted or not, are usually insufficient. Remote areas are particularly susceptible to these several vicissitudes and what is essentially anarchy.

d. Information system

The MOH does have an information unit (Unidad de Informàtica de la Direcciòn General de SErvicios de Salud), which is charged with generating the data necessary for planning, programming, resource management, implementation, evaluation, management research, and coordination. However, this unit is in the process of formation, is in the data collection phase, and does not have enough trained personnel to fulfill its functions, which would include setting up the information subsystem for the selection, programming, procurement, utilization, quality control, consumption, etc., of drugs. The little information that is available in these areas is manually recorded, but not in any consistent, coordinated fashion. An information system for managing drug supply simply does not exist.

e. Training and education

There have been some courses and seminars in public health administration, but these have not emphasized the area of drug supply. Effectively, there are no personnel at the management, technical, or operative levels who are adequately trained in that area, either in the MOH or the IGSS. The human resources functioning in drug supply are doing so empirically, on the basis of their own initiative, admidst an abundance of adversity.

In sum, the PAHO national and regional projects to improve all aspects of pharmaceuticals for the public sector should be considered both essential and timely and any ORS project should be integrated with these activities, as well as with the Logistics component of the Immunization/Child Survival Project.

B. The Private Sector

There are two principal distribution channels in Guatemala: (1) the drug wholesalers (droguerias) and (2) the wholesalers of consumer products.

1. Droguerias

There are firms dedicated to the delivery of pharmaceutical products to pharmacies. As in the rest of Central America, Guatemalan droguerias typically have efficient distribution systems but cover only pharmacies, hospitals, and other health institutions. by law, they are permitted a 20 percent profit margin which, after deducting distribution costs, may well be reduced to ten to twelve percent of net profit. Their typical sales staff is composed of

175

non-professional salesmen ("detail men"), backed up by "medical representatives," who usually have professional pharmacy training.

The largest drug wholesalers in Guatemala are, as mentioned earlier, the Droguerias Colón, Lanquetin, and La Merced. Some of the national laboratories also have substantial distribution systems. Bonin, for example, has its own distribution system which covers some 1,460 retail stores (pharmacies and others) and visits as well as some 20 co-distributors, including the Drogueria Nacional of the Ministry of Health (see Section III.A below), although Bonin is not the only distributor which deals with the Drogueria.

2. Wholesalers of Consumer Products

Such distributors characteristically have wider coverage than do the droguerias, but they compensate for this with larger sales volumes and greater variety in their product lines. They represent a very interesting distribution alternative for ORS packets, because their geographical reach is so much greater. The only legal requirement (and this would have to be a Condition Precedent for any project which contemplated such private sector ORS distribution) would be that ORS be declared a product for "free sale" (venta libre). A simple government decree is sufficient and has already occurred in Costa Rica.

As a rule, both types of distributors have administrative, financial, and distribution structures which are capable of financing products and distributing them to all the pharmacies in the country, to public sector institutions, and to communities without pharmacies; the latter generally have some kind of outlet which is authorized to sell at least some OTC products. Many such distributors have the capacity to cover the entire country, with their own vehicles, sometimes complementing these with other types of private vehicular arrangements. All sales to pharmacies are on 30-to-60 day credit terms.

An important consideration in strategizing for ORS production and distribution, is that Guatemalan producers and distributors are operating within fixed profit margins controlled by law. In order to make their businesses profitable, distributors want to have as wide a range of products as possible, whether locally produced or imported, which will allow them a sufficiently high sales volume. Thus, receptivity to new products is usually good; however, the competition is that much stiffer. For ORS, in particular, the competition with large and varied inventories of antidiarrheals is particularly meaningful.

One of the largest such distributors in Guatemala is Alimentos, S.A., earlier discussed as a potential private sector production option for a national ORT project. The distribution system of Alimentos S.A. covers about 90 percent of all the sales points in Guatemala. It serves the capital with 22 five-ton trucks, each visiting 80 clients a day, once a week. In addition, two salesmen cover wholesalers and three supermarkets, visiting each client twice a week.

176

For the municipality level, Alimentos maintains two full-time salesmen, each with a seven-ton truck, who make visits once a week. The rest of the country (the departments) is covered by six different distribution routes, each of which is supported by two ten-ton trucks. These routes are:

Zone B - From Santa Lucia Cotzumalguapa to Malacatàn
Zone C - Quetzaltenango, San Marcos, Huehuetenango, and Totonicapàn
Zone D - Progreso-Zacapa, Chiquimula, Alta Verapaz and Izabal
Zone E - Petèn, Baja Verapaz, and El Estor
Zone F - Sololà and El Quichè
Zone G - Jalapa, Jutiapa, Escquintla, and Antigua Guatemala.

Finally, there are two additional 20-ton trailers to assist in any of these areas, as needed. As for personnel, Alimentos supports a team of four supervisors for Guatemala City and two for different regions. One additional school promoter does promotion work in educational centers. The sales team is supported by five schoolteachers, who are responsible for medical and paramedical institutional training at the national level and also supervise the school feeding program (Refacción Escolar) which includes Incaparina.

3. Pharmacies

As already mentioned in a previous report (Arce, March 1985), retail distribution of medicines in this sector occurs through private pharmacies, of which there are approximately 700 in the entire country. Prices of pharmaceutical products are regulated by law, allowing 25 percent to the manufacturer, 20 percent to the wholesalers, and 25 percent to the pharmacy. All prices must be approved by the Comisiòn Reguladora de Precios, on which there are two representatives from the private sector and five from the Ministry of Health, including the Director of the Droguerìa Nacional and the Head of the Department of Drug Control. Beyond the pharmacy level, other over-the-counter preparations (OTC/"productos populares"), subject to prior authorization by the Department of Pharmaceutical Control (Departamento de Control de Medicamentos), may be distributed through supermarkets (N=150), general and medium-sized stores (N=950), and small local stores or tiendas (N=approximately 1,300).

An important private sector dimension is that most pharmacies in Guatemala are owned by non-pharmacists. The result has been that, until recently, pharmacists as a professional group have had very little influence on the sector. However, some 230 pharmacies have now organized themselves into a union (UPF) and 115 of them began a cooperative (COCIF/Cooperativa de Consumo Integral de Farmacias R.L.) four years ago and have been adding more members each year. This number could increase substantially if COCIF succeeds in its efforts to secure the agreement of the MOH Department of Drug Control to a new requirement that all new pharmacies applying for an operating permit must join COCIF. COCIF's main

177

objective is the purchase of drugs in large quantities in order to obtain better prices and distribute the savings among their members, which can amount to as much as 20 percent, even when a six percent margin is added to cover administrative costs. The group is very active and, with the cooperation of INTECAP (Instituto Tecnológico de Capacitación), has organized a training program for pharmacy employees; the first group graduated in November 1983. COCIF and INTECAP have already expanded these training activities to eight regions outside the capital.

There are several important spinoffs from this kind of organization and training, as well as from some of the training that might be included in a national ORT program. First is the upgrading of professionalism among pharmacists and the access such groups allow for continuing education. Second, the empowerment which accrues to individuals who, while professionals, are not the owners or perhaps even the managers of the enterprises in which they work. Third is the potential noted for savings in the prices of pharmaceuticals, not only for members of unions and cooperative groups but to consumers who purchase from cooperatively-owned outlets. Finally, the increased access to already practicing pharmacists for training, in this case in the importance and utilization of ORT, may make them less vulnerable to counterincentives to the sale of ORT. It has been frequently difficult to introduce and sell new products in Guatemalan pharmacies because of the variety of incentives offered to pharmacy salespeople by manufacturers and distributors. An example of these is what is termed "push money," which is a ticket glued onto a given product. The employee tears it off when a product is sold and the company will exchange it for cash. The costs of such promotional incentives are eventually borne by the consumer. Push money attached to such items as antidiarrheals/antibiotics adds to the already established attraction of such items, for both buyer and seller; in the absence of some real consciousness-raising and scientific education, such incentives could constitute another constraint on the retail sale of ORT, already less attractive than higher-tech items because of its lower profit margins.

178

IV. STRATEGIC OPTIONS

A. Introduction

1. Local Production vs. Importation

The production of a new product always represents a capital investment in equipment, raw materials, packaging, and quality control capacity. The decision to stimulate local production, as opposed to importation, can be derived from three basic questions:

- How large is the volume of ORS packets required annually?
- Are there any manufacturing companies in the country with appropriate installations and modern concepts of quality control?
- If so, are any of these companies producing or planning to produce ORS?

Each of these has been explored in the Guatemalan context in the preceding sections. The following algorithim sets forth the parameters and lines and reasoning for selecting one or another alternative:

	Annual Requirements for ORS Packets	Recommendations
1.0 Pharmaceutical Industry Established		
1.1 No local production of ORS	1-50.000	a) Import b) Prepare in hospitals
	50.000 to 1.000.000	a) Import
	1.000.000 to 10.000.000	a) Promote local production
1.2 Existing local production of ORS	1-50.000	a) Buy locally or prepare in hospitals
	50.000 to 500.000	a) Buy locally
	500.000 to 10.000.000	b) Promote increased capacity, as necessary

174

2.0 Pharmaceutical Industry Not Established	1-50.000	a) Import b) Prepare in hospitals
	50.000 to 3.000.000	a) Import
	3.000.000 to 10.000.000	a) Promote local production

B. Production Alternatives

1. The Public Sector

Increasing consensus has been encountered, in the course of this study and that which preceded it (Arce, March 1985), about the inappropriateness of locating a public-sector ORS production facility in the Ministry of Health. The Ministry of Health simply does not have a tradition of pharmaceuticals production on which to build and, as the foregoing analysis of its logistics system indicates, lacks a suitable infrastructure for accommodating a central-level production capability.

The question may well be asked whether or not a small-scale, decentralized production system might be appropriate for replication, using the El Progreso/SINAPS model which is being adopted by CRS in El Milagro. This option does appear realistic for the NGO subscriber and could be included in activities under the proposed new AID PVO umbrella project. However, it seems less realistic as a global solution for the public sector, for the following reasons:

a. The MOH does not have the capacity to provide the quality control that would be needed for a large number of local-level production facilities. If local-level production were to be adopted as a strategy for the MOH, the capacity (personnel and equipment) would have to be generated at the same level. There is no MOH history that suggests that a central-level laboratory facility would be able to provide the nationwide quality control that would be required, nor the logistics system that could support any such effort. The technical capacity of LUCAM is adequate and the lab was able to be responsive in a small-scale, pilot context. Still, it does not have the capacity to provide large-scale quality control for a nationwide program, nor does it seem reasonable to consider setting up 24 or (21) Health Area laboratories for the single purpose of controlling ORT quality. Finally, any economies which might be realized through central-level bulk purchasing of raw materials would face the same logistical problems discussed earlier. It might be possible to add that capability to existing area laboratories; however, anecdotal information suggests that some of these laboratories are in poor condition and/or poorly equipped. We were not able to investigate that possibility in any global way.

180

b. The production capacity of the technology used, which is essentially a one-person, one-machine operation, is 1,000 packets a day, approximately 20,000 per month, and 240,000 per year, operating at peak, without breakdowns, and calculating a 20-day work-month. If all 24 Health Areas were to produce at the same level, total annual output would be 5,7600,000, well below the 80 percent project coverage targets for 1988 (see Section I).

In sum, the probabilities of the Ministry of Health being able to manage either a centralized or decentralized production system are not heartening. Theoretically, some Health Areas with dynamic leadership might be able to produce enough ORS for local-level use, but it is hard to imagine such a scenario for the public health delivery system as a whole.

2. The Quasi-Public Sector

There is, nevertheless, a quasi-public ORS production alternative that seems reasonable, that is, the LAPROMED option in the School of Pharmacy at the University of San Carlos (see Section II.B.3 above). As indicated, some small-scale production is already under way, and the existing installation can be easily adapted for larger-scale production, with proper technical supervision; a quality control laboratory is also in operation and any additional testing, either ad interim or transitionally, could be done at INCAP.

In order to initiate large-scale production of ORS at LAPROMED, start-up costs would be approximately US$113,500 (see Table 5 below). UNICEF has committed itself to donate a low-cost (estimated $26,000) filling/sealing machine which can produce at a rate of 50 packs per minute.* The original intent was to donate the machine instead to the LAPROMED facility. LAPROMED's character as a quasi-public sector entity which has the autonomy typical of other such universities in Latin America, at the same time that its financial support is embraced in the national budget, should make it institutionally possible for UNICEF to make this disposition.

Even if the decision to support the LAPROMED option were to made at once, production could not reasonably be expected to get up to full speed for approximately six to eight months, given the time necessary for ordering and delivery of equipment and raw materials, with another 30 days of actual production to build up a minimum inventory.** Thus, if the LAPROMED alternative were to be selected, an eight-month "bridge" supply of packets would have to be imported. Packet requirements for 1986 have been calculated at a minimum of 3,650,400, of which UNICEF has already donated 1,000,000, although

---

* The machine being imported is modelled after one developed in Costa Rica and originally utilized for filling and sealing little packets of coffee for retail sale.

** By way of comparison, Alimentos, S.A., once the necessary agreements were to be reached with the GOG, could begin full production within three to four months.

18

there is some question as to whether some of these are not, in fact, filling 1985 demand and will not be available in 1986 (see Section I above). In any case, using the 3,650,400 figure as a base, monthly requirements for 1986 would be approximately 304,200. An eight-month supply would be 304,200 x 8, or 2,433,600 packets. Discounting the assumed 1,000,000 UNICEF packets, the net eight-month deficit would then be 1,433,600. The UNICEF packet costs approximately US$0.06 FOB Europe, which increases to US$0.12-0.15 when freight and other import costs are added for landing in Guatemala. At the US$0.12 CIF price, total cost for the 1,433,600 "bridge" packets would be US$172,032.

The recurrent costs of local production are detailed in Table 6. Using a WHO-compatible glucose formulation, and including costs of raw materials, packaging, labor, and overhead, total per-packet cost is US$0.044 or Q0.13 (Q3.00=US$1.00), less if a sucrose formulation is used, a cost substantially lower than that of the UNICEF packet.

3. Regional Production

Another option is regional production (see Arce, 1984 and March 1985). One feasible option is Industrias Quimicas, S.A. (IQSA) in El Salvador, which is now producing the WHO bicarbonate formula. IQSA already has the appropriate installation equipment, and technology and could supply all the other CACM countries. At present, the CACM permits pharmaceutical products from any of the five Central American countries to be sold duty-free in all of the others. Even though Honduras withdrew from the CACM years ago due to conflict with El Salvador, it continues to deal with the other countries through bilateral agreements. However, it should be noted that CACM arrangements are not stress-free and that problems of currencies and civil strife could conceivably affect both supply and distribution.

There is also the possibility of purchasing from Mexico where two pharmaceutical companies have initiated ORS production. Of these two, Proteina Latinoamericana, S.A., already has enough capacity to fulfill Central American requirements. This option was not explored in depth.

4. The Private Sector

There are some general advantages to inclusion of the private sector in some productive role in national ORT programs (Arce, March 1985):

a. Assurance of availability of ORS is, all things being equal, more easily achieved in the private sector than it is in the public sector;

b. Small purchases of packets can be made locally and periodically, which enhances the possibilities of product freshness and diminishes requirements for investments in inventory and warehouse space;

132

c. If producer and distributor are the same, distribution can occur rapidly and in an essentially ongoing fashion, responsive immediately to demand, e.g., from public sector institutions;

d. Packaging presentations can be more rapidly designed by the producer in response to local marketing contexts, and market testing and adjustments are likely to be more agile than they would be in the public sector, which is unaccustomed to moving in the commercial market;

e. Pharmacies, already part of the private sector and well integrated into its production/distribution network, can be more easily accessed for promotional and educational campaigns.

With an immediate need for 2.6 million packets of ORS and a subsequent need for the quantities projected in Section I for the next three-year period, it would appear that local production of ORS in Guatemala should be encouraged. The principle alternative to local production, i.e, importation of finished packets of semi-finished bulk ORS, is not judged to be feasible. First of all, plant capacity does exist for local production of WHO-compatible formulations at competitive prices. Second, the volume of packets required would imply pressures for scarce foreign exchange which would be considerably more than that needed for local production (see Economic and Financial Analysis for a full treatment of this option, as well as the Costs Analyses which follow below).

Ideally, private pharmaceutical producers (of which there are 24 multinationals and 30 nationals) would be interested enough to make the necessary investments in equipment and raw material to satisfy the projected demand. However, the country's growing economic problems, aggravated by a political situation which has bred persistent uncertainty, have so far discouraged local industrialists from getting involved in new projects that require capital investments. The small size of the present market and the competitive relationship between ORS and other, more easily sold, more profitable products (e.g., antidiarrheals/antibiotics), act as further disincentives to private sector marketing alone.

---

* An example of the potential of the ORS market (as well as an indication of one of the problems that marketing strategists for an ORT project would have to face) is the present market for antidiarrheals in Guatemala. According to the 1984 edition of IMS AG-ZUG Switzerland (PMCA), the Central American market for antidiarrheal products was US$2,498,700; Guatemala accounted for $958,,600 of that market, 38 percent of the total and the highest in the region. The leading products sold in Guatemala in 1984 were the following:

1. Enterosediv $81,000 (dihydro estreptomycin and neomycin)
2. Kaomycin $70,000 (kaolin-neomycin)
3. Santemicina $68,000 (tetracyclina)
4. Kaopectate $38,000 (kaolin, pectina)

183

This suggests a project strategy which, while it does not depend solely on the private sector for production, takes advantage of the interest identified in that sector in participating in the ORS market were it to grow. To quote the Economic and Financial Analysis, "A program aimed at expanding demand for ORS would need to take advantage of production and distribution capacity that already exists. One objective of an ORT project would be to 'make a market' for ORS in which the private sector could develop an effective and supportive role."

A major alternative for private sector participation in national ORT programs is for that sector to produce for public sector programs. The appropriateness of this option for consideration in the Guatemalan case would derive primarily from the limitations discussed earlier in this document, i.e., lack of production, storage, and distribution capabilities in the public sector. If such an option were to be adopted, a one-liter presentation could be sold to public health institutions at a mutually agreed-upon price which would permit a small margin of profit to the producer so that, effectively, consumers would be paying primarily for distribution costs. As indicated earlier (see Section II.A.2), Alimentos, S.A., has developed a sucrose-based formulation which it would introduce as a popular presentation for sale in the private market and, at the same time, make available to the public sector in a less elaborate package at a lower cost which could be somewhat subsidized by higher prices set in the private sector market. However, the whole issue of price would have to be negotiated with the Ministry of Economy and the MOH. With the price information we were able to gather for this study, it would appear that the most economical production arrangement for ORS packets to be used in the public sector would be the LAPROMED option, primarily on the basis of price.*

Simultaneously, or alternatively, the private sector could (as Alimentos, S.A. is planning to do), develop a different presentation of ORS directed to a more affluent private market or even to market which is not so affluent but which is accustomed to pay for medications to treat diarrheas and would be willing to make the financial tradeoffs for assured supply and a persuasive presentation. Such a presentation would be given a trade name, be available in all pharmacies and OTC through other stores, and be actively promoted in the commercial market through a variety of media. Such a marketing campaign could redound to the benefit not only of the commercial sector, but to the aims of the public sector as

---

* For comparative purposes, the following figures are useful:

SINAPS/CRS	1/4-liter small scale production pack, cost for gratis distribution: Q0.04
LAPROMED	1-liter pack, cost of production: Q0.13
Alimentos, S.A.	1-liter pack, planned sale cost to public: Q.20-.25
Quifarma, S.A.	1-liter pack, current pharmacy sale price: Q.60

184

well, since it could encompass promotion of ORT as a concept and thereby support distribution of a less glamorous free or low-cost ORS packet distributed through public sector facilities. All communications content would be coordinated with the Ministry of Health, to assure its accuracy and appropriateness.

A number of alternative incentives can be offered to the private sector for such participation, for example:

a. Financing for the purchasing of equipment, generally filling/sealing machines. This can be as little as US$25,000-30,000 for the type of machine discussed earlier in this study.

b. Facilities for obtaining foreign exchange for importation of raw materials and equipment for ORS production. This is a crucial constraint in the Guatemalan case. Local manufacturers must presently buy dollars for importing from the parallel market at a rate of Q3.50:US$1.00 and are not allowed to adjust the prices of their prices accordingly. The planned large-scale production of ORS planned by Alimentos, S.A., for 1986, is being held up for this reason.

c. Elimination of red tape in customs and other relevant official entities, which speed up importation of production materials.

d. Relief of taxes on raw materials used in the production of medicines in general, or at least for those destined for production of essential drugs, especially ORS.

e. Liberation of legal constraints on over-the-counter sale of ORS. Presently, according to the rules of the Department of Drug Control of the MSPAS, which authorizes the importation, pricing, and sale of medicines in Guatemala, ORS packets are considered a drug, to be sold only in pharmacies. Reclassification as an OTC product which can be sold in stores would greatly expand access to ORS.

f. Commitment by the public sector to purchase a minimum annual quantity of packets in three or four orders per year (if an "economy" presentation for public sector use is the option selected). (Note: It would also be important for the public sector to keep the producer regularly informed about annual packet requirements so that the latter can order raw materials with sufficient anticipation.)

In return, the private sector would have to commit itself to:

a. Fix and maintain a per-packet price based on production costs plus a reasonable profit margin (20-25%) (if an "economy" presentation for public sector use is the option selected).

b. Introduce and promote a WHO-compatible formula in a presentation for the private market, which would expand access and increase visibility for ORS in general.

185

c. Coordinate with the MSPAS with regard to the medical and health educational content of packaging and mass media promotion.

The private sector might also commit itself to make its distribution channels available to the public sector to enhance reliability of supply.

C. Distribution Alternatives

1. The Public Sector

The logistics capacity of the public sector is described in Section III.A above. In sum, the storage and distribution systems of the putative linchpin of the MSPAS drug supply system are seriously wanting. Improvements must be made in warehouse management, inventory control, accounting, needs assessment, supply scheduling, information systems, etc. Construction of an adequate warehouse is necessary, training of personnel in warehousing and distribution procedures mandatory.

As indicated earlier, logistics system improvements are a planned part of the Immunization/Child Survival Project and contemplated in forthcoming PAHO technical assistance. A reasonable expectation for a national ORT program would be that ORT would be integrated into the MOH distribution system as it becomes capable of supporting it. A plausible sequence would be to synchronize this with channelling activities in departments where these are already occurring and gradually integrate ORT with those activities as new departments are added. At present, the MOH is not able to assume nationwide, simultaneous responsibility for ORS distribution and thoughts must turn to the private sector for some kind of complementary support.

2. The Private Sector

As discussed in Section III.B above, there are two principal private sector distribution channels in Guatemala which could be accessed, at least in theory, by the public sector. These are (a) the drug wholesalers (droguerias) and (b) the wholesalers of consumer products. Of these two main alternatives, the most attractive appears to be the latter and, more specifically, Alimentos, S.A. The reasons for this are basically two: (a) the reach of Alimentos, which covers about 90 percent of all sales points in Guatemala and (b) the fact that it is the prime candidate for the role of major ORS producer in Guatemala, since it has the WHO-compatible formulation, plant capacity, and at least an initial promotion plan for getting large-scale production under way in the shortest possible time.

In the context of a national ORT project, an arrangement could be made so that the Alimentos distribution network might be utilized to help distribute ORT in health areas where the MSPAS system is not functioning adequately to provide enough packets to respond to

126

demand, especially in remote areas. This would not compete with Alimentos' own, higher-priced presentation for sale in pharmacies and OTC in stores. The latter presentation, as indicated earlier, would respond to a market with money to pay for ORS, while the MSPAS market is essentially composed of clientele incapable of paying for ORS or as yet unwilling to do so. The overlap between the two markets would consist primarily of those prepared to pay for ORS either for emergency reasons or because they prefer a fancier, more persuasive presentation.

There are other private sector distribution alternatives. The capacity of private voluntary organizations (PVOs) can be marshalled to support national ORT efforts. The promoters who work for such entities at the community level, as well as for such other outreach entities as cooperatives and bilingual education activities (see Sociocultural Analysis) can provide crucial reinforcement in health education and actual distribution. The most important of these--"importance" being primarily defined in terms of geographic reach or number of members or promoters--are:

a. ASINDES (Asociación de Instituciones de Desarrollo y Servicio)

This is a Federation which groups 27 voluntary organizations (PVOs) in 550 different localities of the country. All member organizations are oriented to training people of the community level in all matters of social benefit. It is a decentralized organization, so that the programs are organized and executed at the local level, with regional supervision. ASINDES is very much interested in participating in a national ORT project, with a very clear idea as to how the educational element can be carried out successfully and has calculated a number of 10,000 promoters for total national coverage (see Appendix A, which presents the ASINDES training proposal, received as this document was in its final processing).

b. FECOAR (Federación de Cooperativas Agricolas Regionales)

There are six regional agricultural cooperatives which make up FECOAR, representing more than 13,000 small farmers from the departments of Sololá, Chimaltenango, San Marcos, El Quiché, Jutiapa, and Quetzaltenango. FECOAR is well organized administratively and offers many benefits to its members, among which the technical assistance offered through specialized promoters is perhaps the most important. FECOAR has developed a five-year training plan beginning in 1986, in collaboration with INTECAP, which will provide educational material and supervision. The actual training will be carried out by some 20 promoters instructing 250 leaders who, in turn, will train approximately 15,000 heads of farm families.

c. COCIF (Cooperativa de Consumo Integral de Farmacias R.L.)

As mentioned earlier, the Union of Pharmacy Owners set up a cooperative with the objective of purchasing large volumes of medicines, thereby obtaining discounts which are passed on to the pharmacy members and which may amount to as much as 20 percent in some cases. A six percent margin covers administration costs.

There are 115 pharmacies affiliated with COCIF; this number might increase substantially if COCIF succeeds in efforts to obtain the cooperation from the Division of Drug Control in requiring any new pharmacy applying for an operating permit to join COCIF.

d. Other private sector distribution alternatives

There are other distribution alternatives in the private sector which could be mobilized to expand access to ORS and support the distribution efforts made by the MOH and by Alimentos, S.A. The most important of these are the larger PVOs, but each of these would have to be explored in more depth, either as part of Project Paper preparation or as part of the project itself. CRS, as discussed earlier, is already involved in its own production and distribution activities and might be unwilling to "carry" what might be considered a competing and possibly confusing additional ORT presentation. Project Concern, as another example, is already actively promoting ORT, but its strategy emphasizes suero casero; in any case, its sphere of influence is limited to the Santiago Atitlán area. Because of the indeterminate nature of present USAID/Guatemala policy vis-à-vis PL-480 food distribution, it is difficult at present to do too much planning about the potential for integration of ORS distribution through the Volags.

And, because of the diminution in the number of PVOs during the recent years of civil strife in Guatemala and because of the fragmentation which has persistently characterized them (Keaty and Keaty, 1977), it is difficult to devise a coherent distribution strategy which could mobilize that private subsector to distribute ORS nationally in a way that could support public sector ORT strategy. Perhaps the best alternative is to explore in greater depth the potential of entities like ASECSA and the PVO umbrella organization which USAID/Guatemala may support and which currently is at the PID stage. ASECSA is an organization of 75 private community health institutions, primarily clinics and their associated promoters, which trains at the community level and sustains a drug distribution system for its members. CRS is already talking to ASECSA about possible collaboration in setting up local ORS production facilities and, again, the competition and confusion issues could come to bear. However, ASECSA's member institutions cover a population of 500,000, of whom about 500,000 are under age five, and the option should be explored further.

188

Other possibilities might be developed in association with what are primarily family planning activities, e.g., APROFAM and IPROFASA. APROFAM's contraceptive distribution system is fairly extensive (see Arce, June-July 1984) and is already being used in some cases by the MOH to help with drug logistics. IPROFASA has made a formal offer to the USAID to distribute ORS packets together with their ongoing contraceptive distribution activities (see Appendix C); however, IPROFASA's interest is primarily in ORS production and its coverage is still quite limited, a total of 350 clients in a reduced geographic area; IPROFASA is also somewhat institutionally fragile, since its pricing structure is built on what amounts to subsidy which is projected for termination in 1986. Finally, there are some major questions about the risks for ORS promotion in association with contraceptives, since there have already been some rumors, in Guatemala as in some other countries, about ORS coming to be considered a contraceptive. Such information remains at the level of anecdote but suggests that more information would be needed for a decision to be made to integrate ORS into ongoing family planning commodity distribution.

D. Conditions Precedent

Before summarizing the various strategic options or project alternatives which have been discussed throughout this document (see Section E below), we would like to note the actions that would have to be taken for a national ORT project in Guatemala which would take advantage of the strengths of both the public and private sectors. The USAID may wish to consider at least some of these as Conditions Precedent to any such project, because they constitute constraints on the effective extension of ORT coverage at present and would undoubtedly continue to do so in the future. They are:

1. Production of medicines is allowed by Guatemalan law only in authorized plants. If Alimentos, S.A. were to produce ORS, they would need to obtain a special license that would legally authorize production of a medicinal product in a food-production facility.

2. Presently, according to the rules of the Division of Drug Control of the MSPAS, which authorizes the importation, pricing, and sale of medicines in Guatemala, ORS packets are considered a drug, to be sold only in pharmacies. Reclassification as an Over-the-Counter (OTC) product which can be sold in stores would greatly expand access to ORS; in fact, it is unlikely that the desired coverage of the target population could be achieved if ORS were not to be so available. However, we were given to understand that the responsible officials now in the MSPAS are willing to make this regulatory adjustment.

3. Local manufacturers must presently buy dollars for importing from the parallel market at a rate of approximately Q3.50: US$1.00 and are not allowed to adjust the prices of their products accordingly. This is true in the case of both Incaparina and the planned large-scale production of ORS planned for a 1986 product

134

launch, which will also celebrate the 25th anniversary of Incaparina. While at least one analyst has concluded that Incaparina has been priced too high to adequately cover the appropriate target population (Wise, 1980), this conclusion may now be obsolete and, in any case, should not be allowed to constrain the potential for nationwide access to ORS/ORT. If Alimentos is to be included in a national ORT project as a producer of ORS for the public sector, it will be crucial for the company to be able to renegotiate a price structure for ORS that would permit differential pricing to achieve cross-price subsidization.

Even if Alimentos is not to be so included, adequate coverage with ORS/ORT is typically achieved when the maxium number of access channels are activated. The country's economic problems, aggravated by a political situation which has bred persistent uncertainty, have inhibited the involvement of local industrialists in projects that require capital investments, and the small-size of the present market and the competitive relationship between ORS and other, more easily sold, more profitable products (e.g., antidiarrheals/antibiotics) have acted as further disincentives to private sector marketing of ORS. While private sector companies cannot expect massive profits from what are essentially social products, they cannot reasonably be expected to lose large amounts of money either. It would be unfortunate to, in effect, "waste" Alimentos' readiness to enter this market with wide-scale distribution because of unwillingness to negotiate price issues.

4. There has not been, to our knowledge, coordination between the MSPAS and the private pharmaceutical subsector, on the content of mass media or pharmacy-level drug-related information. The private sector would have to agree, a priori, that the MSPAS would have final authority on the medical content of ORS/ORT messages. The degree and locus of coordination would have to be negotiated; ideally, a project health education/mass media coordinator would serve as the link between the two sectors in the areas of market research, testing, media selection, message design, and evaluation.

These strategy options should be considered against the background of the coverage targets which this study, together with its companion studies, find to be reasonable. In 1986, Guatemala will have a popualtion of approximately 8,000,000, of which some 1,352,000 will be children under five years of age. Estimating demand on a basis of three episodes of diarrhea per year, with a utilization rate of three packs per episode, the requirements for 100 percent coverage would be 12,168,000 packets. The ORT project to be proposed will assume 30 percent coverage of the target population for the first project year, 60 percent for the second year, and 80 percent for the third year. Project requirements for packets would be:

1986 - 30% = 3,650,400 packets
1987 - 60% = 7,300,800 packets
1988 - 80% = 9,734,400 packets

190

Subtracting the 1,000,000 packets which have recently been delivered or will be delivered by UNICEF early in 1986, estimated packet deficit for 1986 will be at least 2,650,000, with no other external packet source on the horizon.

Using criteria of volume of packets required; existence of production capacity; plans in both the quasi-public and private sectors to produce ORS in the near future; scarcity of foreign exchange; potential for low-cost production, with relatively low raw material import requirements; and a certain murkiness, at least for the present, in the promise of regional production; this study concludes that packet importation is not a reasonable option for Guatemala and that local production makes sense.

E. Strategy Options for a National ORT Project

1. The Public Sector

a. Production

MSPAS - No. MSPAS does not have a tradition of pharmaceutical production on which to build and lacks suitable infrastructure for accommodating a central-level production facility. Small state production labs (San Juan de Dios and IGSS) have problems of high prices, inadequate supply of raw materials, lack of technical capacity, insufficient human resources, and deficient quality control.

Quasi-public sector: LAPROMED, School of Pharmacy, University of San Carlos. Yes, depending on price. Small-scale production is already under way, and the existing installation can be easily adapted for larger-scale production. The quality control lab is in operation with LUCAM option available transitionally or supplementarily. Space is available with a good possibility for the donation of a filling/sealing machine by UNICEF. The 1-liter packet production cost is estimated at US$0.044/Q0.13, substantially under UNICEF CIF cost, lower if LAPROMED could import directly from manufacturers. Estimated production rate is 24,000/day, approximately 8 million packets per year if running full shifts. By the third project year, 80 percent coverage should be achieved by the public sector and LAPROMED would have to expand production capacity.

b. Distribution

MSPAS-Yes and No. The MSPAS logistics system is currently weak in all of its components and currently would have difficulty in the distribution component of a national ORT program. However, logistics system improvements are a planned part of the Immunization/Child Survival Project and contemplated in forthcoming PAHO technical assistance. ORS/ORT should be integrated into the MOH distribution system as it becomes capable of supporting it, sequencing this integration with channelling activities in depart-

191

ments where those are already occurring and gradually introducing ORT as new departments are added.

2. The Private Sector

a. Production

Alimentos, S.A. - Yes, depending on price. Alimentos produces and distributes Incaparina and has developed a 1-liter ORS packet which uses locally-produced sucrose instead of glucose, has been analyzed and approved by INCAP, and is compatible with WHO formulation. The company plans to introduce it as a popular ORS presentation into private market and, at the same time, make it available to the public sector in a less elaborate package and at a lower cost which could be somewhat subsidized by higher prices set in the private sector market. However, Alimentos has held up project launch, timed to coincide with 25th anniversary celebration of Incaparina, because the Ministry of Economy has prohibited upward adjustments in sale prices to account for higher prices of imported raw materials resulting from the de facto devaluation of the quetzal. Alimentos is currently estimating its price to the public at Q0.10-0.25, a price which would be lower if raw materials were ordered directly from manufacturers instead of through Guatemalan import firms, but which suggests a higher price to the MOH than in the LAPROMED case. Advantage of Alimentos is linkage to its distribution system which covers 90 percent of sales points in Guatemala. Alimentos has adequate plant capacity to satisfy national requirements and can make necessary space and quality control adjustments to produce ORS properly. Alimentos would need a special license that would legally authorize production of a medicinal product in a food-production facility.

Quifarma, S.A.- No. Quifarma is already producing Glucosoral and has introduced it to the private market. However, the price is high (pharmacy sales price is Q0.60 per 1-liter packet); formula is glucose-based which increases price due to import costs of glucose; and company has no experience with marketing of social products which approaches the Alimentos experience with Incaparina.

CRS/SINAPS Model - No. CRS has already made arrangements for the purchase of necessary low-technology equipment and technical assistance and is viewing this activity as one of demonstration, for replication by interested entities elsewhere in Guatemala, and may be working with ASECSA in setting up local ORS production facilities. CRS has not indicated interest in support from a national ORT project but might well be contacted again at the time of PP preparation.

b. Distribution

Alimentos, S.A. - Yes. Alimentos covers over 90 percent of sales points in Guatemala. In the context of a national ORT project, an arrangement could be made so that the Alimentos distribu-

192

tion network might be utilized to help distribute ORT in health areas where the MSPAS system is not functioning adequately to respond to demand, especially in remote areas. This would not compete with Alimentos' own higher-priced presentation for sale in pharmacies and OTC in stores, except for a probably small overlap between lower- and upper-scale segments of the ORS market. If a price arrangement can be worked out so that Alimentos is the principal private-sector entity producing for the public sector (in lieu of LAPROMED), then distribution arrangements could be developed naturally enough; if LAPROMED is to be the principal producer for the public sector, then arrangments with Alimentos would have to be contractual and could be considered temporary until the MSPAS's own logistics system can assume full responsibility for ORS distribution. Some public sector pharmaceutical distribution is already farmed out to the private sector so that this would not constitute a novelty for the MSPAS.

3. Marketing in Both Sectors

The mass media component of this project would be, in effect, a joint responsibility of the public and private sectors. The public sector will assume responsibility for the medical accuracy and appropriateness of messages and media approaches, and the private sector would contribute its commercial experience and expertise. If the Alimentos option is elected, Alimentos has already done some planning for ORS marketing, tied to its Incaparina 25th anniversity activity. The national ORT project coordinator would be charged with strategy integration throughout all phases of mass communication efforts and with the content of all health education of professionals, paraprofessionals, and community leaders and members.

193

REFERENCES

1. Arce, R. Assessment of Private Production of ORS: Guatemala. Guatemala: USAID and PRITECH. March 1985.

2. Arce, R. Consultance Visit on ORS Production and Distribution in Guatemala, Honduras, El Salvador, and Panama. June-July 1984.

3. MSPAS. Red de Establecimientos del Ministerio de Salud Pública y Asistencia Social. Guatemala: Unidad de Programación D.G.S.S. October 1985.

4. PAHO (OPS). Plan de Necesidades Prioritarias de Salud en Centroamerica y Panama: Area Programatica, Medicamentos Esenciales: Proyecto, Sistema de Suministro de Medicamentos y Otros Insumos Criticos. Guatemala. October 1985.

5. PRITECH. Manual for Assessment and Planning of National ORT Programs. Washington, D.C. 1985.

6. Wise, R.P. Two Decades of Incaparina: A Comparative Policy Analysis-- The Guatemalan Nutrition Program's Past and Potential. Cambridge, MA. 1980. (Unpublished manuscript.)

194

TABLE 1

ORAL REHYDRATION SALTS PACKETS
REQUIRED FOR GUATEMALA
(YEAR 1986)

AREA	1985 (Est.) Population*	Children under Five Years	3 Episodes x 3 Packets x Child	3 Episodes x 2 Packets x Child
Sololá	201,147	33,993	305,937	203,958
El Progreso	96,370	16,287	146,583	97,722
Santa Rosa	237,418	40,124	361,116	240,744
Sacatepéquez	150,968	25,514	229,626	153,084
Zacapa	144,820	24,475	220,275	146,850
Jalapa	164,690	27,833	250,497	166,998
San Marcos	593,015	100,220	901,980	601,320
Chimaltenango	289,901	48,993	440,937	293,958
Suchitepéquez	307,781	52,015	468,135	312,090
Quetzaltenango	472,645	79,877	718,893	479,262
Huehuetenango	590,575	99,807	898,263	598,842
Baja Verapaz	157,157	26,560	239,040	159,360
El Quiché	473,865	80,083	720,747	480,498
Totonicapán	251,004	42,420	381,780	254,520
El Petén	182,327	30,813	277,317	184,878
Retalhuleu	200,179	33,830	304,470	202,980
Alta Verapaz	491,078	82,992	746,928	497,952
Izabal	270,054	45,639	410,751	273,834
Escuintla	453,854	76,700	690,300	460,200
Chiquimula	223,311	37,740	339,660	226,440
Jutiapa	312,575	52,825	475,425	316,950
Guatemala	1,735,266	293,260	2,639,340	1,759,560
TOTAL	8,000,000	1,352,000	12,168,000	8,112,000

* Utilizing 2.0 population growth rate
SOURCES: DGE, CELADE, SEGEPLAN

2341s

195

TABLE 2

ORAL REHYDRATION SALTS PACKETS
REQUIRED FOR GUATEMALA PER YEAR

YEAR	CHILDREN UNDER FIVE YEAR	ORAL REHYDRATION* SALTS REQUIRED
1986	1,352,000	8,112,000
1987	1,391,208**	8,347,248
1988	1,431,553**	8,589,318

* Three episodes x 2 packets x child.
** 2.9% annual growth rate.

196

TABLE 3

NUEVA PROPUESTA DE DISTRIBUCION DE SOBRES DE SALES DE REHIDRATACION ORAL DONADOS POR UNICEF

CANTIDAD A DISTRIBUIR	400,000
RESERVA	100,000
TOTAL	500,000

AREA DE SALUD ESCUINTLA	35,000
AREA DE SALUD SANTA ROSA	35,000
AREA DE SALUD EL PROGRESO	20,000
AREA DE SALUD SACATEPEQUEZ	20,000
AREA DE SALUD ZACAPA	10,000
AREA DE SALUD CHIQUIMULA	20,000
AREA DE SALUD JALAPA	25,000
AREA DE SALUD JUTIAPA	35,000
16 AREAS DE SALUD RESTANTES	10,000 Cada una (160,000)
RESERVA MINISTERIO DE SALUD PUBLICA Y ASISTENCIA SOCIAL (DROGUERIA NACIONAL)	40,000
TOTAL.....	400,000

La reserva de 40,000 sobres quedarán en la Droguería Nacional, para cubrir solicitudes especiales.

Los otros 100,000 sobres también quedarán almacenados en la Droguería Nacional, pero a disposición de UNICEF, para cubrir solicitudes de Organismos no Gubernamentales que les sean hechos, para lo que deberá mediar nota de UNICEF para la Droguería Nacional, para efectos de su despacho.

197

TABLE 4

DISTRIBUTION POINTS SERVED BY THE DROGUERIA NACIONAL, GUATEMALA 1984-85 (PUBLIC SECTOR)

	Farmacias Estatales	Ventas Municipales	Health Posts	Health Centers	Hospitals
As of End of 1984	24	115			
As of End of 1985	12	27	666	211	35*
Pending Inauguration or Rehabilitation**	17	9	89	3	n.d.
Total Estimated for End-1986	53	142	755	214	35

* Accounting for 7,960 beds.

** Pending completion of construction, equipment, and/or personal assignment.

Source: MSPAS. Red de Establecimientos del Ministerio de Salud Pública y Asistencia Social. Guatemala: Unidad de Programación, D.G.S.S. October 1985.

198

TABLE 5

ESTIMATED INVESTMENT FOR LOCAL PRODUCTION*

Production Equipment	(In U.S $)
1 Filling-mixing machine **	$26,000.00
3 Scales	3,500.00
1 Drum hoop mixer (300 liter, with two drums)	4,500.00
1 Sifting and straining machine	3,300.00
1 Tray drying oven	1,700.00
1 Hand pallet truck	500.00
Subtotal	$39,500.00
Human Resources	
1 Technical adviser	$10,000.00
1 Full-time pharmacist	10,400.00
5 Operators 3,250.00	
Technical training	10,000.00
Subtotal	$33,650.00
Materials	
6-months' supply of raw materials	$25,720.00
Packaging material	14,680.00
Subtotal	$40,400.00
TOTAL	$113,550.00***

* LAPROMED alternative.

** Possibly UNICEF-donated; processes 50 packs/minute

*** Plus approximately US$172,032.00 for a "bridge supply of packets (N=1,433,500).

NOTE: Other minor equipment such as storage racks, pallets, hand scoops, vacuum cleaner, lot printers, etc., are not included since it is assumed that they are available locally. The installations required, for a volume of three to four million packets per year, should be as follows:

Production area	141 m^2
Office and services	84 m^2
	225 m^2

As a general rule, the storage area for raw materials and finished goods is approximately 70 percent (525 m^2) when producing 2,000,000 packets, which means that a larger area will be necessary if the yearly production is more than 2,000,000 packets a year.

TABLE 6

LOCAL PRODUCTION COSTS ANALYSIS

A. Raw Materials

	g/l	Total 1000 Packets	Internat. Price	Total
Sodium chloride	3.5	3.570 Kg	$0.45	$ 1.61
Potassium chloride	1.5	1.530 Kg	$0.95	$ 1.45
Sodium citrate	2.9	2.958 Kg	$1.90	$ 5.62
Glucose*	20.0	20.400 Kg	$0.94	$19.18
				$27.86

B. Packaging Material **

This is calculated on the basis of a pre-formed polyethylene bag at 350 bags/Kg. The price per kilo os Q7.20/US$2.40 (Q3.00 = US$1.00)

$$\frac{2.40}{350} \times 10\text{-}00 \times 1.07 = \text{US\$}7.34$$

C. Labor

An automatic filling/packing machine can do 50 packets per minute, 3,000 per hour:

$$\frac{1000}{3000} = 0.33 \text{ hours/1000 packets}$$

For manufacturing, weighing, mixing, etc., a 500-Kg lot should require approximately eight hours of labor, that is:

$$\frac{500{,}000 \text{ g.}}{27.9} = 17{,}921 \text{ packets}$$

$$\frac{8}{17{,}921} \times 1000 = 0.45 \text{ hours/1000 packets}$$

Cost per labor hour Q1.60 (U.S.$0.53)

0.33 + 0.45 = 0.78 hours
0.53 x 0.78 = US$0.41

200

TABLE 6, continued

D. Overhead

The cost of materials usually represents about 80 percent of total costs. Therefore, it may be assumed that overhead costs, which include not only administration but also depreciation of equipment, should be about 20 percent of the total. Therefore:

Raw materials	US$27.86
Packaging	7.34
Labor	0.41
Overhead	8.90
	US$44.51/1000 packets, or
Total Per-Packet Cost	US$0.044 or Q0.13

NOTE: The packaging of 100 units into a box will add to the cost, but not very significantly.

For comparative purposes, it should be taken into consideration that the aluminum foil used for the UNICEF packet is more expensive than polyethylene packaging.

Since sucrose, the regular table sugar produced locally, may be used as a substitute for glucose, it is worthwhile mentioning that the local price of this material is Q22/100 lbs.

Q0.22/lb x 2.2 = Q0.48/Kg

The quantity used in the sucrose formulation should be double of that of glucose (Q0.48 x 2 = Q0.99/US$0.32), but would still represent a savings of 3.8 cents per packet over the glucose formulation.

201

CONTACTS

1. Dr. Roberto Gutierrez, Director Droguería Nactional. Tel. 64882.
2. Lic. Susana Herrera, Dpto. Materno-Infantil, MOH.
3. Lic. Silvia Rivera, Dpto. Materno-Infantil, MOH.
4. Dr. Amilcar Acevedo, Proyecto UNFPA, MOH.
5. Dr. Napoleon Diaz, Instituto Guatemalteco de Seguridad Social (IGSS).
6. Dr. Jaime E. Carredano, Unidad Informàtica, MOH.
7. Ing. Rafael Armas, Unidad Informàtica, MOH.
8. Ing. Francisco Saravia, Gerente General, Alimentos, S.A. Tel. 301268.
9. Ing. Regina Dorigoni, Gerente de Producción, Alimentos, S.A..
10. Sr. Jorse Mario Ortega, Gerente General, IPROFASA. Tel. 310128.
11. Dr. Otto Zeissig, Depto. Vigilancia de Enfermedades y Epidemiología, MOH.
12. Dr. Oswaldo Chincilla A., Director General, Servicios de Salud, MOH.
13. Lic. Guillermo Granados, Director Farmacéutico Lab. Italgiotic.
14. Lic. Lesbia Arriaza, Directora, LAPROMED. Tel. 26545.
15. Dr. Hector Aguilar, Decano Facultad de Farmacia, Universidad de San Carlos. Tel. 761540.
16. Sr. Julio Cesar Méndez, Gerente, COCIF. Tel. 539057.
17. Lic. Juana R. Mejia, Head, Drug Control Division, MOH.
18. Dr. Lelio Calheiros, PAHO Representative.
19. Dr. William Vargas, UNICEF. Tel. 315511.
20. Dr. Roberto Brenes, Gerente General. Tel. 910016.
21. Lic. Carlos Marroquin, Gerente de Producción, Lab. Quifarma S.A. Tel. 480711.
22. Sr. Julio R. Contreras, Asst., Gerencia FECOAR. Tel. 911128.
23. Lic. Carlos Avila, LAPROMED.

202

CONTACTS, CONT.

24. Lic. Eddy Vilagrán, LAPROMED.

25. Sr. Roberto Perdomo, AID.

26. Dr. Hugo Figueroa, Presidente, ASINDES. Tel. 313247.

CHAPTER 3

SOCIOCULTURAL ANALYSIS:

NATIONAL ORT PROGRAM, GUATEMALA

Report Prepared by PRITECH Consultant:
Kjell Enge, Ph.D.

TECHNOLOGIES FOR PRIMARY HEALTH CARE (PRITECH) PROJECT
Supported By:
U.S. Agency for International Development
AID/DPE-5927-C-00-3083-00

AUTHORIZATION:
AID/S&T/HEA:
ASSGN. NO.: SS 99

204

SOCIOCULTURAL ANALYSIS:

NATIONAL ORT PROGRAM, GUATEMALA

TABLE OF CONTENTS

		PAGE
INTRODUCTION:	THE SCOPE OF WORK	iii
I.	THE CLIENT POPULATION	1
	A. Rural, Urban, and Indigenous Components	1
	B. Prevalence and Treatment of Diarrheal Diseases	2
	C. Knowledge, Attitudes, and Practices	3
	1. Ethnicity	3
	2. Recent Studies: Diarrheal Disease and ORT	2
	3. Conclusions	10
II.	THE DELIVERER POPULATION	11
	A. The Public Health Sector	11
	B. Physicians	11
	C. The Nursing Profession and the National School of Nursing	13
	D. Private Voluntary Organizations (PVOs)	14
	1. Project Concern	14
	2. Catholic Relief Services	15
III.	THE INTERFACE: HEALTH CARE PERSONNEL AND THE CLIENT POPULATION	16
	A. Mass Communication	16
	B. ORT Message Design and Preparation	17
	C. Community and Household Education	18
	1. APROFAM	20
	2. Channelling	21

205

TABLE OF CONTENTS (CONT.)

IV. SUMMARY OF SOCIOCULTURAL, MASS COMMUNICATION, AND EDUCATIONAL FEASIBILITY 23

A. Constraints 23
B. Facilitating Factors 23
C. Conclusion 24
D. Project Recommendations 25

REFERENCES 26

TABLES 27

ANNEXES 43

INTRODUCTION

The AID-specified Scope of Work for this activity for the role of Anthropologist included the following tasks:

1. Examine obstacles to acceptance of ORT in rural areas, especially the indigenous Western highlands.

2. Identify appropriate promotional channels to most effectively and widely reach the beneficiary population.

3. Evaluate attitudes by health personnel toward ORT and how effective are their professional relationships with prospective beneficiaries.

4. Review ethnographic and anthropological studies completed by INCAP in August 1985 and determine what data collected in these studies have strong implications for working in ORT.

Discussion within the Study Team, with concurrence of the USAID Health Officer, transferred the following tasks from the role of the Public Health Physician:

5. Assess current private sector involvement in ORT and potential for increased role of private sector organizations in a national program under a new AID project.

6. Recommend mechanisms for expanding ORT IE&C activities in order to achieve maximum coverage, through the existing systems.

This analysis attempts to address each of these in detail, keeping also in mind the general guidance provided in the AID Handbook for the Sociocultural Analysis necessary for a Project Identification Document (PID), the elaboration of which will fall to the USAID upon the completion of the work of the ORT Study Team. The Handbook asks that such an analysis address: the sociocultural context, the characteristics of the beneficiaries, their participation in the project, its overall sociocultural feasibility, and potential impact.

Finally, this Analysis attempts to include those categories of special attention suggested by the PRITECH Manual for the Assessment and Planning of National ORT Programs. These include: traditional private sector practitioners, communications in support of ORT programs, awareness of and access to ORT, and utilization of ORT by the population.

207

I. THE CLIENT POPULATION

A. The Rural, Urban, and Indigenous Components

In order to understand the magnitude of diarrheal disease and treatment alternatives in Guatemala, demographic, economic and ethnic variables must be examined and analyzed.

Table 1 shows the total population of Guatemala by department, number and percent of rural residents, and number and percent of indigenous inhabitants. The 1981 Census defined as "rural" any population center with less than 1,000 inhabitants (aldeas, caserios, parajes, fincas), or any other town with dispersed settlement patterns; an aldea is generally below 1,000 in population while caserios are usually not over 200. Definition of ethnicity for that Census was based on the individual's own identification. Because the 1981 Census was taken during the height of guerilla activities and the army's counter-insurgency campaign, many regions were not visited and large sectors of the population were homeless and displaced; the use of self-classification to identify indigenous people may have further contributed to underestimation of the size of the Indian population. Thus, the figures in Table 1, which are projections made by the General Secretariat for Economic Planning (SEGEPLAN), based on the 1981 Census, probably underestimate the size of the Indian population. The indigenous population of Guatemala is currently estimated to be nearly 3.5 million, of a total population of approximately 8 million.

The Ministry of Health's 1985 Operational Plan disaggregates the general population into the following age cohorts:

Under 1	311,713
1-4	1,047,744
5-14	2,121,419
Females 15-44	1,729,714
Males 15 and over and Females 45 and over	2,302,776

This population is overwhelmingly rural and agricultural, yet seriously constrained with regard to its most important economic resource: land. Guatemala has the most unequal land distribution in Central America, with a Gini Index (100 = maximum inequality and 0 = perfect equality) of 85; the Gini Index for El Salvador is 80.1 and that of pre-revolutionary Nicaragua 82.7. The number of farms in Guatemala with a land area of less than 1.4 hectares (about 3.4 acres) is 288,083, which represents 54.2 percent of the total number of farms. These farms, however, account for only 4.1 percent of the country's arable land. The number of farms with over 450 hectares is 1,362, or 0.26 percent of the total number, but these large farms account for 34 percent of the land. Furthermore, there are 185,000 families without any land, representing about 1 million rural residents (AID, 1983). A large percentage of the landless, perhaps 75 to 80 percent, are Indians in the Central and Western Highland departments. This essentially rural and highly-dispersed

208

population, nearly one-half of which is indigenous, is experiencing rapid economic decline, increased malnutrition, and disease, most particularly acute respiratory infections and diarrheal diseases, particularly in children under five years of age.

B. Prevalence and Treatment of Diarrhea

The Family Planning and Maternal/Child Health Survey, carried out by APROFAM in 1983, has provided the best available current data on the national prevalence and treatment of diarrhea. The survey sampled Guatemala City and the interior departments, with the exception of the Petén. The total sample consisted of 3,670 households with 4,185 children under 5. The households were randomly selected, with 22.6 percent in Guatemala City and the rest in the interior; 48 percent of the total sample was ladino and 29.3 percent indigenous.

Table 2 shows that almost 26 percent of children under five years of age were reported to have had diarrhea during the week prior to the interview. Thirty percent of the Indian children in the interior had recently had diarrhea, compared with 25 percent of ladino children and 19 percent of all children surveyed in the Department of Guatemala. Prevalence of diarrhea was highest for children one year and under (29-34 percent). After age one, prevalence of diarrhea declines rapidly, down to 20 percent for three and four year-olds. Prevalence of diarrhea is somewhat lower for children less than one year of age than for one year-olds, probably because of the presence of maternal antibodies in the former group and their low exposure to foods other than breast milk, especially during the first months of life (APROFAM, 1983).

The survey also found a strong correlation between prevalence of diarrhea and socioeconomic indicators such as crowding, lack of electricity, number of children under five, and source of drinking water. In other words, low-income families with contaminated water supplies and poor sanitary practices had higher prevalence of diarrhea (APROFAM, 1983).

Of the children with diarrhea, 86 percent had received some kind of treatment. The likelihood of being treated at all did not vary according to demographic, socioeconomic, or ethnic variables. Table 3 shows that the use of ORS, either prepared in the home (suero casero) or from packets, is minimal in Guatemala; only 7.4 percent had used ORS packets and 1.4 percent had used suero casero. Closer examination of the data also shows that 8.2 percent of the indigenous families had used ORS packets, compared to 6.6 percent for ladino families, and 2.4 percent had used suero casero, compared to 1.0 percent of ladino families.

Differences in treatment between strata are relatively minor, except that Indians are more likely to use traditional treatment than ladinos living in the interior or in the Department of Guatemala. Other data (not shown) suggest that use of ORS is positively associated with socioeconomic status, but the association is not

209

strong. In addition, children under one year of age were most likely not to be treated and, if treated, the least likely to receive ORS therapy. However, use of any kind of oral rehydration therapy was very low. Only 10.8 percent of all children surveyed with a recent episode of diarrhea had received oral or intravenous therapy to treat or prevent dehydration. This is consistent with the fact that there has been no large-scale national program to establish and promote use of ORS/ORT.

Nearly three-fourths of the children were treated with various popular pharmaceutical products, and another seven percent were given "hot" or "cold" foods, herbal preparations, or had food withheld. Guatemalan infectious disease experts who have reviewed the treatments reported by the interviewees feel that the majority of these treatments were either ineffective or deleterious. A few of the children receiving antiparasitic or antibacterial preparations may have had a medical evaluation to determine the correct antibiotic, but most antibiotics were probably obtained over the counter and were inappropriate in any case, since antibiotics are ineffective against viruses, the most common cause of childhood diarrhea in Guatemala. Other children received preparations containing anticholinergics or kaolin, which may provide minor symptomatic relief but do nothing to treat dehydration, the most important complication of diarrheal diseases in Guatemala.

C. Knowledge, Attitudes, and Practices

No matter how well designed, executed, and analyzed, a survey of 3,670 households cannot adequately answer all questions about diarrheal disease and treatment practices. Quantitative data must be interpreted in relation to qualitative observations and be placed in the perspective of recent historical process. Furthermore, the ethnic and linguistic variables should be an integral part of both description and analysis performed prior to project design and implementation.

1. Ethnicity

The indigenous population of Guatemala has undergone numerous changes since the Spanish Conquest. At the time of the Conquest, there were at least one million Mayans, divided into many ethnic groups. The two largest were the Quiché and Cakchiquel, which were organized into complex states complete with nobility, priesthood, armies, artisans, merchants, and commoners. During the 450 years that followed, each sector of the different ethnic groups interacted with the myriad of European influences in distinct ways. In other words, the indigenous people were not homogeneous at the time of the Conquest, and they are not today.

Indian ethnicity is difficult to define because, as a concept, it cannot be uniformly applied to all indigenous people in Guatemala. A number of different criteria have been used which include religious beliefs, self-image or self-identification, rituals, economic activities, dress, food, and, of course, language. Prob-

210

lems appear when we try to establish uniform criteria for each of these variables; it simply is not possible. Indians can be conservative Catholics, progressive Catholics, Evangelical Protestants, costumbristas (a syncretic indigenous religion), or they can proclaim no religious belief at all. Their economic activities vary from farmer to factory worker and from rural to urban. Dress can be traditional for both men and women, or both may have adopted European dress. Many speak only one of 23 Mayan languages and their dialects, some speak more than one native language, others also speak Spanish, while yet others claim to speak only Spanish but still consider themselves indigenous. To further complicate the picture, some proclaim to be ladinos in the urban context and promptly deny any Indian characteristics, including language; these same individuals will consider themselves completely indigenous when visiting relatives in the countryside.

For the purposes of this study, we will distinguish between rural and urban indigenous people based on language and the individual's own sociocultural identification. Furthermore, we will distinguish between the rural poor who live outside municipal capitals and larger villages, and those who live in rural areas within easy travel distance to cities and towns with educational facilities. Our definition of "indigenous" is therefore both cultural and economic, taking into consideration both residence and ethnic identification. We also note that the Guatemalan indigenous population is highly stratified, with a small wealthy elite, a middle range with moderate incomes, and a large majority of very poor who live primarily in rural areas.

2. Recent Studies: Diarrheal Disease and ORT

In the past two years, numerous studies have been carried out on beliefs and treatment of a wide range of illnesses, including diarrhea. Here we review the findings and analyze the significance of four studies which have used intense first-hand observations, open-ended in-depth interviews, and formal questionnaires. These are (see Table 4) "San Miguel" (a pseudonym), an evenly mixed ladino community with both rural and urban residents, located near Antigua; Guanagazapa, a rural ladino municipio near the city of Escuintla; Rio Hondo, a small indigenous community in Huehuetenango; and Santa Fé and La Florida, low-income urban neighborhoods in Guatemala City.

a. San Miguel, Sacatepéquez

This study of health-seeking behavior was conducted over an eight-week period between July and September, 1983. One urban neighborhood with a sample of 97 households and a rural farm with 58 were selected for the study. Fifteen households, of which ten were urban and five rural, were randomly chosen from the larger sample for more intense in-depth investigation.

Table 5 shows the most common illnesses mentioned spontaneously by 15 mothers; after colds, diarrhea is a very close second. The objective was not to accurately measure morbidity, but to have

211

mothers recall episodes, related symptoms, causes, treatments, decision-making, health resources used, and specific criteria used to judge gravity (Hurtado, 1984). Table 6 shows that 21 illnesses were reported in children during the month of July 1983; again, diarrhea is second. Traditional folk illnesses such as sunken fontanelle, evil eye, and fallen stomach have relatively low reporting frequencies; mothers primarily describe diarrhea as "liquid stools with abnormal frequency." Table 7 presents a taxonomy of the causes, symptoms, and treatment of these reported diarrheas.

Diarrhea in children may, however, be considered symptomatic of other folk illnesses such as cuajo or estómago caido (fallen stomach), mollera caida (sunken fontanelle), lombrices (stomach worms), and mal de ojo (evil eye), each of which is associated with different stool color. More than any other illness, diarrhea elicits a variety of treatment alternatives. Generally, these consist of varying combinations of herbs and pharmaceuticals. Ten herbs were identified and are commónly used in conjunction with Alka-Seltzer, Acromycin, Sulfadiazin, and Enterovioform. Like many other illnesses, diarrhea is believed to be transferrable through mother's milk. Consequently, mothers also drink herbal concoctions to cure their child's diarrhea. Treatment of diarrhea from cold or fallen stomach involves abdominal massages and/or holding the child upside down for its stomach or fontanelle to fall back into place. Massages are performed either by specialized personnel called sobadoras or "señoras who knew how to cure." When diarrhea is caused by "bad food," herbal enemas are sometimes used.

People usually do not go to the Health Post for diarrhea but rely on home remedies. The exception is when a child is believed to have dysentery, which involves bloody, uncontrollable, and very frequent stools and is usually accompanied by sharp stomach pains. Mothers typically use a variety of treatments, some sequentially and others simultaneously. Figure 1 shows the types of treatment for diarrhea encountered in San Miguel (Hurtado, 1984).

The San Miguel study also showed that mothers had clear ideas about adjustments in feeding patterns for children with diarrhea. In discussing diet, the mothers defined lack of appetite as a consequence of illness: it is not that mothers stop feeding, but that children do not want to eat.

Figure 2 shows the array of health resources available to the residents of San Miguel. Specific decisions regarding the use or sequence of resource uses are based on multiple factors, including:

- nature of the illness
- gravity of the illness
- present economic resources
- cost (fees, medicines, transportation, lost wages)
- distance
- time
- accessibility
- household composition.

-212

Nature of illness. Some illnesses like evil eye, sunken fontanelle and stomach, and worms are thought to respond better to home and folk remedies. Other illnesses are believed to require modern medicines and injections.

Gravity of the perceived illness is a crucial factor in the making of treatment decisions. For example, diarrhea produced by tooth eruption is a a "normal" condition, and no home remedies or other treatments are considered. In other words, even a considerable incidence of diarrhea may not be considered an illness but only becomes one with extended duration (more than three to four days), presence of blood, fever, or difficulty in breathing. Even if diarrhea persists, home remedies will be used first; if no home cure is achieved, then folk curers are sought. If the diarrhea still continues, then the child is taken to a pharmacist, health center, or private physician. Only in the event of bloody stools is a child taken first to the Health Post, clinic, or private physician.

Cost of treatment is a major factor. Since most of the families studied are very poor, home remedies are resorted to by necessity and are always the first step in the treatment process, even though the public Health Post and private charity clinics are considered to be "cheap" options. When asked what the mothers would do if they had more money, most said they would consult a private physician, provided the illness were serious enough and amenable to treatment by a doctor.

Distance, time, accessibility, and family composition have varying effects, depending on order of magnitude. All except family composition have cost implications and conflict with other important household and economic activities. Household composition is important in determining who makes treatment choice decisions: a single mother may decide on one course of action, while a household with a resident adult male may pursue a different decision-making process.

A modern public Health Post is located in the center of San Miguel. All the mothers in the sample knew about and had at one time gone to it, and twelve continue to go regularly. A common complaint was that the post personnel "make the children cry and never give free medicine, just prescriptions." Table 8 shows the pros and cons noted with regard to Health Post use, and Table 9 shows when and why the last time each of the sample of 15 mothers had gone to the Health Post. The reasons and frequency indicate that most go to benefit from free food distribution.

b. Guanagazapa, Esquintla

Vielman studied a rural section of the community with a predominantly ladino population of 1,000. She selected 15 families for intense study and used the same procedures and instruments as Hurtado.

The diarrheal illness classifications, causes, and treatments were virtually identical to those found in San Miguel. The sequence of treatment choices was also the same: the mother was the first, followed by herbal mixtures in combination with modern patent medicines, then traditional curers and, finally, modern medicine.

Unilke Hurtado, Vielman collected data on ability to define dehydration and preparation of suero casero. A very small number of respondents had any notion of what dehydration was. A much larger number claimed to know about suero casero, but it was not used by many. Only four mothers could accurately measure a liter; for most, boiling water simply meant bringing it to a boil and then immediately removing it. Common complaints about ORS were that it is too salty, children do not like it, and that it does not immediately stop diarrhea.

Most of the mothers indicated that the Health Center was a last resort when everything fails. The majority knew that the Center gave out ORS for diarrhea, but that the salts are not always available. Mothers unanimously agreed that Doña Carmen, a local practitioner who used a mixture of traditional and modern medicine, was the best resource they had. They also felt that Doña Carmen would be the best person to explain new medicines and treatments; very few said it should be a doctor. Mothers also felt that new patent medicines, which they called "remedios," should be available in local stores and not just at pharmacies.

c. Aldea de Rio Hondo, Huehuetenango

This anthropological study of medical beliefs and practices was done during March 1985 in a randomly-selected sample of 17 households. The methodology was the same as that used in the studies of San Miguel and Guanagazapa.

Rio Hondo, located in the Municipio de Malacatancito, is an isolated indigenous community of Quiché speakers with a population of about 1,000. There are no government health services; the nearest Health Center is in Malacatancito, some 24 kilometers away. The aldea has no potable water system, and residents must go to a spring which is located a one-hour walk away; at times that spring has insufficient water, and residents must walk even further. There is no electric service in the community. A road was recently constructed connecting the aldea with the municipal capital. A bus operates once a week, and the round trip fare is Q2.00; on foot the round trip takes six hours. This community is truly isolated and has access to no modern health services.

Traditional health providers consist of three trained midwives and an old man who is said to be a witch doctor (brujo); he does not, however, perform any curative activities. Most of the mothers know how to do massages for empacho. Home remedies and treatments used by midwives consist of combinations of patent medicines and herbs.

Table 10 shows the causes of diarrhea elicited from the 17 mothers. It is important to note that parasites had the highest frequency, followed by hot/cold disorders. The hot/cold syndrome derives from a system of folk beliefs widespread in Latin America, whose central concept is maintenance of an internal bodily balance of hot and cold, both literally and metaphorically. All activities, foods, and medicines have varying degrees of hot and/or cold qualities. The objective is to maintain balance by not ingesting a food or medicine which can upset this balance. More isolated rural areas have retained these beliefs, as is amply demonstrated by the Rio Hondo data. The other causes for diarrhea show a high frequency for evil eye, followed by eating "green" fruit, and tooth eruption. Fright or "soul loss" was only mentioned by one mother.

All but three of 17 families use medicinal plants, as well as modern medicines. In most cases, modern and traditional medicines are used in combination, rather than in sequence. Boiled water as a diarrhea treatment was mentioned by seven mothers, who said it cleaned the stomach when given in approximately 10 ml quantities, three to four times per day.

Only four mothers mentioned oral rehydration salts as a resource; all said it was important to drink sufficient fluids, but only two were able to define dehydration; both of these were aware of the importance of rehydration to keep up with diarrheal fluid loss. None of the mothers used any special diet during diarrheal episodes except to limit foods that were considered harmful, without definition of what those harmful foods were.

All of the individuals interviewed expressed a strong desire to have a Health Post nearby. In other words, there is a strong perceived need for modern health services in this isolated "traditional" indigenous community. The informants were particularly concerned about sick children in need of prompt medical attention, since many sick individuals had died on their way to the Health Post in Malacatancito. Furthermore, the transport of adults who must be carried is a real hardship; many men are needed to take turns carrying the heavy load.

The only institutionalized public health service to date has been periodic child immunizations; the Rural Health Technician (TSR) from Malacatancito has visited the community twice a year to give vaccines. There have, however, been some problems. After being "immunized" earlier this year, seven children contracted measles, resulting in a general skepticism about the efficacy of immunization. The anthropologist, who was present during the innoculations, described a notable breakdown of cold-chain procedures which produced deactivation of the anti-measles vaccines.

In summary, the people of Rio Hondo have a perceived need for modern medicine and are very receptive to learning new treatment procedures. They feel left out but foster the hope that this situation will change.

215

d. Colonias Santa Fé y La Florida

Dr. Car Chitay, as part of his medical training at San Carlos University, studied 200 mothers living in two marginal, low-income urban neighborhoods in Guatemala City. He gathered data on popular beliefs about the causes of diarrhea, perceived symptoms, and treatment alternatives.

The study also took into consideration traditional medical beliefs and rapid acculturation of migrants from rural areas to the city. Dr. Car Chitay found that the new experiences and knowledge were modifying, very rapidly, long-standing traditional beliefs and practices. Many of the attitudes and practices of previous generations have given way to a multitude of new concepts and treatment alternatives. The main objective of the study was to identify and measure the nature of behaviors related to diarrheal disease in the context of sociocultural change.

Of the 200 mothers studied, 85.5 percent came from the interior of the country and had a relatively high level of education: 15 percent had completed primary school; 64 percent had incomplete primary education, but with basic literacy; 18 percent had some secondary education; three had some university training; and only two mothers were illiterate.

Table 12 shows that only 26 percent of the 200 mothers perceived diarrhea as a disorder of the entire gastrointestinal system; 38.5 percent saw it as just a stomach ailment. Table 13 presents theories of causation: 35 percent believed that parasites cause diarrhea; 19.5 percent believed the cause to be empacho, an excess of certain foods like beans which adhere to the stomach; and 18.5 percent believed contaminated food to be the main culprit. Among the other causes included were evil eye, fright, tooth eruption, and "cold" foods, all, however, with relatively low frequencies. Table 14 lists the clinical signs of diarrhea elicited from the mothers; irritability, vomiting, and fallen stomach were mentioned most often.

Preferred treatment choices are shown in Table 15. The most popular was the use of non-prescription medicines that can be purchased locally and given in the home. Second was going to the Health Center, and third the use of herbal teas and other home remedies. Supernatural or spiritual cures and use of folk curers (curanderos) and traditional midwives (comadronas) were relatively infrequent.

Twenty-three mothers also gave individual versions of 14 different home remedies. As shown in Table 16, these included herb teas with all kinds of additives, water with fruit juice; rice-water; purgatives; water, herbs (including pericón), and honey, and olive oil with mustard and potato juice. The author feels that most are incorrect treatments, except for those with water for maintaining hydration and pericón, which has known antispasmodic properties, and rice water, which may reduce stool volume.

Prevention of diarrhea (Table 17) included frequent mention of hygiene, followed by daily ingestion of olive oil; the dose most frequently mentioned was two teaspoons before breakfast. In third place was better cooking of food, so as to kill microbes and deactivate toxins.

Car Chitay concludes that 84 percent of the mothers interviewed had correct beliefs about diarrhea and that diarrheal disease was well understood in the population studied. Eighty-one percent knew correct prevention methods, although some scientifically unverifiable methods are still used. Nevertheless, 78.2 percent of that same population had erroneous ideas about proper treatment procedures.

3. Conclusions

All studies of diarrheal disease and treatment reviewed above indicate that the number of conceptual categories about what diarrhea is and what causes it are similar, if not identical. Frequencies may vary somewhat, e.g., the indigenous population in Rio Hondo ascribed more importance to the hot/cold imbalance, but all mentioned parasites as a major cause of diarrhea with considerable frequency.

An important conclusion is that as far as diarrhea is concerned, the distinction between ladino and indigena is not one of kind, but one of degree within the same universe of beliefs and practices. Both acculturation through migration and rising acquaintance with the advantages of modern medical care are narrowing the "belief gap" between ethnic groups. The indigenous community studied was very open to change and had actively solicited a health facility and staff; its dependence on traditional medical solutions appears to have been based on access and economic limitations, rather than on any inherent, immutable commitment to old ways alone. Clearly not all indigenous communities are alike, but neither are they as different as has been the traditional belief of many anthropologists and development specialists. More precision will be needed to more accurately document diversity, particularly for design of health education and mass communications language and strategies.

217

II. THE DELIVERER POPULATION

A. The Public Health Sector

The public health care system is characterized by generally low coverage, particularly in more remote rural areas where there is a total lack of services. In areas with hospitals, Health Centers or Health Posts, the actual use of these facilities is very low. The most probable reasons why people do not go to the facilities include lack of medicines, limited hours of operation, the existence of alternative sources of health care, lack of confidence on part of the population, and a negative or indifferent attitude on the part of the public health care personnel.

In this section we will examine attitudes and practices at all levels of health care personnel. The data were collected from first-hand observation and interviews with individuals at the Ministry of Health in Guatemala City; the Regional Hospital in Huehuetenango; Health Centers and Posts in San Marcos, San Juan Sacatepequez, El Progreso, and Guatemala Sur; and from observation and interviews with physicians, nurses, auxiliaries, and village residents during immunization channelling activities in El Progreso.

B. Physicians

The physicians interviewed in the Ministry of Health expressed feelings ranging from approval to enthusiasm toward ORT. Few, if any, however, have a private practice where observed behavior could be compared to stated treatment strategies. The site visits, on the other hand, yielded more diverse information on actual practice and personal orientation in the use of salts, in both institutional and peripheral settings.

At the National Hospital in Huehuetenango, Dr. Reyna Barrios presented the results of his seven-year effort to establish ORT as a routine hospital procedure. He has installed a four-bed oral rehydration unit (ORU) with precise norms for diagnosis, treatment, and record-keeping. At the time of our visit, there were no patients being treated in the unit. He told us that an important aspect of his treatment procedure is to incorporate the child's mother and have her at the bedside at all times. His studies showed that the average number of patient-days drastically decreased with parental treatment participation. Furthermore, mothers would learn how to prepare salt from packets and administer the correct volume; subsequent episodes of diarrhea could therefore be treated at home and dehydration requiring institutional rehydration would be reduced.

When asked, he said that he had seen no difference in the learning of ORS preparation and use between ladino and indigenous mothers; in fact, he noted that some Indians had responded more enthusiastically and followed procedures more carefully than the

218

ladinos. Language was, at times, a problem, and a Mam/Spanish translator was available when needed.

Dr. Reyna Barrios is without a doubt one of the best-known crusaders for ORT in Guatemala. Every physician we talked to had heard of him and his work. He has tried to get other health areas to duplicate his effort but with very limited success. He has also held a number of training seminars for physicians, nurses, auxiliary nurses, rural health technicians, and voluntary health promoters. His intent was to extend the use of ORS beyond the hospital to Health Centers, Posts and to the community. There has been no attempt to measure the impact of these efforts; Dr. Reyna Barrios feels they have probably been very limited.

In San Marcos we interviewed the area director and a physician in the Health Center in the departmental capital. The director had been involved with the administration of ORT programs for a number of years, particularly the Sistemas Comunitarios Project which was active in nearly one-half of the Area's health districts. He was a strong supporter and showed us impressive statistics on community volunteer training and the distribution of ORS packets; we were also told that one community, La Reforma, was about to implement its own production facility to meet local demand. The Area Director was very enthusiastic about using voluntary health promoters and auxiliary nurses to educate the public and distribute ORS.

The director of the Health Center, on the other hand, was extremely negative about any ORT beyond the institutional setting. He emphasized that nurses and any kind of auxiliary personnel, voluntary or otherwise, had no business working with ORT. As we interviewed more physicians and other health care personnel, it became apparent that his was not a minority view.

The Francisco Marroquin University, a private institution, as part of its medical school curriculum on rural health, operates a health center in San Juan Sacatepequez and ten Health Posts in the surrounding villages. The total population served is 72,000 with an annual budget from the university of Q28,000. The last-year medical students spend a total of six months working in the Health Center, Health Posts, and make home visits. The emphasis of the program is preventive and integrates prenatal care, family planning, immunization, oral rehydration therapy, and dietary supplements.

A total of three medical school classes have passed through the rural health portion of the curriculum, but not one graduate has chosen public health as a specialty. Most of the students complain about having rural health as part of their training and feel that their Q250 per month tuition should be waived while they are providing this involuntary service. The attitude of the students is that they are purchasing a medical education and, as such, they want high-tech, hospital-based training; rural health and ORT are not part of what they want.

214

In summary, public health-oriented physicians who advocate ORT beyond clinical settings are in the minority; we have not been able to quantify the actual ratio, but we suspect it is very high. As in the case of Marroquin University, a strong public health curriculum component has not made a difference. It has been suggested that different student selection criteria be developed and tested. No such plan is currently being contemplated.

The situation with the San Carlos University Medical Faculty did not appear to be qualitatively different. We were told that ORT and DDC were part of the curriculum, but the physician in charge of curriculum development was unable to provide any documentation for that piece of information. It is our guess that each faculty member gave an ad hoc version of what he felt should be taught, and that there was no control on standardization of actual curriculum content or special emphasis on ORT. We were also told that major curriculum changes were being contemplated for early next year, but no one was able to provide any details or indication of what would specifically be done.

What we have, therefore, are large numbers of physicians trained before the appearance of ORT as formulated by WHO and UNICEF and physicians currently being trained who are not receiving standardized education about ORT nor, at least in the case of Marroquin, is there real interest. The majority of these physicians have or will have urban-based clinical practices and see no real financial or other benefits in promoting and using ORT.

C. The Nursing Profession and the National School of Nursing

The National Nursing School trains both graduate and auxiliary nurses in three-year and ten-month programs, respectively. The first year of graduate nurse training includes courses on the national health plan, Health For All by Year 2000, with an emphasis on integrated primary care. Priority groups of the population are identified, and the theory behind prevention, EPI, and ORT are strongly stressed. Students are taught the utility and procedure for making suero casero for hydration maintenance, as well as the clinical signs of dehydration which may require more intensive ORT in a health facility.

In addition to class work, first-year students go out into the community and do a total of 80 hours of practical work educating an assigned family about ORT, EPI, breastfeeding, etc. In the second year students spend more time in the community and take a more active but closely supervised role in integrated PHC. In the third year, the students spend a total of 24 weeks in the community; they participate in community meetings on child, adult, and geriatric health. ORT is continually emphasized, taught, and demonstrated.

The curriculum is constantly being evaluated and updated according to WHO and PAHO guidelines on ORT and EPI. The new orientations are then adapted so as to coordinate with and supplement the Guatemalan National Health Plan.

The ten-month training program for auxiliary nurses is divided into three units: Community Health, MCH, and Medical/Surgical. As part of community health, the students do a community needs assessment in the same marginal neighborhood where the graduate nurses do their practicum. They also receive ten hours of classroom instruction on the importance of ORT. During the final phase of their training, they participate for 15 weeks in community health activities. An integral part of this practical training is teaching mothers, one on one, the importance of the value of ORT in general and suero casero in particular, and how to prepare and administer ORS. They are also taught to recognize signs of dehydration that require referral to a health facility.

Our experience with nurses during field visits reflected their training and awareness of ORT. Both in the field and in the nursing school, we were told about the ongoing conflict between physicians who advocate and insist on IV rehydration and nurses who feel that, in many cases, carefully administered ORT is needed. The nurses reinforced our findings that most physicians are either against ORT or not cognizant of its therapeutic benefits.

D. Private Voluntary Organizations (PVOs)

The number of PVOs working in Guatemala during the early 1980s was drastically reduced during the political and military turbulence. With greatly reduced violence and the prospects of an elected civil government, large numbers of PVOs have already or are planning to resume operations; many work in health projects. In this section we will describe the ORT activities of two of the largest: Project Concern in Santiago Atitlán and Catholic Relief Services (CRS) in the Colonia Milagro in Guatemala City.

1. Project Concern

Project Concern has been providing integrated health services to the city of Santiago Atitlán for the past 13 years. Currently the Project is serving a population of 35,000 residing in the cabecera, four aldeas, and dispersed settlements. The facilities consist of a hospital base unit in Santiago, two nutrition centers, and two satellite clinics.

Community members are actively involved in the operation of all phases of the project. There is daily face-to-face interaction among the hospital physician, a Tzutuil speaker from a neighboring lake community, and the voluntary health workers. The volunteers consist of 13 MCH promoters, with three working in Santiago, six in Cerro de Oro, two in Chaca, and one each in Panabaj and Sanchaj. There are also three active mothers' clubs.

The main emphasis of the Project is on prevention, and for the past six to seven years, oral rehydration using suero casero has been an integral part of the program. Over the years, the use of ORS has been stressed continuously to mothers who have children under five. These are the mothers who have been most active in the

221

mothers' clubs by disseminating knowledge of ORS and other MCH activities. At present, there is an active demand and high levels of suero casero use. Project Concern personnel attribute the success to the mothers themselves: local women convincing others, speaking the local language, of the advantages of ORT. The health promoters, however, have been less successful.

The training materials and norms have not been formalized but follow many of the procedures developed at the Maryknoll Hospital in Jacaltenango, Huehuetenango. A local radio station broadcasts frequent messages in Tzutuil on the importance of hygiene, oral rehydration, and MCH.

The Project has plans to expand activities to other lake towns and possibly become a primary care training center. Administrative personnel have been very encouraged by the success of the active outreach, participatory approach. The locations and specific plans for expansion are currently being studied, and a number of communities have requested that they be included in the new program.

2. Catholic Relief Service (CRS)

Catholic Relief Service (CRS) is financing a number of microprojects in agriculture and health. The Centro de Salud de la Communidad in the Colonia Milagro in Guatemala City is a private health center supported by CRS and staffed by a physician and medical students from San Carlos University.

The Center has been training mothers and distributing ORS packets supplied by APROFAM* for the past year. Acceptance has been good, and the San Carlos students and other staff have worked hard to convince patients of the utility of ORT.

In the past few months, however, supplies of packets have diminished, and alternative sources have been selected. The total number of packets needed is about 500 per month (100 for the CRS Health Center and 400 for eleven other clinics operated by USAC). To solve the supply problem, CRS has been negotiating with the Director of Health in El Progreso where there is a small manufacturing facility capable of producing 1,000 packets per day. Each packet is to be dissolved in 250 ml of water.

CRS has arranged for the purchase of a drum mixer, two scales, and a plastic bag sealer. They plan to manufacture 3,000 bags per month (equivalent to 500 bags to make one liter of ORS) at a cost of Q120 per month. The El Progreso staff has agreed to provide technical assistance. If the CRS facility can produce at the same rate as in El Progreso, an entire month's supply under current demand conditions can be produced in three days.

---

* The APROFAM packets were supplied by AID as part of the Sistemas Comunitarios Project.

222

CRS sees this small-scale production system as a demonstration activity and as an experiment which, if successful, can be duplicated at a very low cost all over the country. The CRS director mentioned ASECSA, an organization of 75 to 80 clinics, an active health promoter training program, and a drug distribution system, as a possible collaborator in setting up local ORS production facilities.

223

III. THE INTERFACE: HEALTH CARE PERSONNEL AND THE CLIENT POPULATION

The objective of this section is to examine the existence and capabilities of mass promotional channels to publicize and educate the public about the benefits and methods of ORT and to create a "learning link" between the demand side (clients) and the supply side (providers) of the ORT equation.

Another objective is to examine the local-level interaction between health personnel and the client population in the process of channelling activities, other home visits, and interpersonal relations between patient and staff in institutional settings.

A. Mass Communication

Guatemala has a large number of radio stations, both public and private, that provide good quality reception in most of the national territory with the exception of parts of the Petén, northern Quiché, and northern Huehuetenango. Telectro, S.A., a private communications consulting firm, has recently completed a study of nationwide station coverage, reception quality, programming content, and advertising costs and revenues.

Earlier this year Telectro did a radio audience listening survey in three areas of Baja Verapaz using both informal observation and a structured questionnaire. The sample consisted of 950 households distributed over one urban area (Salamá and San Jeronimo), one mixed rural and urban (Rabinal, Chicaj, and Cabulco), and one rural (Purulhá). The urban areas were predominantly ladino, the other two indigenous Achí and Pokomchí speakers.

The study found that radio penetration extended to 92 percent of the ladinos and 76 percent of the indigenous sample; actual listeners, however, were 49 percent and 51 percent respectively. The actual number of homes with radios was 21 percent for the ladinos and 16.5 percent for the indigenous sector. The most popular listening times for groups was 8:00 a.m. to 12 Noon.

As part of the survey Telectro included a number of questions on health-seeking behavior. When asked what was the most common illness in the community, 91 percent of the ladinos and 86 percent of the indigenous mentioned infectious diseases which, as a category, includes diarrhea. None of the ladinos and less than one percent of the indigenous sample mentioned traditional illnesses such as evil eye or fright. When asked where people chose to go for treatment, 36 percent of the ladinos and 58 percent of the indigenous respondents said the Health Center. The next most frequent resource mentioned was the pharmacy, 18 percent and 20 percent, respectively. Private physicians were mentioned by 17 percent of the ladinos and six of the indigenas. Surprisingly, the use of traditional curers and herbal remedies was very low. Less than one percent of the ladinos and two percent of the indigenous respondents mentioned curers and three percent and two percent, respectively,

indicated use of herbal remedies. When asked where or by what medium the sample learned about good health and preventive practices, 39 percent of the ladinos and 33 percent of the indigenous respondents said the doctor, and as a close second, 29 percent and 27 percent, respectively, indicated the radio as the best source of health related information.

The study clearly shows there were no significant differences in the responses of ladino versus indigenous interviewees. Furthermore, the study showed that radio as a means of health communication can be developed for the dissemination of ORT messages.

In addition to the radio, many communities have local speaker systems in the market place. When people congregate from rural areas on market day, the speakers are used for public announcements and for playing music. Since popular participation in weekly markets is very high, local systems of this type constitute another potential communications resource for ORT.

In summary, adequate mass media are available, and local researchers can make detailed studies of audience size, listening hours, and station preferences.

B. ORT Message Design and Preparation

The design and writing of ORT messages and educational materials are critical to successful demand creation and home use of ORS. The actual content must be decided by specially-trained personnel who have extensive international experience on one hand; equally important is the adaptation of these messages and materials to the Guatemalan context.

One of the major obstacles to any educational campaign is the tremendous linguistic complexity of the country: 23 distinct languages, in addition to Spanish. Fortunately, 80 percent of the indigenous population speaks one of four major languages: Quiché, Mam, Cackchiquel, and Kekchi. Each language except Kekchi, however, has up to 10 to 15 local dialect variations that must also be taken into consideration.

A number of Guatemalan organizations have accumulated years of experience translating and preparing indigenous language texts, booklets, posters, and radio scripts. Some have dealt very well with dialectical differences by employing well-educated personnel (usually secondary school teachers) who not only know local dialect variations, but who also have intimate first-hand knowledge of local culture, world views, and the appropriate idiomatic expressions.

The Instituto Guatemalteco de Educación Radiofónico (IGER) is a private organization currently working on programs in adult literacy. IGER's methodology uses an interactive approach where the listener-student also has printed lessons to follow the radio dialogue. Once a month the students go to local IGER center to

225

have their progress evaluated and reinforced. IGER's curricula are all approved by the Ministry of Education.

IGER is currently working with a staff of 34 and is preparing lessons and broadcasting in Quichè and Kekchí. The program currently has the following participation and coverage:

2,765 students actively participating in Kekchí-language programs broadcast by Radio Tezulutlán, Cobán, Alta Verapáz

150 students (first group) actively participating in Quichè-language programs broadcast by Radio Fraternidad, Quetzaltenango

3,226 students actively participating in Spanish-language programs broadcast by:

- Radio Internacional, Guatemala City (signal radius 75 kms. to north and west, 25 kms. to south and east)
- Radio Chortiz, which covers the Oriente, Chiquimula, Zacapa, and reaches as far as the Verapaces, Huehuetenango, and the Petén
- La Voz de Atitlán, with a broadcast radius of 30 kms.

Earlier this year, this writer conducted extensive in-depth interviews with the IGER staff at the regional office in Quetzaltenango. The staff consisted of four young normal school graduates, two from Sta. Lucia Utatlán, one from Totonicapán, and the other from Pedro Molina in Chimaltenango. All three of these schools teach indigenous language literacy to reinforce local language abilities. All four are long-term residents of their native communities with great awareness of local variations, problems, and immediate needs. All four felt that many of the bilingual materials prepared for other programs and projects were not much more than literal translations of Spanish texts; real appropriate adaptations were lacking. Part of their job with IGER was to ameliorate this obvious deficiency.

A number of other organizations also exist which have capabilities similar to IGER. These include:

Federación Guatemalteca de Educación Radiofónica (FEGER)
Educación Extra-Escolar (Ministry of Education)
The Summer Institute of Linguistics
Proyecto Linguístico Francisco Marroquín.

A list of more institutions that may have relevant education capabilities is being provided to the USAID (under separate cover, due to its size). A number of them will merit more scrutiny as part of Project Paper development and/or as part of actual project implementation.

226

C. Community and Household Education

1. APROFAM

For the success of any health intervention, including ORT, the interaction between health personnel and community residents is critical. Typically, nurses, auxiliary nurses and trained volunteers account for virtually all of the direct contact in the community context. Physicians are mostly seen in hospitals, Health Centers, or private offices.

First, this section examines the results of a one-year effort by APROFAM to increase the awareness and use of family planning and ORT through active community promotion and radio programs in six aldeas in the Municipio of Tecún Umán, San Marcos; both pre- and post-intervention surveys were performed to measure the results.

Second, we present the results of our own observation of channelling activities in two areas in El Progreso: one urban, the other rural, and both nearly 100 percent ladino.

The study in Tecún Uman was done in six aldeas with a population of 12,697 where 1,787 women were of fertile age. For the baseline study in June 1983, 491 women with one or more children under five were randomly selected. All had relatively high levels of literacy, and 78.4 percent were ladino. The post-intervention study done twelve months (one-year followup) later used a sample of 500 mothers. The data analysis did not disaggregate ladino and indigena responses.

The major conclusions of the APROFAM study in Tecún Uman were the following:

- The most important need is to inform and orient local residents, with special emphasis on the fact that feeding should not be discontinued during the diarrheal episodes.
- The community accepted ORT and family planning.
- Radio was the principal medium for mass communications, but was not as effective as expected. The explanation appeared to be that messages had not been frequent enough.
- Of the households visited by the voluntary promoter, 85 percent recalled talks on family planning and ORT.
- Most of the households were satisfied with the promotors' presentations and efforts to introduce new behaviors.
- Out of 427 homes visited, 94 percent received ORS packets, and 80 percent used them.
- The study also concluded that, for ORT to be more effective, greater efforts should be made at prevention, especially in environmental sanitation and health education.

227

- More cooperation and collaboration with the MOH is urgently needed.

Table 18 presents a comparison of the baseline and one-year followup data. There is little drama in the comparisons, partly due to the structure of some of the questions. However, there were some improvements in knowledge levels related to hygiene and the importance of dehydration; data on treatment are particularly encouraging since frequency of use of antidiarrheal medicines appears to have decreased dramatically.

2. Channelling

Observation of channelling activities in El Progreso was carried out by two members of the ORT study team. For the purposes of channelling and delivery of other health services, the Health Area is divided into seven districts, each with a Health Post. Each district is then subdivided into varying numbers of sectors, depending on size. Guastatoya, the central district, is divided into eight sections, and each section is divided into twelve areas. In rural zones, each area contains from 12 to 25 houses; urban areas have approximately 50.

According to standard channelling procedures, home visits are scheduled once every three months. In Guastatoya this amounts to one area per week, so that every house can expect a visit once every 12 weeks. The channelling teams consist of one person from the Department Health Area Office and a community volunteer. Often, in addition to auxiliary nurses and rural health technicians, all available personnel must be mobilized, including the social worker, inspector, lab technician, and statistician.

Our first observations were in a rural caserio called El Brazilar. Here we encountered a male auxiliary nurse going house to house with a female voluntary health promoter; we accompanied them to three houses. The content of each visit was similar.

On entering the house, the auxiliary nurse asked to see the immunization record card for each child; one mother was unable to find hers and was lectured about its importance. The auxiliary nurse then determined who needed which immunizations and then arranged to return the next day to do the innoculations. He then lectured the mother on hygiene, the importance of latrines, and boiling water. A special effort was made to explain diarrheal disease, dehydration, and the importance of ORS packets. He emphasized that ORS was available from the promoters. One mother said she had used ORS and was satisfied with it. A little later, when questioned by the ORT study team, she admitted that she had also given some antispasmodics together with the ORS. Of course, it is impossible to say from a sample of one how widespread this is, but there is other evidence that it most probably is not an isolated case.

During the home visits, the auxiliary nurse did virtually all the talking, making frequent references to the services provided by the promoter, who would nod. It was obvious that much of the

228

language and medical terminology used was above the level of comprehension of the mothers, thus greatly reducing the effectiveness of the visit. This was the case in every house we visited, in both urban and rural areas.

Our visit to an urban household was with a female auxiliary nurse and very young female promoter. Again, the auxiliary nurse dominated the conversation with technical language and a condescending attitude toward the mother. She told her that the children would die if not vaccinated. When told about ORT, the mother did not seem particularly interested. One one occasion she had given ORS in combination with "other" medicines and when asked, she did not know how to prepare ORS from packets. An extended discussion followed about the high cost of medicines, the Health Center's previous pattern of giving out free medications, and the current practice of only writing prescriptions.

The El Progreso Health Area has an ORS production facility for what is called "supersuero," begun in 1980 during the SINAPS project, under INCAP supervision. Production continues in three of the seven health districts; UNICEF packets are used in the other four. Attempts were made to distribute supersuero to the entire area when UNICEF supplies were low, but were unsuccessful because residents of districts who had previously used UNICEF packets rejected the less elaborately packaged local salts.

229

IV. SUMMARY OF SOCIOCULTURAL, MASS COMMUNICATION, AND EDUCATIONAL FEASIBILITY

A. Constraints

1. The main constraint for the design and implementation of a national-scale ORT project is the poor to almost nonexistent support by physicians. There are a number of public-health-oriented doctors, but they are by far outnumbered by the indifferent and outright opponents.

2. There is a lack of a standardized medical school curriculum on ORT in terms of theory, methods, and practice. This is more the case at San Carlos University than at Marroquin University.

3. Lower-level MOH personnel--auxiliary nurses and rural health technicians--do not know how to interact with local residents to successfully communicate and teach ORT.

4. Because of past negative experiences, many potential urban, rural, ladino and indigenous client populations are skeptical of yet another outside intervention that promises improvements. Some areas and communities are more closed than others, and the extent of this constraint must be determined on a case-by-case basis.

5. Many indigenous communities are monolingual in one of the Mayan languages, but there has been little attempt on the part of the MOH to assign the appropriate bilingual personnel to health facilities in these areas. The result has been lower use of health services and a lack of communication between village residents and the "outsiders."

6. There is little, if any, support or retraining for promoters, trained traditional midwives and community volunteers on the part of the MOH.

7. The reliance on traditional didactic methods for MOH auxiliary and promoter training programs, and insufficient practical hands-on experience are--and will continue to be--a major impediment to person-to-person health education.

8. The management information system to accurately quantify and assess activities and outcomes in the periphery is virtually non-functional.

9. Vehicles, gasoline, and per diems for personnel to supervise, resupply, and interact with health post and community personnel are chronically lacking.

B. Facilitating Factors

1. The physicians who are promoters of ORT are gradually increasing and can be formed into a critical mass which will gradually

be able to convince their colleagues that ORT does have a place in clinical practice. This will reduce opposition and increase support for hospital-based rehydration programs and could enhance the disposition to transfer more resources to the periphery in terms of training and ORT supplies.

2. The nursing profession in general, and the directors and curriculum designers in particular, are very strong proponents of ORT. Their influence will continue to affect the orientation and practices of both graduate and auxiliary nurses, since most ORT activities will, in fact, decrease the number of cases of severe rehydration requiring Health Center or hospital-based treatment.

3. There are relatively minor differences in diarrheal disease beliefs and folk treatments between ladinos and indigenas. The number of recent studies supporting this conclusion is increasing. This is not to say there may not be exceptions, but for the purpose of a national ORT program, the differences do not call for different intervention strategies for ladinos and each of the indigenous ethnic groups.

4. There is the probability that even isolated indigenous villages desire and will accept modern health facilities, as demonstrated by the data from Rio Hondo in Huehuetenango.

5. Radio stations, both private and government, now exist and are available that can broadcast and saturate large areas with ORT messages on the benefits of and instructions for use of ORT.

6. Trained personnel with the ability and experience to design and implement appropriate ORT messages and educational material in Spanish and the four major indigenous languages are available.

7. Lower-level MOH personnel and community volunteers are available, in substantial numbers in some areas, who could participate in a national ORT program.

8. Good social and medical research facilities and personnel are available to monitor, detect problems, and evaluate an ongoing ORT program. The medical research center is the Centro de Investigación de Ciencias de Salud (CICS) at San Carlos University; the social science faculties at San Carlos and the four private universities offer personnel and facilities for behavioral studies; and INCAP offers a variety of skills in ORT-related research, social sciences, and training and supervision.

C. Conclusion

It is the opinion of this investigator that, since ORT is an established diarrheal disease intervention which has been successful in numerous countries, implementation is possible in Guatemala with good chances for success, given adequate ORS availability and distribution.

The major problems to be overcome are 1) sociocultural, 2) economic and 3) educational. The next section on recommendations will address 1) and 3).

D. Project Recommendations

1. Seminars and workshops on ORT should be held and should be headed by nationally and internationally recognized authorities such as Dr. J. M. Reyna Barrios and Daniel Pizarro.

2. Appropriate training curricula for all levels of health care personnel should be designed, centered on use of simplified terminology to facilitate interaction with community residents.

3. Health promoters, traditional midwives, and community volunteers can assume a more active role in channelling activities. Their special value is that they are better known and can best communicate with residents on their own terms.

4. There is a need for simple operational research studies that will examine the multitude of small-scale ORT programs to identify specific problems and successful intervention strategies.

5. There is a felt need for meetings and seminars for people in Guatemala who have participated in ORT activities and wish to exchange experience and upgrade their levels of expertise.

6. Selection of ORT project personnel--both national and foreign--should be carried out with great care; they should combine strong techical and interpersonal skills that can cope adequately with the subject matter at hand as well as the institutional complexities they face.

REFERENCES

1. AID. Tierra y Trabajo en Guatemala: Una Evaluación. Guatemala: Editorial Pápiro. 1983.

2. APROFAM. Family Planning and Maternal Child Health Survey. Guatemala. 1983.

3. _____. Family Planning/ORT Beliefs and Practices: Baseline Study, Tecún Umán, San Marcos. Guatemala. 1983.

4. _____. Family Planning/ORT Beliefs and Practices: Baseline Study, Tecún Umán, San Marcos: One-Year Followup. Guatemala. 1984.

5. A. A. Car Chitay. Enfermedad Diarréica, Creencias Populares de Su Concepción. Guatemala: University of San Carlos, Facultad de Ciencias Médicas. September, 1985.

6. E. Hurtado. Health-Seeking Behavior in San Miguel (working title). Guatemala: INCAP. 1984. (Unpublished manuscript).

7. L. Vielman Z. Investigación Etnográfica Sobre Algunos Aspectos de Salud y Nutrición Realizada en la Colonia Juárez, Guanagazapa, Escuintla. Guatemala: INCAP. 1985. (Unpublished manuscript).

8. E. Villatoro. Investigación Etonográfica Sobre Algunos Aspectos de Salud y Nutrición Realizada en la Aldea de Río Hondo, Malacatancito, Huehuetenango. Guatemala: INCAP. 1985. (Unpublished manuscript).

233

TABLE 1

GUATEMALA: TOTAL, URBAN, RURAL, AND INDIAN POPULATION BY DEPARTMENT, 1984

Department	Total Population	Urban Population	Rural Population	Rural %	Indian Population	Indian %
COUNTRY TOTAL	7,739,616	2,976,228	4,903,388	63	3,296,183	43
Quetzaltenango	460,167	173,483	286,684	62	278,861	61
Huehuetenango	571,830	78,912	492,918	86	376,836	66
San Marcos	577,158	69,259	507,899	88	279,922	49
Totonicapán	244,229	30,528	213,701	88	237,391	97
Chimaltenango	281,928	105,159	176,769	63	225,260	80
Quiché	462,355	52,708	409,647	89	394,389	85
Sololá	195,139	69,079	126,060	65	183,821	94
Jutiapa	306,679	59,802	246,877	81	24,841	8
Jalapa	161,073	45,745	115,328	72	53,959	34
Santa Rosa	233,251	53,881	179,370	77	6,998	3
Alta Verapaz	475,614	68,013	407,601	86	426,626	90
Baja Verapaz	153,110	28,478	124,632	81	87,885	57
Suchitepéquez	299,791	85,141	214,650	72	169,082	56
Retalhuleu	194,425	55,022	139,403	72	60,661	31
Escuintla	440,883	139,760	301,123	68	43,206	10
Guatemala	1,645,942	1,547,185	98,757	6	197,513	12
Sacatepézuez	146,575	105,681	40,894	28	68,597	47
El Progreso	94,711	25,856	68,855	73	633	0.7
Chiquimula	219,074	52,359	166,715	76	77,771	36
Zacapa	142,323	40,135	102,188	72	3,700	3
Izabal	261,783	48,692	213,091	81	59,425	23
Petén	171,576	41,350	130,226	76	38,776	23

Source: Censo Macionales, IV Habitación - IX Población. Características Generales, 1981. Ministerio de Economía Guatemala. 1984.

234

TABLE 2

GUATEMALA: PERCENT OF CHILDREN LESS THAN 5 YEARS OF AGE WITH DIARRHEA DURING THE WEEK PRIOR TO INTERVIEW, BY SELECTED CHARACTERISTICS
1983 FAMILY PLANNING/MATERNAL-CHILD HEALTH SURVEY

SELECTED CHARACTERISTICS	PERCENT	NO. OF CASES (UNWEIGHTED)
TOTAL	25.6	(4,185)
Residence/Ethnic Group		
Department of Guatemala	19.4	(1,100)
Interior, Ladino	25.4	(1,706)
Interior, Indigenous	30.5	(1,379)
Age of Child		
<1 year	28.7	(837)
1 year	33.9	(846)
2 years	24.3	(784)
3 years	20.5	(843)
4 years	20.5	(875)
No. of Children Less Than 5 Years of Age in Household		
1	22.2	(1,348)
2	26.6	(2,058)
3	28.0	(631)
4+	30.8	(148)
Source of Drinking Water		
Piped into house/yard	21.2	(1,998)
Public faucet	32.3	(602)
Well	26.4	(1,033)
Spring	20.9	(219)
River/lake	33.2	(212)
Other	35.1	(121)
No. of Rooms in Household		
1	28.8	(2,517)
2	23.4	(925)
3	20.1	(434)
4	20.4	(156)
5+	12.3	(153)
Electrification		
Yes	22.1	(1,961)
No	28.7	(2,223)
Unknown	**	(1)

** Less than 25 cases

Source: APROFAM. Family Planning/Maternal Child Health Survey. 1984

235

TABLE 3

GUATEMALA: TYPE OF TREATMENT GIVEN TO CHILDREN WITH RECENT DIARRHEA, BY RESIDENCE/ETHNIC GROUP 1983 FAMILY PLANNING/MATERNAL-CHILD HEALTH SURVEY (PERCENT DISTRIBUTION)

TYPE OF TREATMENT	TOTAL	RESIDENCE/ETHNIC GROUP		
		DEPT. OF GUATEMALA	INTERIOR	
			LADINO	INDIGENOUS
ORS packets	7.4	7.8	6.6	8.2
Homemade solution	1.4	0.0	1.0	2.4
IV	1.8	3.7	0.7	2.3
Other pharmaceuticals*	70.7	74.9	78.5	60.1
Traditional treatments**	7.1	4.1	3.8	12.2
Other	2.9	1.7	3.3	2.9
Unknown	8.7	7.8	6.2	11.9
Total	100.0	100.0	100.0	100.0
No. of cases (unweighted)	(922)	(178)	(377)	(367)

* Includes Alka Seltzer, Sal Andrews, Santamicina, Acromicina, Yodoclorina, Keopectate, Entero Beoformo, Entero Guanil, Padrax, Preferit, Colifac, Pantomicina, and Entero Lan.

** Includes fasting, hot or cold food, and herbal preparations.

Source: APROFAM. Family Planning/Maternal Child Health Survey. 1984

236

TABLE 4

COMMUNITY STUDIES ON DIARRHEAL DISEASE AND TREATMENT

COMMUNITY	POPULATION	SIZE OF SAMPLE	LADINO/INDIGENOUS	INVESTIGATOR
San Miguel, Sacatepequez	6,000	155 households 15 for in-depth study	51.7% ladino 48.3% indigenous both urban and rural	Lic. Helena Hurtado INCAP
Guanagazapa, Escuintla	1,000	15 households	95% ladino Rural	Lic. Liza Vielman INCAP
Rio Hondo Malacatancito Huehuetenango	1,000	15 households	95% indigenous rural	Lic. Elba Villatoro INCAP Instituto Estudios Folklóricos-USAC
Colonias Sante Fé and La Florida, Guatemala City		200 households	100% ladino	Dr. Angel Anibal Car Chitay USAC-Faculdad de Ciencias Médicas

TABLE 5

MORE COMMON ILLNESSES IN CHILDREN

Illness		No. of mothers	Percent
Spanish Term	English Term	who mentioned	(n=15)
Catarro	Cold	14	93.3
Asientos	Diarrhea	13	86.7
Calentura/fiebre	Temperature/fever	11	73.3
Dolor de estómago	Stomachache	8	53.3
Tos	Cough	7	46.7
Dolor de cabeza	Headache	6	40.0
Mal de ojo	Evil Eye	6	40.0
Gripe	Grippe/flu	7	33.3
Sarampión	Measles	7	33.3
Lombrices	Stomach worms	7	33.3
Arrojadera/vómitos	Vomiting	3	20.0
Disentería	Dysentery	3	20.0
Granos en la piel	Dermatitis	3	20.0
Tosferina	Whooping Cough	3	20.0
Varicela	Chicken pox	3	20.0
Amigdalas	Swollen neck glands	1	6.7
Catarro pulmonar	Pulmonary cold	1	6.7
Cólico	Colic, sharp stomach pains	1	6.7
Estómago caído/ Cuajo	Fallen stomach	1	6.7
Dolor de muelas	Toothache	1	6.7
Estrenimiento	Constipation	1	6.7
Mollera caída	Fallen fontanelle	1	6.7
Salpullido	Itchy rash	1	6.7
Tos pulmonar	Pulmonary cough	1	6.7
TOTAL		104	

Source: E. Hurtado. Health-Seeking Behavior in San Miguel (working title). Guatemala: INCAP. 1984. (Unpublished manuscript).

238

TABLE 6

ILLNESSES IN CHILDREN DURING THE LAST MONTH

Illness	No. who got sick* (n=26)	Percent	No. who got sick** (n=26)	Percent
Cold	16	21.6	4	40.0
Diarrhea	12	16.2	2	20.0
Cough	8	10.8	1	10.0
Eye infection	7	9.4		
Temperature/fever	6	8.1	1	10.0
Dermatitis	4	5.4		
Dysentery	3	4.0		
Fallen fontanelle	2	2.7		
Itchy rash	2	2.7		
Vomiting	2	2.7		
Bile	1	2.7	1	10.0
Earache	1	1.4		
Evil eye	1	1.4		
Fallen stomach	1	1.4		
Fungus	1	1.4		
Gastritis	1	1.4		
Headache	1	1.4	1	10.0
Infected umbilical cord	1	1.4		
Stomach worms	1	1.4		
Unknown illness	1	1.4	10	
TOTAL	74	100.0	10	100.0
Wound			1	
Abrashion			1	
TOTAL			12	

* In July, 1983

** In August, 1983

Source: E. Hurtado. Health-Seeking Behavior in San Miguel (working title). Guatemala: INCAP. 1984. (Unpublished manuscript).

239

TABLE 7

TAXONOMY OF DIARRHEA

	Mother					Food				Tooth eruption	Fallen Fontanel Fallen Stomach		Evil eye	Stomach worms	Cold enters stomach		Disentery
CAUSE	Physical activity	Hot		Emotional		Bad food	Excess	Does not eat on time	Quality		Fallen stomach	Fallen fontanel			From feet	From head	
		Hot foods	Pregnancy	Anger	Sadness	Fright				Hot	Cold						
SYMPTOMS All types have watery and frequent stools				Very dangerous			Flatulence, feeling of fullness				Tooth Eruption	Green with mucus	Sunken fontanel vomiting; green in color	Fever	Worms	White in color	Blood in stools, urgency; color is red or black
TREATMENT	Not breastfeeding when ill	Mother changes diet	Breastfeeding stops	Home, drugstore, injectionist, witch, spiritist			Home, Folk Curer				None	Folk curer		Folk curer	Drugstore, home, folk curer	Folk curer	Home, drugstore, health post

Source: E. Hurtado. Health-Seeking Behavior in San Miguel (working title). Guatemala: INCAP. 1984. (Unpublished manuscript).

TABLE 8

REASONS FOR USING AND NOT USING THE HEALTH POST

REASONS FOR USING	REASONS FOR NOT USING
Related to Services	Related to Services
Proximity to the home. Do not charge for services. Do not charge for medicines. Food distribution.	Long waiting times. No medicine available. Nurse has "favorite" families. Nurse reprimands or looks down on people. Lack of physician.
Related to Users	Related to Users
Illness is amenable to Western-type treatment	Illness is not amenable to Western-type treatment.
Do not have money to pay for treatment elsewhere.	Have money to seek pharmacist or private physician.
Home remedies have not cured illnesses.	Home remedies were enough to cure illness.
Related to Both	Related to Both
Positive experience in the past (for example, medicine given for dysentery is effective).	Negative experience in the past (for example, a prescription to buy medicine at the pharmacy was given).

Source: E. Hurtado. Health-Seeking Behavior in San Miguel (working title). Guatemala: INCAP. 1984. (Unpublished manuscript).

TABLE 9

LAST TIME HEALTH POST WAS USED

WHEN	n	%	REASONS
Last week	2	13.3	Child ill with dysentery (2) Food distribution (1)
Two weeks ago	3	20.0	Food distribution (3)
Last month	2	13.3	Child ill with a cold (1) Food distribution (1)
Two months ago	2	13.3	Prenatal visit (1) Food distribution (1)
Three months ago	2	13.3	Children's vaccines (2)
Five months ago	2	13.3	Tetanus vaccine for mother with a machete would (1) Children's vaccines (1)
Four years ago	1	6.7	Child ill with diarrhea and fever (1)
"A long time ago"	1	6.7	Child with burnt leg (1)

Source: E. Hurtado. Health-Seeking Behavior in San Miguel (working title). Guatemala: INCAP. 1984. (Unpublished manuscript).

TABLE 10

CAUSES OF DIARRHEA IN RIO HONDO

CAUSE	NO. OF MOTHERS WHO MENTIONED	PERCENT (n=17)
Parasites	14	82.3
Hot	10	58.8
Cold	10	58.8
Evil Eye	10	58.8
Green Fruit	7	41.1
Tooth Eruption	6	35.3
Empacho	5	29.4
Fallen Fontannelles	4	23.5
Bad Hygiene	3	17.6
Fright (susto)	1	5.9

Source: E. Villatoro. Investigación Etonográfica Sobre Algunos Aspectos de Salud y Nutrición Realizada en la Aldea de Río Hondo, Malacatancito, Huehuetenango. Guatemala: INCAP. 1985. (Unpublished manuscript).

243

TABLE 11

TRATAMIENTO PARA ENFERMEDADES DIARREICAS

PRODUCTOS FARMACEUTICOS	N° FAMILIAS	PRODUCTOS TRADICIONALES	N° FAMILIAS
Alka-Seltzer	4	Hierba buena	5
Sal Andrews	4	Manzanilla	7
Santemicina	4	Pericón	5
Acromicina	6	Ruda (Rutachopelensis)	2
Guarantemicina	1	Apazote	8
Sulfaguianidina	1	Altamiza	2
Neopurón	2	Hierba del zorro	1
Lofin	2	Enemas de agua caliente	1
Terramicina	1	Banos de siete hierbas cocidas	1
Pantomicina	1	Agua hervida (tomada)	7
Maalox	1		
Pedialyte	1		
Suero Oral	4		

Source: E. Villatoro. Investigación Etonográfica Sobre Algunos Aspectos de Salud y Nutrición Realizada en la Aldea de Río Hondo, Malacatancito, Huehuetenango. Guatemala: INCAP. 1985. (Unpublished manuscript).

244

TABLE 12

ENFERMEDAD DIARREICA, CREENCIAS POPULARES DE SU CONCEPCION.
200 DEFINICIONES EN COLONIAS SANTA FE Y FLORIDA
10-20 AGOSTO 1985

	No.	%
Desorden gastrointestinal	52	26.0
Desorden gástrico	77	38.5
Desorden intestinal	28	14.0
Definición o concepto ignorado	32	16.0
Desorden de todo el organismo	11	5.5
TOTAL	200	100.0

Fuente: Boletas de entrivistas.

TABLE 13

ENFERMEDAD DIARREICA, PRIMERA CAUSA REFERIDA POR 200
ENTREVISTADOS EN COLONIAS SANTA FE Y FLORIDA
DEL 10 AL 20 DE AGOSTO 1985

	No.	%
Parasitismo intestinal	67	33.5
Empacho	39	19.5
Contaminación alimenticia	37	18.5
Cocción inadecuada de alimentos	17	8.5
Intolerancia alimenticia	10	5.0
Erupción dentaria	10	5.0
Disgusto materno	4	2.0
Ojo	4	2.0
Catarro	4	2.0
Susto	3	1.5
Alimentos frios	2	1.0
Por sentarios a temprana edad	1	0.5
Destete	1	0.5
Por no recibir lactancia materna	1	0.5
TOTAL	200	100.0

Source: A. A. Car Chitay. Enfermedad Diarréica, Creencias Populares de Su Concepción. Guatemala: University of San Carlos, Facultad de Ciencias Médicas. September, 1985.

245

TABLE 14

ENFERMEDAD DIARREICA, PRIMER SIGNO CLINICO REFERIDO POR 200 ENTREVISTADOS EN COLONIAS SANTA FE Y FLORDA DEL 10 AL 20 DE AGOSTO DE 1985

	No.	%
Irritabilidad	41	20.5
Vómitos	32	16.0
Enoftalmos	23	11.5
Fiebre	22	11.0
Adinamia	22	11.0
Anorexia	18	9.0
Ninguno	16	8.0
Evacuaciones Frecuentes	8	4.0
Fontenela Deprimida	7	3.5
Dolor Abdominal	7	3.5
Tendencia al Sueno	3	1.5
Taquipnea	1	0.5
TOTAL	200	100.0

TABLE 15

ENFREMEDAD DIARREICA, DIFERENTES FORMAS DE TRATAMIENTO DADAS A CONOCER POR 200 ENTREVISTADOS EN COLONIAS SANFA FE Y FLORIDA DEL 10 AL 20 DE AGOSTO 1985

	No.
Medicamentos de uso popular que se obtienen sin receta medica	156
consulta a centro asistencial (hospital, C. Salud)	88
Medicamentos de origen vegetal	72
Consulta al farmacéutico	42
Medicamentos que se obtienen con receta mèdica	19
Consulta a comadrona	9
Tratar el ojo	4
Tratar el susto	4
Tratar la mollera caida	4
Consulta al curandero	2
Suprimir la lactancia materna	2
TOTAL	402

Source: A. A. Car Chitay. Enfermedad Diarrèica, Creencias Populares de Su Concepción. Guatemala: University of San Carlos, Facultad de Ciencias Mèdicas. September, 1985.

246

TABLE 16

TRATAMIENTOS AMIENTOS ESPECIALES

A continuación se da a conocer algunos tratamientos especiales ofrecidos para la enfermedad diarrèica, con su respectivo valor numèrico (el número de personas que respondieron esto).

PARA LA DIARREA EN SI:

Agua de los tres tipos de hierba buana: de menta, de comida y de pulmón, agregarle canela y tomarla por 3 dias.	3 versiones.
Agua de cogoyos de naranja y manzanilla	1 versión
Agua de apazote, pericon y pan quemado	2 versiones
Aceite de ajonjolí en el ombligo.	1 versión
Agua de hierba buena, canela y tortilla quemada	1 versión
Agua de hierba buena con 7 semillas de limón	1 versión
Agua de aluzema con canela	1 versión
Agua de limón y tortilla quemada	1 versión
Agua de limón y Alka Seltzer	8 versiones
Agua de arroz	2 versiones
Purgante (sal inglesa)	1 versión
Agua de hierba buena con miel blanca	1 versión
Aciete, mostaza criolla y jugo de papa	1 versión

TABLE 17

ENFERMEDAD DIARREICA, METODOS DE PREVENCION DADOS A CONOCER POR 200 ENTREVISTADOS EN LAS COLONIAS SANTA FE Y FLORIDA DEL 10 AL 20 DE AGOSTO DE 1985

	No. versiones	%
Higiene	79	33.19
Aciete por via oral	34	14.28
Aumentar la cocción de los alimentos	29	12.18
Adecuar la dieta a la edad	26	10.92
Desparasitar	23	9.66
Hervir el agua	16	6.72
Control medico	8	3.36
Horario estricto de alimentación	7	2.94
Protección especial	4	1.68
Evitar disgustos en la madre	3	1.26
Destete progresivo	2	0.84
Exitar alimentos frios	2	0.84
Darles pecho	2	0.84
Evitar sustos	2	0.84
Calzarlos	1	0.42
TOTAL	238	100.00

Source: A. A. Car Chitay. Enfermedad Diarrèica, Creencias Populares de Su Concepción. Guatemala: University of San Carlos, Facultad de Ciencias Mèdicas. September, 1985.

247

TABLE 18

APROFAM TECUN UMAN STUDY

	Pre (1983)		Post (1984)		
	#	%	#	%	% Change
A. Knowledge about Diarrhea					
Mother: symptoms					
Multiple movements & change in consistency	456	92.9	470	94.0	+ 1.1
Stomach pain, general malaise	22	4.5	19	3.8	- 0.7
Bloody stools, dark color	7	--	11	--	----
Can diarrhea be prevented?					
Yes	381	77.6	410	82.0	+ 4.4
No	110	22.4	90	18.0	- 4.4
Is diarrhea a dangerous disease?					
Yes	482	98.1	495	99.0	+ 0.9
No	9	--	5	---	----
Reasons:					
Can cause death	316	65.6	341	68.9	+ 3.4
Dehydration	66	13.7	112	22.7	+ 9.0
Complications	52	10.8	23	4.6	- 6.2
Causes malnutrition	48	10.0	19	---	slight increase
Causes of Diarrhea in Children Under Five:					
Lack of handwashing	230	18.4	232	14.4	- 4.0
No sewer service in house	227	18.1	198	12.3	- 5.8
Children drink water without boiling	224	17.9	499	31.0	+13.1
Consumption of unwashed food	366	29.2	426	26.5	- 2.7
Parasites	72	5.8	124	7.8	+2.0
Preventive Measures:					
Boil water	402	41.3	428	28.1	-13.2
Wash hands	211	21.7	316	20.8	- 0.9
Don't eat too much	99	10.1	117	11.7	+ 1.6
Sanitary food storage	93	9.6	39	2.6	- 7.0
Clean dishes and utensils	97	10.1	326	21.5	+11.4
Prevent children from putting dirt/garbage in mouth	72	7.4	232	15.3	+ 7.9
A. Knowledge About Diarrhea: danger signs					
Sunken eyes, irritable, bags under eyes	366	40.6	415	43.9	+ 3.3
Dehydration	217	24.0	399	42.1	+18.1
Fallen fontanelles	213	23.6	51	5.4	-18.2
Wrinkled skin	98	10.9	15	----*	-----
High fever	9	---	66	7.0	+
B. Source of ORS packets and Information					
Health Center	6	---	64	13.4	-----
Pharmacy	4	---	72	15.1	-----
APROFAM Promoter	---	---	195	41.0	-----
APROFAM Distributor	---	---	145	30.5	-----

248

	Pre (1983)		Post (1984)		
	#	%	#	%	% Change
C. Incidence of Diarrhea & Treatment Age (Mos.)					
1-12	215	25.0	199	23.9	- 1.1
13-24	177	20.6	195	23.4	+ 2.8
25-36	170	19.9	166	20.0	+ 0.1
37-48	175	20.4	151	18.1	- 2.3
49-60	121	14.1	122	14.6	+ 0.5
Diarrhea during past month?					
Yes	379	44.1	388	46.6	+ 2.5
No	479	55.9	445	53.4	- 2.5
Treatment:					
Medicines	211	55.7	92	23.8	-31.9
Brought to doctor	125	33.0	56	14.4	-18.6
Herbs, teas	16	----	14	----	-----
Suero casero	4	----	---	----	-----
ORS packets	---	----	196	50.5	-----
Nothing	23	6.0	30	7.7	+ 1.7
C. Incidence of Diarrhea and Treatment Suspension of Feeding During Diarrhea					
Yes	64	16.9	40	10.3	- 6.6
No	315	83.1	348	89.7	+ 6.6
No. of diarrheal episodes per year					
1	236	60.4	217	66.3	+ 5.9
2	103	26.3	73	22.3	- 4.3
3	36	9.2	22	6.8	- 2.4
4	9	----	14	----	+
5	5	----	1	----	-

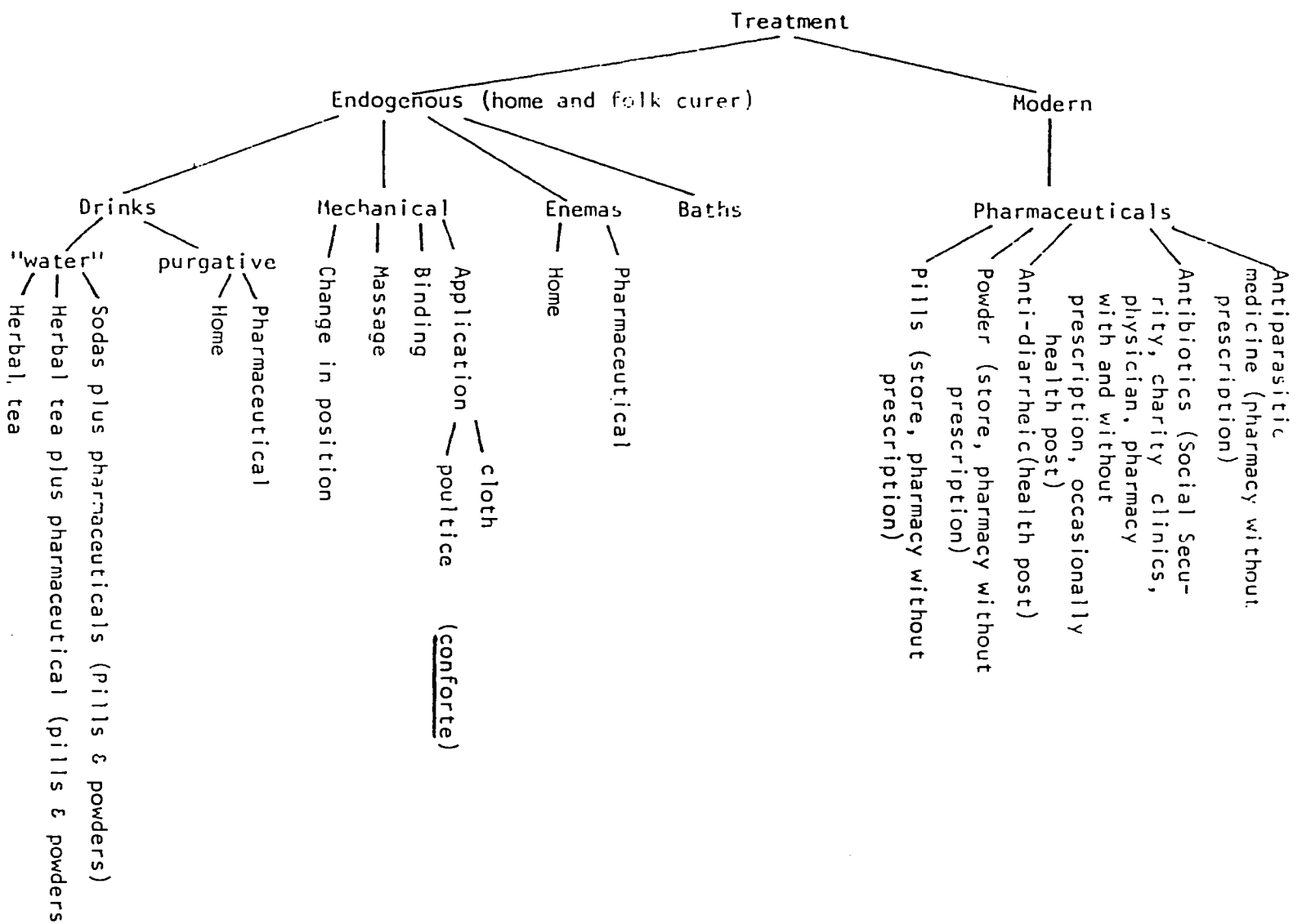
* Where N less than 20, no percentages were calculated.

Source: Derived from: APROFAM, Family Planning/ORT Beliefs and Practices, Baseline and One-Year Following Studies, Guatemala, 1983 and 1984.

249

FIGURE 1

TYPES OF TREATMENTS FOR DIARRHEA

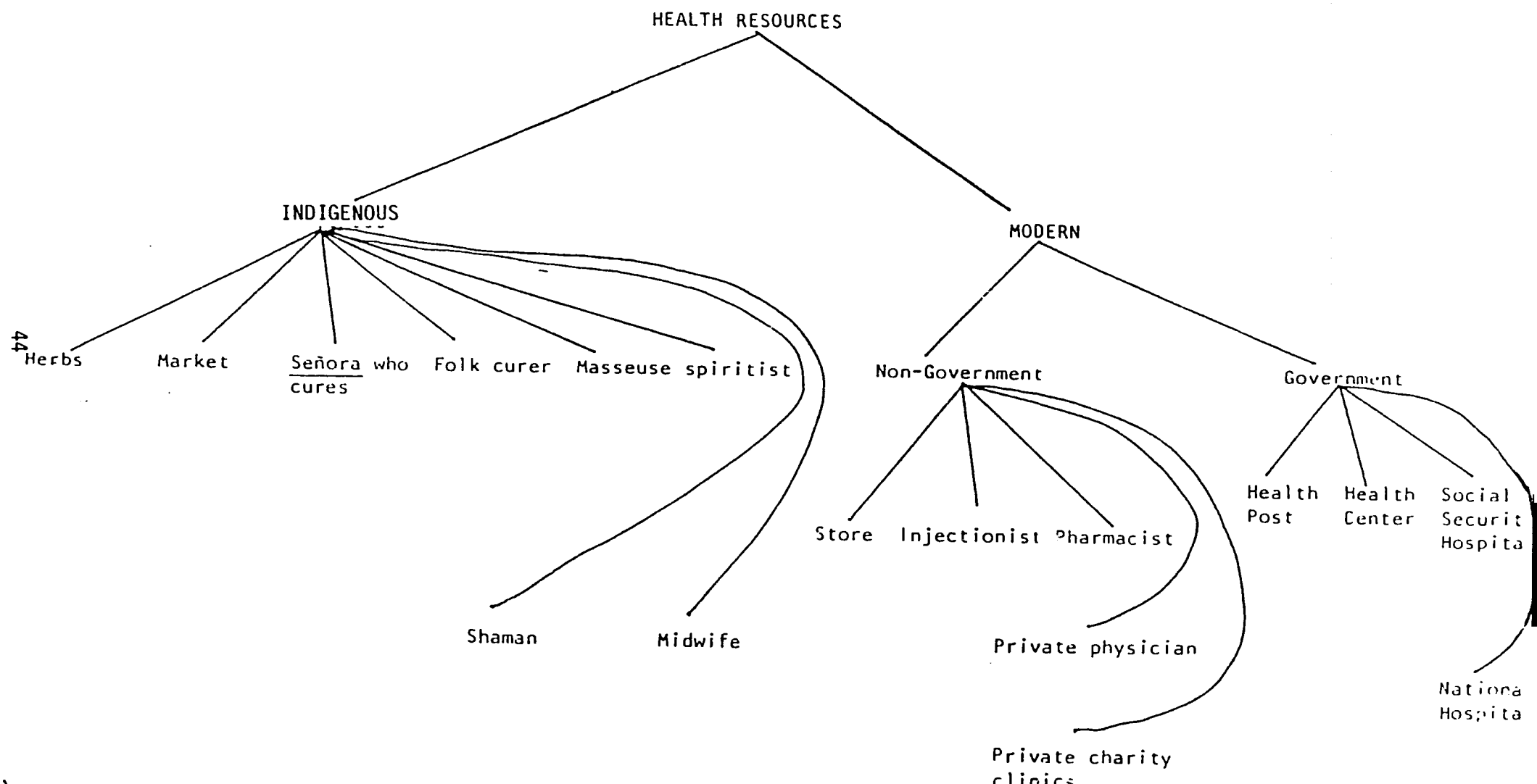


Source: E. Hurtado. Health-Seeking Behavior in San Miguel (working title). Guatemala: 1984. (Unpublished manuscript).

250

FIGURE 2

HEALTH RESOURCES UTILIZED BY THE POPULATION



Source: E. Hurtado. Health-Seeking Behavior in San Miguel (working title). Guatemala: INCAP. 1984. (Unpublished manuscript).

CHAPTER 4

ECONOMIC AND FINANCIAL ANALYSIS

NATIONAL ORT PROGRAM, GUATEMALA

Report Prepared by PRITECH Consultant:
Gerald Rosenthal, Ph.D.

TECHNOLOGIES FOR PRIMARY HEALTH CARE (PRITECH) PROJECT
Supported By:
U.S. Agency for International Development
AID/DPE-5927-C-00-3083-00

AUTHORIZATION:
AID/S&T/HEA:
ASSGN. NO.: SS99

252

ECONOMIC AND FINANCIAL ANALYSIS

NATIONAL ORT PROGRAM, GUATEMALA

TABLE OF CONTENTS

		PAGE
INTRODUCTION:	THE SCOPE OF WORK	ii
I.	THE ECONOMIC CONTEXT	1
II.	AN ECONOMIC RATIONALE FOR A NATIONAL ORT PROJECT	4
III.	CURRENT CHARACTERISTICS OF THE MARKET FOR ORS/ORT: CONSTRAINTS AND FACILITATING FACTORS	9
IV.	STRATEGIC OPTIONS	13
	A. Demand Strategies	13
	B. Supply Strategies	15
V.	THE PARAMETERS OF COST-BENEFIT ANALYSIS	19
VI.	COST ISSUES	21
	A. Projected Project Costs	21
	B. Recurrent Costs	26
	C. Cost Recovery	27
REFERENCES		28

259

INTRODUCTION

The AID-specified Scope of Work for this activity for the role of Health Economist included the following tasks:

1. Examine cost implications of importing vs. local production of ORS.

2. Assess level of demand for ORS and examine how much the public will be willing to pay for each packet.

3. Examine the MOH's recurrent costs required for the project.

4. Provide guidelines for evaluating economic cost/benefit of the prospective AID project.

Discussion within the Study Team, with concurrence of the USAID Health Officer, transferred the following task from the role of the Public Health Physician to the Health Economist:

5. Determine how much grant funds and over what time period resources will be necessary to successfully implement a nationwide ORT program.

This analysis attempts to address each of these in detail, keeping also in mind the general guidance provided in the AID Handbook for the economic analysis necessary for a Project Identification Document (PID), the elaboration of which will fall to the USAID upon the completion of the work of the ORT Study Team. The Handbook asks that such an analysis address: the appropriateness of investing and the general merit of the proposed project; alternative approaches; alternative internal efficiencies; major categories of costs and benefits; and information deficiencies.

Finally, this Analysis attempts to respond to the major categories of information and analysis suggested in the PRITECH Manual for the Assessment and Planning of National ORT Programs. These include: general background information in the given topical area (history and current status), analysis of general constraints and those specific to diarrheal disease control in both the public and private sectors; strategic options; and, where a specific option or project is being proposed and elaborated upon, the feasibility (in this case, the economic and financial feasibility) of that option, including a first cut at a financial plan or some orders of magnitude with regard to suggested inputs.

254

I. BACKGROUND: THE ECONOMIC CONTEXT

Guatemala is a country which enjoyed an extensive period of economic growth in the 1960s and 1970s. Primarily an agriculture-based economy, this period also saw the development of a light industrial sector and generally increased levels of both public and private investment. While the economy suffered some severe pressures as a result of the earthquake in 1976, the trend of economic growth continued until 1980. Since 1980-1981, the general economic situation has deteriorated dramatically. The combination of falling world prices for its major exports, general world recession, and political turmoil (both domestic and among its major trading partners), exacerbated by Guatemalan fiscal and monetary policy, created the conditions for the negative rates of growth experienced since 1980. In the short run, most of the external conditions are not likely to change, and the prognosis is for an extended period of fiscal stringency for the country extending well beyond the projected period for the proposed project.

The general level of fiscal constraint is further limited by the relatively weak position of the public sector in the Guatemalan economy. Tax rates have traditionally been very low and the recovery of taxes is even lower. Tax revenues as a percent of GDP are the lowest of the CACM countries and have been falling since 1981. The recent economic downturn has also resulted in falling active government revenues and significant cutbacks in public spending. While all aspects of public spending have suffered, major impacts have been a virtual cessation of capital development projects and construction, and severe limitations on materials and supplies. Notwithstanding the deteriorating and inadequate infrastructure throughout the economy, capital investments, if made at all over the next few years, will be limited to areas of the highest priority. It is unrealistic, given both history and current pressures, to anticipate any significant increments or redirection of government revenues into the health sector which, during the period 1976-1985 captured an average of 7.7 percent of the national budget for use in Ministry of Health programs and has showed a steady decline since 1981 (see Table 1). Of that, maternal-child health activities were assigned only 16.5 percent.

While the recent economic downturn receives the emphasis and attention, for much of the Guatemalan population the severe economic conditions of the present only represent a continuation of the "normal" circumstances of existence. The years of overall growth and development and the improvement in the aggregate economic status of the country obscured the realities of a severely inequitable income distribution, large-scale inadequacies in infrastructure, widespread poverty, and the existence of a large and growing population of un- and underemployed persons poorly served by both public and private programs.

255

TABLE 1

TOTAL PERCENTAGE OF THE NATIONAL BUDGET ASSIGNED TO HEALTH, GUATEMALA, 1981-1985 (INFORME DEL PORCENTAJE TOTAL DE PRESUPUESTO ASIGNADO A SALUD, SEGUN EJERCICIO FISCAL COMPRENDIDO DE LOS ANOS 1981 a 1985 DE INGRESOS Y EGRESOS DEL ESTADO)

YEAR	TOTAL GOVERNMENT BUDGET	PUBLIC HEALTH	PERCENT
1981	Q 1,466,566,256.00	Q 159.913,355.00	10.91
1982	Q 1,481,431,057.00	Q 142.373,326.00	9.61
1983	Q 1,314,252,823.00	Q 105.060,807.00	8.00
1984	Q 1,314,102,823.00	Q 114.312,625.00	8.71
1985	Q 1,282,150,883.00	Q 99,316,776.00	7.75

Source: Departamento de Contabilidad, Dirección Sectorial de Planificación de la Salud del Ministerio de Salud Pública y Asistencia Social, 1985, cited in: PAHO, Plan de Necesidades Prioritorias de Salud en Centroamerica y Panamá, Area Programática Medicamentos Esenciales, Guatemala, October 1985.

256

For the years 1979-1981, a period prior to the current economic problems, over 65 percent of all families received incomes of less than Q200 per month, with over 27 percent receiving less than Q100. For the 65 percent of these families in rural areas, almost 80 percent received less than Q200, with over one-third receiving less than Q100.[1]

More recent estimates indicate that the level of poverty is increasing and that the distribution of income is becoming even more unequal. Estimates for 1984 identified only 24.4 percent of the population as "not poor," while 35.7 percent were described as "not satisfying basic needs" and 39.9 percent as having "less than the minimum diet." The deteriorating poverty position is reflected in the income distribution. The relative share of income going to the poorest 20 percent of the population fell from 6.8 percent in 1970 to 5.5 percent in 1980 and 4.8 percent in 1984, while the shares going to the richest 20 percent moved from 46.5 percent to 55.0 percent to 56.8 percent during the same period.[2]

II. AN ECONOMIC RATIONALE FOR A NATIONAL ORT PROJECT

As might be inferred from the discussion above, the poor economic circumstances noted for the majority of the population are reflected in poor levels of health. Although one of the more economically successful countries in Central America in aggregate economic terms, Guatemala has the highest infant mortality in the region, and other indicators of mortality and morbidity reflect the generally low level of health status of the country. The high rates of diarrheal diseases, particularly among infants and children, represent a significant source of death and disability which serves to limit the overall social and economic conditions of the country, at the same time that these conditions increase the incidence of disease.

The underlying causes of death and disease reflect the poor economic and social situation. Poor nutrition, lack of potable water, inadequate management of human and animal excreta, and poverty all result in high levels of infant and child disease, of which diarrheal diseases are of major importance. This high incidence of diarrheal diseases is associated with high rates of mortality, an estimated 20 to 30 percent of all mortality in children under five years of age. In many localities this percentage will be much higher.

Beyond considerations of mortality, diarrhea is a debilitating experience for the infants and children in which it most frequently occurs. Each diarrheal episode deprives the child of much-needed nutrition. Failure to replace this loss results in a cumulative deficiency which is then reflected in poor rates of child growth and development and a heightened susceptibility to all diseases. While mortality is a direct result of only a relatively small percent of any given episode, frequency makes diarrhea a major contributor to all mortality and all episodes of diarrhea will be ultimately debilitating if this effect is not compensated for. This characteristic means that the costs of diarrheal diseases are reflected not only in direct mortality rates, but are reflected, as well, in categories of mortality and morbidity associated with other causes. The widespread chronic incidence of diarrhea throughout much of the infant and child population, which may average as much as six to nine episodes per year in children under three years of age, makes this effect of great importance in assessing the potential benefits from reduction of the impacts of diarrheal disease.

In the longer term, the incidence of diarrhea will only be reduced by modifying the basic conditions of existence (see Figure 1). Programs of latrinization, access to potable water supplies, waste management, and rural economic development are critical elements of this process, and such efforts must be supported. However, the circularity between inadequate social and economic conditions and poor levels of health is well understood, and interventions at any point in that recursive cycle have the potential to produce both direct and indirect benefits.

253

FIGURE 1: THE DIARRHEAL DISEASE CYCLE

I	II	III
UNDERLYING CONDITIONS		RESULTS
Malnutrition		High Rates of Infant and Child Mortality
Lack of Potable Water		
Inadequate Waste Disposal	High Incidence of Diarrheal Diseases	
Poor Living Conditions		
Poverty		Low Rates of Child Growth and Development
Etc.		

ORT is an intervention, which consists of use of ORS plus feeding, between the incidence of diarrheal disease (II) and its results (III). The intervention works directly to reduce dehydration-caused mortality (ORS) and its associated acute nutritional deficiency (feeding).

259

Oral Rehydration Therapy (ORT) is an intervention between the incidence of diarrheal disease and the mortality and debilitation that it typically produces. It intervenes by modifying the responses to diarrhea within the home and community and throughout the health care delivery system in a way which has been shown to result in both lowered mortality and reduced nutritional diarrhea-associated deficiency. The companion analyses in this team effort indicate that the constraints to wider utilization of Oral Rehydration Therapy in Guatemala are found on both the supply and demand side of the health equation in terms of availability, accessibility, and utilization, and they are economic, institutional, logistical, educational, and sociocultural.

The project expression of an ORT strategy proposed here is a balanced, large-scale national effort to increase the delivery of appropriately-produced oral rehydration therapy in the home and community. It would have two major components: 1) increasing effective demand for oral rehydration therapy by promoting awareness of its potential benefits, and 2) enhancing supply, that is, reducing limits to its widespread use through increased production and distribution through both the public and the private sectors. A third component--a combination of training, health education, and mass communication--would serve as a bridge from consumer to supplier and facilitate the appropriate use of ORT by both client and provider. The coordination of public and private sector activities directly and indirectly associated with the project will produce an interaction on both the supply and demand sides which should enhance the potential for project benefits.

There are a number of arguments which can be advanced for the initiation of such a supply/demand-balancing strategy at this time in the context of Guatemala's current economic and social circumstances:

1. **ORT works.** While the implementation of effective ORT programs is not simple, accumulated experience clearly demonstrates that ORT can reduce infant and child mortality significantly in a wide variety of economically, socially, and culturally different settings. Countries as diverse as Haiti and Egypt have reduced mortality from diarrheal diseases using ORT. Each program has been uniquely tailored to local circumstances, but all have common components and similar goals. That diversity of experience is an essential input to the development of the project here, but the efficacy of the technology is no longer in doubt.

2. **It is focused on a major health problem.** Diarrheal disease is a major cause of infant and child mortality in Guatemala. In many health areas, it is the leading cause of child mortality, and in every area it is among the top three causes. In addition, many other recorded causes of mortality are diarrheal-disease-related, suggesting that current data most likely understate the extent of the problem.

3. **It is not capital-intensive.** An ORT project would not depend on construction or the purchase of large-scale capital

260

equipment. Although some capital purchases in the form of ORS production equipment and vehicles for training and supervision in the field would be required, they represent relatively small investments and would not have the lead-time requirements which might serve as constraints on the rapid implementation.

4. **Foreign exchange requirements are low.** The only elements of the project that require foreign exchange would be the small capital acquisitions noted above and the ongoing costs of parts for vehicle maintenance and for ORS. Emphasis on local production in both private and public sector facilities would limit import dependency primarily to ORS raw materials and packaging.* Maximum use of domestic inputs where technically appropriate (i.e., using domestic sugar in place of imported glucose) will shift foreign exchange requirements toward the lower figure presented in Footnote 1. If target coverage rates were to be 30 percent for Project Year 1, 60 percent for PY 2 and 80 percent for PY 3, the volume of projected use and associated foreign exchange requirements would be as presented in Table 1. In reality, the probability of 100 percent coverage within a three-year project life is quite small. While the target rates proposed here are more realistic estimates of the potential foreign exchange requirements, they will understate potential increases in prices of imports and will be offset by the use of home-produced ORS solution. It is anticipated that the purchase of ORS packets through a competitive market process will tend to favor the use of domestically-produced ORS, simply because of its price advantage (see Logistical Analysis for comparison of costs of importing versus costs of local production).

5. **An ORT project is consistent with other ongoing PHC strategies.** The project is designed to complement ongoing efforts to strengthen primary health care services in Guatemala. It builds on the Servicios Comunitarios project which has just been modified, and strengthens and supports the Immunization and Child Survival (I/CS) and channelling activities already under way. It is a reinforcement of a priority that currently exists, rather than a competing priority, and operates with and builds on a developing community-based (and AID-supported) primary health care strategy for the country.

---

* Material costs are estimated to be US$27.86 per 1000 packs for raw materials, of which US$19.18 is the cost of glucose and US$7.34 for packaging materials. Import costs per million packs would be US$35,200 using glucose and US$16,020 if domestic sucrose were substituted. The maximum use of packs for 100 percent coverage of all children under five (the upper limit to demand) would be 12,168,000 packs, representing US$428,314 in import costs if glucose were to be included, US$194,931 if domestic sugar were to be used.

TABLE 2

Year	Coverage	ORS packs*	Import Cost	
			Glucose	Domestic Sugar
1	30%	3,654,000	$128,620	$ 58,537
2	60%	7,308,000	257,241	117,074
3	80%	9,734,400	342,651	155,945
End of Project	100%	12,168,000	428,314	194,491

* Not adjusted for project growth in population under 5.

262

III. CURRENT CHARACTERISTICS OF THE MARKET FOR ORS/ORT: CONSTRAINTS AND FACILITATING FACTORS

As indicated earlier, Oral Rehydration Therapy (ORT) equals appropriate and timely use of Oral Rehydration Salts (ORS) plus feeding and nutritional support. Thus, the demand for ORS is really derived from the demand for ORT. For ORT, then, the household is both the consumption and the production unit. ORS is an essential input to the production of ORT and may be bought, obtained without charge, or produced within the household.

The diverse elements of a balanced ORT project are each directed at affecting various of the factors that influence the demand for and/or the supply of ORT/ORS. Demand is determined by the expected benefits from use, the opportunity costs, and the family's general economic status, while the supply is determined by expected rewards to provider (price), costs of production, and various system constraints. These market characteristics are presented in Figure 2. For purposes of simplicity, the focus here is on the market for ORS, since it is in that market that the supply activities of the project are concentrated. (Where differences between ORT and ORS are important on the demand side, they will be specifically noted.)

A. The Demand Side

Any ORT project in Guatemala begins with an extremely low level of current demand. While families do purchase numerous products to treat diarrhea, oral rehydration salts are not often among them. Families are more likely to buy antidiarrheals to stop the diarrhea, antispasmodics to stop the pain, and antibiotics to "cure" the illness. The benefits from ORS are much more elusive and without a specific effort to shape this demand, "competing" products will be at an advantage.

In Guatemala, this circumstance is exacerbated by the small returns to the pharmacy from the sale of ORS as compared to competing products. Prices and markups to the pharmacy are set by the government and low-priced items like ORS do not yield significant returns to the store unless they can be sold in large volumes. In addition, pharmaceutical manufacturers often offer cash incentives ("push money") to the pharmacy for selling more expensive products. In general, these economic considerations work against pharmacy initiative in fostering use of ORS. In Guatemala, as elsewhere, the pharmacist is an important source of information. When team members went experimentally to pharmacies to ask for "medicines" for diarrhea, no Oral Rehydration Salts were included in the pharmacists' recommendations, and many of the the products that were recommended were either of no value or medically unadvisable. Nevertheless, ORS is available in some pharmacies, most imported but some produced locally in small-scale production facilities.

263

FIGURE 2: MARKET FOR ORS

DEMAND		SUPPLY	
Determined by:		Determined by:	
Expected Benefits	D_1	Expected Rewards - Profit	S_1
Opportunity Costs		Costs of Production	S_2
Price	D_2	System of Constraints	S_3
Accessibility	D_3		
Other Time Costs	D_4		
Family Size			
Work Responsibility			
Other Family Illness			
Family Economic Capacity	D_5		

Demand for ORS is derived from demand for ORT. For ORT, the household is the production unit. ORS is an essential input which may be purchased, obtained without charge, or produced within the household.

264

Yet although demand is small, it does exist. ORS has been used in various settings in Guatemala, and ORT has has been a component of a number of public programs in the past four to five years. The hospital-based program in Huehuetenango has demonstrated the efficacy of ORT in a facility-based context; community-based activities under the Sistemas Comunitarios and SINAPS Projects have also demonstrated the possibility of developing greater demand for ORS and ORT. Each of these prior experiences, together with the newly-developing MOH program of channelling,* provides evidence of the nature of the demand, the problems associated with its enhancement, and the need for reinforcement and support in the demand-expansion process. Still, the demand represented in current activities is small, program coverage is still limited, and even those with access to ORS do not take advantage of the opportunity. Community workers note that ORS use only begins after multiple visits to the family and that the process of developing demand is a slow and cumulative one.

In economic terms, it seems appropriate to assume that demand will be highly elastic (price-sensitive) in the short run; that is, most users will be readily discouraged by having to pay. The lack of experience with ORS and the poverty of a large proportion of the target population, particularly in rural areas, makes this assumption valid. Nevertheless, some programs have been charging small amounts for ORS packets. In San Marcos, health promoters began charging Q.30-Q.35 in April after three years of free distribution. This amounts to approximately Q1.00 per diarrheal episode, a high price for this community. While there was a large drop in use, some persons, estimated at under 50 percent were still continuing to purchase ORS. Experience with using ORS probably serves to make demand more inelastic (that is, less sensitive to price changes) even for the poor.

B. The Supply Side

On the supply side, considerable variation exists in availability of ORS. ORT is an integral part of a number of public programs and, in addition to distribution of WHO-formula ORS donated by UNICEF through the MOH and PVOs, a number of different entities have developed their own production capacity. The hospital-based ORT program in Huehuetenango is producing ORS for use in its own program at a materials cost which was initially Q.13. At the present time, the cost of materials is Q.23. The scale of production is fairly small, but capacity still far exceeds the current demand in the program, although salts are offered for sale at Q.30 in the area's health centers. Current levels of this outside use are approximately 45 packets per month, equivalent to treatment of 15 episodes of diarrhea, an obvious under-reflection of true incidence.

---

* See Technical Analysis for a full description of this activity.

265

In San Marcos, ORS are distributed through Health Centers and Health Posts and through health promotors; the latter accounted for over 80 percent of the distribution of 117,200 packets in 1984. This region operates 851 Oral Rehydration Units, one in each Health Center and Post and the rest (807) in the houses of the health promotors. Packets were free until April 1985. Since then, the promotors have been charging between Q.30 and Q.35 for a packet which costs the municipality Q.28; local auxiliaries estimate this led to at least a 50 percent reduction in use, similar to the experience in Huehuetenango. In one district of San Marcos (La Reforma), the local Health Center is packaging a simple mix of sugar and salt in plastic bags at a cost of Q.08 to be sold for Q.10 in local pharmacies and food stores and have offered to expand production to cover the entire department.

The rural health program of the Universidad Francisco Marroquin in San Juan Sacatepéquez also produces ORS for its own use, and the department of El Progreso produces ORS in bulk, calling it "Supersuero" and packaging it for distribution through the channelling program.

In the private sector, there are both producers and importers of ORS. The small size of the market and the competitive relationship between ORS and other, more easily sold, more profitable products, makes private sector marketing alone not viable. There is, however, considerable private sector interest in participating in that market if it were to grow. A program aimed at expanding demand for ORS would need to take advantage of the production and distribution capacity that already exists. One objective of an ORT project would be to "make a market" for ORS in which the private sector could develop an effective and supportive role. Each of these general issues is incorporated into the recommended strategies detailed in the sections which follow and reflect this understanding of the economic dimensions of the market resource.*

---

* For a more complete listing of examples of local production of ORS, see the Logistical and Sociocultural Analyses.

266

IV. STRATEGIC OPTIONS

A. Demand Strategies

The basic demand-enhancing strategies that make most sense, given the low level of current demand and its present elasticity, are:

- -- large-scale social marketing in the private sector;
- -- direct community health education and training in the public sector; and
- -- public subsidies for acquisition costs, marketing, and distribution, and materials acquisition support for producers and suppliers.

Each of these strategies would influence specific aspects of the overall demand for ORT/ORS. As described in the previous section, demand is determined by: 1) expected benefits, 2) opportunity costs, and 3) family economic capacity. The basic strategies proposed here focus only on the first two areas; their effectiveness and the actual implementation of the project will reflect, however, the reality of the third, control over which lies outside the purview of a national ORT program.

Expected benefits reflect, in part, knowledge of the mother/family and, in part, competing beliefs which influence these expectations. Both mass social marketing and community-based health education are designed to generate a more use-motivating set of expectations as to the benefits to be derived from ORT/ORS. The basic message strategy must have two parts: development of a recognition of the dangers of diarrhea and, more specifically, the dehydration which accompanies it; and the awareness of the existence of an effective, accessible means for avoiding those risks. Thus, there is both a negative message and a positive one.

In this sense, ORT is not just a new product to meet a recognized need. The condition, diarrhea, is widely recognized, but the same is not true of the often-associated, often fatal problem of dehydration. The marketing of ORS must start by generating recognition of the problem of dehydration as a preliminary step in an overall health education strategy. The response to that problem also has two dimensions. The product ORS is only part of the product ORT. The marketing strategy needs to incorporate these complex relationships as well. Both problem recognition and problem solution are crucial.

In Guatemala, as elsewhere, a social marketing strategy needs to be developed in, and tailored to, specific target populations, and sufficient time and resources need to be invested in formative research, the design of the strategy, its messages forms and their dissemination, media selection, testing, and so forth.

267

Community health education can complement demand-creation through mass media endeavors, by emphasizing the expected benefits from ORS/ORT through contact at the household level and ongoing reinforcement in ORT utilization provided by trained community promotors.

In addition to those demand-enhancing components of the project aimed at increasing the knowledge of the benefits of ORT, other activities would have to be directed at reducing the opportunity costs of ORS and ORT utilization. Of critical importance are activities designed to limit the price of ORS. Given the highly elastic demand and the low incomes of the target populations, demand would need to be stimulated by including distribution of ORS without charge as part of regular public health sector activity. Direct distribution of ORS salts without charge through health promotors, Health Posts, and Health Centers would serve to eliminate the limiting influence of price on demand. While such a strategy would raise program costs, experience in other countries indicates that ORS/ORT programs which eliminate price constraints and facilitate ready access to ORS have the lowest cost per death averted. The goal is to make demand more inelastic and to increase use at any given price. An essential element in this process is the development of a pool of experience in the community with ORT use. In the earlier stages of a national ORT program, particularly for a primarily low income population, any positive price will significantly limit use. Over time, experience will begin to reinforce a more inelastic, less price-sensitive demand and will permit the development of alternative strategies for reducing program costs. (This is discussed below in the section on cost recovery.)

Together with the reduction or elimination of the money price constraints, attempts would also have to be made to reduce the non-monetary costs associated with ORS use. Community-based distribution of ORS to families with children under five in advance of need would considerably reduce the time costs associated with ORT. Work responsibilities, care of other family members, and time required to obtain ORS all serve to limit effective demand. By reducing the latter and eliminating the money price, the economic disincentives to using ORT can be minimized and the experience of its application more widely spread throughout the target populations.

In addition to activities directly focused on the family, training for health professionals also can sserve to increase demand. Health care professionals are crucial sources of information and support for family health care decisions. Their expressed confidence in the efficacy of ORT can reinforce the efforts directed at the user yet, notwithstanding the well-demonstrated efficacy of ORT, many health professionals are reluctant in their support for the intervention, and still endorse older views on proper diarrheal case management which are unsubstantiated by recent research and experience. Health professionals need opportunities to experience ORT in a clinical setting, to become informed about the accumulating clinical experience with ORT, and to encounter this therapy in the context of their own career development. For this reason, training for health professionals, especially at upper levels, both

268

directly and by assisting in the integration of ORT into the appropriate curricula, contribute importantly to demand creation. Home-based ORT would be the therapy of choice throughout the system when medically appropriate, and hospital-based programs, for both demonstration and referral purposes, would be a complementary part of national ORT strategy.

B. Supply Strategies

The basic supply-enhancing strategies are:

-- expansion of the market for ORS; and

-- the support and development of alternative sources of production.

Overall supply of ORS is determined by:

-- expected rewards to the producer;

-- the costs of production; and

-- various system constraints.

While the emphasis here is on the first two, consideration should also be given to modification of some legal and regulatory restrictions relating to taxes, price controls, and imports, to facilitate more widespread private sector participation in the market. Some of these issues will be noted below.

Of central importance to supply strategy is the commitment to support widespread use of ORS as part of a national ORT program. The size of the potential market, over 10,000,000 packs a year, is large (see Logistical Analysis). Even with support of the development or quasi-public sector-based* production facility, there would still be an ongoing need for large-scale purchases from the private sector. It is estimated that in the first year of a national ORT project, over 1.5 million packs would have to be purchased if all other demand-creating and logistical activities were well under way. This would require that such a project begin with an immediate solicitation for purchase of ORS at a scale (1.5 to 2 million packs) that can modify some of the constraints to market entry.

---

* The proposal is made in the Logistical Analysis, that an ORS production facility in the pharmaceutical laboratory at the School of Pharmacy at San Carlos University be established, using UNICEF-donated production/packaging equipment. San Carlos is an autonomous entity which receives a legally-stipulated portion of the national budget annually.

269

Analysis of ORS production in Guatemala supports the conclusion that there does exist strong private sector interest in producing and marketing this product, both for Guatemala and for export. While costs of entry are not excessive, the small size of the market has served to preclude the investment necessary to produce at a competitive cost level. The direct purchase of large quantities of ORS would provide an opportunity for such investments. At the same time that direct purchase by the government would stimulate entry into this market, the mass marketing effort would also serve to develop a demand for ORS which would not be strictly limited to public sector purchases. While private purchases may be small, some of the increase in demand will spill over into the private market. The marketing program would generate product messages which would not be limited to single settings or producers. Increased awareness of the risks of dehydration and the role of ORS in their reduction would benefit all producers and distributors. While the absolute size of this market will be limited, its relative size will probably increase considerably as demand increases and becomes more inelastic. Thus, a mass communications effort for which the public sector would effectively foot all or part of the bill* would represent a reduction in the costs of entry for new firms, since a market expansion effort would have had to be an essential component of their own marketing efforts. It would be considerably less costly, and more productive, for any firm to compete for a share of the ORS market when some other entity is engaging in mass marketing which will enhance user recognition of the benefits of the product and thereby increase the overall size of the market.

One system constraint on the expansion of private sector participation is the potential conflict between government price-setting policy for these products and the need for long-term confidence in the ability to recover capital investment. This is particularly problematic where the product depends on imported raw materials and the availability of foreign exchange. Uncertainty as to exchange rates and raw materials prices needs to be offset by some pricing flexibility and this issue should be explored as a condition precedent for any national ORT program which seeks to engage the private sector and, particularly, enjoy its capacity for wide distribution and increased access.

In addition to general market-expansion activities, a national ORT project would work directly to expand the supply of ORS. A most feasible option (see Logistical Analysis) is support for the expansion of the ORS manufacturing capability in the National School of Pharmacy of the Autonomous University of San Carlos. Developing ORS production in that facility has a number of economic advantages. It would assure the availability of a large (although

---

* There are indications, of varying firmness, that some private sector firms (e.g., Pepsi-Cola, Alimentos S.A.) might be prepared to do some of the mass media promotion on their own account. The health education content of this would be reviewed by the Ministry of Health.

270

not sufficient) supply of ORS for the MOH on a cost basis. With the opportunity to obtain basic equipment and the existence of a manufacturing capability and commitment in the School, an efficient production unit could be developed. In addition to assuring basic MOH supply, the cost experience of the facility would provide a guide to reasonable price and bidding levels for private-market-purchased ORS and prevent excessive dependency on a single producer. It is important to note that the School of Pharmacy is planning to start small-scale production of ORS under any circumstance. The investment required for moving up to larger-scale production would not be excessive, particularly with the possibility of donation of a major piece of equipment by UNICEF. The price paid to the School for production would be minimized by the fact that capital investment costs will not need to be carried in the pricing of the ORS. The fact that there is also a potentially substantial private market will facilitate the maintenance of a more competitive market situation in general.

It should be noted that expanding ORS production in the National Pharmacy School enhances the potential for support for ORT from pharmacists as a profession. As noted before (see Logistical Analysis), the pharmacist is often a major source of information in the community on medical matters. By including ORS as an important part of the his/her initial professional training, there is greater likelihood that knowledge of the importance and appropriate use of ORT will be more vigorously introduced into the daily repertoire of diagnosis and prescription that is the de facto role of this crucial local-level health provider.

The other major, direct, supply-expansion ORT strategy component is the incorporation of knowledge of, and training in, the home production of ORS solutions (sueros caseros) as an integral part of community health education. For the family production unit, home-produced ORS offers a lower money-cost alternative source of supply and a reduced dependency on external supply and distribution systems. While home-produced solutions are not equivalent to WHO-formulated ORS, it has been shown that their early use can produce many of the same benefits. Problems of quality control and materials availability are real enough but programs all over the world have demonstrated that such problems can be overcome by effective, community-based training and education. In any case, such products are already widely used throughout Guatemala. Formulae differ widely, often in ways that compromise the effectiveness of the solution and, occasionally, in ways that present a risk to the child. A central element of the development of national ORT norms would be norms for homemade solutions which would be integral to any IE and C Strategy.

In sum, the development of a household capacity to produce its own ORS should be a critical component in any long-run ORT strategy for Guatemala. The benefits to be derived from the widespread use of ORT--reduction of infant and child mortality and morbidity--depend on continued access to ORS supplies. During the life of any donor-funded ORT project, production and distribution, that is, supply, are supported by the resources of the project, as is the

271

strengthening of demand. That supply can be curtailed at any point as a result of economic or logistical constraints, particularly when the project ends, but the demand, once created and reinforced by experience, is likely to remain. That, in fact, should be a major project goal. Thus, it would be absolutely crucial for any supply-development strategies to maximize the supply alternatives available to the household. The inclusion of home-based production is particularly critical, given the severe economic limits of a large proportion of the target population, the logistical difficulties of distribution, and the severe resource limits, over the near future, of the central government. The supply-expansion strategies of a national-level ORT project would, then, be targetted on the entire range of production options: support of a public sector production capability, large-scale private sector purchases, and support and expansion of home-based production. This mixture of strategies offers the widest protection against the growth of demand for ORT unaccompanied by a durable, consistent capacity to deliver on promises made or implied. To demonstrate (creating demand) benefits while supporting their long-run attainment (assuring supply) should be the focus of an ORT program for Guatemala.

272

V. PARAMETERS OF COST-BENEFIT ANALYSIS

The goal of the project is to support the use of ORT, ultimately at a level that approximates the incidence of diarrhea. It is argued that the benefits from application of ORT do not diminish with the scale and frequency of use, and that each timely response to infant or child diarrhea with ORT has the potential to produce the same benefit as any other. As measured by the high incidence of and mortality from diarrheal diseases, the potential benefits are great, and target goals for coverage reflect this valuation. Nevertheless, understanding the specific nature of these benefits is essential to the design of an operational cost-benefit analysis.

A major objective of ORT is the reduction of child and infant mortality associated with diarrheal diseases by offsetting the fatal impact of dehydration. However, not all of the mortality associated with diarrheal diseases is caused directly by dehydration. WHO has estimated that 33 percent of all deaths associated with diarrheal diseases will not respond to ORT alone. It has recommended that ORT programs focus on the 67 percent of mortality potentially avoidable by effective use of this strategy.[3] Potential benefits from ORT need to be measured against this lower, but still large, standard.

There are data problems associated with the precise identification of this mortality. In many areas of the country, virtually all children have some level of malnutrition, and many will have chronic parasites. Many of the major causes of infant and child mortality identified are diarrheal-related, and it is difficult to isolate dehydration as the cause of death. Diarrhea frequently occurs together with fever, vomiting, and other symptoms which may be recorded as the cause of death. In 1984, in the municipality of San Juan Sacatepequez, for example, the major cause of death for both infants (under 1) and children (under 5) was "diarrhea," representing 33.3 percent and 36.9 percent respectively.[4] In both categories, the second major cause of death was fever, with other poorly defined causes such as grippe, vomiting, and infection in the top ten, all of which are also frequently associated with diarrhea. While the data lack precision, they clearly demonstrate the importance of diarrheal diseases as a major cause of infant and child mortality, at the same time they signal major problems in diagnosis and reporting, with their associated implications for case management and data quality.

Even the most effective home-based ORT program will not eliminate the need for hospital-based rehydration using both ORT and IV methods. However, experience in other countries with ORT programs has demonstrated that one expected benefit should be a generally lower level of severity presenting at the hospital level, and, therefore, a much lower mortality rate in the hospital rehydration units. Haiti, for example, observed a 30 percent decrease in severely-dehydrated children hospitalized after the ORT program was started, even though total admissions for dehydration increased by

273

55 percent. In February 1981, 24 percent of admitted patients were dehydrated, and only 2.3 percent of the families had initiated ORT. One year later, almost half (48 percent) of the patients admitted had initiated ORT at home, and three percent of these patients were severely dehydrated, as opposed to 23 percent of the patients who had not initiated ORT prior to admission. The importance of this potential benefit becomes even more evident when it is noted that the mortality rate for severely dehydrated children was 29.7 percent, while for moderately dehydrated children it was only 2.2 percent during the period noted.

Because of the obvious importance and the relative ease of demonstrating impact, "deaths avoided" has been to date the most used measure of benefits. Nevertheless, it should be emphasized that reliance on this measure alone will understate the benefits from a successful ORT program. The prevalence of diarrheal disease in Guatemala is very high, estimated at 4,056,000 episodes per year in children under five years of age. Only a small proportion of these episodes result in death, but most are associated with some adverse nutritional impact. The effect of frequent nutritional deficiency resulting from episodes of diarrhea is cumulative and correlated with higher susceptibility to disease and its associated mortality. An effective ORT program will emphasize both the use of ORS and feeding and should work to reduce the vulnerability associated with diarrhea-produced nutritional deficiency.

It is difficult to display these impacts, particularly within a project with a three-year time frame. Nevertheless, over time, this impact should show up as reduced incidence of diseases, including diarrheal disease. One important aspect of the monitoring function of this project will be the development of indicators of this important effect. Nevertheless, the difficulty of measurement does not negate the importance of the benefit. Calculations of program effectiveness will need to incorporate this factor.

214

VI. COST ISSUES

A. Projected Project Costs

Because many decisions relating to the timing of the introduction of the project and the scale and rapidity of development of its components are still to be made, it is not possible to produce a detailed budget, nor was one required (see Scope of Work). Nevertheless, it is possible to develop some preliminary estimates of potential project costs. As presented in Table 3 and accompanying Work Sheets, total costs of a national ORT project have been estimated as $4,774,450 over three years.

It is useful to distinguish between two major types of activities: those that would fall entirely within the area of such a project, such as mass marketing and procuring ORS supplies; and those complementary to and integrated with I/CS and channelling activities already under way, most particularly distribution, training and supervision.

For these latter activities, part of what would be needed to make the national ORT program a success would be integrated within the planned activities of the I/CS project, albeit not as its central priority and, therefore, in need of support and additional focus. An example of this would be the production and distribution of ORT training and health education materials already planned as part of the I/CS project. Some materials exist but are seriously deficient from an ORT standpoint, so that development of such materials would have to constitute an important part of an ORT project and be integrated in their timing and resource requirements.

More problematic are the elements of training and supervision, particularly above the level of the health district. Much of the ORT training needed should be, in principle, incorporated in the training experiences planned for the I/CS project. Cost projections for the ORT project would be treated as marginal, that is, as additional to the planned training expenditures for I/CS. The actual budgetary implications of these decisions cannot be made without a more well-developed sense of project timing for both the I/CS project and an ORT project. At the local level, training is already going on, and some supervision is already initiated. It would appear that there would have to be substantial upgrading to adequately incorporate ORT content. There will also be additive logistical cost implications that are virtually impossible to detail at this point, due to the relative youth of the I/CS project and channelling in particular. Thus, the potential costs identified in these areas can only be considered illustrative.

As is obvious in Table 3, the major element of project cost is the acquisition of ORS, which is estimated as $2,574,695 over a three-year period. These costs represent a combination of purchases from the private sector and payments to the LAPROMED production unit. Table 4 provides the basis for these estimates, but a number of factors could modify them. No provision has been made in

275

TABLE 2

PROJECTED BUDGET (TENTATIVE)

NATIONAL ORT PROJECT

CATEGORY	1	2	3	TOTAL
1. Management - Central Administration*	450,000	495,000	544,500	1,489,500
2. Mass Marketing	100,000	15,000	10,000	125,000
Development	30,000	100,000	60,000	190,000
3. ORS Supply - LAPROMED Start-up	148,550	-------	-------	148,550
ORS Purchase	(248,000)	(758,340)	(1,416,687)	---------
ORS Purchase 20% anticipated	399,668	1,041,677	1,133,350	2,594,695
4. Training **	33,335	81,935	81,935	197,205
5. Supervision	16,500	16,500	16,500	49,500
TOTALS	1,178,053	1,750,112	1,846,285	4,774,450

* 10% annual inflation rate.

** Development Costs + Management Costs are (1). The "Training" line item is direct training session costs only.

TABLE 4 - WORK SHEET - ORS ACQUISITION COSTS

Prices Used -	LAPROMED	$.07 US per packet
	OPEN MARKET	$.18 US per packet

Open market price is at low end (other then UNICEF). Given scope of potential market and interest in entry, this price is feasible. A 10 percent annual inflation rate was used in years 2 and 3.

Total costs were based on a mix of the two sources, using projected LAPROMED production capacity as a base and open market sources to provide the rest of expected demand for projected levels of coverage.

LAPROMED Production Projections:

Months	0 - 8	0
	9 - 18	200,000 per month
	19 - 30	250,000 per month
	31 - 36	300,000 per month

Target Coverage: Based on full years of operation, but there is a six-month time lag for actual field activity due to purchase time requirements. Therefore, project-year expenditures represent a time adjustment as shown on the following page, which assumes a six-month lag for private sector ORS and nine months for LAPROMED.

277

WORK SHEET - ORS ACQUISITION COSTS, (CONT.)

PROJECT YEAR	Source	QUANTITY	TARGET QUANTITY	COVERAGE BY END OF EACH PROJECT YEAR
1		1,800,000		
	LAPROMED	600,000		
	Market	1,200,000	3,654,000	30%
2		5,480,000		
	LAPROMED	2,700,000		
	Market	2,780,000	7,308,000	60%
3		8,521,200		
	LAPROMED	3,300,000		
	Market	5,221,200	9,734,400	80%

278

the calculation for the use of household-produced ORS. Over time, the need for packaged ORS should decline as a percentage of total demand, but it is assumed that this effect is not likely to appear early in the project lifetime. Therefore, the later estimates are likely to be more susceptible to this effect. Additionally, it has been assumed that no UNICEF packs would be available at a lower price than those used here for the calculation. (We were informed that none would be available within the first half of 1986, if ordered in November 1985.)

In addition, projected prices are speculative. A ten percent annual increase in cost was built in over the three-year period, but actual price changes may reflect a different pattern. The timing of purchases was also based on an expectation as to the timing of the development of demand. More rapid expansion of coverage would yield higher project costs, since the demand would be cumulative and expanding. These costs assume a particular path of growth in demand.

The other component of supply development cost is the initial investment in the LAPROMED facility. The cost of the main equipment is not included since it is anticipated to come from UNICEF and is included in their Child Survival budget. The result of this investment is the low cost of procurement anticipated from this source of production, with operating costs to be captured from payments for ORS.

Central project management costs are based on the need for three full-time, AID-provided staff:

1. A director with his/her MOH counterpart, would be responsible for managing the National ORT Committee and the norms development process, as well as for coordination within the MOH and with donors and for the research/evaluation/monitoring function.

2. A full-time health education director would effectively manage the process of development training manuals, scheduling the training process, working on the curriculum modification process with the appropriate professional programs and technical support of the area supervision function;* s/he would also constitute the direct interface with the mass marketing activity, between communications specialists and the Ministry of Health.

3. A logistics specialist, who would be responsible for bridge procurement, startup, establishing supply and distribution monitoring systems, collaboration with

---

* The training program at all levels would be a core element of the demand-enhancing strategy in the project. For this reason, the costs of the training director are placed here, but they might be appropriately included in the training component when a more detailed budget is developed.

274

with logistics activities under I/CS project, and working with team members and short-term consultants of setting up MIS/HIS system.

Projecting costs for the mass marketing function is somewhat premature. Development cost projections are based on conversations with media professionals in Guatemala and the estimate of $100,000 for this is a most informal average at this point. Actual costs would have to be negotiated with providers. The inclusion of anticipated costs for later years reflects the need for some modification of the marketing strategies as the program gains experience. The costs for media distribution are even more speculative. In addition to some national or wide area radio stations, there are a large number of small local stations which would be potentially important for targeted coverage. Throughout the system, air time prices vary extremely, partly due to anticipated audience coverage and partly due to regional or historic differences. The actual costs will have to be specifically tailored to the demand-development strategy adopted. The costs presented here reflect subjective projections of the range of costs likely to be appropriate for the project.

The major problematic areas for costing at this time are training and supervision. As projected, costs for development and oversight of the training function are included in the management budget. The training costs referred to here relate only to local-level travel (not out of central office), materials distribution, per diem for participants (perhaps meals for promotors), and support for the trainers.*

The projections presented for supervision are based on the assumption that much of the activity will be encompassed in the supervision going on or planned as part of the I/CS project. The costs here are based on one additional meeting for supervisors in each area, which would focus on ORT issues, and some additional fuel expense, since this has already been identified as a critical limiting component of effective supervision in all of the areas visited.

B. Recurring Costs

The major recurring cost would be for purchase of ORS for distribution. While this is a large expense, some future offsets are

---

* In the first year of the project, training would be centrally held for the nursing director of 8 of the areas with all of the areas (21) participating in Years 2 and 3. At the area level, two training sessions would be held, one each for nurse auxiliaries and rural health technicians (TSRs) with training in 8 areas of the first year and in all 21 thereafter. The same schedule of training would apply to the promotors, with 30 meetings to be held in each area, covering only 8 in Year 1 and all in Years 2 and 3.)

230

possible and are discussed below. The other recurring costs are related to training and supervision, since these activities would need to continue if the results desired are to be obtained; ideally, as indicated, they will form an integral part of the developing primary health care system embodied in the I/CS and channelling activities. The development costs for these activities are presented in the management part of the budget, to differentiate between ongoing costs and those specific to the project. Nevertheless, all of the shift to a primary health care commitment will involve new and continuing expenditures when starting from the beginning. Whether these expenditures are attributed to the I/CS or the ORS effort, they will have to occur. The operating, as opposed to development, costs of each are a guide to future recurrent expenditures.

C. Cost Recovery

No proposal has been made here for cost recovery through user charges. The extreme poverty of much of the target population and the limited experience with ORT makes any such proposal premature, at best. Nevertheless, the project has been designed to stimulate and support the transfer of costs (ORS costs) from the public program to the private sector. Two alternatives to publicly-provided ORS have been supported. For some part of the population, the support and development of the private production and marketing of ORS, together with a strategy to maintain an efficient price structure, facilitates the development of private demand. Product differentiation, customer convenience, and embellishment of ORS by producers all serve to encourage this transfer. It is difficult to estimate the private market share, but it has the potential to be consequential.

Of more importance is the incorporation of training for home production of ORS and the identification of more efficacious formulations. The alternative of sueros caseros may well prove to be more economically desirable for a significant proportion of the population. This effect would not show up early in the project but, as demand becomes more inelastic, the potential of other sources of ORS for household production of ORT is of critical long-run importance for the viability of this activity.

D. Cost Offset

An effective home-based program of ORT will result in a decrease in use of the hospital for diarrhea dehydration. Experience from Haiti and Egypt indicate that substantial savings can be a achieved at the hospital level through substitution of oral therapy for IV-based recuperation (see Technical Analsis). And, comparing the second semester of 1983 with the same period in 1984, the IGSS Department of Pediatrics found a reduction of 42 percent in admissions for diarrhea with dehydration, with an estimated savings of approximately US$334,656. Other areas of cost saving can be anticipated from an effective ORT program at the national level. No estimate is made here of these offsetting costs, but the evaluation process established to support this project should include information which would permit the identification of these impacts.

281

REFERENCES

1. Direccion Nacional de Estadistica. Encuesta Nacional de Ingregos y Gastos Familiares 1979-1981: Volume I (1984), Volume II (1985).

2. Infopress Centro Americana. Based on 1980-83 Data from United Nations Economic Commission for Latin America and 1984 from Direccion General de Estadistica and Banco de Guatemala.

3. WHO. Manual for the Planning and Evaluation of National Diarrheal Diseases Control Programs. Programme for Control of Diarrheal Diseases (WHO/CDD/S&L/81.5). 1984.

4. Presentation of Dr. Carlos Andrade, Director del Programa de Salud Rural (San Juan Sacatepequez), Universidad Francisco Marroquin. May 1985, Guatemala.

292

TECHNICAL ANALYSIS:

NATIONAL ORT PROGRAM, GUATEMALA

TABLE OF CONTENTS

		PAGE
INTRODUCTION:	THE SCOPE OF WORK	iii
I.	THE EPIDEMIOLOGIC CONTEXT	1
II.	PAST AND PRESENT USE OF ORT IN GUATEMALA: THE PUBLIC SECTOR	7
	A. SINAPS (Sistema Integrado de Nutrición y Atención Primaria de Salud	7
	B. PRINAPS (Programa Initgrado de Atención Primaria de Salud)	8
	C. Community-Based Health and Nutrition Systems (Programa Sistemas Comunitarios Integrados de Salud y Nutrición) (SCISN)	9
	D. Hospital Nacional de Huehuetenango	10
	E. Instituto Guatemalteco de Seguridad Social (IGSS)	11
	F. Programa Guatemala Sur	12
	G. Rural Health Program, Universidad Francisco Marroquin	13
	H. Rehydration Therapy at Roosevelt Hospital	13
	I. Channelling	14
III.	USE OF ORT IN GUATEMALA: CONSTRAINTS AND FACILITATING FACTORS	18
	A. Lack of a National Diarrheal Disease Control (CDD) Program and an Administrative Structure.	18
	B. Lack of Standardized Norms for Use of ORS	19
	C. Lack of a Standardized Recipe for Preparing Simple Sugar/Salt Solution (suero casero)	20
	D. Inadequate Training of Health Personnel in ORT	20
	E. Lack of Supervision	22
	F. Resistance of Physicians and Pharmacists to ORT/ORS	23
	G. Lack of Awareness of the Consequences of Diarrheal Dehydration	23
	H. The Fact That ORS Does Not Cure Diarrhea	24
	I. Inability of Some Persons To Purchase ORS	24
	J. Lack of an Adequate System of Data Collection for Monitoring the Effectiveness of ORT Use	24
	K. Inadequate Supply of ORS Packets	26

283

CHAPTER 5

TECHNICAL ANALYSIS:

NATIONAL ORT PROGRAM, GUATEMALA

Report Prepared by PRITECH Consultant:
Mary Lou Clements, M.D.

TECHNOLOGIES FOR PRIMARY HEALTH CARE (PRITECH) PROJECT
Supported By:
U.S. Agency for International Development
AID/DPE-5927-C-00-3083-00

AUTHORIZATION:
AID/S&T/HEA:
ASSGN. NO.: SS 99

284

TABLE OF CONTENTS (CONT.)

PAGE

REFERENCES 27

TABLES 29

285

INTRODUCTION

The AID-specified Scope of Work for this activity for the role of Public Health Physician included the following tasks;

1. Assess the Current Oral Rehydration Therapy efforts within the Ministry of Health (MOH).

2. Assess the current or programmed ORT efforts funded through other international agencies such as PAHO, UNICEF, etc.

3. Assess current private sector involvement in ORT, current private production, promotion and distribution of ORT and potential for increased role of private sector organizations in a national program under a new AID Project.

4. Examine alternative ORT distribution strategies and assess their appropriateness for the situation in Guatemala.

5. Determine whether a major initiative in ORT by the MOH can be effectively managed and supported by the Ministry.

6. Determine under which project activities (e.g., training, logistical support, commodities) AID resources could be best utilized to expand the accessibility and acceptance of ORT nationwide.

7. Determine how much grant funds and over what time period resources will be necessary to successfully implement a nationwide ORT Program.

8. Explore and determine how new ORT efforts can be best coordinated with other national Child Survival activities, especially through the USAID-funded Immunization/Child Survival Project No. 520-0339.

9. Recommend the mechanisms for expanding ORT information, education, and communication activities in order to achieve maximum coverage, through the existing systems.

Discussion within the Study Team, with concurrence of the USAID Health Officer, determined that many of these tasks were either more appropriately the province of one of the other members of the team or were conclusions from the total team effort which would be reflected in the summary strategy document which the USAID had requested. Thus, Task 3 above was shared with the Logistics Specialist and the Anthropologist; Task 4 was delegated to the Logistics Specialist; Task 7 fell to the Logistician, the Economist, and the team as a whole; Task 9 was assumed by the Anthropologist; and Tasks 5, 6, and 8 were determined to be conclusions to be arrived at by the Study Team at the conclusion of all its tasks.

The Public Health Physician thus concentrated on Tasks 1 and 2, which are addressed in the following fashion. A primarily historical section reports on "Past and Present Use of ORT in

286

Guatemala. This section addresses the Guatemalan experience with ORT in the public sector, also summarized by department in the Institutional Analysis. The Sociocultural and Logistics Analyses deal with ORT experience in the Guatemalan private sector.

This is followed by an analytical section which emphasizes issues which constitute either "Constraints or Facilitating Factors" in the use of ORT in Guatemala, and which ultimately became important elements in structuring overall project strategy.

Finally, the Public Health Physician was asked to look at the epidemiological context of diarrheal disease in Guatemala, as expressed primarily in the indicators specified in the PRITECH Manual for the Assessment and Planning of National ORT Programs: birth and death rates, infectious disease morbidity and mortality, diarrheal diseases and diseases preventable by immunization, and malnutrition.

287

I. THE EPIDEMIOLOGIC CONTEXT

Guatemala is the largest of the countries of Central America, with a territorial extension of 108,889 km2 and wide variations in population density and major problems of access in many of its departments. Of the 1984 population of close to 7.8 million inhabitants, 4.9 million (62 percent) lived in the country's 19,623 localities with under 2,000 inhabitants; 3.1 million lived in the 394 communities with over 2,000 inhabitants (MSPAS, August 1985). Forty-three percent of the Guatemalan population is illiterate, again with wide differences; the highest rates of illiteracy are in the dispersed rural, primarily indigenous areas, such as El Quiché with a rate of 76 percent.

Population growth rates are high, with a crude birth rate of 43 and a fertility rate of 186.23 per thousand and an overall growth rate of 3.3 percent in 1984 (MSPAS/DGSS, August 1985).* The range of variation in these rates can be substantial, largely responding to parameters of distance and rurality: The highest crude birth and fertility rates for 1984, 64.43 and 246.79, respectively, appeared in the remote department of Baja Verapaz; the lowest were found in the nearby, urban, relatively well-serviced department of Amatitlán, which had rates of 13.91 and 52.50 respectively. Projected national population for the year 2000 is a little over 12 million (SEGEPLAN, 1985).

The maternal-child components constitute 65 percent of the Guatemalan population: 22 percent women in fertile age and 44.5 percent children under age 15. Children under age five, the cohorts most severely affected by diarrheal diseases, constitute 16 percent of the national population (MSPAS, August 1985). The groups at highest risk within these national cohorts are those residing in urban marginal and rural areas.

Mortality indicators for Guatemala improved dramatically between 1960 and 1983. The infant mortality rate for children under one dropped from 130 to 70 per thousand live births and the infant and child mortality rate for those under age five dropped from 240 to 120 per 1,000 during the same period (Grant, 1985). Still, Guatemala's rates are high compared to more developed countries and to those of at least some of its neighbors, particularly with regard to the infant and child mortality rate, 120 per 1,000 live births, surpassed only by Honduras' 125 per 1,000 (Table 1).

Scrutiny of officially published statistics suggests that health status may actually have worsened in Guatemala over the last two years. 1983 data show a general mortality rate of 9.6 per thousand inhabitants and an infant mortality rate of 64.9 per 1,000

---

* The figure for 1983 cited in a number of MSPAS documents is 2.7 percent. It is not clear whether there has been real increase or data weaknesses.

288

live births; 1984 data (MSPAS/DGSS, August 1985) report a general mortality rate of 10.0 and an infant mortality rate of 79.82. Once more there are regional differences: the highest general mortality rates, with some slight variability in rank between the two years, were in the departments of Totonicapán (16.69 in 1984), Baja Verapaz (14.85), and Alta Verapaz (13.11); the lowest rates were in the essentially urban departments of Guatemala (7.21 and 5.21) and Amatitlán (6.05). The range of infant mortality rates is much narrower, with the exception of a startling and unexplained high in Amatitlán of 234.80 per 1,000 and a low in Jutiapa of 9.56 (MSPAS/DGSS, August 1985).*

Infant mortality is most severely underreported in the neonatal cohort, that is, under 28 days; in 1983 the reported neonatal mortality rate was 20.3 per 1,000 live births, most certainly low. Mortality rates in children between one and four years was 15.5 per 1,000 children in those cohorts, again with extreme fluctuations among departments; the highest rates appeared in Totonicapán (31.1), Alta Verapáz (29.8), Huehuetenango (25.5), and El Quiché (24.5).

Of all deaths in Guatemala in 1983, 43.6 percent occurred in children under five, yet these age cohorts constitute only 15.6 percent of the total Guatemalan population. Of those deaths, 75.3 corresponded to five principal causes, in their majority preventible with available technology, which accounted for the (reported) deaths of 29,380 children in that year (MSPAS, August 1985). These causes were, in descending order of importance: diarrhea, acute respiratory infections, perinatal causes, immunopreventible diseases (measles, whooping cough, and tetanus), and malnutrition (MSPAS, August 1985). The rate for diarrhea-caused deaths was 72.2 per 10,000 children 0-4 years. "Infectious intestinal diseases: ("enteritis y otras enfermedades diarrheicas") was also the most important cause of infant mortality in 1982. In 1984, infectious intestinal diseases are listed as the third most important cause of infant death in 1984 (Table 2), but the difference in absolute numbers is fairly small and probably reflects a combination of chronic reporting problems and reclassification of other causes, particularly those which are birth-related or perinatal; there is no reason to think that diarrhea-caused deaths have diminished. The Family Planning and Maternal/Child Health Survey, carried out by APROFAM in 1983, reported that use of ORS, either prepared in

---

* These differences could be a function of improved reporting. This is not probable, however; vital statistics in Guatemala have been almost unwaveringly characterized by underreporting. In 1983, only 32 percent of deaths were medically certified, largely because less than one-quarter of all deaths are medically attended. The MSPAS is only now beginning a major overhaul of its Health Information System with PAHO technical assistance. What is more likely is a real deterioration in morbidity and mortality rates, associated with the political and economic crisis which has most acutely affected rural areas, where violence has been most intense and displacement increasingly frequent, and where economic conditions have been typically harsh and inequitable.

284

the home (suero casero) or from packets, is minimal in Guatemala; only 7.4 percent of the APROFAM sample had used ORS packets and 1.4 percent had used suero casero.

Nor does surviving until the first birthday constitute safety. Data by age group for 1979 indicate that children under one year and those between one and four years accounted for 33.8 (N-3,893) and 33.3 percent (N=3,337), respectively, of all deaths ascribed to enteritis and other diarrheas (Table 2c); in 1980, "ill-defined intestinal infection" was the principal cause of death in preschool children ages one to four (Table 2d). Making a crude comparison with the 1983 figure given above (that is, 29,380 children whose deaths can be ascribed to one of five major, essentially preventible diseases), then diarrheal disease accounts for--at a minimum--one-quarter of all those deaths. Because of underreporting and the complexity of ascribing death to diarrhea, and because diarrhea is so often an exacerbating factor in other major causes of death, e.g., measles, the proportion of infant and child deaths due to diarrhea is understated.

Diarrheal diseases are also an important cause of morbidity. Studies in Guatemala, primarily by INCAP, have shown averages of between seven and ten episodes per child per year in rural areas (Reyna Barrios, July 1985); a working figure of six episodes per year per child under five is reasonable. The deleterious effects of diarrheal episodes derive not only from their incidence but from their duration. In Guatemala--and Bangladesh--the study of children 0-4 years of age shows that 46 and 34 percent, respectively, of these diarrheal illnesses last more than seven days (Cruz, 1985). The impact of both frequency and duration of diarrheal episodes on nutritional status has been clearly demonstrated in different settings; it is exacerbated by abstinence from feeding (including breastfeeding), appetite loss, and malabsorption, among other sequelae and correlates (Cruz, 1985; Reyna Barrios, 1985). To complete the vicious circle, children who are undernourished are predisposed to more severe and sometimes more frequent episodes of diarrhea and, ultimately, to diarrhea mortality.

The APROFAM Survey has provided the best available current data on the national prevalence and treatment of diarrhea. The total sample consisted of 3,670 randomly-selected households with 4,185 children under five; 22.6 of the sample was in Guatemala City, and the rest in all the interior departments, with the exception of the Peten, and 48 percent of the sample was ladino and 29.3 percent indigenous.

The APROFAM Survey found that almost 26 percent of the children in the sample under age five were reported to have had diarrhea in the week prior to the interview, with some ethnic variance: 30 percent of the indigenous children in the interior had recently had diarrhea, compared with 25 percent of ladino children and 19 percent of all children surveyed in the Department of Guatemala. Prevalence of diarrhea was highest for children one year and under (29 to 34 percent) compared to the overall rate for 1-4 year-olds. After age one, prevalence declines to 20 percent for three and four

290

year-olds. At the same time, prevalence is higher in one year-olds than for those under one, probably because of the presence of maternal antibodies in the latter group and their low exposure to foods other than breast milk, especially during the first months of life.

The survey also found a strong correlation between prevalence of diarrhea and socioeconomic indicators such as crowding, lack of electricity, number of children under five, and source of drinking water. In other words, low-income families with contaminated water supplies and poor sanitary practices had more diarrhea. Urban residence is no guarantee of protection from diarrhea: data gathered for the Guatemala-Sur Project showed "ill-defined intestinal infections" in the first place for the City of Guatemala, accounting for 16 percent of all deaths (Table 2b).

Most of the deleterious effects of diarrhea can be prevented by oral rehydration therapy (ORT). Use of ORT early in the course of diarrhea will replace fluid and electrolyte losses and prevent dehydration in the majority of cases. A single solution of oral rehydration salts (ORS) can be used effectively to prevent or treat dehydration, irrespective of the etiologic agent of the diarrhea or the age or metabolic or electrolyte imbalance of the patient. The joint WHO/UNICEF statement of 1983 (Grant, 1985) notes that about 90-95 percent of all patients with acute watery diarrhea, including infants, can be treated with ORS alone; in the remainder, most of whom have severe dehydration or are unable to take fluids orally, intravenous therapy is required to replace the deficits rapidly. Oral rehydration salts are formulated to replace the nutrients lost during diarrhea. The formula recommended by WHO contains:

3.5 gms. sodium chloride
2.9 gms. trisodium chloride dehydrate (or 2.5 gms. sodium bicarbonate)
1.5 gms. potassium chloride
20 gms. glucose (anhydrous).

The above ingredients are dissolved in one liter of clean water. WHO has recently recommended a change in the complete formula, replacing 2.5 gms. of sodium bicarbonate with 2.9 gms. of trisodium citrate dehydrate. The new formula gives the packets a longer shelf live and is at least as effective in correcting acidosis and reducing stool volume. Packets containing sodium bicarbonate are still safe and effective. Glucose is included in the solution principally to help the absorption of sodium and not as a source of energy. Ordinary sugar (sucrose) can be substituted for glucose with near equal efficacy, though twice the amount of sugar is needed. Increasing the amount of sugar in the formula as a means of improving palatability or increasing its nutritive value is poten-

291

tially dangerous as it can worsen the diarrhea. The presence of potassium in ORS is particularly important for the treatment of dehydrated children, in whom potassium losses in diarrhea are relatively high. At present, the search is on for a "Super-ORS"; the current ORS formula remedies dehydration but does not shorten the duration of the diarrhea or reduce the volume of diarrheal stool and, in consequence, mothers sometimes have difficulty believing that oral rehydration works. "Super-ORS" would both shorten the episode and halve stool volume.

However, ORS works. In a number of research studies, the use of ORS for treating dehydrated children at the community level has decreased the number of deaths from diarrhea as much as 40 to 50 percent over a one-year period. At the hospital level, results are also dramatic. In Haiti, in the decade prior to 1979, the mortality rate among patients admitted to the State University Hospital for diarrhea was 35 percent; one year after the establishment of an ORT-based case management strategy, mortality fell to 14 percent, after two years to 1.9 percent, and has been less than one percent since January 1982 (Pape, et al., 1984, cited in Grant, 1985).

Another outcome that may be expected is that ORT protects a child's nutrition. In Third World children, diarrhea alone accounts for 25 to 75 percent of the retardation of normal growth over a year. With two to three years of repeated growth arrest due to episodes of diarrhea, it is probable that most malnutrition detected in surveys is related to diarrheal, a conclusion supported by longitudinal studies in Guatemala, Bangladesh, Mexico, and The Gambia (Hirschhorn, 1985, cited in Grant, 1985). Field studies in the Philippines, Turkey, Egypt, and Iran have demonstrated not only a reduction in deaths and hospitalization, but also a positive nutritional impact based on the provision of early rehydration, either in a nearby center or in the home by mothers. Children receiving ORS showed from 0.25 to 0.5 kg better weight gain over one year in comparison to control groups who received only nutrition advice. The impact was greater on children experiencing multiple episodes, further supporting the importance of ORS in improved growth. Coupled with detailed advice to continue feeding the child and provide extra food in the recovery period, the provision of early rehydration may be one of the most effective and pragmatic means of avoiding the occurrence of malnutrition (Rohde and Hendratta, 1981, cited in Grant, 1985).

And, when ORT packets are not available, home remedies can perform a valuable function in forestalling dehydration. WHO/UNICEF suggests the following strategy as a rational response to diarrhea:

1. To prevent dehydration using solutions prepared from ingredients commonly found in the home ("home remedies"; in Spanish, "sueros caseros"). This should be the first response.

2. To correct severe dehydration (usually defined as a loss of 10 percent or more of body weight) by intravenous therapy; this method should also be used in patients who are unconscious or unable to drink. There is a strong rationale for beginning ORT early,

292

before obvious signs of dehydration develop. First, within a few hours after diarrhea starts, dehydration amounting to three or four percent of body weight can occur without symptoms. Early use of ORT helps to compensate for this undetected loss as it takes place. Second, early ORT minimizes the symptoms associated with increasing water and electrolyte loss, such as vomiting, lack of appetite, and lethargy. Thus feeding can continue and nutritional damage can be avoided. Third, teaching a family to start treatment as soon as diarrhea begins may be easier than trying to explain the difference between diarrhea with and without dehydration.

Haiti provides another example of the efficacy of this tactic: in February 1981, only 2.3 percent of 500 consecutive hospitalized patients in the State University Hospital had received ORS at home and 24 percent were severely dehydrated. One year later, 48 percent of 500 hospitalized children had initiated fluid therapy at home; 3 percent of these patients were severely dehydrated, as opposed to 23 percent of children not receiving this early therapy (Pape, et al, 1984, cited in Grant, 1985).

There are basically two groups of home remedies: (a) household food solutions, that is, fluids or liquids that are normally available in the home and are appropriate for early home treatment of acute diarrhea, such as rice water and various soups; and (b) sugar and salt solutions. To be fully effective (and not actually counter-productive), mothers must be well taught about proper mixes and mixing, of home solutions and packets, just as they must be taught about the importance of continued feeding, the crucial dimensions of domestic hygiene, and the symptoms that indicate that a child's condition has outstripped the capacity of the home to care for him.

As the Economic and Logistics Analyses carried out for this study indicate, ORT is not an expensive therapy, especially when its costs are posed against those of in-hospital intravenous recuperation. The average cost of treating one patient with intravenous therapy can be more than US$5. A diarrhea treatment center in Bangladesh found that, despite staff increases, replacement of intravenous fluid by ORS led to savings of 33 percent in total costs incurred. Use of ORS may prolong the stay of a patient in the hospital to some extent, but since mothers can be responsible for this treatment, the overall cost, compared to intravenous fluid, is less (Samadi, et al., cited in Grant, 1985). ORS can be given under simple conditions and does not require any special equipment or highly skilled personnel. While use of ORS may initially require more health workers' time to train mothers to give ORS to their children, in the long term it frees hospital and health center staff for other duties. Of greater importance, ORS involves parents directly in the care of their children and presents an excellent opportunity for health workers to communicate important health education messages on diarrhea prevention, nutrition, and all the other Child Survival interventions which UNICEF has termed "Lifelines."

293

II. PAST AND PRESENT USE OF ORT IN GUATEMALA: THE PUBLIC SECTOR

Although a National Diarrheal Disease Control Program has not been established in Guatemala, oral rehydration therapy has been used in several settings in Guatemala since 1978. Some past and ongoing ORT activities are described below. The description does not pretend to be exhaustive--other ORT activities are discussed in the Sociocultural and Institutional Analyses--but to select the most important ORT efforts in Guatemala to date. These activities demonstrate a willingness and capability which could be considered as a predisposition for the development and maintenance of a national ORT program in Guatemala.

Since 1979, AID has assisted the Ministry of Public Health with programs involving oral rehydration therapy. Three projects were community-based and integrated health and nutritional components: 1) the Integrated System of Nutrition and Primary Health Care (SINAPS), 2) the MOH Rural Health Promoter Training Research Project (PRINAPS), and 3) the Community-Based Health and Nutrition Systems Project. The purpose of these projects was to develop the institutional capacity of the Ministry of Health to increase the coverage and effectiveness of a fully integrated rural health care delivery system. The projects utilized the training, supervisory capacity, and information and logistic systems components earlier developed under other USAID-funded projects in Guatemala and, most importantly, the network of rural health workers (TSRs) set up in the early 1970s.

A. SINAPS (Sistema Integrado de Nutrición y Atención Primaria de Salud)

Between 1979 and 1983, AID provided funds to the Nutrition Institute of Central America and Panama (INCAP) for a multidisciplinary research and service delivery demonstration project called SINAPS. Between 1980 and 1983, the project delivered primary health care services on an outpatient basis to over 70,000 inhabitants, through a system of 400 promoters and 17 rural health technicians (TSRs). The provision of ORT, using a locally-made ORS formulation in 250 ml-size doses and health education classes, were key functions of the project. The project also provided vaccinations, promotion of family planning, nutritional education and supplemental feeding (CARE).

The implementation, training, supervision, and production of ORS ("Super Suero")* was carried out at the district level under the supervision of the Health Area chiefs. ORS salts were packaged in plastic bags at the district level and contained either the complete formulation recommended by WHO (Super Suero G) or a simple

---

* This should not be confused with the "Super-ORT" now under experimentation referred to in the earlier section, whose purpose it is to shorten episodes and reduce stool volume.

sugar/salt mixture containing the concentration similar to that recommended by WHO but lacking sodium bicarbonate (Super Suero S). The bags contained salts for mixing in 250ml of water (one glass). and were distributed to the health posts and rural health technicians (TSRs) who distributed them to the rural health promoters (PSRs), who then distributed them to families with children under five years of age having diarrhea.

Although the PSRs did not receive a salary, there was a series of incentives including free food supplements, exemption from military service, and exemption from municipal taxes. The PSRs were trained to promote the use of ORS at the household level early in the course of a diarrheal episode. Specifically, they taught mothers when to use ORS, how to mix the ORS, where to obtain ORS packets, about the concept and danger of diarrheal dehydration, not to use other anti-diarrheal medicines, to continue feeding (especially breastfeeding) during and after diarrheal episodes, how to recognize clinical signs of deterioration or complications, and when to seek referral for additional treatment. The PSRs also were taught to keep records of ORS use.

One evaluation conducted in May 1981, two years after the project began, indicated that 84 percent of the diarrheal cases in children under five years of age had received ORS packets, 62 percent of the mothers knew how to prepare and use ORS correctly, and 57 percent of the families used ORS (Tables 3-5). The data indicated that use of supersuero (ORS) increased from 0.5 percent to 38 percent, while use of other antidiarrheal agents and visits to health centers for diarrhea decreased during the first two years of the program (Tables 3 and 4). In addition, the infant mortality rate and the mortality rate for children one to four years of age fell during this period (Table 6).

B. PRINAPS (Programa Integrado de Atención Primaria de Salud)

This project provided funds to the Ministry of Health, Division of Human Resources, to train rural health promoters. The project delivered primary health care services to approximately 120,000 people in five health areas, through a system of about 400 promoters (village volunteers) supervised by about 25 TSRs. Each promoter was responsible for 50 to 60 families and provided first aid, health education, vaccinations, and a variety of drugs in addition to ORS. They obtained ORS from municipal pharmacies and sold it to families of children with diarrhea.

A baseline survey in the area of the PRINAPS project was conducted by project staff with technical assistance from outside consultants. In addition, an anthropologist carried out interviews in selected communities to collect qualitative impressions of project effectiveness. A baseline survey indicated that 40 percent of young children reportedly experienced a substantial case of diarrhea in the 15 days preceding the interview; less than one percent were treated with ORT (Lechtig, et al., 1983).

295

Between April 1982 and January 1983, a KAP study was carried out to examine attitudinal and behavioral responses regarding the availability, preparation, and use of ORT in the health areas of Baja Verapaz and El Progreso in response to ORT practices introduced by the SINAPS, PRINAPS, and UNICEF projects in these areas. Briefly, the study showed that ORS was found widely and that 97 percent of the families surveyed had used the ORS provided by the promoter, indicating that ORS was well accepted. The training of mothers by the promoters was satisfactory for the most part, in that over 80 percent of the mothers learned how to prepare and administer the ORS properly. Some deficiencies in the training of mothers by promoters were detected. These included a failure to explain how to recognize the clinical signs of dehydration, that ORS will not cure or stop the diarrhea, what to do if the child vomits, what to do if the child's diarrhea worsens, and that anti-diarrheal agents should not be given.

The results indicated that some families were using ORS for conditions other than diarrhea. At least 80 percent of those questioned said that their children got better with ORT. Interestingly, the ORS was well accepted and widely used once the people were convinced of its effectiveness whether or not they paid for the packets or received them free. The diarrhea-associated mortality rates and the efficacy of ORT in preventing deaths or reducing morbidity were not determined in this study. Overall, the results of this study indicated that the delivery of ORS by promoters (village volunteers) to remote areas and their performance in training of mothers to prepare and use ORS were satisfactory. With further strengthening of the supervisory system, this type of outreach program would seem to be a reasonable one to replicate or build on to implement ORT in rural areas throughout Guatemala.

D. Community-Based Health and Nutrition Systems (Programa Sistemas Comunitarios Integrados de Salud y Nutrición) (SCISN)

This project was funded by USAID and the Government of Guatemala from 1979 to 1985. The project was designed to deliver an integrated package of environmental sanitation and primary health care interventions through the MOH public health system in three departments, San Marcos, Totonicapán, and Sololá. The health care interventions included growth monitoring, some health education, first aid, some drugs (iron tablets, anti-tuberculosis drugs, aspirin, mebendazole, etc.) and ORT. The project utilized the existing MOH personnel structure and volunteer health promoters at the village level who were incorporated into that structure as primary, community-based health practitioners. The role of the promoters was patterned after the SINAPS project.

The aim of the project was the following: 1) to train some 1,500 new promoters, 2) retrain about 600 active promoters, and 3) provide a comprehensive support system including supervision, periodic refresher courses, and a reliable drug supply system.

296

The ORT component of the program consisted of the promotion, distribution, and use of ORS (WHO formulation) through rural health promoters. The promoters sold ORS packets for a small charge (about 30 centavos) during house-to-house visits. They explained the purpose of ORS, how to prepare it, when to use it, and how much to give. They referred cases of dehydration to the health center or post. ORT units were established at several health posts, health centers, and in the promoters' homes for treatment of diarrheal cases and mildly/moderately dehydrated cases with ORS. Neither IVs nor nasogastric tubes were used for administering rehydration therapy in these units.

In San Marcos alone, 117,200 ORS packets were distributed in 1985 to health centers (8 percent), health posts (11 percent), and rural health promoters (81 percent) (MSPAS San Marcos, October 1985). San Marcos also had nine health centers, 35 health posts, and 807 trained health promoters giving out ORS and treating diarrheal cases with ORT in the last year (1985) of the project. Altogether, 60 percent of the health districts and 48 percent of the municipalities of the San Marcos area were covered by the program.

According to an evaluation carried out by AID in summer 1983, although the training of the promoters and rural health technicians proceeded satisfactorily and community participation was excellent, the administrative structure was inefficient and did not provide adequate support to promoters in the field (AID, 1985). Thus, all primary health activities were considerably delayed. On the basis of a project evaluation conducted by outside technical assistance, in April 1984 the AID Mission, with the agreement of the MOH, decided to reprogram and direct most of its loan funds to the environmental sanitation component of the project.

In addition to these AID-financed projects, there have been a number of other efforts, generally independent and uncoordinated, which have had ORT as a primary or important focus.

D. Hospital Nacional de Huehuetenango

At the Hospital Nacional in Huehuetenango, Dr. José María Reyna Barrios, Chief of the Department of Pediatrics, has been using oral rehydration therapy effectively since 1978. Beginning in November 1978, with the encouragement of Dr. Arturo Romero of PAHO/Guatemala, Dr. Reyna Barrios conducted a study of 100 patients with mild or moderate diarrheal dehydration and demonstrated that 97 percent of the patients were rehydrated successfully with ORT. Subsequently, by using ORT instead of routine IV therapy for treatment of mildly to moderately dehydrated patients, he and his colleagues have been able to reduce the use of IV solutions by 80 to 94 percent in such patients and have reduced all IV use in that hospital by 20 percent.

During the last six years, Dr. Reyna Barrios and his colleagues have rehydrated over 1,600 patients, using ORT according to the norms developed there. Overall, the efficacy of ORT has been

247

96.8 percent. Dr. Reyna Barrios is a recognized local expert in ORT and has participated in five international and eight national seminars on ORT. Since 1982, he has organized and lectured in over 16 workshops and programs on ORT, of which 12 were held in Huehuetenango, Sololá, Quetzaltenango, Totonicapán, or San Marcos. In addition, he has helped train physicians, nurses, and other health personnel from surrounding health areas in ORT.

While the ORT service in the National Hospital of Huehuetenango has continued to function efficiently, ORT programs have failed essentially in the neighboring national hospitals of Totonicapán, Sololá, and San Marcos. According to an evaluation carried out by Dr. Reyna Barrios in April of 1983, the reasons for lack of success in the other hospitals were the following: 1) lack of ongoing training of new personnel and refresher training of existing personnel, 2) lack of motivated, experienced personnel in charge, 3) inadequate supervision and evaluation, 4) inadequate management of clinical documentation, 5) improper stock maintenance, 6) nonfunctioning referral system, 7) frequent personnel turnover, and 8) a policy not allowing mothers to remain in the hospital with their children.

E. Instituto Guatemalteco de Seguridad Social (IGSS)

IGSS has a program incorporating the Atención Primaria de Salud strategies, i.e., maternal-child health strategies such as immunizations, promotion of breastfeeding, growth and development activities, health education, ORT, and others. In November 1982, the Department of Pediatrics at the Hospital General del IGSS started an ORT service which was staffed by a first-year medical resident, the Chief of Pediatric Service, an auxiliary nurse, and a graduate nurse. Over the course of eight months, 874 patients were admitted to this service and received ORT according to a treatment protocol. Mothers of children with diarrhea were instructed on the signs of dehydration, causes of diarrhea, ORT, and were given health education about hygiene and prevention of diarrhea. A report detailing the protocol and the results of ORT in 392 patients has been published by Dr. Rina Castaneda and her colleagues in Guatemala Pediátrica 6(3):227-232, 1984. The patients admitted to the ORT service represented 18 percent of all hospital admissions for the eight-month period. The largest number of the patients with diarrheal dehydration were admitted between April and June--the peak of the diarrhea season in Guatemala. Most (90 percent) of the patients were younger than 13 months; 78 percent were rehydrated within 24 hours, and most, in eight to twelve hours.

Since 1982, seminars on ORT have been conducted periodically to train physicians and nurses in ORT (MSPAS, October 1985). The aim of the IGSS ORT program is to cover 90 percent of the children with ORT. At present, the results with ORT within the Department of Pediatrics are satisfactory, but less satisfactory in the outpatient clinics and peripheral units. Overall, comparing the second semester of 1983 with the same period in 1984, the data indicate a reduction of 42 percent in admissions for diarrhea and dehydration

298

in the Department of Pediatrics with an estimated savings of approximately US$335,000. The main problem has been the purchase of ORS packets, but thus far, these have been supplied by PAHO or UNICEF.

F. Programa Guatemala Sur

In Guatemala City in 1983, diarrheal disease was the number one cause of death overall (Table 2b) and diarrheal illnesses were a major reason for visits to district outpatient clinics in the Health Area of Guatemala Sur (Table 7). In 1985, the MOH, with assistance from UNICEF, established a three- to four-year program in Guatemala Sur, a periurban slum, with a population of 979,893 with 119,000 children under five years. The objective of the program is to improve the health of the population, with emphasis on maternal-child health interventions: ORT, vaccinations, control of respiratory infections, monitoring of growth/nutrition, and control of perinatal morbidity/mortality. MOH Health Center personnel at El Milagro and Primero de Julio are being trained to carry out all activities using the "channelling" model, described below. Work at the household level is under way now in El Milagro. The auxiliary nurse, rural health technician, and a medical student from San Carlos University visit homes two days a week. They interact with promoters/volunteers who live in the community. Each promoter covers about 100 families, much as described for the SINAPS and PRINAPS projects, and as prescribed for channelling activities.

In 1986, three more districts and five municipalities will be added. The project is coordinated by the area chief and medical director of Roosevelt Hospital. The district chiefs oversee administrative and educational functions. A Technical Commission composed of members of the faculty of the San Carlos University School of Medicine, INCAP, IGSS and the MOH is responsible for the training curriculum and the technical aspects of the program.

ORT is carried out using ORS packets supplied by UNICEF at the Health Centers at El Milagro and Primero de Junio, but no IV or nasogastric tubes are used to administer therapy. Norms are not available, but the physicians are there to oversee treatment. Severe cases of dehydration are referred to Roosevelt Hospital. Mothers are given health education and instructions to continue feeding during diarrhea.

The target for ORS coverage in the first year of the project (1986) is 30 percent; 130,481 packets (20 centavos each) are required to meet that target. It is expected that successful implementation of ORT and the other maternal-child health activities should reduce the demand on ambulatory and primary health care services at Roosevelt Hospital. The health personnel (physicians and health technicians) are optimistic about the potential success of the channelling/outreach program. However, environmental conditions in these areas are very bad; there is little or no potable water, nor sewage or waste disposal, and crowding is a constant and growing problem. Thus, the incidence of diarrhea is likely to remain high.

G. Rural Health Program, Universidad Francisco Marroquin

The medical school of the Francisco Marroquin University has included a supervised education activity in its last-year curriculum, in which medical students work as team members in a public health program in the district of San Juan Sacatepequez. The health team includes a physician, auxiliary nurses, rural health promoters, community leaders, traditional midwives, and others. The students and health workers work in a health post in one of the 13 villages in the district on the following activities: ORS, immunizations, family planning, prenatal care, tuberculosis control, supplemental feeding of proteins, vitamins, iron, etc.

The mortality rate in children under five years in the rural area of San Juan Sacatepequez is high. The project aims to reduce diarrheal mortality rates by initiating ORT during diarrhea in all children under five years of age. ORS packets are prepared in the health post pharmacy by weighing each ingredient to achieve the formulation recommended by WHO. We observed the auxiliary nurse's method of ORS packaging. After carefully measuring each ingredient, she sealed the contents in a plastic bag. These packets are distributed by health promoters to families at a cost of 30 centavos each. According to Dr. Andrade, the chief of the program, the families are willing to pay to use the salts. The promoters instruct them in the use of the ORS.

In the health post that we visited, we found that most cases of diarrhea are registered as parasitosis and are treated with mebendazole or other antiparasitic drugs. The diagnosis is made clinically; there is no microscope to examine the stools. It is very likely that most of the diarrhea is caused by viruses (rotavirus) or bacteria rather than parasites. In any case, drug treatment is not necessary for acute diarrhea. There were no educational materials or norms in San Juan Sacatepéquez Health Posts or in the Guatemala Sur Health Centers. Such materials are needed.

In summary, the health personnel in the San Juan Sacatepequez District and in Guatemala Sur appear to be highly motivated, but neither project has had sufficient time to meet its targets. The Marroquin project appears to concern itself more with students' overall training needs than with ORT and other maternal child-health coverage and goals.

H. Rehydration Therapy at Roosevelt Hospital

Roosevelt Hospital is a major teaching and service hospital in Guatemala City. During the early 1980s, major positive changes were made in hospital services to facilitate the use of ORT there. First, mothers are now permitted to stay on the wards with their children when they are admitted for diarrheal dehydration. Second, oral rehydration therapy is carried out in the emergency room; mothers are instructed in the preparation and use of ORS and are given packets to treat their children at home. Third, a room on

300

the pediatric ward has been designated as a rehydration room for children admitted for treatment of dehydration.

Despite these important advances, the Hospital's pediatricians, are very conservative in their use of ORT. They do not use ORT if a child is admitted late at night, because of a lack of supervision; in such a case, IV therapy would be started. They also use IV therapy to treat children with seven percent or greater loss of body weight (mild/moderate dehydration), a level of dehydration which can easily be treated with oral therapy. Finally, they treat dehydration in six-hour periods, when rehydration could be achieved in a four-hour period.

We saw one child who had been admitted 12 hours earlier (at 10 p.m.) and had received IV therapy to correct its six percent dehydration. We found the child fully rehydrated, still receiving IV fluids, and deprived of food and milk. An auxiliary nurse was supervising the IV therapy. Obviously, the child could have been treated with oral therapy initially with minimal supervision or, if supervision was lacking at night, IV therapy could have been changed to maintenance oral therapy and feeding as soon as the child was rehydrated. Additional training and supervision are required to improve the capability of the staff to use ORT effectively. The oral rehydration therapy program at Roosevelt Hospital should be improved to the extent that it could serve as a diarrhea training unit for students and other health personnel.

I. Channelling

Channelling ("canalización") was introduced into Guatemala in 1983 as a methodology related to the Expanded Program on Immunization (EPI), as a PAHO-funded demonstration project in the Escuintla Health Area/Department. In addition, over the last two years UNFPA made available $400,000 to pilot-test channelling in selected districts throughout the country.

In 1984, the Ministry of Health formally adopted the goal of extending the channelling methodology to eventually cover the entire country and replace the current vaccination campaigns, department by department, once channelling is operating. Drawing on the experience of Escuintla, vaccination using channelling was introduced into three additional departments or areas in early 1985 (Sacatepéquez, Santa Rosa, and El Progreso). Plans have been made to initiate channelling activities in Zacapa, Jutiapa, Jalapa, and Chiquimula in 1985, to make a total of eight departments covered by channelling by the end of the year. Personnel in these health areas have already received training in EPI and in some cases have begun initial community census activities. The Government of Guatemala has requested AID assistance in implementing the changeover from "campaigns" to "channelling" as the EPI strategy throughout the country. The Immunization/Child Survival Project (510-0339) will support this changeover to cover 21 of the 24 departments in Guatemala (excluding the three health areas which cover Metropolitan Guatemala City).

301

Channelling is an active, community-outreach system for promotion of vaccination activities by health service personnel and community volunteers. These health service personnel carry out home visits to identify susceptible children and make appointments for them to receive vaccinations in a nearby health facility or another site in the community. The channelling process seeks to change the so-called "clinic psychology," basically a passive system in which rural health workers remain in the health facility awaiting the arrival of clients for whom services are then provided.

The methodology calls for an initial survey of area resources by a team from the central level, consisting of one person from the Division of Disease Control and Surveillance (DDCS), one person from the Division of Engineering and Maintenance (DEM), and a PAHO advisor for EPI or primary health care. This team spends about eight working days in each area to carry out a diagnostic survey. Based on results, the area completes preparations for initiating channelling. Following the survey, cold chain improvements are made, area personnel are trained as instructors, and health care personnel are trained and supervised in their new tasks.

Subsequently, health facility staff, usually the Auxiliary Nurse and/or a Rural Health Technician (TSR), accompanied by a community volunteer, map out and make routine visits to each house in their assigned area, neighborhood by neighborhood, noting the ages and vaccination status of children in the households, and the pregnant women present. This process is followed by vaccination at a specified nearby place (the clinic, if it is close) either that afternoon or the following morning, depending on distances and whether the clinic has a refrigerator with a supply of vaccines. The MOH's norm is for this process to be repeated every three months throughout the year. Thus, the auxiliary nurse and/or TSR are generally out of the clinic one or two mornings a week, on a regular schedule.

Channelling has produced significant increases in vaccination coverage, from 10 percent to 73 percent of completed series during the first year of PAHO/MOH's pilot program in Escuintla. The system also has the advantage of involving the health facility staff in the community much more than have previous systems of delivering primary health care services. It permits the MOH staff to see directly the health problems and conditions of the client population in their assigned area, and to intervene directly. Thus, not only does coverage of vaccinations increase, but also demand for oral rehydration and other primary health care services expands. Channelling is begun with vaccination and oral rehydration as target activities, and emphasis on other primary health care interventions, such as upper respiratory infections (IRA), is added as the program matures.

Channelling is viewed as a superior approach to the more sporadic methods used previously by the MOH such as semiannual vaccination campaigns or facility-based immunization services. Both these

302

methods, however, will continue to be employed by the MOH to complement the project emphasis on a nationwide channelling strategy. The traditional semi-annual campaigns presently utilized will, over a three-year period, be replaced by a channelling approach.

Observation of channelling activities in El Progreso was carried out by two members of the ORT study team. For the purposes of channelling and delivery of other health services, the Health Area is divided into seven districts, each with a Health Post. Each district is then subdivided into varying numbers of sectors, depending on size. Guastatoya, the central district, is divided into eight sections, and each section is divided into twelve areas. In rural zones, each area contains 12 to 25 houses; urban areas have approximately 50.

According to standard channelling procedures, home visits are scheduled once every three months. In Guastatoya this amounts to one area per week, so that every house can expect a visit once every 12 weeks. The channelling teams consist of one person from the Department of Health Area Office and a community volunteer. Often, in addition to auxiliary nurses and rural health technicians, all available personnel must be mobilized, including the social worker, inspector, lab technician, and statistician.

Our first observations were in a rural caserio call El Braxilar. Here we encountered a male auxiliary nurse going house to house with a female voluntary health promoter; we accompanied them to three houses. The content of each visit was similar.

On entering the house, the auxiliary nurse asked to see the immunization record card for each child; one mother was unable to find hers and was lectured about its importance. The auxiliary nurse then determined who needed which immunizations and then arranged to return the next day to do the innoculations. He then lectured the mother on hygiene, the importance of latrines, and boiling water. A special effort was made to explain diarrheal disease, dehydration, and the importance of ORS packets. He emphasized that ORS was available from the promoters. One mother said she had used ORS and was satisfied with it. A little later, when questioned by the ORT study team, she admitted that she had also given some antispasmodics together with the ORS. Of course, it is impossible to say from a sample of one how widespread this is, but there is other evidence that it most probably is not an isolated case.

During the home visits, the auxiliary nurse did virtually all the talking, making frequent references to the services provided by the promoter, who would nod. It was obvious that much of the language and medical terminology used was above the level of comprehension of the mothers, thus greatly reducing the effectiveness of the visit. This was the case in every house we visited, in both urban and rural areas.

Our visit to an urban household was with a female auxiliary nurse and very young female promoter. Again, the auxiliary nurse

dominated the conversation with technical language and a condescending attitude toward the mother. She told her that the children would die if not vaccinated. When told about ORT, the mother did not seem particularly interested. One one occasion she had given ORS in combination with "other" medicines and when asked, she did not know how to prepare ORS from packets. An extended discussion followed about the high cost of medicines, the Health Center's previous pattern of giving out free medications, and the current practice of only writing prescriptions.

III. USE OF ORT IN GUATEMALA: CONSTRAINTS AND FACILITATING FACTORS

Although ORT is generally accepted conceptually by many pediaricians and other medical personnel as an effective treatment for dehydration, it is not used widely. The following key problems that prevent its wide-scale use have been identified, the most crucial of which is discussed first, i.e., lack of a national CDD program and administrative structure.

A. Lack of National Diarrheal Disease Control (CDD) Program and An Administrative Structure

At present there is no national diarrheal disease control program. ORT is being promoted and carried out by several different groups, in both the public and private sectors: individual pediatricians, UNFPA, UNICEF, PAHO, AID, the Ministry of Health's Divisions of Epidemiology and Maternal Child Health, APROFAM (the national Family Planning Association), Project HOPE, SINAPS, the University Francisco Marroquin Medical School, the Maryknoll Hospital at Jacaltenango, and others. Because there is no central or national manager of a diarrheal disease control program, there is no coordination of activities, training norms, or ORS production/distribution.

Suggested Response

To implement an effective ORT program nationwide, it is essential to develop a national program and administrative structure and to appoint a manager for a national coordinated program. The activities of this program should be integrated with others affecting the same target group (i.e., children under five years of age), such as immunizations and promotion of breastfeeding and improved nutrition.

The national program manager could develop strategies and targets for ORT interventions, establish a system of supervisors at all levels, adopt and promulgate standard norms, coordinate development of curricula and training materials and the education of all personnel in ORT, develop an information system (data-collection forms), oversee data collection to monitor and evaluate the effectiveness of the program, and oversee the distribution of ORT packets. In addition, the national program manager should serve as the coordinator for other groups proposing to carry out diarrhea-related interventions to minimize unnecessary duplication of effort and achieve more effective, comprehensive coverage. Finally, the program manager should serve as the liaison between the public and private sectors, in general and most particularly in the areas of ORS production and mass communication.

305

B. Lack of Standardized Norms for Use of ORS

There are no uniform guidelines for the treatment of dehydrated patients in hospitals, Health Centers, or Health Posts in Guatemala. ORT norms were written by the Ministry of Health (MOH) in 1983 but were never used at the national level. These norms for ORT were very complicated and are now obsolete.

Suggested Response

Standardized, simplified norms, such as those recommended by WHO/PAHO, need to be developed by key pediatricians and Ministry of Health personnel for purposes of standardizing training and for general use. Guidelines, manuals, and norms for ORT have been developed by a panel of ORT experts and published in Spanish by PAHO/WHO. These simple, clearly written guidelines are used worldwide and can be easily adopted for Guatemala for use at the hospital, Health Center/Post or community level by physicians or other health workers (Attachments A1 and A2). A list of WHO training materials, publications, and other teaching aids that are available is included in Attachment A3.

Norms for "maintenance therapy," i.e., use of ORS to prevent dehydration, should also be developed. Such norms should be simple and appropriate for use by community-based workers, as well as for other health personnel. Norms developed by WHO/PAHO for these purposes are also available (see Attachments A1 and A4) and can be similarly used as a basis for developing norms for use by Guatemalan health workers. Special attention should be given to developing clear instructions for mothers about the amount of fluid to be given for ongoing diarrheal losses. This is generally done by recommending that mothers give the child a specified volume of ORS solution for each diarrheal stool. Training and supervisory procedures for ORT are less simple than commonly believed and will require care, patience, and periodic repetition or renewal.

Standardized norms for continued feeding during diarrhea, promotion of breastfeeding and good hygienic practices, and safe preparation and storage of food should also be developed. These interventions complement an ORT program and should be incorporated into the health education activities of the program.

Development of these norms should involve key persons in Guatemala who are using ORT for treatment at the hospital level, those using ORT as community-based interventions, and technical advisors from PAHO/WHO, INCAP, and UNICEF. Key persons might include Dr. Reyna Barrios, Dr. Andrade, Dr. Hidalgo, Dr. Carranzano, and the nurses in charge of the curricula of the graduate and auxiliary nursing schools.

306

C. Lack of a Standardized Recipe for Preparing Simple Sugar/Salt Solution (suero casero)

At present, graduate and auxiliary student nurses are taught to prepare and use sugar/salt (suero casero) solutions when the complete ORS preparation is not available. In our field visits to San Marcos, Tejutla, San Juan Sacatepèquez, El Milagro, and El Progreso, we found that suero casero is being prepared by nurses, auxiliary nurses, promoters, and other health workers. However, we also found (and the literature supports this finding) that each person (N=7) prepared it with different amounts of salt, sugar, water, and other additives such as orange or lemon juice or sodium bicarbonate. Some preparations contained excessive amounts of salt, others had too little sugar.

Suggested Response

To prevent the preparation of harmful solutions, one method of preparation of a safe, effective solution should be incorporated into national ORT norms, introduced into training curricula, and incorporated into mass media messages, for use by all health workers to teach mothers and to inform the consumer public at large. Such a preparation would be recommended for use as appropriate therapy when complete formulations (ORS packets) are not available and could be considered a "national recipe."

D. Inadequate Training of Health Personnel in ORT

This problem exists at all levels in Guatemala. Many physicians and other health personnel have attended seminars on ORT, but few have been trained to use ORT effectively. (This observation was made by Dr. Reyna Barrios, the executive board of the Guatemalan Pediatric Association, and others). Over 20 seminars and conferences on ORT have been held since 1975 in Guatemala, but these have generally been didactic and nonparticipatory (see Attachment B for a list of all of these). There are no standardized training, no norms, and little or no hands-on clinical training. According to key people at San Carlos University, on the executive board of the Pediatrics Association, and in the nursing school, although medical students and nurses receive lectures on ORT, they then find that IV therapy instead of ORT is used in the hospitals where they receive their clinical training. Medical students, in particular, are greatly influenced by the teachings of the clinical professors, many of whom do not accept ORT as an effective therapy. Thus, medical students and physicians in post-graduate training not only fail to gain experience with ORT, but are led to believe that IV therapy is superior.

In the channelling project, greater emphasis has been placed on training workers in EPI than in ORT. Educational materials for ORT are sparse whereas these for EPI are plentiful. Again, what ORT training there has been has not been participatory.

Suggested Response

Optimal training in ORT requires "hands-on," first-hand experience. In other countries (such as Costa Rica, Egypt, Ethiopia, and Haiti), ORT training units have been established in major hospitals wherein health personnel actively participate in the treatment of patients with diarrheal disease. They are instructed and supervised by trained personnel. They both learn the theoretical basis of ORT and gain experience and confidence in its use. Such first-hand experience is considered necessary to convince physicians and other personnel of the ease of use and merit of ORT.

Once norms are standardized, training materials appropriate for the level of education of the trainees (ranging from physicians to illiterate community health workers and mothers) should be prepared (see Attachments A1-A3). Educational messages should be standardized. Much stress should be placed on the proper preparation of ORS and suero casero and correct administration to the child. The teaching should also include the recognition of signs of clinical determination during ORT, and when to seek referral for additional help or a change in therapy.

Refresher training with active participation should be given to all levels of workers and mothers periodically. Diarrhea occurs sporadically, and thus, workers and mothers may need to review instructions for ORS use periodically. Also, with some turnover in personnel, new workers will need to be trained in ORT. Adequate support for per diem and travel reinbursement of trainees should always be provided.

1. Suggestions for establishing diarrhea training units in Guatemala

The Diarrheal Disease Control Programme of the World Health Organization is preparing a comprehensive set of guidelines for establishing diarrhea training units within a country. These guidelines will be available in 1986. The purpose of these units is to train physicians, health staff, teaching staff of medical schools and nursing schools, students of medicine, and other students (nurses, auxiliary nurses, technicians, etc.) in proper diarrhea treatment, which includes use of ORT. It is recommended that a diarrhea training unit be established in hospital or other facility where staff routinely treat many cases of acute diarrhea and dehydration. One prerequisite for establishing a training unit is the dedication to the practice of proper diarrhea case management and a high level of skill of the staff in the use of ORT. The unit can operate throughout the year if there are sufficient cases or during the peak season for diarrhea.

The aim of diarrheal training is for the participants to develop skill in the management of diarrheal disease by ORT and confidence in the use and effectiveness of ORS, both as a therapeutic tool to correct dehydration and as maintenance therapy to prevent dehydration. The participants should become sufficiently confident and knowledgeable to be able to overcome the resistance of others

308

to ORT. They should also be able to make necessary changes and train others appropriately so that effective ORT and use of ORS can be carried out in their own facilities.

This training is accomplished through observation of proper case management and hands-on practice with experienced staff. It is important that the training be participatory. The participants will also receive technical and theoretical information through reference materials and lectures, but the lectures will be restricted to topics relevant to case management.

It will be important to establish similar training units in Guatemala to insure that students, health professionals, and other staff gain hands-on experience with ORT. At present, there are no training units of this type in Guatemala; however, it might be possible to establish a diarrhea training unit in several hospitals in Guatemala (e.g., in the National Hospital at Huehuetenango, the IGGS National Hospital, Roosevelt Hospital, perhaps San Juan de Dios Hospital in Guatemala City, and some in other departments). Initially, a few key persons could be trained in established diarrhea training units, such as the one in Costa Rica. After one diarrhea training unit has been established in Guatemala, key personnel from other hospitals where there is interest can be trained locally on how to set up a training unit and how to train their personnel.

E. Lack of Supervision

At present, there is no administrative structure for a diarrheal disease control/ORT program in Guatemala. In the channelling project, there is inadequate supervision of ORT at all levels. In hospitals such as those in San Marcos, Sololà, and Totonicapan), often there is no single person in charge of the ORT unit all of the time. Generally, the physicians covering these units rotate, and many are not properly trained in ORT. In some programs, supervisory level staff have lacked transportation and per diem reimbursement. This prevented many from carrying out proper supervisory activities.

Suggested Response

For effective supervision and continuity of quality care, one person must take the overall responsibility for training new personnel in the ORT unit and for supervising the care of the patients. At the community level, each level of supervisors must function effectively to detect problems with and obstacles to ORT use and to reinforce in a positive way the use of ORT. This requires travel by supervisors at all levels to peripheral facilities and to communities. To do this, the supervisors must have the means (i.e., vehicle, petrol, per diem) to travel.

F. Resistance of Physicians and Pharmacists to ORT/ORS

According to the Executive Board of the Pediatric Association, Guatemalan physicians generally have resisted using ORT in their private practices for two reasons: 1) they lack first-hand experience with and confidence in ORT and are, therefore, reluctant to use it to treat their private patients; 2) they are not able to charge as much for oral rehydration therapy as for intravenous therapy, so that there is no economic incentive for physicians to use ORT instead of IV therapy for diarrheal dehydration. This problem will be difficult to overcome.

Although many pharmacies stock oral rehydration salts or solution produced by several pharmaceutical companies, pharmacists and vendors do not generally promote the sale of these products. They do, however, promote the sale of antibiotics and antidiarrheal agents; the markup on these drugs is greater than that for ORS, and the pharmaceutical companies often provide "push money" (i.e., a bonus) for the volume of drugs sold. Thus, there is little or no economic incentive for the pharmacists to promote the sale of ORS.

In Guatemala, ORT is a relatively new concept, and it has been introduced only recently into the curriculum of the School of Pharmacy. Thus, another reason for the resistance of pharmacists to ORS promotion and sales is their lack of knowledge and understanding of the proper use of ORS.

Suggested Response

To promote sales of ORS, it is essential that pharmacists and vendors be educated about the proper treatment of childhood diarrheal illness. Specifically, the scientific basis for not treating all diarrheal disease with antibiotics, antidiarrheal agents, and potentially harmful agents (e.g., opium-like drugs, steroids, and neomycin) should be stressed. At the same time, they should be educated about the importance of and indications for ORS use. Also, since mothers may seek medicine for their children with diarrhea directly from the pharmacies (bypassing health care facilities and physicians), pharmacists must know how to instruct mothers in the proper preparation and administration of ORS. Educational and advertising material should be supplied to pharmacists for their own use and for distribution to mothers.

G. Lack of Awareness of the Consequences of Diarrheal Dehydration

Many people in Guatemala (e.g., in Escquintla and Guatemala Sur) recognize diarrhea as a common condition, but not a potentially life-threatening illness. Clearly, the potential danger of diarrheal dehydration can also be overlooked by health personnel. This point is illustrated by the fact that many physicians prescribe antibiotics and antidiarrheal agents to the exclusion of ORS, and recommend increased intake of fluids during diarrhea.

Suggested Response

In order to promote the use of ORS by health personnel and mothers of children with diarrhea, their awareness of the concept of replacement of diarrheal fluid losses with ORS, suero casero, and other available fluids must be taught and reinforced periodically.

H. The Fact that ORS Does Not Cure Diarrhea

The fact that ORS does not stop the diarrhea has hampered its acceptance as a beneficial agent for diarrhea. If ORS is promoted as an antidiarrheal agent, there is a danger that mothers may be disappointed because it does not reduce the volume or shorten the duration of diarrhea.

Suggested Response

It should be made clear to mothers and health personnel that ORS will not cure the diarrhea but will prevent dehydration. Thus, the concept of dehydration and its potential danger and the value of ORS in replacing fluid and electrolyte losses during diarrhea should be taught to all levels of health workers and to mothers. This will help prevent the creation of unrealistic expectations with the use of ORS.

I. Inability of Some Persons To Purchase ORS

The point that ORS will be considered more valuable/important and will be more likely to be used if ORS is purchased rather than distributed free has been made. On the other hand, much of the population in urban marginal and rural areas in Guatemala cannot afford to buy ORS, even for a nominal charge. Moreover, the demand (awareness of the value of) for ORS is too low at present to expect even people who could afford to buy ORS to do so.

Suggested Response

If the demand for ORS increases through publicity and educational activities, then it may be feasible to sell ORS to persons who could afford it through the MOH system or through pharmacies and other vendors of medicines.

J. Lack of an Adequate System of Data Collection for Monitoring the Effectiveness of ORT Use

In Guatemala, there is a lack of good data collection and maintenance of records about ORS use at all levels. Incomplete records of oral rehydration treatment for dehydrated patients have been noted in hospitals in San Marcos, Sololá and Totonicapán in one evaluation carried out in 1983 by Dr. Reyna Barrios. We found limited documentation/registration of ORT for dehydrated patients in the Health Center of Tejutla and in the Health Post of San Sebastián

311

in San Marcos. In these oral rehydration units, only the name of the patient, age, time of starting treatment, and grade of dehydration were recorded. The duration of treatment, volume of ORS given, and outcome were not recorded in a summary fashion. Thus, with the existing record system, it is not possible to evaluate whether or not therapy was given appropriately or effectively.

At the level of the promoters in the Sistemas Comunitarios project area, the number of cases and number of ORS packets given should have been noted in family records/charts and a summary of this information kept in a notebook. In San Marcos, we found that incomplete records were kept by two (of two) promoters. In one case, no data were recorded in the charts or summary notebook, yet the promoters reported complete distribution of packets to the district level. Another promoter noted the distribution of ORS to a few cases of diarrhea, and none for other cases of diarrhea. The distribution of ORS was noted in only four of 55 fichas; in two, ORS was given for diarrheal illness, but one case older than five years received eleven packets. In the other two records, ORS was given inappropriately for fever or cough. The summary data in the notebook did not correspond to those in the records; the summary indicated that five families had received eight packets. The data reported to the district suggested that more packets had been distributed.

According to PAHO, there are several reasons for inadequate documentation. First, the workers at all levels have not been well trained in keeping records and have not been informed about why the records are important and how the data will be used. Second, the forms are complicated and difficult to understand. Third, there is no incentive for the village volunteers to keep records since they are not paid. Fourth, there is little or no supervision of the data collection, no quality control, and no critical analysis of the results. Also, there is little or no feedback of results to those collecting data at all levels.

More important, the data collected provide no information about how or whether ORS is used, but only how many packets were distributed and the number of cases of diarrhea. There is no collection of data on diarrheal mortality which is one of the outcome indicators for measuring the effectiveness of ORS as an intervention.

Suggested Response

The data collection system (records, reporting) will need to be modified before performance can be monitored and the effectiveness of an ORT intervention can be measured or evaluated. It may be necessary to revise the forms in the existing routine (passive) reporting system. Another approach would be to conduct periodic KAP surveys, in addition to the routine reporting, to monitor performance and to determine the effectiveness of the ORS use.

Yet another approach is to develop a sentinel surveillance system, in which units such as promoter/village volunteers and staff

312

at Health Posts, Health Centers, and hospitals, collect and report additional data. To qualify as a sentinel reporting unit, the personnel therein must be willing and able to collect and report the data in timely and accurate fashion. Sentinel surveillance systems can be used to obtain morbidity data in children under five years, such as outcome of maintenance and treatment with ORS, number of referrals for treatment of dehydration from the lower levels of care to a higher level of care, number of dehydrated cases, level of severity of dehydrated cases, number of dehydrated cases admitted to hospitals, number of such cases receiving IV therapy, and duration of hospitalization of these cases. More useful measures of mortality can be gained through this system: specific diarrhea-associated death rates (i.e., deaths due to diarrheal dehydration or to other complications) and whether or not deaths due to diarrheal dehydration received appropriate and adequate oral and/or IV therapy. To implement sentinel or KAP systems of data collection or to modify the present reporting system for ORT in the channelling project, forms will need to be developed (or revised), and persons at all levels who are responsible for collecting and reporting data will need to be trained and supervised regularly. The content of the forms will depend on the program components and their expected outcomes.

K. Inadequate Supply of ORS Packets

Suggested Response

To implement ORS use nationwide, production of ORS packets must be increased substantially. When ORS packets are not available, suero casero can be prepared and used.

REFERENCES

1. Agency for International Development. Community-Based Health Nutrition Project Paper. Amendment 520-0251. AID/LAC/P-049/1. 1985.

2. J.R. Cruz. Research Component: Epidemiology of Persistent and Chronic Diarrhea in Children of Rural Guatemala. Guatemala: INCAP. 1985.

3. R. De Leon and A. Lechtig. SINAPS (Sistema Integrado de Nutrición y Atención Primaria de Salud, 1979-81). Documento Archivo SINAPS .

4. R. De Leon, R.P. Bran, and A.M. De Leon. Investigación de la Aceptación de Rehidratación en Baja Verapáz y El Progreso. Ministerio de Salud Pública y Asistencia Social, División de Recursos Humanos documento, 1982.

5. R.M. De León and D. Aldana. PRINAPS (Programa de Investigación del Adiestramiento de Promotores Rurales de Salud) 1970-82. (Documento Archivo PRINAPS not available to PRITECH consultants).

6. C.J. Drasbek. An Inventory of AID-Supported Oral Rehydration Therapy and Diarrheal Disease Control Activities. International Conference on Oral Rehydration Therapy, Washington, D.C., June 1983.

7. J.P. Grant. The State of the World's Children 1986. New York: UNICEF and Oxford University Press. 1985.

8. A. Lechtig, J. Townsend, and J.J. Arroyo. "SINAPS Evaluation: Results of Commmunity Distribution of Oral Rehydration Salts in Guatemala." In Proceedings of the International Confrence on Oral Rehydration Therapy, Washington, D.C., 7-10 June 1983.

9. Ministerio de Salud Pública (MSPAS). Informe Final: Componente Atención Primaria, Program Sistemas Comunitarios Integrados de Salud y Nutrición. San Marcos: Jefatura de Area - October 1985.

10. Ministerio de Salud Pública (MSPAS). Atención Primaria: Reunión Sobre la Estrategia de Atención Primaria en la Transformación del Sistema de Servicios de Salud, Santiago Chile, 20-26 October 1985.

11. Ministerio de Salud Pública (MSPAS). Memoria de Labores Ano 1984. Guatemala: Direccion General de Servicios de Salud (DGSS). August 1985.

12. Ministerio de Salud Pública (MSPAS). Supervivencia Infantil: Plan de Operaciones, Perído Octubre 1985-1990. Guatemala. August 1985.

314

13. Ministerio de Salud Pública (MSPAS). Plan Nacional de Supervivencia Infantil, Guatemala, 1985-1989. Guatemala. 1985.

14. J.M. Reyna Barrios. Rehidratación Oral en el Altiplano de Guatemala, Normas, Implementación y Proyecciones de las Unidades de Rehidratación Hospitalarias. Huehuetenango: Hospital Nacional. 1985.

15. J.M. Reyna Barrios. Rehidratación Oral en el Síndrom Diarréico Agudo. Guatemala Pediátrica 2(3):123-125, 1980.

16. J.M. Reyna Barrios. Permanencia de la Madre con el Paciente Hospitalizado. Guatemala Pediátrica 1(4):26-33, 1979.

17. C.R. Riverni and M.J. Gutierrez. Enfermedades Diarreicas Agudas en América Latina 1970-1979. Boletín de la Oficina Sanitaria Panamericana 92(6):1982.

18. Secretaría General de Planificación Económica (SEGEPLAN). Proyecciones de Población. 1985.

315

TABLE 1

BASIC MORTALITY AND NUTRITION DATA, CENTRAL AMERICA AND PANAMA

	IMR (under 1) 1983	IMR (under 1) 1960	Annual No. of Births/Infant & child deaths (0-4)(thousands) 1983	Life Expectancy at Birth (years) 1983	Life Expectancy at Birth (years) 1960	% of Children with Low Birth Weight 1979-1983	% of Children Under 5 Suffering from Mild-Moderate/Severe Malnutrition 1975-1983	Infant and Child Mortality Rate Under 5 1983	Infant and Child Mortality Rate Under 5 1960
Guatemala	70	130	301/36	61	45	18	n.d.	120	240
Costa Rica	19	85	74/2	73	60	9	46/n.d.	24	130
El Salvador	70	155	208/20	65	49	13	52/6	100	220
Honduras	80	150	177/22	60	45	n.d.	29/1	125	245
Nicaragua	75	150	134/15	60	45	n.d.	65/3	115	225
Panama	26	75	58/2	71	59	10	48/3*	37	115

* Age unspecified.

Source: J.P. Grant. The State of the World's Children 1986. New York: UNICEF and Oxford University Press, 1985.

316

TABLE 2

TEN MAJOR CAUSES OF INFANT MORTALITY, GUATEMALA, 1982[a] and 1984[b]

CAUSE/DIAGNOSIS	RANKING 1982	RANKING 1984	NO. OF DEATHS 1982	NO. OF DEATHS 1984	1982[c]	1984[d]
Infectious intestinal diseases (Enteritis y otras enfermedades diarréicas)	1	3	4,602	4,082	1,480.0	172.96
Other causes of perinatal mortality (otras causas de mortalidad perinatal)[e]	2	1	2,838	5,107	913.0	216.39
Unknown disease symptoms (sintomas mal definidos)	3	6	2,665	694	857.0	29.41
Pneumonia[f]	4	-	2,485	---	799.2	------
Measles (sarampión)	5	7	786	579	253.0	24.53
Bronchitis, emphysema, asthma[f]	6	-	609	---	196.0	------
Congenital anomalies[f]	7	-	539		173.3	------
Influenza	8	5	523	720	168.2	30.51
Pertussis (tosferina)	9	8	503	496	162.0	21.02
Septicemia (enfermedades hemolíticas del recién nacido)	10	10	289	340	93.0	14.41

a) Source: MSPAS, Department of Biostatistics, Epidemiology Division, published as annex to Immunization/Child Survival Project Paper, 1985.

b) Source: MSPAS, Unidad de Programación, published in Memoria de Labores 1984, Guatemala, August 1985.

c) Source: Per 100,000 population.

d) Source: Per 10,000 live births

e) Source: A category explicitly included in the 1984 but not in the 1982 data, and constituting the fourth most important cause of infant mortality was "lesiones al nacer of partos distócicos.

f) Source: These categories are not included in the 1984 data. Other categories appearing in the 1984 but not in the 1982 data are: "otras virosis" (2nd ranked cause) and "tuberculosis aparato respiratorio (9th ranked cause).

317

Guatemala, agosto de 1984

DEPARTAMENTO	Indicadores demográficos 1983			Indicadores del estado de salud (1983)										
	Tasa de natalidad (*)	Tasa de crecimiento veget. (*)	Tasa de fecundidad (**)	Tasa bruta de mortalidad (*)	Tasa de mortalidad infantil (***)	Tasa de mortalid. de 1 a 4 (****)	Tasa de mortalid. materna (***)	Tasa de mortalidad específica en menores de 5 años (*****)					% entre todas def. -5 años	% def. -5 años/ total
								Diarrea	Perinatales	IRA -	Prev. por vac.	Desnutrición		
Guatemala	28.6	21.6	108.2	7.0	55.4	7.5	0.6	595.5	420.8	380.4	52.4	92.4	86.2	33.0
El Progreso	37.4	29.0	181.1	8.4	70.3	8.9	1.0	987.2	447.6	533.5	24.5	153.3	91.6	44.4
Sacatepéquez	37.7	27.4	164.4	10.3	72.3	12.2	0.4	741.4	487.6	781.2	39.8	263.7	82.2	39.0
Chimaltenango	38.2	25.7	171.8	12.5	77.5	17.3	1.1	786.9	415.1	773.2	214.4	134.8	74.8	40.0
Escuintla	23.7	14.3	132.8	9.4	107.8	12.6	1.2	751.0	250.8	496.7	121.1	84.8	59.1	49.0
Santa Rosa	34.3	25.3	171.0	9.0	80.7	12.0	1.1	942.7	240.6	594.3	60.9	170.6	74.6	47.7
Sololá	44.0	32.1	192.3	11.9	71.9	21.0	1.5	560.0	237.1	852.1	446.7	137.4	65.2	47.4
Totonicapán	45.0	29.0	194.2	16.0	84.5	31.1	1.5	1,180.6	367.2	1,466.2	813.4	216.7	88.2	46.8
Quetzaltenango	44.4	32.9	194.8	11.5	70.3	16.2	1.2	645.5	399.2	995.1	222.2	109.9	74.5	42.7
Suchitepéquez	40.3	29.5	178.7	10.8	67.9	16.4	0.8	861.6	220.5	661.5	69.4	153.1	66.3	43.0
Retalhuleu	33.6	25.3	152.4	8.3	65.0	11.1	0.8	431.3	334.5	220.1	76.3	49.9	50.5	43.7
San Marcos	43.8	34.3	204.4	9.5	51.1	16.8	1.1	762.1	166.4	565.7	328.4	74.1	73.0	45.3
Huehuetenango	46.4	35.2	209.4	11.2	60.5	25.7	1.7	612.8	202.8	1,061.0	953.9	132.8	82.7	54.0
El Quiché	37.6	25.2	166.5	12.4	64.7	24.5	1.1	768.5	129.0	1,031.8	385.6	125.0	76.3	44.1
Baja Verapáz	40.7	30.2	184.1	10.5	80.0	16.7	3.0	761.0	380.5	541.4	486.4	204.0	74.9	49.7
Alta Verapáz	44.3	31.7	185.1	12.6	59.2	29.8	2.8	803.0	219.6	925.7	536.8	268.4	75.3	49.4
El Petén	65.6	54.2	322.4	11.4	59.6	21.7	0.6	349.4	143.9	349.4	102.8	164.4	50.2	54.6
Izabal	29.1	22.4	134.1	6.7	68.5	9.4	1.6	381.7	186.6	381.7	93.0	127.9	64.2	47.9
Zacapa	30.5	22.2	140.9	8.3	61.7	11.2	0.6	425.4	236.8	425.4	109.6	157.9	81.5	37.6
Chiquimula	39.6	31.0	177.7	8.6	42.4	11.1	1.3	275.6	200.2	275.6	148.0	46.4	58.5	35.2
Jalapa	40.5	31.0	189.1	9.5	57.8	16.0	1.2	701.7	220.8	701.7	57.0	213.7	88.7	46.2
Jutiapa	36.3	28.9	152.7	7.4	53.8	9.7	1.1	355.6	160.8	355.6	50.0	67.9	83.8	42.6
República	37.0	27.4	166.8	9.6	64.9	15.5	1.2	~~646.8~~ 667.3	283.1	646.8	250.2	126.3	75.3	43.6

*) por 1000 habitantes. (**) Por 1000 mujeres 15-44 años. (***) por 1000 nacidos vivos registrados. (****) por 1000 habitantes en ese grupo etario.
*****) por 100000 habitantes en ese grupo etario.

TABLE 26

CUADRO 11: DIEZ PRINCIPALES CAUSAS DE MORTALIDAD

CIUDAD DE GUATEMALA 1983

CAUSAS	No.	PORCENTAJE	TASA/MIL
1. Infecciones intestinales mal definidas	1,283	15.9	1.2
2. Neumonías	946	12.0	0.9
3. Homicidios	384	4.9	0.4
4. Hipoxia, afecciones respiratorias del recién nacido	383	4.9	0.4
5. Enfermedades circulatorias y otras enfermedades del corazón	355	4.5	0.3
6. Malnutrición proteíco-calórico	325	4.1	0.3
7. Otras lesiones	211	2.7	0.2
8. Signos y síntomas mal definidos	202	2.6	0.2
9. Ciertas afecciones perinatales	107	2.5	6.3
10. Enfermedad cerebro-vascular aguda	184	2.4	0.2
11. Resto de causas	3,433	43.6	3.2
TOTAL:	7,873	100.0	

Fuente: Centro de información en salud. Dirección General de Servicios de Salud, febrero 1984.

319

TABLA 2c

MORTALIDAD POR ENTERITIS Y OTRAS DIARREAS SEGUN GRUPOS ETARIOS

REPUBLICA DE GUATEMALA.

1,979

grupos etarios	No. defunciones	%	TASA (*)
MENORES DE 1 AÑO	3,893	33.8	1,248.2
DE 1 A 4 AÑOS	3,337	33.3	424.3
DE 5 A 14 AÑOS	791	6.9	38.6
DE 15 A 44 AÑOS	997	8.7	32.9
DE 45 Y MAS AÑOS	1,986	17.3	210.3
T O T A L:	11,504	100.0	159.0

(*) TASA POR 100,000 HABITANTES DE CADA GRUPO

FUENTE: DEPTO. DE BIOESTADISTICA DIVISION DE PROGRAMACION

Presentado en: J. V. Reyna Barrios, Rehidratación oral en el Altiplano de Guatemala. Normas, implementación y proyecciones de las unidades de Rehidratación hospitalarias. Huehuetenango: Hospital, Departamento de Pediatría. 1985 (?).

320

TABLE 2d

DIEZ CAUSAS PRINCIPALES DE MORBILIDAD

PRE- ESCOLAR 1- 4 AÑOS

República de Guatemala 1980

DIAGNOSTICO	No. de Defunciones	TASA
1. Infección intestinal mal definida	4,699	413.5
2. Signos, Síntomas y Estados morbosos mal definidos	1,862	163.9
3. Neumonía	1,608	141.5
4. Sarampión	1,004	88.4
5. Tos ferina	671	59.1
6. Influenza	580	51.0
7. Otras Helmintiasis	570	50.2
8. Bronquitis Crónica	187	16.5
9. Paludismo	110	9.7
10. Enfermedades de las glándulas endócrinas y el Metabolismo	109	9.6
	722	63.5
TOTAL.....	12,122	1,066.8

* Tasa por 100,000 habitantes

Fuente: Departamento de Bioestadística
División de Programación
Dirección General de Servicios de Salud.

321

TABLE 3

ESTADO ACTUAL DEL SINAPS: REHIDRATACION ORAL[1]

	Al inicio (1979)	Ahora (1981)
Familias con niños que reciben "supersuero"	0	83.7%[2] (551/658)
Madres que administran "supersuero" a sus niños con diarrea	0.3% (2/630)	37.8%[2] (271/716)
Proporción de niños que van a los servicios de salud por diarrea	21.3% (134/630)	11.6%[2] (83/630)
Producción de "supersuero" por los Distritos de Salud (bolsas, 250 cc.)	0	18,500

1. Al 31 de mayo de 1982

2. Mayo, 1981, Línea Final, Universo: Las familias con niños menores de 5 años.

TABLE 4

DISPONIBILIDAD DE "SUPERSUERO"

	Línea Final	Línea de Seguimiento
- Casas que recibieron "supersuero" por cada niño menor de cinco años [1, 2]	83.7% (551/658)	69.7% (223/320)
- Madres que saben cómo preparar "supersuero" y cuándo usarlo[3]	61.9% (341/551)	64.6% (144/223)
- Madres que saben cómo preparar "supersuero", pero no saben cuándo usarlo[3]	23.2% (128/551)	25.6% (57/223)
- Madres que no saben preparar ni cuándo usar "supersuero"[3]	14.9% (82/551)	9.9% (22/223)

(1) Antes de junio de 1980, suero oral sólo estuvo disponible en las farmacias. Un total de 244,149 bolsas de supersuero (250 cc) fueron producidas durante el período de junio de 1980 a mayo de 1981. En abril de 1981, 57% de todas las bolsas producidas habían sido usadas. Desde abril de 1981 el MSP produjo 18,500 bolsas a nivel de Distrito y Area de Salud. En mayo de 1982, 83% (2,545/3,085) de las bolsas distribuidas durante los previos 12 meses habían sido usadas.

(2) $X^2 = 25.8$; d.f. = 1; $p < .001$.

(3) $X^2 = 3.5$; gl. = 2; $p > .05$.

TABLE 5

QUE HIZO USTED LA ULTIMA VEZ QUE SU NIÑO MENOR DE CINCO AÑOS TUVO DIARREA POR MAS DE DOS DIAS CONSECUTIVOS?[1]

		Usó "supersuero" o rehidratación oral[1]	Usó drogas de la farmacia[2]	Visitó un Centro de Salud para Tratamiento	Usó un remedio casero usó [illegible]
Línea Basal					
Control	(n=490)	(1) 0.2%	(349) 71.2%	(107) 21.8%	(33) 6.7%
Experimental	(n=630)	(2) 0.3%	(424) 67.3%	(134) 21.3%	(70) 11.1%
Línea Final					
Control	(n=542)	(1) 0.2%	(401) 74.0%	(99) 18.3%	(41) 7.6%
Experimental	(n=716)	(271) 37.8%	(331) 46.2%	(83) 11.6%	(31) 4.4%
Línea de Seguimiento					
Experimental	(n=331)	(115) 34.7%	(158) 47.7%	(41) 12.4%	(17) 5.1%

1/ El cambio en uso de supersueros en los Distritos de Salud Experimentales fue estadisticamente significativo (X^2 = 296.7; g.l. = 2; p $\angle$ .01).

2/ Las drogas comunmente usadas para el tratamiento de diarrea son: antibióticos, mezclas de caolín y pectina, preparaciones yodadas, con bicarbonato y laxantes.

En paréntesis, número de madres encuestadas.

324

TABLE 6

ESTADO ACTUAL DEL SINAPS: MORTALIDAD[1]

	Al inicio (1979)	Ahora (1981)
Mortalidad Infantil[2]	51.4	47.9
Mortalidad Pre-escolar[3] (1 - 4 años)	11.4	6.4

1. Al 31 de mayo de 1982.

2. Universo: Muertos menores de un año por mil nacidos vivos. Al inicio (2,666) y ahora (2,692).

3. Universo: Muertos de 1 a 4 años de edad por mil niños de la misma edad. Al inicio (11,326) y ahora (11,955).

Fuente: División de Programación, Sección de Estadística, DGSS, 1979; Distritos de Salud, 1981.

325

TABLE 7

CUADRO 12: PRINCIPALES MOTIVOS DE CONSULTA
DISTRITOS DE SALUD DE LA CIUDAD DE GUATEMALA 1983
MINISTERIO DE SALUD PUBLICA Y ASISTENCIA SOCIAL.

MOTIVO DE CONSULTA	AREA GUATEMALA NORTE	AREA GUATEMALA SUR
1. EXAMEN MÉDICO GENERAL	15,087	4,098
2. INFECCIÓN INTESTINAL MAL DEFINIDA	8,100	5,652
3. ENFERMEDADES DE LOS DIENTES Y DE SUS ESTRUCTURAS DE SOSTÉN.	5,812	6,143
4. INFECCIÓN RESPIRATORIA SUPERIOR	5,029	4,831
5. HELMINTIASIS	4,963	———
6. OTROS EXÁMENES Y CONTROLES DE LABORATORIO	3,951	2,096
7. CONTROL PRENATAL	3,689	5,855
8. ENFERMEDADES DE LA PIEL	3,253	3,160
9. OTRAS ENFERMEDADES INFECCIOSAS Y PARASITARIAS	3,089	1,018
10. CONTROL DE NIÑO SANO	2,843	4,334
11. PALUDISMO	———	32,839
12. MALNUTRICIÓN	2,251	4,467
13. AMEBIASIS	652	549
14. ANEMIAS	798	616
15. BRONCONEUMONÍAS	302	3
16. INTOXICACIONES ALIMENTARIAS	55	41
17. SIGNOS Y SÍNTOMAS INTESTINALES MORBOSOS MAL DEFINIDOS	2,653	1,060
18. ENFERMEDADES DEL APARATO URINARIO	1,409	386
19. ENFERMEDADES INTESTINALES DEBIDAS A OTROS ORGANISMOS NO ESPECIFICADOS	502	63
20. BRONQUITIS Y BRONQUIOLITIS AGUDAS	411	416
21. AMIGDALITIS AGUDA	1,580	1,001
22. AVITAMINOSIS	79	8
23. CONTROL POSTPARTO	390	300
24. INFLUENZA	214	174
25. TUBERCULOSIS PULMONAR	377	25
26. BRONQUITIS CRÓNICA Y LA NO ESPECÍFICA, EMFISEMA Y ASMA	1,579	937
TOTAL	98,960	126,146

FUENTE: CENTRO DE INFORMACIÓN DE SALUD. DIRECCIÓN GENERAL DE SERVICIOS DE SALUD GUATEMALA, FEBRERO 1984.

326

attachment B

[illegible] ORAL .(Organizador):

SEMINARIO :	NOMBRE DEL EVENTO REALIZADO:	LUGAR Y ENTIDADES :	FECHA :
B) [illegible] :	1. SEMINARIO [illegible] ANESTESIOLOGICO. [illegible]	HOSP. [illegible] OPS/OMS	27/[illegible]/72
	2. [illegible]	D.G.S.S./OPS/OMS [illegible]	[illegible]
	3. SEMINARIO REHABILITACION ORAL. PERSONAL DEL SANATORIO [illegible]	HOSPITAL NACIONAL [illegible]	28 [illegible]
	4. SEMINARIO TALLER. SEMINARIO [illegible] AÑOS Y R.M.C. HOSPITAL HOSPITALARIO.	HOSPITAL NAC. [illegible]	27/junio/[illegible]
	5. SEMINARIO REHABILITACION ORAL: 3 AREAS DEL MINISTERIO DE GUATEMALA: SOLOLA/ TOTONICAPAN/ SAN MARCOS	D.G.S.S./ HOSPITAL NAC. [illegible]	[illegible]

327

ACTIVIDADES Y PROGRAMAS EFECTUADOS SOBRE ENFERMEDADES DIARREICAS Y REHIDRATAION ORAL

I. SEMINARIOS:	NOMBRE DEL EVENTO REALIZADO	LUGAR Y ENTIDADES	FECHA
- HUEHUETENANGO	SEMINARIOS PARA ESTUDIANTES DE MEDICINA E.P.S. TOTONICAPAN, HUEHUETENANGO: SINDROME DIARREICO AGUDO Y REHIDRATACION ORAL	AREA DE SALUD DE HUEHUETENANGO	
	6.- " "		JULIO 1,978
	7.- " "		-JULIO 1,979
	8.- " "		JULIO 1,980
	9.- " "		JULIO 1,981
	10.- " "		JULIO 1,982
	11.- " "		JULIO 1,983
- GUATEMALA:	12.-SEMINARIO TALLER NACIONAL DIARREAS Y REHIDRATACION ORAL.	GUATEMALA D.G.S.S.	30/JUL/A 2 AGTO/80
- ZONA OCCIDENTAL ALTIPLANO GUATEMALA.	13.-SEMINARIO: REHIDRATACION ORAL EN SINDROME DIARREICO AGUDO.		
	14.- " "	TOTONICAPAN D.G.S.S.	9-10/JUN/82
	15.- " "	SOLOLA D.G.S.S.	7-8/JUL/82
	16.- " "	SAN MARCOS D.G.S.S.	15-16/JUL/82
- QUETZALTENANGO, HOTEL DEL - CAMPO.	17.-SEMINARIO: SINDROME DIARREICO AGUDO Y TERAPIA - DE REHIDRATACION ORAL	QUETZALTENANGO D.G.S.S. Y S.C.I.S.N.	11-13/OCT/83

228

ACTIVIDADES Y PROGRAMAS EFECTUADOS SOBRE ENFERMEDADES DIARREICAS Y REHIDRATACION ORAL

II. CONGRESOS (expositor)	NOMBRE DEL EVENTO REALIZADO	LUGAR Y ENTIDADES	FECHAS
	1.- XXIX CONGRESO NACIONAL DE MEDICINA. REHIDRATACION ORAL EN EL SINDROME DIARREICO AGUDO.	QUEZALTENANGO.HOSPITAL NAC. HUEHUETENANGO. DEPTO.DE PEDIATRIA.	22-25/NOV/78
	2.- XXII CONGRESO NACIONAL DE PEDIATRIA. REHIDRATACION ORAL EN EL SINDROME DIARREICO AGUDO.	GUATEMALA HOSPITAL NACIONAL HUEHUETENANGO.DEPTO DE PEDIATRIA.	3-7/MARZ/80
	3.- IX CONGRESO NACIONAL DE SALUD PUBLICA. REHIDRATACION ORAL EN EL SINDROME DIARREICO AGUDO.	GUATEMALA.D.G.S.S.	SEPTBRE/80
	4.- XXIV CONGRESO NACIONAL DE PEDIATRIA. REHIDRATACION ORAL EN EL ALTIPLANO DE GUATEMALA.NORMAS, IMPLEMENTACION Y PROYECCIONES DE LAS UNIDADES HOSPITALARIAS.	GUATEMALA. DEPTO DE PEDIATRIA. HOSPITAL NACIONAL DE HUEHUETENANGO.	9-12/MARZ/82
	5.- XXXV CONGRESO NACIONAL DE MEDICINA. EDUCACION MEDICA CONTINUA. REHIDRATACION ORAL. U.R.O.S. HOSPITALARIAS.	GUATEMALA DEPTO. DE PEDIATRIA HOSPITAL NACIONAL DE HUEHUETENANGO.	28-30/NOV/84
	6.- PRIMER CONGRESO MEDICO DEL SUR-OCCIDENTE DE GUATEMALA/ SOCIEDAD MEDICA DE OCCIDENTE. " UNIDADES DE REHIDRATACION ORAL HOSPITALARIAS: NORMAS, IMPLEMENTACION Y RECURSOS.	QUETZALTENANGO. SOCIEDAD MEDICA DE OCCIDENTE.	20 /JULIO/85

324

ACTIVIDADES Y PROGRAMAS EFECTUADOS SOBRE ENFERMEDADES DIARREICAS Y REHIDRATACION ORAL

III. CONFERENCIAS	NOMBRE DEL EVENTO REALIZADO	LUGAR Y ENTIDADES	FECHAS
	1.- PROGRAMA DE REHIDRATACION ORAL. DEPARTAMENTO DE PEDIATRIA. HOSPITAL NACIONAL DE HUEHUETENANGO. (expositor)	UNIVERSIDAD DE SAN CARLOS DE GUATEMALA. FACULTAD DE - CIENCIAS MEDIDAS. GUATEMALA. FASE II. IGLU DE LA USAC.	27/MARZ/81
	2.- PROGRAMA REHIDRATACION ORAL EN SINDROME DIARREICO AGUDO. DEPTO. PEDIATRIA. HOSPITAL NACIONAL DE HUEHUETENANGO. (expositor)	SALAMA, PURULHA, - JORNADA COLEGIO MEDICO DE GUATEMALA.	7/NOV/81
	3,- TERAPIA DE REHIDRATACION ORAL. CONFERENCIA INTERNACIONAL. (asistente)	WASHINGTON D.C. AID OPS/OMS. UNICEF	7-10/JUN/83
	4.- REHIDRATACION ORAL. DEPTO. DE PEDIATRIA. HOSPITAL NACIONAL DE HUEHUETENANGO. (conferencista)	ACADEMIA AMERICANA DE PEDIATRIA.-REUNION ANUAL-CAPITULO DE ALABAMA. GULF SHORES-STATE PARK ALABAMA U.S.A	28-30/SEPT/84
	5.- REHIDRATACION ORAL. DEPTO DE PEDIATRIA. HOSPITAL NACIONAL DE HUEHUETENANGO (conferencista)	PICKENS COUNTY HOSPITAL, TUSCALOOSA-ALABAMA U.S.A.	4/OCT/84

330

ACTIVIDADES Y PARTICIPACIONES SOBRE ENFERMEDADES DIARREICAS Y REHIDRATACION ORAL

IV.	NOMBRE DEL EVENTO:	LUGAR Y ENTIDADES:	FECHA:
	1. PROGRAMA DE REHIDRATACION ORAL-UNIDAD HOSPITALARIA. DEPTO. DE PEDIATRIA. HOSPITAL NACIONAL DE HUEHUETENANGO. (director).	HUEHUETENANGO. DEPTO. PEDIATRIA. H.N.	1 OCT. /78 hasta la fecha, en vigencia.
	2. ORGANIZACION Y EVALUACION INTRAPTO DE REHIDRATACION HOSPITALARIA, HOSPITALES DE: - FASE ORGANIZATIVA: -TOTONICAPAN/SAN MARCOS/ SOLOLA (asesor/programas)	TOTONICAPAN SAN MARCOS SOLOLA	22/ABRIL/83 29/ABRIL/83 30/ABRIL/83

331

ACTIVIDADES Y PROGRAMAS EFECTUADOS SOBRE ENFERMEDADES DIARREICAS Y REHIDRATACION ORAL

VI.- PLATICAS	NOMBRE DEL EVENTO REALIZADO	LUGAR Y ENTIDADES	FECHA
	SEMINARIO DE ORIENTACION, PARA PERSONAL DE SALUD DEL AREA DE HUEHUETENANGO: ENFERMERAS, AUXILIARES DE ENFERMERIA, TECNICOS EN SALUD RURAL DE LOS 31 MUNICIPIOS - DEL DEPARTAMENTO.	HUEHUETENANGO. AREA DE SALUD.	17-20-22-29-30-31/AGTO/84
	SEMINARIO DE ORIENTACION, PARA PERSONAL DEL DISTRITO 11, AGUACATAN; DISTRITO 13, IXTAHUACAN; DISTRITO 9, NENTON, DISTRITO 2, CHIANTLA: ENFERMERAS, AUXILIARES DE ENFERMERIA Y T.S.R.	CHIANTLA, HUEHUETENANGO.	20/AGTO/84
	PLATICA DE ORIENTACION: PROMOTORES DE SALUD RURAL DE - 10 MUNICIPIOS. ASISTENTES - 19 PROMOTORES.	HUEHUETENANGO. CLINICAS EVANGELICAS	30/AGTO/84

352

Attachment A-1

TREATMENT AND PREVENTION OF ACUTE DIARRHOEA

Guidelines for the trainers of health workers

WORLD HEALTH ORGANIZATION
GENEVA
1985

333

CONTENTS

		Page
Foreword		v
Section 1.	Understanding the problem	1
	What is diarrhoea?	1
	Acute and chronic diarrhoea	1
	Why is diarrhoea dangerous?	1
	How does diarrhoea cause dehydration?	2
	Treating diarrhoea	2
	Essential knowledge: Section 1	3
Section 2.	Preventing dehydration	4
	Educating family members about home treatment of diarrhoea	4
	Three rules for home treatment of diarrhoea	4
	Essential knowledge: Section 2	6
Section 3.	Assessing a child with diarrhoea	7
	Examining the child	7
	Determining appropriate treatment	9
	Essential knowledge: Section 3	10
Section 4.	Treatment of diarrhoea	13
	Ingredients of ORS solution	13
	How to prepare ORS solution	14
	How to treat a child with diarrhoea	14
	Recording data on the child	18
	Essential knowledge: Section 4	19
Section 5.	Preventing diarrhoea	21
	Food and how best to feed children	21
	Water	22
	Hygiene	22
	Essential knowledge: Section 5	23
Annex 1.	How to make salt and sugar solution at home	24
Annex 2.	What to do when ORS packets are needed but not available	26
Annex 3.	Oral rehydration using a nasogastric tube	28
Annex 4.	Use of the tricoloured arm-strip	29
Annex 5.	Checklist of points of essential knowledge	30
Annex 6.	Example of card to be given to family members: "How to treat diarrhoea at home"	31
Annex 7.	Diarrhoea Treatment Chart	32

334

- nutrients are lost from the body in diarrhoea;
- a person with diarrhoea may not be hungry; and
- mothers often make the mistake of not feeding a child while he or she has diarrhoea or even for some days after the child is better. Food should be given to children with diarrhoea as soon as they want to eat.

How does diarrhoea cause dehydration?

The body normally takes in the water and salts it needs (*input*) from drinks and food. The body normally loses water and salts (*output*) through stools, urine, and sweat.

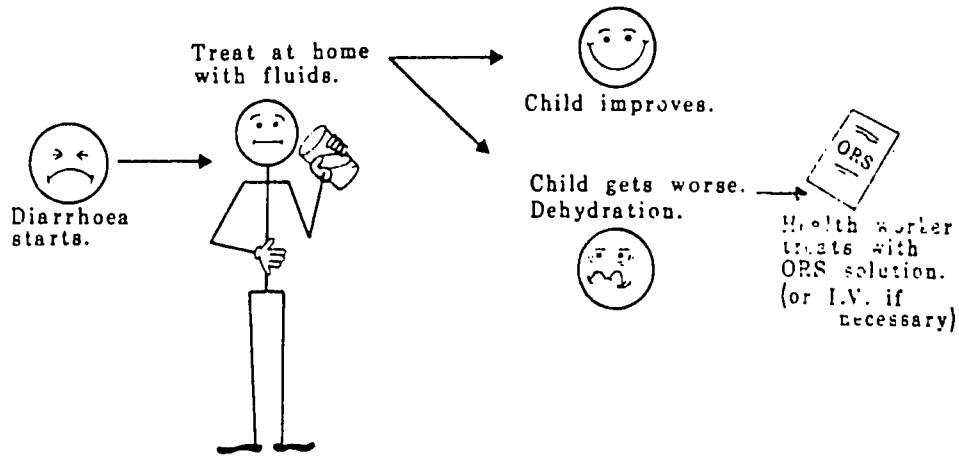
When the bowel is healthy, water and salts pass from the bowel into the blood. When a person has diarrhoea, the bowel is not working normally, and more than the normal amount of water and salts is passed in the stool and less than the normal amount passes into the blood.

This larger-than-normal loss of water and salts from the body results in dehydration. Dehydration occurs when the output of water and salts is greater than the input. The more diarrhoea stools a patient passes, the more water and salts he loses. Dehydration can also be caused by vomiting, which often accompanies diarrhoea.

Dehydration occurs faster in infants and young children, in hot climates, and when a person has a fever.

Treating diarrhoea

The most important aims of the treatment of diarrhoea are: (i) if possible, to *prevent* dehydration from occurring: and (ii) if dehydration does occur, to treat it quickly and effectively.



Prevention of dehydration

Dehydration can usually be prevented in the home if the infected person drinks more fluids as soon as the diarrhoea starts. He or she should be given locally available fluids, such as rice water, fruit juice, weak tea, or special home-made sugar and salt solutions, and/or breast-feeding should be increased. The types of fluid or solutions that can be used in your area for preventing dehydration in the home will depend on:

- local traditions,
- availability of salt and sugar,
- access of people to health services,
- availability of oral rehydration salts (ORS), and
- national policy.

Treatment of dehydration

If dehydration occurs, the child should be brought to a community health worker (CHW) or health centre for treatment. The best treatment for dehydration, once it has occurred, is oral rehydration therapy using a solution made with oral rehydration salts (ORS). Although this manual mostly describes the treatment of children with diarrhoea, the same treatment is applicable to adults with diarrhoea. If possible, oral rehydration salts should *always* be used for the treatment of dehydration.

Essential knowledge: Section 1

The health worker should be able to:

— define diarrhoea in a way that is appropriate to the setting in which he/she works
— distinguish between acute and chronic diarrhoea
— explain why diarrhoea is dangerous
— explain how diarrhoea causes dehydration
— describe the basic principles of the treatment of diarrhoea.

2. PREVENTING DEHYDRATION

Educating family members about home treatment of diarrhoea

When a child gets diarrhoea, dehydration can often be prevented if certain procedures are followed *in the home*. Teaching family members that diarrhoea *can* and *should* be treated at home is very important. Family members also need to learn *how* to give treatment.

Family members may learn from many sources, such as radio broadcasts, schools, posters, community meetings, the community health worker, or staff at the local health centre. CHWs should meet with community leaders and community members in order to identify several sources that together will reach all the families in the area. With help and cooperation from community members, each family can learn about treatment of diarrhoea in the home.

There are three rules for treating diarrhoea in the home; these are discussed in the following paragraphs. They are also summarized on a small card called *How to treat diarrhoea at home*, which mothers should take home (Annex 6), and in treatment plan A on the Diarrhoea Treatment Chart (Annex 7), which health workers should keep for reference. Whenever a child gets diarrhoea, the mother (or any other family members who care for the child) should follow these rules.

Three rules for home treatment of diarrhoea

Rule 1: Give the child more fluids than usual

- If the child is breast-fed, try to give breast milk more often. If the child is not breast-fed, increase the amount of normal milk feed and dilute the feed with an equal volume of water.
- Give the child locally available drinks or liquids, such as rice water, soups, weak tea, or fruit juices, and/or carefully prepared sugar and salt solutions. These solutions can be made in several ways (see Annex 1).

37

○ Children under 2 years old should receive approximately 50–[illegible] ml ([illegible] cup) of fluid after each loose stool, and older children should receive twice this amount. Children should take as much as they want to drink.

Rule 2: Continue feeding the child

○ Starving a child who has diarrhoea can cause undernutrition or make any existing undernutrition worse.

○ All children of 4 months or older, who have been weaned, should be offered solid food during diarrhoea. The best foods to give are those that are *easily digested* (such as boiled rice, porridge, soups, milk products, eggs, fish, and well-cooked meat) and those *containing potassium* (such as pineapple, bananas, and coconut water). Some fruit juice may also be given. Even though the absorption of nutrients from food is lessened during diarrhoea, most of the nutrients will be absorbed from these foods.

○ The child should be allowed to eat as much as he wants. Food should be offered often (5–7 times a day) during diarrhoea, because the child is not likely to eat much each time. The child should have at least one extra feed a day for a week after the diarrhoea has stopped.

Rule 3: Watch for signs of dehydration

○ The signs of dehydration are described in Section 3 (p. 7).

○ If a child develops any sign of dehydration, or if his diarrhoea lasts another 2 days, the mother should take the child to the community health worker or health centre.

CHWs and workers at health facilities should explain the three rules of home treatment to mothers and other family members whenever they have the opportunity (for example, when a mother comes for prenatal visits or brings her child for immunizations).

.in procedures
d *should* be
to give

s, schools,
he local
y members in
e area. With
out treatment

ssed in the
w to treat
eatment
ers
or any other

When explaining how to treat diarrhoea at home, a health worker should actually *show* the mother what to do, so that she will understand and remember the procedure. For example, the health worker should show how much fluid the child should be given, and how to make sugar and salt solution. The examples are better shown than explained.

A mother should also be allowed to practise what she learns (for example, mixing the solution) to make sure she can do it.

For those things that can only be explained (for example, actually feeding the child), the health worker should ask the mother to tell in her own words what she has learned to be sure that she remembers.

Essential knowledge: Section 2

The health worker should be able to:

— explain and demonstrate to family members how to treat diarrhoea in the home to prevent dehydration

— explain the three rules for home treatment:

- increase fluids,
- continue food, and
- watch for signs of dehydration.

339

treatment. If there is a lot of blood or mucus in the stools *and* high fever, suspect dysentery. Treat this problem with antimicrobial drugs.

- Determine the degree of dehydration:
  - —Look at column C. If two or more of the signs listed in column C are present, conclude that the patient has *severe dehydration*.
  - —If fewer than two signs from column C are present, look at column B. If two or more of the signs listed in column B are present, conclude that the patient has *some dehydration*.
  - —If fewer than two signs from column B are present, conclude that the patient has *no signs of dehydration*.

- Select the appropriate treatment plan according to the degree of dehydration. (These treatment plans are described on pages 15–17 and also form part of the Diarrhoea Treatment Chart (Annex 7).)
  - —If there are no signs of dehydration, select treatment plan A—to prevent dehydration.
  - —If there is some dehydration, select treatment plan B—to treat dehydration with ORS solution.
  - —If there is severe dehydration, select treatment plan C—to treat severe dehydration quickly.

Essential knowledge: Section 3

The health worker should be able to:

- ask, look, and feel for signs of dehydration and other serious problems
- determine the appropriate treatment plan using the assessment chart given on page 11.

340.

3. ASSESSING A CHILD WITH DIARRHOEA

Since the most dangerous effect of diarrhoea is dehydration, the first step on seeing a child with diarrhoea should be to assess the child for signs of dehydration. The procedure outlined here for evaluation of dehydration should be followed when a health worker sees a child whose mother has stated that diarrhoea is *the* reason, or *one* of the reasons, for the child's visit. (Health workers should be familiar with all locally used words for diarrhoea or for the various signs of diarrhoea.) These same procedures should be followed again when the health worker reassesses the patient after giving some treatment.

Note: Mothers will probably expect the health worker to give a treatment that will *stop* the child's diarrhoea. It may be necessary to explain that oral rehydration treatment is meant to stop or prevent dehydration, and explain why this is more important than immediately stopping the diarrhoea.

Examining the child

The signs a health worker should *ask*, *look*, and *feel* for are listed in this section and in the chart shown on page 11 and in Annex 7. A list of the questions that the health worker should ask, the conditions he should feel for, and the things he should look for are presented here. As he is reading this material, he should refer to the chart in order to see how to interpret each sign.

The health worker should:

1. ASK the following questions.

- How many liquid stools per day is the child passing? For how long has the child had diarrhoea? Is there blood (more than 1 or 2 streaks) and mucus in the stool?
- Has there been any vomiting?
  If so:

  —Has there been more than a small amount?
  —How frequently has the child vomited?

341

How to assess your patient

		A	B	C	D
1 ASK ABOUT	DIARRHOEA	Less than 4 liquid stools per day	4 to 10 liquid stools per day	More than 10 liquid stools per day	Longer than 3 weeks duration (chronic diarrhoea)
	VOMITING	None or a small amount	Some	Very frequent	Blood or mucus in the stool
	THIRST	Normal	Greater than normal	Unable to drink	
	URINE	Normal	A small amount, dark	No urine for 6 hours	
2 LOOK AT	CONDITION	Well, alert	Unwell, sleepy or irritable	Very sleepy, unconscious, floppy or having fits	Severe undernutrition
	TEARS	Present	Absent	Absent	
	EYES	Normal	Sunken	Very dry and sunken	
	MOUTH and TONGUE	Wet	Dry	Very dry	
	BREATHING	Normal	Faster than normal	Very fast and deep	
3 FEEL	SKIN	A pinch goes back quickly	A pinch goes back slowly	A pinch goes back very slowly	
	PULSE	Normal	Faster than normal	Very fast, weak, or you cannot feel it	
	FONTANELLE (in infants)	Normal	Sunken	Very sunken	
4 TAKE TEMPERATURE					High fever - 38.5°C for 10 days or greater
5 WEIGH IF POSSIBLE		No weight loss during diarrhoea	Loss of 25-100 grams for each kilogram of weight	Loss of more than 100 grams for each kilogram of weight	
6 DECIDE		The patient has no signs of **dehydration** Use Plan A	If the patient has 2 or more of these signs, he has **some dehydration** Use Plan B	If the patient has 2 or more of these danger signs, he has **severe dehydration** Use Plan C	If the patient has chronic diarrhoea, severe undernutrition, or high fever, treat or refer to for treatment If there is blood or mucus in the stool and high fever, suspect dysentery and treat with antimicrobials

242

Example of assessment of a child with diarrhoea

A mother brought her 3-year-old daughter, Rania, into a clinic because she had diarrhoea. The health worker asked, looked, and felt for signs of dehydration. When he had completed the assessment, the chart looked like this:

		A	B	C	D
1. ASK ABOUT	DIARRHOEA	Less than 4 liquid stools per day	4 to 10 liquid stools per day	More than 10 liquid stools per day	Longer than 3 weeks duration (chronic diarrhoea)
	VOMITING	None or a small amount	Some	Very frequent	Blood or mucus in the stool
	THIRST	Normal	Greater than normal	Unable to drink	
	URINE	Normal	A small amount, dark	No urine for 6 hours	
2. LOOK AT	CONDITION	Well, alert	Unwell, sleepy or irritable	Very sleepy, unconscious, floppy or having fits	Severe undernutrition
	TEARS	Present	Absent	Absent	
	EYES	Normal	Sunken	Very dry and sunken	
	MOUTH and TONGUE	Wet	Dry	Very dry	
	BREATHING	Normal	Faster than normal	Very fast and deep	
3. FEEL	SKIN	A pinch goes back quickly	A pinch goes back slowly	A pinch goes back very slowly	
	PULSE	Normal	Faster than normal	Very fast, weak, or you cannot feel it	
	FONTANELLE (in infants)	Normal	Sunken	Very sunken	
4. TAKE TEMPERATURE					High fever - 38.5°C (or 101°F) or greater
WEIGH IF POSSIBLE		No weight loss during diarrhoea	Loss of 25-100 grams for each kilogram of weight	Loss of more than 100 grams for each kilogram of weight	
5. DECIDE		The patient has no signs of dehydration Use Plan A	If the patient has 2 or more of these signs, he has some dehydration Use Plan B	If the patient has 2 or more of these danger signs, he has severe dehydration Use Plan C	If the patient has chronic diarrhoea, severe undernutrition, or high fever, treat or refer to for treatment If there is blood or mucus in the stool and high fever, suspect dysentery, and treat with antibiotics [illegible]

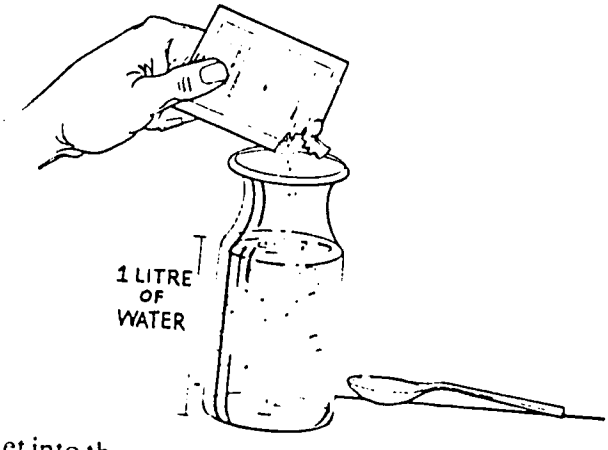
Because Rania had blood and mucus in her stool and a high fever (column D), the health worker suspected dysentery and prescribed ampicillin. Since Rania had no signs from column C and only 1 sign from column B, the health worker determined that she had no signs of dehydration. Therefore treatment plan A was used to prevent Rania from becoming dehydrated.

Packets that contain the ingredients in these amounts are made for mixing in *one litre* of drinking-water. This mixture is called ORS solution.

Note: Some packets of ORS are made for smaller volumes of water; they have smaller amounts of the same ingredients. When ORS packets are not available, oral rehydration solution can be made by following the instructions in Annex 2.

How to prepare ORS solution

- Wash your hands.
- Measure one litre (or volume of water indicated on packet used) of clean drinking-water into a clean container. It is best to boil and cool the water, but if this is not possible, use the cleanest water available. Use whatever clean container is available such as a jar, pot, or bottle.



- Pour all the powder from one packet into the water and mix well until the powder is completely dissolved.
- Taste the solution so that you know what it tastes like.

Fresh ORS solution should be mixed *each day* in a clean container. The container should be kept covered. Any solution remaining from the day before should be thrown away.

How to treat a child with diarrhoea

On the basis of the assessment of the degree of dehydration of the child, the health worker should select one of the following treatment plans:

- Treatment plan A—to prevent dehydration;
- Treatment plan B—to treat dehydration with ORS solution;
- Treatment plan C—to treat severe dehydration quickly.

Initially, the health worker follows one of these treatment plans; he may also need to treat other serious problems that have been identified.

In all cases, the mother should first be complimented on bringing the child to be cared for.

TREATMENT PLAN A
TO PREVENT DEHYDRATION

Explain to the mother how to treat diarrhoea at home following three rules:

1. GIVE YOUR CHILD MORE FLUIDS THAN USUAL, such as:
   - rice water, fruit juice, weak tea, soup, or salt and sugar solution; and
   - breast milk, or milk feeds mixed with equal amounts of water.

2. GIVE YOUR CHILD FOOD:
   - as much as he wants;
   - 5 to 7 times a day;
   - which is easy to digest;
   - which contains potassium.

3. WATCH FOR SIGNS OF DEHYDRATION. (You must show the mother how to ASK, LOOK, and FEEL for the signs. Then ask her to show you what she has learned.)

   BRING YOUR CHILD BACK, IF:
   - you see any signs;
   - your child has diarrhoea for another two days.

Tell the mother these rules are important.
Explain that she can prevent diarrhoea, if:

- she gives her child fresh, clean and well-cooked food and clean drinking-water;
- she practises good hygiene.

Show the mother how to prepare and give ORS solution at home, if:

- her child has been on plan B;
- it is national policy to give ORS solution to all children who visit a health centre for diarrhoea treatment;
- the mother cannot come back if the diarrhoea gets worse.

GIVE THE MOTHER ENOUGH ORS PACKETS FOR 2 DAYS.

TELL HER THAT, AFTER EACH LOOSE STOOL, SHE SHOULD GIVE:

- 50–100 ml ($\frac{1}{4}$–$\frac{1}{2}$ cup) of ORS solution for a child less than 2 years old;
- 100–200 ml for older children.

Adults can take as much as they want.

If the child vomits, she should wait 10 minutes and then continue slowly giving small amounts.

NOTE: Children being given ORS solution should **not** also receive salt and sugar solution.

345

TREATMENT PLAN B
TO TREAT DEHYDRATION WITH ORS SOLUTION

1. USE THIS TABLE TO SEE HOW MUCH ORS SOLUTION IS SUITABLE FOR 4–6 HOURS' TREATMENT:

Patient's weight in kilograms		3 5 7 9 11 13 15 20 30 40 50					
Patient's age *		2 4 6 8 10 12 18 months 2 3 4 6 8 15 years adult					
Give this much solution for 4-6 hours	in ml:	200-400	400-600	600-800	800-1000	1000-2000	2000-4000
	in local unit of measure:						

* Use the patient's age only when you do not know the weight.

If the patient wants more ORS solution, give more. If the eyelids become puffy, stop and give other fluids. If diarrhoea continues, use ORS solution again when the puffiness has gone.

If the child vomits, wait 10 minutes and then continue slowly giving small amounts of ORS solution.

2. **If the mother can remain at the health centre:**
   - tell her how much ORS solution to give her child;
   - show her how to give it;
   - watch her give it.

3. **After 4–6 hours reassess the child. Then choose the suitable treatment plan.**

   NOTE: FOR CHILDREN UNDER 12 MONTHS CONTINUING TREATMENT PLAN B AFTER 4–6 HOURS, TELL THE MOTHER TO GIVE:
   - breast-milk feeds between drinks of the ORS solution, or
   - 100–200 ml of clean water before continuing ORS, if she does not breast-feed her child.

4. **If the mother must leave before completing treatment plan B, tell her:**
   - to finish the 4–6 hour treatment as in 1 above;
   - to give the child as much ORS solution as he wants after the treatment;
   - to look for signs of dehydration and, if the child has any, to return the next morning.

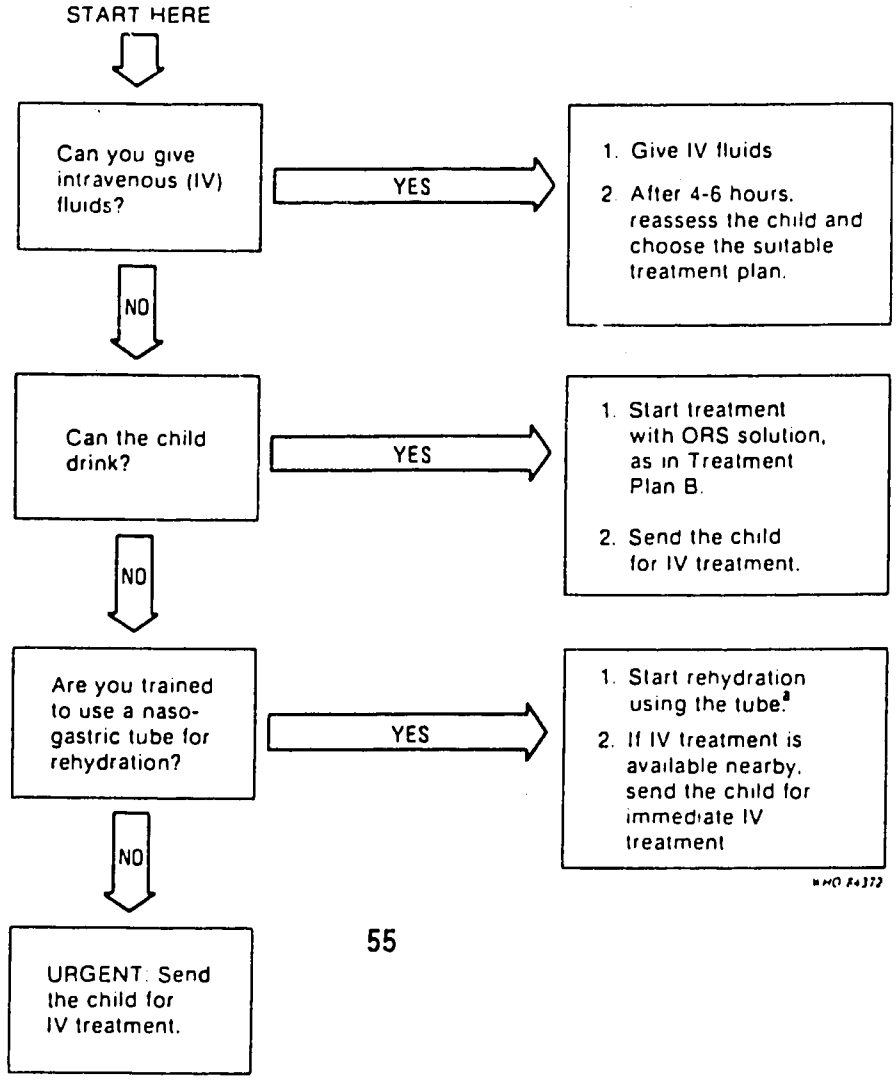
Give her enough ORS packets for 2 days and show her how to prepare ORS solution.

Explain briefly how to prevent diarrhoea.

3,46

TREATMENT PLAN C
TO TREAT SEVERE DEHYDRATION QUICKLY

Follow the arrows. If the answer to the questions is 'yes', go across. If it is 'no', go down.



NOTE: If the child has a high fever, show the mother how to cool the child with a wet cloth and fanning.

[a]See Annex 3.

347

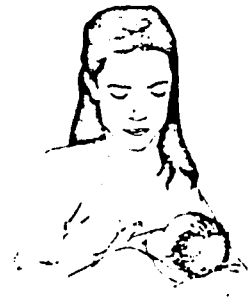
5. PREVENTING DIARRHOEA

An important job of the health worker is to help prevent diarrhoea by teaching people some simple facts about food and feeding children, water, and hygiene.

Food and how best to feed children

Table 2 summarizes all of the following points:

- Breast-feeding, whenever the baby wants to be fed, is very important in the first 4–6 months of life. Breast milk is the *best* food for babies of this age and helps to prevent and stop infections, including diarrhoea. Breast-feeding should continue for at least 2 years.



- When breast-feeding is not possible, milk formulas must be given. It is better to give milk formulas with a cup and spoon than a bottle. Feeding babies milk from bottles is not good because it is difficult to keep the bottles clean.

- It is important that mothers know that they should eat *more* food than normal during pregnancy and when they are breast-feeding.

- At 4–6 months *all* babies should start to have other foods as well as milk or milk formula. Soft mashed foods are best.

- All food should be fresh and prepared in a clean place using clean pots and utensils.

- Cooked food should be eaten while still hot, or well heated again before eating.

- Uncooked food should be washed in clean water before eating.

348

Table 2. Feeding children[a]

Child's age	Breast-feeding	Other foods
Birth	Start at birth. Feed whenever the baby wants	None, unless not enough breast milk
4 months	Continue	Add at least two other soft, mashed foods[b] twice a day
6 months	Continue	Add other foods[b] four times a day
One year or older	Continue up to at least 2 years of age	All foods 4–6 times a day

[a] Adapted from *Guidelines for training community health workers in nutrition*. Geneva, World Health Organization, 1981 (Offset Publication, No. 59).

[b] These foods should be "energy-rich". Most staple foods (such as cereals, roots, tubers, and stems) do not contain enough energy per unit weight for infants and young children. Where possible, some oils, fats, or sugars should be added. The diet should be varied with the addition of legumes, meats, fish, fresh fruits, and leafy green vegetables.

Water

- Drinking-water should be taken from the cleanest possible source. Unless you are sure that the water is safe, it should be boiled before drinking. This water should be kept in a clean, covered container and used *only* for drinking.
- Washing the body, clothes, or pots and utensils should not be done at the source of the drinking-water.
- Stools and urine should not be passed in or near the source of drinking-water.

Hygiene

Hygiene concerns activities to stop germs from infecting the body. These activities involve the village, the household, and each person at home. The health worker should discuss the points listed below with *all* members of the village. He should learn from them the local beliefs about diarrhoea, encourage the beliefs that are helpful, and explain why some local practices are harmful.

- The messages in the previous sections about food preparation and water are also about *hygiene*.
- Dirt, rubbish, stools, and urine contain germs that cause infections sometimes resulting in diarrhoea.
- Stools and urine should be passed in a latrine, which should be kept clean. If there is no latrine, stools and urine should be passed in one place away from the village and away from the source of drinking-water. Stools passed by children near the house should be taken away or buried.
- Hands should always be washed after passing stools and before preparing food, eating, or feeding children. Children's hands should be washed too.

349

These records should be kept for periodical review by the supervisor in order to monitor the use of various services and to help plan future services.

The forms used for patient records may be different in different facilities or areas. It is important that the form contains at least the minimum data described above, and that the form is easy to understand and easy to fill in. If existing record-keeping systems in your health area do not include this minimum information, you might want either to modify them to include that information or to create new forms. If the same form is used by all the health workers in your area, it will be easier to collect data when monitoring the use of services.

Essential knowledge: Section 4

The health worker should be able to:

— demonstrate how to prepare ORS solution correctly
— demonstrate how to prepare alternative solutions and explain when this is appropriate
— utilize treatment plans A, B, and C correctly
— keep appropriate records of treatment given.

19

35

Remember this about treatment of diarrhoea

- The most important problem that must be treated in a patient with diarrhoea is dehydration.
- Family members should be educated about treating diarrhoea properly in the home. This can often prevent dehydration from occurring.
- When a child comes to a health worker with diarrhoea, the health worker should:
  —ask, look, and feel for signs of dehydration;
  —select a treatment plan based on the degree of dehydration;
  —give oral rehydration therapy to dehydrated children;
  —check for serious problems other than diarrhoea, and give appropriate treatment for any serious problems found.
- Use the Diarrhoea Treatment Chart when assessing and treating children with diarrhoea.

ANNEX 1. HOW TO MAKE SALT AND SUGAR SOLUTION AT HOME

A special drink (salt, sugar, and water) can be made at home to treat diarrhoea and prevent dehydration. There are many methods that can be used for measuring the correct amounts of sugar and salt. The following are two examples.

Example 1

This example shows a method for mixing *one litre* of special drink.

What you need

- A spoon. This should be a small spoon (a teaspoon) that holds 4–5 ml of fluid.
- A clean container that will hold 1 litre or a little more.
- Salt, as used on food or for cooking.
- Sugar of any sort—unrefined lump sugar or purified sugar.
- Drinking-water (clean or boiled water).

What to do

- Measure one litre of drinking-water into the container; this can be done, for example, by measuring out 5 cupfuls of about 200 ml each.
- Take salt in a teaspoon, level it with a knife or a flat object (see Fig. A1). Add one level spoonful of salt to the water and mix.
- Taste the salt and water. It should *not* be very salty. If it tastes more salty than tears, pour away this mixture and make it again with less salt.
- Take 8 level teaspoonfuls of sugar. Put these in the water and mix.

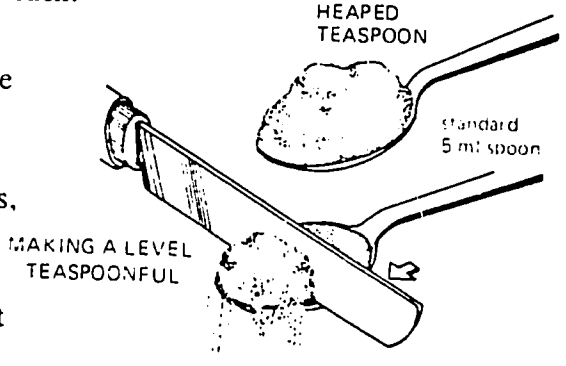


Fig. A1. When measuring salt and sugar, do *not* use a heaped teaspoon. Make a level teaspoonful by using a knife or other flat object. (Fig. A1–A4 are reproduced from KING, M. ET AL. *Primary child care. A manual for health workers*. Oxford, Oxford University Press, 1978.)

352

- Rubbish should be burned, buried, or taken to a place far away from the village and away from the source of drinking-water.
- Flies carry germs from dirt, rubbish, and stools into the house and on to food. Flies should be kept away from stools (by burying stools), from latrines (by keeping them clean), from rubbish (by burning or burying), and from food (by keeping it covered).

Essential knowledge: Section 5

The health worker should be able to:

— explain to family members the principles of preventing diarrhoea, with reference to:
- food and feeding children,
- water, and
- hygiene.

Attachment A-2

Programme for
CONTROL OF DIARRHOEAL DISEASES

A MANUAL
MANAGEMENT
OF ACUTE DIARRHOEA

FOR USE BY PHYSICIANS AND OTHER SENIOR HEALTH WORKERS

World Health Organization

ANNEX 5. CHECKLIST OF POINTS OF ESSENTIAL KNOWLEDGE

In order to prevent and treat acute diarrhoea a health worker should be able to:

— define diarrhoea in a way that is appropriate to the setting in which he/she works
— distinguish between acute and chronic diarrhoea
— explain why diarrhoea is dangerous
— explain how diarrhoea causes dehydration
— describe the basic principles of the treatment of diarrhoea
— explain and demonstrate to family members how to treat diarrhoea in the home to prevent dehydration
— explain the three rules for home treatment
— ask, look, and feel for the signs of dehydration or other serious problems
— determine the appropriate treatment plan using the assessment chart given in Annex 7
— demonstrate how to prepare ORS solution correctly
— demonstrate how to prepare alternative solutions and explain when this is appropriate
— utilize treatment plans A, B, and C correctly
— keep appropriate records of treatment given
— explain to family members the principles of preventing diarrhoea.

ACKNOWLEDGEMENTS

The Diarrhoeal Diseases Control Programme is grateful to Dr M.M. Levine, Center for Vaccine Development, University of Maryland School of Medicine, Baltimore, MD, USA; Dr D. Mahalanabis, Kothari Centre of Gastroenterology, Calcutta Medical Research Institute, Calcutta, India; and Dr D.R. Nalin, Pakistan Medical Research Centre, Lahore, Pakistan, for their valuable assistance in the preparation of the original version of this Manual. Acknowledgement is also due to many other experts both in and outside WHO for their helpful criticisms and comments.

* * *

This manual is intended for physicians and other senior-level health workers. To assist in the training of peripheral health staff (in particular community health workers), a separate WHO publication is available entitled: "Treatment and Prevention of Acute Diarrhoea: Guidelines for the Trainers of Health Workers" (1984).

It is expected that this manual will need to be modified in different countries or communities in order to suit the needs of its users. All parts of it may be freely adapted, translated, or used in any form for non-profit-making purposes. Prior permission to do so need not be obtained from the World Health Organization, but appropriate reference should be made to this source. However, if a translation of the entire work is envisaged, enquiry should be made to WHO to ensure that such a translation is not already available.

WHO also welcomes comments on this Manual and information on experience in its use or adaptation; these should be addressed to:

Director, Diarrhoeal Diseases Control Programme,
World Health Organization, 1211 Geneva 27, Switzerland.

CONTENTS

Page

1. INTRODUCTION 3
2. PURPOSE OF THIS MANUAL 3
3. DIARRHOEA AND DEHYDRATION 4
   3.1 Definition of diarrhoea 4
   3.2 Dehydration 4
4. ASSESSMENT OF PATIENTS 4
   4.1 History 4
   4.2 Physical examination 5
   4.3 Weighing the patient 5
   4.4 Assessment 5
5. MANAGEMENT OF PATIENTS 7
   5.1 Basic principles 7
   5.2 Prevention of dehydration 7
   5.3 Management of the dehydrated patient 7
      5.3.1 General considerations 7
      5.3.2 Rehydration therapy 8
      5.3.3 Maintenance therapy 10
      5.3.4 Administration of ORS solution 10
   5.4 Maintenance of nutrition: Dietetic management 12
6. MEDICINES 13
   6.1 Antimicrobial drugs (including antibiotics) 13
   6.2 Anti-diarrhoeal drugs 13
   6.3 Other drugs 13
7. ASSOCIATED PROBLEMS AND COMPLICATIONS 15
8. PREVENTION OF DIARRHOEA 16
ANNEX 1. PATHOGENIC AGENTS OF ACUTE DIARRHOEA 17
ANNEX 2. REHYDRATION SOLUTIONS - COMPOSITION AND PHYSIOLOGICAL CONSIDERATIONS 18
ANNEX 3. ESTIMATION OF A CHILD'S WEIGHT FROM AGE OR LENGTH 21
ANNEX 4. GROWTH CHART 22
ANNEX 5. ANSWERS TO QUESTIONS ON ORAL REHYDRATION THERAPY OFTEN ASKED BY HEALTH WORKERS 23

359

1. INTRODUCTION

Acute diarrhoeal diseases are one of the leading causes of childhood mortality and morbidity in the developing countries, and a major contributor to malnutrition. Accurate data on the global extent of the problem are difficult to obtain, but a recent analysis of the findings of 27 active surveillance studies conducted for one year or more suggests that around 750 million episodes of diarrhoea occur each year in children below 5 years of age in Asia (excluding China), Africa, and Latin America. From the same study, it is estimated that between 4 and 5 million children in this age group die annually from acute diarrhoea: 80% of these deaths occur in the first 2 years of life. Such repeated attacks of diarrhoea lead to malnutrition and growth retardation because of associated food restriction by mothers, anorexia, and malabsorption. A number of other studies have shown acute diarrhoeal diseases to be more severe in under-nourished infants and young children.

The acute diarrhoeas are also a significant cause of morbidity and lost working time among adults and older children in many countries. For example, enterotoxigenic *Escherichia coli* are a significant cause of watery diarrhoea in adults in the countries of the developing world as well as in travellers to these countries from industrialized countries.

The cholera pandemic which began in 1961 has continued to spread to new areas in most years; however, cholera accounts for less than 5-10% of all acute diarrhoea cases. It is clinically indistinguishable from other acute diarrhoeas in over 90% of cases and is treated in the same manner.

The recent recognition of the role of certain viruses and bacteria as causes of diarrhoea now makes it possible to identify the causative agents in over two thirds of the diarrhoea patients presenting at treatment centres. This dramatic development reverses the situation present only a decade ago when over 80% of the cases remained undiagnosed and were labelled as "acute undifferentiated diarrhoeas". Some information about the common diarrhoea pathogens is summarized in Annex 1.

A significant development in recent years has been the discovery that dehydration from acute diarrhoeas of all etiologies and in all age groups can be safely and effectively treated by the simple method of oral rehydration using a single fluid. Glucose, sodium chloride, trisodium citrate*, and potassium chloride - in a mixture known as Oral Rehydration Salts (ORS) - are dissolved in water to form ORS Solution. Administered orally, this Solution is absorbed in the small intestine even during copious diarrhoea. Oral rehydration has made it possible to undertake a global Diarrhoeal Diseases Control Programme for reducing deaths from acute diarrhoeas and diarrhoea-associated malnutrition. Moreover, it serves as an effective entry point for the promotion of appropriate child care and environmental health practices for reducing morbidity, which is the long-term goal of the Programme.

2. PURPOSE OF THIS MANUAL

The manual describes the principles and practices of treating diarrhoea in all ages, placing special emphasis on the use of oral rehydration therapy in infants - the most vulnerable age group - along with proper dietary management during and after acute diarrhoea. It also outlines the child care practices that are vital for the prevention of diarrhoea, such as breast feeding and appropriate weaning, and good domestic hygiene. It is recognized that its content will require adaptation to suit local needs and situations.

The manual is intended for physicians and other senior-level health workers. To assist in the training of peripheral health staff (in particular community health workers) a separate publication is available entitled: "Treatment and Prevention of Acute Diarrhoea: Guidelines for the Trainers of Health Workers". Minor differences in the management procedures proposed in the two documents are for two reasons: the fact that

---

*Sodium hydrogen carbonate (sodium bicarbonate) can be used instead of trisodium citrate. The formula containing trisodium citrate has been shown to be more effective, more stable and, under suitable climatic conditions, can be packaged at a lower cost.

Attachment A-3

HEALTH BASICS: ORAL REHYDRATION THERAPY

ORAL REHYDRATION THERAPY

Oral Rehydration Therapy (ORT) is the cheap, simple and effective way to treat dehydration caused by diarrhoea. When diarrhoea occurs, essential fluids and salts are lost from the body and must be quickly replaced. Many of the millions of children who die every year in developing countries from diarrhoea could be saved if they were given ORT promptly. This includes giving extra fluids at home such as tea, soups, rice water and fruit juices to prevent dehydration, and the use of oral rehydration salts (ORS) solution to treat dehydration. Made up with clean water the ORS drink contains the main elements that are lost from the body during diarrhoea. It is effective in treating dehydration resulting from all types of acute diarrhoeal diseases.

Many countries now have diarrhoeal disease control programmes, but ORT is still not nearly as widely used as it should be and more effective information dissemination and promotion of ORT is necessary.

This leaflet

This leaflet answers some of the most common questions asked about ORT and we hope that it will be useful. Please send us any comments about your own work with ORT.

What is dehydration?

Dehydration is the loss of water and body salts through diarrhoea. Early features are difficult to detect but include dryness of mouth and thirst. The signs of dehydration include: sunken fontanelle (in infants); fast, weak pulse; breathing faster than normal; loss of skin elasticity; sunken, dry eyes and reduced amount of urine. Rehydration is the correction of dehydration.

What is ORT?

ORT is the giving of fluid by mouth to prevent and/or correct the dehydration that is a result of diarrhoea. As soon as diarrhoea begins, treatment using home remedies to *prevent* dehydration must be started. If adults or children have not been given extra drinks, or if in spite of this dehydration does occur, they must be treated with a special drink made with oral rehydration salts (ORS). The formula for ORS recommended by WHO and UNICEF contains:

- 3.5 gms sodium chloride
- 2.9 gms trisodium citrate dihydrate (or 2.5 gms sodium bicarbonate)
- 1.5 gms potassium chloride
- 20 gms glucose (anhydrous)

The above ingredients are dissolved in one litre of clean water. WHO has recently recommended a change in the complete formula, replacing 2.5 gms of sodium bicarbonate with 2.9 gms of trisodium citrate dihydrate. The new formula gives the packets a longer shelf life and is at least as effective in correcting acidosis and reducing stool volume. Packets containing sodium bicarbonate are still safe and effective.

How does ORT work?

Acute diarrhoea normally only lasts a few days. ORT does not stop the diarrhoea, but it replaces the lost fluids and essential salts thus preventing or treating dehydration and reducing the danger. The glucose contained in ORS solution enables the intestine to absorb the fluid and the salts more efficiently. ORT alone is an effective treatment for 90–95 per cent of patients suffering from acute watery diarrhoea, regardless of cause. This makes intravenous drip therapy unnecessary in all but the most severe cases.

UNICEF photo by Nicole Toutounji

A Haitian mother gives ORS solution to her child.

Can ORS be used for everyone?

ORT is safe and can be used to treat anyone suffering from diarrhoea, without having to make a detailed diagnosis before the solution is given. Adults need rehydration treatment as much as children, although children must always be treated immediately because they become dehydrated more quickly.

Produced by Diarrhoea Dialogue at AHRTAG, 85 Marylebone High Street, London W1M 3DE, UK.

What should be done if the child vomits?

Vomiting does not usually prevent the therapy from being successful. Mothers must be taught to persist in giving ORS solution, even though this requires time and patience. *They should give regular, small sips of fluid.* Giving ORT reduces nausea and vomiting and restores the appetite through correction of acidosis and potassium losses.

Should feeding continue at the same time as ORT?

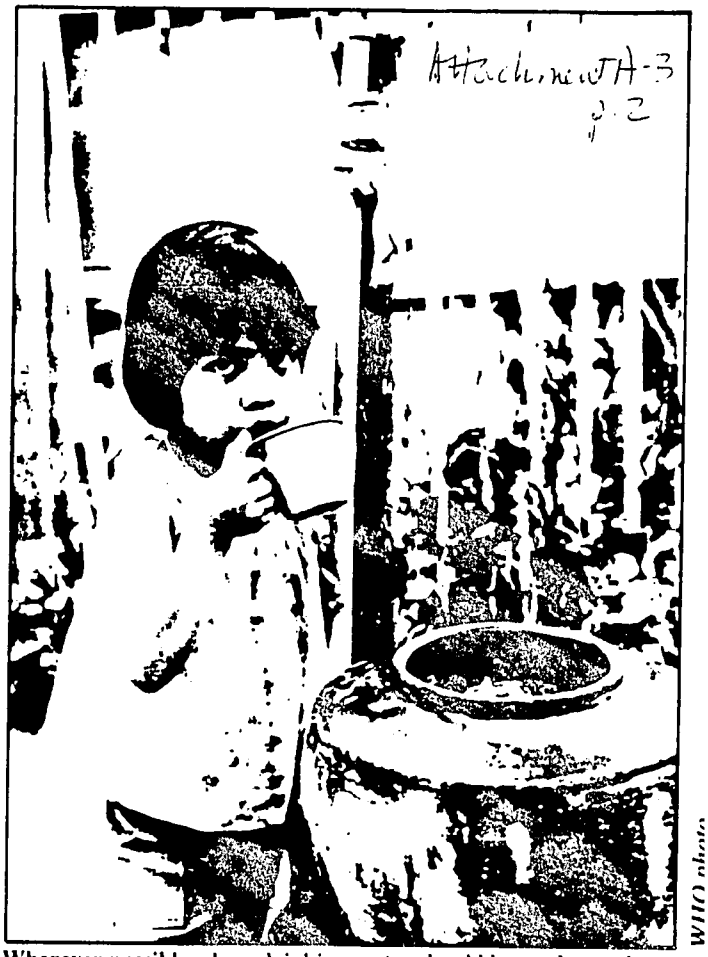
Feeding, especially breastfeeding, should be continued once dehydration has been corrected. Even if the diarrhoea continues or the child is vomiting, some of the nutrients are being absorbed. Suitable food should not be withheld, as the child may become malnourished. Once the diarrhoea episode has passed, the child should be given more food than usual to make up for losses during diarrhoea. Breastfeeding is particularly beneficial because breastmilk is easily digestible. It also contains protective substances which help to overcome the infection causing the diarrhoea.

What sort of foods are good during diarrhoea?

- High energy foods such as fats, yoghurt and cereals are quite well absorbed during diarrhoea. Small, frequent feeds of energy-rich local foods familiar to the child should be given. A little vegetable oil can be added to foods such as millet or rice to increase the energy content.
- Foods high in potassium are important to restore the body's essential stores depleted during diarrhoea. Such foods include lentils, bananas, mangoes, pineapples, pawpaw, coconut milk and citrus fruits.
- Certain foods should be avoided during diarrhoea, for example those containing a lot of fibre such as coarse fruits and vegetables, wholegrain cereals and spicy foods.

WHO photo

Small, frequent feeds of energy-rich local foods should be given during diarrhoea.



WHO photo

Wherever possible, clean drinking water should be used to make up oral rehydration solution.

Is it necessary to use drugs as well as ORT?

Drugs should not be used except in the *most severe* cases. Even then they should be administered with care, preferably after the organism causing the diarrhoea has been identified. Small children with dysentery and fever require an antibiotic. Refer such patients to a health service for advice. ORT on its own is usually enough to rehydrate the child. Unnecessary antibiotic therapy upsets the normal bacteriological balance of the intestine. Many anti-diarrhoeal preparations have proved to be either ineffective or too powerful for very small infants.

Can the solution be made with dirty water?

The benefits of fluid replacement in diarrhoea far outweigh the risks of using contaminated water to make up oral rehydration solution. In situations where it is difficult to boil water, mothers are advised to use the cleanest water possible.

Can ORS solution be stored?

Generally a made-up solution should be covered and not kept for more than 24 hours, due to the risk of bacteriological contamination. Packets of ORS should be stored carefully and not kept in temperatures of over 30°C or in conditions of high humidity. Where the ingredients to make up ORS are being stored in bulk the glucose/sucrose should be kept apart from the rest of the dry ingredients. The new citrate formula ORS has a longer shelf life.

**Treatment plans on pages 4, 5 and 6 taken from the CDD/WHO Supervisory Skills course, from the module on the treatment of diarrhoea.*

Produced by Diarrhoea Dialogue at AHRTAG, 85 Marylebone High Street, London W1M 3DE, UK.

ORT: COUNTRY EXAMPLES

Trinidad and Tobago

"In 1980, the Ministry of Health began a programme with the help of the International Development Research Centre (IDRC) to promote ORT in Port-of-Spain. At that time, a third of all infant mortality was due to dehydration from diarrhoea. In 1981, an oral rehydration therapy unit was opened in the main hospital, run by nursing staff who had been trained by a paediatrician from the University of the West Indies. The unit was open daily and treated cases of mild to moderate dehydration using the locally produced ORS-GESOL. Mothers were also given advice on using ORT at home, and about feeding and diarrhoea. Some objections were raised to the leading role played by the nurses in the unit – who only referred patients to doctors when they thought it necessary. However, these attitudes changed when the success of the programme became clear. Over a six month period there were 540 admissions to the unit and only 20 of these were unsuccessfully treated. The oral rehydration programme also greatly reduced the number of admissions and deaths in the gastroenterology ward. The nursery in the ward has now been closed. The ORT facilities are now available all over the island and a massive health education programme is continuing to promote the message of ORT . . ."

India

"In Narangwal, deaths in children aged between 8 days and three years have been reduced by half through community workers using only oral rehydration therapy and penicillin . . .

Ethiopia

"Since the Ethiopian national programme began in 1980, more than 50 CDD managers have been trained successfully. Future plans include the establishment of an ORT training centre in Addis Ababa, with UNICEF support, the training of more than 300 nurses in diarrhoea management and supervisory skills, and the local production of ORS. The Programme's overall impact will be assessed in 1985 . . ."

The Gambia

"The role of oral rehydration therapy in diarrhoeal disease control has been emphasized at two levels by the Gambian government. Health workers have been taught to administer ORT using oral rehydration salts, and mothers have been taught to mix a safe sugar-salt solution at home. The message has been successfully reinforced by a media campaign – after one year 67 per cent of mothers could correctly mix a home solution and 47 per cent had used it once or more to treat their children. Not surprisingly, this early preventive treatment at home has led to a drop in the number of mothers taking children with diarrhoea to health centres from 85 per cent to 50 per cent . . .

Philippines

"The National ORT programme was introduced in the Philippines after encouraging field trials. ORT was accepted by mothers who saw the beneficial results of using it. An early problem was finding an easily available measuring device – initially local beer bottles were used as they were found in most homes. Later a drinking glass, originally the container for a popular brand of coffee, was found to be more practical. Good overall co-ordination of the national programme was essential to its success. Problems arose in the early stages when, for example, packets of salts were delivered without proper instruction to mothers by staff who were not trained properly . . ."

HEALTH BASICS: ORT RESOURCE LIST

Publications and newletters

The Management of Diarrhoea and use of Oral Rehydration Therapy – A Joint WHO/UNICEF Statement, 1983. Available from WHO and UNICEF (see list of addresses).* Free.

Oral Rehydration Therapy (ORT) for Childhood Diarrhoea, 1984. (Revised edition). Population Reports, Series L, No. 2, Issues in World Health. Available from Population Information Programme, John Hopkins University, USA (see list of addresses). Free.

Proceedings of the International Conference on Oral Rehydration Therapy (ICORT), 1983. Available from the United States Agency for International Development (see list of addresses). Free.

Oral rehydration therapy – Information for Action Resource Guide, 1983. Prepared for UNICEF by the World Federation of Public Health Associations (see list of addresses).

Journal of Diarrhoeal Diseases Research. Published quarterly by the International Centre for Diarrhoeal Disease Research, Bangladesh (ICDDR,B). Cost US$15.00 to developing countries for four issues. (see list of addresses for ICDDR,B details).

WHO Training Materials*

A Manual for the Treatment of Acute Diarrhoea – for use by physicians and other senior health workers.

Guidelines for the Trainers of Community Health Workers on the Treatment and Prevention of Acute Diarrhoea.

**For a full list of all WHO materials on clinical management of diarrhoea, training, development of diarrhoeal disease control programmes etc. write to the Director of the CDD Programme at the address given on the resource list.*

Attachment A-3

P.3

Bibliographies

Resource Guide on Oral Rehydration Therapy, 1983. US $5.00 (prepaid, airmail). World Federation of Public Health Associations. Available from the American Public Health Association (see list of addresses).

Oral Rehydration Therapy: An Annotated Bibliography, 1983. Scientific Publication No. 445. Pan American Health Association. (Second edition). (see list of addresses).

AHRTAG
Appropriate Health Resources & Technologies Action Group Ltd

This insert has been produced by Diarrhoea Dialogue with support from OXFAM

OXFAM

Newsletters

Diarrhoea Dialogue. Quarterly newsletter on all aspects of the prevention and control of diarrhoeal diseases. Available in English, Spanish, French, Portuguese and Arabic. Order from AHRTAG, UK. (See list of addresses.)

Glimpse. A newsletter reporting on the activities at ICDDR,B. Published 8 times a year. Free. (See list of addresses.)

Mothers and Children. Published three times a year in English, French and Spanish. Free to developing countries/ US$5.00 to others. Available from American Public Health Association, USA. (See list of addresses.)

Salubritas. Published quarterly in English at US$10.00 year. Update on community health resource material. Available from American Public Health Association, USA. (See list of addresses.)

World Neighbours in Action. Quarterly 'how-to-do it' newsletter on primary health care published by World Neighbours. (See list of addresses.)

Oral Rehydration: Bulletin of the Oral Rehydration Scheme of RUHSA. Published bi-monthly by RUHSA, Christian Medical College, Vellore, P.O. Tamil Nadu 632 209, India.

Health education and teaching aids

Diarrhoeal Diseases Control: Examples of Health Education Materials 1982. WHO/ CDD. Examples of posters, flashcards and leaflets from diarrhoeal disease control worldwide.

Medex Workbook for Community Health Workers, No. 32: **Prevention and Care of Diarrhoea. 1983.** (US$5.80, inc. surface mail. Available from The Medex Group – see address section).

Helping Health Workers Learn. Available from TALC, UK and the Hesperian Foundation, USA. (See list of addresses.)

Specific country materials

Bangladesh: **Manual on Treatment and Prevention of Diarrhoea. 1980.** International Centre for Diarrhoeal Diseases Research, Bangladesh. (See address section.)
Small training manual and flipchart for CHWs.

The Gambia: **Health Workers Manual for the Management of Acute Diarrhoea in the Gambia. December 1981.** Health Education Unit, Department of Medical and Health Services, Banjul, The Gambia.

India: **Better Care During Diarrhoea.** Voluntary Health Association of India (see address section).
Small booklet about diarrhoea and dehydration for CHWs. Well illustrated with photographs. Gives teaching advice and health messages.

Indonesia: **Lina Regains her health with Sugar and Salt Solution.** Save the Children Fund, USA (see address section). Pamphlet and flip chart.

Jamaica: **What to do when your baby has diarrhoea. 1982.** Ministry of Health, P.O. Box 478, Kingston, Jamaica.

Liberia: **Caring for Children and Diarrhoea.** UNICEF/Inservice Education Division, Ministry of Health and Social Welfare, P.O. Bag 9009, Monrovia, Liberia.

Nicaragua: **Diarrhoea control and prevention material: Jornadas Populares de Salud.** Ministerio de Salud Publica, Managua, Nicaragua. In Spanish.

Zambia: **Special position paper on Nutrition and Diarrhoea.** Health Education Unit, P.O. Box 30205, Lusaka, Zambia.

Sources of information

Code: Development of diarrhoeal disease control programmes (D) Health education and information (H) Training (T) Operational and applied research (R) Supply and distribution of ORS (S)

- **Academy for Educational Development (AED)** (H) (T)
  Contact: Dr William Smith
  1414 22nd Street, N.W.
  Washington D.C. 20037
  USA

- **Agency for International Development (AID)** (D) (H) (T) (R) (S)
  Contact: Mr Robert Clay
  Office of Health
  Bureau for Science and Technology
  Agency for International Development
  Washington D.C. 20523

- **American Public Health Association (APHA)** (H)
  Contact: Gayle Gibbons
  Clearinghouse on Infant Feeding and Maternal Nutrition
  1015 15th Street, N.W.
  Washington D.C. 20005
  USA

- **Appropriate Health Resources and Technologies Action Group (AHRTAG)** (H)
  Contact: Denise Ayres
  85 Marylebone High Street
  London W1M 3DE
  UK

- **Diarrhoeal Diseases Control Programme (CDD)** (D) (H) (T) (R) (S)
  Contact: Dr M H Merson
  World Health Organization
  1211 Geneva 27
  Switzerland

- **The Hesperian Foundation** (H)
  Contact: Dr David Werner
  P.O. Box 1692
  Palo Alto
  California 94302
  USA

- **International Centre for Diarrhoeal Diseases Research, Bangladesh (ICDDR,B)** (H) (T) (R)
  Contact: Dr W B Greenough III
  P.O. Box 128
  Dhaka
  Bangladesh

- **The Medex Group** (H) (T)
  Health Manpower Development Staff
  John A Burns School of Medicine
  University of Hawaii
  1960 East-West Road
  Honolulu
  Hawaii 96822
  USA

Attachment A-3 p.2

- **Pan-American Health Organization (PAHO)** (D) (H) (T) (R) (S)
  Contact: Mr C Drasbek
  525 23rd Street, N.W.
  Washington D.C. 20037
  USA

- **Population Information Programme** (H) (T)
  The John Hopkins University
  Hampton House
  624 North Broadway
  Baltimore
  Maryland 21205
  USA

- **Program for Appropriate Technology in Health (PATH)** (H) (T) (S)
  Contact: Vivien Tsu
  Canal Place
  130 Nickerson Street
  Seattle
  Washington 98109
  USA

- **Ross Institute of Tropical Hygiene** (D) (H) (T)
  Contact: Richard Feachem
  London School of Tropical Medicine and Hygiene
  Keppel Street (Gower Street)
  London WC1E 7HT
  UK

- **Save the Children Federation** (H)
  48 Wilton Road
  Westport
  CT 06880
  USA

- **Teaching Aids at Low Cost (TALC)** (H)
  Contact: Mrs B Harvey
  P.O. Box 49
  ST Albans
  Herts AL1 4AX
  UK

- **United Nations Children's Fund (UNICEF)** (D) (H) (S)
  Contact: Mr R Goodall
  United Nations
  T-Plaza 4-1234 C
  New York, NY 10017
  USA

- **Voluntary Health Association of India (VHAI)** (H) (T)
  C14 Community Centre
  Safdarjang Development Area
  New Delhi 110016
  India

- **World Neighbors** (H)
  5116 N Portland
  Oklahoma City
  OKA 73112
  USA

Produced by Diarrhoea Dialogue at AHRTAG, 85 Marylebone High Street, London W1M 3DE, UK.

USING ORT TO PREVENT AND TREAT DEHYDRATION

Preventing dehydration

Mothers must learn:

- *to respond to diarrhoea immediately by giving extra suitable drinks* (see paragraph on home solutions below).
- *to recognize the signs of dehydration which need ORS or special care.*

If ORT is given at home early on, dehydration can often be prevented and many children will not become so ill that they need to see a health worker.

Home drinks to prevent dehydration

- Mothers can use household liquids, preferably those that have been boiled, such as rice water or carrot soup. Ideally these drinks should contain starches and/or sugars as a source of glucose and energy, some sodium and preferably some potassium.
- A simple salt/sugar solution, if these ingredients are available, is also suitable for early oral rehydration therapy. 1 level teaspoon (5 ml) of salt should be mixed with 8 level teaspoons of sugar in a litre of drinking water. Cooking salt can be used for this, but rock salt does not work as well because it will not dissolve easily. Molasses and other forms of raw sugar can be used instead of white sugar, and these contain more potassium than white sugar. *Do not use too much salt.* If the solution has too much salt the child may refuse to drink it. Also, too much salt can, in extreme cases, cause convulsions. Too little salt does no harm but is less effective in preventing dehydration. (A rough guide to the amount of salt is that the solution should taste no saltier than tears.)

Measuring home solutions

Different countries and different communities use various methods for measuring the salt and sugar. Finger pinch and hand measuring, and the use of local teaspoons can be taught successfully. A plastic measuring spoon is available from Teaching Aids at Low Cost (TALC) with proportions to make up 200 ml of sugar/salt solution. Whatever method is used, people need to be carefully instructed in how to mix and use the solutions.

WHAT TO DO IF DEHYDRATION OCCURS

If, despite extra home drinks, dehydration occurs, or the diarrhoea continues for more than two days, the child should be taken to see a health worker to be given *ORS solution*.

How to assess the degree of dehydration

The table below describes what the health worker should ask and look for, and indicates which treatment plan to follow.

1 ASK ABOUT:	DIARRHOEA	Less than 4 liquid stools per day	4 to 10 liquid stools per day	More than 10 liquid stools per day	Longer than 3 weeks duration (chronic diarrhoea) Blood or mucus in the stool
	VOMITING	None or a small amount	Some	Very frequent	
	THIRST	Normal	Greater than normal	Unable to drink	
	URINE	Normal	A small amount, dark	No urine for 6 hours	
2 LOOK AT	CONDITION	Well, alert	Unwell, sleepy or irritable	Very sleepy, unconscious, floppy or having fits	Severe undernutrition
	TEARS	Present	Absent	Absent	
	EYES	Normal	Sunken	Very dry and sunken	
	MOUTH and TONGUE	Wet	Dry	Very dry	
	BREATHING	Normal	Faster than normal	Very fast and deep	
3 FEEL	SKIN	A pinch goes back quickly	A pinch goes back slowly	A pinch goes back very slowly	
	PULSE	Normal	Faster than normal	Very fast, weak, or you cannot feel it	
	FONTANELLE (in infants)	Normal	Sunken	Very sunken	
4 TAKE TEMPERATURE					High fever – 38.5°C (or 101°F) or greater
5 WEIGH IF POSSIBLE		No weight loss during diarrhoea	Loss of 25–100 grams for each kilogram of weight	Loss of more than 100 grams for each kilogram of weight	
6 DECIDE		The patient has no signs of **dehydration** **Use Plan A**	If the patient has 2 or more of these signs, he has **some dehydration** **Use Plan B**	If the patient has 2 or more of these danger signs, he has **severe dehydration** **Use Plan C**	If the patient has chronic diarrhoea, severe undernutrition, or high fever treat or refer to the nearest health clinic for treatment. If there is blood or mucus in the stool and high fever, suspect dysentery and treat with antimicrobials.

PLAN A: NO DEHYDRATION *

The health worker should discuss home drinks with the mother (see pages 1 and 3), feeding during diarrhoea and proper home hygiene. The mother should be given enough ORS packets for two days if:

- her child has been on Plan B.
- it is national policy to give ORS solution to all children who visit a health centre for diarrhoea treatment.
- the mother cannot come back if the diarrhoea gets worse.

Produced by Diarrhoea Dialogue at AHRTAG, 85 Marylebone High Street, London W1M 3DE, UK.

Mothers given ORS packets to use at home must be carefully shown how to use them. The amount of ORS solution she should give is:

AFTER EACH LOOSE STOOL:

- 50–100 ml (¼–½ cup) of ORS solution for a child less than 2 years old.
- 100–200 ml for older children. Adults can take as much as they want.

Attachment A-1
p. 2

NOTE: Children receiving ORS solution must also be given the usual amount of ordinary drinks they take each day. *They should not also be given salt and sugar solution.*

PLAN B: FOR SOME DEHYDRATION *

1. USE THIS TABLE TO SEE HOW MUCH ORS SOLUTION IS SUITABLE FOR 4–6 HOURS TREATMENT:

Patient's weight in kilograms		3 5 7 9 11 13 15 20 30 40 50					
Patient's age *		2 4 6 8 10 12 18 2 3 4 6 8 15 adult (months → years →)					
Give this much solution for 4–6 hours	in ml:	200–400	400–600	600–800	800–1000	1000–2000	2000–4000
	in local unit of measure.						

* Use the patient's age only when you do not know the weight.

If the patient wants more ORS solution, give more. If the eyelids become puffy, stop and give other fluids. Use ORS solution again when the puffiness is gone.
If the child vomits, wait 10 minutes and then continue slowly giving small amounts of ORS solution.

2. IF THE MOTHER CAN REMAIN AT THE HEALTH CENTRE

- tell her how much ORS solution to give her child
- show her how to give it
- watch her give it

3. AFTER 4–6 HOURS REASSESS THE CHILD. THEN CHOOSE THE SUITABLE TREATMENT PLAN.

NOTE: FOR CHILDREN UNDER 12 MONTHS CONTINUING TREATMENT PLAN B AFTER 4–6 HOURS, TELL THE MOTHER TO GIVE:

- breastmilk feeds between drinks of the ORS solution, or
- 100–200 mls of clean water before continuing ORS if she does not breastfeed her child.

4. IF THE MOTHER MUST LEAVE ANY TIME BEFORE COMPLETING TREATMENT PLAN B, TELL HER:

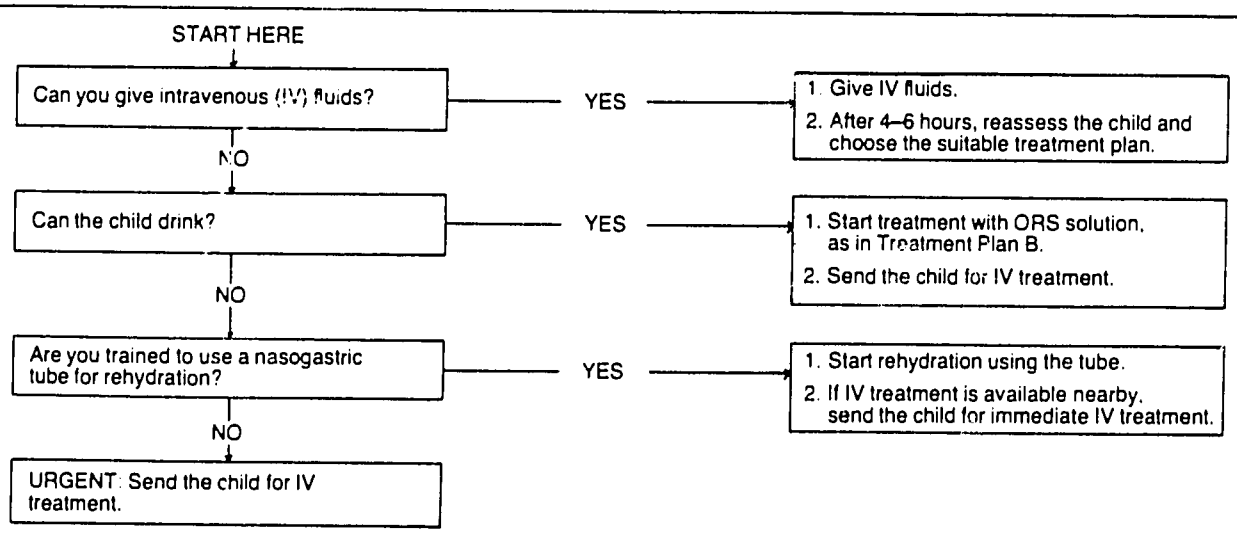
- to finish the 4–6 hour treatment as in 1. above
- to give the child as much ORS solution as he wants after the treatment
- to look for the signs of dehydration and, if the child has any, to return the next morning.

Give her enough ORS packets for 2 days and show her how to prepare ORS solution.

Explain briefly how to prevent diarrhoea.

PLAN C: FOR SEVERE DEHYDRATION *

Follow the arrows. If the answer to the question is 'yes', go across. If it is 'no', go down.



NOTE: If there is a high fever, show the mother how to cool the child with a wet cloth and fanning.

Produced by Diarrhoea Dialogue at AHRTAG, 85 Marylebone High Street, London W1M 3DE, UK.

TABLE 1. ASSESSMENT OF DEHYDRATION AND FLUID DEFICIT

Signs and symptoms	Mild dehydration	Moderate dehydration	Severe dehydration
General appearance and condition			
- infants and young children	Thirsty; alert; restless	Thirsty; restless, or lethargic but irritable when touched	Drowsy; limp, cold, sweaty, cyanotic extremities; may be comatose
- older children and adults	Thirsty; alert	Thirsty; alert	Usually conscious; apprehensive; cold, sweaty cyanotic extremities; wrinkled skin of fingers and toes; muscle cramps; giddiness on standing
Radial pulse[1]	Normal rate and volume	Rapid	Rapid, feeble, sometimes impalpable
Respiration	Normal	Deep, may be rapid	Deep and rapid
*Anterior fontanelle[2]	Normal	Sunken	Very sunken
Systolic blood pressure[3]	Normal	Normal	Less than 10,7 kPa (80 mmHg); may be unrecordable
*Skin elasticity[4]	Pinch retracts immediately	Pinch retracts slowly	Pinch retracts very slowly (>2 seconds)
*Eyes	Normal	Sunken	Deeply sunken
Tears	Present	Absent	Absent
Mucous membranes[5]	Moist	Dry	Very dry
*Urine flow[6]	Normal	Reduced amount and dark	None passed for several hours; empty bladder
% body weight loss	4-5%	6-9%	10% or more
Estimated fluid deficit	40-50 ml per kg	60-90 ml per kg	100-110 ml per kg

*Particularly useful in infants for assessment of dehydration and monitoring of rehydration.
[1]When it is difficult to feel the radial pulse, for example in severely dehydrated patients and infants, feel for the brachial pulse or record the heart rate using a stethoscope.
[2]Useful in infants until fontanelle closes at 6-18 months of age. After closure there is a slight depression in some children.
[3]Difficult to assess in infants.
[4]Not useful in marasmic malnutrition or obesity.
[5]Dryness of mouth can be palpated with a clean finger. Mouth may always be dry in a child who habitually breathes by mouth. Mouth may be wet in a dehydrated patient due to vomiting or drinking.
[6]A marasmic baby or one receiving hypotonic fluids may pass good urine volumes in the presence of dehydration.

365

B

ACTIVIDADES Y PROGRAMAS ESCRITOS SOBRE ENTERITIS DE TERAPEUTICAS Y ADMINISTRACION ORAL (

1.) SEMINARIO	NOMBRE DEL EVENTO	LUGAR/ ENTIDAD.	FECHA:
A. INTERNACIONALES	1. SEMINARIO SOBRE DIARREAS (x)	GUATEMALA- INCAP OMS-OPS	24-28 Nov/7
	2. SEMINARIO [illegible] (x)	PANAMA. INSTITUTO SALUD/OPS-OMS	21-24 Nov. 7
	3. REHIDRATACION ORAL-VIGILANCIA OBSERVACION PROGRAMA (x)	COSTA RICA- NICARAGUA/UNICEF	5-8 Agto.80
	4. I CURSO LATINOAMERICANO: ENTRENAMIENTO PARTICIPAL SOBRE PROGRAMAS NACIONALES PARA CONTROL DE ENFERMEDADES DIARREICAS (participante)	TEGUCIGALPA-HONDURAS. OPS/OMS/AID MINISTERIO DE SALUD/AID	26-31 Oct. 81

(x): asistente a .

Best Available Document

TABLE 3. GUIDELINES FOR MAINTENANCE THERAPY

Note that:
- the volumes shown are guidelines only.
- clinical status is the best guide to all hydration therapy.

Amount of diarrhoea	Kind of fluid	Administration	Amount of fluid
Mild diarrhoea (not more than one stool every 2 hours or longer, or less than 5 ml stool per kg per hour)	ORS	By mouth; at home	For infants and children <5 years:[1] 100 ml/kg body weight per day until diarrhoea stops OR 10 ml/kg body weight after each loose stool For older children/adults: As much as required[2]
Severe diarrhoea (more than one stool every 2 hours, or more than 5 ml of stool per kg per hour)	ORS	By mouth; at treatment facility	Replace stool losses volume for volume; if not measurable give 10-20 ml/kg body weight per hour until the diarrhoea becomes less - then continue as for mild diarrhoea
Severe diarrhoea with recurrence of signs of dehydration	Treat as for Severe Dehydration in Table 2		

[1]Breast milk should be allowed as often as desired in addition to ORS Solution. For non-breast-fed children, milk should be diluted with an equal quantity of plain water. Other fluids, including plain water, can also be given. As a guide, ORS Solution should form 2/3 of the total maintenance fluid intake until the diarrhoea stops.

[2]Thirst is the best guide to maintenance therapy in older children and adults. They should drink as much ORS as they want as well as water and other fluids.

If, during the time period indicated in Table 2, the calculated volume has been given and signs of dehydration are still present, but there has been some improvement, rehydration therapy should be continued at the same rate as long as is necessary.

If the signs of dehydration have become worse or remain unchanged, the rate of administration and the volume of fluid given may need to be increased. If patients receiving ORS Solution develop signs of severe dehydration, I.V. therapy should be started as indicated in Table 2.

As soon as the signs of dehydration have gone, but not before, maintenance therapy should be started.

TABLE 2. GUIDELINES FOR REHYDRATION THERAPY

When using the table below, consider all of the following points:

- the volumes shown are guidelines only.
- rehydration must be assessed by clinical examination, not by fluid volume given.
- the volumes shown can be increased, or administration can be continued at the same rate, if necessary to achieve rehydration.
- puffiness around the eyes suggests overhydration.
- maintenance therapy should be started as soon as the signs of dehydration have gone, but not before.

Degree of dehydration	Age group	Type of fluid	Volume of fluid (per kg body weight)	Type of administration
Mild	All	ORS	50 ml/kg[1]	Within 4 hours
Moderate	All	ORS	100 ml/kg[1]	Within 4 hours
Severe	Infants	IV[2] Ringer's Lactate	70 ml/kg	Within 3 hours
		IF SIGNS OF DEHYDRATION ARE STILL PRESENT, FOLLOW BY:		
		ORS	20 ml/kg	Per hour
	Older children and adults	IV[2] Ringer's Lactate	100 ml/kg	Within 4 hours; initially as fast as possible until radial pulse is palpable

[1]During the initial stages of therapy while still dehydrated, adults can usually consume up to 750 ml per hour and children up to 300 ml per hour.

[2]If Ringer's Lactate is not available, one of the other I.V. solutions listed in Annex 2 may be used in the same volumes as shown above (except for 1/2 Strength Darrow's Solution, for which the volumes shown above should be increased by 50%).

REHYDRATION SOLUTIONS

COMPOSITION AND PHYSIOLOGICAL CONSIDERATIONS

1. ORS Solution

The formula for Oral Rehydration Salts (ORS) recommended by WHO, and first used in 1971, is shown in Table A. The quantities shown are for the preparation of one litre of ORS Solution and the concentrations of the components of this solution are shown in Table B.

When properly prepared and administered ORS Solution provides adequate quantities of electrolytes to correct the deficits associated with acute diarrhoea. The presence of potassium in the solution is important in view of the large body potassium losses associated with acute diarrhoea, especially in infants. The function of the citrate or bicarbonate present in ORS Solution is to correct the acidosis. The absorption of sodium and water in the small intestine is more rapid in the presence of glucose. This fact remains true irrespective of the cause of the diarrhoea and forms the physiological basis of oral rehydration therapy using ORS Solution.

TABLE A: COMPOSITION BY WEIGHT OF ORAL REHYDRATION SALTS (ORS)

(Quantities shown are for preparation of one litre of ORS Solution)

Ingredient	Grams
Sodium chloride	3.5
(Trisodium citrate, dihydrate	2.9)
(or	)
(Sodium hydrogen carbonate (sodium bicarbonate)	2.5)
Potassium chloride	1.5
Glucose, anhydrous*	20.0

*Or Glucose, monohydrate 22.0 g, or Sucrose 40.0 g.

TABLE B: MOLAR CONCENTRATION OF COMPONENTS OF ORS SOLUTION

Component	mmol/litre of water	
	Citrate containing solution	Bicarbonate containing solution
Sodium	90	90
Potassium	20	20
Chloride	80	80
Citrate	10	-
Bicarbonate	-	30
Glucose	111	111

APPENDIX

PERSONS CONTACTED BY THE ORT STUDY TEAM

Dr. Amilcar Acevedo
Programa de Superviviencia Infantil
DGSS
MSPAS

Dr. Hector Aguilar
Facultad de Farmacía
USAC

Ms. Betsy Alexander
Project Concern
Santiago Atitlán
Sololá

Dr. Francisco Alonzo
Organismo de Planificación y Coordinación Academica
Facultad de Medicina, Edificio M-4, Oficina 104
USAC

Dr. Carlos Andrade
Facultad de Medicina
Universidad Francisco Marroquín

Lic. Carlos Andrino
AID

Dr. Edilberto Antesana
OPS

Dr. Francisco Arenas
Division de Atención a las Personas
DGSS
MSPAS

Enfermera Graduada Lilian Argentina Ruíz
Jefatura de Salud
El Progreso

Lic. Rafael Armas
Unidad Informática
DGSS
MSPAS

Licda. Lesbia Arriaza
LAPROMED

Lic. América de Jesus Avedaño
Escuela Nacional de Enfermeria
Hospital Roosevelt
Guatemala

Lic. Carlos Avila
LAPROMED

Dr. Enio Betancourt
DGSS
MSPAS

Dr. Roberto Brenes
UPJOHN

Ms. Elena Brineman
ROCAP

Dr. Lelio Calheiros
OPS

Dr. Rafael Carranza Camey
Jefatura de Salud
San Marcos

Dr. Jaime Carredano
Unidad Informática
DGSS
MSPAS

Dr. Jorge Chang
AID

Dr. Oswaldo Chinchilla
DGSS
MSPAS

Dr. Eusebio del Cid
Colegio de Medicos

Lic. Julio Contreras
FECOAR
Calzada Roosevelt 43-53, Zona 11
Guatemala

Mr. Charles Costello
AID

Dr. Hernan Delgado
INCAP

Manuel DeLucca
IPROFASA

Dr. Enrique Napoleón Díaz
Sección Materno Infantil
IGGS

Ing. Regina Dorigoni
Alimentos, S.A.

Dr. Carlos Estrada Sandoval
SEGEPLAN

Dr. Frank Fairchild
AID

Dr. Hugo Figueroa
ASINDES
12 Calle 2-04, Zona 9
Guatemala

Enfermera Graduada Mariana Francisco
Jefature de Salud
San Marcos

Lic. Federico Gomez
TELECTRO; S.A.
7 Avenida 7-78, Edicficio Cenroamericana, Oficina 210, Zona 4
Guatemala

Lic. Guillermo Granados
Laboratorios Italbiotic

Lic. Granados
Escuela de Farmacia
USAC

Dr. Roberto Gutierrez
Droguería Nacional

Lic. Alfredo Hernández
FEDECOCAGUA

Lic. Susana Herrera
Dpto. Marteno-Infantil
DGSS
MSPAS

Dr. Hidalgo
Centro de Investigación de Ciencias de Salud.
Facultad do Medicina, Edificio M-2
USAC

Lic. Elena Hurtado
INCAP

Mr. Peter Kolar
AID

Lic. Gustavo Leal
AID

Lic. Federico Licht
TELECTRO, S.A.
7a. Avenida 7-78, Edificio Centroamericana, Oficina 210
Guatemala

Sr. Guillermo Lopez
Coordinador de Programa de Capacitación
Jefatura de Salud
San Marcos

Dr. Ricardo Lopez Urzua
Departamento Materno Infantil
DGSS
MSPAS

Dr. Lorenzano
Facultad de Medicina
Universidad Francisco Marroquín

Lic. Jane Lyons
AID

Lic. Carlos Marroquín
Laboratorios Quifarma, S.A.

Lic. Orlando Marroquín
Departamento Materno Infantil
DGSS
MSPAS

Dr. Mazariegos
Asuntos Internacionales
Hospital Roosevelt

Lic. Gilberto Méndez
AID

Sr. Julio César Méndez
COCIF

Lic. Juana Mejía
Depto. de Control de Medicamentos
DGSS
MSPAS

Lic. Francisco Mendizábal
Centro de Investigación de Ciencias de Salud
Facultad de Medicina
USAC

Mr. Mark Dan Moriarty
CRS
Apdo. 739
Guatemala

Mr. Lawrence Odle
AID

Lic. Jorge Mario Ortega
IPROFASA

Dr. Mary Ott
AID

Lic. Roberto Perdomo
AID

Dr. José Maria Reyna Barrios
Dpartamento de Pediatria
Hospital Nacional
Huehuetenango

Dr. Osmin Reyna
Division de Atención a las Personas
MSPAS

Lic. Juanita de Rodríguez
Control de Medicamentos
MSPAS

Aux. de Enfermería Hilda Roldan de Lopez
Puesto de Salud San Sebastian
San Sebastian
San Marcos

Dr. Baudilio Sajché
Materno-Infantil
MSPAS

Mr. Clifford Sanders
Project Hope
6a. Calle 9-24, Apto. 8, Zona 1
Quezaltenango

Ing. Francisco Saravia
Alimentos, S.A.

Dr. Sergio Leopoldo Sazo P.
Jefatura de Salud
El Progreso

Sra. Floridalma Tejada de López
Jefatura de Salud
El Progreso

Padre Tetenbaum
IGER
12 Avenida 7-33, Zona 2
Guatemala

Dr. William Vargas
UNICEF

Lic. Liza Vielman
INCAP

Lic. Eddy Villagran
LAPROMED

Lic. Elba Villatoro
Centro de Estudios Folklóricos
USAC

Dr. Otto Zeissig
División de Vigilancia y Control de Enfermedades
DGSS
MSPAS